

Deciphering Digital Detectives: Understanding LLM Behaviors and Capabilities in Multi-Agent Mystery Games

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Abstract

In this study, we explore the application of Large Language Models (LLMs) in "Jubensha" (Chinese murder mystery role-playing games), a novel area in AI-driven gaming. We introduce the first Chinese dataset specifically for Jubensha, including character scripts and game rules, to foster AI agent development in this complex narrative environment. Our work also presents a unique multi-agent interaction framework using LLMs, allowing AI agents to autonomously engage in the game, enhancing the dynamics of Jubensha gameplay. To evaluate these AI agents, we developed specialized methods targeting their mastery of case information and reasoning skills. Furthermore, we incorporated the latest advancements in in-context learning to improve the agents' performance in critical aspects like information gathering, murderer detection, and logical reasoning. The experimental results validate the effectiveness of our proposed methods. This work aims to offer a fresh perspective on understanding LLM capabilities and establish a new benchmark for evaluating large language model-based agents to researchers in the field.

1 Introduction

Interactive role-playing games, which unravel mysteries through strategic interactions and clue-based puzzles, have seen a significant rise in global popularity. Tracing their origins to 19th-century murder mystery novels and early 20th-century party puzzles, these games have particularly flourished in China in recent years. In this context, they are referred to as "Jubensha", "Scripted Murders" or 剧本杀 in Chinese, and have experienced a remarkable surge in popularity since the late 2010s. Influenced by Western murder mystery games, Jubensha games center around participants who gather to deduce the identity of the murderer by analyzing and

interpreting provided scripts. These games, blending immersive role-playing, engaging narrative storytelling, and thoughtful strategic planning, have captivated a significant following among young Chinese audiences. The requirement for players to collect and interpret clues through intense social interaction and reasoning has made playing Jubensha stand out as a notable cultural phenomenon.

Meanwhile, the field of Artificial Intelligence (AI) is reshaping the gaming landscape. From classic games like chess (Campbell et al., 2002), Go (Silver et al., 2016), and poker (Brown and Sandholm, 2019; Brown et al., 2020) to video games like StarCraft (Vinyals et al., 2017, 2019), League of Legends (Lohokare et al., 2020), and Honor of Kings (Ye et al., 2020), AI contenders or collaborators have been integrated into these games. The recent surge in Large Language Models (LLMs) has redirected research interest from conventional and video games to text-based games. Significant examples include an LLM deployed as agents in the strategic game CICERO (FAIR et al., 2022), in the communicative game Werewolf, and in the text-based adventure game Zork (Tsai et al., 2023).

However, the "Jubensha game" remains an undeveloped field in terms of AI agents specifically tailored for its gameplay and evaluation. We believe there are several reasons. First, before the emergence of large language models, understanding the character plots, role tasks, and game rules in the script of Jubensha games was very challenging. Not to mention the need for AI-driven agents to engage in multi-round linguistic interactions, information gathering, and logical reasoning. Second, currently there is no publicly available dataset specifically for Jubensha games that AI researchers can use to develop and evaluate their agents. Third, quantitatively and qualitatively automating the evaluation of AI performance in Jubensha games is also very difficult. The most commonly used win-rate

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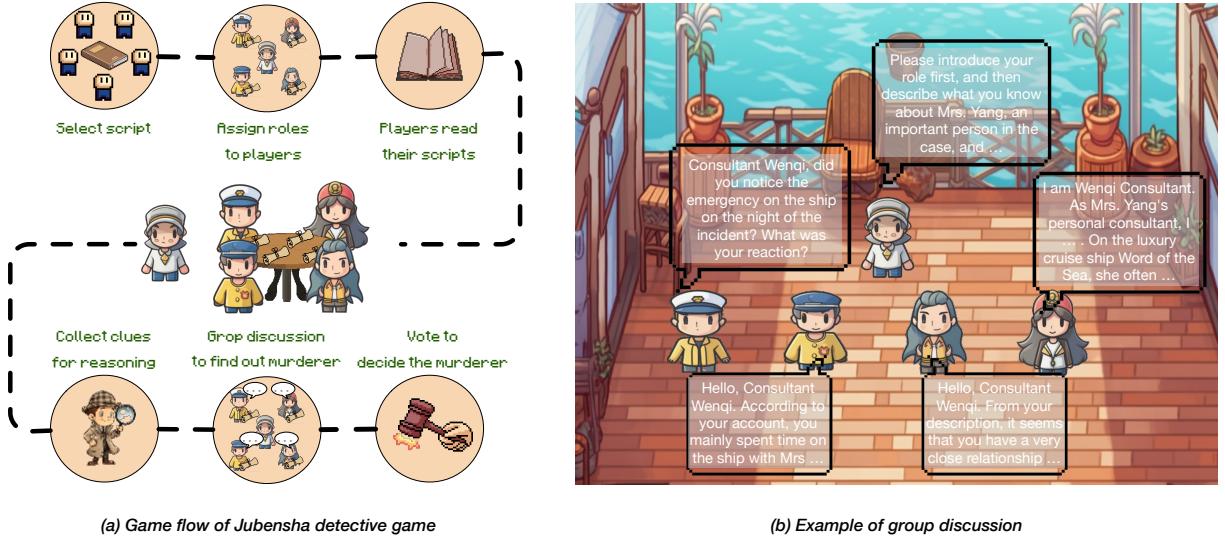


Figure 1: Illustration of the Jubensha game. It requires agents to reason about who is the murderer in a story based on the partial information provided to each agent.

metric in other game AIs is also of limited use in assessing the performance of Jubensha game agents, i.e., win rate does not show the extent of the Jubensha AI’s mastery of case information or the level of its reasoning ability.

In response to the above-mentioned challenges, we attempt to provide a solution in this work. This work focuses on constructing a multi-agent interaction framework in a “Jubensha” game environment using large language models, and we have designed a set of methods to quantitatively and qualitatively assess the performance of Large Language Model based (LLM-based) agents. Our contributions can be summarized as follows:

1. We have created a Chinese dataset providing character scripts and preset game rules to initiate a Jubensha game. To the best of our knowledge, this is the first dataset specifically tailored for AI agents playing in a Jubensha game setting.
2. We designed a framework for multi-agent interaction in a “Jubensha” game environment using large language models, allowing multiple LLM-based agents to autonomously interact with each other in a Jubensha game setting, without the need for human intervention.
3. To quantitatively and qualitatively assess the performance of large language model based agents in Jubensha games, we designed two tasks: one to evaluate their mastery of case

information and another to assess their reasoning abilities with the information collected during the game.”

4. Utilizing the latest advancements in the field of in-context learning, we devised modules to enhance the performance of LLM-based agents. Our evaluations show that this design significantly enhances the information mastery, murderer identification and reasoning capabilities of large language model based agents in the Jubensha game context.

2 Related Work

2.1 Interactive Role-Playing Games

Interactive role-playing games (IRPGs) immerse players in fictional settings where they assume character roles, engaging in a narrative through acting or structured decision-making. This rich, interactive domain has become a valuable testbed for multidisciplinary research, encompassing artificial intelligence, sociology, psychology, education, and economics (Zagal and Deterding, 2018; Barreteau et al., 2003; Nagata et al., 2021; Bowman and Lieberoth, 2018). IRPGs are typically divided into single-player role-playing games (SRPGs) and multi-player role-playing games (MRPGs), each offering distinct challenges and opportunities for study.

SRPGs are characterized by their focus on character advancement. In these games, a player controls one or more characters, navigating quests that

span diverse themes like adventure, scientific exploration, and householding tasks (Infocom, 1980; Côté et al., 2019; Shridhar et al., 2020a; Szot et al., 2021; Fan et al., 2022; Guss et al., 2019; Shridhar et al., 2020b; Wang et al., 2022a).

MRPGs emphasize collaborative storytelling, requiring not just character advancement but also intricate interaction among players. This complexity makes MRPGs a fertile ground for studying advanced topics such as persuasion modeling, human behavior simulation, negotiation strategies, and cooperative AI (Lai et al., 2023; Park et al., 2023; Fu et al., 2023; Kramár et al., 2022; FAIR et al., 2022).

2.2 LLM for IRPGs

LLM-based Autonomous Agents. The integration of large language models (LLMs) in IRPGs has shown promise for achieving human-like intelligence. These models, drawing from extensive web knowledge, are increasingly being explored as autonomous agents in various settings, such as adventure, scientific exploration, and householding tasks (Wang et al., 2023a; Wei et al., 2022; Wang et al., 2022b; Yao et al., 2023, 2022; Shinn et al., 2023).

Evaluating LLMs as Agents. The advancement of LLM-based agents necessitates their rigorous evaluation in interactive environments (Liu et al., 2023). Assessing their abilities in complex skills in role-playing games, such as combinatorial reasoning, persuasion, and negotiation, can be more challenging. Recent initiatives include ROLELLM (Wang et al., 2023b) for benchmarking LLMs in role-playing scenarios with synthetic contextualized instructions, Character-LLM (Shao et al., 2023) for learning personal simulacra with profile-based experiences, Tachikuma (Liang et al., 2023) for evaluating LLMs’ understanding over multiple-role and objects interactions via skill check answering, and Xu et al. (2023) propose evaluating the performance of LLMs-based agents in role-playing game Werewolf with win rate. Unlike the previously mentioned works, our approach introduces a more reliable set of evaluation methods for LLM-based agents in MRPGs, specifically tailored to the complexities and new challenges posed by Jubensha games.

3 Jubensha Dataset

To enhance AI deployment in Jubensha games, we have compiled a comprehensive dataset from over 1,100 Jubensha game instances in Chinese.¹ This dataset is a significant addition to Multi-player Role-Playing Games (MRPGs) research, presenting unique challenges and opportunities for advancement. In the subsequent sections, we will detail the background, data collection, the challenges encountered, and potential future applications of the dataset.

3.1 Background of Jubensha Game

Jubensha is a detective role-playing game, that merges strategy, deduction, and social interaction. It features two gameplay styles: Closed-Script Jubensha, with a predetermined ending and players fully aware of their character’s backstory to solve the murder, and Open-Script Jubensha, where the story’s conclusion varies based on player choices, and the murderer starts without knowing their role. Our current focus is on Closed-Script Jubensha, where each player, including one secret murderer, is assigned a unique role tied to a central murder mystery. The murderer can lie to conceal their identity, while civilian players must adhere to their scripts’ truths to deduce the murderer’s identity.

As shown in Figure 1, the game process consists of six stages: 1). Each player will select a script for distinct characters in a Jubensha game. 2). Once the script is selected, the player will naturally be assigned with a role (murderer or civilian) associated with the selected script. 3). The players will read their own scripts to develop a basic understanding of the whole story from their own views. 4). Based on the understanding of the story, each player will be given a pool of clues to help them reveal or hide critical details for finding the murderer. 5). A group discussion will be held among the players to share information and find out the murderer. 6). Finally, each player will vote to decide the murderer from his/her perspective. The civilians win the game if the true murderer got the most votes, otherwise the murderer wins.

¹Currently, this dataset is in Chinese, but we are open to expand it to other languages in the future. We use English examples in the main text for the convenience of the community (the examples in the first four sections are fictional for demonstration purposes, while the examples from Chapter 5 onwards are from the English translation of the real dataset). Additionally, in the appendix, we provide both the original Chinese game records and their English translations.

3.2 Dataset Construction

To establish an environment capable of evaluating Jubensha agents and to facilitate future scaled-up works, we collect 1,198 instances of Jubensha games in Chinese online.² Each game consists of a host manual describing how to control the game process and a God’s-eye view of case replays, along with individual scripts for each character in the game. Some of these scripts also contain multimodal clues, including audio and video. In order to create a unified experimental environment, we focus on text-modal Jubensha games. Besides, to facilitate future research use, we further transform the multi-source heterogeneous source files (e.g., scripts in PDF, jpg, and DOCX formats) into markdown files with a unified structure using a set of tools, including PaddleOCR ([Pad](#)), Tesseract ([Ooms, 2023](#)), etc. Furthermore, we also provide the distribution of the number of game instances with respect to the maximum number of players supported by the corresponding game instance. As illustrated in Fig. 2, 1,017 out of 1,198 games support 5 to 8 players, while only 181 game instances are under the settings of rare players or more than 9 players.

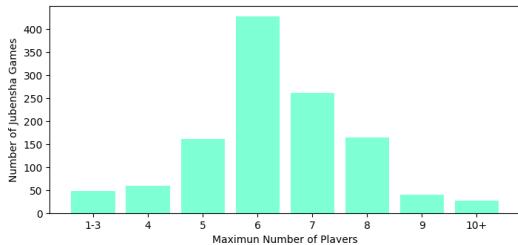


Figure 2: Number of games with respect to the maximum number of players.

3.3 Challenges in Jubensha

The introduction of the Jubensha dataset in Multiplayer Role-Playing Games (MRPGs) presents multifaceted challenges for AI research, pushing the boundaries of current AI capabilities and setting the stage for future developments. These challenges include complex text understanding, where AI agents must interpret and respond to intricate narratives and dialogues, involving tasks like long-text comprehension, key information extraction, and goal-driven dialogue. Advanced reasoning and strategy are crucial as players in Jubensha need to

²We will release this dataset after the publication for academic purpose only.

use reason the murderer based on the information they have collected from both the scripts and the dialogues. Besides, sophisticated tactics are expected to be developed in communication to fulfill their goals (reveal or hide the murderer). Persuasive communication is also essential, as Jubensha games require the murderer to effectively negotiate and influence others. Moreover, the simulation of social behavior and emotional intelligence is vital, with agents needing to mimic human-like social interactions and respond appropriately to emotional cues. Additionally, the dataset enables the study of multi-agent coordination, demanding advanced teamwork and conflict resolution algorithms. Furthermore, a significant challenge lies in systematically evaluating AI performance in such a complicated MRPG environment, possibly involving the decomposition of reasoning capabilities into separate levels and designing corresponding metrics. Lastly, ensuring the scalability and robustness of AI systems to efficiently handle the extensive and diverse data from Jubensha games is also a key challenge introduced.

3.4 Future Applications of The Dataset

The Jubensha dataset offers a diverse range of possibilities for future research. We have listed several promising future directions as follows: 1) *Open-Script Jubensha game playing*: Introducing an AI host that can dynamically control the progress of the game, facilitating the automatic game playing and evaluation of Open-Script Jubensha games. 2) *Multi-media Jubensha game playing*: although we currently focus on the text modality of Jubensha games, the collected data includes multi-modal clues, including audios, images, graphs, videos, etc. 3) *Wider research topics*: providing potential insights for the studies ranging from game theory to social behavior.

4 The *ThinkThrice* Framework for Complex Reasoning

We have designed an interaction framework for LLM-based agents specifically crafted for script murder (Jubensha) games. In this framework, each LLM-based agent is responsible for playing the role of a player in the Jubensha game narrative. Typically, each Jubensha game involves 4-5 players portrayed by LLM-based agents. Additionally, we have a non-player character serving as the host, who is responsible for guiding the game, such as

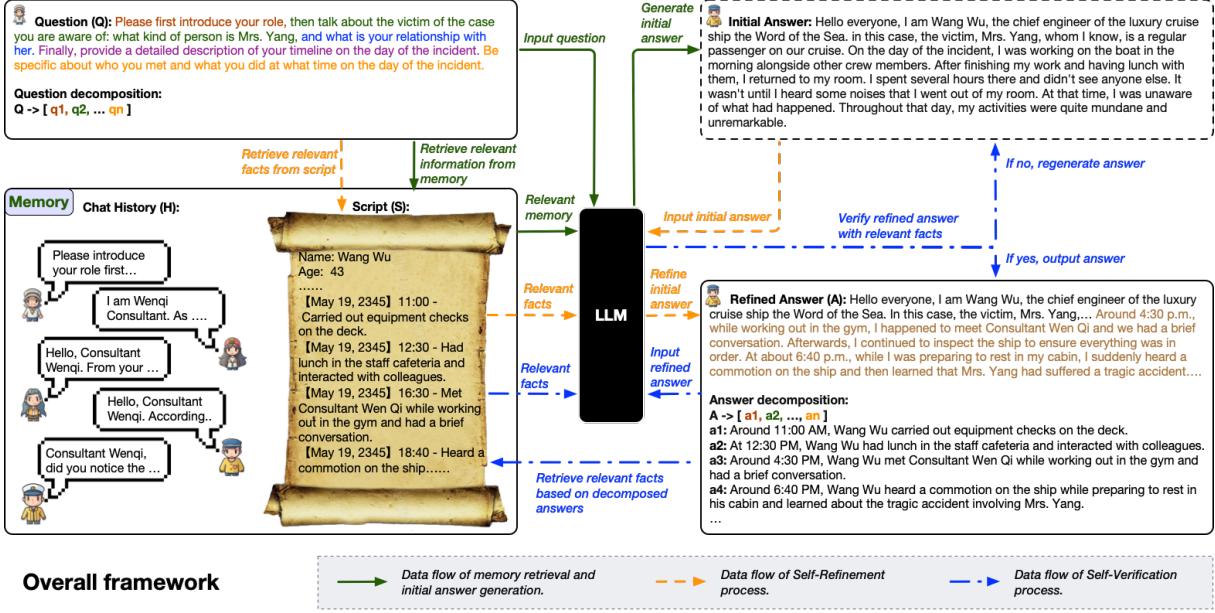


Figure 3: Illustration of our proposed ThinkThrice framework for enhancing agent’s complex reasoning ability in solving multi-agent mystery games (i.e., Jubensha). The three different colors of the arrows indicate the data flows of three stages: 1) Initial answer generation with memory retrieval; 2) Enhance answer with self-refinement; 3) Verify answer with self-verification.

