Digital Humanities in the Nordic Countries, 7-9 March 2018, University of Helsinki

The Nordic Tweet Stream: A dynamic real-time monitor corpus of big and rich language data

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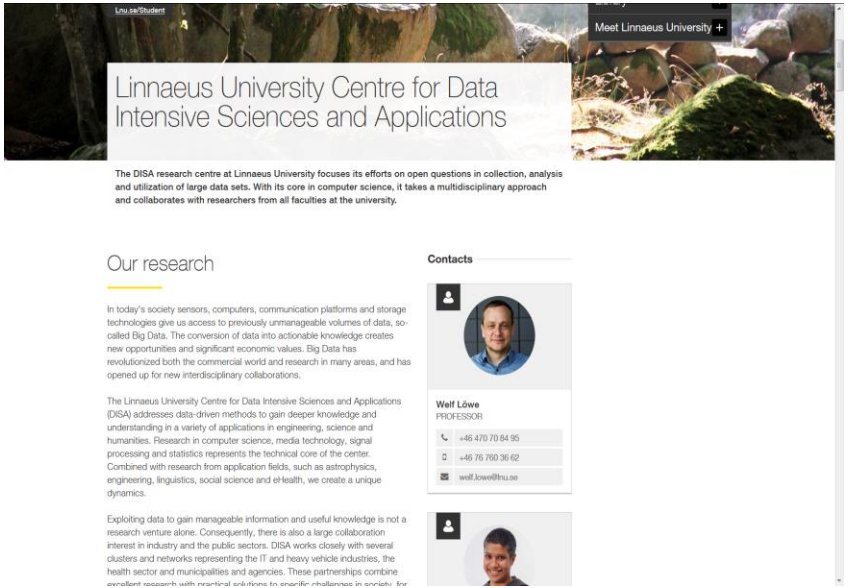
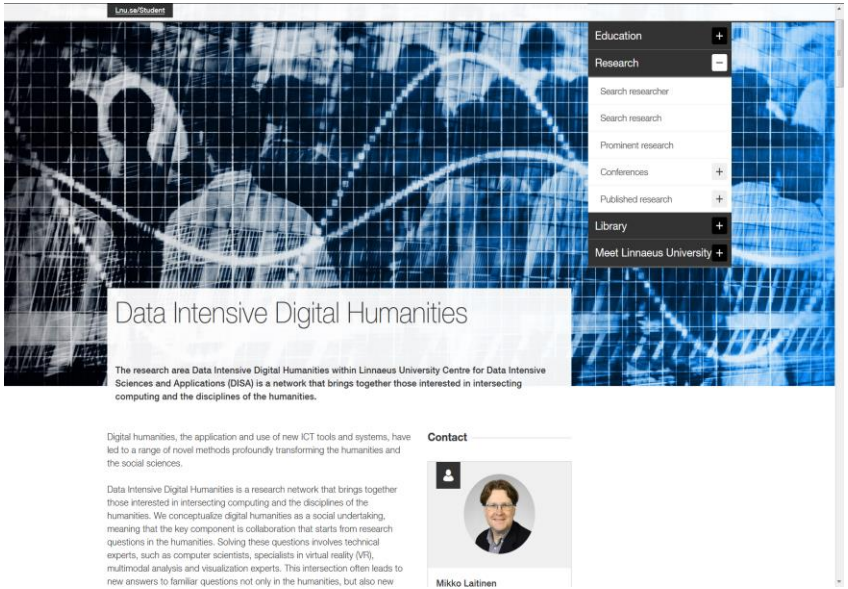
Objectives

- To present our data streaming
- To contextualize this project within sociolinguistics
- To present some recent activities

Data intensive sciences and applications (DISA) and digital humanities: 5-y. project at Linnaeus University and partners at UEF





