Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: https://orca.cardiff.ac.uk/id/eprint/142660/

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Rennick, Stephanie and Roberts, Sean ORCID: https://orcid.org/0000-0001-5990-9161 2021. Improving video game conversations with trope-informed design. Game Studies 21 (3) file

Publishers page: http://gamestudies.org/2103/articles/rennick_rober...
<http://gamestudies.org/2103/articles/rennick_roberts>

Please note:
Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See
http://orca.cf.ac.uk/policies.html for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.

information services
gwasanaethau gwybodaeth

# Improving video game conversations with trope-informed design

Steph Rennick, University of Glasgow
Seán Roberts, Cardiff University

# Abstract

This paper examines tropes in video games pertaining to conversations between player characters and Non-Player Characters (NPCs). Drawing from the fields of pragmatics and Conversation Analysis we show how these tropes differ from real, face-to-face conversations. We demonstrate how politeness theory (how to avoid unsociable, face-threatening behaviour) can help us understand when and why conversations with NPCs disrupt player immersion. Based on these insights we propose alternative designs to improve immersion. We call this approach 'Trope-Informed Design': tropes are tools that can make or break a player's experience. Considering how and when to perpetuate, subvert or transcend tropes can help guide designers in improving their game mechanics.

*Short Description:* Video game dialogue and 'real life' conversations differ in interesting and surprising ways. Informed by pragmatics and conversational analysis, we propose ways to make NPC dialogue more realistic and thereby improve player immersion.

*Keywords:* immersion, NPC dialogue, conversation analysis, linguistics, tropes

*Wordcount* (main manuscript): 7851

# 1 Introduction

How can we make conversations in video games more immersive? Critics have called for a richer set of conversational mechanics in games (Brown, 2019; Extra Credits, 2012); here we focus on dialogue by NPCs (non-player characters, including party members/allies, bystanders and enemies) and how it might be adapted to meet this challenge.

This paper represents progress on two fronts. Firstly, there are few analyses of which aspects of NPC dialogue break players' immersion. We employ the pragmatic approach to conversation, particularly from the field of Conversation Analysis (CA), which aims to describe and explain everyday behaviour. We show areas of deviation between the latter and conversation in video games, thereby highlighting features that may disrupt a player's suspension of disbelief.

Secondly and relatedly, dialogue systems for interacting with NPCs are rarely informed by linguistic studies. There are now many studies applying linguistic methods and theories to video game discourse and culture (e.g. Ensslin, 2011; Ensslin & Balteiro, 2019). Popular topics include how language is used by players while playing games (e.g. Marsh & Tainio, 2009; Mondada, 2011; Paulus et al., 2016; Graham & Dutt, 2019), and how players construct identities through natural language within video games (e.g. Pearce, 2017; Goodfellow, 2015, Potts, 2015). Previous work has also reviewed dialogue systems, how players relate to them and the roles they fulfil (Domsch, 2017; Mäyrä, 2017; Brusk & Björk, 2009). However, there is little study of dialogue with NPCs within linguistics. On the other hand, several computer science studies aim to improve the believability of NPC dialogue through knowledge representation (e.g. Afonso &

Prada, 2008; Strong & Mateas, 2008), or natural language processing (e.g. Rose, 2014), but few of these are motivated by findings from CA.[i] We address this gap by comparing tropes about conversation in video games to several phenomena in real conversations. We then use insights from CA to make recommendations for how game designers can subvert or transcend existing tropes to promote player immersion.

Tropes are recurring patterns or conventions, typically associated with narratives (e.g. 'the knight in shining armour', 'the Big Bad'). However, video game tropes are not limited to the narratological; other aspects of games can become 'tropey', from the mechanics (e.g. save points) to the visual design (e.g. palette-swapping). In this paper we examine conversational tropes in games and use the science of language to demonstrate how they differ from face-to-face ('real') conversations between humans.[ii]

The definitive resource for media tropes is the internet wiki 'TV Tropes', where new patterns are identified and instances of existing tropes logged. We reviewed the tropes herein and identified those pertaining to conversation. In this paper we focus on just a few, including tropes related to repeated dialogue, timing of turn taking, skipping, and interrupting dialogue. We have chosen these for two related reasons. Firstly, as detailed below, our selected tropes are well-established features of video game conversations but represent noticeable – and in some cases surprising – departures from the conventions of real conversations. This is independently interesting but also has practical ramifications in terms of players' expectations and how realistic games feel. Secondly, these particular tropes are good candidates for subversion: with relatively minor tweaks, in-game conversations could be made to more closely resemble real conversations. Throughout the paper we have provided suggestions as to how this might be achieved. Whether or not realism is one's goal, understanding the difference between how repetition, turn-taking,

interruption and so on are used in games versus our everyday interactions allows game-makers to make more informed choices about the role and style of conversation in their work, and innovate accordingly. We call this trope-informed design. Sometimes it is appropriate to perpetuate a given trope in a particular context, and other times to subvert or avert it. Either way, it is advantageous to design with tropes in mind.

In the next section we give an overview of relevant linguistic terms and concepts before launching into the analysis proper.

# 2 A pragmatic approach to conversation

In this paper, we use perspectives from 'conversation analysis' (CA) and pragmatics to study conversations in video games. CA focuses on describing the structure of everyday conversation; pragmatics studies meaning in context, and how people use language to do things. Here we summarise four important points which underpin our analysis: conversation is social action; conversation is highly structured; politeness is important; and listeners infer a lot of meaning.[iii]

Firstly, conversation is social action (e.g., Austin, 1975; Levinson, 1983). The mechanical function of conversation in many games is to give the player information; this does happen in real conversations, but it's often not the only thing or even the main thing that is happening. Conversation is not just an exchange of logical propositions; utterances *do* something such as offering help, accepting or refusing an offer, or greeting someone. A greeting does not have any logical content, but has clear pragmatic effects (opening a conversation, showing friendliness, reducing tension). Often, these effects depart from an utterance's literal meaning ("it's hot in here" might be recruiting someone to open a window, rather than just conveying facts about

temperature) and depend on context ("I have a credit card" could be an answer to a direct question, an offer to pay or a boast depending on the context, see Gisladottir, Chwilla & Levinson, 2015).

Secondly, conversations are highly structured. Participants take turns, trying to avoid gaps or overlaps (Sacks, Schegloff & Jefferson, 1978; Stivers et al., 2009). These turns represent pragmatic actions that make certain types of responses relevant. For example, a question makes an answer relevant in the next turn, a complaint makes an explanation or remedy relevant, and a greeting makes a greeting in return relevant. These are called *adjacency pairs* (Schegloff & Sacks, 1973; Stivers, 2013), and they appear to be universal across languages (Kendrick et al., 2020). Turns often have a "preferred" response type (see e.g. Schegloff, 2007; Bilmes, 1988; Liddicoat, 2011, chapter 7); for example an acceptance is the preferred response to an offer. A speaker might decide not to answer a question or to say something completely unconnected, but typically that requires an account, which an interlocutor might then demand.[iv]

Speakers use these conversational structures to manage politeness, which in CA terms means avoiding *face-threatening behaviour*: bypassing situations where speakers could "lose face" and providing opportunities to "save face" (Brown & Levinson, 1978, 1987; Goffman, 1967). This is difficult because everyone has a desire to be liked ('positive face') but also a desire to be independent ('negative face'). Threats to positive face include ignoring a speaker; threats to negative face include giving someone an order, request, or advice (since it puts pressure on them to act a certain way). Various conversational phenomena can be explained by attempts to be polite. For example, expressing thanks to someone threatens the thanker's appearance of autonomy, so the typical response is for the receiver to downplay the favour or assert that no thanks is needed. The norms for how to be polite may differ between cultures, but the importance

of politeness for negotiating social interaction is universal. Brown & Levinson's politeness theory is widely accepted as the leading theory in linguistics and has been cited by tens of thousands of studies in many fields.

The rather odd implication of this need to maintain politeness is that people are often indirect, vague and evasive (e.g. saying "it's hot in here" rather than "please open the window", e.g. Blum-Kulka and Olshtain, 1984). Listeners thus have to do a lot of work to infer the intended meaning of an utterance. That is, people are constantly making pragmatic inferences about what the other person is thinking and feeling, and planning their speech based on these inferences. People who fail to do this 'mind-reading' are perceived as impolite.

We suggest that understanding these features of conversation and the role of politeness helps to explain the disconnect between conversational tropes in video games and how conversation functions in real life. In what follows, we draw on these points to explore repetition (§3), timing of turns (§4), skipping and interrupting (§5).

