EXCITEMENT

EXploring Customer Interactions through Textual EntailMENT

The Project

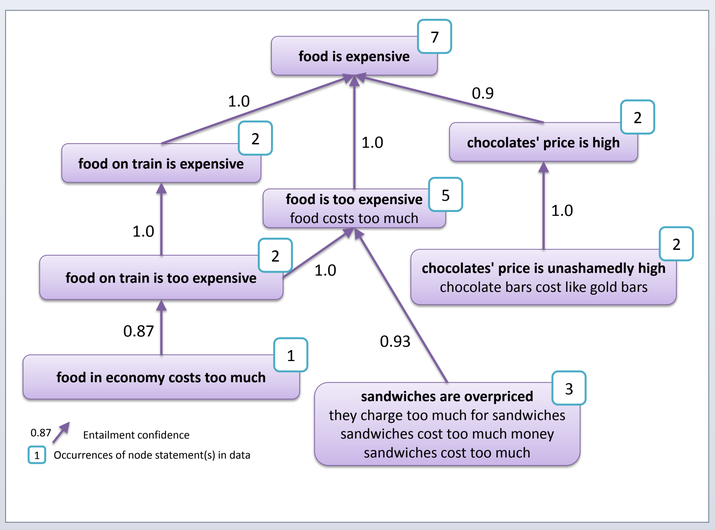
Goal: Identifying semantic inferences between text units, irrespective of surface overlap: a language processing task needed in practically *all* text understanding applications.

Scientific motivation: offering an encompassing open source platform for textual inference.

Industrial motivation: focus on the text analytics market and the increasing demand for automatically analyzing customer interactions, crossing multiple channels (i.e. speech, email, chat and social media).

Entailment Graphs

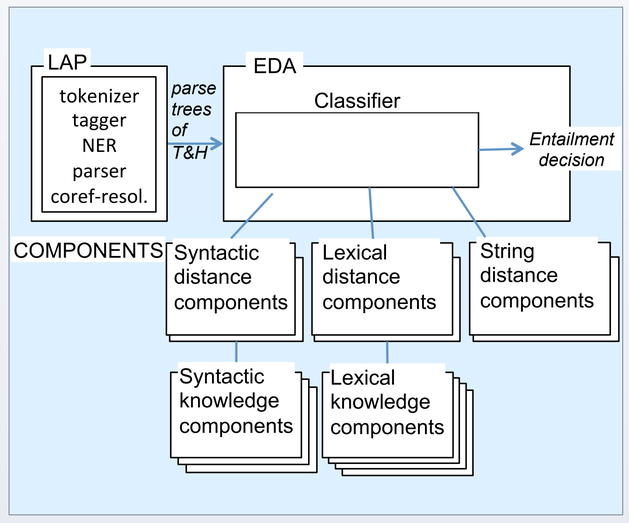
- A powerful technology for representing complex relations in data streams as a hierarchy of statements
  - statement-level analysis -- going beyond keyword-based techniques
- Graphs are built from text with the Excitement Open Platform technology
- Unsupervised approach for content analytics, i.e. no need to train on specific (and limited) set of relations.



Entailment graph for a customer interaction scenario

Excitement Open Platform

- A modular architecture for textual entailment inferences
- Provides support for the development of language independent algorithms
- Easy combination of linguistic pipelines, entailment algorithms and linguistic resources within and across languages

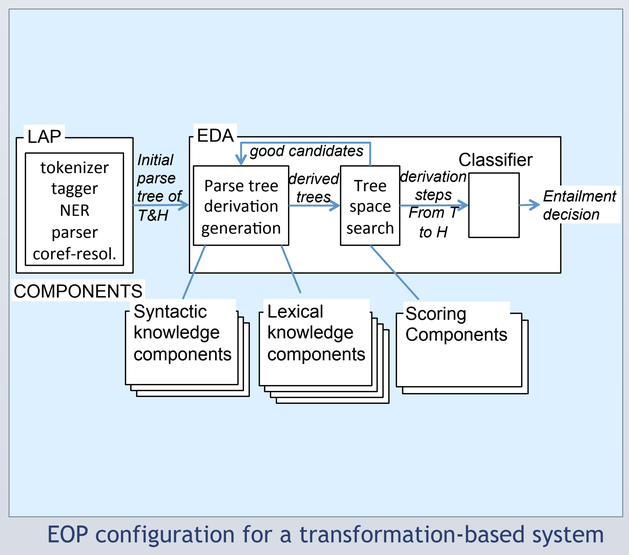


EOP configuration for a distance-based system

Three configurable blocks:

- Entailment decision algorithms (EDA)
- Components and resources
- Linguistic Analysis Pipeline (LAP)

- UIMA-based framework for high interoperability
- Ideal for experimenting textual inference methods, both for researchers and users
- Open source distribution, including state-of-art tools and resources for semantic inferences
- Hosting on github provides a distributed workflow for a safe and reliable management of both large teams of developers and untrusted contributors

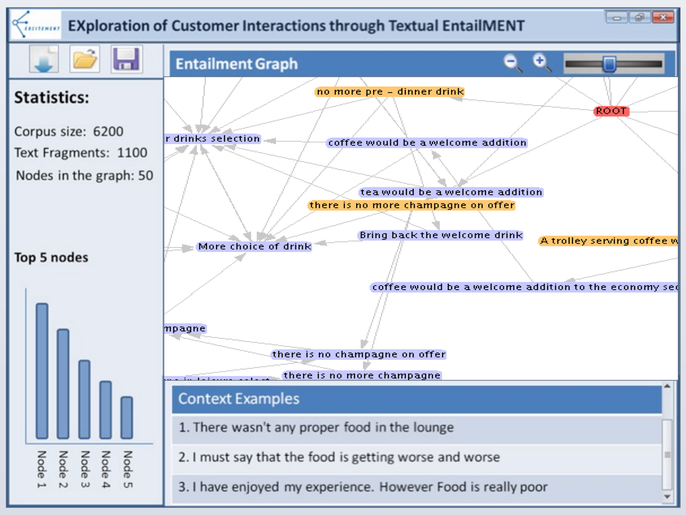


EOP configuration for a transformation-based system

Use Case 1: Exploration of Customer Interactions

This use case aims to provide efficient tools for extracting and representing information in the form of **entailment graphs for text exploration**. The benefit is a clear and compact report of the reasons for the business issue, contributing directly to the enhancement of business performance.

Exploration of customer interactions is currently experimented for English (speech and emails) and Italian (social media).

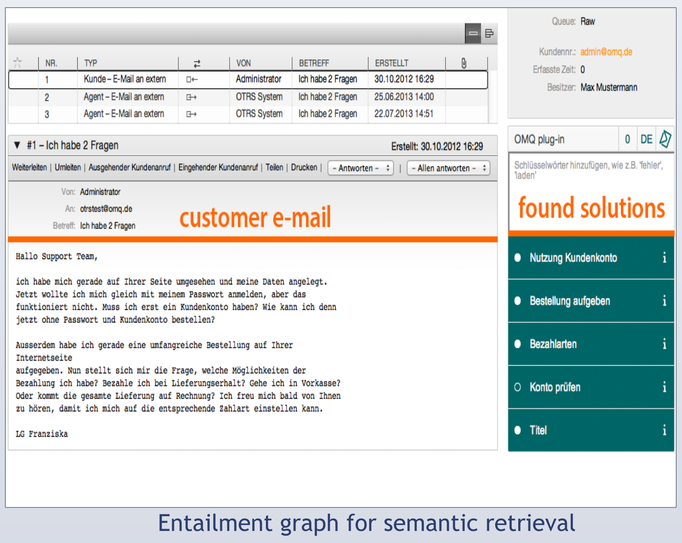


Entailment graph for text exploration

Use Case 2: Semantic Retrieval of Customer Interactions

This use case addresses the needs of companies to **mine and retrieve information** from large collections of customer interactions or other customer-related information (e.g., FAQs). This scenario makes use of entailment graphs to improve keyword-based retrieval of previously stored interactions.

Retrieval of customer interactions is currently experimented for German (emails and social media).



Entailment graph for semantic retrieval

Outcomes

- Datasets for training and testing are publicly available
- Guidelines and tools for manual annotation of entailment graphs
- Graph visualization tools
- Software to facilitate the extraction of entailment graphs for specific industrial settings
- Software components to facilitate the integration of application scenarios with the Excitement Open Platform

Web Page: http://www.excitement-project.eu
EOP Platform: http://hltfbk.github.io/Excitement-Open-Platform/
EOP Demo: http://hlt-services4.fbk.eu/eop/index.php
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