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# *Interactive Dialogue Mechanics*

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## **Abstract**

Many game studios strive to create a dialogue system that is not predictable and has more impact on the world around the player, than the standard branching tree model, but still is applicable in production. In their endeavour to create these systems, they use different kinds of innovations or simply add more to the model that already exists. This paper will focus on patterns that drive or can define a dialogue mechanic that does not use procedural or AI created dialogues, but instead creates a dialogue system that allows the narrative to still be controlled by the game developer and give the player a sense of diversity.

## **Introduction**

There has been little effort to define dialogue types, patterns and mechanics. Since most research focuses on theoretical dialogue systems and not so much on the systems that already exist.

Staffan Björk and Jenny Brusk's paper titled "*Gameplay Design Patterns for Game Dialogues*" already discusses many of the existing mechanics in games. This paper was published in 2009 and therefore does not include newly developed dialogue mechanics from recently published games. Another paper done by Emmett Tomai, David Salinas and Rosendo Salazar, called "*A Rule-Based Framework for Modular Development of In-Game Interactive Dialogue Simulation*", touches on the more recent mechanics. Both these papers should be read before reading this paper, as this paper will further elaborate on the subject.

## **Wanting Elements**

This paper will use specific games as examples to explain or elaborate on mechanics.

### ***Deus Ex: Human Revolution***

(Eidos Montreal, 2011)

From here on referred to as *Deus Ex*, is a game that tries to be many game categories at once; depending on the style of the player the game can feel like a stealth-action game or First Person Shooter, but the RPG mechanics are more dominant.

### ***L.A. Noire***

(Rockstar Leeds, 2011)

The game is primarily a free roaming detective game that challenges the player to find clues and spot lies that can be used in interrogations.

### ***Heavy Rain***

(Quantic Dream, 2010)

Heavy rain is an attempt to make more of an interactive film than a game. To achieve this, it has no real HUD and puts more emphasis on story than on action.

## Adaptation

### Being the character or playing a character

Many RPG's allow the player to customize their character in many aspects and they become a mirror image of what the player wants their character to be. In other games the character is already filled out with their own appearance and background. Those characters will be referred to as Player Character or PC by this document while the other type will be referred to as the player.

In a game with a prominent narrative structure, it is important to make a distinction between the player playing a character and the player being a character. In RPG videogames that are still mostly based on tabletop Dungeons and Dragons, the player can customize their character by changing parameters like sex, race and general appearance. The player can play the character any way they like. One moment the character can be charitable to a few orphans while a few seconds later the character can rip a beggars head off, so to speak. There is nothing drastic that would withhold the player from undertaking radically different actions. Often the actions are measured in good or bad and the alignment of the character might change but the game still does not take away the option for the player to do something good or bad. The player has its own morals and the character will mirror it. The Player does not need to sympathise with the character because the character will simply be the player. In the case of the two games that were discussed earlier, the characters that are played already have a lush background and an appearance that cannot be customised by the player. The PCs have settled in the way that they have their own set of morals, routines and goals. When playing in *Heavy Rain* for example, one of the main characters, Mars, will not stop looking for his son and the game will restrain the player from doing something else. Playing a pre-made character can be dangerous. The player needs to sympathise with the character or they might not find the game interesting to play. For a game that revolves around narrative a character that is not related to by the player can be devastating. With PC, the dialogue needs to fit the character. The lines need to be written especially for that character. Not only the lines need to be custom but also the way they are brought. (e.g. a character can have a British accent or talks slang). When it comes to player-build-characters, the dialogue needs to be setup in such a way that it incorporates all sorts of possibilities. Most of these are generalised in a scale ranging from the saint to Lucifer's options. The options can't be too specific or too few if so chance exists that the player feels restricted by the options.

### Rumors

In the paper by Staffan Björk and Jenny Brusk mentioned above, the authors briefly speak of *Rumors* as a way to introduce new data to the player. The document does not elaborate on the presentation of *Rumors*. In the adaptation section, *Rumors* will be split into two categories: Banter and Gossip. These two categories will explained further below. The paper will also discuss Egging, even though it cannot be consider part of *Rumor*, it does use the same mechanic.