UEF // University of Eastern Finland

Linnæus University

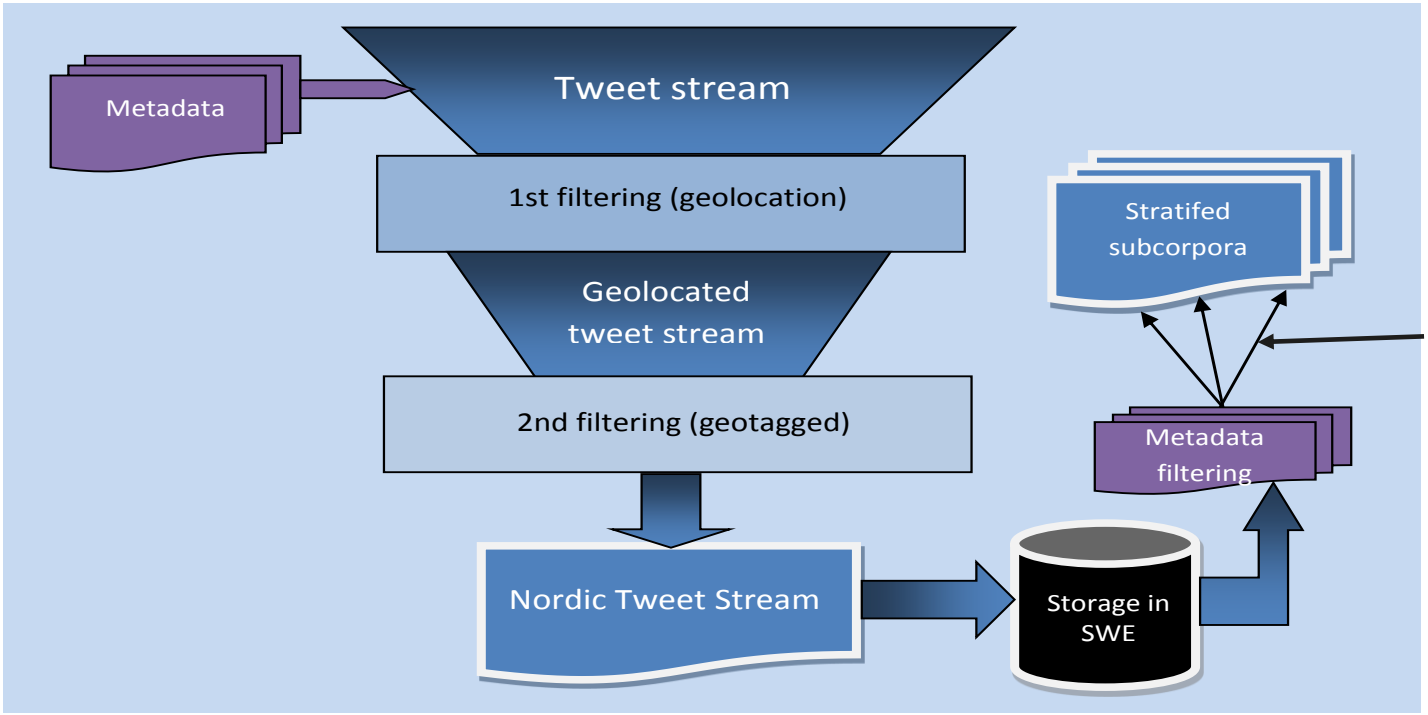
Our team

- Mikko Laitinen coordinator
- Linnaeus
  - Dr. Jonas Lundberg (comp. science)
  - Dr. Rafael Martins, Dr. Ilir Jusufi, Dr. Aris Alissandrakis (Media technology)
  - Prof. Jukka Tyrkkö, Ass. Prof. Magnus Levin (English linguistics)
- UEF
  - Mr. Jehad Aldahdood (database, graphic search interface designer)
  - Initial collaboration with Prof. Pasi Fränti's Machine Learning group at UEF

The Nordic Tweet Stream (NTS)

