Conversation-First Design

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CONVERSATION ANALYSIS

The observational study of naturally occurring talk-in-interaction in any setting or culture

Emanuel Schegloff
1937-

Harvey Sacks
1935-1975

Sequence Organization in Interaction
A Primer in Conversation Analysis
Volume 1
EMANUEL A. SCHEGLOFF

Harvey Sacks
Lectures on Conversation

IBM Research
How do we design conversational interfaces?
things to do in London

- Tower of London
- National Gallery
- Big Ben
- Westminster Abbey

Tower of London is located on the north bank of the Thames.
things to do in London

Tower of London

National Gallery

Big Ben

Westminster Abbey

things

Tower of London is located on the north bank of the Thames.
1 A: Okay. Tell me about your trip.

2 U: I'm thinking of going to Las Vegas.

3 A: What kinds of things do you like to do?

4 U: I like museums and history.

5 A: One moment, please.


7 U: thanks

8 A: You're welcome!
Travel Concierge

Okay. Tell me about your trip.

I'm thinking of going to Las Vegas

What kinds of things do you like to do?

I like museums and history

One moment, please.


thanks

You're welcome!
Okay. Tell me about your trip.

I'm thinking of going to Las Vegas.

What kinds of things do you like to do?

I like museums and history.

One moment, please.


Thanks.

You're welcome!

Top places in Las Vegas (museums)

The Mob Museum
300 Stewart Ave, Las Vegas, NV 89101, NV 89101, NV 89101

The Neon Museum
770 Las Vegas Blvd N, Las Vegas, NV 89101

Las Vegas Natural History Museum
900 Las Vegas Blvd N, Las Vegas, NV 89101

Top places in Las Vegas (history)

The Mob Museum
300 Stewart Ave, Las Vegas, NV 89101, NV 89101, NV 89101

Nevada State Museum, Las Vegas
309 S Valley View Blvd, Las Vegas, NV 89101

Las Vegas Natural History Museum
900 Las Vegas Blvd N, Las Vegas, NV 89101
1 A: Okay. Tell me about your trip.

2 U: I'm thinking of going to Las Vegas.

3 A: What kinds of things do you like to do?

4 U: I like museums and history.

5 A: One moment, please.

6 A: Okay, my top recommendations are The Mob Museum, The Neon Museum, and Las Vegas Natural History Museum.

7 U:谢谢

8 A: You're welcome!

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Natural Conversation works **through the words alone** but can be progressively enhanced as screen size increases.
Conversation-First Design
What do we mean by natural conversation?
hello

how are you?

what do you mean?

never mind

okay

I need a flight

when are you leaving?

uh huh

First, go to the settings...

gotta go

goodbye
Hello, can I help you?

I need a flight, when are you leaving?

First, go to the settings...

Uh huh.

What do you mean?

Never mind.

Okay.

Can I help you?

Sequence-Level Management

Conversation-Level Management

Conversational Activities

First, go to the settings...

Okay.

Goodbye.

Anything else?
Natural Conversation Framework

**Conversational Activities**

- A1 Inquiry (User)
- A2 Open Request
- A3 Extended Telling
- A4 Quiz
- A5 Inquiry (Agent)

**Sequence-Level Management**

- B1 Repair (Agent)
- B2 Repair (User)
- B3 Extended Repair
- B4 Sequence Closer
- B5 Sequence Abort

**Conversation-Level Management**

- C1 Opening (Agent)
- C2 Opening (User)
- C3 Capabilities
- C4 Closing
- C5 Disengaging
A4.0 Quiz

Pattern

1 A: QUESTION
2 U: CORRECT ANSWER
3 A: CONFIRMATION

Example (Joke)
1 A: Why can't you trust atoms?
2 U: umm they make up everything
3 A: That's it!

Example (Trivia)
1 A: Who invented the hard disk?
2 U: The hard disk drive was invented by IBM in 1956.
3 A: That's it!
Example (Joke)
1 A: Why can't you trust atoms?
2 U: uhh you can't see them?
3 A: Wrong! Try again.
4 U: you tell me
5 A: They make up everything.
6 U: haha good one!

Example (Trivia)
1 A: Who invented the hard disk?
2 U: uhh Microsoft?
3 A: Wrong! Try again.
4 U: I don't know
5 A: The hard disk drive was invented by IBM in 1956.
6 U: ok
A4.2 Quiz Repairs

Pattern
1 A: QUESTION
2 U: <REPAIR INITIATOR>
3 A: <REPAIR>
4 U: CORRECT ANSWER
5 A: CONFIRMATION

Example (Repeat Request)
1 A: Why can't you trust atoms?
2 U: what did you say?
3 A: Why can't you trust atoms?
4 U: um they make up everything
5 A: You got it!

Example (Hearing Check)
1 A: Why can't you trust atoms?
2 U: trust what?
3 A: atoms?
4 U: they make up everything
5 A: That's right!
How do you navigate a natural conversation interface?
Thank You

Bob Moore
rjmoore@us.ibm.com

https://ibm.biz/Bdzqta
code: authorcoll
1 A: Hello. How can I help you?
2 U: who has E3-450?
3 A: One moment...
4 A: E3 450 is available from now until end of day.
5 U: thanks
6 A: You're welcome! Anything else today?
7 U: nope
8 A: Have a good day!
The Natural Conversation Framework (NCF) provides a pattern language of generic, reusable conversational UX patterns that are independent of any particular technology platform. The patterns are simplified forms of natural
A4.0 Quiz - Correct

In the simplest form of the quiz pattern, the agent asks a question and the user gives the correct answer. The agent then confirms that it is correct. (See the formal pattern and example of a question-answer joke below.)

Pattern A4.0 Quiz
1 A: QUESTION
2 U: CORRECT ANSWER
3 A: CONFIRMATION

Example A4.0
1 A: Why can’t you trust atoms?
2 U: umm they make up everything
3 A: That's it!
A4.1 Quiz - Incorrect

While the user may respond to the quiz question with a correct answer, he or she may also of course get it wrong. In this case, the agent disconfirms the answer. The user may try again or give up. The agent then provides the correct answer.

Pattern A4.1 Quiz (Incorrect)
1 A: QUESTION
2 U: INCORRECT ANSWER
3 A: DISCONFIRMATION
4 U: REFUSAL/ABORT
5 A: CORRECT ANSWER

Example A4.1
1 A: Why can't you trust atoms?
2 U: uhh you can't see them?
3 A: Wrong! Try again.
4 U: you tell me
5 A: They make up everything.
Module

The Quiz Module (A4) contains 8 root-level branches and uses 4 entities. It is pre-configured with 2 different kinds of placeholder content: 2 jokes and 2 trivia questions.
Natural conversation is a 2-way street.
AI Chat

Alma 06.2

Hi there. I'm Alma. How can I help you?

what computer beat Kasparov?

Deep Blue, a computer created by IBM, beat chess champion Garry Kasparov in 1997.

what computer won Jeopardy?

An IBM computer named Watson.

Offer of Help
Hi there. I’m Alma. How do you do?

I’m good

That’s good. What can I do for you?

what computer beat Kasparov?

Deep Blue, a computer created by IBM, beat chess champion Garry Kasparov in 1997.

thanks
Last Topic Check

Last Topic

Closing
Hi. I’m Alma. How’s it goin’?

Are you still there?
Hi there. I'm Alma. Who are you?

where are you from?

Galveston, Texas.

Where are you from?

San Jose, California

San Jose is home to the world-famous Tech Museum!

that's right!