

# Croatian Parliamentary Debates Network Analysis of the Conceptualized Emotion Categories

CULTURAL  
STUDIES



EmoCNet

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Maribor 5-6.4.2019.

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This research has been supported by the University of Rijeka as a part of the EmoCnet project (uniri-human-18-243 1408), and Croatian Science Foundation as a part of the Fomals project (UIP-05-2017-9219)

# Summary

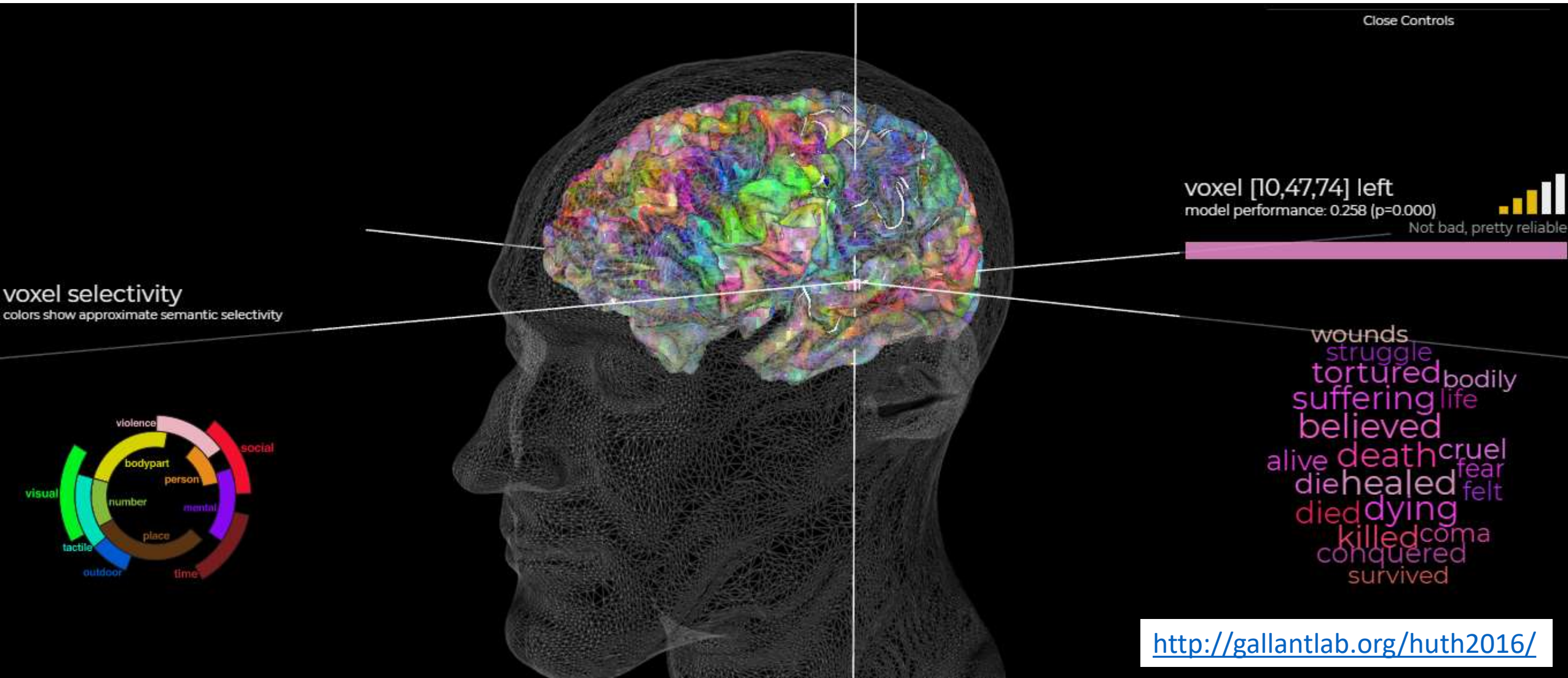
- This paper presents the analysis of the Croatian Parliamentary debates within a EmocNet project (<http://emocnet.uniri.hr/>) that deals with the development of computer methods of identification and ontological modeling of communication of psychological states in Croatian language.
- EmoCNet Parliamentary describes the expression of emotions and affective states in the Croatian Parliament with the aim of performing Social Network Analysis tools, creating models for machine learning and identification of affective states in texts. The significance of this project is in interdisciplinary refractive learning from cognitive science of emotion expression, the collection of emotional communication materials by corpus and computer linguistic methods, and the development of software tools for identifying lexical, metonymic and metaphorical language forms of emotion expression in Croatian.
- This paper presents the process of creating the corpus (Perak and Rodik 2018) as well as the knowledge base and tools for classifying affective categories from the structure of language expressions using a number of digital humanities methods for automated retrieval of digital corpus data, modeling, storage, integration, analysis and visualization of semantic-syntactic structures, computer-generated search corpus.

What is the language? A cognitive tool that  
**Activates neural connections** that simulate reality

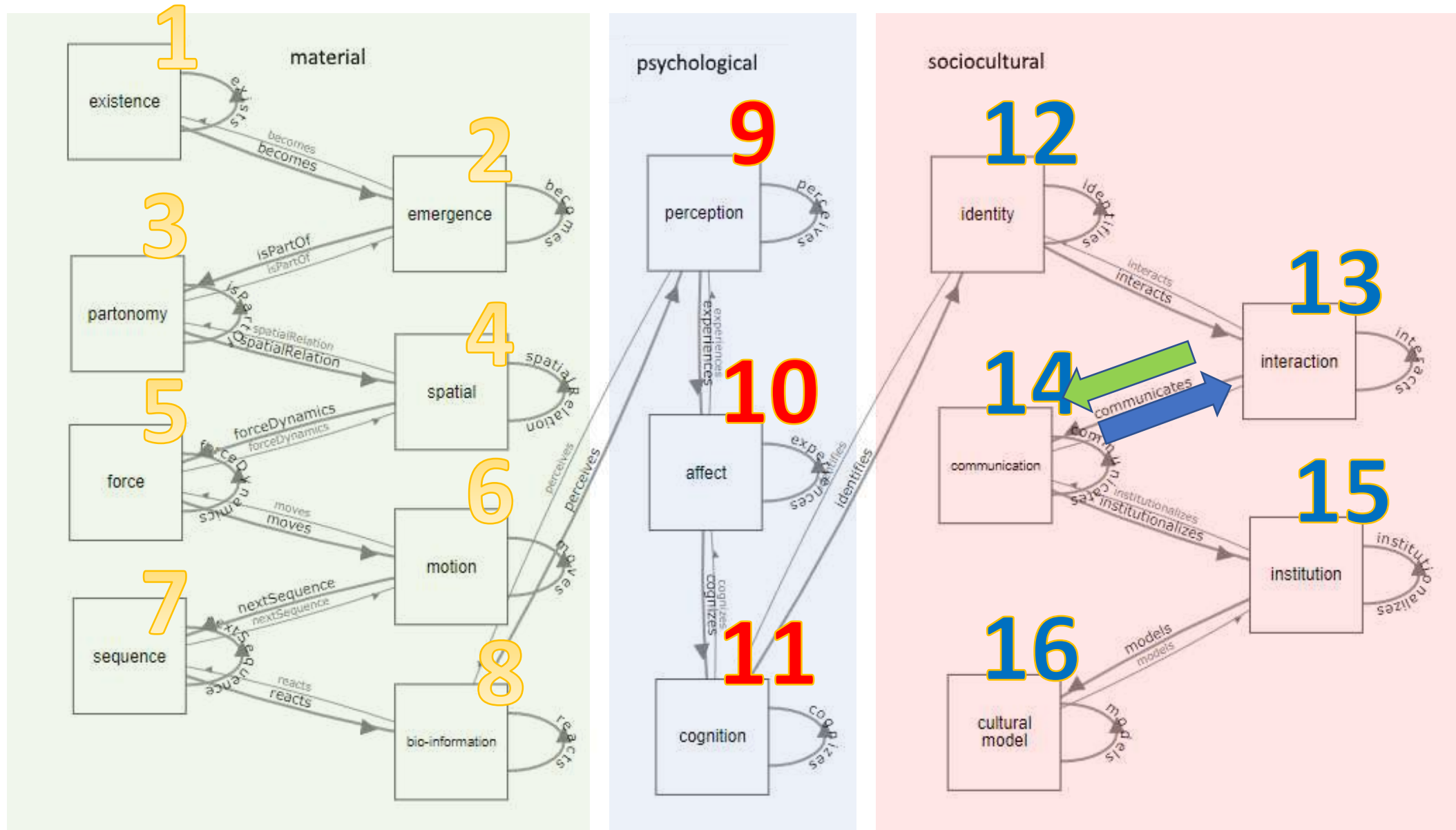
Imposes symbolic **patterns of referential-conceptual pairing** > **syntactic-semantic constructions**

**Conveys the conceptual reality to another biological organism** with similar neural connections.

**Enables creation of novel, emergent entities** on the basis of pattern organisation



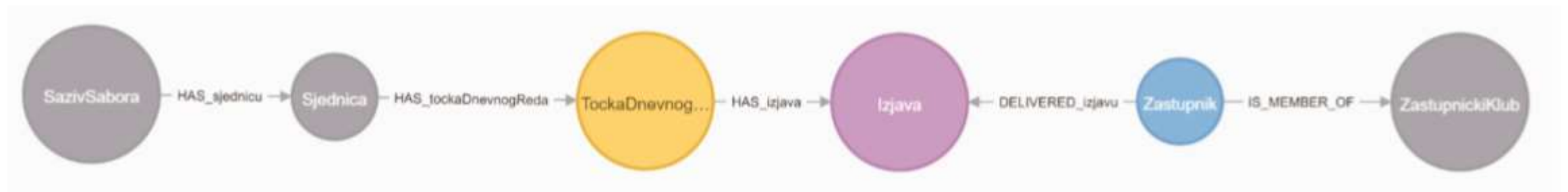
# Language IMPOSES NEW LAYERS of categorization conceptualization / neural organization





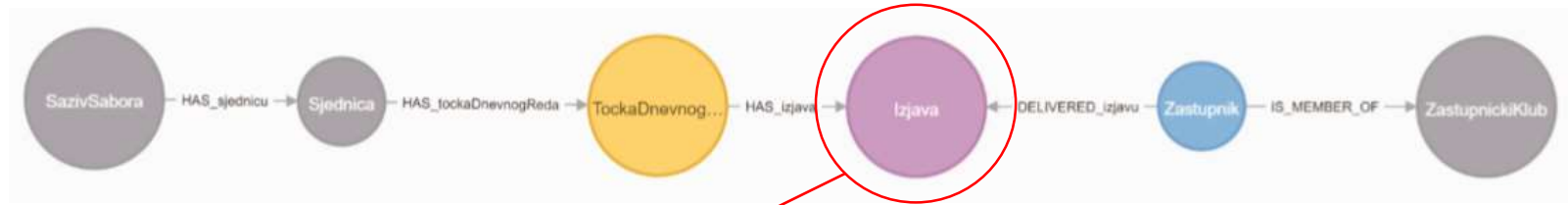
# A corpus represents the particular nature of conceptualization within a community of speakers

- The digitally stored and processed collection of linguistic forms used in communication represents a linguistic corpus that can be used to analyze constructional form patterns and reconstruct prototypical conceptual relations within a community of communicators.



The csv datasets of transcripts with metadata are integrated in the graph property database Neo4j (<http://neo4j.com>) using a Python Py2Neo client library (<https://py2neo.org/v4/>). Each node stores its related properties in key:value pairs.

