ECPR Methods Summer School: Automated Collection of Web and Social Data

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Course website:
github.com/pablobarbera/ECPR-SC103

Text as data

Text as data


Kukuriku
koalicija
Plan
21


the TRUE NORTH
STRONG AND FREE
Stephen Harper's plan for Canadians
Conservative


Et retfærdigt
Danmark


ΕΚΛΟΓΙΚΗ ΔΙΑΚΗΡΥΞΗ
ΣΥΡΙΖΑ
ισχυρός
στη Βουλή
και στους αγώνες
Είναι στο χέρι μας!
ΣΥΡΙΖΑ
ΣΥΝΑΣΠΙΣΜΟΣ ΡΙΖΟΣΠΑΣΤΙΚΗΣ ΑΡΙΣΤΕΡΑΣ


SPÖ
WAHLMANIFEST


GRÜNE NEUE
GESELLSCHAFTS-
VERTRAG
KLIMA • ARBEIT • GERECHTIGKEIT • FREIHEIT


WIR HABEN DIE KRAFT
GEMEINSAM
FÜR UNSER LAND.
REGIERUNGSPROGRAMM 2009 – 2013
CDU CSU

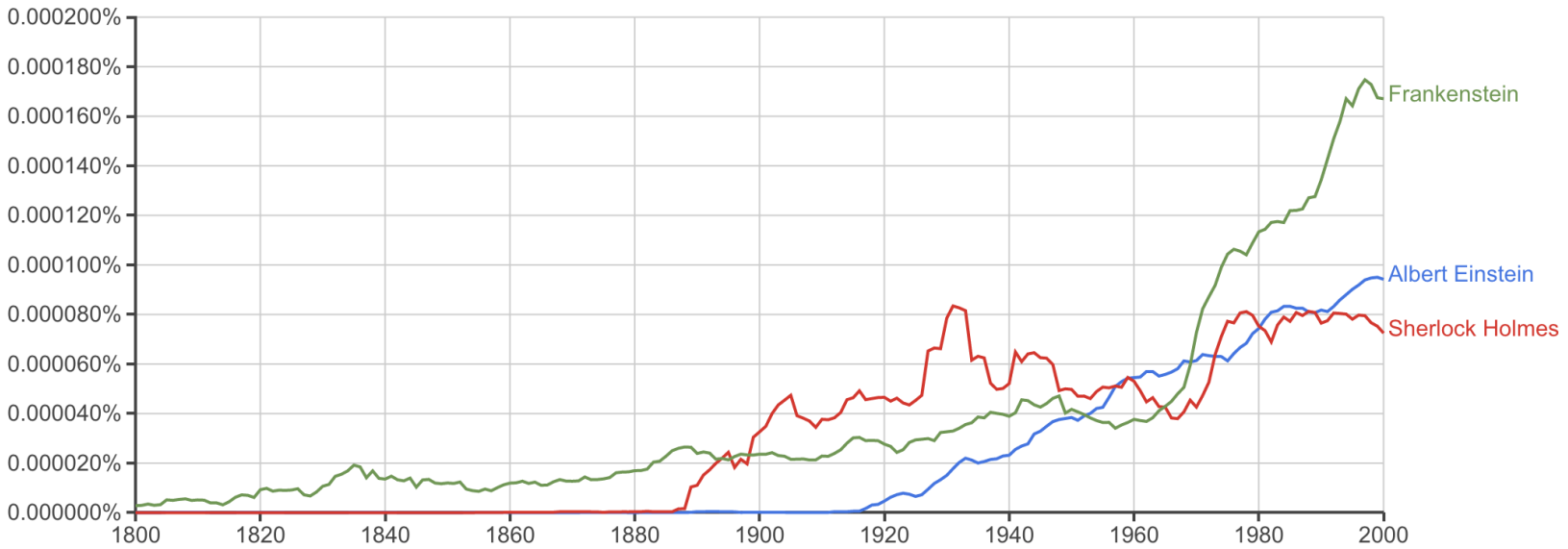

Sozial und
Demokratisch.
Anpacken. Für Deutschland.
Das Regierungsprogramm der SPD
SPD

Text as data

Google Books Ngram Viewer

Graph these comma-separated phrases: Albert Einstein,Sherlock Holmes,Frankenstein case-insensitive

between 1800 and 2000 from the corpus English with smoothing of 3. Search lots of books



Text as data


facebook
XING
Pinterest
Instagram
Gefällt mir
twitter
LinkedIn
flickr
skype
YouTube