- real-time data stream
- access to geo-located tweets in five Nordic countries (DEN, FIN, ISL, NOR, SWE)
- streaming initiated in April 2016 (entire dataset from 6 Nov 2016)
  - 26 Feb 2018: 11,657,987 messages from 283,811 user accounts
  - 1,434 unique locations
- Nearly 150 million tokens of text (c. 350,000 tokens added per day)
- over 0.6 billion metadata points

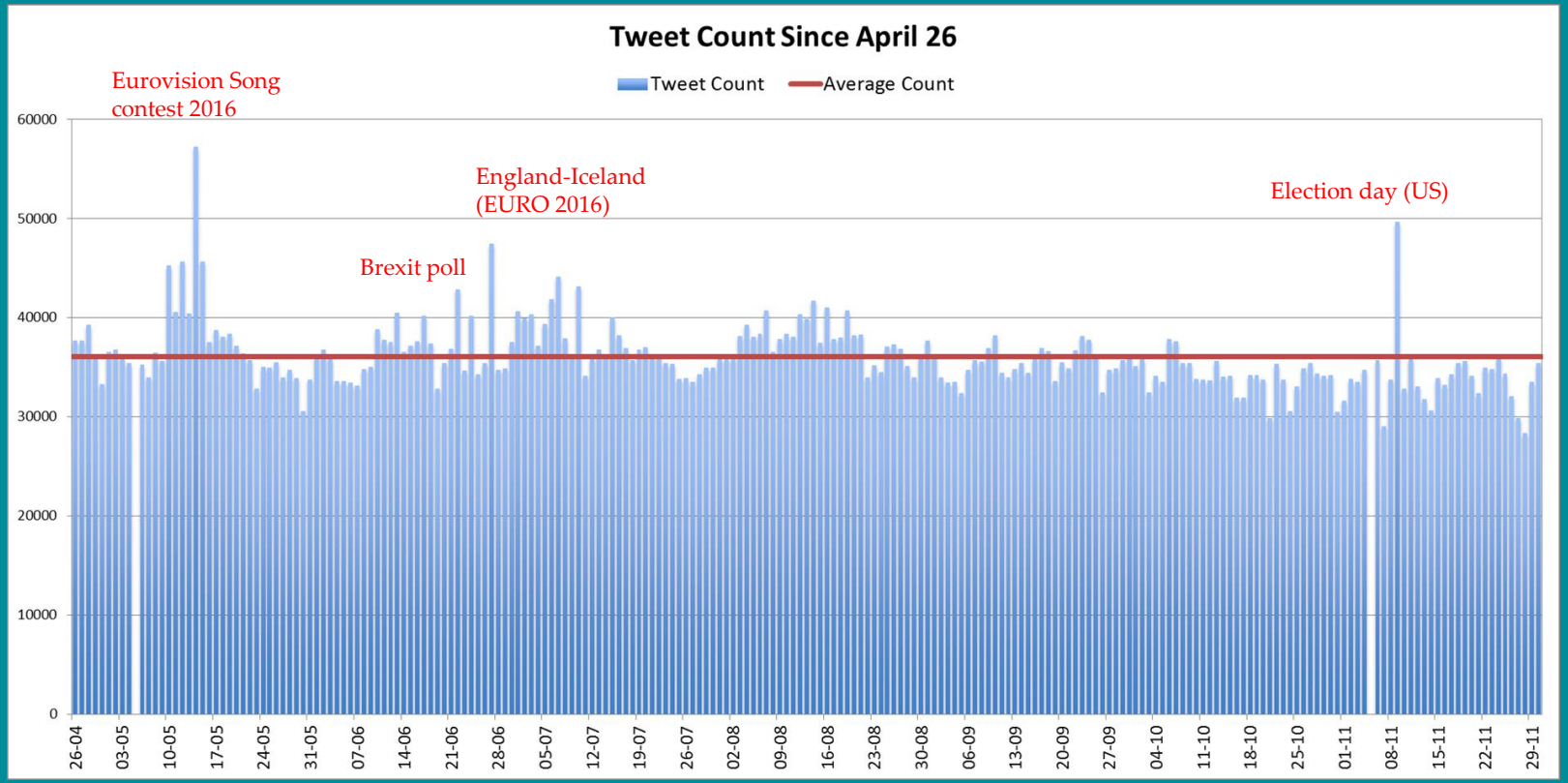
Data streaming



Supervised machine learning to exclude bots (a text-based classifier and a profile-based system developed by Lundberg et al. 2018)

