# User Research

# Research Questions

How do users interact with Natural Language Interfaces?

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How can NLI be helpful for users?

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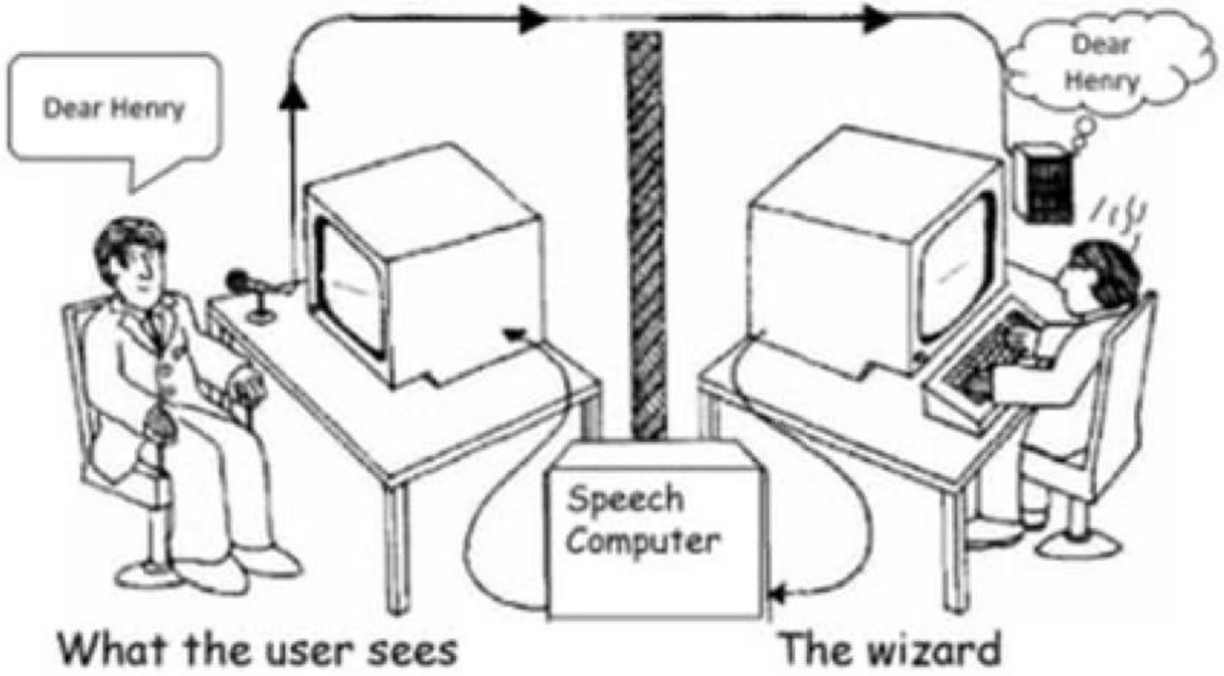
What are the opportunities and/or design limitations to enhance the NLI?

