

# Lenny the bot as a resource for sequential analysis: exploring the treatment of Next Turn Repair Initiation in the beginnings of unsolicited calls

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## ABSTRACT

Based on conversation analysis, this study examines a corpus of naturally produced telemarketing phone calls with a chatbot called Lenny. Initially designed to trick the authors of unsolicited calls, Lenny has a methodological interest for Conversation Analysis and permits a fine understanding of bot/human professional calls. Because the design of its “turns” never changes, Lenny facilitates the comparisons between sequential phenomena. In this paper, we focus on repair sequences initiated with a specific “trouble with hearing” Next Turn Repair Initiator (NTRI) during beginnings and pre-beginnings. We show how the caller preserves the progressivity of the call while trying to solve the repair issue.

## CCS CONCEPTS

- Human–computer interaction

## KEYWORDS

repair, chatbot, conversation analysis, voice, telemarketing calls

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## 1 INTRODUCTION

In this paper, we study conversations with Lenny [6], a publicly available chatbot which has been used for 10 years by hundreds of unknown users to handle unsolicited telemarketing or scam calls. Lenny is a very elementary chatbot. There is no speech recognition or artificial intelligence to select or modify Lenny's

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answers: the same set of prompts is always used in the same order. This is controlled by an Interactive Voice Response (IVR) script which allows simple scripting and detection of silences. The script starts with “Hello, this is Lenny” and wait for the caller to take his turn. If the caller speaks, the IVR script waits until he finishes his turn. After a 1.55 second long silence period, the script plays the next recording. When the 16 distinct turns that are available have been played, the script returns to the 5th turn and continues playing those 12 turns sequentially, for-ever. Initially designed to trick the authors of unsolicited calls [6], Lenny permits a fine understanding of bot/human professional calls. Because the design of its “turns” never changes, Lenny facilitates the comparisons between sequential phenomena. In this paper, we focus on repair sequences during beginnings.

## 2 REPAIR IN FIRST LENNY'S TURNS

Conversation Analysis has a longstanding tradition in developing an understanding of a series of issues that humans solve routinely when they are involved in some kind of talk-in-interaction. Amongst the most basic, fundamentals issues, that have been extensively studied, we find the repair issue [2, 7, 8].

Speakers exploits a set of resources in order to repair any trouble in hearing, understanding, or speaking. To deal with something they find troublesome, either “Self” (the speaker who has produced the trouble source) or “Other” (the hearer who has listened to it) can initiate the repair (point and/or locate the trouble source) and then perform the repair proper. Unlike human co-conversationists, Lenny is unable to display any adjustment to any feature of current or previous hearers’ turns. But the caller does not know that Lenny is a bot. Among the four first Lenny’s turns, we find T2, which initiates a repair:

T1: hello:: he- this is lenny.  
T2: ha uh uh sso- sorry, I'c- (0.3) I can barely hear you there?  
T3: ye- ye: yes yes  
T4: OH good yes yes yes.

**Figure 1: The four first Lenny's turns**

After a direct, informal reception of the call in which he gives his first name (T1), Lenny initiates a repair (T2), then a first “yes” turn (T3), followed by a more enthusiastic one (T4). Lenny's turns have been designed to display various sequential

orientations. Turn 2, 3 and 4 have been designed as oriented “backwards”. They invite the recipient to find out how they relate to the previous turns. Turn 2 is much more precise: it (1) displays that there is a trouble (2) invites the hearer to locate the source of the trouble (3) projects a specific job for the next to do: the management of the repair. What becomes Lenny’s pre-recorded turn 2 once threw in real conversations ?

### 3. REPAIR MANAGEMENT IN CALL BEGINNINGS WITH LENNY

Pointing a trouble in hearing is a device which belongs to the class of the Next Turn Repair Initiators (NTRI’s) [7,2]. With NTRI’s, the speaker locates a difficulty in something the other has uttered and he leaves the responsibility to repair the trouble to this same other.

Usually, Lenny’s turn 2 is automatically produced after the silence following the caller’s turn which follows Lenny’s greeting and self-identification in T1. However, connection issues introduce some contingencies in call openings. A common way to initiate voice spam is to use an auto-dialer equipment to generate vast number of calls to a given (or randomly chosen) list of phone numbers. Once a call is answered, either a pre-recorded message is played (which is called a robocall), or the callee is assigned to a live human agent for further interaction. This allocation takes time and rests on some local contingencies. Connection issues or noises coming from material adjustments (headphone etc.) are very usual before the human operator begins to talk. In figure 2, several connection noises are hearable after Lenny’s first turn. The system finally launches turn 2 line 11:

```

1. L: hello:: uh this is lenny.
2.      (2.2)
3.      ((crackling))
4.      (1.8)
5.      ((audible beep))
6.      ((material manipulations noises))
7.      ((beep))
8.      (0.8)
9. C: hh
10.     (1.2)
11. L: ha-uh uh sso- sorry, I(c-) (0.3) I can barely hear you
12.     there?
13.     (1.3)
14. C: okay can you hear me now h .
15.     (1.4)
16. C: can you.=can you hear ME NO:W ?
17.     (1.7)
18. L: ^ye^ [ye:s,   yes yes.
19. C: [allo:?]
20. C: ye (0.5) ok mister (0.5) this is kenneth williams I am
21. calling with...

```

**Figure 2**

Lenny’s T2 can be understood as pointing to a previous trouble in the precondition of any conversation: the confirmation that a connection has been established. The caller produces (l.14) an acknowledgement receipt, followed with a verification question, which is repeated after a silence. This repetition, which is partially prosodically highlighted (l.16), shows that the caller treats the silence as an absence of Lenny’s answer and a possible indication of the persistence of the trouble. Because he is

speaking louder, he displays an understanding of the type of trouble he is trying to solve with this other-repair attempt. Lenny’s T3 (l.18) becomes then a positive answer to the repeated verification check and initiates the end of the repair sequence. When Turn 2 is produced after the caller’s turn (see l.5, Fig.3), it launches a repair sequence, which is a convenient way to put into brackets any expected Lenny’s next turn:

```

1. L: hello:: uh this is lenny.
2.      (3.8)
3.      ((beep))
4.      (1.7)
5. C: hello, am I speaking with mr. ( )
6.      (1.7)
7. L: ha-uh uh sso- sorry, I(c-) (0.3) I can barely hear you
8.     there?
9.     (1.5)
10. C: o:uh: >I'm sorry about that<, can you hear me now mr.
11.     ( )
12.     (2)
13. L: ^ye^ ye:s, yes yes.
14. C: okay. (0.3) okay. .h uh Mister ( )my name is louie...

```

**Figure 3**

Here, the caller accepts the responsibility for the trouble and adds a verification question, in which he recycles his previous identification Yes/No question with a person reference term. In this sequential context, Lenny’s turn 3 both confirms this identification and closes the repair sequence with a positive answer to the quick check.

The situated reception of Lenny’s first NTRI displays an orientation to human abilities, acceptability issues and responsibilities [5], therefore contributing to put the humanity of Lenny beyond any doubt. This confirms the centrality of repair organization in such hybrid interactions [4] and, more specifically, the appropriateness of an “I can’t hear you” format to ground the conspicuous human-like conduct of a voicebot.

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