# UDPipe NLP processing



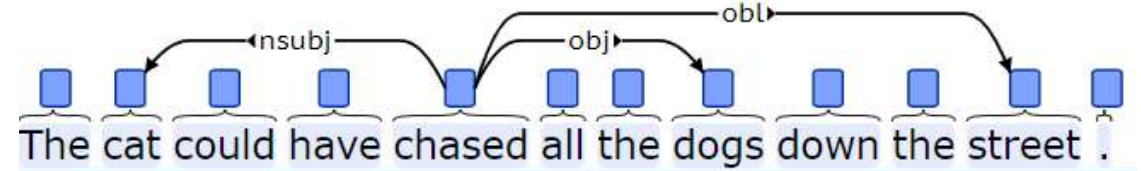
```
# newdoc id = doc1
# newpar
# sent_id = 1
# text = Hvala lijepo, predsjedniku Odbora za Ustav, Poslovnik i politički sustav.
1 Hvala hvala NOUN _ Case=Nom|Gender=Fem|Number=Sing 0 root _ _
2 lijepo lijepo ADV _ Degree=Pos4 advmod _ SpaceAfter=No
3 , , PUNCT _ 2 punct _ _
4 predsjedniku predsjednik NOUN _ Case=Dat|Gender=Masc|Number=Sing 1 obj_ _
5 Odbora odbor NOUN _ Case=Gen|Gender=Masc|Number=Sing 4 nmod _ _
6 za za ADP _ Case=Acc 7 case
7 Ustav ustav NOUN _ Animacy=Inan|Case=Acc|Gender=Masc|Number=Sing 5 nmod _ SpaceAfter=No
8 , , PUNCT _ 9 punct _ _
9 Poslovnik Poslovnik PROPN _ Animacy=Inan|Case=Acc|Gender=Masc|Number=Sing 5 conj _ _
10 i i CCONJ _ 12 cc _ _
11 politički politički ADJ _ Animacy=Inan|Case=Acc|Definite=Def|Degree=Pos|Gender=Masc|Number=Sing 12 amod
12 sustav sustav NOUN _ Animacy=Inan|Case=Acc|Gender=Masc|Number=Sing 5 conj _ SpaceAfter=No
13 . . PUNCT _ 1 punct _ _
```

The textual transcript properties have been extracted from 390 000 Izjava nodes and sent to local installation of the Python version of the UDPipe Natural Language Processing Toolkit (<http://ufal.mff.cuni.cz/udpipe>) for Tokenization, Parts of Speech Tagging, Lemmatization and Dependency Parsing. The model used for parsing was croatian-ud-2.0-170801.udpipe from Universal Dependencies 2.0 Models for UDPipe repository at (<https://lindat.mff.cuni.cz/repository/xmlui/handle/11234/1-2364>).

The 10 TSV fields: 1) **ID**: Word index 2) **FORM**: Word form or punctuation symbol. 3) **LEMMA**: Lemma or stem of word form. 4) **UPOS**: Universal part-of-speech tag. 5) **XPOS**: Language-specific part-of-speech tag 6) **FEATS**: List of morphological features from the universal feature inventory 7) **HEAD**: Head of the current word 8) **DEPREL**: Universal dependency relation to the HEAD 9) **DEPS**: Enhanced dependency graph 10) **MISC**: Any other annotation.

(<http://universaldependencies.org/format.html>)

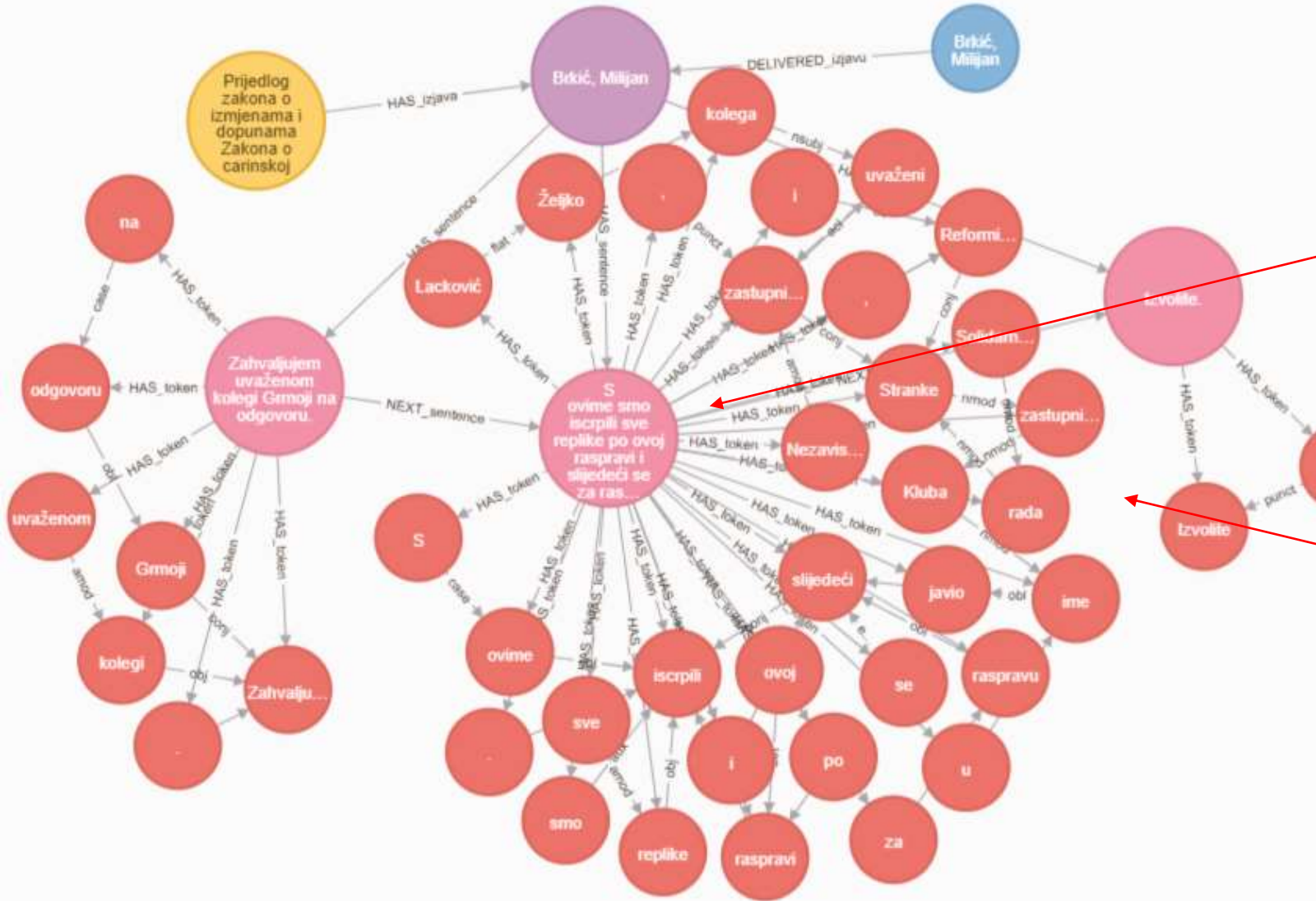
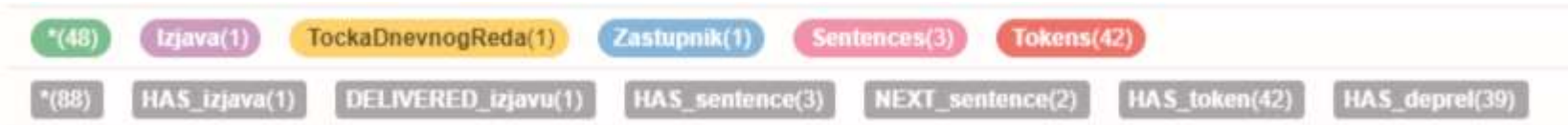
# UD Basics



	Nominals	Clauses	Modifier words	Function Words
Core arguments	<a href="#"><u>nsubj</u></a> <a href="#"><u>obj</u></a> <a href="#"><u>iobj</u></a>	<a href="#"><u>csubj</u></a> <a href="#"><u>ccomp</u></a> <a href="#"><u>xcomp</u></a>		
Non-core dependents	<a href="#"><u>obl</u></a> <a href="#"><u>vocative</u></a> <a href="#"><u>expl</u></a> <a href="#"><u>dislocated</u></a>	<a href="#"><u>advcl</u></a>	<a href="#"><u>advmod</u></a> * <a href="#"><u>discourse</u></a>	<a href="#"><u>aux</u></a> <a href="#"><u>cop</u></a> <a href="#"><u>mark</u></a>
Nominal dependents	<a href="#"><u>nmod</u></a> <a href="#"><u>appos</u></a> <a href="#"><u>nummod</u></a>	<a href="#"><u>acl</u></a>	<a href="#"><u>amod</u></a>	<a href="#"><u>det</u></a> <a href="#"><u>clf</u></a> <a href="#"><u>case</u></a>
Coordination	MWE	Loose	Special	Other
	<a href="#"><u>conj</u></a> <a href="#"><u>cc</u></a>	<a href="#"><u>list</u></a> <a href="#"><u>parataxis</u></a>	<a href="#"><u>orphan</u></a> <a href="#"><u>goeswith</u></a> <a href="#"><u>reparandum</u></a>	<a href="#"><u>punct</u></a> <a href="#"><u>root</u></a> <a href="#"><u>dep</u></a>
	<a href="#"><u>fixed</u></a> <a href="#"><u>flat</u></a> <a href="#"><u>compound</u></a>			

Universal Dependencies (UD) is a framework for cross-linguistically consistent grammatical annotation and an open community effort with over 200 contributors producing more than 100 treebanks in over 70 languages.

# UDPipe data integration in Neo4j



The result of the NLP parsing created two additional structures: a) Sentences and b) Tokens, were stored as nodes in the graph database.

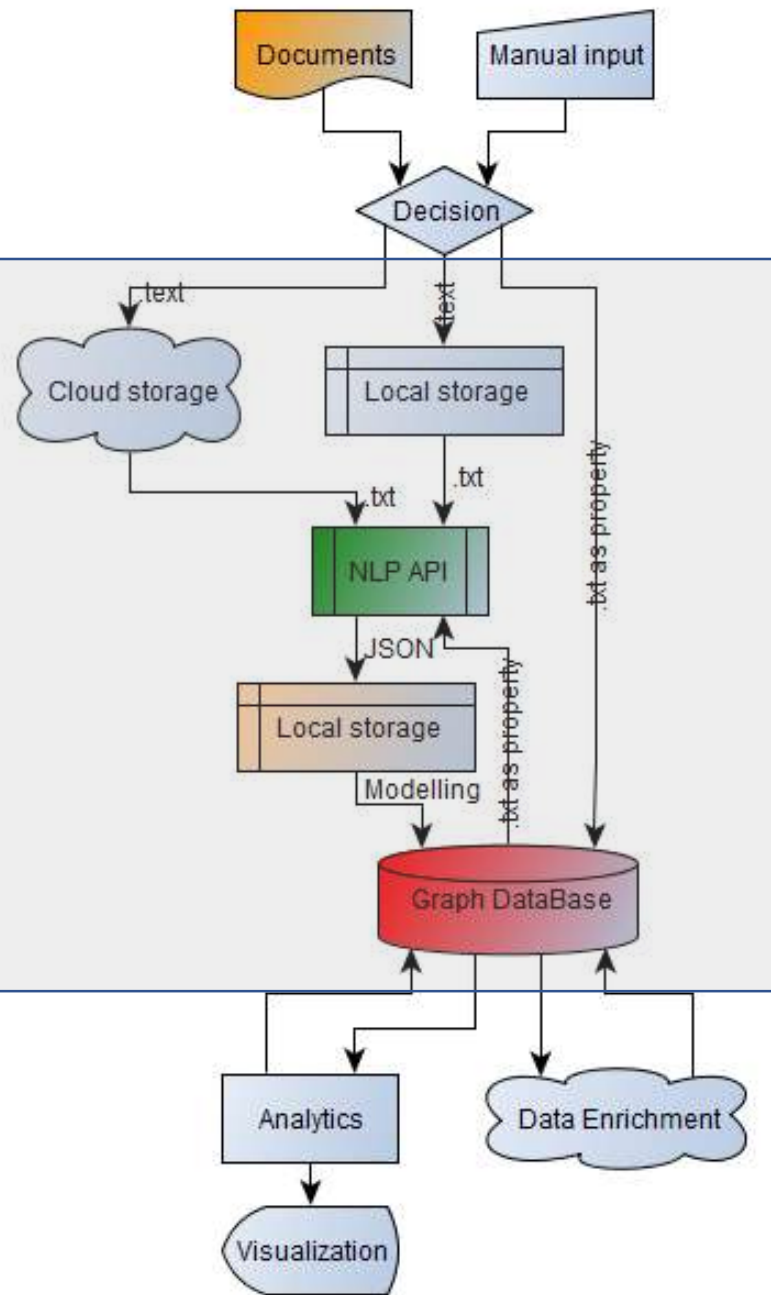
### Sentences

Over 4 million nodes labelled Sentences were connected to the utterances (Izjava) nodes using the HAS\_Sentence relation, and every sentence in a utterance was connected with the NEXT\_sentence relation.