# Wizard of Oz Method

*Wizard of Oz testing – The listening type writer IBM 1984*



# Wizard of Oz Method

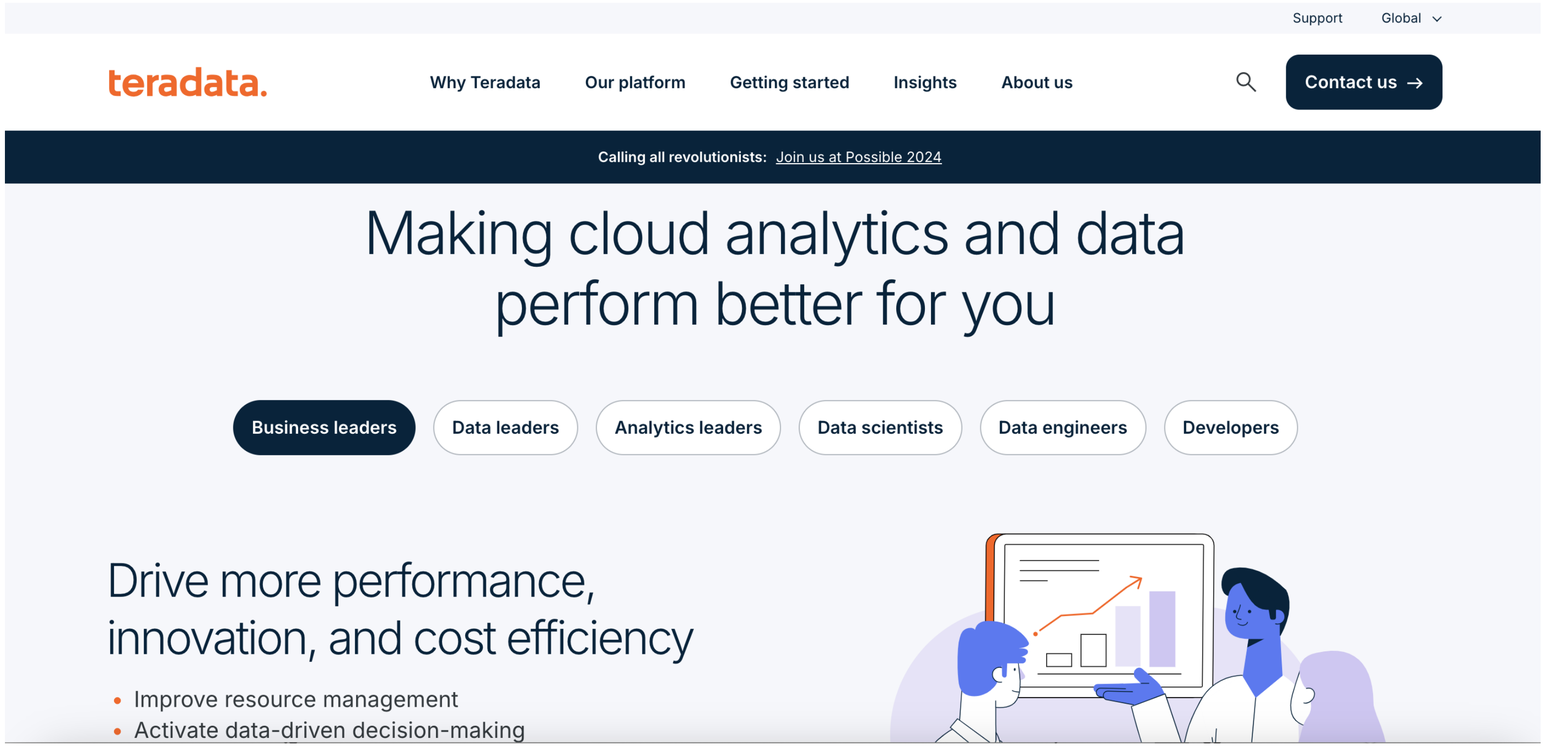
Wizard of Oz method: simulate the responses the technology might provide by having a person “play” the system's role.

Interfaces example:

- Conversational UIs like chatbots
- Interfaces that use learning algorithms to provide recommended content
- Interfaces that look up real-time information and present the results to the user

# User Study 1: Contextual Assistance Test

Showed users a page that they aren't familiar with and observed their questions/requests to understand what they see or to find what they are looking for.