The game *Deus Ex* makes a distinction between main quest dialogue, side quest dialogue and *Rumors*. This paper will divide *Rumors* into the random Banter and Gossip dialogue categories. Banter is a monologue that a NPC utters to the PC when it comes near. Two or more NPC can also be Gossiping to one another when the player comes into earshot of the conversation. These are usually scripted to give the player extra information. Banter and Gossip dialogue is not as forced as side- or main quest dialogue. The Game-Mode doesn't change and the PC retains all interactive freedom. Banter is something that is often incorporated in free roaming sections of a game. It is intended to liven up the environment for the player, but in real live, you will rarely encounter the sort of Banter games use. When you pas a stranger on the street, generally they will not start talking to you about their loud neighbour, recent occurrences, etcetera. Yet in RPGs, it is common practise to give all NPCs a few lines of Banter. When the character comes close to an NPC, they give a scripted dialogue. These dialogues can be specified in four different categories:

- NPC (The NPC gives a line that is distinctive for that NPC. *e.g.* "I wish I could do something about my neighbour."),
- Location (The line gives the player information on their location and/or other locations. *e.g.* "The best bar is on the corner of 6<sup>th</sup> and 10.")
- Events (NPCs can comment on events that have happened in the game, independent of the player's direct involvement. *e.g.* "Have you heard, the police station is in lockdown.")
- PC (NPC's line reflects on the PC's looks or involvement in events. *e.g.* "Hey, aren't you that cop from the news?")

The last two categories are *Context-Dependent Dialogue*: "The section of utterances depends on where in the narrative structure the player is" (Brusk & Björk, *Gameplay Design Patterns for Game Dialogues*, 2009). The categories are often randomized so that the NPC does not keep talking about his neighbour. Gossiping NPCs generally have the same kind of categories. Their dialogue is scripted to give the right response to the other NPC. Besides Gossip and Banter a NPC can also be Egging. In some games the PC might have a NPC following them around with the intent of helping the player survive fire fights or solve puzzles. Egging is the monologue line the NPC utters to help the player move on. *E.g.* "This way to the car!" Egging is a form of Error Handling (Brusk, *Game Dialogue Management*, 2006). The game does not receive the right input or no input at all. The game assumes the player is stuck or misunderstood the goal of the current mission. Egging is designed to give hints as what to do next. For some players Egging can be very frustrating because they are not stuck or lost but their actions are not correctly interpreted by the game. Therefore the NPC keeps reminding the player that they are going the wrong way for instance.

When it comes to main and side quest dialogue, the game changes the mode it is in. The PC can no longer interact with anything outside the dialogue HUD and the camera position is fixed. It makes the distinction between the types via camera angles and dialogue HUD options. In the side quest dialogue the camera angle reflects movie composition. The other thing that is different from the main quest is the last set of choices. It will always have a "Decline", "Accept" and "Quest details". In most occasions it will also have an "About...". When the player picks "Quest details", the player can ask about "Reward" and "Task". When there is the option "About..." the player can ask extra background information about the mission. This is a common setup for quest dialogues, the options that the player is given is often what the player wants to happen. In some event the player has the option to lie to an NPC to manipulate them. But the direct consequence of an option is mostly clear. *e.g.* "stay behind the line until I call for you." or "(Lie) No, I haven't seen your dog."

### Player Intent

The intent with which a player participates in a dialogue can differ, since there can be different purposes for a dialogue. With most NPCs, the dialogue is meant to give the player information or one or more assignments (or both). In rare occasions, the dialogues are meant to build a relationship with the NPC. In *Deus Ex* and *L.A. Noire* given dialogue are mini-games, in the sense that they have a clear win condition. They are not designed to give the player specified information or another goal but they are a goal off themselves. When a dialogue is a mini-game, the player needs to change their normal approach. Instead of stating what they want, they need to play the game to get a desired result.

