

Design Rationale for Natural Language Game Conversations

Jonathan Lessard

Concordia University

1455 de Maisonneuve Blvd. EV 6.773

Montréal, Québec, Canada H3G 1M8

+1 514-848-2424 #4717

Jonathan.lessard@concordia.ca

ABSTRACT

In-game conversations with non-playing characters have not changed much in the past 30 years, sticking to menu driven models and dialogue trees. This short paper presents the game design rationale behind *LabLabLab*'s research project to re-explore the potential of natural language interaction in the context of goal-driven conversations with NPCs. With the support of early evidence from the project's first two prototypes: *A Tough Sell* and *SimProphet*, some unique affordances of natural language interaction in game conversations are highlighted in contrast to traditional approaches. Allowing players to formulate their own utterances affords them creative conversational play, role-playing at the discourse level, contributing original narrative content, and dialoguing non-linearly.

Keywords

Game design, Dialogue Systems, Conversation, Natural Language, Interaction design, Interactive Fiction, Non-Playing Character, Virtual Characters

1. INTRODUCTION

Natural language interaction (NLI) was a common feature of computer games until the late 1980s. Towards the end of the decade, menu-based interactions and mouse-driven graphical interfaces progressively replaced the traditional parsers and most players today have never had to type a word of text within a digital game.

Although many players perceived this move as “progress”, the new interfaces offering much clearer affordances and greatly diminishing input errors [1], some qualities of the original experience had to be abandoned. In his *Guide to Adventure Games* published in 1984, Gary McGath wrote: “[...] for telling the computer what *you* want to do, there is no question that words are more flexible than any joystick or trackball” [2].

This is particularly regrettable in the context of interactive conversations with non-playing characters (NPCs). The underlying models for game dialogue systems have remained essentially the same since the 1980s. The main ones being the familiar dialogue trees of predefined utterances and, as Brusk and Björk put it, the “‘database retrieval’ style” [3], in which players select from a list of topics to acquire information from NPCs. These are sometimes spiced up by making the available options dependant on quest flags or character attributes, but remain similar in that the player can always only choose within a short selection of predetermined utterances.

The *LabLabLab* [4] research project aims to re-explore the potential of natural language interactions for playful

conversations. The object is not to make technical contributions to the field of natural language processing, but rather appraise the game design potential of existing mature chatbot technology beyond the usual Turing test. How can interacting with a chatbot be designed as a game? What would be the parameters of a successful natural language conversation game in terms of theme, objectives, progression markers, error management, *etc.*? The project takes inspiration from *Facade*, but with an emphasis on game rather than drama, and actual surface text over more general discourse acts [5].

The project is currently at midpoint with two finished prototypes: *A Tough Sell*, and *SimProphet*, and two others to go. In this short paper I wish to detail the design rationale behind the project accompanied by preliminary results. With more than 7000 unsolicited playthroughs on the indie game site *Gamejolt.com* and an average rating over 4.5 on 5, the prototypes seem to have some appeal.

2. AFFORDANCES OF NLI FOR CONVERSATION GAMES

2.1 Conversation games

Experience with adventure and role-playing games make obvious that conversations can be a meaningful part of game. Closer attention shows that these conversations sometimes act as mini-games themselves, offering some non-trivial challenges to the player: choosing the right dialogue options to convince someone to do something, give you something, join your party, disclose some information or fall in love with you, for example.

LabLabLab's approach is that goal-driven conversations can be designed as self-sufficient, standalone games (a notion labeled as the *Gameplay Integrated Conversation* pattern in [3]). And if a good conversation game can be designed, then it could also be successfully integrated as part of a more complex games. Here are design criteria for interesting conversation games that natural language interaction could potentially better fulfill than menu-driven approaches.

2.2 Creative conversational play

Choosing menu options doesn't leave much room for a player to come up with creative approaches to the problem at hand. Even dating sims, which are arguably amongst the most conversation-intensive genres, often offload much of the play to the more procedural management of player characteristics (choosing what one does between conversations to unlock “good” dialogue options). NLI, on the opposite, allows players to formulate (literally and metaphorically) their own “conversational moves”,

devising rhetorical tactics informed by her understanding of the interlocutor's personality and the state of the discussion.

