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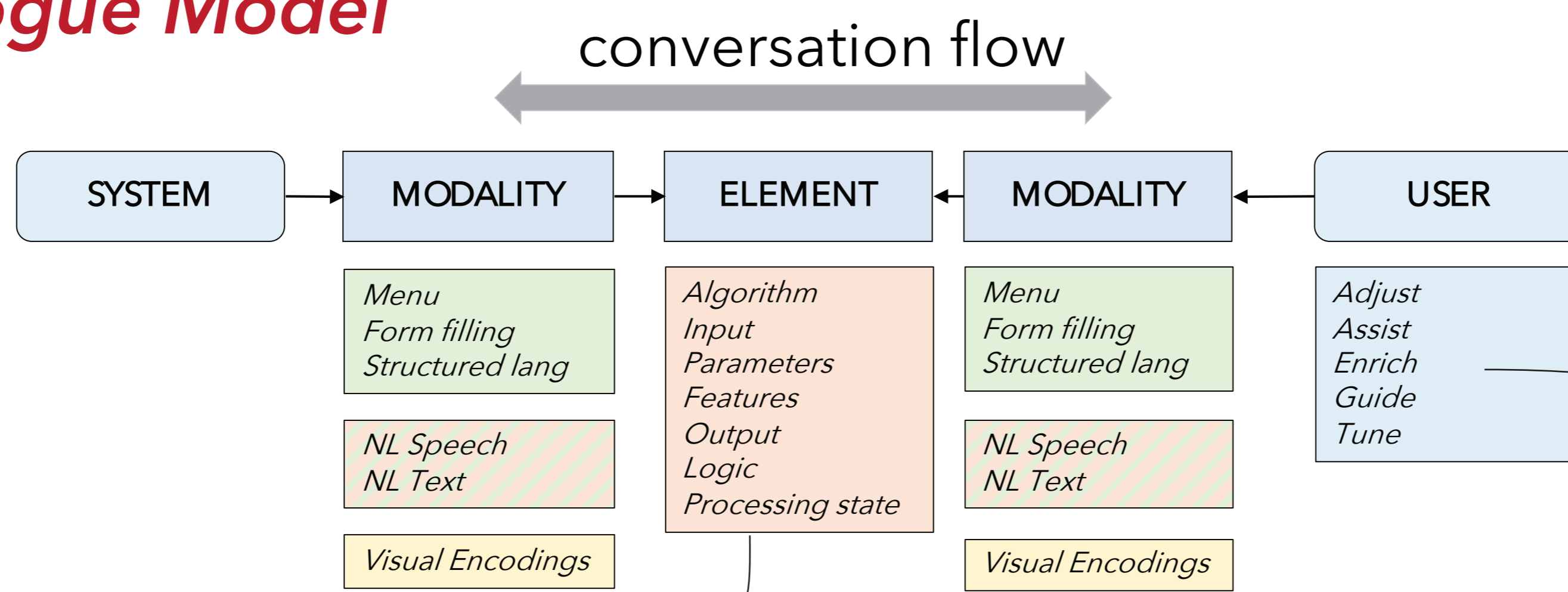
# Towards Natural Language Empowered Interactive Data Analysis

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**Multimodal Data Analytics** to combine the strengths of visual analytics with **natural language as an expressive channel** of interaction. We discuss a **two-way dialogue model**, potential **enhancements** through natural language and **analytical workflows** as a structured methodology

## Dialogue Model



### Interaction Facets

Contextual aspects/elements where useful interactions can occur between the user and an algorithm

### User Roles

The various roles that the user can play in interactive model building as derived and harmonised from existing VA and Human-Algorithm Interaction models

## Potential Enhancements

- E1: Enhanced expressiveness for **guidance**
- E2: Enhanced **model steering**
- E3: Enhanced **comprehension and transparency**
- E4: Enhanced **knowledge elicitation**