Operational for English bots (23.2%) and Swedish (1.2%)

Real-time access



Using the NTS

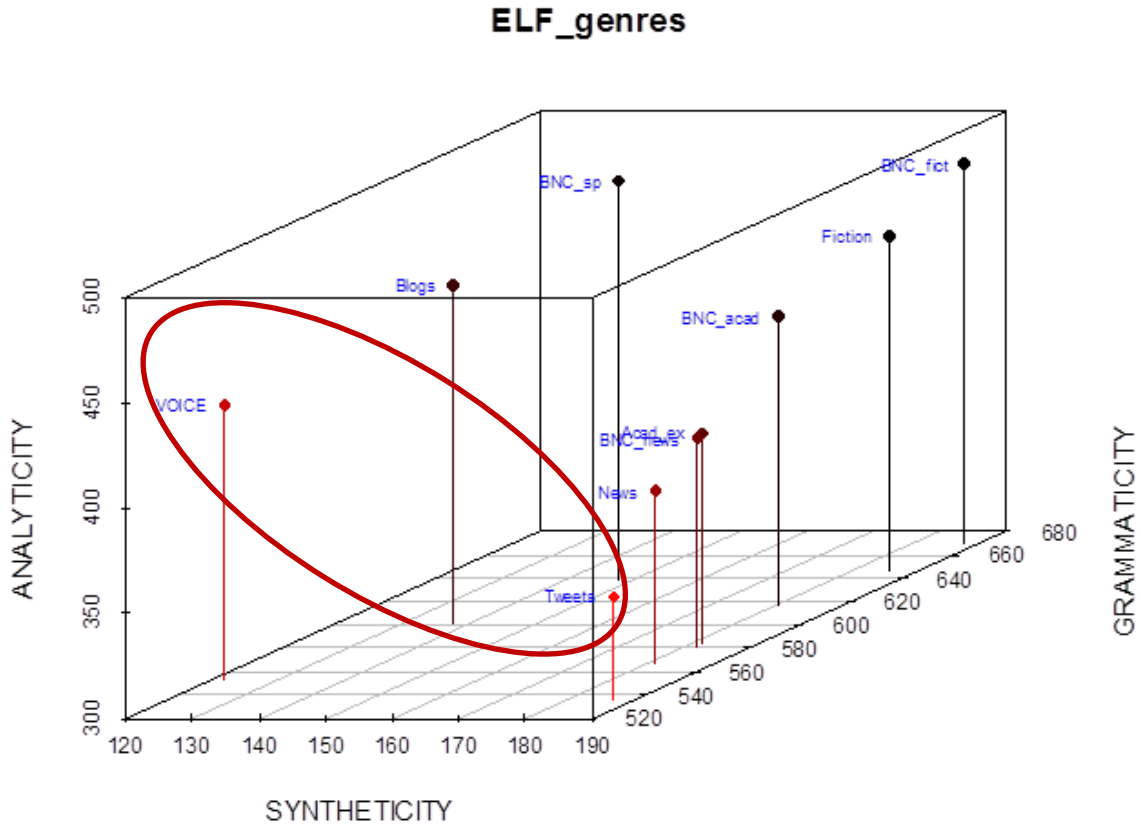
- Material for our studies of English as lingua franca (ELF) (e.g. Mauranen 2012; Mauranen et al. 2015)
- Charting new ways of analyzing ELF
  - Quantitative study of grammar
  - Language change in ELF
- Exploring how new evidence could offer new answers to familiar questions in language change and ELF, and (hopefully) lead to entirely new questions

