

The Newborn World: Guiding Creativity in a Competitive Storytelling Game

Antonios Liapis

Institute of Digital Games, University of Malta, Msida, Malta

antonios.liapis@um.edu.mt

Abstract—This paper presents *The Newborn World*, a co-located multiplayer game for mobile devices with a focus on storytelling. The game has been designed following patterns of analog games that prompt players to tell stories, and uses digital representations of cards and tokens for interaction. The collaborative nature of storytelling is interspersed with competitive elements such as hidden goals and secret voting for best story. The paper exposes several design decisions for balancing goal-oriented and freeform play, competition and collaboration, as well as elements that constrain or foster players' creativity.

Index Terms—Storytelling, Creativity, Mythology, Card Games, Co-located Games

I. INTRODUCTION

Analog games are often juxtaposed with digital games for their open-ended systems and gameworlds. Even in the strictest tabletop Role-Playing Games, players may decide to perform an action that is not written in the rulebook (e.g. swing from a chandelier) or explore a part of the gameworld outside of printed maps. While a plethora of board games have a strict ruleset which would be comparable to the hard-coded systems found in digital games (and indeed, digital editions of such board games abound today), the act of playing a board game presumes a social experience among friends across the table. In that vein, many analog games take advantage of the social interactions between players, as well as their ability to contextualize and elaborate on in-game events with additional personal or imagined content. While this is true even in close-ended games such as *Arkham Horror* (Fantasy Flight Games, 2005), it is most evident in open-ended games such as *Dixit* (Libellud, 2010) or *Once Upon a Time* (Atlas Games, 1993).

The design priorities of such open-ended games focus on bringing about players' individual or communal creativity. Towards that end, colorful and ambiguous visuals may stimulate the players' senses, e.g. in *Dixit* or *Story Cubes* (The Creativity Hub, 2005); text-based prompts may point players to narrative tropes or scenes from their favorite movies and books, e.g. in *Bring Your Own Book* (GameWright, 2016). More importantly, the social aspect of a co-located, relaxed play experience can be turned into a mechanic as friends try to titillate each other's particular type of humour in *Cards against Humanity* (Cards against Humanity LLC, 2011). The creativity that is fostered across the gaming table has therefore elements of diagrammatic, semantic and emotive lateral thinking [1]. Diagrammatic lateral thinking builds on the human ability to

reason through diagrams [2], [3], in this case card and board game art; gameplay re-frames the associations players have with certain visuals, e.g. by viewing the images through other players' lenses in *Dixit*. Semantic lateral thinking requires re-framing on the conceptual level based on a random stimulus introduced to a mental or world state [4]; in this case as a random word, rule or fact introduced into the game through a deck of cards as in *Once Upon a Time*. Most importantly, the collaborative or competitive social aspect of open-ended games is likely to trigger emotional lateral thinking [5]. Under the assumption that humans construct associations (i.e. frames) on how aspects of the world impact them emotionally [6], re-framing requires a second-order emotive judgement regarding how a solution would impact others' emotions. This is successfully implemented in many open-ended games: in *Dixit* players must guess what visuals the storyteller would associate (emotionally) with an abstract concept, while in *Cards against Humanity* players attempt to choose word combinations that the arbiter would personally find humorous.

Following the paradigm of open-ended tabletop games that trigger the creativity of players through random stimuli and second-order emotive judgement, this paper introduces *The Newborn World*. *The Newborn World* is a game played on a single mobile device by a group of co-located people who take turns interacting with the device. The game focuses on a storycrafting experience [7] where players use textual prompts to elaborate on a story of the mythical first steps of humankind. Each story is a sequence of events: an event is provided by the game and is common for all players, while the words they add to the event are different from player to player and act as a quasi-random stimulus that must be integrated. The game is competitive, as the story which will be carried to the next round is chosen through a secret voting process among all players. The voting process solicits a second-order emotional judgement from each player, as ultimately they need to excite the emotional responses of other players. However, voting is indirectly linked to the winning conditions, as each player has a secret agenda which requires them to ensure certain word combinations are present in winning stories (regardless of who told them). Moreover, the winning stories trigger special rules that influence all players in the next round in the form of ascendant deities; these deities also provide flavorful themes that can goad players' inspiration towards specific stories. *The Newborn World* is thus designed to trigger, guide and constrain the creativity of players. Moreover, it fuses

collaborative storytelling with a competitive element without overloading the relaxed, social experience. This paper offers a description of the rules and game elements of The Newborn World as well as an extensive analysis of the design patterns that enable a competitive/collaborative and creative gameplay.