Example Character Script

Name	Wang Wu
Age	43
Role	Civilian
Mission	You are not the culprit of this case; you need to collaborate with other civilian players to identify the real murderer.
Character Script	At the age of twenty-two, you embarked on a nautical journey aboard the vessel known as the Word of the Sea ...

Table 1: An example of character script for a Jubensha game.

prompting players for self-introductions, voting, and other activities. Unlike other players driven by large language models, the host’s questions and commands are pre-set to ensure the game follows a designated process. As for the LLM-based agent players, they are embedded with character information specific to their roles, as shown in Table 1. Based on this information, they interact with other characters (including other players and the host), such as choosing other players to question, answering questions from the host, and responding to inquiries from other players. These interactions

are synchronous, meaning only one agent acts at a specific moment. All actions of the LLM-based agent players, like whom to question or how to respond to questions from other players or the host, are generated by a LLM based on their character script and historical chat records.

We name our framework for multi-agent mystery games as *ThinkThrice*, or 三思 in Chinese. The name comes from a Chinese proverb: “thinking thrice before acting (三思而后行)”. Figure 3 illustrates the overall design of our ThinkThrice framework: given an input question, a player generates a response based on three main stages: i) Memory Retrieval: generate an initial answer with memory retrieval; ii) Self-Refinement: improve the initial answer by utilizing the retrieved question-related facts; iii) Self-Verification: further verify the enhanced answer by comparing it with answer-related facts. If it is good, we output the response (i.e., answer). Otherwise, we repeat the generation process.

Using LLM-based agents for Jubensha games can be very expensive, so we have set a finite number of rounds for each game, considering budget constraints. This approach also mimics the time-limited rules of real Jubensha games, although we choose to limit the number of rounds rather than the game duration. We will discuss this in more detail in Section 6.1.

4.1 Memory Retrieval

Due to the limited context window of large language models, a special memory/retrieval module is often needed to store and appropriately retrieve all historical records observed by the LLM-based agent. Our framework adopts this widely used method to help agents remember dialogues and events in the Jubensha games and retrieve specific memory fragments when needed. Specifically, we record all observations of the agent into a vector database exclusive to the agent using the OpenAI API³. When the agent observes a new event requiring action, we use the Faiss library⁴ to quickly search the agent’s exclusive vector database for multiple historical records with the top K highest similarities and include them in the current action prompt. We have observed that this simple module is also very helpful in improving the performance of LLM-based agents in our Jubensha games.

4.2 Self-Refinement and Self-Verification

The decoding process of large language models involves continuous sampling using a probabilistic model, so the quality and authenticity of each output can be somewhat random. This characteristic is not desired in the setting of Jubensha games. Given the limited number of interactions, LLM-based agents must communicate efficiently with other agents in a limited number of attempts to gather enough information for case solving before the voting phase. Therefore, keeping the quality of large language models’ outputs high and consistent is crucial for the performance of LLM-based agents in Jubensha games. For this, we designed Self-Refinement and Self-Verification modules to help LLM-based agents.

Self-Refinement. The goal of the Self-Refinement module is to ensure that LLM-based agents provide as much information and detail as possible when answering questions. As shown in Figure 3, when an agent receives a question from others, it first attempts to generate an initial answer internally (see the green lines). During the Self-Refinement stage, the agent decomposes the asked question Q into several sub-questions: q_1, q_2, \dots, q_n . It then uses these sub-questions to retrieve relevant facts from the character scripts S that can be used to answer these sub-questions.

³<https://platform.openai.com/docs/api-reference/embeddings>
⁴<https://github.com/facebookresearch/faiss>

For each relevant fact, the agent checks whether they are included in the initial answer. If not, they are added to form part of the refined answer (see the orange lines in Figure 3). From Figure 3, we can see that the refined answer, after the Self-Refinement module, contains more details and information than the initial answer, thereby enhancing the agent’s communication efficiency within a limited number of rounds.

Self-Verification. LLM hallucinations are a very common and thorny problem. To ensure that the content of LLM-based agents’ answers is authentic and not hallucinated, we designed a Self-Verification module. This module breaks down the agent’s answer A into multiple facts a_1, a_2, \dots, a_n and then compares these facts one by one with the agent’s character script S for authenticity. Only when the agent’s answer meets our preset authenticity threshold (measured by the absolute number and accuracy of real facts) will the agent output the answer (see the blue lines in Figure 3). If the answer does not meet the preset threshold, the agent will need to regenerate the answer until the authenticity of the agent’s answer meets the requirements or exceeds the maximum number of attempts (controlled by a hyperparameter). Since the agent’s best output may not necessarily occur in the last attempt, we score each answer based on the degree of authenticity and the number of words, keeping a copy of the highest-scoring answer each time. By doing so, we can ensure that even if all of the agent’s attempts fail to meet the authenticity threshold, it will still output the highest quality answer from all its previous attempts.

5 Evaluating LLM-based Agents in Jubensha Games

Previous work has primarily employed metrics such as human-likeness and win rate to assess the performance of LLM-based agents in games. These metrics either require substantial human involvement or likely leading to less reliable experimental conclusions due to the challenges in controlling variables⁵. Considering the unique characteristics of Jubensha games, we have designed two tasks to quantitatively and qualitatively evaluate the performance of LLM-based agents in Jubensha games: Factual Question Answering and Inferential Question Answering.

⁵This is particularly the case when both sides in the game are played by LLMs

Example 1
Question: Who does Mate Zhang’s brother work for?
Answer: Boss Yang
Source: He works for Boss Yang, owner of a famous bar in City A. (from Mate Zhang’s script)
Example 2
Question: When did Dr. Ling meet Mate Zhang?
Answer: 18:20
Source: 18:20, you went to meet Boss Yang, and met Mate Zhang just as you were about to arrive. (from Dr. Ling’s script)

Table 2: Two examples of Factual Questions.

5.1 Factual Question Answering

The process of gathering information in Jubensha games is crucial for LLM-based agents to understand the implied relationships and conflicts in the story, reconstruct the entire case, and deduce the truth. To evaluate how much information LLM-based agents gathered in Jubensha games, we designed a factual question-answering task as follows.

First, we use GPT-4 to read each character’s script and then instruct it to generate question and answer pairs about that character. For each character, we create 40 factual questions, which are then reviewed and improved by human annotators. Next, we prompt the LLM-based agents to answer factual questions related to both their own and other characters. At the start of the game, each LLM-based agent can only access their own character’s script, limiting their ability to answer questions about other characters. However, as the game progresses and players begin to communicate and interact, the LLM-based agents gain the information to answer more questions about other characters. We track the change in the accuracy rate of the LLM-based agents’ responses to these questions to assess the amount of information they have gathered during the game. In Table 2, we present two examples of factual questions, and the results of the LLM-based agents’ performance on these factual questions will be detailed in Section 6.3.

5.2 Inferential Question Answering

Once LLM-based agents have gathered the necessary information, another important step is using

Question: Who is most likely to have made the thumping sound that Dr. Ling heard on her way to kill Boss Yang? A. Secretary Wen, B. Boss Yang, C. Boatman Wang, D. Mate Zhang, E. Others.
Answer: A. Secretary Wen
Rationale (GT): {Secretary Wen left Boss Yang’s room through the ventilation duct at 23:00}PREMISE 1, and {Dr. Ling prepared to kill Boss Yang through the ventilation duct also at 23:00}PREMISE 2. Therefore, it can be inferred that {the ‘thumping’ sound Dr. Ling heard on her way to kill Boss Yang was most likely made by Secretary Wen}CONCLUSION.

Table 3: Example of Inferential Questions

this information for inference. This step is particularly crucial in Jubensha games, where the truth of the case is often obscured by numerous clues. To evaluate the reasoning abilities of LLM-based agents, we manually designed 12 to 15 inferential questions for each Jubensha game script. To answer these questions successfully, LLM-based agents must integrate information from different characters and make inferences based on this information. This inferential question-answering task tests the abductive reasoning ability of LLM-based agents, as the answer is not explicitly stated in any player’s script. The agents need to deduce the most likely answer based on the information they have gathered. In Table 3, we present an example of these inferential questions. The PREMISE 1 is from Secretary Wen’s script and PREMISE 2 is from Dr. Ling’s script. The results of the LLM-based agents’ performance on these questions will be discussed in Section 6.5.

6 Experiment

In this section, we will first introduce our experimental setup, which includes the rules and procedures of the Jubensha game, as well as the specific information about the Large Language Models used in each stage. Following this, we will present our experimental results, encompassing the evaluation of LLM-based agents’ factual question answering, the win rate of civilian players and the accuracy of murderer detection, and the evaluation of the LLM-based agents’ inferential question answering. Due to time constraints, we have currently only used four scripts from our dataset for experi-

ments. We plan to use more scripts for experiments in the future.

6.1 Jubensha Game Rules and Procedure

The specific rules and the procedures of a Jubensha game often vary depending on the theme or design of the game. In our experiment, we use specific rules and a procedure with the expectation of achieving a balance between ensuring sufficient opportunities for interaction among agents and controlling the budget. To be more specific, our Jubensha game comprises six stages: starting with the distribution of character scripts, followed by a self-introduction session, multiple rounds of open questioning, the distribution of clue cards, additional rounds of open questioning, and finally culminating in a voting stage where players anonymously vote to identify the murderer. The detailed rules of the game and each stage of the procedure can be found in the Appendix.

To ensure that LLM-based agents fully understand the game rules and the procedure, this information will be made accessible to them before the start of the game, along with the character script information.

6.2 Utilization of LLMs in Jubensha Game Stages

Throughout the gameplay and other stages of the Jubensha game experiment, including the generation of factual questions, agent Q&A sessions, and the evaluation of agent responses, we predominantly employed OpenAI’s GPT-3.5 and GPT-4 models. Unless specifically indicated, the GPT-3.5 model mentioned in this paper refers to gpt-3.5-turbo-16k-0613, and GPT-4 refers to gpt-4-1106-preview. Specific applications of each model are as follows:

- **Gameplay:** GPT-3.5 was used due to its larger context window and budget considerations.⁶ Future experiments may include GPT-4 as costs become more feasible.
- **Factual Question Generation:** Both GPT-3.5 and GPT-4 (gpt-4-0613) were used, with no notable difference in output quality observed.

⁶Before the public release of gpt-4-1106-preview, the publicly accessible GPT-4 model had a maximum context size of 8k, which is insufficient for the Jubensha game.

	Own Q		Other’s Q	
	Avg	CQ	MQ	Avg
No MR	0.764	0.278	0.306	0.293
MR	0.734	0.358	0.391	0.394
MR+SR	0.735	0.464	0.447	0.473
MR+SR+SV(N=1)	0.765	0.474	0.572	0.498
MR+SR+SV(N=3)	0.760	0.508	0.52	0.509

Table 4: Performance of agents on different kinds of factual questions. “Own Q” refers to questions generated from the agent’s own script, while “Other’s Q” refers to questions from scripts of other agents, inaccessible to the answering agent. “Other’s Q” includes “CQ” (questions from other civilians’ scripts) and “MQ” (questions from the murderer agent’s script). The effectiveness of different module combinations in the agents - Memory Retriever (MR), Self-Refinement (SR), and Self-Verification (SV) - is assessed based on agents’ ability to provide factual responses about themselves and others. The number follows “N=” denotes the maximum number attempts an agent can try in the SV stage.

- **Agent Q&A Sessions:** GPT-3.5 was used for factual question responses, while both GPT-3.5 and GPT-4 were tested for inferential question responses.
- **Response Evaluation:** GPT-3.5 assessed agents’ responses to factual questions, whereas GPT-4 evaluated agents’ inferential question responses and voting decisions. A manual review of 200 examples was conducted to validate the models’ evaluations against human judgments, using Pearson and Spearman’s coefficients.

6.3 Evaluation on Agents’ Responses to Factual Questions

The Table 4 presents the evaluation results on agents’ responses to factual questions. We can see that agents with different module combinations performed quite well when answering questions from their own script. This is understandable because agents have full access to their own scripts throughout the game, thereby possessing all the information needed to correctly answer these questions. Since the Memory Retriever module mainly records the communication history among agents after the game starts, we can consider agents without the Memory Retriever as being in a memoryless state. In this scenario, agents can only see their own script and are completely unaware of

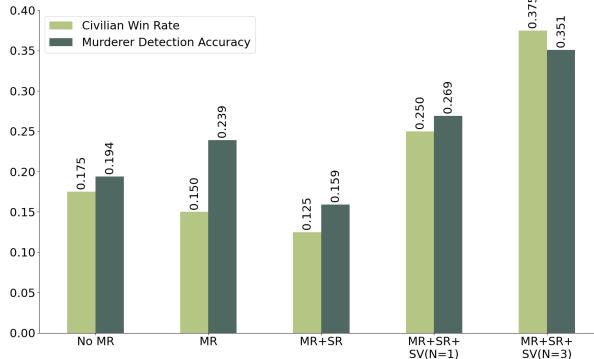


Figure 4: Average win rate of civilian players and the average murderer detection accuracy across different architectures in Jubensha games.

the scripts of other agents (meaning, even if other agents reveal some information about themselves during the game, the agents will not record it). The experimental results in the ‘‘No MR’’ row show that in a memoryless state, agents’ accuracy in answering questions about themselves is significantly higher than in answering questions about others. This gap highlights the significant difference between the information agents possess about others and about themselves. After introducing the Memory Retriever module, we observe a significant improvement in agents’ accuracy in answering questions about others, reflecting the increase in information gained from interactions among agents, which helps them better understand the roles and stories of other characters in the game.

The Self-Refinement and Self-Verification modules mainly ensure the authenticity and comprehensiveness of information during agent communication. Therefore, we can see that the addition of these modules further improves the accuracy of agents in answering questions about others. This indicates that these two modules significantly enhance the efficiency of communication among agents compared to just having the Memory Retriever module. We can observe that the accuracy of agents in answering questions about others achieves the best results among all under the combined effect of the Memory Retriever module, the Self-Refinement module, and the Self-Verification module (with a maximum of 3 attempts). This demonstrates that our designed modules effectively enhance the efficiency of communication among agents in the Jubensha game, allowing them to acquire more information about the game script under the same game round conditions.

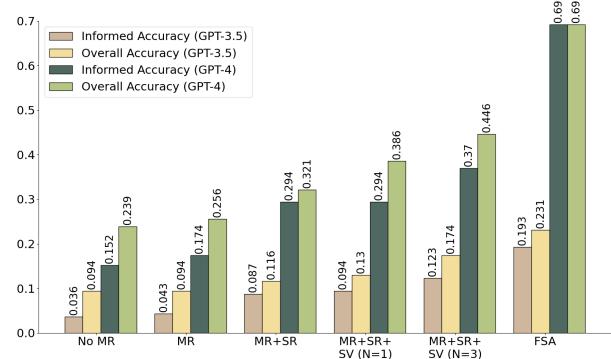


Figure 5: GPT-3.5 and GPT-4’s performance with different methods, where overall accuracy measure the raw correct percentage and informed accuracy take LLM’s reasoning ability into consideration. FSA stands for ‘Full Script Access’, indicating that agents have access to the complete scripts of all players.