Previous research

- Coats (2015, 2016, 2017a, b): Finnish Twitter English, gender stratification
- Eisenstein et al. (2014): regional diffusion of lexis
- Scheffler (2014): A German Twitter snapshot
- Barbaresi (2016): Austrian Twitter corpus
- Huang et al. (2016): American English dialect areas
- Goncalves et al. (2017): Americanization in Twitter

An overview of recent research activities

A. English tweets and macro-level genre characteristics (Laitinen in press)

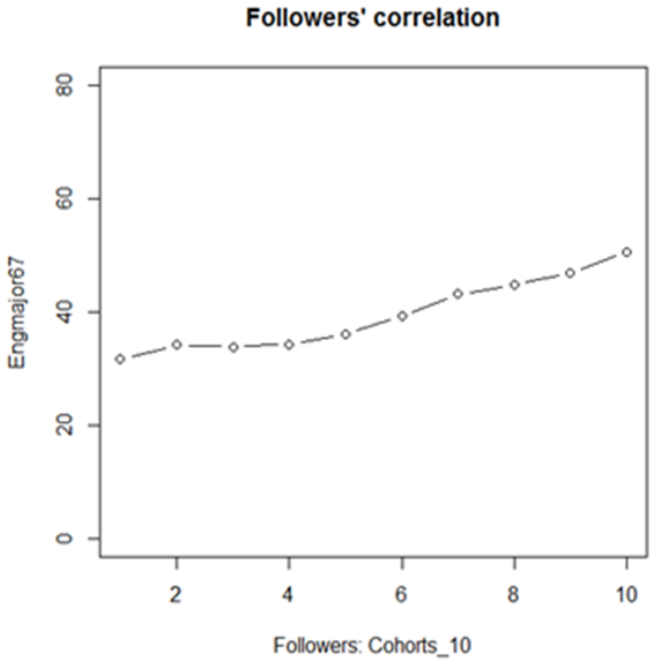


Typological profiling (Szmrecsanyi 2009)

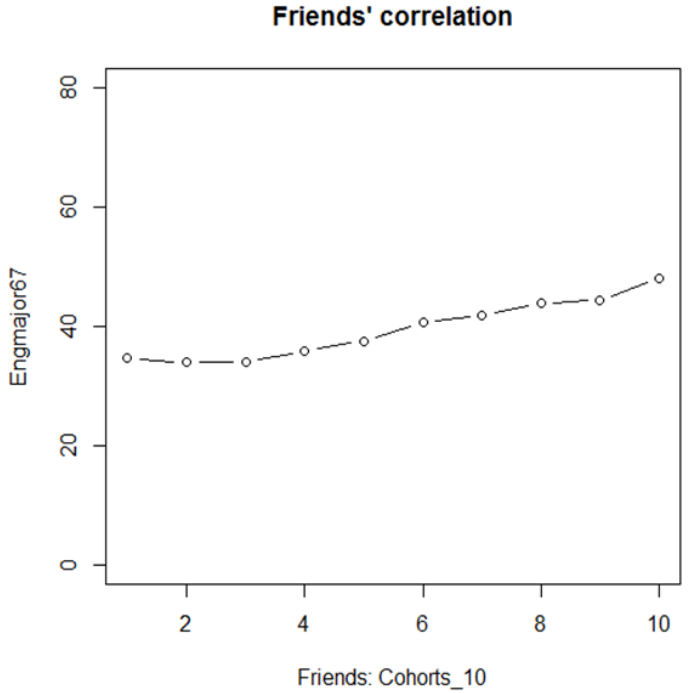
- 11 analytic markers
- 6 synthetic markers

