



Introduction to Semantic Change and Computational modeling of change

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Hello!



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Schedule



Introduction

CiK program & linguistic theory of semantic change

Evaluation

Measuring and evaluating
Lexical Semantic change

Models

Models for Lexical Semantic
Change Detection

Discussion

Research implications and discussion

Hands-on

Hands-on and Discussion

Change is Key!

The study of contemporary and historical societies



<https://www.changeiskey.org/>

Change is Key!

Facts

6

years

6

partner universities

4

Members from 4 countries

6

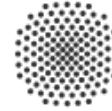
Countries, with advisors

17

People including a SE & PM

33.5

M\$ek from RJ + 10.5M\$ek from the University, Faculty, Dept



Universität Stuttgart
Institut für Maschinelle Sprachverarbeitung



KU LEUVEN



LUNDS UNIVERSITET



GÖTEBORGS UNIVERSITET

Activities in the community

EACL Tutorial

Malta, Mar 21, 2024



Evolang workshop

Madison US, May 18, 2024

LChange'24

Bangkok, Aug 15, 2024



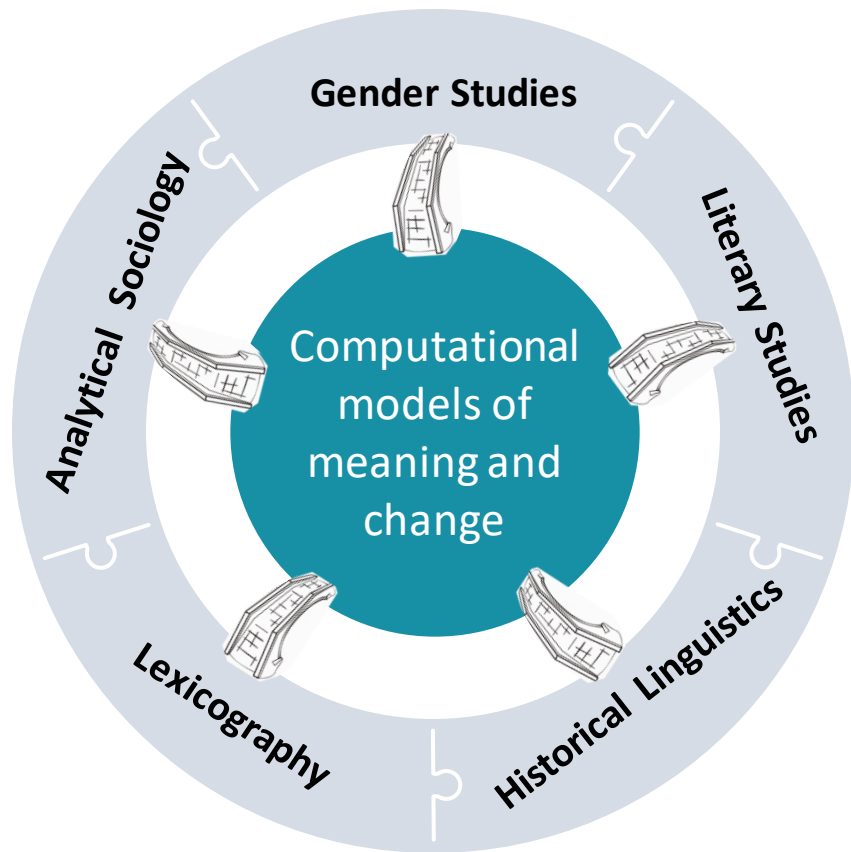
Change is Key!

Goals

Language level change

Societal level change

No one
has applied
state-of-the-art
Lexical Semantic Change
to many of these
problems



Motivation: Why change matters



If you are a linguist

If you are a historian, sociologist
or interested in societal changes



If you work on AI

Change to collocations



Context words

Years

CONTEXT	ALL	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s
COMPUTER	171						1	75	67	28
BIG	170	2	26	8	2	7	31	43	29	22
PIE	148	4	3	22	18	16	29	31	17	8
TREE	94	6	18	16	17	15	9	9	1	3
ADAM	59	8	12	9	7	9	8	3	3	
JOBS	57						1	14	23	19
TREES	51	4	10	18	5	6	3	4	1	
JUICE	45	1	2		3	5	9	7	11	7
MACINTOSH	43							24	13	6
IBM	41							24	17	