6.4 Civilian Player Win Rate and Murderer Detection Accuracy

Figure 4 shows the average win rates of civilian players and the murderer detection accuracy by agents with various module combinations in Jubensha games. ‘‘Civilian Win Rate’’ in Figure 4 is the ratio of the number of games won by civilian players to the total number of games played. ‘‘Murderer Detection Accuracy’’ is the proportion of votes received by the murderer to the total number of votes cast by all players. We observed that MR+SR+SV(N=3) which performs best in factual question answering tasks, also achieves the highest average civilian players win rate and murderer detection accuracy compared to other architectures. This might be due to agents acquiring sufficient information to reconstruct the true narrative of the case, thereby making it easier to accurately identify the murderer.

6.5 Evaluation of Agent’s Responses to Inferential Questions

To further evaluate the reasoning capabilities of LLM-based agents based on the rationale derived from collected information, we utilized a set of inferential questions (detailed in Section 5.2) generated from one of the game scripts of our dataset. The experimental results are displayed in Figure 5. It is important to note that the Overall Accuracy shown in Figure 5 represents the rate at which agents correctly answer questions, without considering the rationale behind their responses. In contrast, Informed Accuracy refers to the accuracy

achieved when taking into account the rationale provided by agents for their answers. An answer is counted towards Informed Accuracy only if the agent’s response is correct and they provide the correct reasoning rationale. This metric demonstrates that agents not only know the correct answer but also understand why it is correct.

From the results in Figure 5, we can draw two important observations: 1. The more information agents acquire during the game, the more likely they are to solve complex problems through reasoning. 2. Given the same amount of information, the LLM’s own capability to utilize information and reason will determine the final reasoning performance of the agents. We will delve into these two observations in detail below.

The Amount of Information Obtained by the Agent Matters. From the experiment, we can observe that when an agent solves reasoning problems using the same LLM, having more information is more advantageous. To derive this observation, we utilized six different states of information: the agent in a memoryless state (No MR), the agent after playing the game with a memory retriever module, the agent after playing the game with both memory retriever and self-refiner modules, the agent after playing the game with memory retriever, self-refiner, and self-verifier modules (with a maximum of 1 attempt), the agent after playing the game with self-refiner and self-verifier modules (with a maximum of 3 attempts), and the agent with full access to the scripts of all players in the game. Agents in these six different states were used to answer the same set of inferential questions. It is evident that regardless of whether the LLM used for answering inferential questions is GPT-3.5 or GPT-4, the agent’s reasoning performance is better with more information.⁷ One illustrative example is that the performance of the GPT-4 model in situations with very limited information (No Memory Retriever, i.e., only having access to the agent’s own script) is not satisfactory. This highlights the crucial importance of information gathering in the reasoning tasks of Jubensha games, directly affecting the agent’s final reasoning performance. It also proves the effectiveness of the framework we proposed.

⁷Note: Besides full access to scripts, our primary basis for measuring the amount of information an agent has mainly comes from the evaluation of agents’ responses to factual questions (See Section 6.3).

The LLM’s Information Utilization and Reasoning is Critical. To test how much the information utilization and reasoning abilities of different LLMs could affect the final reasoning performance under the same information states, we examined the reasoning abilities of agents using GPT-3.5 and GPT-4. The results show that GPT-3.5 struggles to make the right reasoning even when agents have full access to all players’ scripts. This indicates that even with complete information, if the LLM’s own information utilization and reasoning capabilities are not strong, it will still be challenging to make correct inferences when faced with complex problems. In contrast, GPT-4’s information utilization and reasoning abilities are significantly stronger than those of GPT-3.5. With the same information available, the reasoning accuracy of GPT-4 is at least twice as high as that of GPT-3.5. With full access to all players’ scripts, the reasoning accuracy of GPT-4 reaches nearly 70%. Considering that we did not make any special adjustments to the prompts when using the LLM, nor did we use more advanced in-context learning techniques like Chain-of-thought or self-consistency to enhance GPT-4’s reasoning ability, this result is a quite impressive.

Qualitative Analysis. In Table 5, we provide a qualitative analysis: agents are presented with an inferential question under different states of information access, along with the correct answer (which the agents do not know to be correct), and are asked to provide the rationale for their reasoning. Each rationale provided by the agents is accompanied by a GPT Eval Score, which measures the similarity between the agents’ rationale and the ground truth rationale as assessed by GPT. The inferential question, answer, and the ground truth rationale can be found in Table 3. From Table 5, we observe that with Full Script Access (complete information), agents can easily identify relevant premises and deduce solid conclusions. In cases where agents have incomplete information, MR+SR+SV (N=3), due to lacking specific details about the exact time Secretary Wen was in the ventilation duct, the conclusion drawn is merely plausible. For MR and No MR, owing to the absence of many key details, the reasoning process involves many irrelevant or flawed premises, leading to only tenuous conclusions. This qualitative analysis demonstrates the significant impact that the collection of key information during the game has on the agents’ final reasoning performance.

	Predicted Rationale
No MR	{Dr. Ling couldn't find the medical cabinet key when she returned to her room at 18:50, suggesting someone had already taken it}IRRELEVANT PREMISE 1; {Secretary Wen asked Dr. Ling for intelligence at 18:10}IRRELEVANT PREMISE 2, {giving her the opportunity to know Boss Yang's location and possibly plan an action}TENUOUS INTERIM CONCLUSION 3; plus, when Dr. Ling heard the thumping sound, she was on her way to Boss Yang's room, and {there's no clear evidence that other suspects were near Boss Yang's room at that time}FLAWED PREMISE 4; moreover, {the ventilation duct's baffle had fallen, indicating someone had entered Boss Yang's room before her}RELEVANT INTERIM CONCLUSION 5; {considering Secretary Wen's role under Boss Yang, she had the chance to approach him}TANGENTIALLY RELEVANT PREMISE 6, {hence the thumping sound was most likely made by Secretary Wen}TENUOUS CONCLUSION. (GPT Eval Score: 3)
MR	{According to the detailed timeline of the day of the incident for Dr. Ling, she heard someone crawling in the ventilation duct at 23:00 when she was preparing to go to Boss Yang's, and she reached his room at 23:20, only to find him already dead}RELEVANT PREMISE 1. {Secretary Wen was the only one aware of Dr. Ling's mission and plan}FLAWED PREMISE 2, {and clues suggest Secretary Wen might have tampered with the intelligence letter, leaving information about the transaction between Dr. Ling and Mate Zhang}IRRELEVANT PREMISE 3, {possibly to make Boss Yang suspicious of Dr. Ling.}IRRELEVANT INTERIM CONCLUSION 4 {This indicates Secretary Wen might have had a motive to be involved in Boss Yang's death.}TANGENTIALLY RELEVANT PREMISE 5 Combining all this information, {Secretary Wen is the most likely person to have been in the ventilation duct and possibly involved in Boss Yang's death}TENUOUS CONCLUSION. (GPT Eval Score: 4)
MR + SR + SV (N=3)	The sound Dr. Ling heard in the ventilation duct came from Secretary Wen. {According to Dr. Ling's timeline, she entered the ventilation duct at 23:00 and reached Boss Yang's cabin at 23:20, hearing someone crawling inside }RELEVANT PREMISE 1. {Secretary Wen mentioned waiting in the ventilation duct in her timeline}LIMITED PREMISE 2, {so it is likely she made the noise}PLAUSIBLE CONCLUSION. {Mate Zhang and Boatman Wang's actions and timelines do not mention being active in the ventilation duct}PARTIALLY CORRECT PREMISE 3. {Boss Yang was already dead at that time, so the sound couldn't have come from him.}RELEVANT INTERIM CONCLUSION 4 (GPT Eval Score: 5)
Full Script Access	{When Dr. Ling was preparing to enter Boss Yang's cabin through the ventilation duct at 23:00, she heard a 'thumping' sound coming from the duct}RELEVANT PREMISE 1. {According to Secretary Wen's timeline of the day of the incident, she reached the ventilation duct at 22:40 and re-entered it at 23:00 to return}RELEVANT PREMISE 2. {This timing matches the moment Dr. Ling heard the thumping sound}RELEVANT AND SOLID INTERIM CONCLUSION 3, thus it can be inferred that {the sound was most likely Secretary Wen crawling in the ventilation duct}SOLID CONCLUSION. (GPT Eval Score: 5)

Table 5: Qualitative analysis of agent reasoning performance with different levels of information access.

7 Conclusion

This work has explored the application of Large Language Models (LLMs) in complex interactive environments, exemplified by the Chinese murder mystery role-playing game "Jubensha". Our research has yielded four main contributions: the creation of a specialized dataset tailored for the Jubensha game, the design of a multi-agent interaction framework for the automatic conduct of Jubensha games, the development of a set of quantitative and qualitative assessment methods to measure the information gathering and reasoning abilities of LLM-based agents within the game, and the utilization of the latest in-context learning techniques to

devise modules that enhance the performance of LLM-based agents. We have empirically demonstrated that our designed multi-agent interaction framework and the in-context learning modules significantly improve upon the baseline in terms of information gathering, murderer identification, and reasoning capabilities. We believe this research will advance the community's knowledge of LLM-based agents and offers a new perspective on evaluating the performance of LLMs in a complex, plot-driven, and adversarial reasoning game environment constrained by narrative contexts.

Ethics Statement

Our research delves into the reasoning abilities of large language models (LLMs) within the setting of “Jubensha” (剧本杀), a type of Chinese simulated murder mystery game. It is important to clarify that any fictional portrayals of violence in these game scenarios of our work are purely for the purposes of academic analysis and are not meant to represent or endorse real-world violence in any way. The data employed in our study is gathered from online platforms hosting Jubensha content. When sharing this dataset, we will implement measures to ensure that its usage remains strictly for academic, non-commercial purposes and is in compliance with fair use principles.

References

- Paddleocr. <https://github.com/PaddlePaddle/PaddleOCR>.
- Olivier Barreteau, Christophe Le Page, and Patrick D'aquino. 2003. Role-playing games, models and negotiation processes. *Journal of Artificial Societies and Social Simulation*.
- Sarah Lynne Bowman and Andreas Lieberoth. 2018. Psychology and role-playing games. *Role-playing game studies: Transmedia foundations*.
- Noam Brown, Anton Bakhtin, Adam Lerer, and Qucheng Gong. 2020. Combining deep reinforcement learning and search for imperfect-information games.
- Noam Brown and Tuomas Sandholm. 2019. Superhuman ai for multiplayer poker. *Science*, 365(6456):885–890.
- Murray Campbell, A.Joseph Hoane, and Feng hsiung Hsu. 2002. Deep blue. *Artificial Intelligence*, 134(1):57–83.
- Marc-Alexandre Côté, Akos Kádár, Xingdi Yuan, Ben Kybartas, Tavian Barnes, Emery Fine, James Moore, Matthew Hausknecht, Layla El Asri, Mahmoud Adada, et al. 2019. Textworld: A learning environment for text-based games. In *Computer Games: 7th Workshop, CGW 2018, Held in Conjunction with the 27th International Conference on Artificial Intelligence, IJCAI 2018, Stockholm, Sweden, July 13, 2018, Revised Selected Papers* 7. Springer.
- Meta Fundamental AI Research Diplomacy Team FAIR, Anton Bakhtin, Noam Brown, Emily Dinan, Gabriele Farina, Colin Flaherty, Daniel Fried, Andrew Goff, Jonathan Gray, Hengyuan Hu, et al. 2022. Human-level play in the game of diplomacy by combining language models with strategic reasoning. *Science*.
- Linxi Fan, Guanzhi Wang, Yunfan Jiang, Ajay Mandlikar, Yuncong Yang, Haoyi Zhu, Andrew Tang, De-An Huang, Yuke Zhu, and Anima Anandkumar. 2022. Minedojo: Building open-ended embodied agents with internet-scale knowledge. *Advances in Neural Information Processing Systems*.
- Yao Fu, Hao Peng, Tushar Khot, and Mirella Lapata. 2023. Improving language model negotiation with self-play and in-context learning from ai feedback. *arXiv preprint arXiv:2305.10142*.
- William H Guss, Brandon Houghton, Nicholay Topin, Phillip Wang, Cayden Codel, Manuela Veloso, and Ruslan Salakhutdinov. 2019. Minerl: A large-scale dataset of minecraft demonstrations. *arXiv preprint arXiv:1907.13440*.
- Infocom. 1980. Zork i. <https://ifdb.org/viewgame?id=0dbnusxung7fw5ro>.
- János Kramár, Tom Eccles, Ian Gemp, Andrea Tacchetti, Kevin R McKee, Mateusz Malinowski, Thore Graepel, and Yoram Bachrach. 2022. Negotiation and honesty in artificial intelligence methods for the board game of diplomacy. *Nature Communications*.
- Bolin Lai, Hongxin Zhang, Miao Liu, Aryan Pariani, Fiona Ryan, Wenqi Jia, Shirley Anugrah Hayati, James Rehg, and Diyi Yang. 2023. Werewolf among us: Multimodal resources for modeling persuasion behaviors in social deduction games. In *Findings of the Association for Computational Linguistics: ACL 2023*, pages 6570–6588.
- Yuanzhi Liang, Linchao Zhu, and Yi Yang. 2023. Tachikuma: Understanding complex interactions with multi-character and novel objects by large language models. *arXiv preprint arXiv:2307.12573*.
- Xiao Liu, Hao Yu, Hanchen Zhang, Yifan Xu, Xuanyu Lei, Hanyu Lai, Yu Gu, Hangliang Ding, Kaiwen Men, Kejuan Yang, et al. 2023. Agentbench: Evaluating llms as agents. *arXiv preprint arXiv:2308.03688*.
- Aishwarya Lohokare, Aayush Shah, and Michael Zyda. 2020. Deep learning bot for league of legends. In *Proceedings of the Sixteenth AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, AIIDE’20. AAAI Press.
- Ryo Nagata, Masato Hagiwara, Kazuaki Hanawa, Masato Mita, Artem Chernodub, and Olena Nahorna. 2021. Shared task on feedback comment generation for language learners. In *Proceedings of the 14th International Conference on Natural Language Generation*, pages 320–324, Aberdeen, Scotland, UK. Association for Computational Linguistics.
- Jeroen Ooms. 2023. *tesseract: Open Source OCR Engine*. R package version 5.2.0. <https://docs.ropensci.org/tesseract/> (website) [https://github.com/ropensci/tesseract \(devel\)](https://github.com/ropensci/tesseract (devel)).