Overview of text as data methods

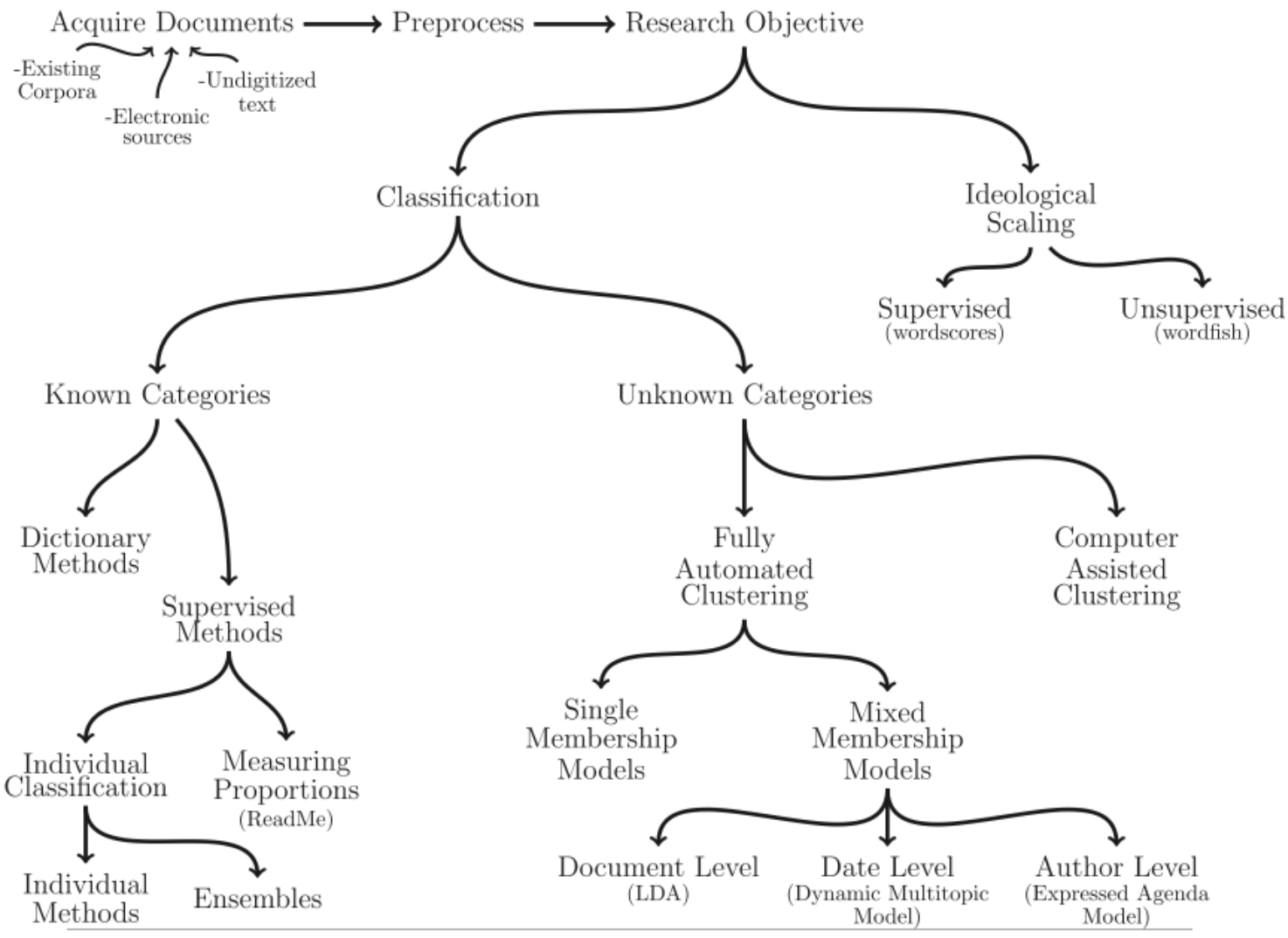


Fig. 1 in Grimmer and Stewart (2013)

From words to numbers

1. Bag-of-words assumption

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   - Capitalization, cleaning digits/URLs, removing stopwords and sparse words, etc.

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   - Usually large matrix, but sparse (so it fits in memory)

From words to numbers

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1. Preprocess text:

"@MEPcandidate thank you and congratulations, you're the best #EP2014"

"@MEPcandidate You're an idiot, I would never vote for you"

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1. Preprocess text: lowercase,

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From words to numbers

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1. Preprocess text: lowercase, remove stopwords and punctuation,

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From words to numbers

From words to numbers

1. Preprocess text: lowercase, remove stopwords and punctuation, stem,

   “@ thank congratul~~ations~~, you’r~~e~~ best #ep2014”

   “@ you’r~~e~~ idiot never vote”

From words to numbers

From words to numbers

1. Preprocess text: lowercase, remove stopwords and punctuation, stem, tokenize into unigrams and bigrams (bag-of-words assumption)

   [@, thank, congratul, you'r, best, #ep2014, @ thank, thank congratul, congratul you'r, you'r best, best, best #ep2014]

   [@, you'r, idiot, never, vote, @ you'r, you'r idiot, idiot never, never vote]

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2. Document-term matrix:
   - **W**: matrix of N documents by M unique n-grams
   - w_{im}= number of times m-th n-gram appears in i-th document.

	@	thank	congratul	you'r	#ep2014	@ thank	⋮	M words
Document 1	1	1	1	1	1	1	...	
Document 2	1	0	0	1	0	0	...	
...								
Document n	0	1	1	0	0	0	...	

Dictionary methods

Classifying documents when categories are known using dictionaries:

- Lists of words that correspond to each category:

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  - Check sensitivity of results to exclusion of specific words
  - Code a few documents manually and see if dictionary prediction aligns with human coding of document