# 3 Repetition

Dialogue in video games is rife with repetition: individual NPCs frequently repeat the same line/s every time a player interacts with (or is proximate to) them, and in some games, multiple NPCs of the same type or in the same area will have identical utterances (e.g. *Skyrim* (Bethesda, 2011); the *Final Fantasy* series*; Greedfall* (Spiders, 2019)).[v] In lengthier or more complex conversations, the player character may be presented with the same dialogue tree options each time they engage with the NPC, only for their interlocutor to behave as if it's the first time they've covered that material (e.g. *Pillars of Eternity* (Obsidian, 2015)). Some NPCs will

explicitly offer to repeat their expository monologues and then proceed to do so word-for-word (*Legend of Zelda: Ocarina of Time* (Nintendo, 1998)*;* Maechen in *Final Fantasy X* (Square Enix, 2001)). Even games that avoid repetition of whole dialogue trees fall into a version of this trope: once all dialogue options have been exhausted, further interactions often consist of a repeated line, uttered in the same tone and with no reference to the number of identical interactions that came before it ("We should move on" - Fenris, *Dragon Age II* (Bioware, 2011)*;* "Can it wait for a bit? I'm in the middle of some calibrations" - Garrus, *Mass Effect* 2 (Bioware, 2010)). Indeed, repetition is so ubiquitous that it is sometimes acknowledged within the game itself (known as 'lampshading'):

> "If the person's advice is strange or cannot be understood, one should not feel shy. One should simply ask the person to repeat the statement by pressing A again. More often than not, if one asks politely, a person will say the same thing over and over again until the meaning is clear." (On a poster in *The Legend of Zelda: The Wind Waker* (Nintendo, 2002)*)*

> "I can't think of anything interesting to say, so I keep on repeating the same old stuff." (NPC in Luca, *Final Fantasy X-2* (Square Enix, 2003))*.*

Each of the two examples above highlights a different, important feature of conversation in video games: (1) the need to impart information and address gaps in understanding, and (2) the resource limitations (development time, game memory etc.) which restrict the amount of dialogue that can be present in a game. The following sections deal with each of these in turn,

highlighting the differences between repetition in video games and in real conversations, and suggesting how repetition might be used to maintain rather than break immersion.

## 3.1 Repairs

In real conversations it is often the case that people do not understand or simply do not hear each other. To help us deal with this, we have systems of 'repair' that get the conversation back on track (Schegloff, Jefferson & Sacks, 1977; Dingemanse et al., 2015; Micklos, Walker & Fay, 2020). These systems are quite predictable. For example, in Figure 1 below, A and B are discussing the booking of holiday tickets:


Figure 1: An example of an extended repair sequence, based on Rossi Corpus of English, RCE08 20000a-c (Rossi & Kendrick, 2013).

In this extract, B initiates repair on A three times, demonstrating the three types of repair. The first is an open class repair ("What?", "Huh?"[vi]), the most general type, which just indicates that

there's some kind of problem – either that B didn't hear or did not understand. The typical response is to repeat the previous turn. The second type is a restricted class repair ("Who's the guy?"), in which B requests specific information. The typical response is to elaborate on the targeted information. The final repair asks for confirmation ("in Argentina?"): B offers a 'candidate understanding' and asks A to confirm or disconfirm. The typical response is a simple confirmation or the correct answer. At this point, B signals that they understand and the conversation moves on. Multiple repairs in a sequence are common, often starting with the more general class and becoming more specific ('upgrading', Schegloff, Gefferson & Sacks, 1977; Clark & Schaefer, 1987). This system of repair seems to be universal (Dingemanse et al., 2015), with even a word sounding similar to "Huh?" existing in most languages (Dingemanse et al., 2013).

Repair sequences feature frequently in language, up to every 90 seconds (Dingemanse *et al.,* 2015). In contrast, they are very rarely used in video games. Instead, one trope for how problems of understanding are fixed is just allowing the player to demand information. Croshaw (2013) parodies this by imagining how it would sound in the real world (figure 2, left). This kind of conversation seems very unrealistic. Part of the reason is that B's turns are formed as commands, which threaten B's negative face, and are generally avoided by polite interlocutors. Note that this effect is reduced by using repairs instead (figure 2, right). Although still strange, the conversation at least appears to progress more naturally and with fewer face-threatening acts.

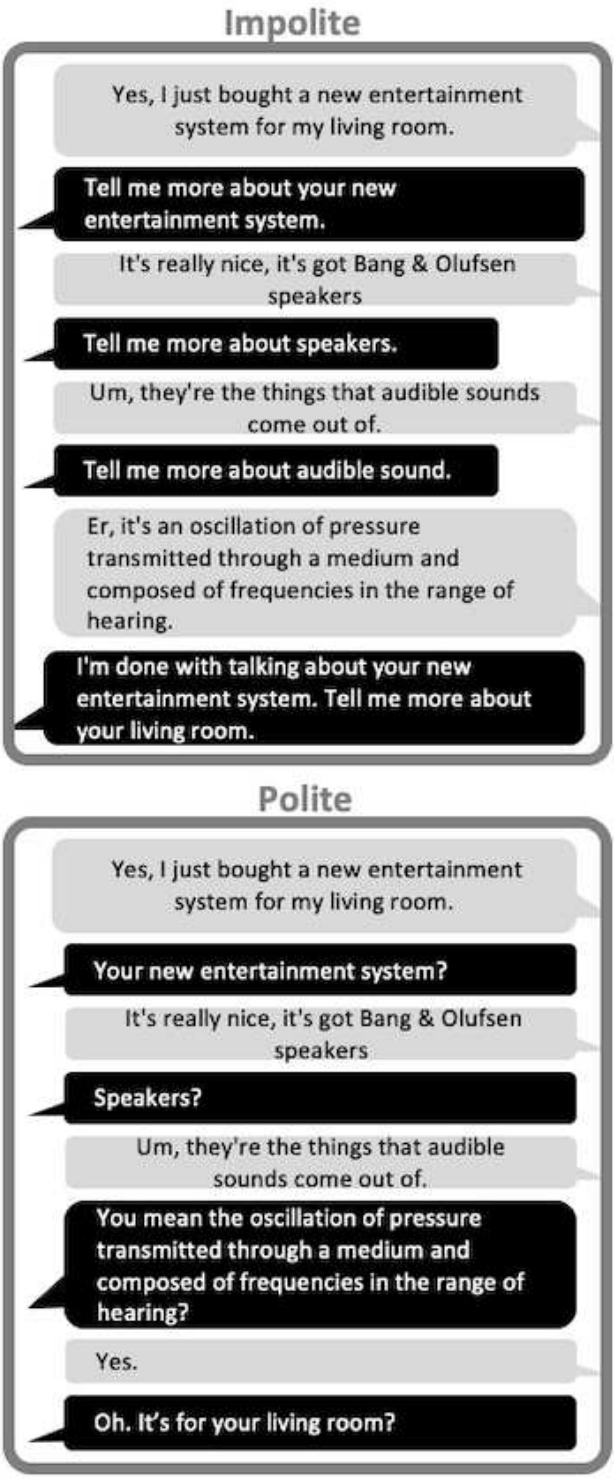


Figure 2: Parody of dialogue from Croshaw (2013) (left), rendered more polite using repairs (right).

Video game players often have little control over fixing problems of understanding. Developers could subvert this trope by giving more responsibility and agency to the player. This could be implemented by directly copying the conversational repair system; for example, players could initiate open repair ("huh?") to get the NPC to repeat what they just said. Alternatively, they could click specific bits of information, initiating restricted repair to find out more about it (similar to the 'ask' mechanic in *Final Fantasy II* (Square, 1988)). Figure 3 shows a hypothetical example of this kind of system.

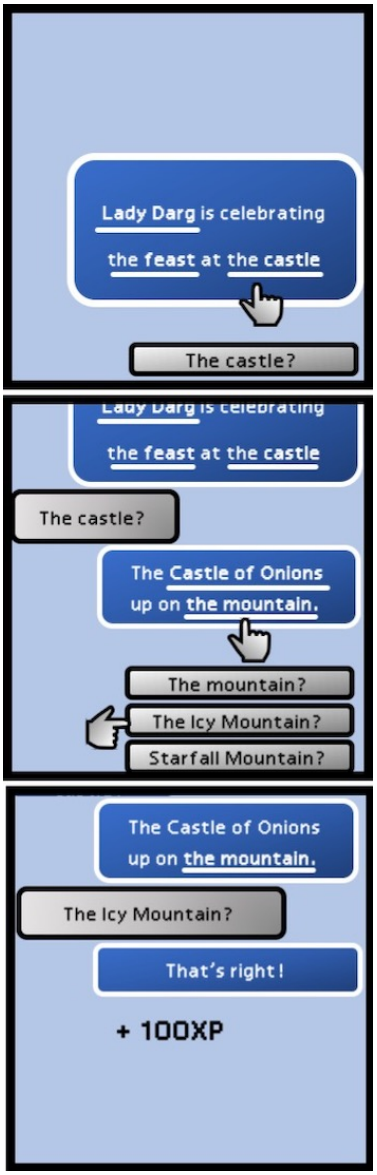

Figure 3: Hypothetical example of a dialogue system that uses the repair system to allow players to control exposition. In the first panel, three pieces of information are highlighted which the player can ask about. In the second panel, the player character knows some candidates for the NPC's reference, and decides to cooperate by suggesting a candidate understanding. This turns out to be correct, and the player is rewarded.

