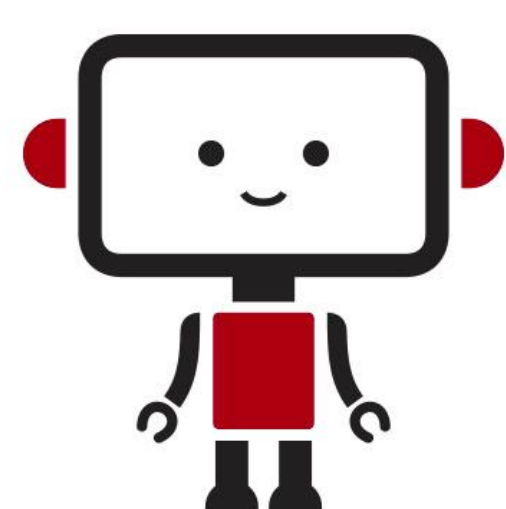# A Conversational Interface for **Visual Analytics**

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Motivation

When attempting to construct visualizations with natural language, novices often omit aspects of the visualization specification and try to ask follow-up questions [Grammel, 2012]. Our work proposes to explore a two-way, chatbot-style conversational interface to facilitate data analysis.
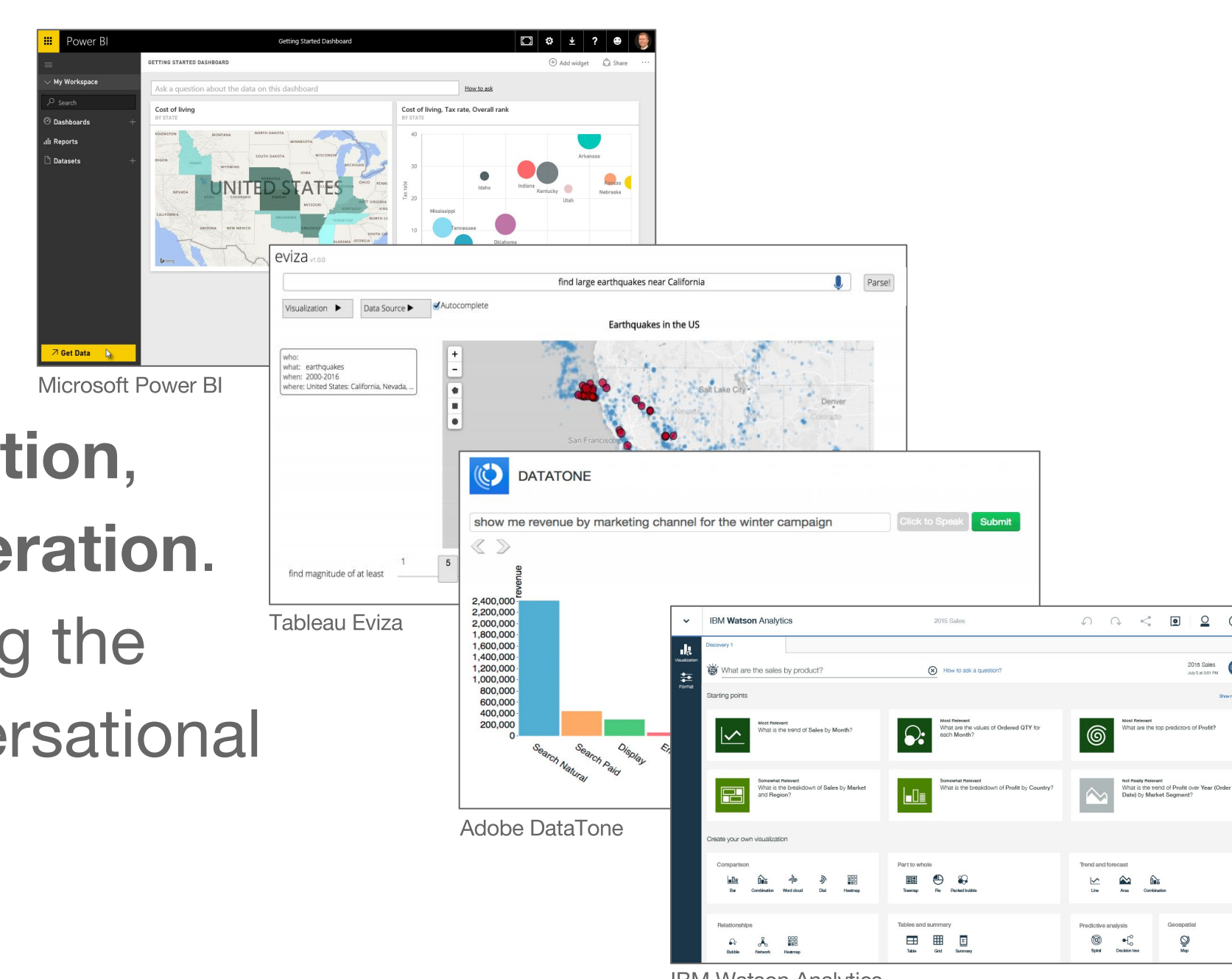
Research Goals

- How can **natural conversational language** be used to support **data analysts**?
- What **mechanisms** can be supported with a chatbot-style, conversational interface?

Existing Tools

Some tools provide natural language visualization **construction**, **manipulation**, and **insight generation**. However, these tools are missing the **two-way interaction** of a conversational interface.