II. GAMES FOR HUMAN STORYTELLING

As noted in Section I, digital games often revolve around a player discovering pieces of a pre-authored story (including NPC dialog and branching plotlines) while many analog games revolve around a more freeform storytelling activity. Most studies in storytelling within games focus on games where players take a role central to the story, usually a hero in a tabletop role playing game [8] or a digital game; this includes massively multiplayer games where players collaboratively create their own stories (subverting the game’s built-in narrative) from the first-person perspective of their avatar [9]. Games in which players act as authors of a story in which they do not have an active role have not been studied extensively.

Sullivan and Salter [7] propose two dimensions for board games they identify as “narrative-centric”: one dimension is the ordering of events (dynamic versus static) and the other is the event’s origin (i.e. game-specified or player-created). With these two axes, four different types of narrative-centric games are proposed: storycrafting games such as *Dixit*, unordered story games such as *Tales of the Arabian Nights* (Z-man games, 2009), story exploration games such as *T.I.M.E. stories* (Space Cowboys, 2015) or ordered story games such as, in part, *Mysterium* (Asmodee, 2015). While games in which story events are primarily specified by the game rely on extensive text, lookup tables and reading, The Newborn World (TNW) motivates players to flesh out a set of barebones event templates ordered broadly into Crisis, Response and Conclusion. In that sense, it draws inspiration from analog games which provide a prompt with gaps that players must fill, such as *Mad Libs* (Stern and Price, 1953), *Cards Against Humanity*, or *StoryLine: Fairy Tales* (Asmodee, 2016). Interestingly, while 4 of the 12 games surveyed in [7] feature player competition, only *Once Upon a Time* and *Betrayal at House on the Hill* (Wizards of the Coast, 2004) feature persistent hidden agendas and only the latter motivates players to discover their opponents’ roles and powers. Unlike the games in [7], The Newborn World pushes players to evaluate each others’ stories through an explicit voting mechanic. Evaluation of players’ creative input is done by a single arbiter (game-master) in games such as *Cards Against Humanity* or *Funemployed* (Ironwall Games, 2015), rather than via peer evaluation as in TNW.

Among the few academic-minded forays into the design of storytelling games, of note is *Suspend Me* [10] and *4Scribes* [11]. *Suspend Me* is a variation of *Once Upon a Time* (OUaT) where players compete to achieve their individual secret story goal while maintaining narrative tension for all characters. Specifically, players use one Item or Event card (from OUaT cards) per turn and must connect it to the story, while saving their character from danger and placing other

players’ characters in danger without killing them. The additional constraints, however, led to long games and challenged players’ storytelling and recollection. The *4Scribes* game is played on a shared mobile device in a co-located setting [12], although it was also tested as a paper prototype [11]. Players start with a hand of five cards, each with an illustration and a few words. Players play one card per turn and contribute to the ongoing story. As players do not gain cards, they can plan their narrative in advance. In the end, players conclude their story as they wish, using a secret “myth” card as inspiration. All players then vote on their preferred ending. In terms of interaction, The Newborn World is similar to *4Scribes* as players pass the mobile device around while contributing their story. Another similarity is that players vote on the most appropriate story, which is done in every round in TNW (rather at the end of the game in *4Scribes*). However, in both *Suspend Me* and *4Scribes* the brunt of inspiration and narrative cohesion rests with the players; this may lead to fatigue as highlighted in [10]. The Newborn World provides a form of story structure through event sequences (a Response event has to follow a Crisis event and leads to a Conclusion event), while inspiration is prompted through the event card itself as well as through themes of the ascendant deities or each player’s secret agenda. In *4Scribes*, players have to write their story contribution textually before passing it to the next player; this leads to long waiting times where other players can not see the story so far. In TNW, instead, during the storytelling phase the screen is on the table and visible to all, while one player at a time selects among the word options and narrates verbally rather than textually. This makes the storytelling process faster and keeps the other players involved.