- Joon Sung Park, Joseph C O’Brien, Carrie J Cai, Meredith Ringel Morris, Percy Liang, and Michael S Bernstein. 2023. Generative agents: Interactive simulacra of human behavior. *arXiv preprint arXiv:2304.03442*.
- Yunfan Shao, Linyang Li, Junqi Dai, and Xipeng Qiu. 2023. Character-lm: A trainable agent for role-playing. *arXiv preprint arXiv:2310.10158*.
- Noah Shinn, Federico Cassano, Ashwin Gopinath, Karthik R Narasimhan, and Shunyu Yao. 2023. Reflexion: Language agents with verbal reinforcement learning. In *Thirty-seventh Conference on Neural Information Processing Systems*.
- Mohit Shridhar, Jesse Thomason, Daniel Gordon, Yonatan Bisk, Winson Han, Roozbeh Mottaghi, Luke Zettlemoyer, and Dieter Fox. 2020a. Alfred: A benchmark for interpreting grounded instructions for everyday tasks. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition*, pages 10740–10749.
- Mohit Shridhar, Xingdi Yuan, Marc-Alexandre Côté, Yonatan Bisk, Adam Trischler, and Matthew Hausknecht. 2020b. Alfworld: Aligning text and embodied environments for interactive learning. *arXiv preprint arXiv:2010.03768*.
- David Silver, Aja Huang, Chris J. Maddison, Arthur Guez, Laurent Sifre, George van den Driessche, Julian Schrittwieser, Ioannis Antonoglou, Veda Panneershelvam, Marc Lanctot, Sander Dieleman, Dominik Grewe, John Nham, Nal Kalchbrenner, Ilya Sutskever, Timothy Lillicrap, Madeleine Leach, Koray Kavukcuoglu, Thore Graepel, and Demis Hassabis. 2016. Mastering the game of Go with deep neural networks and tree search. *Nature*, 529(7587):484–489.
- Andrew Szot, Alexander Clegg, Eric Undersander, Erik Wijmans, Yili Zhao, John Turner, Noah Maestre, Mustafa Mukadam, Devendra Singh Chaplot, Oleksandr Maksymets, et al. 2021. Habitat 2.0: Training home assistants to rearrange their habitat. *Advances in Neural Information Processing Systems*.
- Chen Feng Tsai, Xiaochen Zhou, Sierra S. Liu, Jing Li, Mo Yu, and Hongyuan Mei. 2023. Can large language models play text games well? current state-of-the-art and open questions.
- Oriol Vinyals, Igor Babuschkin, Wojciech M Czarnecki, Michaël Mathieu, Andrew Dudzik, Junyoung Chung, David H Choi, Richard Powell, Timo Ewalds, Petko Georgiev, et al. 2019. Grandmaster level in starcraft ii using multi-agent reinforcement learning. *Nature*, 575(7782):350–354.
- Oriol Vinyals, Timo Ewalds, Sergey Bartunov, Petko Georgiev, Alexander Sasha Vezhnevets, Michelle Yeo, Alireza Makhzani, Heinrich Küttler, John Agapiou, Julian Schrittwieser, John Quan, Stephen Gaffney, Stig Petersen, Karen Simonyan, Tom Schaul, Hado van Hasselt, David Silver, Timothy Lillicrap, Kevin Calderone, Paul Keet, Anthony Brunasso, David Lawrence, Anders Ekermo, Jacob Repp, and Rodney Tsing. 2017. Starcraft ii: A new challenge for reinforcement learning.
- Lei Wang, Chen Ma, Xueyang Feng, Zeyu Zhang, Hao Yang, Jingsen Zhang, Zhiyuan Chen, Jiakai Tang, Xu Chen, Yankai Lin, et al. 2023a. A survey on large language model based autonomous agents. *arXiv preprint arXiv:2308.11432*.
- Ruoyao Wang, Peter Jansen, Marc-Alexandre Côté, and Prithviraj Ammanabrolu. 2022a. Scienceworld: Is your agent smarter than a 5th grader? *arXiv preprint arXiv:2203.07540*.
- Xuezhi Wang, Jason Wei, Dale Schuurmans, Quoc Le, Ed Chi, Sharan Narang, Aakanksha Chowdhery, and Denny Zhou. 2022b. Self-consistency improves chain of thought reasoning in language models. *arXiv preprint arXiv:2203.11171*.
- Zekun Moore Wang, Zhongyuan Peng, Haoran Que, Jiaheng Liu, Wangchunshu Zhou, Yuhan Wu, Hongcheng Guo, Ruitong Gan, Zehao Ni, Man Zhang, et al. 2023b. Rolelm: Benchmarking, eliciting, and enhancing role-playing abilities of large language models. *arXiv preprint arXiv:2310.00746*.
- Jason Wei, Xuezhi Wang, Dale Schuurmans, Maarten Bosma, Fei Xia, Ed Chi, Quoc V Le, Denny Zhou, et al. 2022. Chain-of-thought prompting elicits reasoning in large language models. *Advances in Neural Information Processing Systems*.
- Yuzhuang Xu, Shuo Wang, Peng Li, Fuwen Luo, Xiaolong Wang, Weidong Liu, and Yang Liu. 2023. Exploring large language models for communication games: An empirical study on werewolf. *arXiv preprint arXiv:2309.04658*.
- Shunyu Yao, Dian Yu, Jeffrey Zhao, Izak Shafran, Thomas L Griffiths, Yuan Cao, and Karthik Narasimhan. 2023. Tree of thoughts: Deliberate problem solving with large language models. *arXiv preprint arXiv:2305.10601*.
- Shunyu Yao, Jeffrey Zhao, Dian Yu, Nan Du, Izak Shafran, Karthik Narasimhan, and Yuan Cao. 2022. React: Synergizing reasoning and acting in language models. *arXiv preprint arXiv:2210.03629*.
- Deheng Ye, Guibin Chen, Wen Zhang, Sheng Chen, Bo Yuan, Bo Liu, Jia Chen, Zhao Liu, Fuhao Qiu, Hongsheng Yu, Yinyuting Yin, Bei Shi, Liang Wang, Tengfei Shi, Qiang Fu, Wei Yang, Lanxiao Huang, and Wei Liu. 2020. Towards playing full moba games with deep reinforcement learning. In *Proceedings of the 34th International Conference on Neural Information Processing Systems*, NIPS’20, Red Hook, NY, USA. Curran Associates Inc.
- Jose Zagal and Sebastian Deterding. 2018. Definitions of “role-playing games”. *Role-playing game studies: Transmedia foundations*.

A Appendix

A.1 Detailed Jubensha Game Rules and Procedure

The detailed Jubensha game rules we used for our experiments are as follows:

Rule 1: The total number of players participating in the game may be four or five, depending on the script. Only one of these players is the real murderer, known as the murderer player. Players who are not the murderer are collectively referred to as civilian players.

Rule 2: Civilian players need to cooperate to face a carefully planned murder case and find the real murderer among the suspects by collecting evidence and reasoning.

Rule 3: Throughout the game, only the murderer player can lie. To hide their identity, the murderer may choose to frame others and exonerate themselves.

Rule 4: Players who are not the murderer (civilian players) must answer questions honestly from other players and the host, and provide as much detailed information about the case as they know, to help restore the truth of the case.

Rule 5: The host of the game is responsible only for ensuring that the game proceeds according to a specific process. They are not a player in the game and do not participate in the game's storyline.

Rule 6: Each player receives their personal character script from the host at the beginning of the game, thereby learning about their character's information and identity.

Rule 7: The content of each player's personal character script is invisible to other players, so players must and can only gather information about other players by interacting with them after the game starts.

Rule 8: Since there is only one murderer in the game, only the murderer player knows the identities of the other players after receiving their character script (since everyone else is a civilian). Civilian players cannot determine the true identities of other players and can only infer through interactions during the game.

Rule 9: During the voting phase, each player has exactly one vote, which they can cast for the player they think is the murderer (including themselves, although this is discouraged). If the player with the most votes is the murderer, the civilian players win. Otherwise, the murderer player wins.

The overall procedure of the game is as follows:

Stage 1: Distribution of Character Scripts

The host distributes character scripts to each player individually. The script includes the player's name, identity (murderer or civilian), character story, and timeline for the day of the incident.

Stage 2: Self-Introduction Session

Players introduce themselves under the host's guidance, explaining their relationship with the victim and their timeline on the day of the incident.

Stage 3: Initial Questioning

After a player responds to the host's inquiries, other players are given the opportunity to ask questions and receive answers from that player.

Stage 4: Two Rounds of Open Questioning

Players enter two rounds of open questioning, with each taking turns to question another player and obtain answers.

Stage 5: Distribution of Clue Cards

Players receive clue cards containing additional information about the

victim and the players, aiding them in deducing the case's storyline.

Stage 6: Three Rounds of Open Questioning

Players enter three rounds of open questioning, with each taking turns to question another player and obtain answers.

Stage 7: Voting

Under the host's guidance, players anonymously vote to determine who they believe is the murderer. Each player has one vote.

Stage 8: Outcome Reveal

The game concludes with the revelation of the voting results.

B Game Log Example in English

Script Title: The Doomed Sunshine

Model Used: MR+SR+SV(N=3)

Spoiler Alert: Please be aware that the following content contains spoilers. Read with caution.

===== First Round of Self-Introduction =====

The host says to Secretary Wen: "Please first introduce your role, then speak about the victim of the case you know: what kind of person is Mr. Yang, and your relationship with him. Finally, give a detailed introduction of your timeline on the day of the incident, specifying whom you met and what you did at what times."

Secretary Wen replies to the host: "I am Secretary Wen, and I have been managing Mr. Yang's affairs for some time as his secretary. Mr. Yang is a powerful bar owner with some underworld background. I've been his capable assistant, advising him. Regarding the victim, Mr. Yang, he is an ambitious person who once had a drug addiction. He knew Mate Zhang from the Sunshine, through whom he got a stable drug supply, hoping to expand into the drug business. As his secretary, I've been assisting him in handling some affairs. On the day of the incident, I followed Mr. Yang onto the Sun-

shine, but he did not inform me, which made me start doubting his attitude towards me. I brought a few subordinates on board for self-protection, as I knew that if a murder happened on the ship, it would trigger a search, implicating this major drug trafficking case. However, I am not involved; my goal was just to eliminate Mr. Yang for my own purposes. On the ship, I looked for an appropriate weapon and planned to kill him while he was using drugs. At 18:10, I found Dr. Ling, inquiring about Mate Zhang's information, and successfully got it. At 18:30, I returned to the medical room, opened the medicine cabinet, and stole a bottle of 'Instant Death' medicine and a syringe. I entered the ventilation duct, waiting at the vent for the right moment. However, I suddenly heard violent movements and muffled groans from a bed. I wasn't sure what was happening to Mr. Yang, but it didn't seem like the right time to clarify, so I decided to wait at the ventilation vent in the cabin."

Boatman Wang says to Secretary Wen: "Hello, Secretary Wen. Based on your answer, you said you brought a few subordinates on board for self-protection because you knew that if a murder occurred, there would be a search, which could expose the major drug trafficking case. So, among the subordinates you brought, did anyone have conflicts or disputes with Mr. Yang?"

Secretary Wen replies to Boatman Wang: "I'm sorry, I don't know if any of the subordinates I brought had conflicts or disputes with Mr. Yang. I was only responsible for handling some affairs and was not clear about their relationships."

Mate Zhang says to Secretary Wen: "Hello, Secretary Wen. Based on your answer, I want to know if there have been any changes in the frequency and content of your communications with Mr. Yang on the ship? Can our cooperation still continue?"

Secretary Wen replies to Mate Zhang: "Mate Zhang, I'm sorry, but the frequency of my communication with Mr. Yang on the ship has not changed. Our cooperation can still continue. However, after this incident, I began to doubt Mr. Yang's attitude towards me, so I brought some subordinates on board for self-protection. Mr. Yang did not inform me about boarding the ship, which made me think he might be suspicious of me. But I am confident that our cooperative relationship has not been affected."

Dr. Ling asked Secretary Wen, "Did you encounter any accidents or unusual situations while bringing your subordinates aboard the ship?"

Secretary Wen replied to Dr. Ling, "No, there were no accidents or unusual situations while bringing my subordinates aboard. Everything went very smoothly."

The host said to Boatman Wang, "Please introduce your role first, then talk about the victim of the case you know: What kind of person was Boss Yang, and what was your relationship with him? Finally, describe in detail your timeline on the day of the incident, specifically what people you saw and what you did."

Boatman Wang replied to the host, "I am Boatman Wang, a boatman on the Sunshine. Boss Yang is a bar owner, and I have known him on the ship for many years. He had some dealings with Mate Zhang involving drug trafficking, and I got involved too. I've kept this secret because I didn't want my family and my daughter-in-law, Dr. Ling, to know. Around 6 PM on the day of the incident, Dr. Ling suddenly came to me, telling me that Boss Yang wanted to kill her and asking for my help. I comforted her and asked why Boss Yang wanted to harm her. She said it was because Wang, a junior worker, owed a lot of money to Boss Yang and had already passed away. She couldn't pay off the debt, and Boss Yang wanted to kill her. I said I could go to Boss Yang to resolve this issue. So I went to Boss Yang's room, where I could meet him anytime due to my status. The bodyguard told me Boss Yang was not in, but I insisted I was his partner and was let in to wait. After a while, Boss Yang returned, and I mentioned that Dr. Ling was my daughter-in-law and offered to help her repay the debt, asking Boss Yang to spare her life. Boss Yang said he never intended to kill her or ask her to repay the debt. I thanked him, exchanged a few words, and left the room. Back in Dr. Ling's room, I told her Boss Yang never intended to kill her or ask her to repay the debt. But Dr. Ling was still worried, and I could only return to my room helplessly. To avoid drawing attention, I poured the poison from the bottle into a small box and threw both the bottle and the syringe into the sea, then returned to my room."

Secretary Wen said to Boatman Wang, "Boatman Wang, in your conversation with Dr. Ling around

6 PM on the day of the incident, she told you that Boss Yang wanted to kill her and asked for your help. You agreed to resolve the issue with Boss Yang and told him Dr. Ling was your daughter-in-law, asking him to show mercy. However, Boss Yang said he never intended to harm Dr. Ling. After you returned to Dr. Ling's room, you told her Boss Yang didn't want to kill her. So, I want to ask why you still used Wang, the junior worker, to stir up the relationship between Boatman Wang and Mate Zhang, hoping Boatman Wang would side with you? This contradicts your previous statement."

Boatman Wang replied to Secretary Wen, "I apologize, my previous statement might have been confusing. Around 6 PM on the day of the incident, Dr. Ling told me Boss Yang wanted to kill her and asked for my help. I agreed to resolve the issue with Boss Yang and told him Dr. Ling was my daughter-in-law, asking him to show mercy. However, Boss Yang said he never intended to harm Dr. Ling. After returning to Dr. Ling's room, I told her Boss Yang didn't want to kill her. At that time, I realized my previous plan might have been risky, but I had no better alternative. I hoped to create a rift between Boss Yang and Mate Zhang, making them fight each other to protect Dr. Ling. I knew it was risky, but I thought it was the only chance. I hoped the conflict between Boss Yang and Mate Zhang would distract them, giving me an opportunity to deal with one and then face the other. I didn't really want Boatman Wang to side with me; I just used the opportunity to achieve my goal. Please forgive my inappropriate words."

Mate Zhang said to Boatman Wang, "Boatman Wang, I've heard your response, but there are still a few things I don't quite understand. First, why did you choose to talk to Dr. Ling around 6 PM on the day of the incident, telling her that Boss Yang had no intention of killing her? Does this timing have any connection to your previous plan? Also, why do you think that creating a rift between Boss Yang and me would give you the opportunity to resolve one issue and then face the other? What was the specific purpose of this plan?"

Boatman Wang said to Mate Zhang, "Mate Zhang, I chose to talk to Dr. Ling around 6 PM on the day of the incident, telling her that Boss Yang had no intention of killing her, because I wanted to

reassure her and alleviate her fears for her safety. I knew she was scared and anxious due to the death of the junior worker Wang, and I wanted to provide her some comfort and hope, assuring her of her safety. Also, I wanted to take this opportunity to communicate with Boss Yang to find a solution to all these problems. The reason I talked to Dr. Ling around 6 PM is that I needed to speak with Boss Yang first to try to drive a wedge between him and you, creating a conflict between you two. I hoped that by creating a rift between Boss Yang and you, it would lead you to destroy each other, all to protect Dr. Ling. I knew it was risky, but I felt it was the only chance. I hoped the conflict between Boss Yang and you would distract you both, giving me a chance to deal with one before facing the other. The specific purpose of my plan was to ensure Dr. Ling's safety, to keep her from being threatened. Talking to Dr. Ling around 6 PM, telling her Boss Yang had no intention of killing her, was to reassure her and to buy time to deal with one threat before another."

Dr. Ling said to Boatman Wang, "Boatman Wang, you previously said that Boss Yang never had any intention of killing me, but why, when I told you that Boss Yang wanted to kill me, were you willing to help me find Boss Yang to resolve this issue? Is there another reason?"

Boatman Wang replied to Dr. Ling, "Dr. Ling, I understand your concerns. When you told me Boss Yang wanted to kill you, I was willing to help you find Boss Yang to resolve this issue because I am your father-in-law, and I wanted to ensure your safety. Although it was later found that Boss Yang had no intention of killing you, I was not sure of the situation at the time, so I chose to talk to Boss Yang to understand the truth. I hoped that through communication with Boss Yang, I could resolve the issue and protect your safety. I hope you can understand my initial intentions."

The host said to Mate Zhang, "Please first introduce your role, and then talk about the victim of the case you know: what kind of person is Boss Yang, and what is your relationship with him? Finally, use a few words to describe your timeline on the day of the incident, being specific about the times you saw certain people and what you did."

Mate Zhang replied to the host, "I am Mate Zhang, the mate on the Sunshine cruise ship. Boss Yang is

an ambitious person and has been involved in some drug trafficking deals with me. Our relationship was purely business; I provided drugs to him, and he paid a high price to buy them. On the timeline of the day of the incident, at 18:00, I made a deal with Boss Yang, selling him the incoming drugs. After the deal, I passed by Dr. Ling without much conversation. At 2:00 AM, I sneaked into Boss Yang's room and found him dead. Seeing that he was already dead, I successfully extracted the drugs and replaced them with non-poisonous drugs, then returned the same way I came. At 2:20 AM, I stood at the bow of the ship, throwing the deadly drugs into the sea, imagining these betrayals and deaths of my brother disappearing into the sea water with them."

Secretary Wen said to Mate Zhang, "Mate Zhang, why did you sneak into Boss Yang's room at 2 AM on the day of the incident? What did you find in the room? Why did you decide to swap the drugs and throw the deadly drugs into the sea?"