### Tokens

TSV token data from the UDPipe parser were stored as over 70 million Tokens with their properties. Each token relates to a Sentence node with HAS\_token relation and stores mutual dependency information with other Tokens in a sentence using HAS\_dependency relation.





Python script - Extract Word Sketches from SketchEngine  
 1 lemma + lemmas in the coordinated collocations | REPEAT  
 Save the data about relations in local Neo4j database

```

80 import json
81 from py2neo import Graph
82 from time import sleep
83
84 # =====
85 # Set parameters for extraction
86 # =====
87 corpus = "preloaded/hrwac22" #Naziv korpusa - može se pronaći na opisu korpusa u Sketch Engineu
88 # ! AKO SE MIJENJA KORPUS - POSTAVI DRUGE VRIJEDNOSI U //from lemma i //to
89 lemmeOdebrane=["misliti", "razmisliti"]
90 #Moguće je odabrati više lema ["kuća", "dom", "koliba"]
91 pos = "-v" #PartOfSpeech
92 metode = "wsketch?" #Odbir metode (Wordsketch: wsketch?, Thesaurus: )
93 #gramatickaRelacija=["e_o"] #Gramatičke relacije - može se odabrati više, npr. ["koordinacija", "subjekt_od"]
94 maxitems="100" #Max Broj pojavnica koje se dohvaćaju
95 language='hr' #kratica jezika hr, eng, it, ...
96 userName='dgrguric' #'benediktperak'
97 apiKey='AXEM005NFB4KVF48EHFZPC28YFR1BR8Y' #'19TB0I8D4T1Y6IZMOVANARBWTWXYF6M7'
98
99 # =====
100 # MAIN SCRIPT
101 # =====
102
103 for lemmeOdebrane in lemmeOdebrane:
104     query=""
105
106     //tražnje rijeci u gramrel: wsketch? metode
107     WITH ("https://api.sketchengine.co.uk/bonito/run.cgi/"+
108 {metode}+{userName}+{apiKey}+{apiKey})
109     $corpus={corpus}+{lemme}+{lemmeOdebrane}+{pos}+{pos}+{maxitems}+{maxitems}+{format=json}) AS url
110     CALL apoc.load.json(url) YIELD value
111
112     // send request YIELD value.lemma > ako ne dobije podatke sa SketchEngine korpusa završava upit ELSE ide dalje s procedurom MERGE
113     FOREACH (x IN CASE WHEN value.lemma IS NULL THEN [] ELSE [1] END |
114     MERGE (from:Lemma{lempos:value.lemma+value.lpos, language:{language}})
115     ON CREATE SET from.name=value.lemma
116     ON MATCH SET from.lpos=value.lpos
117     ON MATCH SET from.corpus=value.corp_full_name
118     ON MATCH SET from.freq_hrwc22=toFloat(value.freq)
119     ON MATCH SET from.relFreq_hrwc22=toFloat(value.relfreq)
120     ON MATCH SET from.primjerLink_hrwc22='https://api.sketchengine.co.uk/bonito/run.cgi/view?'+value.lemma_conc_link+';username={userName}&api_key={apiKey}
121     ON CREATE SET from.language={language} )
122
123     //gramatičke relacije pretvorene u nodes
124     WITH value as Value
125     //nađi u bazi gore napravljenu lemu s kojom će se skripta povezivati preko lemosa koji su unique za jezik
126     MATCH (lemma:Lemma{lempos:{lemmeOdebrane}+{pos}, language:{language}})
127     UNWIND Value.Gramrels as Gramrels
128
129     //napravi vezu: lemna ima GrammaticRelations
130     FOREACH (
131     grels in Gramrels | MERGE (grel:GrammaticRelations{name:Gramrels.name}) ON CREATE SET grel.language={language}
132     MERGE (lemma)-[:HAS_GRAMREL]->(grel)
133     ON CREATE SET r.seek=Gramrels.seek, r.count=Gramrels.count, r.score=Gramrels.score
134     ON CREATE SET r.corpus=r.corpus+{corpus}
135     ON CREATE SET r.GramRelPrimjerLink_hrwc22='https://api.sketchengine.co.uk/bonito/run.cgi/view?q=w'+Gramrels.seek+';username=bperak&api_key=VZSU04I
136     )
137
138     //to lemna
    
```

# Some summarizations of the data

ParliamentConventions	DiscussionPoints	Speeches
-----	-----	-----
5	5599	390 078
	Members_of_parliament	Sentences
	-----	-----
	895	3 533 236
	PoliticalParties	Tokens
	-----	-----
	42	78 539 731

# Summarizations of the speeches by speakers

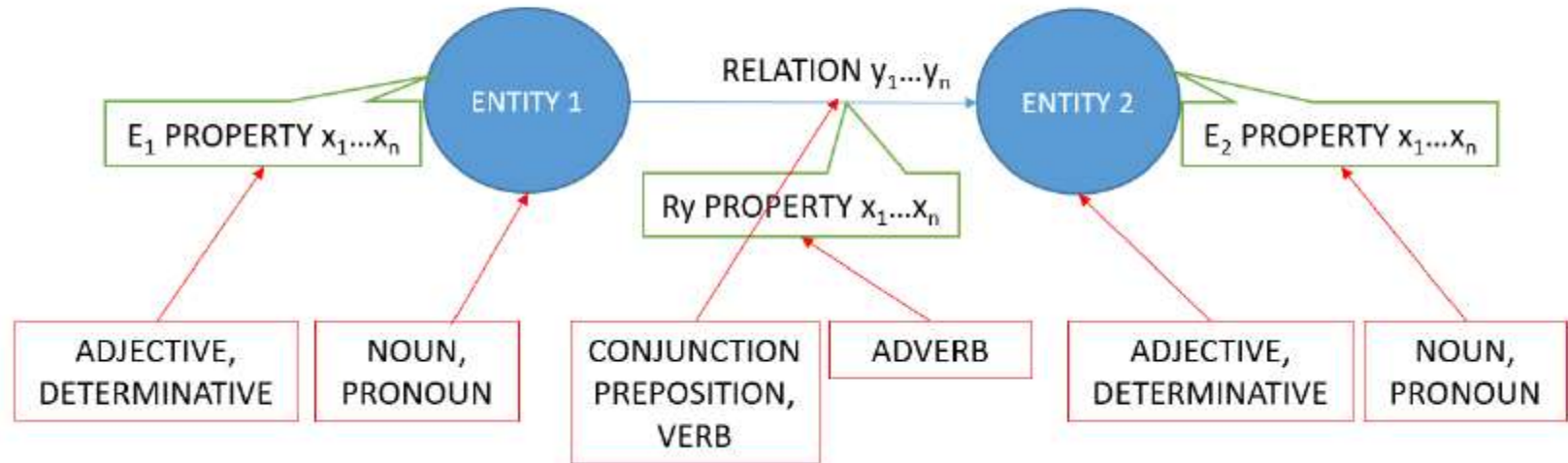
author	count
Šeks, Vladimir	45635
Bebić, Luka	22770
Leko, Josip	18825
Zgrebec, Dragica	18454
Stazić, Nenad	16293
Reiner, Željko	16224
Batinić, Milorad	10486
Jandroković, Gordan	9673
Jarnjak, Ivan	9044
Milinović, Darko	6496
Brkić, Milijan	5342
Petrov, Božo	5039
Šuker, Ivan	4659
Friščić, Josip	3780
Grubišić, Boro	3736
Antičević Marinović, Ingrid	3590
Kajin, Damir	3564
Radin, Furio	3489
Arlović, Mato	2477

Lesar, Dragutin	2462
Opačić, Milanka	2442
Maras, Gordan	2335
Šprem, Boris	2325
Vukšić, Branko	2245
Bačić, Branko	2154
Borić, Josip	2109
Adlešič, Đurđa	2084
Bulj, Miro	1966
Vinković, Zoran	1885
Kovačević, Pero	1845
Đakić, Josip	1723
Kosor, Jadranka	1711
Matušić, Frano	1643
Linić, Slavko	1523
Hrelja, Silvano	1509
Marić, Goran	1500
Sanader, Ante	1458
Bauk, Arsen	1424
Pernar, Ivan	1364

41 Bunjac, Branimir	1258
42 Hebrang, Andrija	1257
43 Hrg, Branko	1210
44 Pusić, Vesna	1186
45 Milinković, Stjepan	1135
46 Mimica, Neven	1117
47 Antunović, Željka	1108
48 Mršić, Zvonimir	1103
49 Žagar, Tomislav	1102
50 Sumrak, Đurđica	1101
51 Pupovac, Milorad	1100
52 Lovrin, Ana	1083
53 Markovinović, Krunoslav	1080
54 Burić, Dinko	1062
55 Mlakar, Davorin	1036
56 Beus Richembergh, Goran	1027
57 Podolnjak, Robert	1026
58 Mrsić, Mirando	1015
59 Jovanović, Željko	1012
60 Hajdaš Dončić, Siniša	1006

Syntactic-semantic constructions are symbolic pairings of language forms and conceptual frames that refer to a certain categorized entity, property or relation

- The constructions express embodied categorization of the world and construe the conceptual relations





# The problem of conceptual relatedness-distance

## How close or how distant are two concepts? (FEELING- SADNESS-DEPRESSION-CAR)

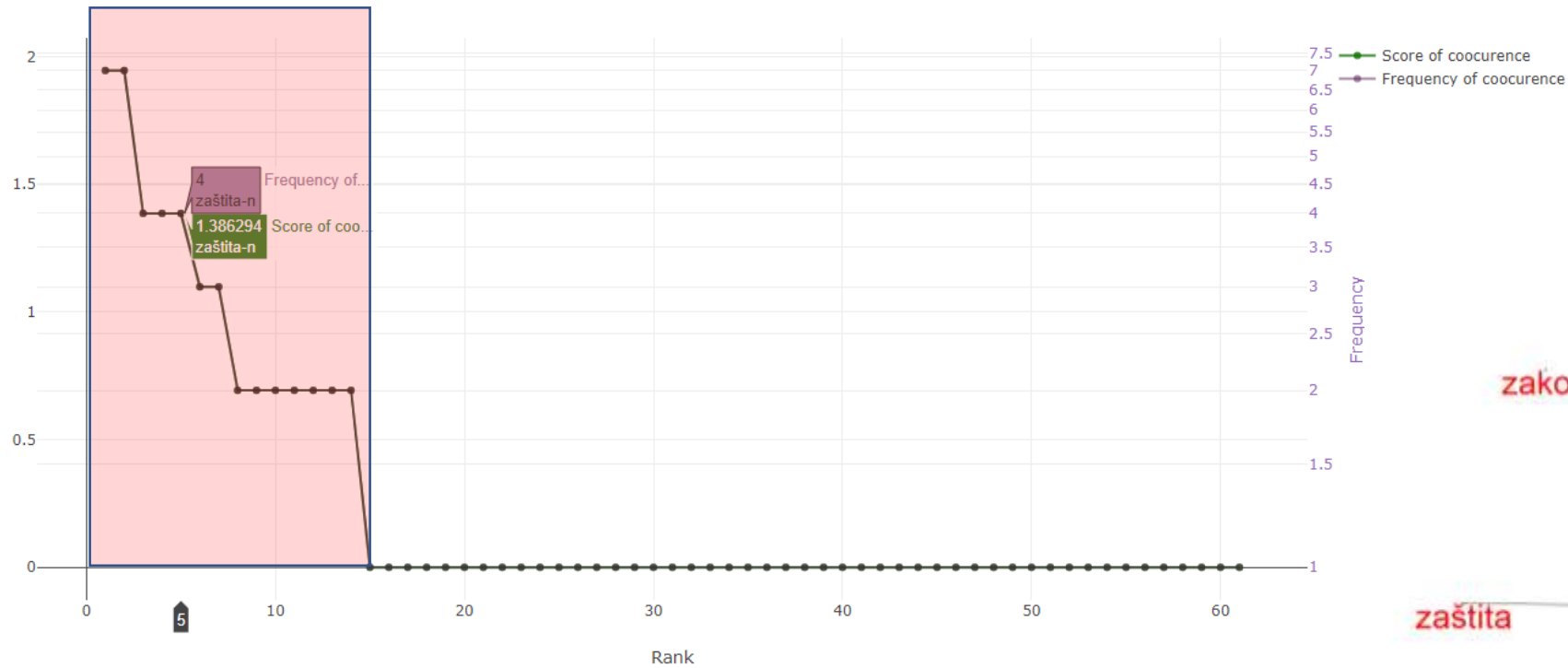
"The ability to establish the relatedness, similarity, or distance between words and concepts is at the heart of computational linguistics." we may add...metonymy and metaphor resolution

- Rips, L. J., Shoben, E. J., & Smith, E. E. (1973). Semantic distance and the verification of semantic relations. *Journal of verbal learning and verbal behavior*, 12(1), 1-20.)
- Mohammad, S., & Hirst, G. (2006, July). Distributional measures of concept-distance: A task-oriented evaluation. In *Proceedings of the 2006 Conference on Empirical Methods in Natural Language Processing* (pp. 35-43). Association for Computational Linguistics.
- Hu, Z., Huang, P., Deng, Y., Gao, Y., & Xing, E. (2015). Entity hierarchy embedding. In *Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 1: Long Papers)* (Vol. 1, pp. 1292-1300).