III. THE NEWBORN WORLD

The Newborn World is a multi-player game for three to five players, played via a mobile device (e.g. a tablet). All players must be co-located around a table as storytelling is done orally and gameplay requires the device to be passed around for players’ secret actions (e.g. voting). The game is played in turns (see Section III-C): in each turn a common event is given by the application to all players, who must add word cards and elaborate orally into a story. The event is incomplete, with two gaps which must be filled by word cards. Players take turns contributing word cards from their hand to a common word pool, and then combine any of the words in the word pool with the event’s text to make up a story. Each player then votes in secret for their favored story, and the most voted story becomes reality for this event: the next event must follow the storyline (see Section III-B). Moreover, the story elements of the two word cards (see Section III-A) used in the most voted story determine which deity or apex becomes ascendant. Each ascendant deity or apex changes the rules for the next event in different ways (see Section III-D), and moreover may play a role in players’ winning strategies. The goal of each player is to have specific deities in their secret agenda become ascendant. The game continues for 10 turns (i.e. 10 events), at which point the application reveals the

TABLE I: Each word card belongs to a story element with its own favored themes which may act as inspiration.

STORY ELEMENT	FAVORED STORIES
Order	adherence to principles, conformity to a status quo, devotion to a cause, vigilance for heresy
Disorder	temptation, instinctive or volatile reaction, contempt for laws and morality, hunger to innovate and explore
Love	peace negotiation, unity between two people, persuasion to collaborate, seduction
Conflict	hostility, jealousy, keeping a grudge, victory in battle
Nature	encounters with predators, preservation of the natural world, travel along waterways, hunting and foraging
Civilization	invention of new mathematical concepts, construction of great wonders, transferral of knowledge, expansion into new settlements

winning player based on the most ascendant deities in their secret agenda. On average, a full playthrough of The Newborn World should last between one and two hours.

A. Word Cards & Story Elements

Players mainly interact with the game through the use of *word cards*: these word cards consist of a single word, associated with one of six story elements. The six elements are Order, Disorder, Love, Conflict, Nature, and Civilization; each element has certain favored themes (see Table I). For example, some word cards for Love are “*embassy*”, “*veil*”, “*companion*”, “*convince*”. The game comes with 300 word cards (50 per story element), which are shared by all players; a player can never have the same word card as another.

Players choose these word cards to fill an event’s gaps: the resulting sentence is the basis for a story, with creative interpretations by the player. Based on story elements in the winning story (most voted by players), a new deity will become ascendant (see Section III-D). Word cards are core to a player’s storytelling process, while the word cards’ story elements are core to a player’s winning strategy.

B. Events & History

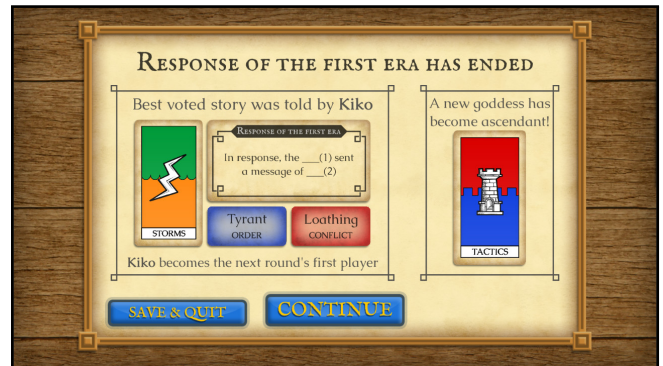
The Newborn World urges players to recite the story of the First City, its origins and tribulations. This imaginary city is the first attempt of men and women to form a society, guided by primordial deities. The players will be contributing to the history of the First City by choosing the best story for each event. Each event has two gaps (numbered) which players must flesh out with word cards. The winning story for the event is remembered (as part of the city’s history) and next events must continue the accepted storyline. The game always starts from the same Origins event, which contextualizes the First City. After that, the game is played in Eras composed of 3 events: the Crisis, Response, and Conclusion. Each event type has several different templates to choose from, increasing variety. Crisis events also depend on which story elements



(a) Word Selection



(b) Storytelling



(c) Resolution

Fig. 1: Phases for one event.

were prominent in the previous Era: for instance, if the first Era had a majority of Conflict words (see Section III-A) then the Crisis event of the second Era might be “*Among the ruins of —, a — emerged*” while for a majority of Love words it might be “*The — was sent a — as a present*”. The application determines which event is presented to the players, and the same event never appears more than once in the same game.

C. Game Loop

The game is played as a sequence of events, starting from the Origins event and ending after three Eras (i.e. 10 events) are completed (see Section III-B). To decide the story and outcome of each event, each player has to act in three phases. When all players perform the actions in one phase, they start

performing actions of the next phase in a round-robin fashion starting from the first player.

1) *Word Selection*: After the event card is revealed, players take turns (taking the device in their hand) to secretly add two word cards into the event's word pool. A player can discard any number of cards: if they do so, they take a Corruption card into their hand and then draw up to their hand size (see Fig. 1a). Corruption cards can not be played, so players draw one less word card than the number of cards they discarded. Corruption cards are removed at the end of an Era (after three events) and players re-draw up to the normal hand size (normally six cards).