This kind of system allows players to control how much exposition they are exposed to. If they need more information they can use open repair, and if they just want confirmation they can ask for it. Some games already do this, to greater or lesser degrees – for example the *Dragon Age* and *Mass Effect* series use a dialogue wheel with options on the right that advance the conversation, and options on the left to ask for further information, repetition or clarification of points raised so far. Others allow the player to click or type keywords from the conversation to prompt further exposition, such as *Dusk of the Gods* (Event Horizon Software, 2001) and *Elder Scrolls III* & *IV* (Bethesda, 2002; 2006). Making this more widespread, that is, allowing players to control both the pace and depth of the conversation, may help players feel more agency over the conversations they engage in and provide a way to avoid re-listening to dialogue unnecessarily.

As well as increasing player agency, this system may make NPCs appear more pragmatically sensitive by avoiding over-explanation. Barbieri et al. (1989) suggest that "overexplaining may acquire the connotation of an insult, since it implies an assumption of the partner's difficulty in understanding" (p.133). Implying a lack of understanding can also be a form of subordination, which is avoided in polite conversation (e.g. Heritage & Raymond, 2005). One of the conditions that licenses an explanation is that the explainer believes that their conversational partner does

not already have the information. The clearest indication of this is a direct request for an explanation, followed by a clear sign that there was a problem of understanding (as in repair, see above). In this case, speakers are often happy to repeat or explain further. In short, people in conversation generally act cooperatively – trying to help each other understand while allowing the conversation to 'progress' (Dingemanse et al., 2015).

However, the commitment to cooperation goes both ways. A speaker can feel insulted if they believe that their partner knows (or should know) something, but asks for clarification anyway. This halts the progress of the conversation and also suggests some ulterior motive on the part of the questioner. This was demonstrated by one of Garfinkel's "breaching experiments" (Garfinkel, 1967) where a confederate was instructed to continuously ask for clarification:

> S: Hi Ray. How is your girlfriend feeling?
>
> Ray: What do you mean, "How is she feeling?" Do you mean physical or mental?
>
> S: I mean how is she feeling? What's the matter with you? (He looked peeved)
>
> Ray: Nothing. Just explain a little clearer what do you mean?
>
> S: Skip it. How are your Med School applications coming?
>
> Ray: What do you mean, "How are they?"
>
> S: You know what I mean!
>
> Ray: I really don't.
>
> S: What's the matter with you? Are you sick?
>
> (Garfinkel 1964, p. 230)

In this case, S becomes angry and defensive when asked for clarification, and attempts to move the conversation forward. In contrast, video game NPCs have apparently infinite patience (as in Croshaw's example). Accordingly, we suggest that another reason that Croshaw's conversation sounds strange is the NPC's calmness. If A was capable of real pragmatic inference, then they should be getting angry about the unjustified lack of progress in the conversation, and unnerved by B's apparent lack of basic knowledge. This realistic behaviour could be introduced into games in several ways. For example, having the NPC express frustration after being asked to repeat themselves several times ("Are you not listening, adventurer? I said …"). Another solution would be to gamify the cooperation. Dingemanse et al. (2015) identified a 'division of labor principle' where speakers try to share the burden of repair as much as possible. A lazy listener could just say "huh?" after any problem of understanding, expending minimal effort and leaving their partner to do the work of explaining. However, in real conversations, listeners often offer a candidate understanding (e.g. "The hallowed peak?", "in Argentina?"), doing more work than is strictly necessary. In a video game, NPCs could have an "effort meter" that goes up with each word they speak. Having to repeat or explain would increase the effort meter quickly, and reaching a certain threshold would make the NPC reluctant to keep talking. This would give the player an incentive to use the more effortful repairs such as candidate understandings, which might only require the NPC to say 'yes'. Alternatively, this could be conceptualised as an 'impatience meter', which causes the NPC to progress the conversation (without repair) if the meter is too high, or which might 'reset' if the conversation gets back on track. We see something like this in *Pillars of Eternity* (Obsidian, 2015), although the meter in question is invisible: Durance the party priest has limited patience for conversation and will only tolerate so many turns before ending an interaction. This resets after the party rests.

## 3.2 Ritual

There is a tension in video game development between wanting to give the impression of rich, believable interactions, while also needing to keep the amount of content manageable. As a result, NPCs will frequently repeat the same dialogue throughout the game, and sometimes multiple NPCs will have identical utterances (*Divinity: Original Sin* (Larian Studios, 2014)*; Pillars of Eternity* (Obsidian, 2015)*; Skyrim* (Bethesda, 2011)). This repetition does not always fulfil an expository function, and assuming that players bring their real-life attitudes to politeness to their play (Coulson et al., 2012; Harth, 2017), too much of this kind of repetition could break immersion.[vii]

The most common ways to avert this trope are for NPCs to alternate between lines, or to change their lines in response to plot events.[viii] One motivation for this is a seemingly widespread feeling that people should change what they say from day to day or depending on the circumstances. Real speakers spend much of their time conversing about social topics ("gossiping", Dunbar, Marriott & Duncan, 1997), but repeating "old gossip" that their partner already knows might be impolite. However, people do not always know which information others know. Rather than risk this repetition, they often use pre-sequences to "fish" for whether people have heard news (e.g. "Did you hear about Valnor?", see Gardner, 2004, 273-274).

However, avoiding repetition is not the only solution. Rather than seeing it as an inevitable problem, we suggest doubling-down. Repetition is used in real conversation to manage social relationships and players may interpret repetition in certain contexts – such as re-tellings and greetings – as meaningful rituals. For example, greetings in real life are often formulaic (Duranti,

1997). In American English, “how are you?” should be responded to with mild positivity (“fine”, “good”, “okay”), even if one is feeling unwell (Sacks, 1975). This fulfils various pragmatic functions which may be more important than being truthful or interesting.[ix] Other conventions of greetings are found around the world and might be used as templates in games. For example, the template below is found in many languages including Samoan (Duranti, 1997, p. 83):

A: Where are you going?

B: I’m going to [destination].

A: Then go.

B: I go.

In B’s reply, vagueness is an acceptable or even preferred response and “an errand” can suffice. Although this interaction might seem artificial or unusual in English, it performs an important ritual function for the speakers. Ritual greetings could be used in games rather than coming up with a different greeting sequence for each NPC. For example, the player might decide to greet an NPC and speak the standard first line of the greeting. The NPC’s destination may be available in the game system, and if not they could give the vague response. If the player takes B’s role, then they might get the option to conform to the ritual or not, or to state their true destination, lie, or be vague.

Although hearing specific *gossip* repeatedly may break immersion[x], hearing ritual greetings repeatedly should not be surprising. Indeed, since these are ritual behaviours and violating the preferred sequence for greetings is impolite (e.g. Yahya-Othman, 1995), repetition may improve immersion. This is demonstrated in an experiment using *Skyrim* (Bethesda, 2011). Schlünder & Klabunde (2013) presented participants with two dialogues between a player and an NPC

shopkeeper (figure 4, left). The first communicates lore and backstory, but is impolite: the shopkeeper criticises the player's looks (threatening positive face) and gives unsolicited advice (threatening negative face, Heritage & Sefi, 1992). Furthermore, the player appears to ignore the shopkeeper's comment and makes a demand. The second dialogue (figure 4, right) is a ritual greeting typically used in service encounters (e.g., Raevaara, 2011). Players rated this sequence as more appropriate and more polite than the original *Skyrim* dialogue.


Figure 4: Two dialogues from Schlünder & Klabunde (2013)

Trope-informed design would suggest tying the player's behaviour to the relationship they have with the NPC. We don't expect the player to have a relationship with the merchant, so a ritualised greeting makes sense here. If the player character had a different kind of relationship with the NPC we might expect a different kind of greeting. The NPC might become

uncooperative if the player does not greet them, violates the formula, or is vague too often. This would allow the mechanics of conversation to be used to establish themes in the game. For example, respect and affiliation with poor peasants who you are sworn to protect; traditional, polite culture versus modern, brash attitudes; or a sinister culture of surveillance and gossip where anyone might be labelled a traitor. One way to make that clear to the player is to give them options between several 'registers' of greeting or skipping the ritual. The NPCs can then show some indication of offence if the 'polite' ritual is not followed (e.g. refusal to help, vagueness rather than specific information).