Microsoft Power BI

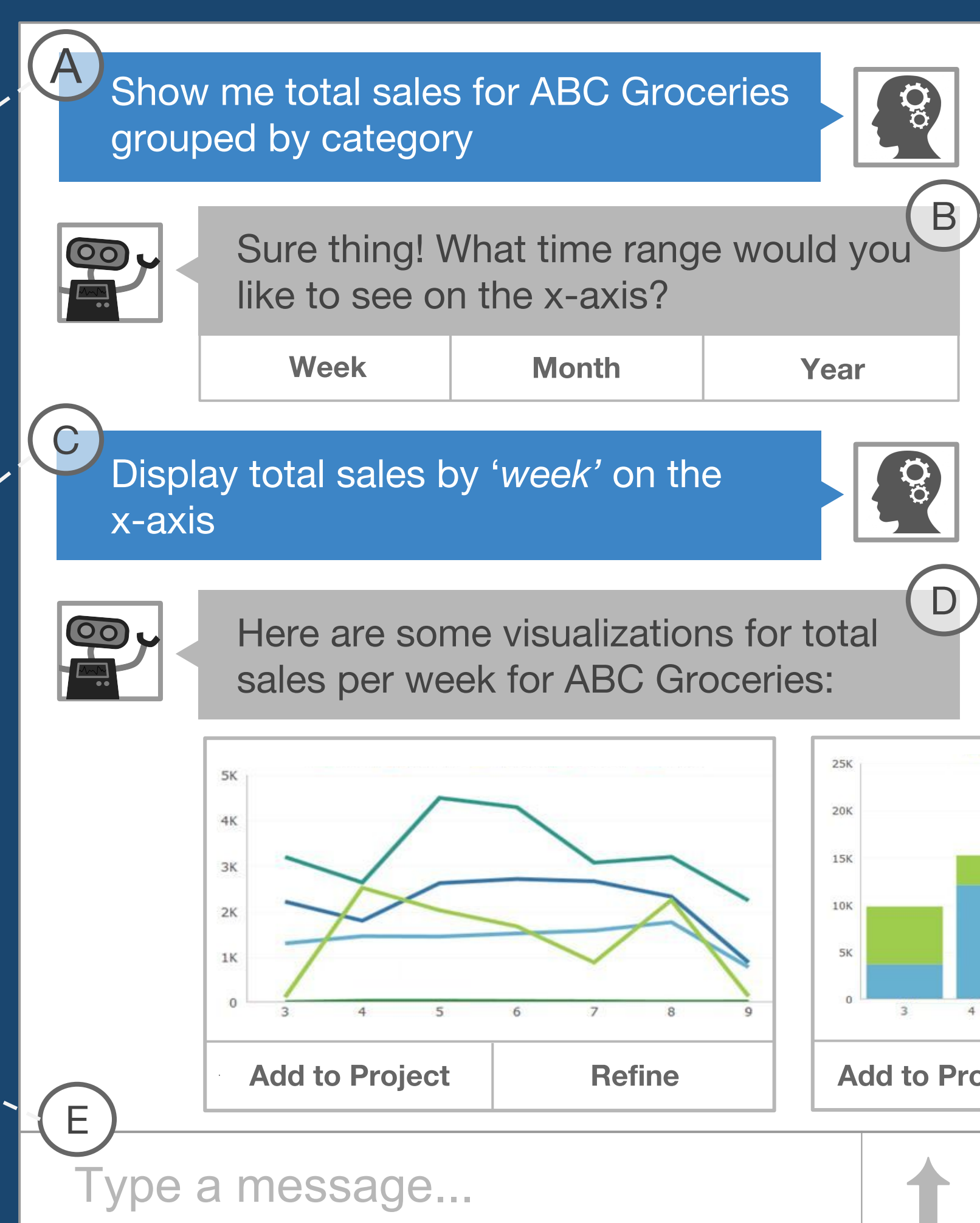Tableau Eviza

Adobe DataTone

IBM Watson Analytics

Our Vision

Users will pose **visualization**, **overview**, or **textual queries** [Grammel, 2012].

Users will **respond** to follow-up questions, **refine queries**, or **manipulate artifacts** generated.

The conversational interface will provide a built-in **history of interactions**.

A — Show me total sales for ABC Groceries grouped by category

B — Sure thing! What time range would you like to see on the x-axis?

| Week | Month | Year |

C — Display total sales by 'week' on the x-axis

D — Here are some visualizations for total sales per week for ABC Groceries:

| Add to Project | Refine | | Add to Proj |

E — Type a message...

The system will provide **feedback** on users' queries. It will also ask follow-up questions to resolve any missing **visualization specifications**.

The system will respond to queries by generating **visualizations,** providing **textual responses**, or conducting **trend analysis** on the data.

Application

We plan to build a conversational data exploration bot into the **Lodestone Visualization Platform** (theChiselGroup.org) to explore how information visualization novices **interact** with a conversational agent. This chatbot could also be expanded to support advanced users by incorporating additional functionality, such as **trend analysis,** or by facilitating specific **data analysis methodologies**, e.g. bottom-up data exploration.

REFERENCES: L. Grammel, "User Interfaces Supporting Information Visualization Novices in Visualization Construction," PhD. dissertation, Dept. CS, University of Victoria, Canada, 2012. Distil Networks (2016). "*Bots.jpg,". Available: https://www.scrapesentry.com/.

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