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Citation: Turkay, C. ORCID: 0000-0001-6788-251X and Henkin, R. (2018). Towards Natural Language Empowered Interactive Data Analysis. Poster presented at the EuroVis 2018 20th EG/VGTC Conference on Visualization, 04 - 08 June 2018, Brno, Czech Republic.

This is the accepted version of the paper.

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Link to published version: <http://dx.doi.org/10.2312/eurp20181128>

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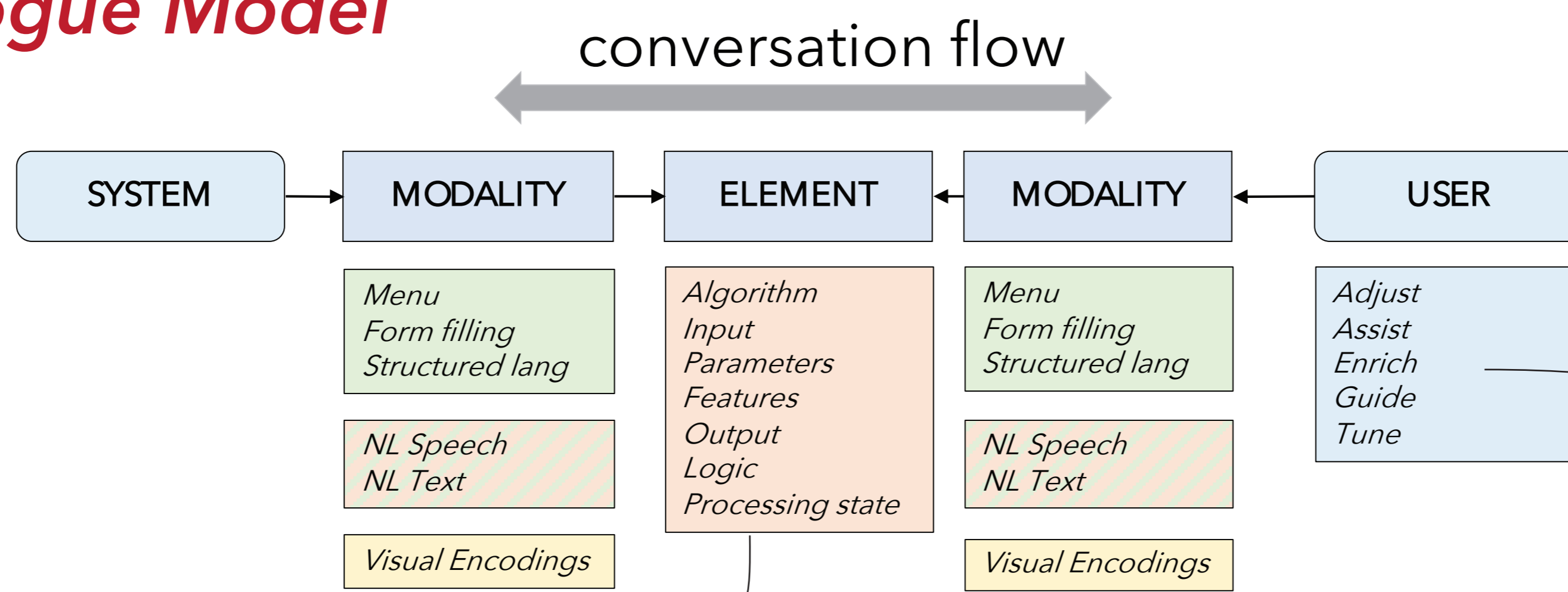
Towards Natural Language Empowered Interactive Data Analysis

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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**