Coordinated construction [NounA and\or NounB]  
reveals prototypical conceptualizations of entities  
ontologically related to the same domain

- Coordinated syntactic-semantic construction expresses the pattern of conjoining, disjoining and sequencing entities. Saliently related entities create a meronymically interlinked emergent set.
- *[CAT and DOG and ...]ANIMALS and [BIRCH and OAK and ...]TREES*
- Using the coordinated construction we can construct unimodal lexical network of related entities.

# Emocija “emotion” – first 15 Friends CroParl Corpus



## Expanding friend network

- For a source node (e.g. EMOTION) find best friends of best friends











# Emocija “emotion” -15 FoF – Leiden Community detection algorithm

Clustering with 126 elements and 7 clusters

[0] **iskustvo**, izbor, zakon, činjenica, čovjek, način, sposobnost, pitanje, praksa, tradicija, vještina, saznanje, rad, zemlja, rezultat, povijest, struka, odluka, građanin, tijelo, zastupnik, izmjena, sudjelovanje razlog, kriza, članak, sporazum

[1] **zaštita**, sloboda, **sigurnost**, pravo, spašavanje, **očuvanje**, promicanje, uređenje, priroda, učinkovitost, osiguranje, zdravlje, energetika, prav, **pravda**, politika, **demokracija**, neovisnost, jednakost, ravnopravnost, nezavisnost, ustav, vrijednost, poštovanje

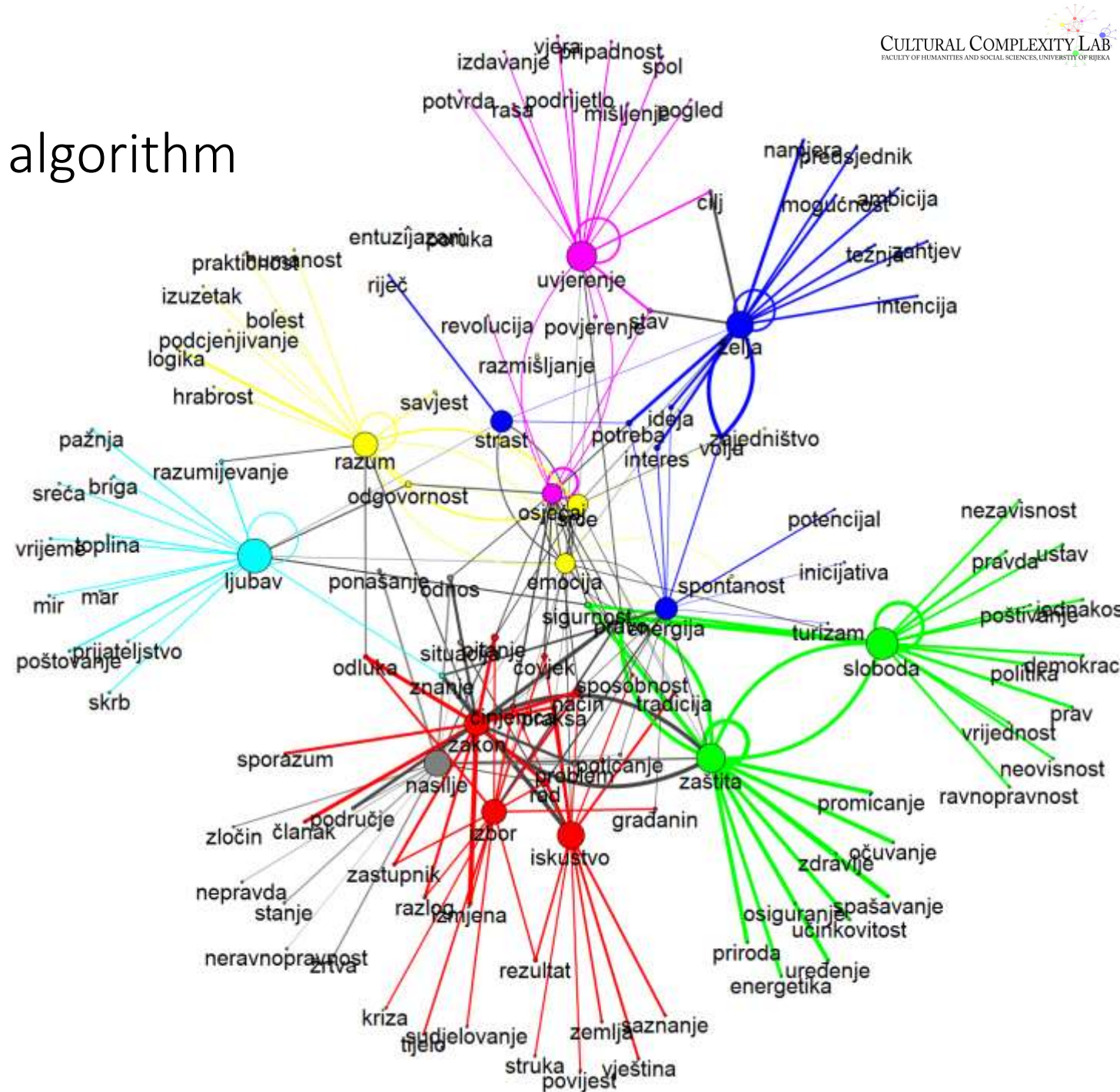
[2] **strast**, energija, želja, riječ, potreba, ideja, entuzijizam, interes, poruka, potencijal, volja, inicijativa, turizam, namjera, mogućnost, intencija, predsjednik, ambicija, težnja, zahtjev

[3] **emocija**, razum, spontanost, **srce**, razmišljanje, odgovornost, logika, **savjest**, hrabrost, humanost, podcjenjivanje, bolest, izuzetak, praktičnost, zajedništvo

[4] **osjećaj**, **uvjerenje**, revolucija, stav, cilj, rasa, mišljenje, **podrijetlo**, **pripadnost**, spol, vjera, pogled, povjerenje, izdavanje, potvrda

[5] **ljubav**, znanje, razumijevanje, **poštovanje**, toplina, pažnja, vrijeme, skrb, mir, prijateljstvo, mar, briga, sreća

[6] **nasilje**, ponašanje, odnos, situacija, **problem**, poticanje, žrtva, stanje, zločin, područje, nepravda, neravnopravnost



Does it work in other corpora?

- Croatian
  - hrWaC web corpus 1,4 Giga Words
- English
  - enTenTe13 web corpus 14 Giga Words
  - EuroParl7



# Emocija “emtion” FoF hrWaC 1,4 GWords

Clustering with 141 elements and 8 clusters

[0] **emocija**, doživljaj, sjećanje, dojam, iskustvo, utisak, događaj, viđenje, uspomena, percepcija, interpretacija, avantura, asocijacija, zahvalnost, zaborav, spomen, zahvala, nostalgija, san, identitet, poštovanje, zapis, zapažanje, impresija, učinak

[1] **razum**, um, intelekt, srce, logika, vjera, pamet, savjest, svijest, volja, inteligencija, bezumlje, mudrost, intuicija, duh, mozg, ego, osjetilo, svjesnost, imaginacija, snalažljivost, instinkt, osobnost, duhovnost

[2] **strast**, motivacija, želja, požuda, ljubav, uzbuđenje, zaljubljenost, nagon, žudnja, užitak, entuzijizam, zanos, romantika, predanost, nježnost, nagrađivanje, inspiracija, poticaj, spremnost, edukacija, ambicija, interes, zadovoljstvo, samomotivacija

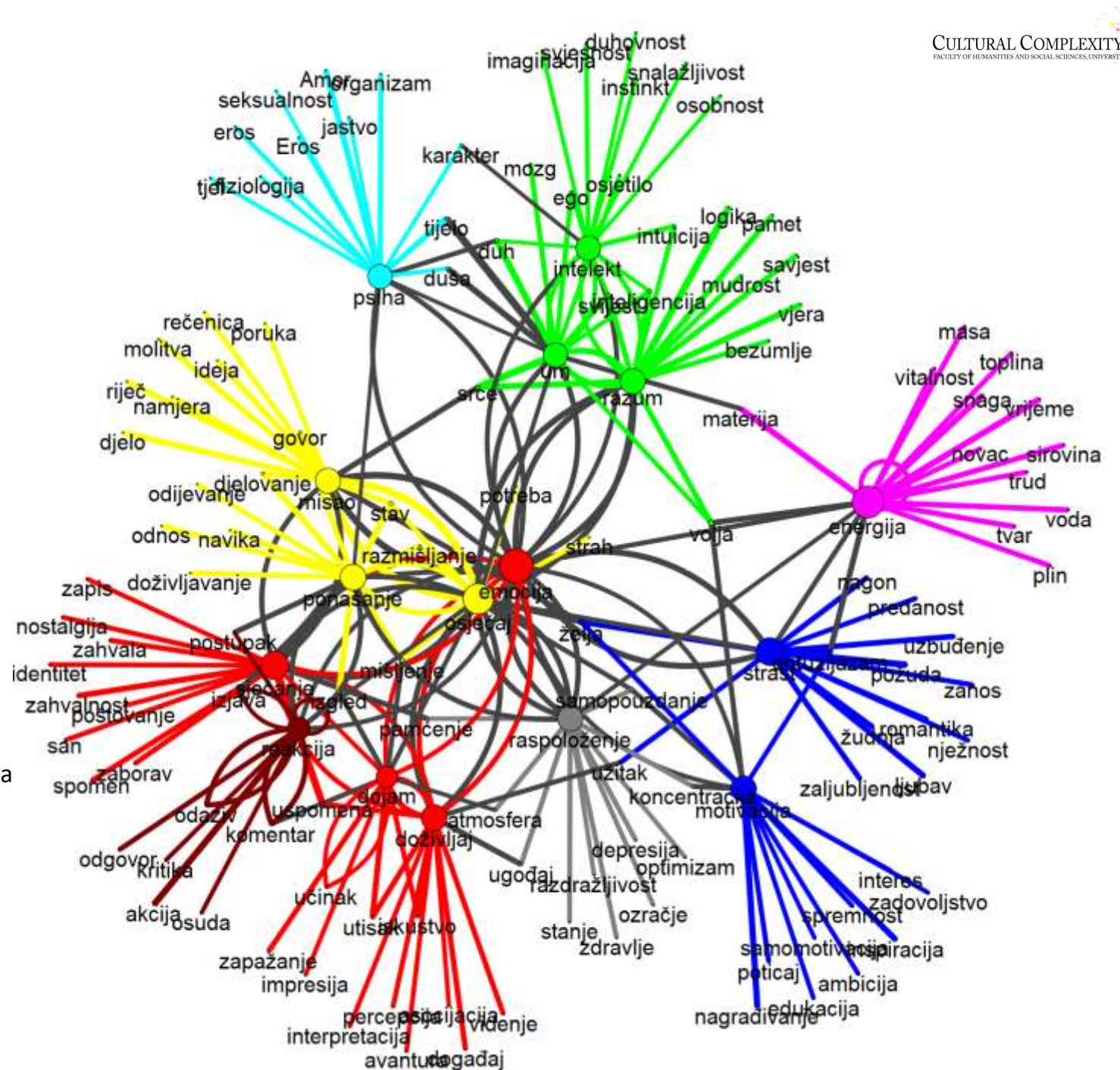
[3] **misao**, osjećaj, ponašanje, djelo, ideja, molitva, riječ, stav, rečenica, govor, namjera, poruka, djelovanje, razmišljanje, potreba, mišljenje, strah, izgled, navika, odnos, doživljavanje, odijevanje