To summarise, although there is a feeling that repetition across NPC interactions breaks immersion, and there is a perception that more content leads to a better gameplay experience, this might not be true in all situations. Players may still feel that they are making meaningful decisions about their pragmatic behaviour even if their dialogue options are minimal.

Another tactic would be to recast dialogue as ritual retellings: repeated narratives of past events with friends and family based on shared experience and often incorporating humour (e.g. Georgakopoulou, 2005; Ewing, 2016). These are frequently used to reinforce a group's moral values (e.g. a story about obsessive mending to reinforce the value of thrift) which might be useful to convey aspects of a game's world and plot. Retellings also help maintain social relationships, ratify group membership and give accounts for behaviour (Norrick, 1997). Therefore, hearing NPCs tell this kind of story several times may not seem strange to players.[xi] For example, the memeified phrase from *Skyrim* – 'I used to be an adventurer like you, then I took an arrow in the knee' – is a re-telling. Although it may be unlikely that many people have the same fate, the repetition makes it seem more like a euphemism or proverb, and can be used by players as an in-group marker.[xii]

# 4 Take your time

In many games, the player has unlimited time to complete tasks: they can spend hours on sidequests and will still reach the lair of the final boss just as they prepare to strike; or dally while collecting ingredients to cure a sick NPC with no deterioration of the patient. This trope also applies to conversation: the player usually has no time limit for choosing what to say (e.g. *Mass Effect, Dragon Age,* and *Final Fantasy* series*; Pillars of Eternity* (Obsidian, 2015)). It may be that players need time to review the options given to them and, of course, part of the fun comes from careful consideration of the alternatives. However, this can lead to odd imbalances, where the player spends a long time choosing what to say, only to have the NPC produce a comprehensive response immediately.

This is much at odds with real conversations where participants try to minimise the amount of gap and overlap between turns (Sacks, Schegloff & Jefferson, 1978). Although these occur, the pause between a question and an answer is typically only around 200 milliseconds, even across strikingly different languages (Stivers et al., 2009; Levinson, 2016; de Vos, Torreira & Levinson, 2016). This is surprisingly fast, considering the complex task of speech planning (conceptualising the meaning, retrieving words from memory, applying the correct morphology, encoding the message into speech sounds and then into muscle movements; Levelt, Roelofs, and Meyers, 1999). It takes our brains over 600ms to retrieve and plan the articulations for just one word (Levelt, Roelofs, and Meyers, 1999), which means that the gaps between turns are much shorter than our cognitive reaction times. In terms of the precision of our timing, that's the

equivalent of standing 15m from a road and throwing a football so that it passes through the window of a car that's passing at 35km/h.

The implication is that listeners are doing several things at once: understanding what's being said, planning what they will say, and guessing the appropriate time to launch their own articulation. We don't always get the timing right, of course, but we are surprisingly good at this difficult task. One reason for this high-speed turn taking is the negative pragmatic effects of leaving gaps, either because someone else might steal your opportunity to speak or because leaving very long gaps can be seen as a sign of unwillingness, concealment or stupidity (e.g. Levinson, 2013, p.107-108). Even short pauses can reveal a speaker's intentions. "Dispreferred" responses such as refusing an offer or denying help can be delayed compared to preferred responses (Kendrick & Torreira, 2015), and the brain responds differently to the same speech when pauses differ even by less than a second (Bögels, Kendrick, & Levinson, 2019).

There are several game mechanics that can make the timing of turns more realistic, although – as we explain below – this might not always be desirable. The most obvious is a timed window in which to respond, as in *Sakura Wars* (Sega, 2019)*, Alpha Protocol* (Obsidian, 2010) or *The Descendant* (Gaming Corps, 2016), though these still typically give players many seconds to respond. Applying realistic timing can be very challenging for the player, though some games have experimented with live, unconstrained input. For example, in *Façade* (Procedural Arts, 2005) players must type text in real time to interact with two NPCs, with a natural language processing engine interpreting the player's input. This often requires players to begin typing before the NPC has finished speaking, mirroring real life, where listeners must start planning

what they will say before their partner has finished speaking (Bögels, Magyari & Levinson, 2015; Bögels, 2020). However, maintaining fast typing speeds is exhausting for the player, and prohibitive for some. While advances in speech recognition might help, producing unconstrained speech in real time is still challenging.

A more constrained mechanic appears in *Oxenfree* (Night School Studio, 2016): dialogue options appear early but fade quickly after the last person has finished speaking. After a short window of silence, the player misses their chance to say anything and the game continues, forcing players to read and choose options in real time. There are several points in the game where the choice of *when* to say things can make critical differences to the narrative, for example cutting off bullies or covering for a friend before they reveal a secret. Some have criticised this mechanic, for example:

> "The speech bubbles for determining what to say disappear almost as soon as the other character finishes speaking. Which means that if you want to wait and hear everything they say, you have less than a second to click your answer. ... So the dialogue engine becomes this crapshoot of interrupting your friends and not hearing what they have to say, or playing chicken with a disappearing choice selector and potentially failing to reply altogether" (Franklin, 2016).

The irony here is that Franklin is criticising a game mechanic that reflects the challenges of speaking in the real world quite well. That is, although the "take your time" trope is unrealistic, it seems that many players are unwilling to give up the freedom it provides. This is not merely a

matter of enjoyment; there are also accessibility concerns associated with time-sensitive responses (e.g. Yuan et al, 2011).

However, we suggest that some of the cognitive burden associated with increased realism could be alleviated with different design choices. One possibility is to tie the speech options to hotkeys, listed by pragmatic action (e.g. the first option is always some kind of agreement or encouragement). Players are already accustomed to similar mechanics for personality or tone of speech in some RPGs: for example, in *Dragon Age II* (Bioware, 2011), options on the top right of the dialogue wheel are diplomatic or helpful, middle right are humorous or charming, and bottom right are aggressive or direct. The *Mass Effect* trilogy is notable in that it permits the player to choose a response before their interlocutor has finished speaking, thereby improving the flow of conversation. There is no time limit, but if the player wants to queue responses in advance they can. It also makes use of the dialogue wheel with 'paragon' and 'renegade' responses mapped to the top right and bottom right respectively, so players know the flavour of what the PC will say. This is one possible way to strike a balance in terms of accessibility and realism.

Another more flexible possibility might be to extend the 'real time with pause' mechanic common in combat (e.g. *Pillars of Eternity* (Obsidian, 2015)*; Baldur's Gate* (Black Isle Studios, 1998)*; Neverwinter Nights 2* (Obsidian, 2006)*; Greedfall* (Spiders, 2019)) to conversation. This would allow players to pause the game while they decide on a response, with the utterance occurring once the game was unpaused; otherwise the interaction would proceed in real time. For

players more concerned with roleplaying than realism, the game could be set to auto-pause at the start of an interaction.

In the real world, speakers have a few tactics to ease their burden. For example, they don't always need to produce meaningful sentences in order to take turns on time. Speakers use a range of "floor-holding devices", such as hesitations ("Um", "Er", "Well …"), which give them more time to plan (Kendrick, 2012; Roberts & Levinson, 2017). This could be mirrored in video games by having the player produce hesitations while deciding between options (e.g. rhythmically tapping a button to hold the turn, with optional tolerances for greater accessibility). Another trick would be to slow or stop time in the game world during the player's decision making: a kind of "bullet time" or "dead eye" system for conversation.

In summary, real-time mechanics have some potential. Indeed, Brown (2016) picked the dialogue system of *Oxenfree* (Night School Studio, 2016) as one of the top 5 game design innovations of 2016, saying that it leads to "more natural conversations, with the pacing and flow of a real chat – rather than the rigid turn-based debate you get in other games". Brown is particularly impressed with the way some NPCs re-join turns that were interrupted by the player ("Anyway -", "So ... Yeah -"). Similarly, Franklin does admit that "conversations continue forward at a semi natural sounding pace without those long, video-gamey silences or forced dialogue options".

# 5 Skipping & Interrupting

A feature of many video games – partly to compensate for the kinds of repetition discussed above – is the ability to speed up or 'skip' through long sections of dialogue (parodied frequently, e.g. Wong & Arnold, 2012, S3 E1). Games are often criticised if their text scrolling is too slow or if they prohibit conversation skipping.[xiii] While real life doesn't have a 'skip' button, speakers do use 'backchannels' to manage conversations. These are short turns or physical gestures that can overlap your partner's speech (without being impolite). For example, saying "uh-huh" or "um-hmm" during someone else's turn indicates that you are following and they should continue (e.g., Kjellmer, 2009). A 'frozen' look can be a signal that the partner does not understand and requires more information (Manrique & Enfield, 2015). Exaggerated nodding with the eyes closed can signal that someone already knows what is being conveyed and wishes their partner to get to the new information (Hömke, Holler & Levinson, 2017; Byun et al., 2018).