2) *Storytelling*: Word cards submitted by all players are shuffled together and revealed to everyone. During the storytelling phase, the device is placed in the middle of the table for everyone to see. Each player takes their personal numbered tokens (labeled 1 and 2) and drags them onto any of the cards in the word pool, matching the numbered gap on the event card (see Fig. 1b). Once that is completed, the same player proposes how the story progresses, using or paraphrasing the event card and the word cards, embellishing as they see fit. As a storytelling game, the players should be creative in both their interpretations of the events and in their stories, rather than reading aloud the constructed sentence. Players can use the ascendant deity's favored themes or their secret agenda's themes as inspiration. Players after the first can use other players' word cards, but not the same combination of cards used by another player (regardless of the words' order). Additional constraints on which cards can be used may be applied by the current ascendant deity (see Section III-D).

3) *Voting and Resolution*: During the voting phase, players decide which story they want to see become real, affecting the next event (and its ascendant deity). Taking turns passing the device around, each player secretly votes for the story they prefer. Players can not vote for their own stories. After all players have taken turns voting, the story with the most votes is revealed by the application (see Fig. 1c), and it becomes reality for this event. In the case of a tie, the first player acts as a tie-breaker. The player with the winning story becomes the first player. The winning story triggers the ascendance of a new deity or the end of the game (see Section III-D).

D. Deities, Secret Agendas & Winning Condition

After each event is resolved (see Section III-C), the winning story's elements determine which god, goddess, or apex becomes ascendant. Each god or goddess has two story elements: the god of Time encompasses Nature and Order while the goddess of the Wilds encompasses Nature and Conflict. An apex is ascendant when both words in the winning story have the same element (e.g. if the story of Fig. 6 wins, the Apex of Conflict ascends). Each deity also has certain favored themes, which can be used as prompts for storytelling (see Fig. 2a).

Ascendant deities can influence the next round, forcing players to discard word cards or forbidding the use of certain story elements during the storytelling phase. An ascendant apex also asks players to decide collaboratively (without cards) on how



(a) Description of the Goddess of the Wilds.



(b) Each player has a secret agenda with three deities.



(c) The winning player concludes the story based on their agenda's themes.

Fig. 2: Deity, Secret Agenda, and End-Game Screens

to tie up some loose ends or introduce new complications. Before the next event card is shown, players must choose one or more of the possible apex events and decide on the details of the event(s). Each apex has different apex events matching the themes of the story element it represents (see Fig. 5).

Ascendant gods and goddesses also play an important role in the game's winning conditions. Each player starts the game with a secret agenda and three deities that support it (see Fig. 2b). Some secret agendas may share a deity with other agendas, but each agenda's themes are unique. Each agenda has favored themes which can be used as prompts for storytelling, especially at the end of the game.

At the end of the game, if all three deities of a player's agenda were ascendant in the game's history, that player is

the winner and can dictate the future of the Newborn World (see Fig. 2c). If no such player exists, the winner is the one with the most ascendant deities in their agenda. In case of ties, the winner is based on the most recent ascendant deity in their agenda. While deities may become ascendant more than once, applying the same rules each time, for the winning conditions only the fact that a deity was ascendant at any point of the game matters—not how many times it was ascendant.

IV. DESIGN PATTERNS

The Newborn World asks players to narrate stories in a co-located setting. As a storytelling experience where people choose the best story to build on, competitive elements must be subdued to avoid goal-driven voting while still motivating players to do well. Moreover, creativity and story cohesion are facilitated by design patterns that both constrain and inspire players. These core design patterns are discussed below.

A. Collaboration versus Competition

The Newborn World attempts to include competitive elements in a storytelling activity which is most effective in a supportive, collaborative environment. In particular, the secret voting process can be stressful to players with less confidence in their storytelling ability. The game attempts to mitigate the tension between collaboration and competition by largely decoupling the winning conditions from the voting process. With a secret goal to “collect” a set of ascendant deities, players have a vested interest to use specific combinations of elements in their stories, and to have those stories voted best. However, this does not result in players rushing to have their own stories voted for a number of reasons.

First, players’ secret agendas may share deities¹, which means that players may have the same vested interest and thus be rewarded if another player’s story is voted best. Additionally, since all deities in secret agendas rely on two story elements (no agenda includes apexes) it is very likely that a player will add words with another player’s desired element during the word selection phase.