[4] **energija**, materija, vrijeme, snaga, voda, sirovina, tvar, plin, masa, trud, novac, vitalnost, toplina

[5] **psiha**, tijelo, duša, Amor, organizam, eros, Eros, jastvo, tjel, karakter, fiziologija, seksualnost

[6] **raspoloženje**, samopouzdanje, ugodaj, atmosfera, stanje, zdravlje, depresija, koncentracija, ozračje, optimizam, pamćenje, razdražljivost

[7] **reakcija**, izjava, postupak, komentar, akcija, odaziv, odgovor, kritika, osuda





# Emotion in enTenTen 14 GWords

Clustering with 136 elements and 9 clusters

[0] **anger**, fear, anxiety, frustration, resentment, sadness, hatred, bitterness, rage, grief, hate, jealousy, guilt, disappointment, depression, hurt, doubt, worry, uncertainty, insecurity, panic, shame, greed, loathing, confusion

[1] **feeling**, emotion, mood, behavior, thinking, perception, attitude, action, atmosphere, tone, sleep, appetite, tempo, personality, disorder, cognition, habit, appearance, pattern, characteristic

[2] **mind**, intellect, body, heart, spirit, soul, brain, eye, sense, consciousness, will, matter, wit, instinct, ego, reasoning, conscience, wisdom, buddhi

[3] **thought, belief**, opinion, idea, prayer, word, comment, deed, value, faith, practice, religion, custom, tradition, assumption, conviction

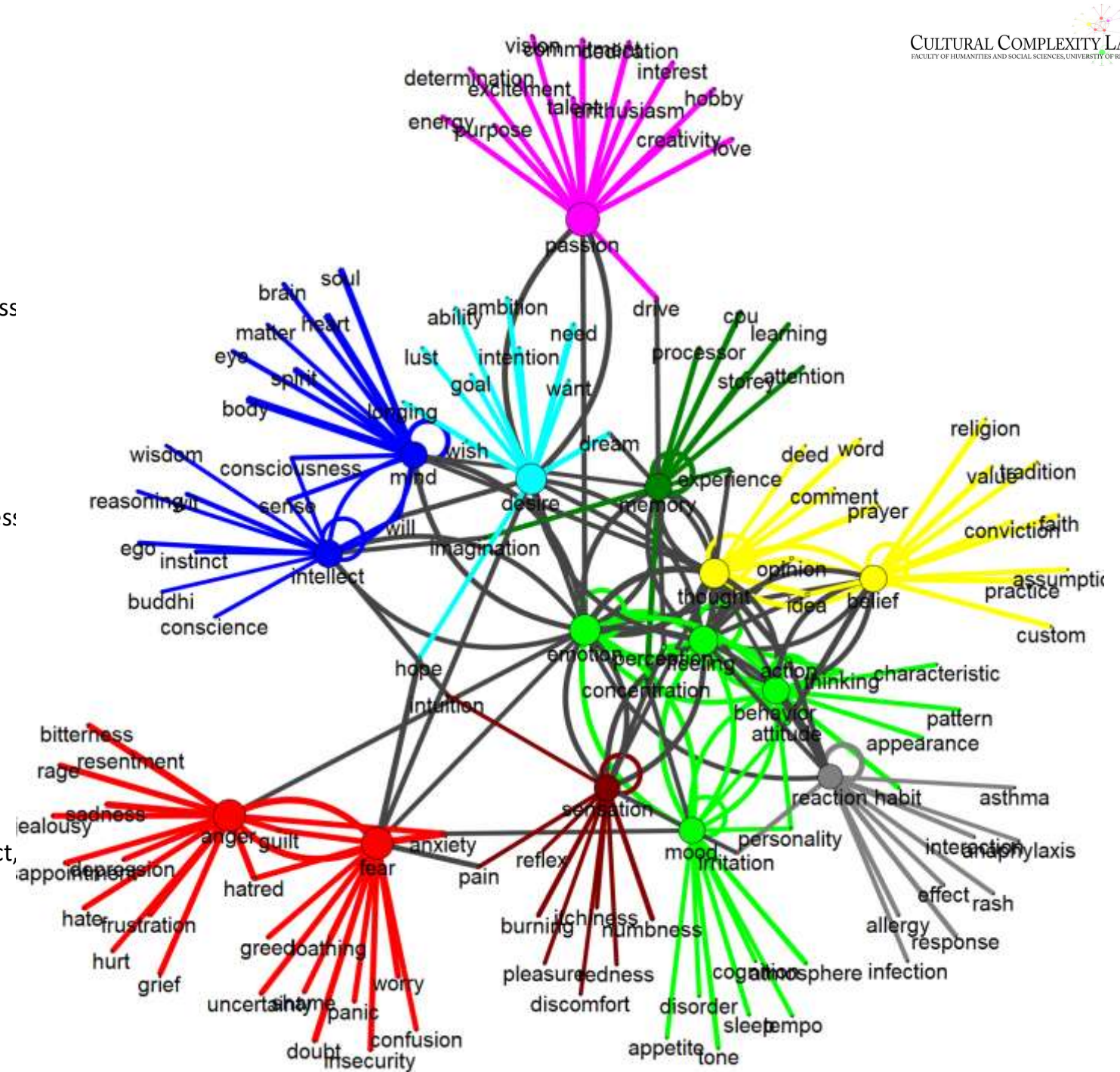
[4] **passion, drive**, enthusiasm, commitment, dedication, love, talent, purpose, interest, creativity, energy, excitement, hobby, vision, determination

[5] **desire, dream**, need, wish, want, longing, lust, ambition, intention, ability, hope, goal

[6] **reaction, irritation**, response, allergy, rash, interaction, infection, effect, asthma, anaphylaxis

[7] **sensation, numbness**, burning, pain, redness, itchiness, pleasure, discomfort, intuition, reflex

[8] **memory, experience**, cpu, concentration, processor, learning, storey, attention, imagination



# Emotion in EuroParl 7 corpora

[0] **sadness, indignation**, anger, puzzlement, repugnance, regret, remembrance, disappointment, nostalgia, frustration, bitterness, consternation, disgust, rage, condemnation, horror, pain, despondency, dismay, disbelief, desperation

[1] **passion, enthusiasm**, eloquence, zeal, severity, conviction, excess, engagement, determination, strength, knowledge, commitment, vigour, dynamism, dedication, intelligence, courage, imagination

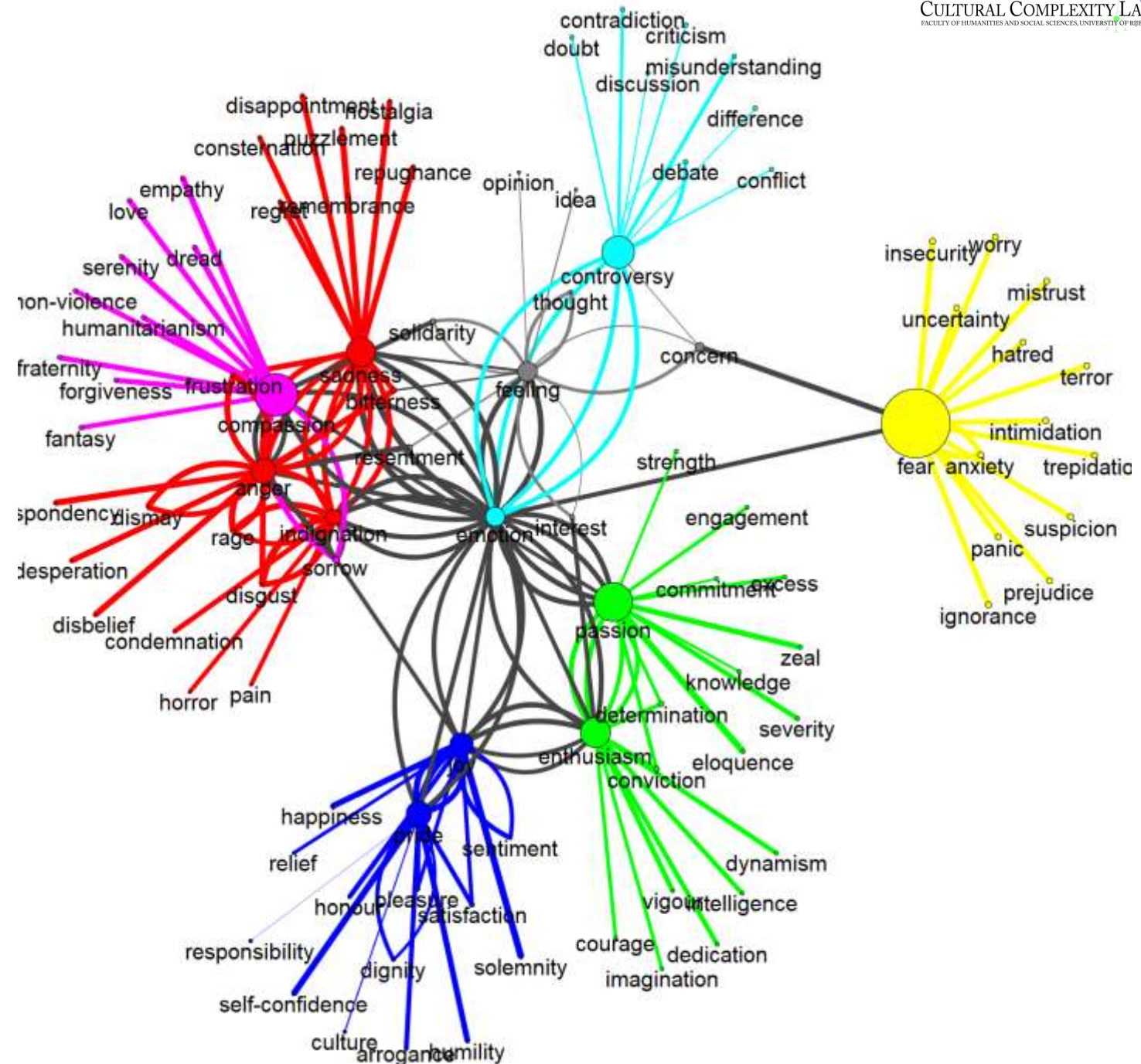
[2] **joy, pride**, solemnity, happiness, sentiment, honour, satisfaction, pleasure, relief, self-confidence, humility, arrogance, dignity, culture, responsibility

[3] **fear, anxiety**, panic, mistrust, insecurity, prejudice, terror, ignorance, intimidation, worry, trepidation, suspicion, hatred, uncertainty

[4] **compassion, sorrow**, empathy, dread, serenity, humanitarianism, love, fraternity, forgiveness, non-violence, fantasy

[5] **emotion, controversy, debate**, misunderstanding, contradiction, doubt, criticism, conflict, discussion, difference

[6] **feeling, thought, concern**, solidarity, interest, resentment, idea, opinion