Skipping in games tends not to affect the conversation – the NPC treats the player character as if they've listened to their entire monologue. However some games go further and explicitly permit interruption of NPCs (e.g. *Mass Effect 2* (Bioware, 2010)*/Andromeda* (2017)). In the real world, interrupting what your interlocutor is saying is often considered rude because it threatens their positive face. Occasionally games reflect this. For example, in *Final Fantasy X-2* (Square Enix, 2003), speeding up or interrupting Maechen's long-winded story causes him to refuse to speak to you again, preventing 100% completion of the game.

Action commands are a tropey mechanic largely confined to combat situations, but which could be adapted for and utilised in conversation. This is how *Mass Effect 2* and *Andromeda* handle

interruptions, but even there it is under-utilised: interrupting actions tend to be physical rather than verbal (e.g. jumping down a pit[xiv]). Having short time windows (as the aforementioned examples do) can have consequences for accessibility, but lengthening the time windows (either by default or giving the option in settings) and standardising the button sequences could go some way to addressing these. For example, games could assign hotkeys that allow the player character to nod to encourage an NPC to keep speaking, show disagreement, or chime in to banter between party members.

# 6 Conclusion

Conversation in video games can play an important role in creating an immersive experience, particularly when the player feels they are interacting with rounded characters. However, many in-game conversational tropes – features of the way player characters and NPCs interact – are at odds with how humans converse in real life, which could negatively affect immersion. As the TV Tropes wiki notes,

> "It can be vexing when you try to envisage the NPCs as *people* and think that they might tell you anything informative… in real life, you would most likely hightail it out of the town because you would consider all the NPCs as either insane or part of some satanic cult." (https://tvtropes.org/pmwiki/pmwiki.php/Main/WelcomeToCorneria)

Some theories in other media have focused on the role of empathy and emotion for maintaining immersion (e.g. Fraser, Papaioannou & Lemon, 2018; Rashkin et al., 2019). By contrast, we suggest that NPC dialogue may break immersion when it fails to give players the impression of a

pragmatic mind behind the words being used. Based on findings in CA and pragmatics, that will include instances where the interaction is impolite (face-threatening) without the normal motivations or consequences. Real conversational strategies such as repair, retellings, backchannels, ritual refusals and indirect language help speakers remain polite while negotiating social life. In turn, this helps maintain social relationships and convey the impression that the interlocutor is "a distinct being worth recognising" (Duranti, 1997). Generally, real people are not impolite without some obvious motivation, and any impoliteness should elicit a demand for an account or a negative reaction. Players treat virtual agents like real social actors (Nass, Steuer & Tauber, 1994), and expect to be treated as such by NPCs. Polite agents may appear more socially intelligent (Vinciarelli et al., 2009) and natural (Klüwer, 2015), and can increase a user's engagement (Glas & Pelachaud, 2015) and learning (Wang et al., 2008). NPCs that threaten someone's face without obvious motivation or who fail to react to having their face threatened will appear to be missing a pragmatic mind that is capable of inferring intentions and responding appropriately. In short, Bad NPCs will have no face.

Many critics suggest that conversation is hard to capture in games because of its open-ended nature, particularly in comparison with other game mechanics such as combat. For example Gee (2014:10) writes, "As realistic forms of conversation become more computationally possible (a very hard task), I predict that shooting will be less important and talking more important in many games, even shooter games." Gee is optimistic, but nevertheless sees the ultimate barrier as computational power or development time. Similarly, game developer Tom Francis (2015) suggests that conversations cannot be simulated in a simple way: "when you simplify violence into something that is easy to simulate, the fidelity you lose isn't stuff we care about. Whereas

when we simplify social relationships between people to the same extent, the things we lose seem like a big deal, and the simplification feels crude".[xv]

However, we suggest that conversations are simply not being abstracted in the right way. No shooter game simulates physics perfectly, but they still manage to achieve immersion through their game systems by allowing users to express relevant actions. Even 'unrealistic' abstractions do not always break immersion (e.g. carrying capacity, ammo pickups, instant healing kits). In the same way, conversation is a system that should be amenable to abstraction (Brown, 2016).

We propose that a lot of the "stuff we care about" comes down to pragmatics. Through trope analysis we have identified key opportunities for improving immersion, by highlighting where there is disparity between the pragmatics of everyday conversation and how the latter are handled in games. As per our concrete suggestions throughout the paper, it should be possible to simplify conversations in a way that maintains these aspects by thinking about conversation as social action and focussing on giving NPCs the appearance of having pragmatic minds. Even some low-tech solutions may improve immersion (e.g. from this paper: allowing players to choose how to repair gaps in understanding; use of ritual talk; pausing time while players make dialogue choices).

Of course, it is an empirical question which approaches lead to better player experience. However, we note that current metrics are not always set up to capture the kinds of concerns we address. For example, some quantitative approaches to assessing the realism of chatbots and NPCs are based around ratings of "sensibleness" and "specificity" (e.g. Adiwardana et al., 2020).

There may be room to add an additional measure based on pragmatics, for example asking participants to rate the politeness of the NPC, or how offended they felt.

In conclusion, tropes are tools that can be used to design better games. Some tropes point to positive player experiences, and others to negative ones that can break player immersion. Analysing at the level of tropes allows for insight beyond individual games and helps to identify possible mechanics that are currently under-explored. In this paper we showed that understanding how conversations work in games versus real life can help designers make informed choices about the level of realism they wish to pursue and insight into how to achieve this. This ‘trope-informed design’ can be applied to many other aspects of conversation and indeed to other video game mechanics. However, the ultimate value of a game mechanic is not realism, but player immersion. Many tropes highlight aspects of games that can break immersion. Thus, trope-informed design can help designers make games more immersive.

## References

Adiwardana D, Luong MT, So DR, Hall J, Fiedel N, Thoppilan R, Yang Z, Kulshreshtha A, Nemade G, Lu Y, Le QV. (2020) Towards a human-like open-domain chatbot. arXiv:2001.09977.

Afonso, N., & Prada, R. (2008). Agents that relate: Improving the social believability of non-player characters in role-playing games. In International Conference on Entertainment Computing (pp. 34-45). Springer, Berlin, Heidelberg.

Andre, E., Rehm, M., Minker, W., & Bühler, D. (2004, June). Endowing spoken language dialogue systems with emotional intelligence. In Tutorial and Research Workshop on Affective Dialogue Systems (pp. 178-187). Springer, Berlin, Heidelberg.

Antaki, C. (1994). Explaining and Arguing: The Social Organization of Accounts. Sage, London.

Austin, J. L. (1975) How to Do Things with Words, Second Edition Oxford: OUP.

Barbieri, M. S., Colavita, F., & Scheuer, N. (1989). Explanations: A pragmatic basis for early child competence. IPrA Papers in Pragmatics, 3(1), 129-154.

Bethesda Game Studios. (2002). *The Elder Scrolls III: Morrowind*. [Microsoft Windows, Xbox]. Digital game directed by Todd Howard, published by Bethesda Softworks.

Bethesda Game Studios. (2006). *The Elder Scrolls IV: Oblivion*. [Microsoft Windows, Xbox 360, PlayStation 3]. Digital game directed by Ken Rolston, published by Bethesda Softworks, 2K Games.

Bethesda Game Studios. (2011). *The Elder Scrolls V: Skyrim*. [Microsoft Windows, Xbox 360, PlayStation 3]. Digital game directed by Todd Howard, published by Bethesda Softworks.

Bilmes, J. (1988). The concept of preference in conversation analysis. Language in society, 17(2), 161-181.

BioWare. (2011). *Dragon Age II*. [Microsoft Windows, XBOX 360, Playstation 3, Mac OS X] Digital game directed by Mike Laidlaw, published by Electronic Arts.

BioWare. (2009). *Dragon Age: Origins*. [Microsoft Windows, Xbox 360, PlayStation 3, Mac OS X]. Digital game directed by Dan Tudge, published by Electronic Arts.

BioWare. (2007). *Mass Effect.* [Windows, Xbox 360, Playstation 3]. Digital game directed by Casey Hudson, published by Microsoft Game Studios.

BioWare. (2010). *Mass Effect 2*. [Windows, Xbox 360, PlayStation 3]. Digital game directed by Casey Hudson, published by Electronic Arts.

BioWare. (2017). *Mass Effect: Andromeda*. [Windows, Playstation 4, Xbox One]. Digital game directed by Mac Walters, published by Electronic Arts.

Black Isle Studios. (1998). *Baldur's Gate*. [Windows, Mac OS]. Digital game directed by James Ohlen, published by Interplay Entertainment.

Blum-Kulka, S. and Olshtain, E., 1984. Requests and Apologies: a Cross-Cultural Study of Speech Act Realisation Patterns, Applied Linguistics, Vol. 5, No.3.

