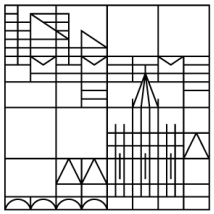


Visualizing Segment Matches between News Articles

Philipp Meschenmoser, MA

ISG Seminar, 01/02/18

Motivation

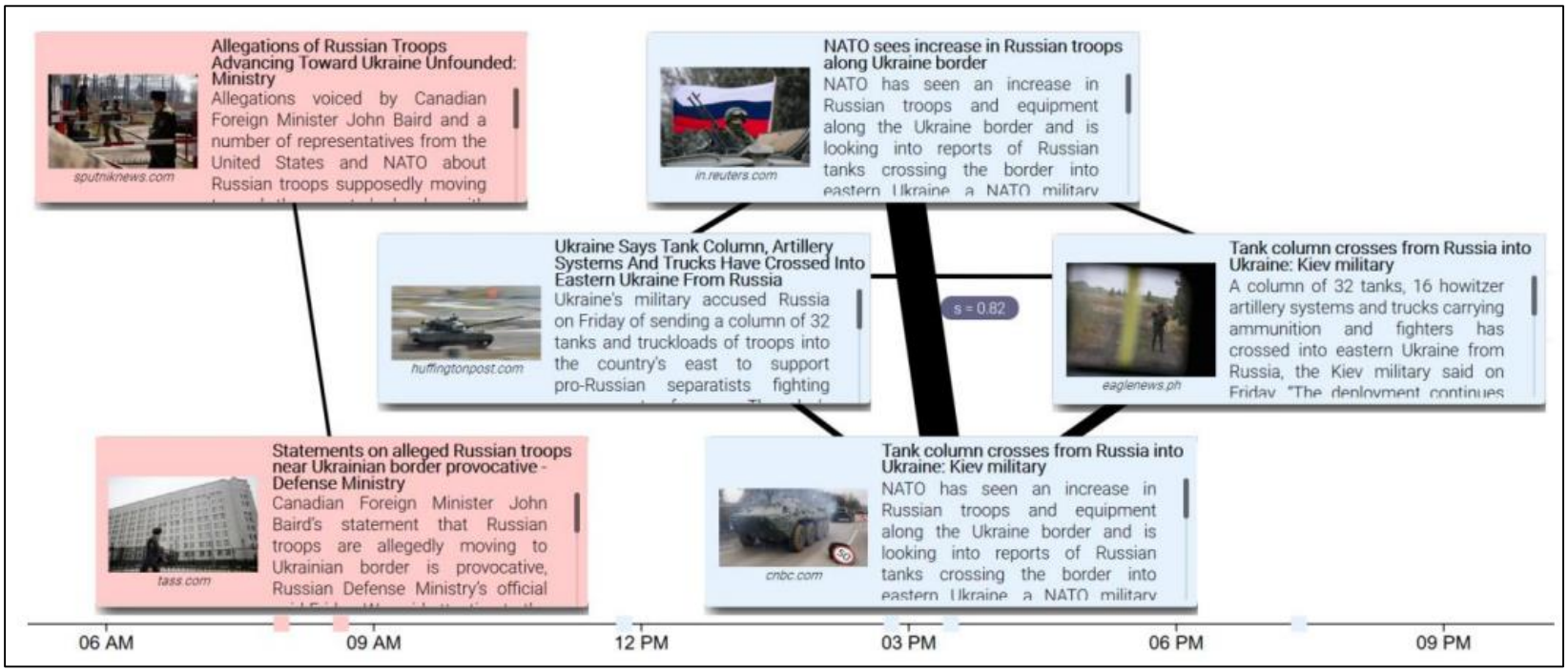
- Channel Theory and Gatekeeping Bias [1, 2, 3]: **omitting/selecting** information

  -> sociopolitical effects? [4, 5, 6]

- Many more kinds of biases [7]

- Biases at large news aggregators? novel requirements [8,9,10]
- Understand information flow in news cycle

Motivation (cont‘d)



- Temporal flow and overall semantic similarity
- **Detailed, segment-based similarity?**