Main quest dialogue has a different approach. The camera is the point of view of the PC that gets closer to the NPC as the dialogue progresses. What makes these dialogues different from most is the intent with which the choices need to be made. The point of these dialogues it to sweet talk the NPC because they have the power to change events, not the PC himself. In *Deus Ex* the PC, Adam, can be equipped with augmentations that changes or enhances gameplay. One of the augments influences the way a player plays the main quest dialogue. Where there is usually only the HUD that displays the

dialogue options, the augment gives the player extra information about the NPC they are talking to and occasionally the ability to influence their opinion through other means than just talk. The player needs to mainly pay attention to the way things are said instead of only what is being said. The mood of the NPC, which changes during the dialogue in response to what is being said by the PC, is crucial to picking the right option to diffuse or accelerate a situation. The NPCs in these dialogues have their own personality traits that they reflect during the conversation. The player has to recognize the moods and can use the extra information given by the augment to pick the right retort. The stakes in the conversation are clear from the moment it starts and in *Deus Ex* the odds are often against the PC. In the situation that the screenshots below show, the player needs to gain access to the morgue in the police station. To gain access, the PC needs to persuade a former colleague who holds the PC responsible for his demotion and social exile. Even though the win condition of the dialogue is not met, the game will continue. However it will have serious consequences on the play style and the story.

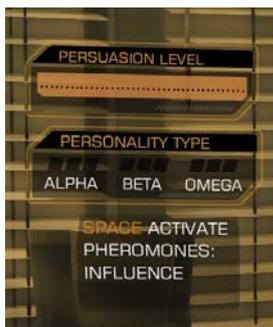
### Personality Type

Personalities of NPCs are something that mostly comes out in dialogue. Player can gain sympathy or revulsion for an NPC depending on their personality, but a player does not need to know the NPCs personality in order to bring a dialogue to a good ending. *Deus Ex* makes the NPC's personality part of the mini-game. The player needs to fathom the NPC's moods to consciously play the game.



On the screen the player gets the personality traits and psychological profile information. It can help the player predict reactions better.

The Personality traits can give an insight in to the possible reaction. They are 3 key traits that drive an NPC. The Psychological profile helps the player decide how to talk to the NPC when they are in a specific state of mind



Also the HUD will display two meters. The persuasion level on the top shows how much the NPC is sharing the PC's view. The line will go up and down every choice and will turn green when the line goes up and a positive outcome is more probable, it will turn red when the line goes down and the outcome is more negative. The personality type is a meter that will flash from time to time. It is linked with the ability to use pheromones at some points in the dialogue. When the player picks the pheromone approach they are prompted with 3 choices, each one is targeted for one type of personality (Alpha, Beta and Omega) but if the player picks the wrong one it will cause the opposite effect on the NPC, instead of persuading them the player will drive them in the other direction.

When the player has paid close attention to the meter, they will see some of the blocks flash briefly during the dialogue. The strongest type will flash more of its bar than the others. Without the augment the player does not have the NPC's profile or the ability to release Pheromones. Without that information, the player has to imagine the emotions of the NPC and choose the response they think the NPC wants to hear. It comes close to a real life conversation in with you want you recipient to be susceptible or your suggestions by sweet talking them.



### Random Chunk-based Dialogue

A Dialogue tree is usual predictable to a fault. The player asks a question and the NPC answers with the programmed response. Where the tree branches is nearly always evident. The Chunk-based dialogue Processing (Brusk & Björk, *Gameplay Design Patterns for Game Dialogues*, 2009) can help with this. Because most interactive dialogue is written in Chunks, these can be like beads that can be strung in a more randomized order. This paper will use *Deus Ex* as an example of random *Chunk* dialogue.

Most games have chunk-based dialogue which means the dialogue must be finished before another action can be taken. In *Deus Ex* the dialogue is no different. It uses chunks as well, but randomizes them in the middle of the NPC's dialogue. The main Quest dialogue is not meant to simply ask the player what they want to happen, but more to create a mini-game that poses a challenge to the player. The wrong answer will make the NPC shot down and close a path to a goal, for the player. *Deus Ex* developers have taken extra effort to increase the replay value by having different routes to the same goal. By randomizing the dialogue it will still be a challenge even when played for the second time. Walkthroughs also have a harder time explaining how to solve this dialogue puzzle. Every *Chunk* has its own right or wrong answer. The switching of chunks demands another input to get the right response from the NPC. In *Deus Ex* the conversation starts with the initiation chunk, after which the player can make a choice which is then followed by the corresponding response chunk. Then the game picks the next random initiation *Chunk* to continue. The random chunk-based dialogue is not apparent on the first playthrough, only when the player plays the same dialogue again will the random chunks become evident.