Mate Zhang said to Secretary Wen, "Because I knew Boss Yang was an addict who always tested the drugs himself. At 2 AM on the day of the incident, I sneaked into Boss Yang's room and found him dead, his body twisted in a ghastly manner. I was worried that if his death was discovered, it would expose our drug dealings, so I decided to swap the drugs and throw the deadly drugs into the sea. During the deal, Boss Yang had many bodyguards, and both parties were uneasy, communicating very little. We only stayed in the cabin for 20 minutes. Later, at 2:12 AM, I prepared to crawl into the ventilation shaft to enter Boss Yang's room. When I crawled past the vent, I only saw his feet, but it was clear he was dead. I quietly entered the room, took out the deadly drugs, replaced them with harmless ones, and then returned through the ventilation duct. Standing at the bow, I poured out the deadly drugs, watching them scatter in the wind, painfully recalling my brother's death. I didn't want to be troubled by betrayal and death like my brother."

Boatman Wang said to Mate Zhang, "Mate Zhang, I heard Boss Yang was already dead at 2 AM on the day of the incident. How did you know he was dead? Did you see his body or any other evidence?"

Mate Zhang replied to Boatman Wang, "I knew Boss Yang was dead because, at 2 AM, I sneaked

into his room and found his twisted, ghastly body. Looking through the vent, I could only see his feet, but it was clear he was dead. I didn't see any other evidence, as I quickly left the scene, swapped the drugs, and returned to the bow."

Dr. Ling said to Mate Zhang, "Mate Zhang, what was your purpose in sneaking into Boss Yang's room? Did you find any other evidence or see anything suspicious in the room?"

Mate Zhang replied to Dr. Ling, "My purpose in sneaking into Boss Yang's room was to check the situation and swap his drugs. In the room, I found Boss Yang already dead, his body twisted in a ghastly manner. Besides that, I found no other evidence or anything suspicious."

The host said to Dr. Ling, "Please introduce your role first, and then talk about the victim of the case you know: What kind of person was Boss Yang, and what was your relationship with him? Finally, describe in detail your timeline on the day of the incident, specifically what people you saw and what you did."

Dr. Ling replied to the host, "I am Dr. Ling, the ship's doctor on the Sunshine. Boss Yang was an ambitious man whom I met through Mate Zhang on the ship. Although I didn't have a special relationship with Boss Yang, I provided him with some information and helped him stay safe. On the day of the incident, at 18:10, Secretary Wen came to me, asking for the latest information. I gave her the report I had prepared for Boss Yang, and then she asked me to see him. Although I was a bit worried, I went. At 18:20, I went to Boss Yang's room but was stopped by his bodyguards, who asked if I was gathering information for Mate Zhang behind his back. I had to admit it and was then driven out of the room. Afterwards, I returned to my room to get the key to the medicine cabinet and found it already open, the key in it, and one bottle of 'instant death' drug missing. I could only take a bottle of medicine and a syringe, and then went to find Boatman Wang, telling him Boss Yang wanted to kill me and asking for his help. Around 19:30, Boatman Wang came back and told me Boss Yang actually didn't want to kill me and said I didn't need to repay the money. Although I wasn't reassured, I had to return to my room and wait. At 20:20, after Boatman Wang came back, I learned Boss Yang planned to kill him, so I decided

to act myself. At 23:00, I entered Boss Yang's room through the ship's ventilation shaft, but heard a crawling sound in the duct. I waited for the sound to stop before proceeding. Eventually, at 23:20, I reached Boss Yang's cabin and found him lying in a strange position on the bed, unresponsive, the death resembling that caused by the 'instant death' drug. I tapped the ceiling to confirm Boss Yang was already dead, then left."

Secretary Wen said to Dr. Ling, "Dr. Ling, you just mentioned that you were stopped by bodyguards at 18:20 when trying to see Boss Yang, and they asked you whether you were gathering information for Mate Zhang behind his back. Did you have any contact or communication with Mate Zhang before that time?"

Dr. Ling replied to Secretary Wen, "Before the incident, I had no direct contact or communication with Mate Zhang. My task was to track Mate Zhang and report his daily actions and abnormal behaviors to Boss Yang. In my interactions with Mate Zhang, he showed no particular interest in me, and I could only track his movements secretly. At 18:10, before the incident, Secretary Wen came to me, asking for the latest information, which I had prepared for Boss Yang and then gave to her. She then asked me to see Boss Yang. At 18:20, I went to Boss Yang's room. On the way, I encountered Mate Zhang carrying a case, presumably just after a transaction. We didn't speak to each other, just nodded in acknowledgment. As soon as I entered, I saw the room filled with bodyguards in black, and Boss Yang was eyeing me suspiciously, then asked if I had been hiding the existence of Boatman Wang from him. I was stunned and said that every report I had mentioned Boatman Wang. He eyed me coldly, making me feel a chill. He then asked if I had been gathering information for Mate Zhang behind his back, and I had to tell the truth. He snorted and told me to leave. I was extremely scared, feeling as if he was about to kill me to silence me. Thinking it over, I came up with a plan. At 18:50, I returned to my room to get the key to the medicine cabinet, but I couldn't find it and had to go directly to the medical room. There, I found the medicine cabinet open, with the key still in it. I checked for the 'instant death' powder (usable in microdoses as a drug) and found one bottle missing. I took two bottles of medicine and two syringes with me. At 19:30, I went to Boatman Wang's door, gathered

my emotions, and then knocked. When Boatman Wang opened the door, I burst into tears, telling him Boss Yang wanted to kill me and begging for his help. Boatman Wang was puzzled, asking why Boss Yang would target me. I lied, saying that the junior worker Wang had been using drugs from Boss Yang and owed a lot of money, and now that he was dead, I couldn't repay it, so Boss Yang wanted to kill me. He comforted me, asking how much I owed. I said I couldn't remember, but it was a large sum, impossible to repay. He said he could talk to Boss Yang for me. I handed him a bottle of medicine and a syringe, saying, 'Dad, this is a deadly poison. If Boss Yang tries to harm you, or if he insists on killing me, please help me by killing him to save me.' After saying this, I cried again. He took the medicine, saying it would be alright and that he would be back soon. At 19:40, Boatman Wang returned, telling me Boss Yang had no intention of killing me and said I didn't need to repay the money. I still felt uneasy, as Boss Yang himself had never asked for repayment. I had planned to confront Boatman Wang, hoping he would fight with Boss Yang, but it turned out Boss Yang was unexpectedly agreeable. To save myself, I had to act on my own. I waited in my room, knowing I couldn't confront Boss Yang directly and planned to act after he fell asleep. Boss Yang's room had a spacious ventilation shaft, which I could use to enter and bypass security. Around 23:00, I felt it was about time, I dissolved the drug in water, drew it into a syringe, and then entered the ventilation duct from my room, heading to Boss Yang's room. But just as I entered, I heard 'thud thud thud' sounds, as if someone was crawling inside. I hurriedly got down and waited for the sound to stop before continuing. At about 23:20, I reached Boss Yang's room. The light was still on, but the vent cover had fallen to the floor, seemingly already entered by someone. I couldn't see the bed from the vent, only a pair of feet. I peeked and saw Boss Yang lying in a strange, twisted position on the bed, motionless, appearing dead. I tried tapping the ceiling, but Boss Yang didn't respond. I bravely climbed down, went over, and upon closer inspection, found Boss Yang was already dead, his death matching the description of death by the 'instant death' drug in the books. I didn't stay, climbed back through the vent and left. I threw the syringe and the drug bottle into the sea, then returned to my room."

Boatman Wang said to Dr. Ling, "Dr. Ling, you

said Boss Yang didn't intend to kill you and didn't need you to repay the money, so why did you still decide to act on your own? Do you have any other motives?"

Dr. Ling replied to Boatman Wang, "Boatman Wang, the reason I decided to act on my own was not because I thought Boss Yang wanted to kill me or needed me to repay the money, but because I couldn't be sure of Boss Yang's true intentions. Although he claimed he didn't want to kill me, I couldn't fully trust his words. In my dealings with him, I found him to be a person full of ambition and desire for power, unscrupulous in protecting his interests. To protect my own safety and life, I decided to take action myself."

Mate Zhang said to Dr. Ling, "Dr. Ling, why did you doubt Boss Yang's real intentions? Were there any specific events or behaviors that made you feel threatened by him?"

Dr. Ling replied to Mate Zhang, "Mate Zhang, I doubted Boss Yang's real intentions because he always gave me a feeling of being untrustworthy. Although he claimed he didn't want to kill me, his actions and words made me feel he might be a threat to me. He had once asked me to get close to Boatman Wang and report information about him, which itself was a threat. Moreover, as I mentioned before, I had noticed some suspicious dealings between Boss Yang and Boatman Wang. All these things made me feel he might have ill intentions towards me."

===== First Round of Open Questioning =====

Mate Zhang said to Dr. Ling, "Around 6 PM on the day of the incident, when you went to see Boss Yang, you were stopped by his bodyguards, and they asked if you had been gathering information for me behind his back. So, did you have any contact or communication with me before that time?"

Dr. Ling replied to Mate Zhang, "Before the incident, I had no direct contact or communication with Mate Zhang. My task was to track Mate Zhang and report his daily actions and unusual behaviors to Boss Yang. In my contact with Mate Zhang, he showed no special interest in me, and I could only secretly follow his movements. At 18:10, before the incident, Secretary Wen came to me, asking for the latest intelligence, and I gave her the report I had prepared for Boss Yang. She then asked me to

see Boss Yang. Around 6 PM on the day of the incident, I went to Boss Yang's room, and on the way, I ran into Mate Zhang carrying a case, probably just after a deal. We did not speak to each other, just nodded in greeting. As I entered, I saw the room was filled with bodyguards in black, and Boss Yang was squinting at me, then asked if I had been hiding the existence of Boatman Wang from him. I was stunned and said that almost every report had mentioned Boatman Wang. He squinted at me, making me feel cold all over. He then asked if I had been gathering information for Mate Zhang behind his back, and I could only tell the truth. He snorted and let me go. I was extremely scared, feeling like he was about to kill someone to silence them. I thought about it and made a plan. At 18:50, I went back to my room to get the key to the medicine cabinet, but couldn't find it and had to go directly to the medical room. There, I found the medicine cabinet open, the key still in it. I checked for the 'instant death' powder (usable in microdoses medicinally) and found one bottle missing. I took two bottles of medicine and two syringes. At 19:30, I went to Boatman Wang's door, composed myself, and then knocked. When Boatman Wang opened the door, I burst into tears, telling him Boss Yang wanted to kill me and asking for his help. Boatman Wang was puzzled, asking why Boss Yang would target me. I lied, saying the junior worker Wang had been using drugs from Boss Yang and owed a lot of money, and now that he was dead, I couldn't repay it, so Boss Yang wanted to kill me. He comforted me, asking how much I owed. I said I couldn't remember, but it was a large amount, impossible to repay. He said he could talk to Boss Yang for me. I handed him a bottle of medicine and a syringe, saying, 'Dad, this is a deadly poison. If Boss Yang tries to harm you, or if he insists on killing me, please help me by killing him to save me.' After saying this, I cried again. He took the medicine, saying it would be alright, and left. At 19:40, Boatman Wang came back, telling me Boss Yang had no intention of killing me and said I didn't need to repay the money. I still felt uneasy, as Boss Yang himself had never asked for repayment. I had planned to expose Boatman Wang, hoping he would fight with Boss Yang, but Boss Yang turned out to be surprisingly agreeable. To save myself, I had to take matters into my own hands. I waited in my room, knowing I couldn't confront Boss Yang directly, and planned to act

after he fell asleep. Boss Yang's room had a spacious ventilation shaft that I could use to enter and bypass security. Around 23:00, I felt it was about time. I dissolved the drug in water, drew it into a syringe, and then entered the ventilation duct from my room, heading to Boss Yang's room. But just as I entered, I heard 'thud thud thud' sounds, as if someone was crawling inside. I quickly got down and waited for the sound to stop before continuing. At about 23:20, I reached Boss Yang's room. The light was still on, but the vent cover had fallen to the floor, seemingly already entered by someone. I couldn't see the bed from the vent, only a pair of feet. I peeked and saw Boss Yang lying in a strange, twisted position on the bed, motionless, appearing dead. I tried tapping the ceiling, but Boss Yang didn't respond. I bravely climbed down, went over, and upon closer inspection, found Boss Yang was already dead, his death matching the description of death by the 'instant death' drug in the books. I didn't stay, climbed back through the vent, and left. I threw the syringe and the drug bottle into the sea, then returned to my room."

Dr. Ling asked Secretary Wen, "On the night of the incident, did you see Boss Yang and Boatman Wang together or notice any unusual behavior?"

Secretary Wen replied to Dr. Ling, "On the night of the incident, I didn't see Boss Yang and Boatman Wang together or notice any unusual behavior. I stayed in my room the whole time and never left. But in fact, at 18:30, I came back to the medical room, opened the medicine cabinet, took a bottle of medicine, and a syringe. I prepared the poison, drew it into the syringe, and then crawled through the ventilation duct from my room towards Boss Yang's cabin. At about 22:20, I reached the vent of Boss Yang's cabin and could faintly see Boss Yang had just finished bathing and was walking towards the bed, probably his time to take drugs. However, the vent was small, and I couldn't see the bed, only a pair of feet. Initially lying still, they suddenly began to twist violently, the whole bed shaking and emitting muffled groans, the kind of pain that's so intense, there's no strength left to scream. Although I was very puzzled and unsure what exactly happened to Boss Yang, it didn't seem like a good time to clarify the situation, so I decided to hide at the vent and wait for the right moment. At about 23:00, I re-entered the ventilation duct and crawled towards my room. After returning to

my room, I handed the syringe and drug bottle to my subordinates to dispose of without leaving a trace."

Boatman Wang said to Secretary Wen, "After you returned to Dr. Ling's room, you told her Boss Yang had no intention of killing her. So, why did you then use the junior worker Wang to instigate Boatman Wang and Mate Zhang's relationship, hoping Boatman Wang would side with you? This contradicts your previous statement."

Secretary Wen replied to Boatman Wang, "I apologize, my previous statement might have been confusing. My mention of using the junior worker Wang to instigate the relationship between Boatman Wang and Mate Zhang was because I thought it might help me deal with one of the threats. I didn't really want Boatman Wang to side with me; I just used that opportunity to achieve my goal. Please forgive my inappropriate words."

Secretary Wen asked Dr. Ling, "On the night of the incident, did you see Boss Yang and Boatman Wang together or notice any unusual behavior?"

Dr. Ling replied to Secretary Wen, "On the night of the incident, I didn't see Boss Yang and Boatman Wang together or notice any unusual behavior. I stayed in my room the whole time and never left. But according to your description, my actions that night indeed caught your attention. At 18:10, Secretary Wen asked me for the latest intelligence, which I gave to her. At 19:40, I waited in my room, planning to act after Boss Yang fell asleep. I decided to enter Boss Yang's room through the vent. At 23:00, when I entered the ventilation duct, I heard someone crawling inside, so I stopped and waited. After the sound stopped, I continued. At 23:20, I reached Boss Yang's cabin and found the vent cover had fallen to the floor, indicating someone had already entered. I peeked through the vent and saw Boss Yang lying on the bed, tried tapping the ceiling, but found Boss Yang didn't respond. So, I climbed down and discovered Boss Yang was already dead, his death resembling that described in books about the 'instant death' drug. I threw the syringe and drug bottle into the sea, then returned to my room."

===== Second Round of Open Questioning =====

Secretary Wen said to Mate Zhang, "Mate Zhang, when you sneaked into Boss Yang's room, did you see anyone else or hear any unusual noises?"

Mate Zhang replied to Secretary Wen, "When I sneaked into Boss Yang's room, I didn't see anyone else or hear any unusual noises. The whole process was very smooth and quiet."

Mate Zhang said to Dr. Ling, "Did you participate in the murder of Boss Yang?"

Dr. Ling replied to Mate Zhang, "I did not participate in the murder of Boss Yang. In fact, I was just following Boss Yang's instructions to track and monitor Mate Zhang and report his actions to Boss Yang. I did not engage in any violent acts, nor did I personally harm Boss Yang. My goal was to gather intelligence to help Boss Yang resolve his distrust of Mate Zhang and to protect my own safety. Please believe me, I am not the real culprit in this case."

Dr. Ling said to Boatman Wang, "Boatman Wang, do you have any evidence to prove that Boss Yang was poisoned? Who do you suspect?"