Second, since a deity becoming ascendant relies on two story elements, it is not always certain that both story elements will be in the word pool (or allowed) for storytelling. It is quite likely, therefore, that during voting none of the available options will be relevant to a player in terms of winning conditions, and they will vote based on personal preference rather than ulterior motive. It should be noted here that even in such cases, players can vote strategically as some deities becoming ascendant have special rules that are better suited for them. For instance, a player with the agenda “Nature’s muses” (i.e. three goddesses that all have a combination of Nature and another element) would prefer for an apex of Nature to become ascendant as it would ensure that at least one Nature word card would feature in all possible stories of the next event.

¹With 15 non-apex deities, the 14 available secret agendas have been designed so that the same deity is in two or three agendas. Moreover, all agendas rely on a total of four story elements although the combination and instances of each (on a per deity basis) can vary.

Finally, players only need to have each deity in their agenda become ascendant once and therefore their votes will be diversified once one of their deities is ascendant: this makes trying to guess another player’s agenda less relevant as no player will be consistently voting for the same combination of elements. Moreover, players in the lead (i.e. with more deities ascendant) will have a greater challenge in finding or creating the right combinations of elements for their remaining deities. Thus, players in the lead will find themselves voting based on personal preference more often. The latter pattern allows for an implicit catch-up mechanism [13] for players that are behind; combined with the tie-breaker condition (if the same number of deities are ascendant in two agendas, the agenda with the more recently ascendant deity wins), this allows players to snatch a victory while being behind in most of the game.

B. Semantic Ambiguity

Every storytelling game attempts to find a balance between providing a structure to guide and inspire the player and offering sufficient room for self-expression and creativity. The Newborn World tries to accomplish the former by using structured event cards and themed word cards (belonging to an element tied to the player’s winning strategy) and the latter by ensuring that both events and words are ambiguous enough to combine together in a broad set of ways.

Event cards are structured, as they form an almost complete sentence but also because they follow a narrative continuum (the latter will be discussed in Section IV-D). However, the events’ sentences are often brief: the average length of the (incomplete) event card is 6.2 words. Many event cards have 3 words, e.g. “— *refused to obey* —” (Crisis), “— *became wary of* —” (Response) or “— *returned to the* —” (Conclusion). Longer sentences are usually in Crisis events, which provide some temporal or spatial context for this new Era’s event sequence to unfold (see Fig. 3b for an example). While some gaps in the events are clearly better suited for verbs, adjectives, locations or people, in many cases they are sufficiently open-ended to allow for other types of words with some creative interpretation or small changes of the sentence during storytelling. For instance, Fig. 3a shows how the second gap of the Origins event can refer to a purpose (e.g. “*help*”) or emotion (e.g. “*fear*”) rather than the intuitive location words (e.g. “*swamp*”). Similarly, the second gap in the event of Fig. 3c can be slightly modified during storytelling (removing the article) to allow for abstract notions such as “*fear*”.

The word cards chosen for The Newborn World similarly help form a broad set of sentences with the event cards. The game comes with 300 word cards which include locations, items, people, adjectives, verbs, emotions and materials. Naturally, some elements have more words of one type than others: Nature cards include more locations and materials while Love cards include more emotions. While many words are fairly specific (e.g. “*chimaera*” or “*diamond*”), the majority of words could be used in different contexts. For instance, “*scale*” in Fig. 3b does not refer to the skin of certain animals but instead to scaled humanoids similar to the Cult of Deep

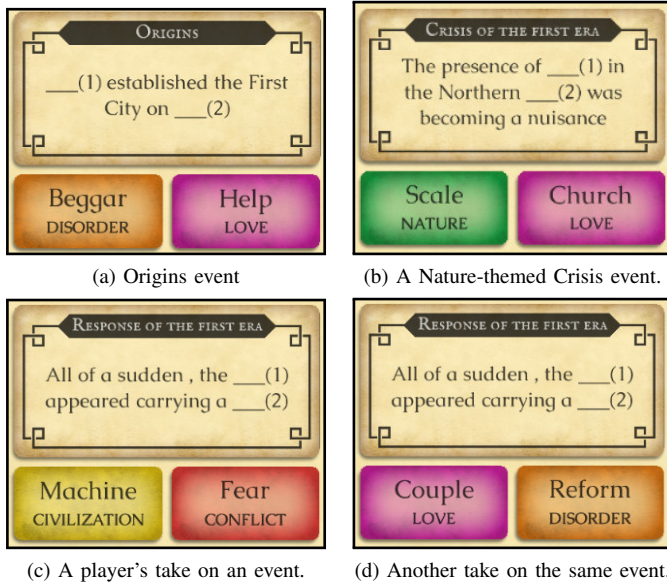


Fig. 3: Events and words can be combined in novel ways.

