Throwing Bottles at God: Predictive Text as a Game Mechanic in an AI-Based Narrative Game

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Abstract. We present *Throwing Bottles at God*, an experimental interactive narrative game that makes use of a predictive text writing interface as both a game mechanic and a means by which to deliver narrative content. The player steps into the role of `@dril`, a well-known pseudonymous social media personality with a distinctive writing style, and authors short snippets of text while receiving suggestions from the game as to which word `@dril` might use next – suggestions supported by word pair frequency data extracted from the corpus of all existing tweets by the actual `@dril`. The game represents a first attempt to use AI-based game design to heighten the player's awareness of AI algorithms, specifically predictive text algorithms, as they play a role in the player's day-to-day life. It also blurs the line between player-authored and developer-authored narrative content by inviting players to freely mix snippets of developer-authored text into their own in-game social media posts as they compose them, resulting in player-assembled messages that embed sequences of words drawn both from an external corpus (the `@dril` corpus) and from developer-authored narrative content.

Keywords: Interactive narrative design · AI-based game design.

1 Introduction

Predictive text writing interfaces, which monitor text as a user types it and offer a small set of suggested next words that can be inserted immediately after the cursor, have become a nearly ubiquitous part of the text composition interface on modern smartphones. They represent a small algorithmic intervention into the process of text composition, with which smartphone users interact on a daily basis. However, the question of what effects (if any) the involvement of these assistive algorithms might have on the creative process of text composition seems to have gone largely undiscussed.

AI-based game design [6], a game design methodology that places AI agents or algorithms in the foreground of gameplay rather than relegating them exclusively to a background or supporting role, may present one potential strategy for heightening player awareness of the roles and affordances of AI algorithms. Digital games are uniquely well-equipped to critique or comment on AI algorithms: because they are made of code, they can directly embed "playable" versions of

the algorithms they are intended to comment on, thus giving players a chance to experience what it is like to interact with these algorithms firsthand or from the "inside". Moreover, systems such as *Say Anything* [5] have successfully leveraged AI algorithms to create playful collaborative writing experiences. Perhaps, then, AI-based game design techniques could be applied to AI algorithms that play a regular role in players' daily lives. A game that uses predictive text as a game mechanic, for instance, could raise interesting questions of algorithmic co-authorship (among other issues) in the player's mind. In this paper, we present one such game.

2 Predictive Text as a Game Mechanic

Throwing Bottles at God is an experimental AI-based interactive narrative game that casts the player in the role of `@dril` [3], a well-known pseudonymous social media personality with a distinctive (and frequently profanity-laden) writing style that functions as a parody of self-important social media personalities. In the game, `@dril` is presented as a recipient of prophetic visions who must post on Twitter in order to communicate what he has seen to the world and thereby avert the catastrophic future the visions portend.

Central to gameplay is the use of predictive text as a game mechanic. The player character's only way of interacting with the game world is by writing and posting messages to the in-game mock Twitter interface; thus, in order to make progress in the game and explore the narrative, the player is required to compose social media posts of their own in the style of the `@dril` character. The player is assisted in this task by a predictive text interface that looks at what they have written so far and provides real-time feedback on what words the actual `@dril` might be most likely to use next. At any time while composing a message, the player may click on one of these suggested next words to insert it at the end. These suggestions are based on word pair frequency data extracted from the corpus of all existing tweets by the actual `@dril`; the game essentially uses a Markov model "trained on" the corpus of all existing `@dril` tweets to help the player author text in the `@dril` style.

The game's narrative content is structured as a partially ordered sequence of largely self-contained vignettes. Each of these vignettes is written in the style of a hallucinatory "dream vision" that predicts some future scene or event, usually foreboding and darkly humorous in tone. When the player attempts to compose a new in-game social media post using the predictive text writing interface, there is a chance that one of the suggested prediction slots will be randomly allocated to a vignette appropriate to this point in the player's progress through the game, such that repeatedly clicking on this prediction slot will cause the player to "write out" the complete text of the vignette, one word at a time, into the text input box.

Because any given suggested word may thus be drawn either from a vignette or from the corpus of words present in actual `@dril` tweets, and because the player only has indirect control over which words will appear as suggestions,

this design creates a sense of ambiguity as to whether the `@dril` corpus, the vignettes, or players themselves are most responsible for the final content of a message they have composed.

The intended effect of this design is to heighten the player's perception that they are receiving or channeling some sort of divine inspiration when they rely on the predictive text interface to write. This is inspired by the way in which predictive text writing interfaces are sometimes used to perform a kind of AI-based "divination" – for instance in the kinds of predictive text "games" that are sometimes played on social media, wherein participants manually type in the beginning of a sentence as a prompt, use predictive text to fill in the rest of the sentence, and share the result [4, 7]. It is also inspired by the perceived lack of agency that participants in Ouija board sessions who believe in the supernatural power of their chosen divination method tend to report [1]; ideally, players in *Throwing Bottles at God* will experience a similar sense of diminished personal responsibility while still in fact exerting a significant influence on the structure, content and overall coherency of the messages they compose.

By encouraging players to interact with predictive text in an explicitly playful way, as well as by estranging them from the more familiar aspects of writing with predictive text (both by basing the bulk of the suggestions on the unfamiliar, frequently alarming `@dril` corpus and by inserting preauthored narrative content into the suggestions at random), *Throwing Bottles at God* aims to call attention to the ways in which algorithmic suggestions influence the way players write. The game can be judged as a success if players then take this heightened awareness with them when they walk away from the game and return to interacting with predictive text writing interfaces in their daily lives.

3 Other Design Elements

3.1 Evaluation of Player-Composed Messages

Once the player posts a message to the in-game social media feed, the message is evaluated to assign it a numeric score. This semi-random score is used to determine how many in-game likes and reposts the message will receive, and by how much the player's in-game follower count will change as a result of posting it. In order to nudge the player toward making use of the predictive text algorithm's suggestions while also encouraging them to deviate from the suggested choices at times, messages are scored according to what proportion of their text is drawn from suggestions rather than hand-typed by the player. A message in which approximately half the words are drawn from suggestions and half are hand-typed would score the highest, while messages that are entirely hand-typed or entirely composed of suggested words would score the lowest. However, the player is not explicitly made aware of how the scoring mechanism works; it is our hope that this will encourage players to actively experiment with how they compose text in an attempt to discover the precise nature of the relationship between their approach to authoring and how their messages are received by their in-game "audience".

3.2 Generative NPC "Dialogue"

Throwing Bottles at God features an in-game mock Twitter feed, populated with social media posts from a variety of non-player characters (NPCs). Each of these NPCs is built around a Tracery [2] grammar that generates posts in a particular style. Periodically, the game selects an NPC at random and uses that NPC's associated grammar to generate a snippet of text that it can add to the feed.

Many of these grammars were created by volunteer contributors. Because Tracery is relatively easy to use and provides a consistent framework for authoring text generators, it was fairly straightforward to integrate NPCs created by over a dozen different volunteers into a single project. The juxtaposition of these different NPCs in the in-game Twitter feed creates an impression of chaotic polyvocality, mirroring the subjective experience of using Twitter in real life.

4 Conclusion

We presented *Throwing Bottles at God*, an experimental AI-based interactive narrative game that makes use of predictive text as a game mechanic and a means of conveying a (partially player-authored) narrative. It is our hope that the game, as a first step toward using AI-based game design practices to comment on or critique everyday AI algorithms, will leave players with a heightened awareness of the ways in which algorithmic assistance influences their writing process.

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