Boatman Wang replied to Dr. Ling, "Dr. Ling, I don't have concrete evidence to prove that Boss Yang was poisoned. My suspicion of Boss Yang mainly stems from his previous dealings with Mate Zhang, involving drug trafficking. I know he is an ambitious man who will stop at nothing to protect his interests. Moreover, I overheard a conversation between Boss Yang and Mate Zhang, in which Boss Yang said, 'That kid has already taken care of it for you.' This made me think he might be involved in the death of the junior worker Wang. Although I don't have solid evidence, these signs lead me to suspect Boss Yang as one of the culprits."

Boatman Wang said to Secretary Wen, "On the night of the incident, did you see Boatman Wang or have any contact with him?"

Secretary Wen replied to Boatman Wang, "I apologize, I did have contact with Boatman Wang on the night of the incident. At 18:10, I found Dr. Ling and asked about information on Mate Zhang, which Dr. Ling provided. I noticed a set of keys in the medical room and, pretending that Boss Yang was looking for Dr. Ling, stole the keys while she was away. At 18:30, I returned to the medical room, opened the medicine cabinet, and took a bottle of 'instant death' drug and a syringe. At 22:20, I learned that the ship's ventilation ducts were interconnected and the exhaust ports were not locked, pretending to be concerned about safety,

and prepared the poison. I injected the poison into the syringe, then crawled through the ventilation duct from my room towards Boss Yang's cabin. At 22:40, I reached the vent of Boss Yang's cabin. Through the vent, I saw Boss Yang had just finished bathing, preparing to take drugs. However, the vent was too small, and I could only see Boss Yang's feet on the bed. The bed began to twist violently, emitting painful groans. Unsure of what happened, I decided to hide at the vent and wait for the right moment. At 23:00, I re-entered the ventilation duct and returned to my room. After returning to my room, I handed the syringe and drug bottle to my subordinates for disposal, leaving no trace."

===== Distribution of Clue Cards =====

Players will receive clue cards containing additional information about the victim and the players, helping them deduce the storyline of the case.

===== Third Round of Open Questioning =====

Mate Zhang said to Secretary Wen, "Do any of your subordinates harbor hostility towards Boss Yang or have had conflicts with him?"

Secretary Wen replied to Mate Zhang, "Mate Zhang, I'm sorry, I'm not aware if any of my subordinates hold any hostility towards Boss Yang or have had conflicts with him. I am just responsible for handling some affairs and am not aware of their relationships."

Secretary Wen asked Dr. Ling, "On the night of the incident, did you see Boss Yang and Boatman Wang together or notice any unusual behavior?"

Dr. Ling replied to Secretary Wen, "On the night of the incident, I did not see Boss Yang and Boatman Wang together or notice any unusual behavior. I stayed in my room the entire time and never left. However, based on your description, my actions that night indeed caught your attention. At 18:10, I provided the latest intelligence to you and then went to see Boss Yang. At 18:20, I encountered Mate Zhang on the ship, and we nodded at each other before parting ways. At 18:50, I returned to my room to get the key to the medicine cabinet, but couldn't find it, so I had to go to the medical room. There, I found the medicine cabinet open and missing a bottle of 'instant death' powder. At 19:30, I knocked on Boatman Wang's door, pre-

tending to be chased by Boss Yang and asking for Boatman Wang's help. At 19:40, I waited in my room, planning to act after Boss Yang fell asleep. I decided to enter Boss Yang's room through the vent. At 23:00, when I entered the ventilation duct, I heard someone crawling inside, so I stopped and waited. After the sound stopped, I continued. At 23:20, I reached Boss Yang's cabin and found the vent cover had fallen to the floor, indicating someone had already entered. I peeked through the vent and saw Boss Yang lying on the bed, tried tapping the ceiling, but found Boss Yang didn't respond. So, I climbed down and discovered Boss Yang was already dead, his death resembling that described in books about the 'instant death' drug. I threw the syringe and drug bottle into the sea, then returned to my room."

Boatman Wang asked Mate Zhang, "Were you involved in the murder of Boss Yang?"

Mate Zhang replied to Boatman Wang, "I don't know why you would have such a suspicion, but I was not involved in the murder of Boss Yang. I am a responsible mate and have always worked for the safety and smooth operation of the Sunshine. We have always been in a partnership, and I have never thought of harming you or Boss Yang. You must believe me, I am innocent."

Dr. Ling asked Secretary Wen, "Do any of your subordinates harbor hostility towards Boss Yang or have had conflicts with him?"

Secretary Wen replied to Dr. Ling, "I'm sorry, I am not aware if any of my subordinates hold any hostility towards Boss Yang or have had conflicts with him. I am just responsible for handling some affairs and do not know about their relationships."

===== Fourth Round of Open Questioning =====

Secretary Wen asked Mate Zhang, "Were you involved in the murder of Boss Yang?"

Mate Zhang replied to Secretary Wen, "I did not participate in the murder of Boss Yang. In fact, I was only responsible for assisting in the drug trafficking and ensuring the smooth conduct of the trade. I did not directly engage in any violent acts, nor did I harm Boss Yang. My sole purpose was to protect myself and my brother, and to ensure our survival in this life-and-death transaction. Please believe me, I am not the real culprit of this case."

Boatman Wang asked Dr. Ling, "Why do you think Boss Yang was killed by poison?"

Dr. Ling replied to Boatman Wang, "Boatman Wang, I believe Boss Yang was killed by poison based on the following reasons. First, I found that his manner of death was very similar to that caused by the 'instant death' drug. Second, I found a missing bottle of the 'instant death' drug in Boss Yang's cabin. Although this is not direct evidence, these signs lead me to believe he might have been poisoned. I hope to find more evidence through investigation and cooperation with other players to confirm my suspicions."

Dr. Ling asked Boatman Wang, "Did you have any direct conflicts or disagreements with Boss Yang?"

Boatman Wang replied to Dr. Ling, "I had no direct conflicts or disagreements with Boss Yang. We did not have much interaction in our work on the ship, so there were no conflicts."

Mate Zhang asked Secretary Wen, "On the ship, did you notice anyone harboring hostility towards Boss Yang or having conflicts with him?"

Secretary Wen replied to Mate Zhang, "Mate Zhang, I'm sorry, but I am not aware if any of my subordinates harbor hostility towards Boss Yang or have had conflicts with him. I am just responsible for handling some affairs and do not know about their relationships. However, I can tell you that my subordinates are all obedient to my commands and arrangements, and they are very loyal to me. If there were any problems or conflicts, I believe they would report to me."

===== Fifth Round of Open Questioning =====

Secretary Wen asked Boatman Wang, "Do you have any other clues or evidence that can prove Boss Yang was poisoned? Besides the dealings and conversations between Boss Yang and Mate Zhang, is there anyone else who might have had a motive to harm Boss Yang?"

Boatman Wang replied to Secretary Wen, "I'm sorry, but I don't have any other clues or evidence to prove that Boss Yang was poisoned. Apart from the dealings and conversations between Boss Yang and Mate Zhang, I don't have any other leads pointing to someone else who might have had a motive to harm Boss Yang. However, we cannot rule out

the possibility that other passengers or crew members might be related to the case. We need to further gather clues and evidence to uncover the truth."

Mate Zhang asked Secretary Wen, "Do any of your subordinates harbor hostility towards Boss Yang or have had conflicts with him?"

Secretary Wen replied to Mate Zhang, "I'm sorry, but I am not aware if any of my subordinates harbor hostility towards Boss Yang or have had conflicts with him. I am just responsible for handling some affairs and do not know about their relationships. However, I can tell you that my subordinates are all obedient to my commands and arrangements, and they are very loyal to me. If there were any problems or conflicts, I believe they would report to me."

Boatman Wang asked Mate Zhang, "Mate Zhang, what is your relationship with Hen Tianzhen? Why do you have their photo together in your room on the ship?"

Mate Zhang replied to Boatman Wang, "Boatman Wang, Hen Tianzhen and I have a brotherly relationship; we share a deep blood bond. The photo in my room on the ship is because we are biological brothers and have a good relationship. This photo is just a memento of our brotherhood and has nothing to do with our cooperation."

Dr. Ling asked Secretary Wen, "Did Dr. Ling have any contact with Secretary Wen on the day of the incident?"

Secretary Wen replied to Dr. Ling, "Yes, I had contact with Dr. Ling on the day of the incident. As Boss Yang's secretary, I needed to obtain information about Mate Zhang through Dr. Ling and report the useful information to Boss Yang. We communicated through letters; I would screen and process the intelligence, then hand it over to Boss Yang. On the day of the incident, I first found Dr. Ling at 18:10, inquiring about information on Mate Zhang. Then at 18:30, I returned to the medical room, opened the medicine cabinet, and took a bottle of medicine and a syringe, as part of my plan. Later, at 22:20, pretending to be concerned about safety, I opened the ventilation duct and drew the prepared poison into the syringe to carry with me. Finally, at 22:40, I entered Boss Yang's cabin through the vent and found him lying on the bed in a strange and twisted position, I suspected he might

have encountered misfortune while taking drugs. I did not stay long, returning to the vent to wait for the right moment. Around 23:00, I re-entered the ventilation duct and crawled back toward my room. Everything proceeded smoothly, and I handed the syringe and drug bottle to my subordinates for disposal, leaving no trace."

Vote

The host said to Mate Zhang, "The discussion phase is now over, and we are entering the final voting phase. Who is the murderer who killed Boss Yang in this case? Please vote for the player whom you believe to be the murderer among the following players: Mate Zhang, Boatman Wang, Dr. Ling, Secretary Wen. In the process of choosing, aim to win: even if the murderer knows they are the culprit, they can still vote for a civilian player to win; meanwhile, civilian players need to vote for the player they think is the murderer. Please make your choice and explain the reason."

Mate Zhang replied to the host, "I think the most likely murderer in this case is Dr. Ling. On the timeline of the day of the incident, she had multiple contacts with Boss Yang, and a bottle of 'instant death' drug was found missing near Boss Yang's room. These clues all point to her as a possible murderer."

The host said to Boatman Wang, "The discussion phase is now over, and we are entering the final voting phase. Who is the murderer who killed Boss Yang in this case? Please vote for the player whom you believe to be the murderer among the following players: Mate Zhang, Boatman Wang, Dr. Ling, Secretary Wen. In the process of choosing, aim to win: even if the murderer knows they are the culprit, they can still vote for a civilian player to win; meanwhile, civilian players need to vote for the player they think is the murderer. Please make your choice and explain the reason."

Boatman Wang replied to the host, "I think the most likely murderer in this case is Secretary Wen. Although I don't have concrete evidence, as Boss Yang's secretary, she had more knowledge and contact with the case and might have known Boss Yang's secrets. Moreover, she prepared poison on the day of the incident and attempted to kill Boss Yang, showing that she had some motive against Boss Yang. Even though she mentioned

self-preservation in the conversation, this does not rule out the possibility that she could be the murderer."

The host said to Dr. Ling, "The discussion phase is now over, and we are entering the final voting phase. Who is the murderer who killed Boss Yang in this case? Please vote for the player whom you believe to be the murderer among the following players: Mate Zhang, Boatman Wang, Dr. Ling, Secretary Wen. In the process of choosing, aim to win: even if the murderer knows they are the culprit, they can still vote for a civilian player to win; meanwhile, civilian players need to vote for the player they think is the murderer. Please make your choice and explain the reason."

Dr. Ling replied to the host, "I vote for Secretary Wen as the murderer in this case. In the previous conversation, she mentioned wanting to get rid of Boss Yang to achieve her own goals. She also admitted to stealing a bottle of 'instant death' drug and a syringe, and on the timeline of the day of the incident, she was waiting near Boss Yang's room for an opportunity. These actions and her words indicate she had both the motive and the capability to commit the crime."

The host said to Secretary Wen, "The discussion phase is now over, and we are entering the final voting phase. Who is the murderer who killed Boss Yang in this case? Please vote for the player whom you believe to be the murderer among the following players: Mate Zhang, Boatman Wang, Dr. Ling, Secretary Wen. In the process of choosing, aim to win: even if the murderer knows they are the culprit, they can still vote for a civilian player to win; meanwhile, civilian players need to vote for the player they think is the murderer. Please make your choice and explain the reason."

Secretary Wen replied to the host, "I think the most likely murderer in this case is Mate Zhang. Based on the previous conversation and clues, I know that Mate Zhang had dealings with Boss Yang, providing him with drugs. And on the timeline of the day of the incident, he also admitted to entering Boss Yang's room and replacing the drugs after leaving. These pieces of evidence all point to him as the likely murderer who killed Boss Yang."

C Game Log Example in Chinese

剧本名: 绝命阳光号

使用的模型: MR+SR+SV(N=3)

注意: 接下来的内容包含剧透, 请谨慎阅读。

—————第一轮自我介绍—————

主持人对雯秘书说:“请你先介绍一下你的角色, 然后说一下你所认识的案件的受害人: 杨老板是一个怎么样的人, 以及你和他的关系。最后再用一段话详细介绍一下你在案发日的时间线。要具体到你在案发之日几点几分见过什么人和做过什么事”

雯秘书对主持人说: “我是雯秘书, 作为杨老板的秘书, 我从事他的事务已经有一段时间了。杨老板是一位势力很大的酒吧老板, 他有一些黑道背景, 但我在他手下作为他的得力助手一直为他出谋划策。关于案件的受害人杨老板, 他是一个有些野心的人, 曾经也染上了毒瘾。他认识阳光号上的张大副, 通过他得到了稳定的毒品供应, 希望能开辟毒品生意。我作为他的秘书, 一直在协助他处理一些事务。在案发日, 我跟随杨老板上了阳光号, 但他并没有通知我, 这让我开始怀疑他对我的态度。我带了几个手下上船, 其实是为了自保, 因为我知道一旦船上发生命案, 会有搜查, 将牵连出这个贩毒的大案。但我并无关系, 我只是想干掉杨老板, 实现自己的目的。在船上我寻找了合适的凶器, 并且打算在杨老板吸毒的时候将他干掉。在18:10, 我找到玲船医, 询问她有关张大副的情报, 并成功获取了情报。在18:30, 我再次来到船医室, 打开了药柜并偷走了一瓶“一针就死”药和一根针管。我进入了通风管道, 待机在通风口等待时机。然而, 当时突然传来了床上剧烈的扭动声和痛苦的呻吟声, 我并不确定杨老板到底发生了什么, 但现在似乎不是去弄清楚情况的好时机, 所以我决定躲在船舱的通风口等待时机。”

王船工对雯秘书说:“你好, 雯秘书。根据你的回答, 你说你带了几个手下上船是为了自保, 因为你知道一旦船上发生命案, 会有搜查, 将牵连出这个贩毒的大案。那么请问, 在你带的这几个手下中, 有没有人和杨老板有矛盾或冲突的情况发生?”

雯秘书对王船工说:“很抱歉, 我并不知道我带的手下和杨老板是否有矛盾或冲突的情况发生。我只是负责处理一些事务, 对他们之间的关系并不清楚。”

张大副对雯秘书说:“你好, 雯秘书。根据你的回答, 我想了解一下, 你在船上与杨老板交流的次数和内容有没有发生变化? 我们之间的合作是否还能继续进行下去?”

雯秘书对张大副说:“张大副, 我很抱歉, 我和杨老板在船上的交流次数并没有发生变化。我们的合作仍然可以继续进行下去。不过, 在这次事件之后, 我开始怀疑杨老板对我的态度, 所以我带了一些手下上船, 是为了自保。杨老板并没有通知我上船的事情, 这让我觉得他可能对我有所怀疑。但我确信我们之间的合作关系没有受到影响。”

玲船医对雯秘书说:“雯秘书, 你在带手下上船的过程中有没有遇到任何意外或者异常的情况?”