A litmus paper of our societies and culture

British Parliament



Academic papers



Soap operas



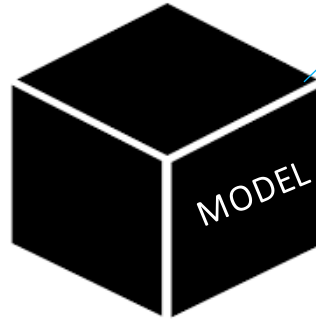
Twitter



Mental health



L2 learners



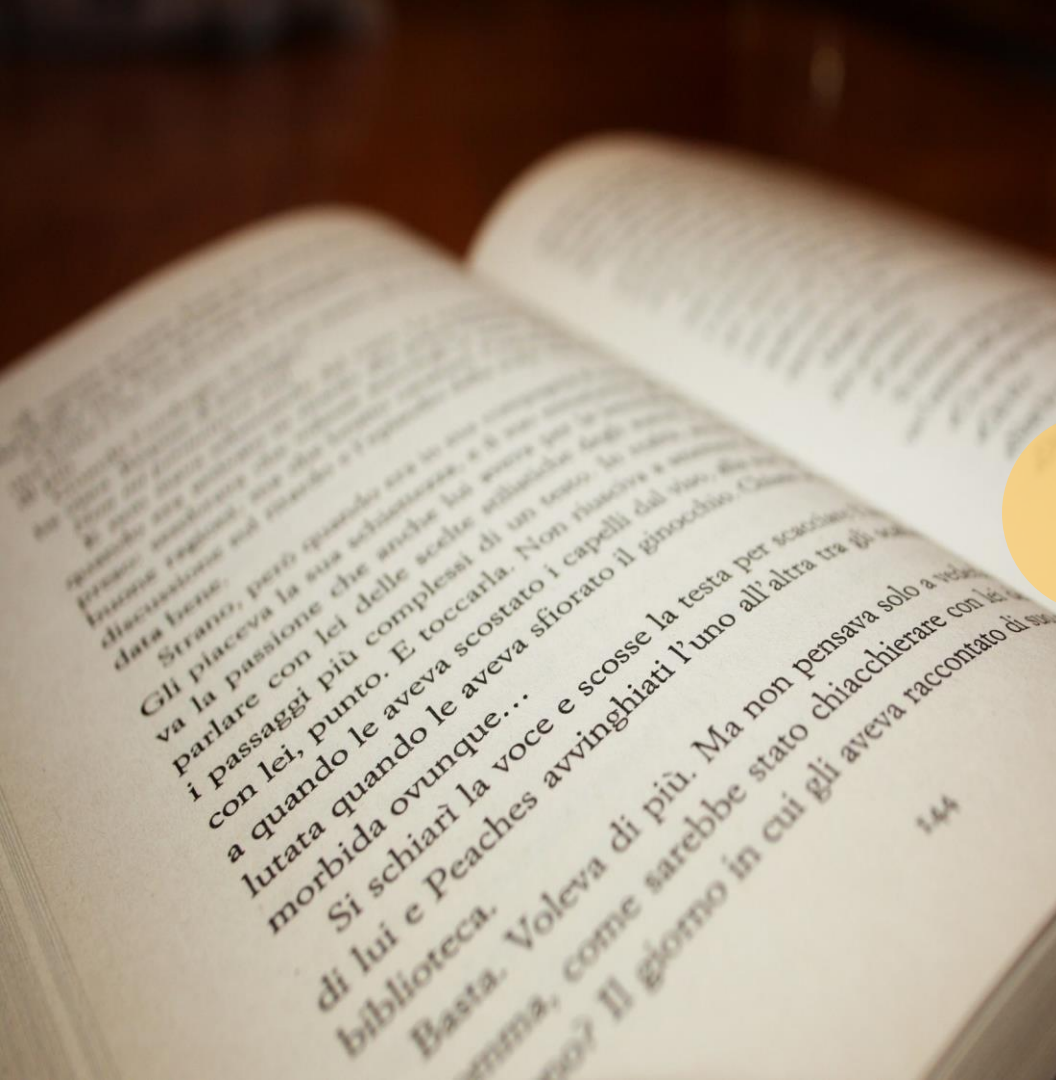
Resolution, act

Cell, space, object

Husband, love

How did we do it before?