Ones in Lovecraftian horror (this is accentuated by the use of “church” as the second word). In Fig. 3d the word “reform” (normally presumed a verb) is used as a noun for a change in policies. Even more interesting semantic leaps are possible: the Nature word “scale” in Fig. 3b could be used to refer to the scales of justice (intuitively connected to Order) or a merchant’s scales (intuitively connected to Civilization).

C. Constrained Options & Hand Management

While events and word cards have a fair degree of ambiguity, there is no guarantee that all players will have even remotely appropriate word cards for a specific event. This can be especially problematic when players want to pursue their goal of making deities in their agenda ascendant. While constraining the number of options can lead to a non-obvious solution and allow creativity to emerge [14], at the same time players should feel in control of their strategy in a competitive game and have multiple interesting options available to them [15], [16]. There is a number of mechanics for both increasing and constraining players’ available options.

The Newborn World gives players a hand of possible word cards (normally six) which are likely to feature three or more story elements overall. More importantly, players need not use only words in their hand to construct stories. Instead, each player contributes to a word pool which becomes available during the storytelling phase to all players. Thus, players may contribute a word they find particularly appropriate to the story and anticipate another player’s contribution. Assuming no special rules imposed by an ascendant deity (discussed below), players’ stories can share word cards as long as they do not share both cards with the same player. This can mitigate the challenge of finding appropriate words within the player’s own hand, but also removes some player control over the stories



Fig. 4: For players after the first one, the options for word combinations are fewer due to other players’ chosen words (shown as small circles next to word cards). In this case, the ascendant deity also forbids the use of Civilization word cards.

that are made available via their own cards. In conjunction, this mechanic promotes shared authorship of the stories [17].

Another way for players to control their hand is via the discard mechanic during the word selection phase. Once per round, players can discard 2 or more cards (up to their hand) and receive new word cards (one less than the discarded) and an unusable Corruption card. As Corruption cards are removed at the start of a new Era, players can have a maximum of three Corruption cards and can strategize to use the discard option in the last event of an Era. While Corruption cards penalize abuse of the discard option, this mechanic allows players to discard some cards while keeping others for a potential combination.

Finally, most deities while ascendant somehow affect the player’s hand or options. Four deities (featuring Disorder) force players to discard cards of antagonistic elements: e.g. the god of Storms that features Nature and Disorder forces players to discard all their Civilization cards and redraw without receiving Corruption (see Fig. 1). This allows players to partially renew their hand while also drastically reducing the likelihood of certain elements featuring in this event’s stories. On the other hand, four deities (featuring Order) forbid players from using cards of an antagonistic element in their stories (see Fig. 4), and when an apex is ascendant then players must use a word of the apex element in their stories. These rules constrain players without refreshing their hand, and more strictly specify which deities can become ascendant during the next event (which will be discussed further in Section IV-D). Other deities have more complex rules, such as sharing other players’ word cards or using discarded cards, and can increase serendipity in hand management and storytelling aspects.

D. Narrative Continuity

An important aspect of The Newborn World is that players build on the same narrative and their votes decide which story is integrated into the evolving history of the First City. Several patterns aim to provide with a coherent, concise storyline.

First, event cards shown to players follow a narrative structure, starting from (a) the introduction of a crisis, to (b) the response to this crisis to (c) deciding how the crisis is

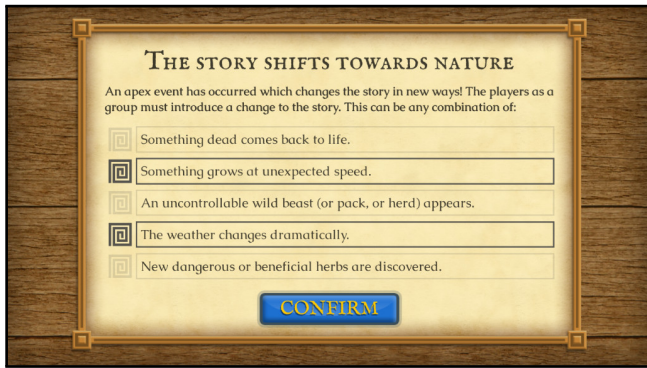


Fig. 5: When an apex becomes ascendant, players decide and flesh out changes to the story before the next event is revealed.

resolved. Exactly three event cards are dedicated per Era, each event card’s title is automatically renamed to reflect the stage in the story (see Fig. 3), and text in popups clarifies when a new Era begins. Visually, therefore, players are reminded that a new narrative, challenge or threat should be introduced in a new Era while loose ends should be wrapped up during a Conclusion event. The sentences in event cards hint at the point in the story they belong to: for instance one of the Conclusion events is “*In the end, the — found a way to —*”.