雯秘书对玲船医说:“没有, 带手下上船的过程中并没有遇到任何意外或异常情况。一切都进行得很顺利。”

主持人对王船工说:“请你先介绍一下你的角色, 然后说一下你所认识的案件的受害人: 杨老板是一个怎么样的人, 以及你和他的关系。最后再用一段话详细介绍一下你在案发日的时间线。要具体到你在案发之日几点几分见过什么人和做过什么事”

王船工对主持人说:“我是王船工, 是阳光号上的船工。杨老板是一位酒吧老板, 我和他在船上已经相识多年了。他在船上和张大副有过一些勾当, 涉及到贩毒的事情, 而我也被卷入其中。我一直保守这个秘密, 因为我不想让我的家人和儿媳妇玲船医知道。在案发日的下午6点左右, 玲船医突然找到我, 告诉我杨老板要杀她, 求我救她。我安慰她, 并询问了杨老板为何要对付她。她说是因为王小工在杨老板那里欠了很多钱, 现在已经去世了, 她还不上债, 杨老板想要杀她。我表示可以去找杨老板解决这个问题。于是我来到杨老板房间, 以我的身份随时可以见他。保镖告诉我杨老板不在, 但我坚称是他的合作伙伴, 保镖让我进房等候。过了一会儿, 杨老板回来了, 我提到了玲船医是我儿媳妇, 表示可以帮助她还钱, 请求杨老板高抬贵手不要杀人。杨老板说他根本没

有想杀她，也没有要她还钱的打算。我感谢他，寒暄几句后离开了房间。回到玲船医的房间，我告诉她杨老板根本没想杀她，也没要她还钱。但玲船医仍然担忧，我也无可奈何，只能回到自己的房间。为了不引人注意，我将毒药从药瓶倒到小盒中，然后把瓶子和针筒都丢到了海里，随后回到了自己的房间。”

雯秘书对王船工说：“王船工，你在案发日的下午6点左右与玲船医的对话中，她告诉你杨老板要杀她并求你救她。你表示可以去找杨老板解决问题，并在见到杨老板后告诉他玲船医是你的儿媳妇，请求他高抬贵手。然而，杨老板却说他根本没有想杀玲船医的打算。在你回到玲船医的房间后，你告诉她杨老板并没有要杀她。那么，我想问你为什么在之后还要利用王小工来挑拨王船工和张大副的关系，希望王船工投靠你？这与你之前的说法相矛盾。”

王船工对雯秘书说：“很抱歉，我之前的说法可能有些混淆。在案发日的下午6点左右，玲船医告诉我杨老板要杀她并求我救她。我表示可以去找杨老板解决问题，并在见到杨老板后告诉他玲船医是我的儿媳妇，请求他高抬贵手。然而，杨老板却说他根本没有想杀玲船医的打算。在我回到玲船医的房间后，我告诉她杨老板并没有要杀她。那时候，我意识到自己之前的计划可能有些冒险，但我当时没有其他更好的办法。我希望通过离间杨老板和张大副的关系，让他们自相残杀，为了保护玲船医。我知道这样做可能会有风险，但我当时觉得这是唯一的机会。我希望杨老板和张大副之间的冲突能够分散他们的注意力，让我有机会解决其中的一个，然后再面对另一个。我并没有真的想让王船工投靠我，只是利用那个时机来实现我的目的。请原谅我的言辞不当。”

张大副对王船工说：“王船工，我听了你的回答，但还是有几个问题不太明白。首先，你为什么选择在案发日的下午6点左右与玲船医对话，告诉她杨老板并没有要杀她的意图？这个时间点和你之前的计划有什么关联吗？另外，你为什么觉得离间杨老板和我之间的关系会让你有机会解决其中的一个，再面对另一个？这个计划的具体目的是什么？”

王船工对张大副说：“张大副，我选择在案发日的下午6点左右与玲船医对话，告诉她杨老板并没有要杀她的意图，是因为我想让她安心，不再担心自己的安全。我知道她因为王小工的死而感到害怕和焦虑，我希望能够给她一

些安慰和希望，让她知道她是安全的。同时，我也想借机与杨老板交流，找出解决这一切问题的办法。在下午6点左右与玲船医对话的时间点，是因为在之前的时间里，我需要先与杨老板谈话，试图离间他与你之间的关系，引起你们之间的矛盾。我希望通过离间杨老板和你之间的关系，让你们自相残杀，为了保护玲船医。我知道这样做可能会有风险，但我当时觉得这是唯一的机会。我希望杨老板和你之间的冲突能够分散你们的注意力，让我有机会解决其中的一个，然后再面对另一个。我的计划的具体目的是为了保护玲船医的安全，让她不再受到威胁。在案发日的下午6点左右与玲船医对话，告诉她杨老板并没有要杀她的意图，是为了让她安心，并且为了争取时间，让我有机会解决其中的一个威胁，再面对另一个。”

玲船医对王船工说：“王船工，你之前说过杨老板从来没有想杀我这一说，但是为什么当我跟你说杨老板要杀我时，你却愿意帮助我去找杨老板解决这个问题？是否有其他原因？”

王船工对玲船医说：“玲船医，我明白你的疑虑。当你告诉我杨老板要杀你时，我愿意帮助你去找杨老板解决这个问题，是因为我是你的岳父，我希望能保护你的安全。虽然后来发现杨老板并没有要杀你的打算，但我当时并不确定情况，所以选择与杨老板谈话以了解真相。我希望通过与杨老板的交流，解决这个问题并保护你的安全。希望你能理解我的初衷。”

主持人对张大副说：“请你先介绍一下你的角色，然后说一下你所认识的案件的受害人：杨老板是一个怎么样的人，以及你和他的关系。最后再用一段话详细介绍一下你在案发日的时间线。要具体到你在案发之日几点几分见过什么人和做过什么事”

张大副对主持人说：“我是张大副，是阳光号邮轮上的副船长。杨老板是一个有着野心的人，曾经与我合作过一些贩毒的勾当。我们之间的关系是商业合作，我提供毒品给他，他则支付高价购买。在案发日的时间线上，下午18:00，我和杨老板进行了一次交易，将进来的毒品卖给他。交易结束后，我和玲船医擦肩而过，没有多说什么。凌晨2:00，我潜入杨老板的房间，发现他已经死亡。看到他已经死了，我成功取出毒品并替换无毒的毒品，原路返回。凌晨2:20，我站在船头，将剧毒的毒品扔入海中，想象着这些对我弟弟的背叛和死亡

一同消失在海水中。”

雯秘书对张大副说:“张大副，你为什么要在案发日的凌晨2点潜入杨老板的房间？你在房间中发现了什么？为什么你决定替换毒品并将剧毒的毒品扔入海中？”

张大副对雯秘书说:“因为我知道杨老板是瘾君子，每次验货都是自己动手。在案发日的凌晨2点，我潜入杨老板的房间，发现他已经死了，尸体扭曲凄惨。我担心如果他的死被发现，会牵扯出我们的贩毒交易，所以我决定替换毒品并将剧毒的毒品扔入海中。在交易进行中，杨老板带了很多保镖，双方都心虚不安，交流甚少，我们只在船舱呆了20分钟就出来了。之后，我准备在凌晨2:12爬入通风道，进入杨老板的房间。当我爬过通风口时，发现杨老板已经死了，只能看到他的脚。我轻手轻脚地进入房间，拿出剧毒的毒品并替换成无毒的毒品，然后原路返回通风道。准备回到船头时，我站在那里，倒出剧毒的毒品，看着它们随风飘散，心情痛苦地回忆起了弟弟的死去。我不希望和我弟弟一样，被背叛和死亡所困扰。”

王船工对张大副说:“张大副，我听说杨老板在案发日的凌晨2点已经死了，你是如何得知他已经死亡的呢？你有没有看到他的尸体或者其他证据？”

张大副对王船工说:“我得知杨老板已经死亡是因为在凌晨2点的时候，我潜入他的房间，发现了他扭曲凄惨的尸体。在通风口望去，我只能看到他的脚，但可以明显看出他已经死亡。我没有看到其他的证据，因为我尽快离开了现场，替换了毒品并返回了船头。”

玲船医对张大副说:“张大副，你潜入杨老板的房间的目的是什么？你在房间里有没有找到其他的证据或者看到其他可疑的事情？”

张大副对玲船医说:“我潜入杨老板的房间的目的是为了查看情况并替换他的毒品。在房间里，我看到了杨老板已经死亡，尸体扭曲凄惨。除此之外，我没有找到其他的证据或者看到其他可疑的事情。”

主持人对玲船医说:“请你先介绍一下你的角色，然后说一下你所认识的案件的受害人：杨老板是一个怎么样的人，以及你和他的关系。最后再用一段话详细介绍一下你在案发日

的时间线。要具体到你在案发日几点几分见过什么人和做过什么事”

玲船医对主持人说:“我是玲船医，是阳光号上的船医。杨老板是一个有着野心的人，我通过他在船上认识了张大副。虽然我和杨老板之间没有什么特别的关系，但我曾为他提供一些情报并帮助他保持安全。在案发日的时间线上，下午18:10，雯秘书来找我，询问我有没有最新的情报，我把准备给杨老板的那份情报给了她，然后她让我去见杨老板，我虽然有点担心，但还是去了。在18:20，我去见杨老板的房间，却被他带来的保镖拦住了，他们询问我是否背着他给张大副打听情报的事情。我只好诚实承认了，然后被赶出了房间。之后，我回到自己的房间准备拿药柜的钥匙，发现药柜已经被打开，钥匙插在上面，还发现“一针就死”药少了一瓶。我只能拿了一瓶药和一个针管，然后去找王船工告诉他杨老板要杀我，请求他救我。在19:30左右，王船工回来了，告诉我杨老板其实并没有要杀我，并说不用我还钱。虽然我不放心，但也只能回到自己的房间等待。在20:20，王船工回来后，我得知杨老板打算杀他，于是我决定自己动手。在23:00，我通过船舱通风口进入杨老板的房间，但听到了通风管道里爬行的声音，我等声音停止后才继续前行。最终在23:20，我到达了杨老板的船舱，发现他以奇怪的姿势躺在床上，没有反应，死状与“一针就死”的药致死的尸体相似。我敲了敲天花板确认杨老板已经死了，然后离开。”

雯秘书对玲船医说:“玲船医，你刚才提到在18:20去见杨老板的房间时被保镖拦住了，并询问了你是否背着他给张大副打听情报的事情。那么请问你在之前的时间里是否有过与张大副的联系或交流？”

玲船医对雯秘书说:“在案发之前，我并没有与张大副有过直接的联系或交流。我的任务是跟踪张大副并向杨老板汇报他的日常行动和异常举动。在我和张大副的接触中，他对我并没有表现出特别的兴趣，我只能暗地里跟踪他的行动。在案发前的18:10，雯秘书过来找我，问我有没有最新的情报，我把准备给杨老板的那份情报给了她。然后她让我去见杨老板。在18:20的时候，我去见杨老板的房间，途中碰到了张大副，他提着一个箱子，估计是刚做完交易出来。我们没有互相搭话，只是点头示意。一进门，我看到满屋子都是身着黑衣的保镖，杨老板眯着眼睛看着我，然后问我我是

否一直对他瞒着王船工的存在。我愣住了，说每封情报里基本上都提到了王船工的存在。他眯着眼睛看着我，我感到浑身发冷。他又问我是否背着他向张大副打听情报，我只能实话实说。他哼了一声，让我出去了。我害怕极了，觉得他一副要杀人灭口的样子。我想了想，心里有了计划。在18:50，我回到房间准备拿药柜的钥匙，但是找不到钥匙，只能直接去医疗室。到了医疗室，我发现药柜开着，钥匙插在上面。我去找药柜里的“一针就死”粉末（微剂量可以药用），发现少了一瓶。我拿出两瓶药和两个针管带走了。在19:30，我到了王船工的房门口，酝酿了一下情绪，然后敲门。王船工开门后，我哭了出来，告诉他杨老板要杀我，求他救我。王船工很奇怪，问杨老板为什么要对付我。我骗他说，之前王小工在杨老板那吸毒，欠了很多钱，现在小工死了，我还不上钱，杨老板就要杀我。他安慰我说没事，问我欠了多少钱。我说不记得了，反正是很大的数目，根本还不起。他说可以帮我去找杨老板谈。我把一瓶药和一个针管给了他，说：“爸，这里面是剧毒的药，要是杨老板想害你，或者他执意要杀我，求你帮忙杀了他，救救我。”说完，我又哭了起来。他收下了药，说没关系，去去就回。在19:40，王船工回来了，告诉我杨老板根本没打算杀我，还说不用我还钱。我听了，还是不放心，因为杨老板本身就没让我还钱。本来还想戳穿王船工，让他和杨老板拼了，结果杨老板脾气倒挺好的。为了保命，我只能自己动手。我在房间等待着，知道正面拼不过杨老板，准备等他睡着后再行动。杨老板的房间有一条宽敞的通风管道，我可以通过它进入并绕过保安。在23:00左右，我觉得时间差不多了，我把药溶解在水中，吸进针管，然后通过自己房间的通风口进入通风管道，准备去杨老板的房间。但刚进去，我听到通风管道里传来了“咚咚咚”的声音，似乎有人在里面爬行。我赶紧下去，等到声音停止后继续前进。大约在23:20，我到达了杨老板的房间，灯还亮着，但通风口的挡板已经掉在地上，似乎已经有人进入。从通风口看不到床，只能看到一双脚。我探头看了一下，发现杨老板以一个奇怪扭曲的姿势躺在床上，一动不动，像死了一样。我试着敲了敲天花板，但杨老板没有反应。我壮着胆子爬下去，走过去仔细一看，杨老板已经死了，死相凄惨，和书中描述的“一针就死”药而死的尸体相似。我没有停留，重新爬回通风口离开了。我把针筒和药瓶都丢进海里，然后回到了房间。”

王船工对玲船医说：“玲船医，你说杨老板并没有要杀你并且不需要你还钱，那为什么你还是决定自己动手行动呢？难道你还有其他的目的吗？”

玲船医对王船工说：“王船工，我之所以决定自己动手行动，并不是因为我认为杨老板要杀我或者需要我还钱，而是因为我不能确定杨老板的真实意图。虽然他声称没有要杀我，但我并不能完全相信他的话。毕竟在我与他的交往中，我发现他是一个充满野心和权力欲望的人，他对于保护自己的利益不择手段。为了保护自己的安全和生命，我决定亲自动手。”

张大副对玲船医说：“玲船医，你为什么对杨老板的真实意图感到怀疑？有没有特定的事件或行为让你觉得他对你有威胁？”

玲船医对张大副说：“张大副，我对杨老板的真实意图感到怀疑是因为他一直给我一种不可信的感觉。虽然他声称没有要杀我，但他的行为和言辞让我觉得他可能对我有威胁。他曾经让我接近王船工，并向他汇报关于王船工的信息，这本身就是一种威胁。而且，我之前也提到过，我曾经发现杨老板和王船工之间有一些可疑的交易。这些事情都让我觉得他对我可能有不好的意图。”

—————第一轮自由问答—————

张大副对玲船医说：“在案发日的下午6点左右，你去见杨老板的房间时被保镖拦住了，并询问了你是否背着他给张大副打听情报的事情。那么请问你在之前的时间里是否有过与张大副的联系或交流？”

玲船医对张大副说：“在案发之前，我并没有与张大副有过直接的联系或交流。我的任务是跟踪张大副并向杨老板汇报他的日常行动和异常举动。在我和张大副的接触中，他对我并没有表现出特别的兴趣，我只能暗地里跟踪他的行动。在案发前的18:10，雯秘书过来找我，问我有没有最新的情报，我把准备给杨老板的那份情报给了她。然后她让我去见杨老板。在案发日的下午6点左右，我去见杨老板的房间，途中碰到了张大副，他提着一个箱子，估计是刚做完交易出来。我们没有互相搭话，只是点头示意。一进门，我看到满屋子都是身着黑衣的保镖，杨老板眯着眼睛看着我，然后问我是否一直对他瞒着王船工的存在。我

愣住了，说每封情报里基本上都提到了王船工的存在。他眯着眼睛看着我，我感到浑身发冷。他又问我是否背着他向张大副打听情报，我只能实话实说。他哼了一声，让我出去了。我害怕极了，觉得他一副要杀人灭口的样子。我想了想，心里有了计划。在18:50，我回到房间准备拿药柜的钥匙，但是找不到钥匙，只能直接去医疗室。到了医疗室，我发现药柜开着，钥匙插在上面。我去找药柜里的“一针就死”粉末（微剂量可以药用），发现少了一瓶。我拿出两瓶药和两个针管带走了。在19:30，我到了王船工的房门口，酝酿了一下情绪，然后敲门。王船工开门后，我哭了出来，告诉他杨老板要杀我，求他救我。王船工很奇怪，问杨老板为什么要对付我。我骗他说，之前王小工在杨老板那吸毒，欠了很多钱，现在小工死了，我还上钱，杨老板就要杀我。他安慰我说没事，问我欠了多少钱。我说不记得了，反正是很大的数目，根本还不起。他说可以帮我去找杨老板谈。我把一瓶药和一个针管给了他，说：“爸，这里面是剧毒的药，要是杨老板想害你，或者他执意要杀我，求你帮忙杀了他，救救我。”说完，我又哭了起来。他收下了药，说没关系，去去就回。在19:40，王船工回来了，告诉我杨老板根本没打算杀我，还说不用我还钱。我听了，还是不放心，因为杨老板本身就没让我还钱。本来还想戳穿王船工，让他和杨老板拼了，结果杨老板脾气倒挺好的。为了保命，我只能自己动手。我在房间等待着，知道正面拼不过杨老板，准备等他睡着后再行动。杨老板的房间有一条宽敞的通风管道，我可以通过它进入并绕过保安。在23:00左右，我觉得时间差不多了，我把药溶解在水中，吸进针管，然后通过自己房间的通风口进入通风管道，准备去杨老板的房间。但刚进去，我听到通风管道里传来了“咚咚咚”的声音，似乎有人在里面爬行。我赶紧下去，等到声音停止后继续前进。大约在23:20，我到达了杨老板的房间，灯还亮着，但通风口的挡板已经掉在地上，似乎已经有人进入。从通风口看不到床，只能看到一双脚。我探头看了一下，发现杨老板以一个奇怪扭曲的姿势躺在床上，一动不动，像死了一样。我试着敲了敲天花板，但杨老板没有反应。我壮着胆子爬下去，走过去仔细一看，杨老板已经死了，死相凄惨，和书中描述的“一针就死”药而死的尸体相似。我没有停留，重新爬回通风口离开了。我把针筒和药瓶都丢进海里，然后回到了房间。”