By close reading!

Gli strano, però quando era in una compagnia
va la passione che anche lui aveva per
parlare con lei delle scelte stilistiche degli
i passaggi più complessi di un testo, le
a quando le aveva scostato i capelli dal viso,
lutata quando le aveva sfiorato il ginocchio.
morbida ovunque...
Si schiarì la voce e scosse la testa per scacciare
di lui e Peaches avvinghiati l'uno all'altra tra le
biblioteca.
Basta. Voleva di più. Ma non pensava solo a
amma, come sarebbe stato chiacchiere con lei
mo? Il giorno in cui gli aveva raccontato di...

How do we do it now?





Methods
(computational)

Models of meaning

+

Models of change

Topic model

WSI

W2V

Contextual models

+

KL divergence

+

Cluster comparison

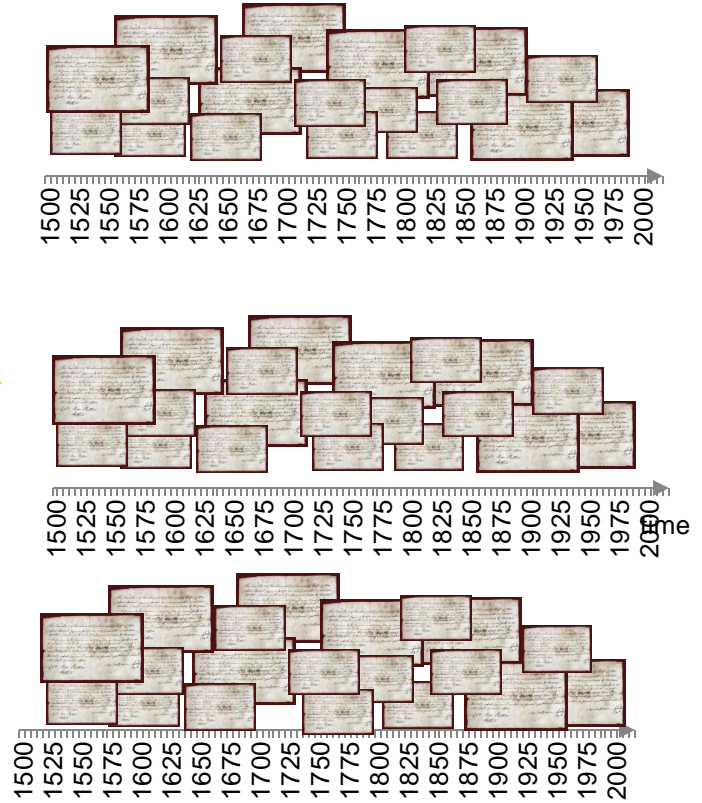
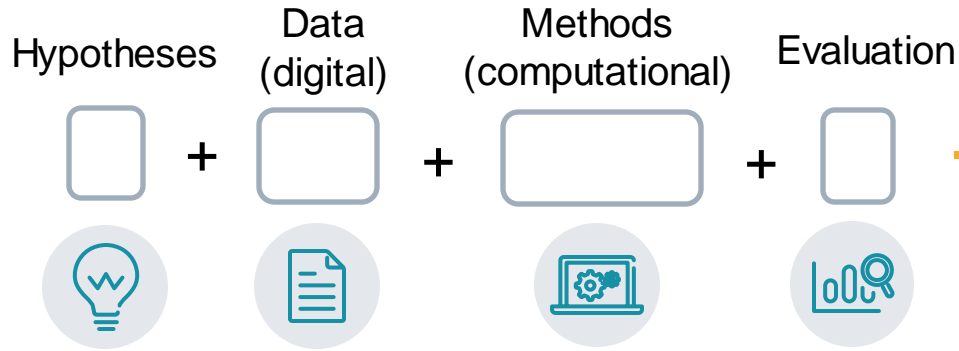
+

Cosine sim + CP detection

+

APD / PRT

How do we work today?





Without a further adieu

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