

Talking to NPCs: Three LLM-Driven Approaches to Dynamic RPG Dialogue

Emil Rimer^{*}, Rasmus Ploug[†], Anthon Kristian Skov Petersen[‡] and Marco Scirea[§]

SDU Metaverse Lab, University of Southern Denmark

Odense, Denmark

{^{*}emrim19, [†]raplo20, [‡]antpe20}@student.sdu.dk; [§]msc@mmmi.sdu.dk

Abstract—QUEST OF AIVENGARDE is a custom-built role-playing game (RPG) that features a traditional dialogue tree alongside three alternative systems, each incorporating large language models (LLMs) to varying degrees — ranging from rephrasing to fully open-ended conversations. The systems are embedded in a shared game world with consistent narrative and challenges, allowing direct comparison of their design trade-offs. The prototype is intended as a modular testbed for future research, offering a flexible framework to experiment with dialogue models in controlled, interactive settings.

I. INTRODUCTION

Dialogue plays a central role in narrative games, shaping how players engage with characters, stories, and decision-making. Recent advancements in large language models (LLMs) have opened new possibilities for creating dynamic and expressive NPC interactions. However, integrating these models into games presents unique design challenges related to structure, control, and player experience.

QUEST OF AIVENGARDE is a custom-built role-playing game (RPG) that showcases four dialogue system variants, ranging from traditional fixed dialogue trees to fully open-ended LLM-generated conversation. By holding the narrative and gameplay constant, the game highlights how different dialogue models affect interaction style and design flexibility.

II. GAME PROTOTYPE DESIGN

QUEST OF AIVENGARDE takes place in a medieval fantasy world built in Unity (Fig. 3). The game was designed as a modular testbed for dialogue systems, with all versions sharing the same story, world, and gameplay. Only the dialogue system varies.

Set in a medieval fantasy town, the player must retrieve stolen food by solving dialogue-based challenges. The core mechanic is conversation with key NPCs, each tied to a specific challenge. There are no combat or leveling systems; dialogue is the sole interaction mode.

The game world includes five areas: the town (with all NPCs), a goblin outpost, a forest with edible berries, a mountain road with a magical barrier, and the hobgoblin’s lair. Players progress by gathering information

from NPCs and using it to solve challenges. If the player fails a challenge, they return to the inn and may retry or gather more information.

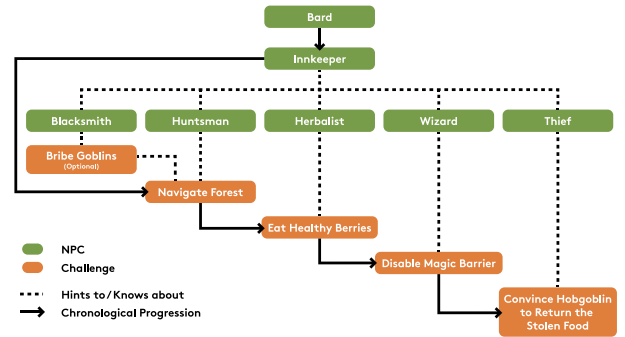


Fig. 1: Puzzle-dependency graph. Overview of NPC hints for challenges.

III. DIALOGUE SYSTEMS DEMONSTRATED

The prototype features four dialogue systems, each demonstrating a different strategy for integrating LLMs into game dialogue. While the story, world, and challenge structure remain constant across versions, each system alters how players interact with NPCs.

Control Version: Fixed Dialogue Choices

The Control Version (Fig. 2a) uses a traditional branching dialogue tree structure, common in narrative games. All dialogue is manually authored, and players choose from a fixed list of responses. Each NPC line is linked to a predefined set of player replies, which determine the flow of the conversation. The structure is deterministic, meaning the same input always leads to the same output. This version provides a stable and controlled dialogue environment and serves as the baseline for comparison with the LLM-based systems.