### Linear and non-linear interactive dialogue

Using the terms linear and non-linear with interactive dialogue might sound confusing. But it does happen in interactive dialogue.

One might say that interactive systems automatically exclude linear systems. And in most cases that is true. In this case however, the linear stands for the advancement through a dialogue. There are dialogues that are linear and non-linear in one. Linear motion is one that will go in one direction without the possibility of going back. With interactive dialogue the player, chooses a branch that will be followed until it reaches another branching or hits a dead end. When the player does not return to a branching they have had before, the dialogue is linear. In some dialogues or parts of a dialogue, the player will return to a HUD from which the player can choose other options or the same option to get the same answer. That can be considered non-linear. NPCs that are mostly just informant often have non-linear dialogue, since the player can tick off each subject but also revisit options they have already chosen.

## Unlocking Dialogues

In the menus of interactive dialogues, usually what you see is what you have. In the case of *Mass Effect*, what you see is not always what you have, since some options are displayed, but are not selectable by the player. In *L.A. Noire*, what you see is not always all you have. Play the dialogue right, and the player receives extra dialogue options that were hidden before.

In some games, given dialogues have options that cannot be chosen by the player until surten circumstances are met. In most cases that option is hidden from the player until it becomes available to the player to chose. In, for instance *Mass effect* an option will be visible but can't be selected or revisited at a later stage. This allows the player to be conscious of the system behind it. Every option is a branch that can be explored. Having these locked options are like locked doors, the player knows there is a room behind it but can never see it. In *L.A. Noire* the unlocking of dialogue options is a reward to the player for playing the dialogue well. When the PC is interrogating an NPC the player decides the starting point. The NPC responds on the subject by either telling the true, partial true or lying. The interrogations become a game on themselves and is one of the core mechanics of the game: Gameplay integrated conversation (Brusk & Björk, *Gameplay Design Patterns for Game Dialogues*, 2009). Player has to decide how truthful the NPC is. When the player accuses the NPC of lying however, the player needs to back it up with evidence or testimonies gathered earlier. When the right option is picked and the right evidence, in the case of lying, new information becomes available to the player ether in the form of a new dialogue option or evidence/testimony. The new dialogue option is not always for the NPC the PC is talking to at that moment. It can also unlock another NPC for the player to talk to. The Circumstances that are required to unlock dialogue can vary per game and or situation. In *L.A. Noire* it can be the evidence the player has collected or the NPCs that have been interrogated correctly.

## Reading faces

Interactive dialogue has changed with emergence of new technologies. Where once a coloured string of text was all there was, it is now possible to have full blown cutscenes with the dialogue. Faces can be made realistic enough to clearly display subtle emotions. *L.A. Noire* uses the ability to read faces as a game mechanic that is imbedded in the dialogue.

Another form of communication is facial expressions. Thanks to ever increasing graphic detail in games, facial expressions of NPCs during dialogue have become more imported. In older games where faces were not visible or existed out of a few pixels, the text of the dialogue or the audio file needed to convey the emotions of the NPCs. With today's graphics, facial expressions have gotten to a level that it can be used as an extra mechanic. *L.A. Noire* uses this. In many times, in the dialogue the only evidence a player gets of the NPC's creditability, is through their facial expressions. Looking at NPC's faces is like looking at a real face only more exaggerated by the actors behind the characters.



## In-Game dialogue Mode

The presentation of the method with which a player interacts in an interactive dialogue can vary. Commonly used is the HUD that is nearly always positioned on the bottom part of the screen. They usually have clearly visible text that reflects the options that from which the player can choose. In some occasions a few options have coloured texts that lets the player know that choosing that response will be considered good or bad. *Heavy Rain* tried a dissimilar route than the standard HUDs for interactive dialogue.