In the following excerpt from an actual play session of the *A Tough Sell* prototype, we can see how the player comes up with creative yet appropriate approaches to convincing Snow White to eat the poisonous apple. We can imagine in the circumstances an increased feeling of ownership towards one's victory over simply finding the right sequence of menu items (“>” indicates player input).

```
# I really wish my stepmother wasn't trying to kill me
> I am not your stepmother, I live in the village next door.
# How do I know that?
> Look at my eyes, would I lie?
# I guess that makes sense.
> It does, let's seal the deal with this yummy apple.
# It does look yummy. [...] All right, I'll have a bite of this apple.
```

2.3 Role-playing

The “you are the hero” rhetoric is still very strong in contemporary digital games. Games with narrative ambitions often go at great lengths to allow players to personalize their avatars and do things “their way” in the proposed virtual world. However, once the player engages a dialogue with a NPC, opportunities for “role playing” her character are extremely limited. Some systems will partially acknowledge character traits in the selection of proposed dialogue lines, but this can only go so far as all this content needs to be handcrafted in advance by the developers.

NLI, on the opposite, leaves complete room for players to converse “in character”, fleshing out their avatar through personality-laden discourse. In this excerpt from *A Tough Sell* session, a player chooses to develop the role of a cynical salesman:

```
> I'm a salesman.
# I don't think anyone here called for a salesman.
> I'm not called for, I walk from door to door, interrupting people, trying to sell
crap
```

In the following excerpt from a *SimProphet* session, we can see the player seizing an opportunity for character development:

```
# So, how do you call that God?
> I call him Honey, but he also likes it when I call him dirty names
# Since you're being so evasive about your god's name, I'll just call it the
Middling Clam.
> Ooooh naughty
```

2.4 Co-Creating the Narrative

Another common claim of contemporary video games is to allow players to “create their own story”. The more procedural aspects of space exploration, fighting, resource management, *etc.* do afford enough variability to consider the player is participating in the “writing” of the play session's story. Once again, this space for contribution falls short at the conversation level in which the “writing” is mostly a matter of “selecting”. NLI opens room for players to actually provide new content that can be (to an extent) acknowledged by the game. In the following excerpt from a *SimProphet* session, the player established that he met a god at a University, information on which the bot later builds upon:

```
# Will the university become a sacred place?
> No, the university is becoming a temple of neoliberalism
# Oh.
> Sorry
```

2.5 Nonlinear conversations

What one can or cannot say in a traditional menu-driven interactive dialogue is usually very dependent on the current state of the conversation. As one traverses the dialogue tree, some options are made available and some others disappear. In order to say something that was previously accessible, one needs to close a current topic and crawl back to a previous node. Some crucial dialogue line can sometimes be buried deeply in a tree and then become unavailable if the opportunity to say it was missed.

Actual human conversations don't work like this. Almost any topic previously mentioned can always be immediately reactivated (as long as both parties remember about it) and it is common for speakers to jump from one thread to the other and back. NLI allows a nearly stateless structure in which most content is always available.

In the following excerpt from a play session with *SimProphet*, we can see that the initial priesthood thread is abandoned the time of a digression on the topic of scriptures, only to be reactivated and brought to conclusion by the player.

```
> Do you want to be my priest?
# Are you offering me a priest position?
> maybe
# That's a bit vague for a prophet.
> That's just how we talk
# Fine. Do you plan to write down all this?
> of course
# Hmm... interesting.
> So, do you want to be a priest?
# Well, not right now.
```

3. DISCUSSION

Reactivating natural language interaction also means bringing back all its problems: the “tyranny of the blank screen” [6], miscommunication, AI disenchantment (the “Eliza effect” [7]), *etc.* However this short paper suggests that it also offers unique opportunities forgotten by current digital games. Our hope is to develop functional models fostering fun and challenging conversation games while minimizing the frustrations associated to that specific mode of interaction.

- [1] Lessard, J.. “Histoire formelle du jeu d'aventure Sur ordinateur (le Cas de l'Amérique Du Nord de 1976-1999).” Ph. D. Cinema Studies, Université de Montréal, 2013.
- [2] McGath, G.. *Compute's Guide to Adventure Games*. Radnor: Compute! Books, 1984.
- [3] Brusk, J., and Björk S. “Gameplay Design Patterns for Game Dialogues.” In *Proceedings of the 2009 DiGRA International Conference*, Vol. 5. Brunel University, 2009.
- [4] www.lablablab.net
- [5] Mateas, M., Stern, M. « Natural Language Understanding in Façade: Surface-Text Processing ». In *Technologies for Interactive Digital Storytelling and Entertainment*, Göbel, S., Spierling, U. *et al.*, pp. 3-13. Springer Berlin, 2004.
- [6] Norman, D. A. *The Design of Everyday Things*. New York: Basic Books, 2002.
- [7] Wardrip-Fruin, N. *Expressive Processing: Digital Fictions, Computer Games, and Software Studies*. Cambridge, Mass.: The MIT Press, 2012.