Bögels, S., Kendrick, K. H., & Levinson, S. C. (2019). Conversational expectations get revised as response latencies unfold. Language, Cognition and Neuroscience, 1-14.

Bögels, S., Magyari, L., & Levinson, S. C. (2015). Neural signatures of response planning occur midway through an incoming question in conversation. Scientific reports, 5, 12881.

Bögels, S. (2020). Neural correlates of turn-taking in the wild: Response planning starts early in free interviews. Cognition, 203, 104347.

Brown, M. (2016). 5 Game Design Innovations from 2016. Online https://www.youtube.com/watch?v=kzfKnI8x5SE

Brown, M. (2019). Can we make talking as much fun as shooting? Online https://www.youtube.com/watch?v=l9TzqNQBmr0

Brown, P., & Levinson, S. C. (1978). Universals in language usage: Politeness phenomena. In *Questions and politeness* (pp. 56-311). CUP.

Brown, P., Levinson, S. C., & Levinson, S. C. (1987). Politeness: Some universals in language usage (Vol. 4). CUP.

Brusk, J., & Björk, S. (2009). Gameplay Design Patterns for Game Dialogues. In DiGRA Conference.

Byun, K. S., De Vos, C., Bradford, A., Zeshan, U., & Levinson, S. C. (2018). First encounters: Repair sequences in cross-signing. Topics in cognitive science, 10(2), 314-334.

Campano, S., & Sabouret, N. (2009). A socio-emotional model of impoliteness for non-player characters. In Proceedings of the 3rd International Conference on Affective Computing and Intelligent Interaction and Workshops (pp. 1-7). IEEE.

Capcom. (1997). *Breath of Fire III*. [PlayStation, PlayStationPortable]. Digital game directed by Makoto Ikehara, published by Capcom (JP, NA), Infogrames (EU), Capcom (PSP).

CD Projekt Red. (2015). *The Witcher 3: Wild Hunt*. [Windows, PS4, Xbox One, Nintendo Switch, PS5, Xbox Series X/S]. Digital game directed by Konrad Tomaszkiewicz, Mateusz Kanik, Sebastian Stäpieå, published by CD Projekt.

Clark H. H. & Schaefer E. 1987 Collaborating on contributions to conversations. Language & Cognitive Processes 2, 19–41.

Collister, L. B. (2008). Virtual discourse structure: An analysis of conversation in World of Warcraft (Doctoral dissertation, University of Pittsburgh).

Coulson, M., Barnett, J., Ferguson, C. J., & Gould, R. L. (2012). Real feelings for virtual people: Emotional attachments and interpersonal attraction in video games. Psychology of Popular Media Culture, 1(3), 176–184.

Croshaw, B. (2013) DARK (Zero Punctuation) GEEK WEEK. Online: https://www.youtube.com/watch?v=SOgXwElNSpU. Accessed 26/3/2020.

de Vos, C., Torreira, F., & Levinson, S. C. (2015). Turn-timing in signed conversations: coordinating stroke-to-stroke turn boundaries. Frontiers in psychology, 6, 268.

Dingemanse M, Roberts SG, Baranova J, Blythe J, Drew P, Floyd S, Gisladottir RS, Kendrick KH, Levinson SC, Manrique E, Rossi G. & Enfield, N.C. (2015). Universal principles in the repair of communication problems. PloS one, 10(9), e0136100.

Dingemanse, M., Torreira, F., & Enfield, N. J. (2013). Is "Huh?" a universal word? Conversational infrastructure and the convergent evolution of linguistic items. PloS one, 8(11), e78273.

Domsch, S. (2017). Dialogue in video games. Dialogue across Media, 28, 251.

Dunbar, R. I., Marriott, A., & Duncan, N. D. (1997). Human conversational behavior. Human nature, 8(3), 231-246.

Duranti, A. (1997). Universal and culture-specific properties of greetings. Journal of linguistic Anthropology, 7(1), 63-97.

Ensslin, A. (2011). The language of gaming. Macmillan International Higher Education.

Ensslin, A., Balteiro, I. (2019). Approaches to Videogame Discourse Lexis, Interaction, Textuality. Bloomsbury.

Event Horizon Software. (1991). *Dusk of the Gods*. [MS-DOS]. Digital game directed by Christopher L. Straka, Thomas J. Holmes, published by Interstel Corporation.

Ewing, M. C. (2016). Reiterative construction of narrative. Narrative Inquiry, 26(2), 376-401.

Extra Credits (2012). Non-Combat Gaming - How to Make Social Mechanics Fun. Online https://www.youtube.com/watch?v=2QJVGtKPjNc

Firth, R. (1972). Verbal and bodily rituals of greeting and parting. In J.S. La Fontaine (ed.) The interpretation of ritual, 1-38. Routledge.

Francis, T. (2015) The Cost Of Simplifying Conversations In Videogames. Online https://www.pentadact.com/2015-02-14-the-cost-of-simplifying-conversations-in-videogames/

Fraser, J., Papaioannou, I., & Lemon, O. (2018). Spoken conversational AI in video games: Emotional dialogue management increases user engagement. In *Proceedings of the 18th International Conference on Intelligent Virtual Agents* (pp. 179-184).

Gafaranga, J., & Britten, N. (2003). “Fire away”: the opening sequence in general practice consultations. Family practice, 20(3), 242-247.

Gaming Corps (2016). *The Descendant*. [PC, OS X]. Digital game published by Microids Indie.

Gardner, R. (2004). Conversation Analysis. *The handbook of applied linguistics*, 262.

Garfinkel, H. (1964). Studies of the routine grounds of everyday activities. Social problems, 11(3), 225-250.

Garfinkel, H. (1967). Studies in Ethnomethodology. Prentice-Hall.

Gee, J. P. (2014). What video games have to teach us about learning and literacy. Macmillan.

Georgakopoulou, A. (2005). Same old story?. On the international dynamics of shared narratives. In T. Becker & UM Quasthoff (Eds.), Narrative interaction, 223-241.

Gisladottir, R. S., Chwilla, D. J., & Levinson, S. C. (2015). Conversation electrified: ERP correlates of speech act recognition in underspecified utterances. PloS one, 10(3).

Givens, D. (1981). ‘Greeting a stranger: Some commonly used nonverbal signals of aversiveness. Nonverbal Communication, Interaction, and Gesture, Thomas Albert Sebeok, Adam Kendon, and Jean Umiker-Sebeok, eds.(New York: Mouton, 1981), 219-235.

Glas, N., & Pelachaud, C. (2015). Politeness versus perceived engagement: an experimental study. Natural Language Processing and Cognitive Science, 2014, 135.

Goffman, E. (1967). Interaction Ritual. *Essays on Face-to-Face Behavior.* Allen Lane: The Penguin Press.

Goodfellow, C. (2015). Russian overlords, vodka, and logoffski. Games and Culture, 10(4), 343-364.

Graham, S. L., & Dutt, S. (2019). “Watch the Potty Mouth”: negotiating impoliteness in online gaming. In A. Ensslin and I Balteiro (Eds.), *Approaches to videogame discourse: lexis, interaction, textuality* (pp. 201-224). Bloomsbury Academic.

Grice, P. (1975). Logic and conversation. In Cole, P.; Morgan, J. (eds.). *Syntax and semantics. 3: Speech acts.* New York: Academic Press. pp. 41–58.

Harth, J. (2017). Empathy with Non-Player Characters? An Empirical approach to the Foundations of Human/Non-Human Relationships. Journal For Virtual Worlds Research, 10(2).

Heritage, J. (1988) Explanations as accounts: a conversation analytic perspective. In: Antaki, C. (Ed.), Analyzing Everyday Explanation. Sage, London, pp. 125–144.

Heritage, J., & Raymond, G. (2005). The terms of agreement: Indexing epistemic authority and subordination in talk-in-interaction. Social psychology quarterly, 68(1), 15-38.

Heritage, J., & Sefi, S. (1992). Dilemmas of advice: Aspects of the delivery and reception of advice in interactions between health visitors and first-time mothers. In P. Drew & J. Heritage (Eds.), *Talk at work* (pp. 359-417). Cambridge: CUP.

Hömke, P., Holler, J., & Levinson, S. C. (2017). Eye blinking as addressee feedback in face-to-face conversation. Research on Language and Social Interaction, 50(1), 54-70.

Kendrick, K. H. (2012). Particles at the transition space. Talk presented at the Interactional Foundations of Language Meeting, Kreuth, Germany, 2012-11-01–2012-11-02.

Kendrick, K. H. (2015). Other-initiated repair in English. Open Linguistics, 1(1).