In the game *Heavy Rain* the *Game-Mode* is not changed the moment the player engages into dialogue, where most games freeze everything or makes the PC immune to outside influence, in *Heavy Rain* the player can still interact with objects that don't have to be directly connected to the dialogue. With other games, the game changes modes and the HUD along with it. *Heavy Rain* has no standard HUD to speak off.

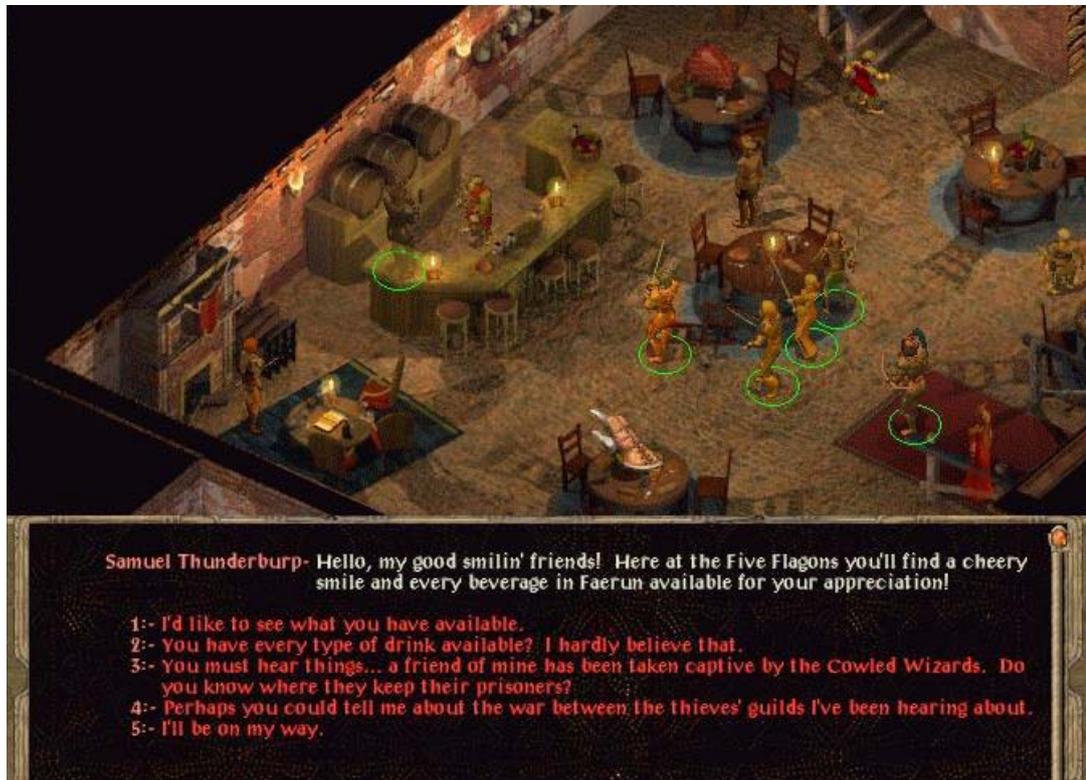
It has four types of controls: the standard walk/run and camera movement, when there is an interaction possible with the environment, the quicktime events and the controls of the dialogue, monolog, interactions with other characters or with the PC herself. It is the last one the paper will discuss. The choices the player can make during a dialogue will float around the PC's head, resembling thoughts that go through the characters head at that moment. As they reflect the thoughts of the PC they also reflect there emotional state. When the character is under stress the text move more rapidly and can become jittery and vague. The more pressure, the harder it is to read the thought. It reinforces that the character has a hard time thinking straight when in distress. It adds an extra layer of information that is subtext in most occasions. (e.g. using the picture below: the PC is being interrogated. He looks calm but in reality he is nervous. The options that circle his head reflect that while his posture does not). For some players the jittering text is frustrating, as it is something that isn't standard. For other people it can intensify the moment.



The same interface is used for monologues the PC can tell themselves. The only difference is that the player has to activate that possibility by holding down a button. The monologue options will act the same ways as in a dialogue, they will circle around the character's head and reflect there emotional state. These monologues efficiently replace Banter form the common RPG. They give the player hints of what to do next or point out information that the player might have missed. The monologues also give the player a direct link to the characters though process, making it easier to sympathise with them as the player better understands what make them tick.

