Designing Empathetic Responses
Example
Bot: ...This will create an OS to best fit your needs.

Okay.

Bot: Are you social or anti-social?

I guess I haven’t been social in a while. Mostly because I’ve been busy.

Bot: I sense hesitance. Would you agree?

Sorry if I sound hesitant - I was just trying to be more accurate.

Bot: Would you like your OS to have a male or female voice?

Female, I guess.

Bot: How would you describe your relationship with your mother?

It’s fine, though a frustrating thing about my mom is that if I tell her something that’s going on in my life, her reaction is usually about her.

Bot: Thank you.
Intro
Current State of Commercial Voice Assistants
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Voice Assistant Interaction Design
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How might we design empathetic responses?
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- Your significant other has just been promoted at work. What do you say to him/her?
  - "You've been promoted? You know what tax bracket that's going to put us into?"
  - "Congratulations. Well deserved."
  - "What's for dinner?"
  - "Where were you when your boss told you that you had been promoted? Exactly what did he say? Why did you really think you had been promoted? You know, I have been reading your financial reports for the past few months..."

Can you guess the “best” response?

What about the “worst” response?
How might we design empathetic responses?

Research in 2006, led by Shelly Gable & marital researchers at UCLA.

- Both self-report data and observational codes showed that 2 months later, responses to positive event discussions were more closely related to relationship well-being and break-up than were responses to negative event discussions.
- Practicing active-constructive responding predicts increases in love and affection and decreases in divorce in interpersonal relationships.
How might we design empathetic responses?

The level of the active/constructive behavior was positively correlated to the perceived responsiveness during a conversation.

Low level of active/constructive behavior seemed to indicate higher chances of a break-up two months later.

*Figure 1.* Predicted ratings of partners’ responsiveness during positive event discussion by observer ratings of active-constructive behavior and importance of event.
How might we design empathetic responses?

Adapted from Gable, Reis, Impett & Asher (2004)
How might we design empathetic responses?

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“Where were you when your boss told you that you had been promoted? Exactly what did he say…”
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Active Constructive
Enthusiastic support
(authentic, eye-contact)

"Where were you when your boss
told you that you had been
promoted? Exactly what did he
say…"

Active Destructive
Quashing the event
(dismissive, demeaning)

Passive Constructive
Quiet, understated support
(low energy, delayed response)

"Congratulations. Well deserved."

Passive Destructive
Ignores event
(Turns focus inward, ignores speaker)
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![Diagram showing different types of responses to being promoted: Active Constructive, Active Destructive, Passive Constructive, Passive Destructive.]

- **Active Constructive:** Enthusiastic support (authentic, eye-contact)
  - “Where were you when your boss told you that you had been promoted? Exactly what did he say…”
- **Active Destructive:** Quashing the event (dismissive, demeaning)
  - “You’ve been promoted? You know what tax bracket that’s going to put us into?”
- **Passive Constructive:** Quiet, understated support (low energy, delayed response)
  - “Congratulations. Well deserved.”
- **Passive Destructive:** Ignores event (turns focus inward, ignores speaker)
  - “What’s for dinner?”

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How might we design empathetic responses?

How might we apply this knowledge to voice assistant?
How might we design empathetic responses?

“Active–Constructive responses communicate positive information about the information received through confirmation of the information’s importance and elaboration on potential implications.”

=> capture the delivered information’s importance to the user, and guide the voice assistant to both confirm the importance and elaborate on its potential implications.

“Well actually, a thing I think is most frustrating about my mom is - you know - if I, If I, tell her something that’s going on in my life, her reaction is usually about her…”

○ Capture the importance : I can see that this affects you - I am sorry to hear that.
○ Elaborate on its potential implications : I can most definitely relate to your experience…
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Female, I guess.

Bot: Female. Gotcha. How would you describe your relationship with your mother?

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Bot: Thank you. I can see that this affects you..
Technology of Chatbots
Dialog Trees

Rigid

Require precise input

Usually simple yes/no

Meant to be a data entry device rather than a conversation
The First Chatbot: ELIZA

Automated therapist that gives the appearance of dynamic and responsive conversation.

http://psych.fullerton.edu/mbirnbaum/psych101/Eliza.htm

Works using hard-coded parsing rules, and capable of understanding a limited set of input sentences

Maintains appearance of a conversation by heavily relying on duplicating the user’s input and turnin the conversation back towards the user, and as such relies on sensible user input
Good
User: Why are you saying that?
ELIZA: Would you prefer if I weren't saying that?

Bad
User: How are you doing?
ELIZA: Would you prefer if I weren't doing?
Cleverbot

Began development in 1986 and went online in 1997

Became widely popular in 2010

Participated in a formal Turing test at the 2011. Judged to be 59.3% human, compared to bar of 50.05% or higher (real human participants got a score of 63.3%).

www.cleverbot.com/
How does Cleverbot work?

“conversational Wikipedia”

Idea: instead of writing down rules ourselves, generate them from previous conversations with users.

Database of all conversations, rank by similarity to current conversation up till now

Semi-random search through database. Online version searches 3 times, Turing test version searches 42 times

Still only capable of parroting responses from humans, but much better range of possible responses and context response