B. Social network theory and Twitter metadata: Weak ties facilitate change (Laitinen et al. 2017a)

Evidence from: 199,842 accounts
Followers: truly weak ties



Friends: slightly stronger ties

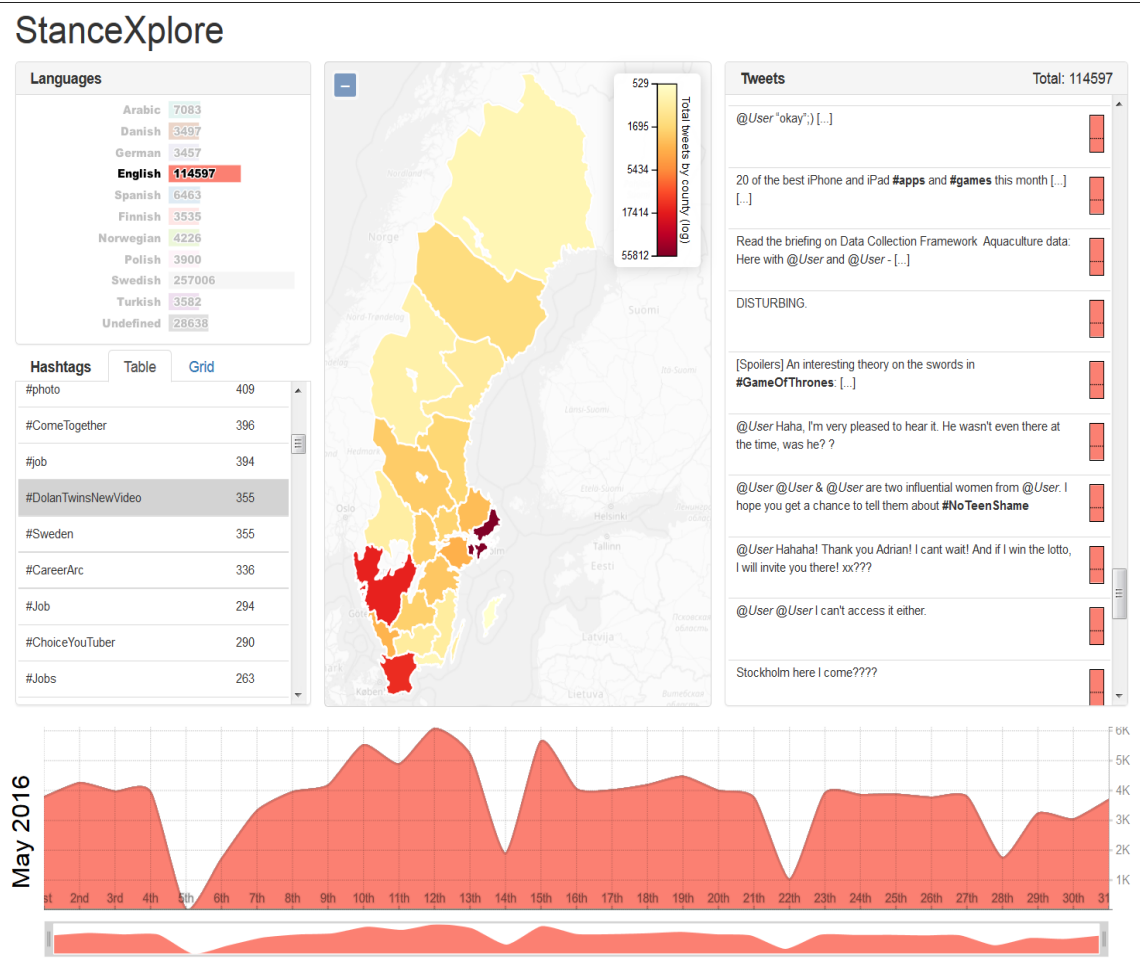


Our data lead us to propose a revision to the social network hypothesis

- “There is a straightforward increase of innovative behavior in the truly weak tie network, but… [our results indicate] that innovations also spread under conditions of stronger networks, given that the network size is large enough. The size of such networks must exceed circa 100–130 individuals according to our observations. It is important to note that if we had restricted ourselves only to small networks, this observation could not have been established.” (Laitinen et al. 2017)