Version A: Dynamic Dialogue Rephrasing

Version A (Fig. 2b) introduces LLM-generated variation while retaining the Control Version’s fixed structure. Each time an NPC conversation begins, all lines, both NPC and player, are dynamically rephrased by an LLM. The system prompts the model to preserve the

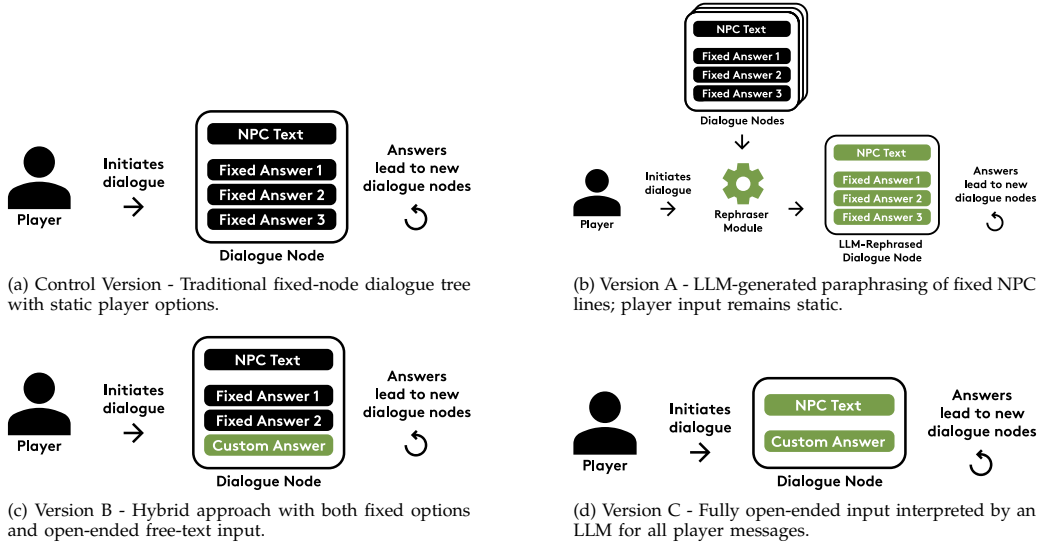


Fig. 2: Comparison of dialogue system versions. Black boxes represent pre-authored text, while green represents LLM-generated text.

original intent, tone, and information while introducing linguistic variation. Although the player still selects from multiple-choice options, no two interactions are phrased exactly the same. The branching structure and dialogue outcomes remain unchanged. This version explores how surface-level variation can reduce repetition and create a sense of freshness without modifying gameplay logic.

Version B: Fixed + Open-Ended Dialogue

Version B (Fig. 2c) allows players to either choose from fixed responses or type a custom input. If the player selects a predefined option, the system proceeds as in the Control Version. If they enter custom text, it is processed by an LLM prompted with the NPC’s persona, knowledge, and full dialogue tree. The model generates a character-consistent response and proposes new dialogue options based on the player’s input. These options are inserted into the existing tree, allowing the player to continue the conversation along a dynamically created path. This hybrid system balances narrative control with expressive freedom.

Version C: Fully Open-Ended Dialogue

Version C (Fig. 2d) enables fully free-form player input with no multiple-choice options. All player messages are interpreted by an LLM, which generates responses from scratch based on the character’s role, backstory, and narrative context. To maintain consistency, each NPC prompt includes a memory component that helps the system recall recent interactions. This version encourages immersive, spontaneous dialogue and gives players full conversational agency. It is the most flexible and emergent system of the four.



Fig. 3: Top: Town with NPCs. Bottom: Player and Innkeeper

IV. CONCLUSION AND GOALS

QUEST OF AIVENGARDE showcases four distinct dialogue systems implemented within a shared RPG environment, highlighting how varying levels of LLM integration shape NPC interaction. The goal is to provide developers and researchers with a hands-on comparison of different approaches to dialogue design, from fixed options to fully open-ended input.

The modular structure of the prototype allows for direct experimentation with multiple dialogue models in a controlled setting. Future research can use this framework to compare new systems, refine interaction techniques, and explore how different conversational designs impact player experience.