玲船医对雯秘书说：“在案发当天晚上，你

有没有见到杨老板和王船工在一起或有什么异常举动？”

雯秘书对玲船医说：“在案发当天晚上，我并没有见到杨老板和王船工在一起或有任何异常举动。我一直待在自己的房间里，并没有离开过。但是事实上，在18:30，我再次来到船医室，把药柜打开，拿走了一瓶药，又拿走了一根针管。兑好了毒药，吸到针管里带在身上，然后从自己的房间钻进通风管，向杨老板的船舱爬去。大约在22:20，我到达了杨老板的船舱的通风口处，通过通风口能隐约发现杨老板刚好洗完澡，向床上走去，接下来应该就是他吸毒的时候了。然而，通风口很小，我无法看到床上的情况，只能看到一双脚，本来安稳的躺着，却突然开始剧烈的扭动，整个床都震得直响，还传来了闷哼声，是那种痛苦到极点，已经没有多余的力气嘶哑的声音。虽然我非常纳闷，并不确定杨老板到底发生了什么，但现在似乎不是去弄清楚情况的好时机，所以我决定躲在船舱的通风口等待时机。大约在23:00，我重新进入通风管道，往自己房间方向爬去。回到房间后，我把针管和药瓶交给手下处理掉，不留下痕迹。”

王船工对雯秘书说：“在你回到玲船医的房间后，你告诉她杨老板并没有要杀她。那么，为什么你之后还要利用王小工来挑拨王船工和张大副的关系，希望王船工投靠你？这与你之前的说法相矛盾。”

雯秘书对王船工说：“很抱歉，我之前的说法可能有些混淆。我之前提到我试图通过利用王小工来挑拨王船工和张大副的关系是因为我认为这可能会帮助我解决其中的一个威胁。我并没有真的想让王船工投靠我，只是利用那个时机来实现我的目的。请原谅我的言辞不当。”

雯秘书对玲船医说：“在案发当天晚上，你有没有见到杨老板和王船工在一起或有什么异常举动？”

玲船医对雯秘书说：“在案发当天晚上，我并没有见到杨老板和王船工在一起或有任何异常举动。我一直待在自己的房间里，并没有离开过。但是根据你的描述，我在那天晚上的行动确实引起了你的注意。在18:10，雯秘书向我索要最新情报，我将准备给杨老板的情报给了她。在19:40，我在房间等待，计划等杨老板睡着后行动。我决定从通风口进入杨老板的

房间。在23:00，当我进入通风管道时，听到了有人在里面爬行的声音，我赶紧停下等待。声音停止后，我继续行进。在23:20，我到达了杨老板的船舱，发现通风口的挡板已经掉在地上，似乎有人已经进入。我从通风口看到杨老板躺在床上，试图敲了敲天花板，发现杨老板没有反应。于是我爬下去发现杨老板已经死了，死相凄惨。我将针筒和药瓶丢到海里，然后回到房间。”

第二轮自由问答

雯秘书对张大副说：“张大副，你在潜入杨老板的房间时是否看到了其他人出现或者听到了其他异常的声音？”

张大副对雯秘书说：“在潜入杨老板的房间时，我没有看到其他人出现或者听到其他异常的声音。整个过程非常顺利和安静。”

张大副对玲船医说：“你是否参与了对杨老板的谋杀？”

玲船医对张大副说：“我没有参与对杨老板的谋杀。事实上，我只是遵循了杨老板的指示，跟踪和监视张大副，并向杨老板汇报他的行动。我并没有参与任何暴力行为，更没有动手对杨老板下手。我的目的是为了获取情报，帮助杨老板解决他对张大副的不信任问题，以及保护自己的安全。请相信我，我并不是案件的真凶。”

玲船医对王船工说：“王船工，你有没有什么证据证明杨老板是被毒杀的？你怀疑是谁下的手？”

王船工对玲船医说：“玲船医，我并没有确凿的证据证明杨老板是被毒杀的。我对杨老板有所怀疑，主要是因为他之前和张大副有过一些勾当，涉及到贩毒的事情。我知道他是一个野心勃勃的人，为了保护自己的利益不择手段。而且，我之前听到杨老板和张大副的谈话，杨老板说：“那个小子已经帮你解决掉了。”这让我觉得他可能与王小工的死有关。虽然我没有确凿的证据，但这些迹象让我怀疑杨老板是凶手之一。”

王船工对雯秘书说：“在案发当天晚上，你是否看到王船工或与他有任何接触？”

雯秘书对王船工说：“很抱歉，我在案发当天晚上与王船工有过接触。在18:10，我找到了船医玲船医并询问关于张大副的情报，玲船医提供了情报。我注意到船医室有一串钥匙，并故意说杨老板找玲船医，趁她离开时偷走了钥匙。在18:30，我再次来到船医室，打开了药柜并拿走了一瓶“一针就死”药和一根针管。在22:20，我得知船上通风管连通且排风口没有锁，假装担心安全，并准备好了毒药。我将毒药注入针管，然后从自己的房间钻进通风管，朝着杨老板的船舱前进。在22:40，我到达杨老板船舱的通风口处。透过通风口，我看到杨老板刚洗完澡，准备吸毒。然而通风口太小，我只能看到杨老板床上的一双脚。床开始剧烈扭动，传来痛苦的哼声。我不确定发生了什么，决定躲在通风口等待时机。在23:00，我重新进入通风管道，返回自己的房间。回到房间后，我交给手下处理掉针管和药瓶，不留任何痕迹。”

线索卡发放

玩家会收到线索卡，其中包含有关受害者和玩家的附加信息，帮助他们推断案件的故事情节。

第三轮自由问答

张大副对雯秘书说：“你带的手下中是否有人对杨老板持有敌意或有冲突的情况发生？”

雯秘书对张大副说：“张大副，我很抱歉，我不清楚我带的手下中是否有人对杨老板持有敌意或有冲突的情况发生。我只是负责处理一些事务，对他们之间的关系并不了解。”

雯秘书对玲船医说：“在案发当天晚上，你有没有见到杨老板和王船工在一起或有什么异常举动？”

玲船医对雯秘书说：“在案发当天晚上，我并没有见到杨老板和王船工在一起或有任何异常举动。我一直待在自己的房间里，并没有离开过。但是根据你的描述，我在那天晚上的行动确实引起了你的注意。在18:10，我给雯秘书提供了最新的情报，然后去见杨老板。在18:20，我在船上碰见了张大副，两人点头示意后分开。在18:50，我回房间准备

拿药柜的钥匙，但找不到，只能去医疗室，发现药柜开着，少了一瓶“一针就死”粉末。在19:30，我敲王船工的房门，假装被杨老板追杀，请求王船工帮忙。在19:40，我在房间等待，计划等杨老板睡着后行动。我决定从通风口进入杨老板的房间。在23:00，当我进入通风管道时，听到了有人在里面爬行的声音，我赶紧停下等待。声音停止后，我继续行进。在23:20，我到达了杨老板的船舱，发现通风口的挡板已经掉在地上，似乎有人已经进入。我从通风口看到杨老板躺在床上，试图敲了敲天花板，发现杨老板没有反应。于是我爬下去发现杨老板已经死了，死相凄惨。我将针筒和药瓶丢到海里，然后回到房间。”

王船工对张大副说：“你是否参与了对杨老板的谋杀？”

张大副对王船工说：“我不知道你怎么会有这样的怀疑，我没有参与对杨老板的谋杀。我是个负责任的大副，一直以来都在为阳光号的安全和顺利运营而努力。我们之间一直都是合作伙伴的关系，我从未想过伤害你或者杨老板。你必须相信我，我是无辜的。”

玲船医对雯秘书说：“你带的手下中是否有人对杨老板持有敌意或有冲突的情况发生？”

雯秘书对玲船医说：“很抱歉，我并不清楚我带的手下中是否有人对杨老板持有敌意或有冲突的情况发生。我只是负责处理一些事务，对他们之间的关系并不了解。”

————第四轮自由问答————

雯秘书对张大副说：“你是否参与了对杨老板的谋杀？”

张大副对雯秘书说：“我没有参与对杨老板的谋杀。事实上，我只是负责在毒品交易中提供帮助，并确保交易的顺利进行。我并没有直接参与任何暴力行为，更没有动手对杨老板下手。我的目的只是为了保护自己和弟弟，并确保我们在这场生死交易中能够生存下来。请相信我，我并不是案件的真凶。”

王船工对玲船医说：“你为什么会认为杨老板是被毒药致死的？”

玲船医对王船工说：“王船工，我认为杨老

板是被毒药致死是基于以下几点推断。首先，我发现他的死状与“一针就死”药致死的尸体非常相似。其次，我在杨老板的船舱里发现了“一针就死”药少了一瓶。虽然这并不是直接证据，但这些迹象让我相信他可能是被毒药致死的。我希望能通过调查和其他玩家的合作来找出更多证据，以证实我的猜测。”

玲船医对王船工说：“你有没有和杨老板有过直接的冲突或矛盾？”

王船工对玲船医说：“我和杨老板并没有直接的冲突或矛盾。我们在船上的工作中并没有太多接触，所以也没有发生过什么矛盾的情况。”

张大副对雯秘书说：“在船上，你有没有发现有人对杨老板持有敌意或有冲突的情况发生？”

雯秘书对张大副说：“张大副，我很抱歉，我带的手下中是否有人对杨老板持有敌意或有冲突的情况发生，我并不清楚。我只是负责处理一些事务，对他们之间的关系并不了解。但是我可以告诉你，我带的手下都是听从我的指挥和安排的，并且他们对我非常忠诚。如果有任何问题或矛盾发生，我相信他们会向我汇报。”

————第五轮自由问答————

雯秘书对王船工说：“你是否有任何其他线索或证据能够证明杨老板是被毒杀的？除了杨老板和张大副之间的勾当和对话之外，还有其他人可能有动机对杨老板下手吗？”

王船工对雯秘书说：“很抱歉，我没有其他线索或证据能够证明杨老板是被毒杀的。除了杨老板和张大副之间的勾当和对话之外，我暂时没有其他线索指向其他可能有动机对杨老板下手的人。但我们不能排除其他乘客或船员可能与案件有关的可能性。我们需要进一步搜集线索和证据来揭开真相。”

张大副对雯秘书说：“你带的手下中是否有人对杨老板持有敌意或有冲突的情况发生？”

雯秘书对张大副说：“很抱歉，我并不清楚我带的手下中是否有人对杨老板持有敌意或有冲突的情况发生。我只是负责处理一些事务，

对他们之间的关系并不了解。但是我可以告诉你，我带的手下都是听从我的指挥和安排的，并且他们对我非常忠诚。如果有什么问题或矛盾发生，我相信他们会向我汇报。”

王船工对张大副说：“张大副，你与很天真有什么合作关系？为什么你在船上的房间里有他们的合照？”

张大副对王船工说：“王船工，我与很天真是兄弟关系，我们有着深厚的血缘关系。我在船上的房间里有他们的合照是因为我们是亲兄弟，我们之间有很好的关系。这张照片只是我们兄弟之间的纪念，与我们的合作没有任何关系。”

玲船医对雯秘书说：“在案发日，玲船医是否与雯秘书产生过接触？”

雯秘书对玲船医说：“是的，我和玲船医在案发日产生过接触。作为杨老板的秘书，我需要通过玲船医来获得关于张大副的情报，并将其中我认为有用的信息汇报给杨老板。我们通过书信进行沟通，我会筛选并处理情报，然后再交给杨老板。在案发当天，我首先在18:10找到了玲船医，询问了关于张大副的情报。接着在18:30，我再次来到船医室，打开了药柜并拿走了一瓶药和一根针管，这是为了制定我的计划。随后，我在22:20装作很担心安全的样子，打开了通风管，并将兑好的毒药吸入针管带在身上。最后，我在22:40通过通风口进入了杨老板的船舱，发现他已经在床上以一个奇怪而扭曲的姿势躺着，我猜测他可能在吸毒的过程中遭遇了不幸。我没有多做停留，回到船舱通风口等待时机。在23:00左右，我重新进入通风管道，往自己房间方向爬回去。一切都顺利地进行了，我将针管和药瓶交给手下处理掉，不留下任何痕迹。”

投票

主持人对张大副说：“现在讨论环节结束，进入最终的投票环节。本案里杀害杨老板的凶手是谁？请你在以下玩家中投票选出凶手身份的玩家：张大副，王船工，玲船医，雯秘书。在选择的过程中，请以获胜为目标：凶手玩家即使知道自己是凶手，为了获胜仍可以投票给平民玩家；而平民玩家需要投出自己认为是凶手的玩家。请给出你的选择，并解释原因。”

张大副对主持人说：“我认为最有可能是本案凶手的人是玲船医。在案发日的时间线中，她有过多次与杨老板的接触，并且在杨老板的房间附近被发现了“一针就死”药少了一瓶。这些线索都指向她可能是凶手。”

主持人对王船工说：“现在讨论环节结束，进入最终的投票环节。本案里杀害杨老板的凶手是谁？请你在以下玩家中投票选出凶手身份的玩家：张大副，王船工，玲船医，雯秘书。在选择的过程中，请以获胜为目标：凶手玩家即使知道自己是凶手，为了获胜仍可以投票给平民玩家；而平民玩家需要投出自己认为是凶手的玩家。请给出你的选择，并解释原因。”

王船工对主持人说：“我认为本案最有可能的凶手是雯秘书。虽然我没有确凿的证据，但她作为杨老板的秘书，对案件有更多的了解和接触，有可能知道杨老板的秘密。而且她在案发日准备了毒药，并且企图杀死杨老板，这显示了她对杨老板有着某种动机。虽然她在对话中提到自己为了自保，但这并不能排除她可能是凶手的可能性。”

主持人对玲船医说：“现在讨论环节结束，进入最终的投票环节。本案里杀害杨老板的凶手是谁？请你在以下玩家中投票选出凶手身份的玩家：张大副，王船工，玲船医，雯秘书。在选择的过程中，请以获胜为目标：凶手玩家即使知道自己是凶手，为了获胜仍可以投票给平民玩家；而平民玩家需要投出自己认为是凶手的玩家。请给出你的选择，并解释原因。”

玲船医对主持人说：“我投票选择雯秘书是本案的凶手。在之前的对话中，她提到她想干掉杨老板，实现自己的目的。她还承认偷了一瓶“一针就死”的药和一个针管，并且在案发日的时间线上在杨老板的房间附近等待时机。这些行为和她的话语说明她有动机和能力犯罪。”

主持人对雯秘书说：“现在讨论环节结束，进入最终的投票环节。本案里杀害杨老板的凶手是谁？请你在以下玩家中投票选出凶手身份的玩家：张大副，王船工，玲船医，雯秘书。在选择的过程中，请以获胜为目标：凶手玩家即使知道自己是凶手，为了获胜仍可以投票给平民玩家；而平民玩家需要投出自己认为是凶手的玩家。请给出你的选择，并解释原因。”

雯秘书对主持人说：“我认为最有可能是本

案凶手的人是张大副。根据之前的对话和线索，我知道张大副与杨老板有过勾当，他提供毒品给杨老板。而在案发日的时间线上，他也承认进入了杨老板的房间，并在离开之后替换了毒品。这些证据都指向他可能是杀害杨老板的凶手。”