# Emocija “emotion” - 7 FoF

Clustering with 42 elements and 7 clusters

[0] **emocija**, strast, riječ, želja, ljubav, entuzijazam, razmišljanje

[1] **iskustvo**, praksa, tradicija, vještina, saznanje, rad, zemlja

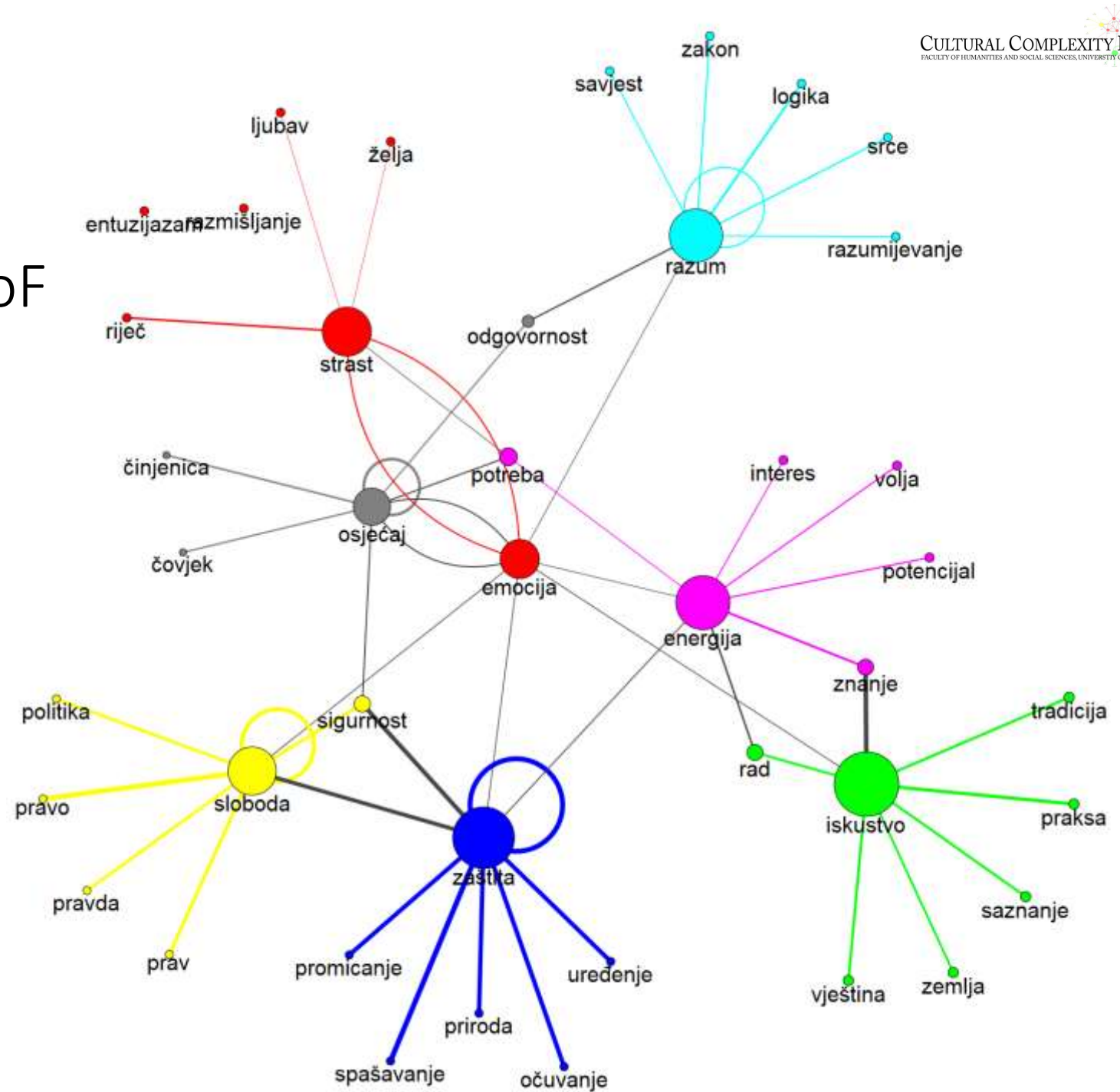
[2] **zaštita**, spašavanje, očuvanje, promicanje, uređenje, priroda

[3] **sloboda**, sigurnost, pravo, prav, pravda, politika

[4] **energija**, potreba, znanje, potencijal, volja, interes

[5] **razum**, logika, srce, zakon, savjest, razumijevanje

[6] **osjećaj**, činjenica, čovjek, odgovornost





# Osjećaj "feeling"

Clustering with 38 elements and 6 clusters

[0] **osjećaj**, emocija, strast, iskustvo, sloboda, energija, razum

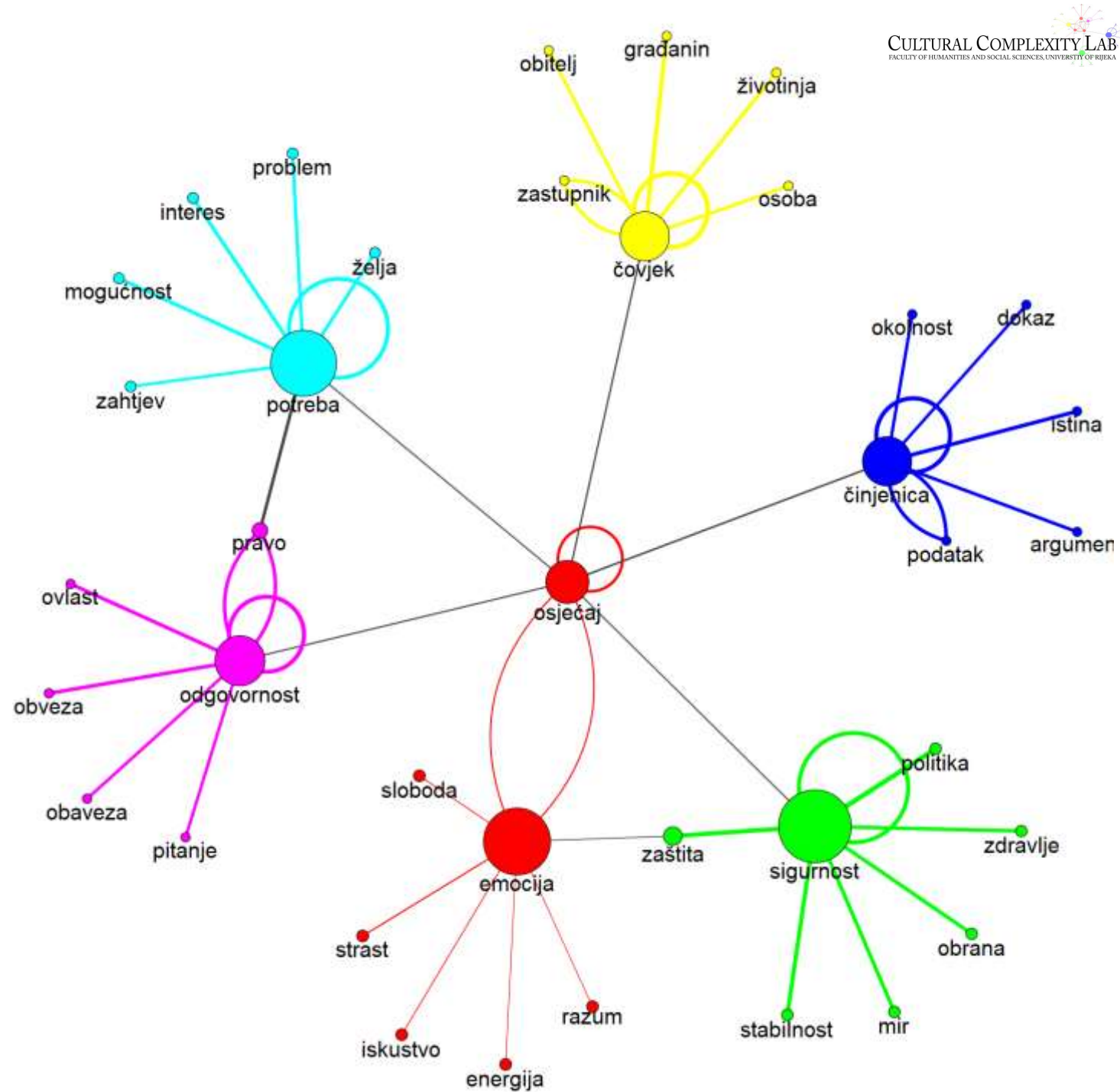
[1] **sigurnost**, zaštita, politika, stabilnost, mir, obrana, zdravlje

[2] **činjenica**, istina, podatak, argument, okolnost, dokaz

[3] **čovjek**, građanin, životinja, zastupnik, osoba, obitelj

[4] **odgovornost**, obveza, ovlast, pravo, obaveza, pitanje

[5] **potreba**, interes, mogućnost, želja, problem, zahtjev



# Strast “passion”

Clustering with 46 elements and 6 clusters

[0] potreba, želja, interes, mogućnost, problem, pravo, zahtjev, volja, namjera, cilj

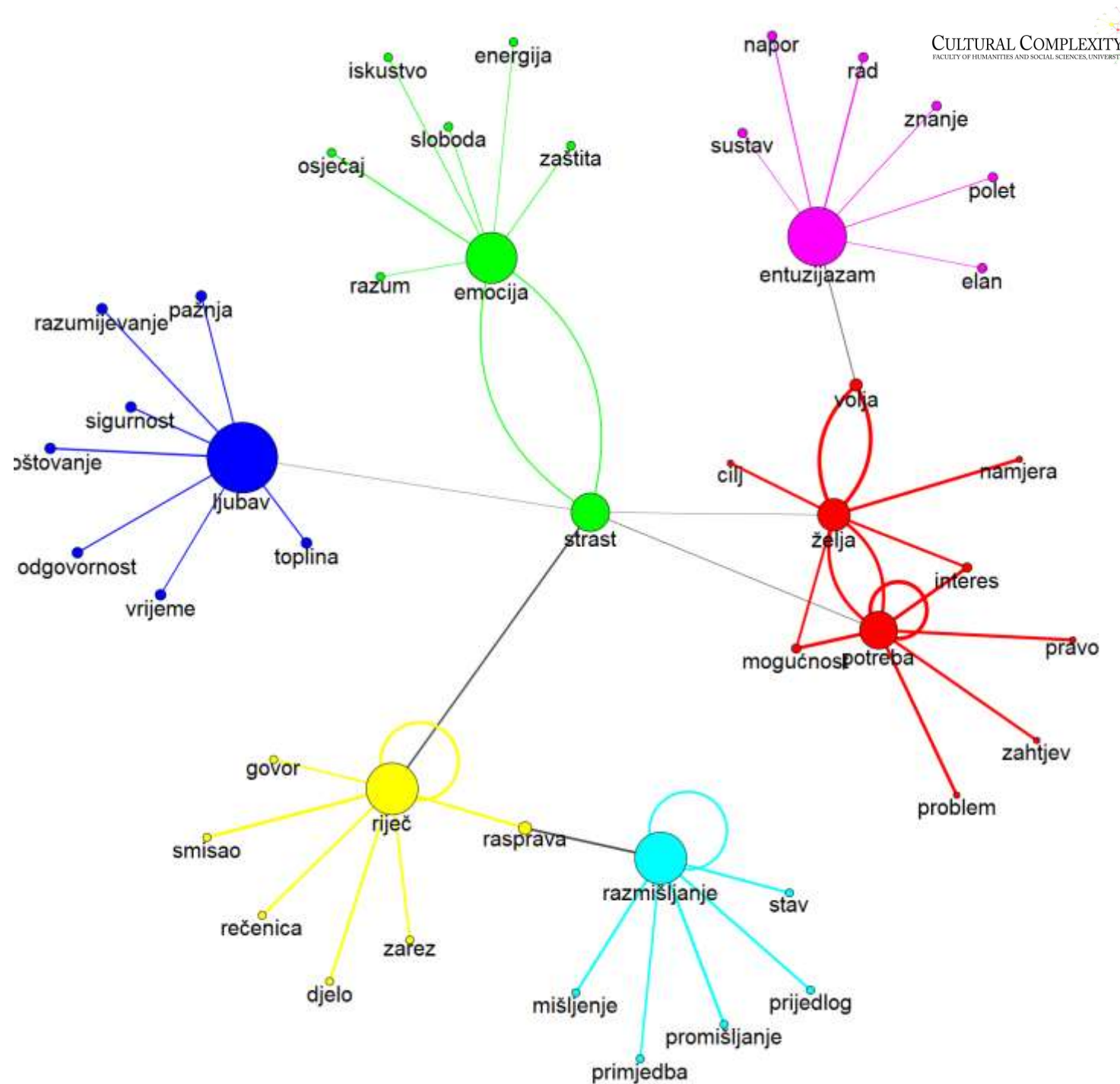
[1] strast, emocija, osjećaj, iskustvo, zaštita, sloboda, energija, razum