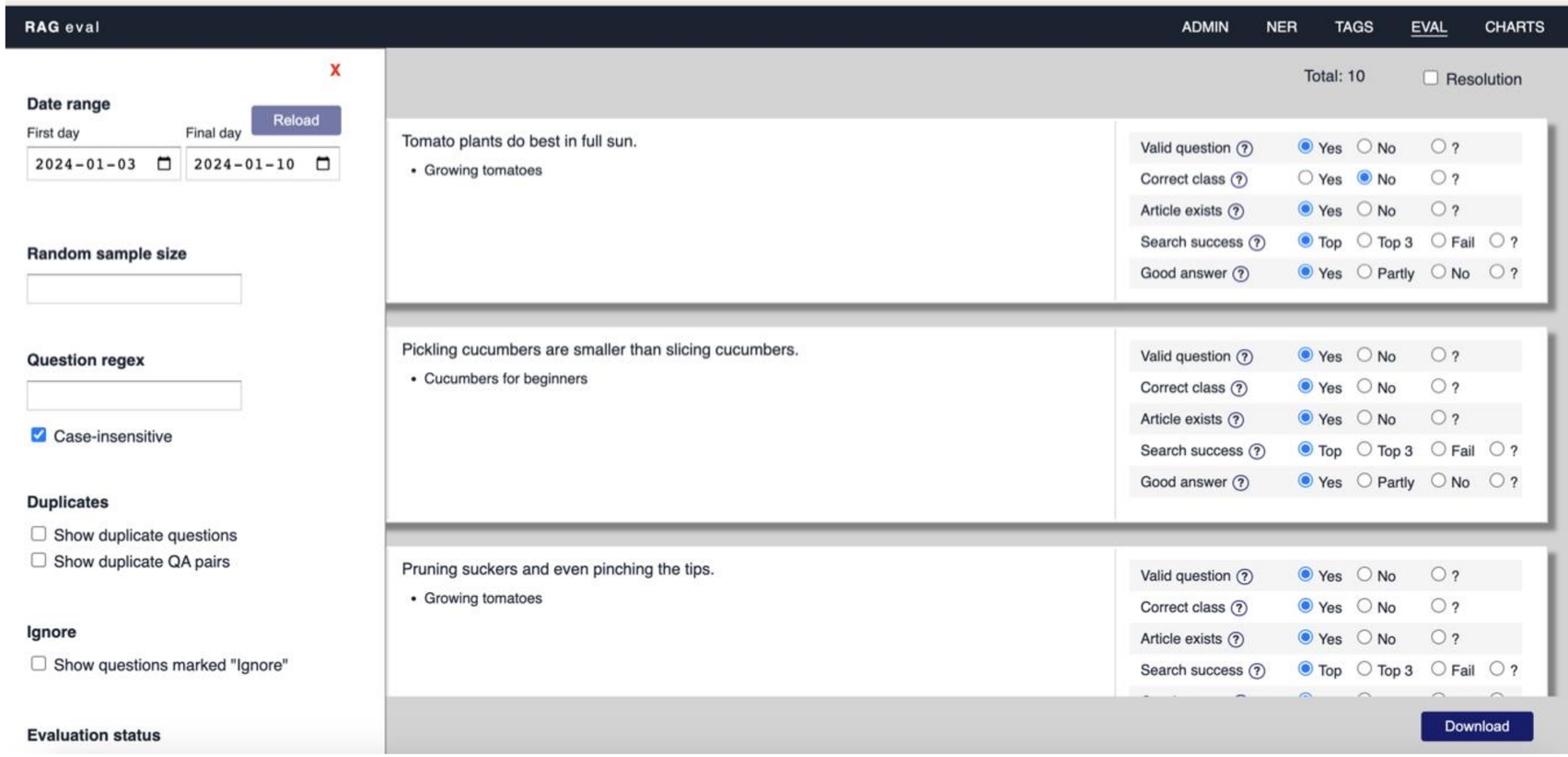


# User Study 1: Contextual Assistance Test

- *I'm **guessing** these are like the goals of this tool..*
- *I'm **trying** to find out what they'll say at the end..*
- *I'm **guessing** they put people in these three categories..*
- *Is there a demo?*
- *What does interactive **mean**?*
- *I'm **assuming** this..*
- *What is the product?*
- *Is there a way to download?*
- *I can't tell off the front page what this is about?*
- *It doesn't tell me much what they offer?*
- *I guess I have to create an account, but I don't really want to?*
- *What does this do?*

# User Study 2: Filter Testing

Showed users a content filtration tool and observed their questions/requests to use the filters to customize the filtered results.



# User Study 2: Filter Testing

- *Can you show me all the responses that..*
- *Can you show me all the questions that are answered..*
- *Can you filter the results so that all the valid questions are filtered out..*
- *Show me all the results that are evaluated, and valid..*

# User Testing: Findings

| | Key finding #1 (Content) | Key finding #2 (Communication) |
|---|---|---|
| Contextual Assistance | Users may ask questions that extend beyond the page | Needs to account for:<br>Direct questions<br>Comparative questions<br>Clear statements<br>Mutterings, Filler words, etc. |
| Filtering | Understand recurring terminology that encompass multiple filters. | Variety of ways to give directions:<br>Clear statements<br>Questions |

# Findings and Literature

Two ranges of focus: – representations for incorporating them is recommended:

1. Global focus:
    - Determined by starting situation. It influences what is talked about and how different concepts are introduced and referenced.
        - *This leads us to important questions: how can represent the change of focus of attention in a language understanding system?*

2. Immediate focus:
    - When the dialogue progresses, there are mechanisms required to change ethe focus of representation to focus on the object and action relevant to the conversation.

# Design principles from previous studies

Usability studies* of previously deployed systems from the literature highlighted some design principles to focus on:

- Minimize the cognitive load
- Accommodate expectations
- Maximize efficiency
- Maximize clarity
- Ensure high accuracy
- Recovery from errors

*Ref: Cohen, M., Giangola, J., & Balogh, J. (2004). Voice User Interface Design Cohen, Michael. Addison-Wesley Professional. 2004 (117).