Crisis events largely define a new era, so they are additionally burdened to maintain narrative continuity. Only for this first event of a new Era, the elements in the previous Era decide the possible Crisis events that can occur. Finding the most common elements in all events of the previous Era, crisis events themed after that element are shuffled and a random one is revealed. Crisis events are slightly more verbose and constrained than other events (see Section IV-B) which emphasizes the thematic consistency with the underlying element (see Fig. 3b for an example of a Nature-themed Crisis event).

Of special note is the Origins event, as it is always the same sentence (see Fig. 3a). This deliberately broad sentence establishes that the game is about the tribulations of the First City, and sets the theme for future stories. The winning story for the Origins event can establish the setting of this session, and mechanically can also affect the possible Crisis events and the sequence of ascendant gods in the first Era. By always starting from the same Origins event, players can experience how the story branches from one playthrough to the next.

Ascendant deities and apexes also affect story continuity: many deities either force players to discard words of antagonistic elements or not use them in stories (see Section IV-C). This means that certain story elements are unlikely or impossible to appear in the winning story, and thus the current ascendant deity can affect which deity becomes ascendant in the next Era (which in turn will influence the next ascendant deity and so on). This is most pronounced when an apex becomes ascendant, as players must use at least one word belonging to the apex element in their stories: this means that only the five deities featuring this element or the same apex can become ascendant in the next event.



Fig. 6: Once the player chooses word cards for the event, the storytelling prompt screen shows the favored themes of the current ascendant deity as extra sources for inspiration.

An apex becoming ascendant has an additional effect: before the next event is revealed, players must collaboratively decide on changes in the story based on a set of available options (see Fig. 5). Not only does this allow players to discuss as a group where the story is going (or should go) but it also allows players to reinvigorate stale storylines with an extra crisis (e.g. “*An uncontrollable wild beast appears.*” in Fig. 5) or to tie loose ends in intractable storylines (the same wild beast can kill a few secondary characters from earlier Eras). While the options are thematic to the apex element, players are required to flesh out the details to match the context of their story.

E. Inspiration

Following the design patterns exposed in Section IV-B and IV-D, the underlying event structure and word cards provide sufficient scaffolds and continuity for players to be able to contribute original, creative narratives during the storytelling phase. However, during playtesting it was identified that players less accustomed to open-ended games or role-playing had trouble re-interpreting the event and word cards during storytelling. Often, such individuals would select the most straightforward word combinations and recite the event’s sentence without embellishing. While this initial shyness can be mitigated as the game progresses and all players become more engrossed in the story, the game now provides some inspiration to novice storytellers through the favored themes of both the ascendant deity and the player’s personal agenda. During the storytelling phase, the prompt screen includes the favored themes of the current ascendant god (see Fig. 6), while at the end of the game the favored themes of the winner’s secret agenda are shown to all to help the winner finish the story of The Newborn World (see Fig. 2c). With these prompts for players to add more details to their storytelling, the blank page syndrome [18] is at least partially prevented.

V. LIMITATIONS AND CHALLENGES

As elaborated in Section IV, several design decisions were taken so that creativity is both guided and constrained in The Newborn World. The competitive element provides some goal-oriented player agency while the ascendant deities act both as



Fig. 7: An ongoing game, its winning stories and ascendant deities are stored in the history screen (accessible at any time).

victory conditions and as ways for players to get inspired or renew their hand. On the other hand, the requirement for story continuity across multiple Eras and the winning condition of three ascendant deities in a player's secret agenda results in long playthroughs. The game is designed to end after three Eras (i.e 10 events), which can lead to playthroughs lasting well above one hour. Understandably, the game's duration increases with more players, which has led to the upper limit of five players. The game can be stopped and resumed through a save/load function, somewhat mitigating the issue. The history screen (see Fig. 7) allows players to review past events, which is especially important when resuming an older saved game. However, since a big part of the game is in the verbally narrated player stories, there is a risk of forgetting aspects of the history or losing the thread of the narrative.