[2] ljubav, poštovanje, sigurnost, toplina, odgovornost, razumijevanje, pažnja, vrijeme

[3] riječ, smisao, rasprava, djelo, rečenica, zarez, govor

[4] entuzijazam, rad, napor, polet, znanje, elan, sustav

[5] razmišljanje, promišljanje, mišljenje, prijedlog, stav, primjedba



# Ljubav "love"

Clustering with 41 elements and 6 clusters

[0] **ljubav**, toplina, pažnja, povjerenje, potreba, zemlja, briga, interes, članak

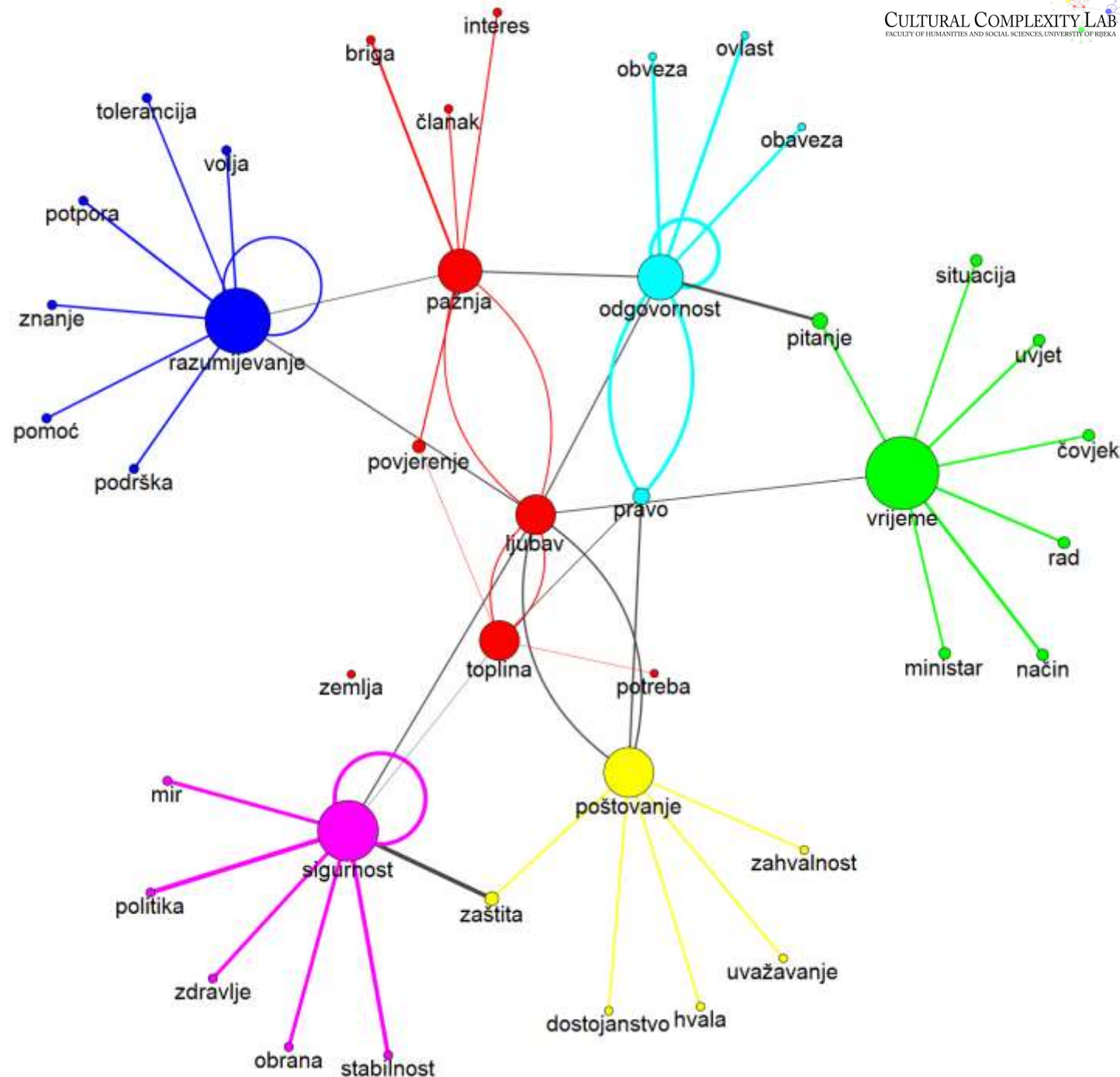
[1] **vrijeme**, pitanje, način, rad, uvjet, situacija, ministar, čovjek

[2] **razumijevanje**, potpora, podrška, volja, pomoć, znanje, tolerancija

[3] **poštovanje**, uvažavanje, zaštita, dostojanstvo, hvala, zahvalnost

[4] **sigurnost**, politika, stabilnost, mir, obrana, zdravlje

[5] **odgovornost**, pravo, obveza, ovlast, obaveza





# Ljubav *perAuthor* – order by freqPerAuthor

```

...: print("Lema, ukupni broj, freqInCorp, freqPerZastupnik, percPerZastupnik, ZastupnikAll, percLemaInZastupnikAll")
ljubav 908 0.0011561027628169494 56 6.167400881057269 1513103 0.0037010038311998585 Antičević Marinović, Ingrid
ljubav 908 0.0011561027628169494 32 3.524229074889868 226649 0.014118747490613238 Jurjević, Marin
ljubav 908 0.0011561027628169494 29 3.1938325991189425 756311 0.0038344014565436704 Kosor, Jadranka
ljubav 908 0.0011561027628169494 25 2.753303964757709 305994 0.008170094838460885 Lalić, Ljubica
ljubav 908 0.0011561027628169494 22 2.4229074889867843 308075 0.007141118234196218 Sumrak, Đurđica
ljubav 908 0.0011561027628169494 20 2.2026431718061676 569439 0.003512228702284178 Marić, Goran
ljubav 908 0.0011561027628169494 18 1.9823788546255507 216754 0.008304345017854342 Letica, Slaven
ljubav 908 0.0011561027628169494 17 1.8722466960352422 575021 0.0029564137657581203 Beus Richembergh, Goran
ljubav 908 0.0011561027628169494 16 1.762114537444934 461554 0.003466549959484697 Pernar, Ivan
ljubav 908 0.0011561027628169494 15 1.6519823788546255 1484462 0.0010104670917813997 Grubišić, Boro
ljubav 908 0.0011561027628169494 14 1.5418502202643172 298674 0.004687384907959849 Milinković, Stjepan
ljubav 908 0.0011561027628169494 13 1.4317180616740088 1247153 0.0010423741112758418 Šeks, Vladimir
ljubav 908 0.0011561027628169494 13 1.4317180616740088 651153 0.0019964585896095084 Kovačević, Pero
ljubav 908 0.0011561027628169494 13 1.4317180616740088 405800 0.003203548546081814 Lugarić, Marija
ljubav 908 0.0011561027628169494 13 1.4317180616740088 119062 0.01091868102333238 Sućec-Trakoštanec, Ivana
ljubav 908 0.0011561027628169494 13 1.4317180616740088 37963 0.03424386903037168 Brdarić, Ljubica
ljubav 908 0.0011561027628169494 11 1.2114537444933922 296173 0.003714045507186678 Petir, Marijana
ljubav 908 0.0011561027628169494 11 1.2114537444933922 482666 0.0022790086726639123 Bunjac, Branimir
ljubav 908 0.0011561027628169494 10 1.1013215859030838 105079 0.009516649378086963 Babić-Petričević, Zdenka
ljubav 908 0.0011561027628169494 10 1.1013215859030838 151989 0.006579423510911974 Martić, Jagoda
ljubav 908 0.0011561027628169494 10 1.1013215859030838 592833 0.0016868156799638345 Pupovac, Milorad
ljubav 908 0.0011561027628169494 10 1.1013215859030838 271111 0.00368852610185496 Šimac Bonačić, Tatjana
ljubav 908 0.0011561027628169494 10 1.1013215859030838 146331 0.006833821951602873 Lelić, Ruža
ljubav 908 0.0011561027628169494 10 1.1013215859030838 120915 0.008270272505479057 Mandić, Ivica
ljubav 908 0.0011561027628169494 9 0.9911894273127754 343704 0.002618532225403254 Markov, Ante

```



# Ljubav By Speakers Examples

[ <Record Person='Jurjević, Marin' SentenceExample=['Htio bih odmah na početku kazati pošto govorimo o djeci, a ponekad i u nekim raspravama ima dosta politiziranosti, htio bih kazati da se djeca ne rađaju ni radi politike, ni radi države, ni radi klase, ni radi nacije, da se rađaju radi ljubavi kao što je netko već jutros rekao i da je to posljedica možda jednog od posljednjih prirodnih odnosa između muškarca i žene, a koji su opet posljedica ljubavi.'] FrequencyOfUse=6>,

<Record Person='Sućec-Trakoštanec, Ivana' SentenceExample=['Dakle, ja mislim da je žena kao majka, žena kao dio obitelji i ne znam zašto su se ljudi smijali kada se govorilo o ljubavi pa ja onda ne moram ni ljubav spomenuti ali dakle, žena koja izabere da će sa svojim suprugom barem u prijateljstvu imati određeni broj djece a usput završi fakultet, usput doktorira, usput i radi nazadna ja mislim da je ona vrlo slobodna osoba, da je ona suvremena i da je ona ravnopravnija od kolega muškaraca jer emancipacija se živi a ne priča, dakle, kolegice drage skoro sve možemo kao i muškarci, naravno poštujemo onu Božju razliku i biološku da ne možemo baš dići toliki teret kao oni ali možemo i više, znači možemo roditi dijete.'] FrequencyOfUse=6>,

<Record Person='Lugarić, Marija' SentenceExample=['Mene za djecu ne motivira i ne može me motivirati nikakva pronatalitetna nacionalna politika jer ja djecu želim iz ljubavi prema njima, iz ljubavi prema svom partneru, a ne iz nekakvih apstraktnih nacionalnih interesa.'] FrequencyOfUse=6>,

<Record Person='Pernar, Ivan' SentenceExample=['Podsjećate me na onu djecu cvijeća u Americi, ono mir, ljubav, ono svi su sretni itd. to je ta parola, to su te priče koje vi prodajete ljudima, ali svi znamo da to nije istina, da je to daleko od istine.'] FrequencyOfUse=5>,

<Record Person='Lalić, Ljubica' SentenceExample=['Za život tamo je potreban motiv a samo ljubav prema svojem kraju nakon višegodišnjeg izbjivanja zasigurno taj motiv nije.'] FrequencyOfUse=4>,

<Record Person='Marić, Goran' SentenceExample=['Roditelji imaju i zakonsku i roditeljsku i moralnu obvezu skrbiti o svom djetetu i brinut se o njegovom razvoju i ljubav je čimbenik bez kojeg se ne može izgraditi zdravo dijete, ali ljubav nije jedina iako je najnužnija.'] FrequencyOfUse=4>,

<Record Person='Martić, Jagoda' SentenceExample=['Na kraju krajeva kao što je moj kolega Marin Jurjević rekao djeca su plod ljubavi, imamo ih zbog sebe samih, zbog našeg zadovoljstva a ne zbog države.'] FrequencyOfUse=3>,

<Record Person='Kosor, Jadranka' SentenceExample=['Ja se slažem s vama da je to naravno i dalje u sferi i ljubavi i obitelji i tu dileme nema.'] FrequencyOfUse=3>,