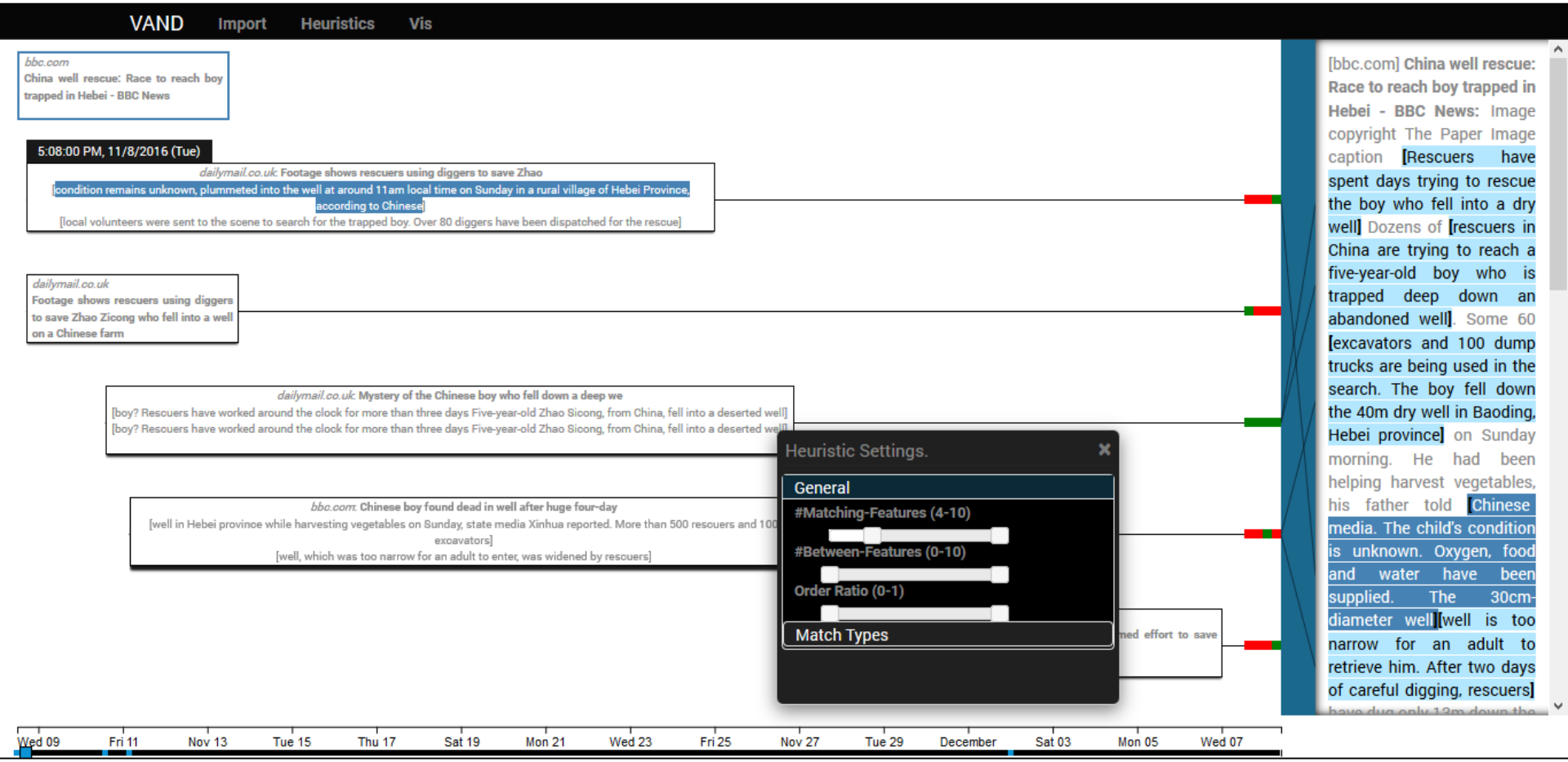
Research Objective

Develop a system to visualize **information re-use** within a **segment-based 1:n article comparison**, having a **research-oriented focus** for parameter evaluation.

Agenda

- The Application and its Pipeline
- Live Demo
- Architecture
- Challenges & Next Steps

The Application

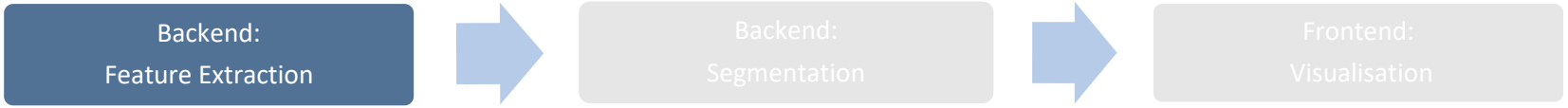


The Application

- *d3.js*-based web app with *node.js express* backend

- effective multi-comparison and **match overview**
- in-depth analysis at **1:1 article view**
- **temporal alignment** + overall article similarity

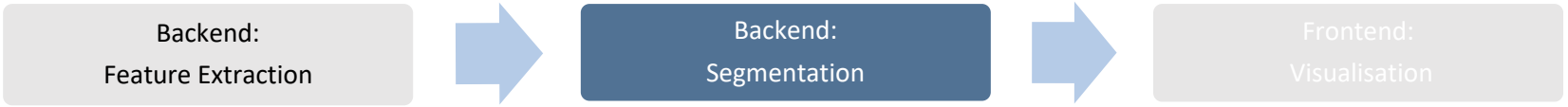
- Realisation by VA paradigms:



1) Feature Extraction

- Tokenization (Penntree Bank 3)
- POS Tagging
- NER
- Stemming or Lemmatization

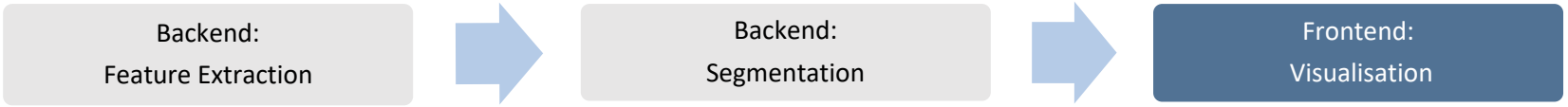
nouns, verbs, adjectives, adverbs,
people, places, organisations ,….