Kendrick, K.H., Brown, P., Dingemanse, M., Floyd, S., Gipper, S., Hayano, K., Hoey, E., Hoymann, G., Manrique, E., Rossi, G. and Levinson, S.C. (2020). Sequence organization: A universal infrastructure for social action. Journal of Pragmatics, 168, 119-138.

Kendrick, K. H., & Torreira, F. (2015). The timing and construction of preference: A quantitative study. Discourse Processes, 52(4), 255-289.

Kjellmer, G. (2009). Where do we backchannel?: On the use of mm, mhm, uh huh and such like. International Journal of Corpus Linguistics, 14(1), 81-112.

Klüwer T., Adolphs P., Xu F., Uszkoreit H. (2011) A Dialogue System for Conversational NPCs. In: Delgado RC., Kobayashi T. (eds) Proceedings of the Paralinguistic Information and its Integration in Spoken Dialogue Systems Workshop. Springer, New York, NY.

Klüwer, T. (2011). "I Like Your Shirt"-Dialogue Acts for Enabling Social Talk in Conversational Agents. In International Workshop on Intelligent Virtual Agents (pp. 14-27). Springer, Berlin, Heidelberg.

Klüwer, T. (2015). Social talk capabilities for dialogue systems. PhD thesis, Saarbrücken Dissertations in Language Science and Technology 39.

Larian Studios. (2014). *Divinity: Original Sin*. [Windows, PlayStation 4, Xbox One, Linux, OS X]. Digital game directed by Swen Vincke, published by Larian Studios (PC) Focus Home Interactive (PS4, XONE).

Level-5 (2004). *Dragon Quest VIII*. [PlayStation 2, Android, iOS, Nintendo 3DS]. Digital game directed by Akihiro Hino, published by Square Enix.

Levelt, W. J., Roelofs, A., & Meyer, A. S. (1999). A theory of lexical access in speech production. *BBS*, 22(1), 1-38.

Levinson, S. C. (1983). *Pragmatics*. Cambridge: CUP.

Levinson, S. C. (2016). Turn-taking in human communication–origins and implications for language processing. *TICS*, 20(1), 6-14.

Liddicoat, A. J. (2011). *An introduction to conversation analysis*. Bloomsbury Publishing.

Manrique, E., & Enfield, N. J. (2015). Suspending the next turn as a form of repair initiation: evidence from Argentine Sign Language. Frontiers in psychology, 6(1326), 1-21.

Marsh, A. P., & Tainio, L. (2009). Other-repetition as a resource for participation in the activity of playing a video game. The Modern Language Journal, 93(2), 153-169.

Mäyrä, F. (2017). Dialogue and interaction in role-playing games. Dialogue across Media, 28, 271.

Micklos, A., Walker, B., & Fay, N. (2020). Are People Sensitive to Problems in Communication?. Cognitive Science, 44(2), e12816.

Mondada, L. (2011). The situated organisation of directives in French: Imperatives and action coordination in video games. Nottingham French Studies, 50(2), 19-50.

Nass, C., Steuer, J., & Tauber, E. R. (1994). Computers are social actors. In Proceedings of the SIGCHI conference on Human factors in computing systems (pp. 72-78).

Night School Studio. (2016). *Oxenfree*. [Microsoft Windows, OS X, Xbox One, PlayStation 4, Linux, iOS, Android, Nintendo Switch]. Digital game directed by Adam Hines, Sean Krankel, published by Night School Studio.

Nintendo EAD. (1986). *The Legend of Zelda (video game)*. [Family Computer Disk System, Nintendo Entertainment System, Game Boy Advance]. Digital game directed by Shigeru Miyamoto, Takashi Tezuka, published by Nintendo.

Nintendo EAD. (1998). *The Legend of Zelda: Ocarina of Time*. [GameCube, iQue Player]. Digital game directed by Toru Osawa , Yoichi Yamada, Eiji Aonuma, Yoshiaki Koizumi, Toshio Iwawaki, published by Nintendo.

Nintendo EAD (2011). *The Legend of Zelda: Skyward Sword*. [Nintendo Wii]. Digital game directed by Hidemaro Fujibayashi, published by Nintendo.

Nintendo EAD. (2002). *The Legend of Zelda: The Wind Waker*. [GameCube]. Digital game directed by Eiji Aonuma, published by Nintendo.

Norrick, N. R. (1997). Twice-told tales: Collaborative narration of familiar stories. Language in Society, 26(2), 199-220.

Obsidian Entertainment. (2010). *Alpha Protocol*. [Windows, Xbox 360, Playstation 3]. Digital game directed by Chris Parker, published by Sega.

Obsidian Entertainment. (2006). *Neverwinter Nights 2*. [Microsoft Windows, Macintosh]. Digital game directed by Ferret Baudoin, Josh Sawyer, J.E. Sawyer, published by Atari, Inc.

Obsidian Entertainment. (2015). *Pillars of Eternity*. [Windows, OS X, Linux, PlayStation 4, Xbox One, Nintendo Switch]. Digital game directed by Josh Sawyer, published by Paradox Interactive, Versus Evil (Switch).

Paulus, T., Warren, A., & Lester, J. N. (2016). Applying conversation analysis methods to online talk: A literature review. Discourse, context & media, 12, 1-10.

Pearce, A. M. (2017). Exploring performance of gendered identities through language in World of Warcraft. International Journal of Human–Computer Interaction, 33(3), 180-189.

Pomerantz, A. (1980). Telling my side: "Limited access" as a "fishing" device. Sociological inquiry, 50(3-4), 186-198.

Potts, A. (2015). 'LOVE YOU GUYS (NO HOMO)' How gamers and fans play with sexuality, gender, and Minecraft on YouTube. *Critical Discourse Studies*, 12(2), 163-186.

Procedural Arts. (2005). *Façade*. [Windows, Mac OS]. Digital game directed by Michael Mateas, Andrew Stern, published by Procedural Arts.

Raevaara, L. (2011). Accounts at convenience stores: Doing dispreference and small talk. Journal of Pragmatics, 43(2), 556-571.

Rashkin, H., Smith, E. M., Li, M., & Boureau, Y. L. (2019). Towards empathetic open-domain conversation models: A new benchmark and dataset. In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*, 5370--5381.

Roberts, S. G., & Levinson, S. C. (2017). Conversation, cognition and cultural evolution: A model of the cultural evolution of word order through pressures imposed from turn taking in conversation. Interaction Studies, 18(3), 402-442.

Rose, Caroline M., "Realistic Dialogue Engine for Video Games" (2014). Electronic Thesis and Dissertation Repository. 2652. https://ir.lib.uwo.ca/etd/2652

Rossi, G., & Kendrick, K. H. (2013) The Rossi Corpus of Conversational English. Max Planck Institute For Psycholinguistics.

Ruskin, E. (2012) Rule Databases for Contextual Dialog and Game Logic. *Game Developers Conference 12.* Online: https://www.youtube.com/watch?v=tAbBID3N64A

Sacks, H. (1975) Everyone Has to Lie. In M.Sanches and B. G. Blount (eds.) Sociocultural Dimensions of Language Use. Pp. 57-80. New York: Academic Press.

Sacks, H., Schegloff, E. A., & Jefferson, G. (1978). A simplest systematics for the organization of turn taking for conversation. In Studies in the organization of conversational interaction (pp. 7-55). Academic Press.

Schegloff E. A., Jefferson G. & Sacks H. (1977) The Preference for Self-Correction in the Organization of Repair in Conversation. Language 53, 361–382.

Schegloff, E. A. (2007). Sequence organization in interaction: A primer in conversation analysis I (Vol. 1). CUP.

Schegloff, E., & Sacks, H. (1973). Opening up closings. Semiotica 7(4):289-327.

Schlünder, B., & Klabunde, R. (2013, August). Greetings Generation in Video Role Playing Games. In Proceedings of the 14th European Workshop on Natural Language Generation (pp. 167-171).

Schneider, K.: Small Talk: Analysing Phatic Discourse. Ph.D. thesis, PhilippsUniversitat, Marburg, Germany (1988).

Sega (2019). *Sakura Wars*. [Playstation 4]. Digital game directed by Tetsuya Ootsubo, published by Sega.

Spiders (2019) *Greedfall* [Microsoft Windows, PlayStation 4, Xbox One]. Digital game directed by Olivier Deriviere, published by Focus Home Interactive.

Square (1988). *Final Fantasy II.* [Family Computer]. Digital game directed by Hironobu Sakaguchi, published by Square (Japan).

Square Enix (2001). *Final Fantasy X*. [Playstation 2]. Digital game directed by Yoshinori Kitase, published by Square (Japan), Square Electronic Arts, (NA), Sony Computer Entertainment (PAL).

Square Enix (2003). *Final Fantasy X-2*. [Playstation 2]. Digital game directed by Motomu Toriyama, published by JP, Square (Japan, NA) Square Enix (NA / PAL).