### Information display method

Another branch of how to present the option to the player is the information display method. Some games use the entire sentence that will be spoken by the PC, while others just use pictograms. There are different ways to tell the player what an option may imply.



*Baldur's Gate* is one of the most popular RPG of its time. It is partially responsible for laying the foundations for the interactive dialogue system that is used today. A picture of the interface during a dialogue is displayed above. The godlike camera angel never changes during gameplay; the player can only scroll to all sides. The characters are not that detailed and a player cannot observe the characters emotions. To compensate for this the dialogue text and options are very elaborate; no text is shortened. What you see is what is said. The dialogue is self-paced in the sense that when it is the player's turn to speak, new options are displayed and the dialogue is paused until the player makes a choice.

In *Atlantis Evolution* and other adventure games of *Cryo Interactive*, the dialogue interface is made up from pictograms that the player can pick from. The player does not need to read any lines, but



just needs to look at the pictograms. Using pictograms can be easy if the subject is a person or a thing. But how would one picture an action, for example? The dialogues in these games are setup in such a way that the player will get the relevant information regardless of the subject. Actions or assignments are linked to people or objects that are show in the HUD. e.g. "Speaking of old man Kribber, can you take this bowl of soup to him?" dialogues in the *Atlantis* series is a mix of self-paced and paced dialogue: the PC auto responds to a question, without the players input.

In *The Elders Scrolls: Skyrim* the interface for the interactive dialogue is drastically more compact than the old *Baldur's Gate*. But the graphics have also changed drastically in comparison to *Baldur's Gate*: the camera can come in much closer, it is capable of showing the player body



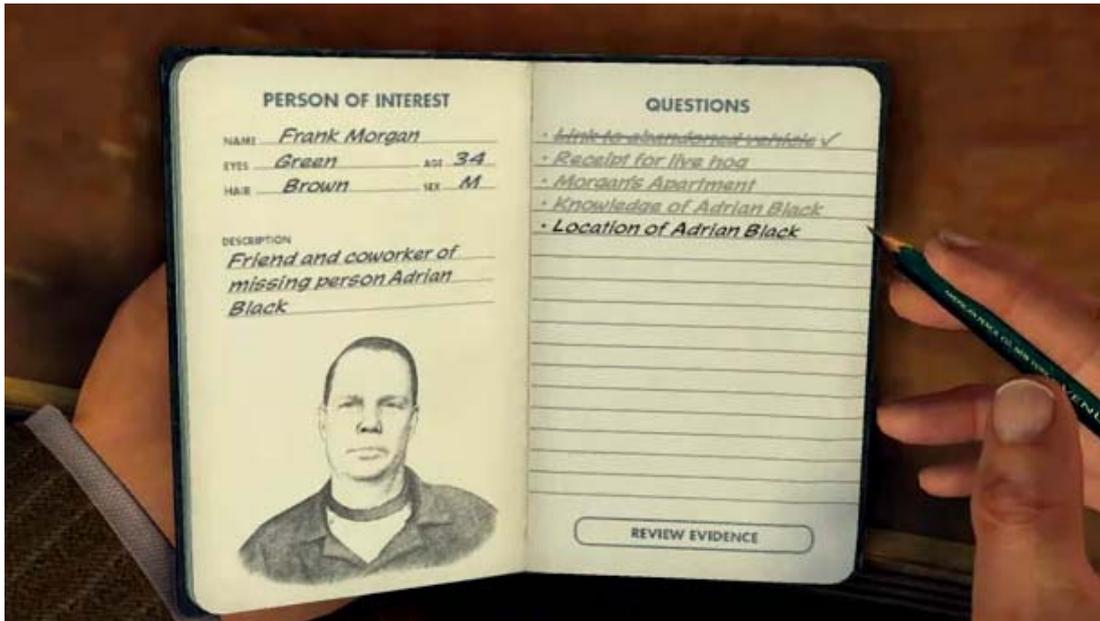
language, and the emotions on the characters faces. They are often further intensified by drama enhancers (camera angles, voice acting, music and lighting) They all work simultaneously to give the player the information they need to assess the mood the characters are in. This information no longer needs to be imbedded in the text of the dialogue, resulting in the option text being shortened to a point that, in some occasions, it can be just one word. Most recent RPGs have narrowed the option text down to one sentence. In *Skyrim*, the sentence is what the player will say to the NPC, so it is still what you see is what is said. The practical reason for it is the fact that the player never speaks. During the dialogue the player is never shown and never makes a sound or gesture to indicate that the player is speaking.