2) Segmentation

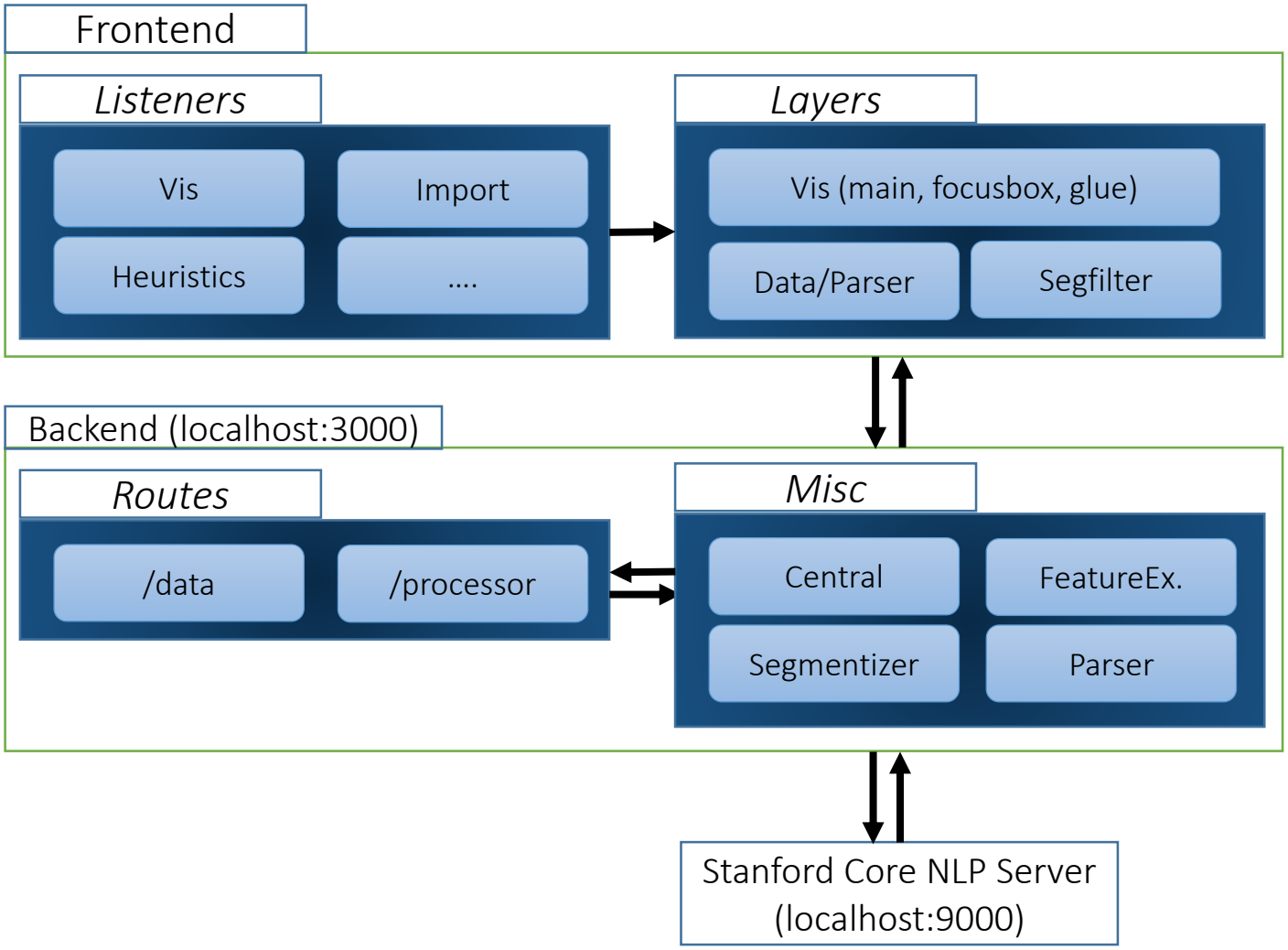
- pack features of **main** and **reference documents** into **n-grams**
- **match candidate**: if number of **intersecting features** above threshold
- match is **visualized**: if match candidate pass through frontend filter

*{**segid**:1, **type**: ‚pos‘,*
***maindoc**:0, **refdoc**:5,*
***mainLeftOffset**: 10, **mainRightOffset**: 112,*
***refRightOffset**:40, **refRightOffset**:86*
***mainIntersections**:[…], **refIntersections**:[…]}*



It‘s demo time!

Architecture



Challenges

- Performance

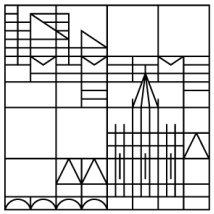
  -> efficient feature extraction

  -> matching algorithm runtime

- Node arrangement
- Browser-based bugs: e.g. scrolling in *SVG:ForeignObject*

Next Steps

- Work on Small Multiples
- Fine-Tuning of visualization
- Further feature types and matching parameters



Thank you!

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