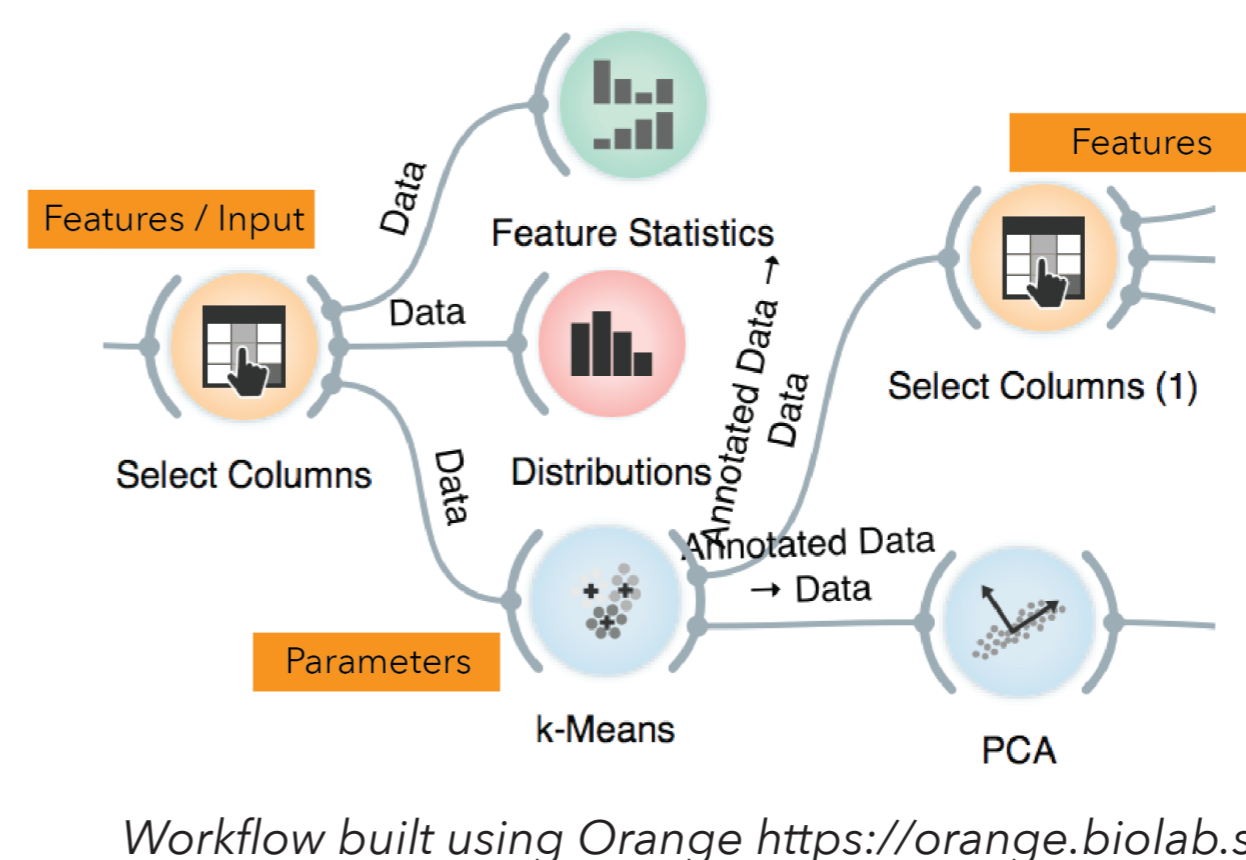
## Analytical Workflows

Instantiations of the dialogue model for specific algorithms and processes. Provided as interactive analysis templates for systematic evaluation and usage

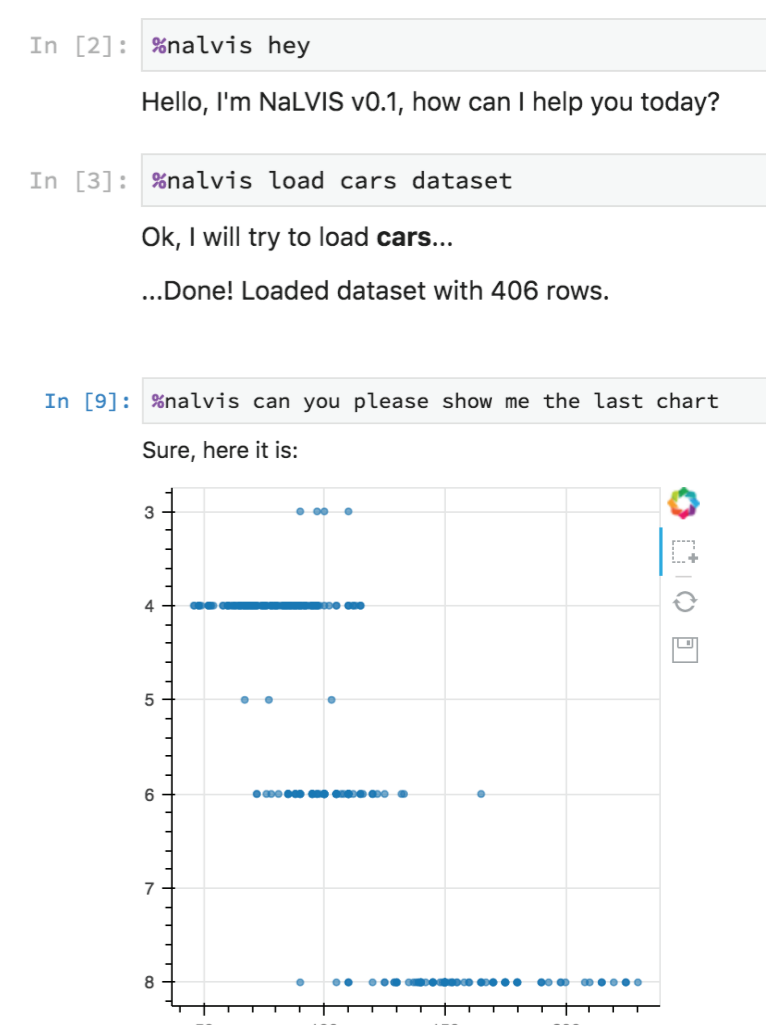
### Guide us !!

Mini User-Study - What would you like to say to an algorithm?

Considering an interactive data analysis scenario, what can you imagine yourself telling to an algorithm? Feel free to post-it, pin your utterance?



Workflow built using Orange <https://orange.biolab.si/>



Implementation of the workflows in Jupyter Notebook with interactive visuals and an NL agent