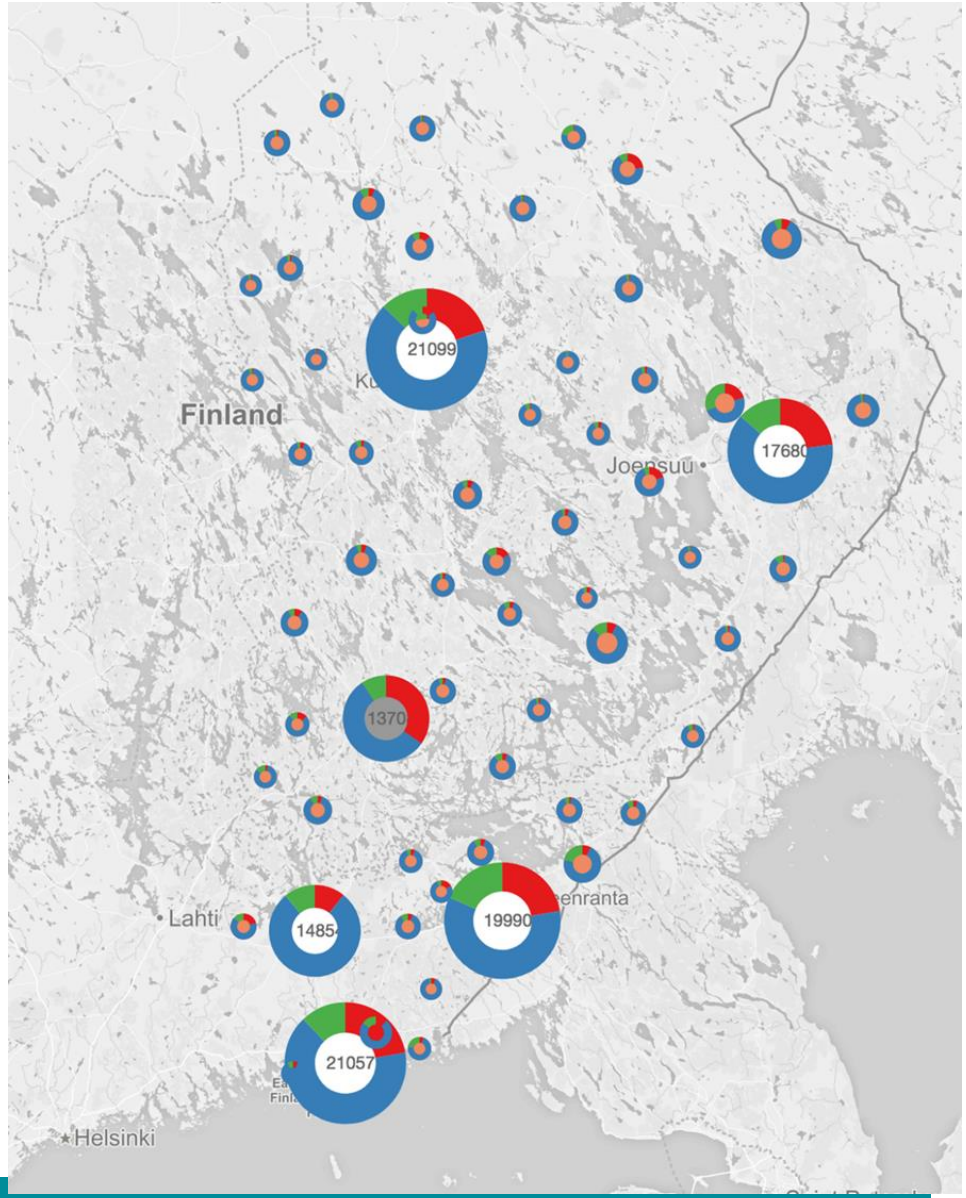
C. Language choice

- Visuals by Rafael Martins (LnU)
- Testing visualizations on the Swedish data

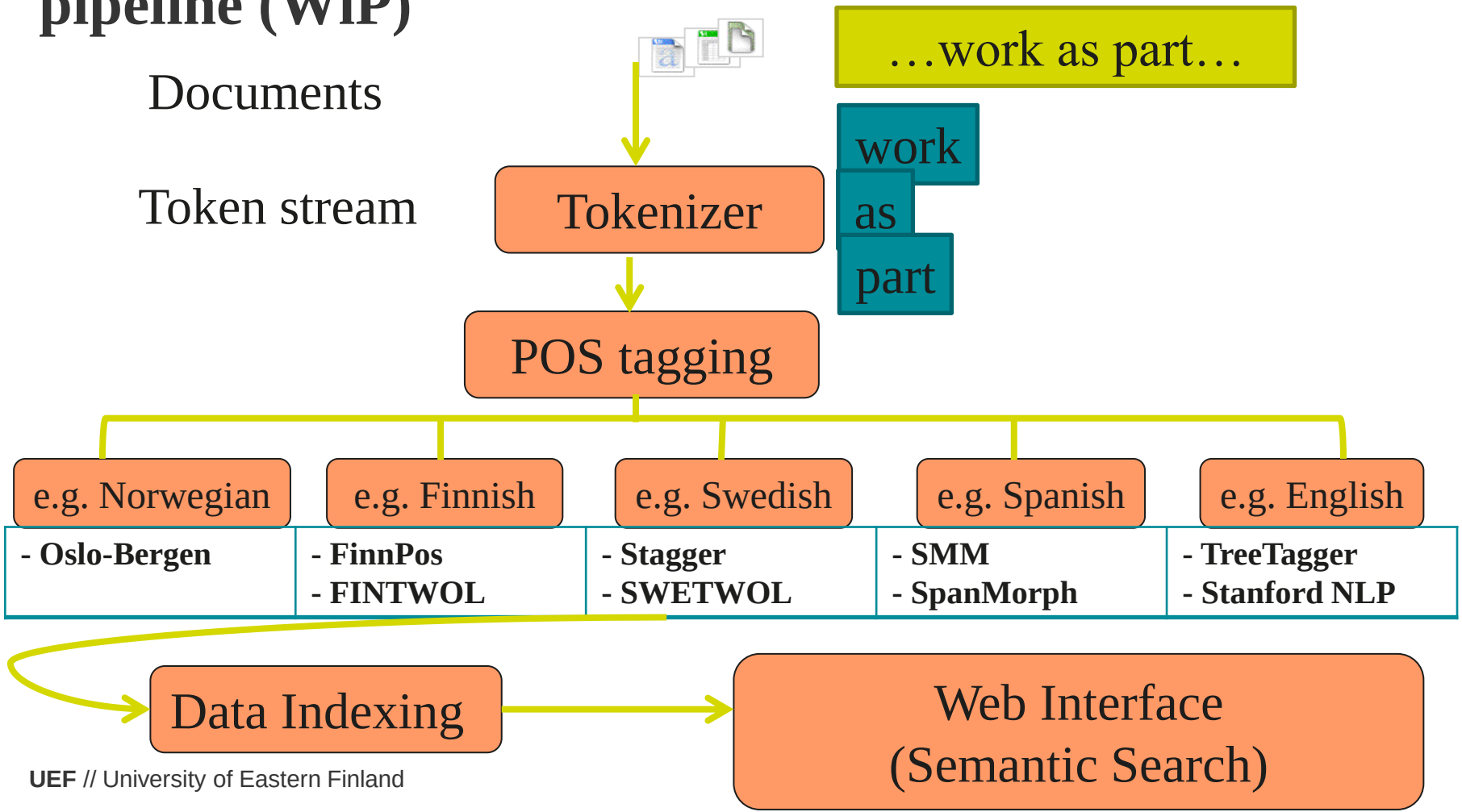


D. Regional language choice (excluding Eng bots)

- 6,397 accounts from 61 municipalities in Eastern Finland (Laitinen, Paulasto & Meriläinen forthc., visuals by Ilir Jusufi)



E. A graphic search interface for the NTS data: pipeline (WiP)



Thank you!

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