*Deus Ex* has a more cinematic feel to it because they extensively use the drama enhancers. The camera is scripted to give cinematic compositions while in *Skyrim* the camera is usually 1st or 3rd person. In the game, the option text is usually one or two words. However, the player can see the exactly spoken text by selecting the option. So not all the information is displayed but they are hidden until the player requests it.



*The Mass Effect* series, and most other RPGs by *Bioware* published after *Mass Effect*, use the dialogue wheel to display the option text. Like *Deus Ex*, the camera angles are cinematic compositions. This allows the PC to be in full view if called for. While the PC is in view, it would be odd if they just stood there and not acted as if they are in a conversation. As a result, the PC engages in the conversations just like an NPC does, speaking and using animation to enforce the line. The *Mass Effect* dialogues are paced and have a more *Chunk* like structures. As *Deus Ex* is one to one, *Mass Effect* can expand to as much as 4 characters in a single conversation. Having a paced dialogue makes it easier to manage the flow in the conversation and in turn makes it easier to integrate other NPCs. The option text is short but they are impressions of what exactly will be said. e.g. In the picture above, the option text “Join my crew. We’ll find it.” results in “I have a good ship and a strong crew, a strong clan. You’d make it stronger.” as dialogue line. The option text can be seen as subtext to the conversation. It is what the character means, but it is politically correct or sugar-coated. Besides the option text there is another layer of information that can be found in the dialogue wheel: the colour of the text. *Mass effect* uses an alignment system to gauge the player’s play style. The alignment is mostly influenced by the choices the player makes in the dialogue. To emphasise to the player which options influences which alignment, they are coloured. Blue for Paragon (good) and red for Renegade (bad).



The dialogue options in *L.A. Noire* don't use the same setup as most games. The dialogue is divided into questions that are noted in the notebook (the notebook serves as an in-game menu that lets the player review information, and pick what to do or where to go next). The dialogue starts off with the player picking a question that will be asked to the NPC. The dialogue is non-linear, since after a question is fully answered, the notebook comes back in view. However, a question can only be asked once, regardless of the answer. When a question is handled correctly, a new question might be added to the list; a question that will not appear otherwise. Once a question is activated, the dialogue becomes paced. The other interaction that the player has after that is the NPC's credibility option. The face of the NPC is an important clue to what the right answer is, so it is prominently shown, while the options are displayed on the left of the screen. At this stage in the dialogue, there is a right and wrong answer: pick the right answer, and more information will become available, pick the wrong one, and the interrogation will be cut short. In case the player chooses to accuse the NPC of lying, data must be presented that supports the PC's accusation. That's when the notebook comes back in view. It holds a list of all the data previously collected by the player. Even if the NPC is lying, the right evidence must be selected from the list or it will be seen as a wrong answer. The option text is shortened to 2 to 4 words lines. These are displayed on the right side of the notebook, while the left side shows extra information about the NPC or selected evidence. Once a question is asked, it is crossed off the list with a check or cross at the end showing if the question was handled right or wrong.



## Conclusion

There have been many attempts to break free of the dialogue tree system and most research into interactive dialogues either avoids the subject or suggests a radical change. The tree system might be considered outdated by some but it is a proven method for the game industry. Therefore it is important to look at the possibilities within the system, instead of just at its constraints. This paper has summed up some mechanics that have been used in games but are rarely mentioned. Looking at the mechanics that already exist can result in a better understanding of where more improvements can be made. Knowing how the mechanics work can also give the possibility of combining them. Interactive dialogue is perhaps not imperative to win the game but it is part of the experience. Its mechanics can be just as complex as normal gameplay. Future research should look into how to expand the dialogue tree system and still make it manageable and practical for game developers.

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