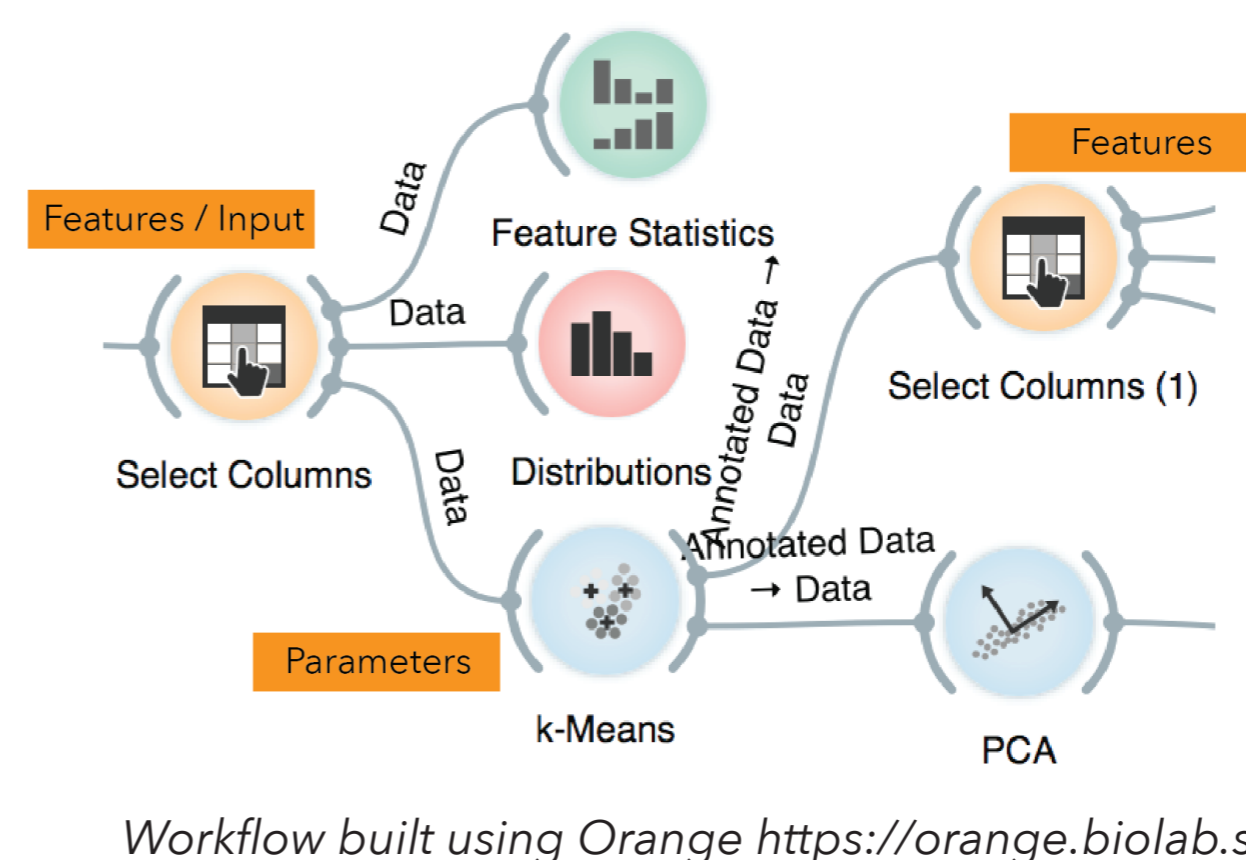
Analytical Workflows

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

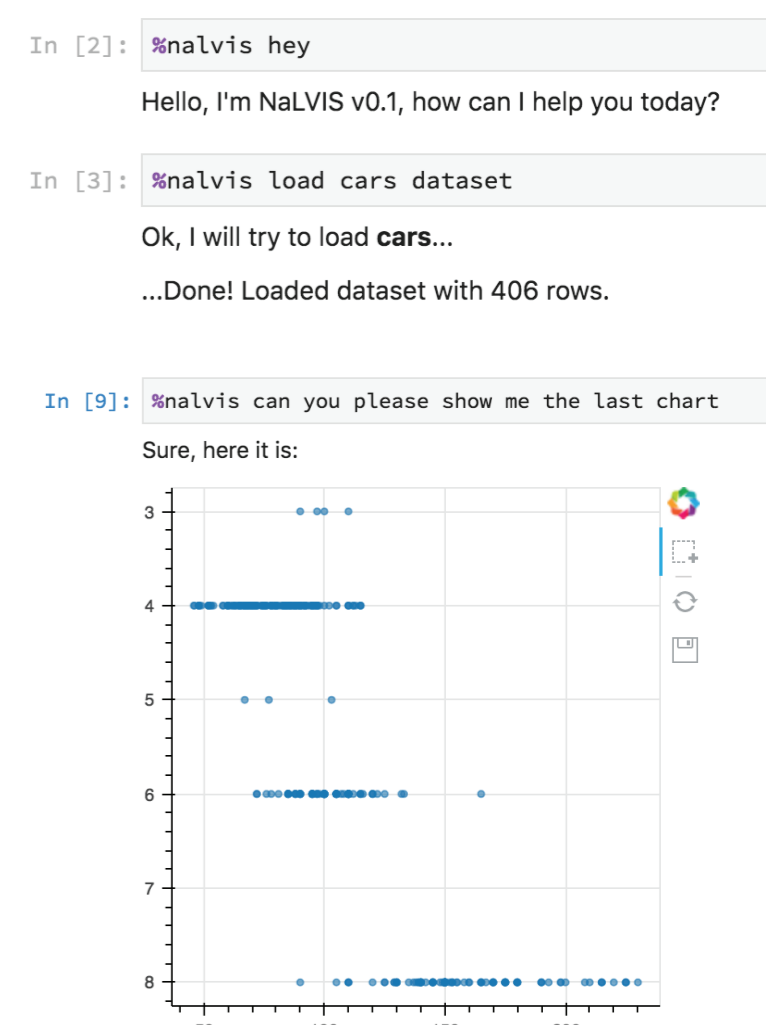
Guide us !!

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