It is interesting that games with three players may be shorter but are less rewarding as an experience: the word pool is smaller and voting is between the two opponents' stories. Games with more players offer more alternatives and increase the chance of goal-oriented play as more stories may feature elements of a desired deity. On the downside, more players increase the time spent telling stories, and players may confuse or forget all the possible story alternatives.

The lack of interactions with three players could be solved by adding artificial agents during word selection and voting phases. These agents could have their own secret agenda and select words which are connected to one or more themes of a deity in their agenda that has not yet become ascendant. In the voting phase these artificial agents would favor story elements of their deities. In order to make the agents' behavior more intelligent, a tagging system in the events and the word cards would identify that certain gaps in the event are intended for specific types of words (such as locations, verbs or adjectives); this would constrain what words the agent can select from its hand. The main challenge in introducing artificial agents is that such agents should not be able to win (as they do not contribute stories) but could act as a "kingmaker" for another (human) player if that player's secret agenda includes deities shared by the artificial agent's agenda.

VI. CONCLUSION

This paper has introduced The Newborn World, a digital storytelling game played via a single mobile device by a co-located group of people. Using the game's structure as a case, the paper has identified a number of design patterns that can be applied to any game which features freeform creativity, competition, and/or storytelling. While the game's design has been playtested in several iterations on paper and digital prototypes, how the application will be used in the long term and by a broader player base remains to be seen.

ACKNOWLEDGMENTS

The Newborn World was designed by Antonios Liapis and developed by Konstantinos Sfikas. It received funding from the Maltco Lotteries Limited in a collaboration with the University of Malta.

REFERENCES

- [1] T. Scaltsas and C. Alexopoulos, "Creating creativity through emotive thinking," in *Proceedings of the World Congress of Philosophy*, 2013.
- [2] A. Vile and S. Polovina, "Thinking of or thinking through diagrams? The case of conceptual graphs," in *Proceedings of the Thinking with Diagrams Conference*, 1998.
- [3] A. Sloman, *Diagrams in the Mind?* Springer, 2002.
- [4] M. Beaney, *Imagination and creativity*. Open University Milton Keynes, UK, 2005.
- [5] T. Scaltsas, "Brainmining emotive lateral solutions," in *Digital Culture & Education*, 2016, vol. 8, no. 2, pp. 107–118.
- [6] K. Stenning, *Seeing Reason: Image and Language in Learning to Think*. Oxford Cognitive Science Series, 2002.
- [7] A. Sullivan and A. Salter, "A taxonomy of narrative-centric board and card games," in *Proceedings of the Conference on Foundations of Digital Games*, 2017.
- [8] S. L. Bowman, *The Functions of Role-Playing Games: How Participants Create Community, Solve Problems and Explore Identity*. McFarland & Company, 2010.
- [9] T. L. Taylor, "Living digitally: Embodiment in virtual worlds," in *The social life of avatars: Presence and interaction in shared virtual environments*. Springer, 2002, pp. 40–62.
- [10] A. Mitchell and K. McGee, "Designing storytelling games that encourage narrative play," in *Proceedings of the International Conference on Interactive Digital Storytelling*, 2009.
- [11] M. P. Eladhari, P. L. Lopes, and G. N. Yannakakis, "Interweaving story coherence and player creativity through story-making games," in *Proceedings of the International Conference on Interactive Digital Storytelling*, 2014.
- [12] A. Liapis, G. N. Yannakakis, C. Alexopoulos, and P. Lopes, "Can computers foster human users' creativity? Theory and praxis of mixed-initiative co-creativity," *Digital Culture & Education*, vol. 8, no. 2, pp. 136–152, 2016.
- [13] G. S. Elias, R. Garfield, and K. R. Gutschera, *Characteristics of Games*. MIT Press, 2012.
- [14] J. C. Kaufman and R. J. Sternberg, "Constraints on creativity: Obvious and not so obvious," in *The Cambridge Handbook of Creativity*. Cambridge University Press, 2010.
- [15] A. Rollings and D. Morris, *Game Architecture and Design*. Coriolis, 2000.
- [16] M. Sicart, "Wicked games: on the design of ethical gameplay," in *Proceedings of the 1st DESIRE Network Conference on Creativity and Innovation in Design*, 2010.
- [17] K. Chappell, A. R. Craft, L. Rolfe, and V. Jobbins, "Humanizing creativity: Valuing our journeys of becoming," *International Journal of Education & the Arts*, vol. 13, no. 8, 2012.
- [18] B. Bakunas, "Promoting idea production by novice writers through the use of discourse-related prompts," *Applied Psycholinguistics*, vol. 17, no. 4, p. 385–400, 1996.