Squaresoft. (1997). *Final Fantasy Tactics*. [Playstation]. Digital game directed by Yasumi Matsuno, published by JP, Square, NA, Sony Computer Entertainment.

Stivers T, Enfield NJ, Brown P, Englert C, Hayashi M, Heinemann T, Hoymann G, Rossano F, De Ruiter JP, Yoon KE, Levinson SC (2009) Universals and cultural variation in turn-taking in conversation. PNAS, 106(26):10587-92.

Strong, C. R., & Mateas, M. (2008). Talking with NPCs: Towards Dynamic Generation of Discourse Structures. In AIIDE.

SwearDie (2018, March 7) What is your most hated line of dialogue in The Witcher 3? [Online forum post]. Reddit. https://www.reddit.com/r/witcher/comments/82m5lu/what_is_your_most_hated_line_of_dialogue_in_the/

Vinciarelli, A., Pantic, M., & Bourlard, H. (2009). Social signal processing: Survey of an emerging domain. Image and vision computing, 27(12), 1743-1759.

Wang, N., Johnson, W. L., Mayer, R. E., Rizzo, P., Shaw, E., & Collins, H. (2008). The politeness effect: Pedagogical agents and learning outcomes. International journal of human-computer studies, 66(2), 98-112.

Wong, F. & Arnold, M. (directors) (2012) Video Game High School. LA: RocketJump Studios.

Yahya-Othman, S. (1995). Aren't you going to greet me? Impoliteness in Swahili greetings. Text-Interdisciplinary Journal for the Study of Discourse, 15(2), 209-228.

Youssouf, I. A., Grimshaw, A. D., & Bird, C. S. (1976). Greetings in the desert. American Ethnologist, 3(4), 797-824.

Yuan, B., Folmer, E. & Harris, F.C. Game accessibility: a survey. Universal Access in the Information Society 10, 81–100 (2011).

[i] Schneider (1988) identified a typical sequence in real conversations and implemented this in a computational agent, essentially hardwiring a single exchange. However, immersion may not be improved simply by copying real dialogue sequences. Since Schneider's system only had one sequence, the "repetitions of the conversation pattern

quickly become unnatural" (Klüwer et al., 2011:16). That is, simply having rote expressions is not enough to appear realistic. Work by Klüwer and colleagues extended this approach by designing a more flexible dialogue system for NPC 'smalltalk' based on theories from CA (Klüwer, 2011; Klüwer et al., 2011; Klüwer, 2015; see section 2). Klüwer shows that designing conversations with these principles in mind improves the player's impression of the NPC's intelligence and naturalness (e.g. Klüwer, 2015:151-181). Andre et al. (2004) use Brown and Levinson's theory of politeness to design conversational agents. The agent selects strategies based on the social distance and perceived emotional state of the user in order to maintain engagement. Campano & Sabouret (2009) suggest that impoliteness at appropriate times also improves the realisticness of NPCs. The current paper takes a similar approach, but uses tropes to identify areas of NPC interaction that require improvement.

[ii] In this paper, the data we will analyse is mainly micro-level conversational interaction which is more associated with the linguistic concept of discourse, but we still think these can be treated as tropes where the interactions constitute a recognisable pattern across texts. Although these patterns focus on a different aspect of texts then narrative tropes, they likewise shape player expectations.

[iii] Although a lot of research focuses on English, many of the features of conversation we discuss appear in other languages (as signposted throughout). We have used English translations of video games but a lot of them were developed in other languages and the mechanics underpinning many of the tropes do not change between translations (e.g. how someone interrupts, how turn taking is handled, and so on).

[iv] Some pragmatic actions normally require an account (an explanation) for why they are being done (e.g. Heritage, 1988; Antaki, 1994; Raevaara, 2011). An in-game example of this occurs in *Mass Effect* (Bioware, 2007)*:* one of the ways the player character Shepard realises that something is amiss on the planet Feros is that NPCs aren't answering her questions, instead referring her back to the colony leader (even about mundane matters). She asks them why they won't answer and is dissatisfied with their response, leading her to investigate further.

[v] For example, "I used to be an adventurer like you, then I took an arrow in the knee" from countless NPCs in *Skyrim* (Bethesda, 2011). These can be text-based or audio (known as 'barks'). TV Tropes records numerous examples of these on the "Welcome to Corneria" trope page: https://tvtropes.org/pmwiki/pmwiki.php/Main/WelcomeToCorneria. Further examples are recorded on the "Shall I repeat that?" TV Tropes page: https://tvtropes.org/pmwiki/pmwiki.php/Main/ShallIRepeatThat.

[vi] Although we are often taught that it is rude to simply say "huh?", rather than something like "I'm sorry, what did you say?", Kendrick (2015) found that apologies are used in less than 2% of cases, and people typically don't behave as if they are offended when it is used.

[vii] WhatCulture Gaming suggests that "the repetitive dialogue in Skyrim that will make you feel as if you're in Groundhog Day" means that "the immersion is pushed to breaking point" (https://www.youtube.com/watch?v=FBvdWLm10wc). Not all examples are immersion-breaking, for instance merchants repeating a line advertising their wares each time the player walks past – e.g. "Dwarven crafts! Fine dwarven crafts! Direct from Orzammar! You won't find better!" (Gorim, *Dragon Age: Origins* (Bioware, 2009)*).*

[viii] 1) Alternating between two lines: For example, 'Hello [Player]' on the first interaction; 'Welcome to [town]' on the second. This happens for example in *The Witcher 3* (CD Projekt Red, 2015). 2) Varying lines in response to plot events: this might follow the progression of the main quest line, or events significant for – or local to – the NPC (e.g. finding the lair of the Big Bad, rescuing a family member of the NPC, or killing the dragon plaguing their village respectively). For example, in *Dragon Quest VIII* (Level-5, 2004)*,* NPC dialogue is responsive to plot events, the day/night cycle and who the party leader is. In *Final Fantasy X* (Square Enix, 2001)*,* the protagonist can learn a new language over the course of the game and one of the NPCs (Rin) will respond differently to you at different points in the game depending on how much you've learned. Some games do this inconsistently, for instance in *Skyrim* (Bethesda, 2011) some dialogue updates to reflect player achievements but elsewhere doesn't change at all: "City guards will mock you as the rookie in the Companions even if you've since become head of the organisation, while the court mage of Whiterun is notorious for suggesting you go join the College of Winterhold to learn about magic *even if you're wearing the Archmage's robes*" (https://tvtropes.org/pmwiki/pmwiki.php/Main/WelcomeToCorneria)

[ix] Ritual greetings fulfil various pragmatic functions such as showing respect or lowering tension (Firth, 1972; Givens, 1981; Youssouf et al., 1976; Duranti, 1997). Confusing a greeting with a genuine request for information can cause problems (e.g. Gafaranga & Britten, 2003).

[x] For example, "Got their asses handed to them like a Novigrad whore!" – *The Witcher 3* (CD Projekt Red, 2015). Based on player forums, this is a particularly grating example (e.g. SwearDie, 2018). Notably, this line is repeated *ad nauseam,* it is the same piece of gossip told to the same person, in earshot of the person the gossip is about. This breaks several politeness norms.

[xi] Re-tellings may also be efficient for video game development. Stories are often told collaboratively between several participants. For video game dialogue, a single story could be recorded by several actors, cut up into individual lines, then the lines randomly allocated to each NPC in the conversation (including more than two NPCs), providing more apparent variety.

[xii] E.g. "It's dangerous to go alone" (Legend of Zelda (Nintendo, 1986)), "Hey! Listen!" (The Legend of Zelda: Ocarina of Time (Nintendo, 1998)), or "It's super effective!" (the *Pokémon* series).

[xiii] *Breath of Fire III* (Capcom, 1997) and *Final Fantasy Tactics* (Squaresoft, 1997) have been criticised for slow text scrolling, and *Legend of Zelda: Skyward Sword* (Nintendo, 2011) for preventing skipping. Some games that permit skipping are criticised for their particular skipping mechanics, e.g. in *The Witcher 3* (CD Projekt Red, 2015), skipping dialogue requires pressing a button twice: "once to bring up the prompt to skip dialogue and then again to actually skip the dialogue. You can't mash...either...you have to wait for the prompt to fade in before it skips." https://tvtropes.org/pmwiki/pmwiki.php/ScrappyMechanic/RolePlayingGames

[xiv] *Mass Effect 2* (Bioware, 2010) has some exceptions, e.g. the player can benevolently interrupt an NPC's anxious speculation to give him information, but it's not clear in advance when the interruption will be verbal or otherwise, or what it will consist of.

[xv] The rest of Francis's post goes on to suggest a way of crowd-sourcing more dialogue options, rather than thinking about a different way of abstracting conversation.