# Iskustvo “experience”

Clustering with 40 elements and 6 clusters

[0] **znanje**, iskustvo, vještina, sposobnost, kompetencija, stručnost,

kvalifikacija

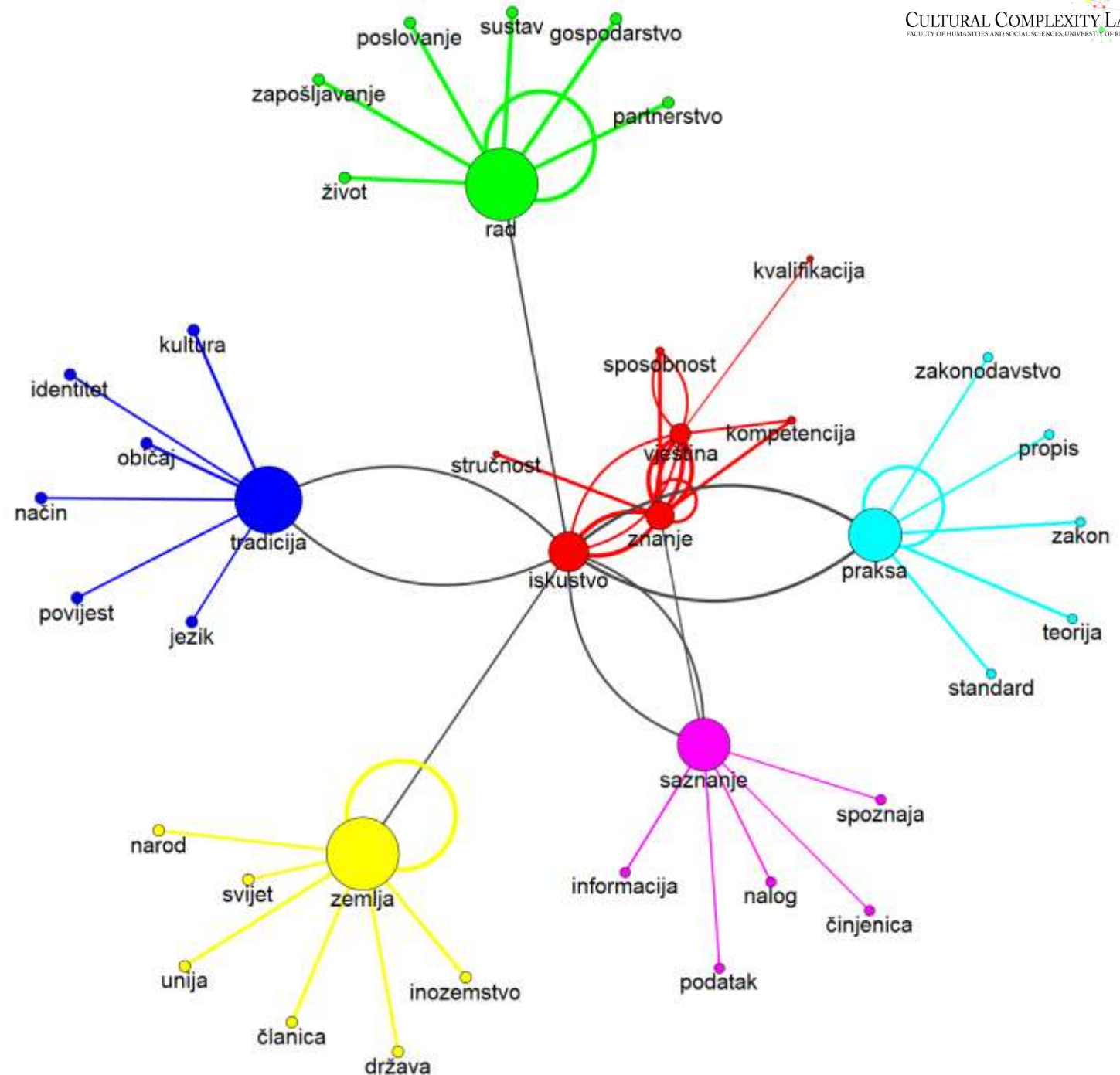
[1] **rad**, sustav, gospodarstvo, zapošljavanje, partnerstvo, poslovanje, život

[2] **tradicija**, običaj, kultura, identitet, povijest, način, jezik

[3] **zemlja**, inozemstvo, članica, unija, država, svijet, narod

[4] **saznanje**, informacija, nalog, podatak, spoznaja, činjenica

[5] **praksa**, teorija, zakon, standard, propis, zakonodavstvo



# Sigurnost “safety”

Clustering with 31 elements and 5 clusters

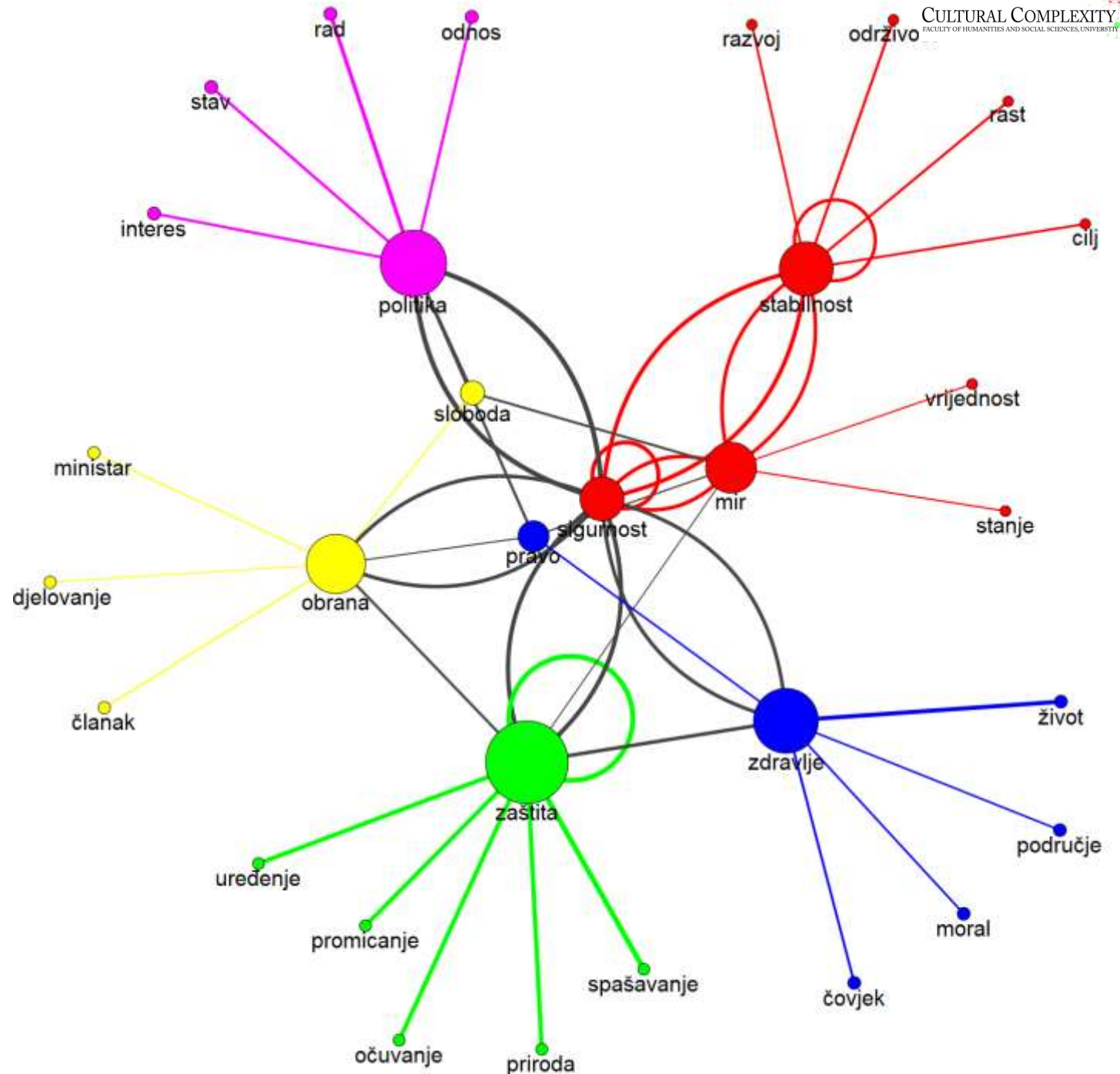
[0] **sigurnost**, stabilnost, mir, održivost, rast, cilj, razvoj, stanje, vrijednost

[1] **zaštita**, spašavanje, očuvanje, promicanje, uređenje, priroda

[2] **zdravlje**, pravo, život, čovjek, moral, područje

[3] **obrana**, sloboda, članak, ministar, sudjelovanje

[4] **politika**, rad, stav, odnos, interes



# Strah "fear"

Clustering with 35 elements and 6 clusters

[0] **bojazan**, **pitanje**, problem, situacija, razlog, čovjek, nezadovoljstvo

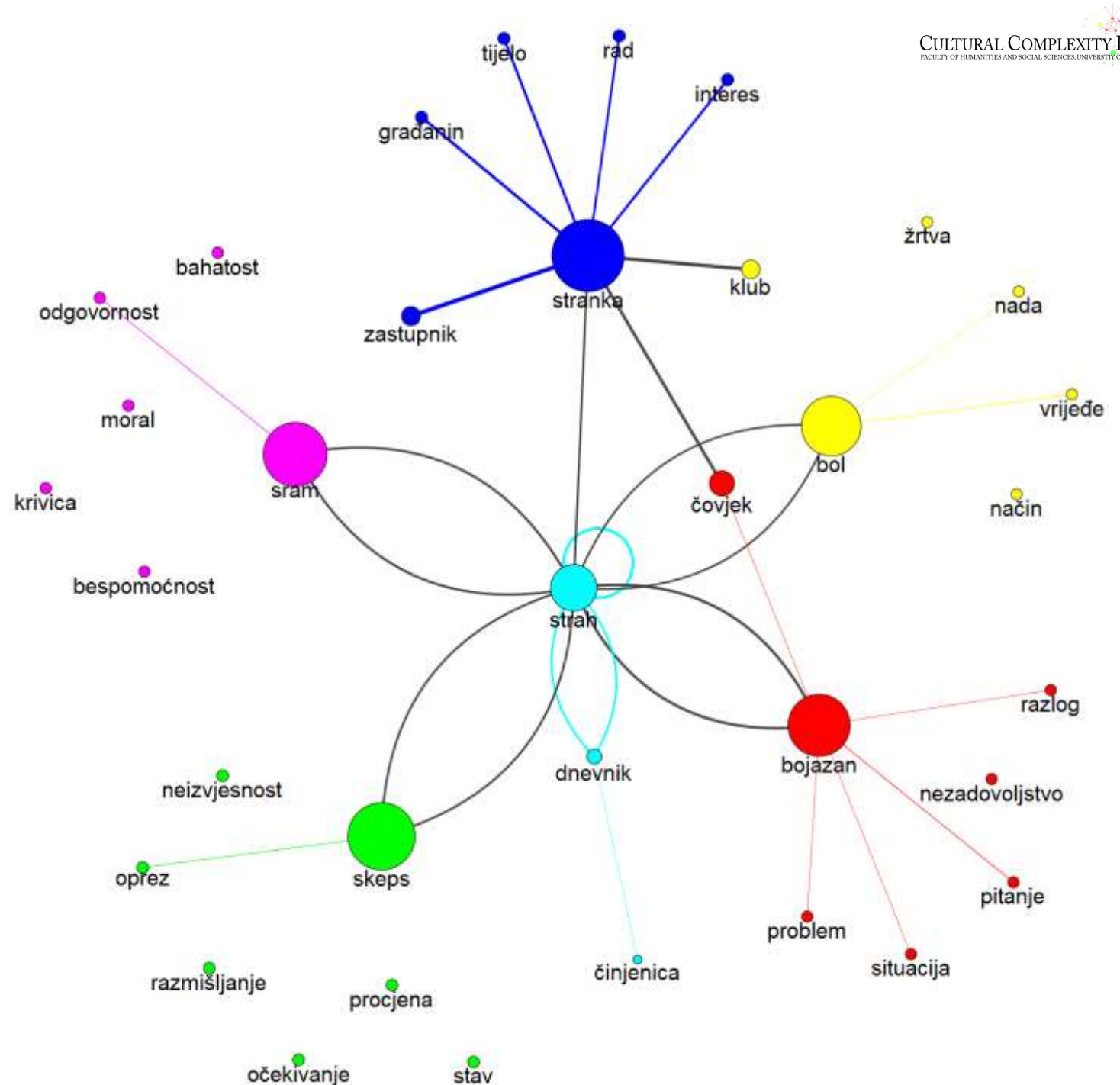
[1] **skeps**, oprez, razmišljanje, očekivanje, procjena, neizvjesnost, stav

[2] **stranka**, zastupnik, građanin, tijelo, interes, rad

[3] **bol**, klub, vrijeđe, nada, način, žrtva

[4] **sram**, odgovornost, bespomoćnost, krivica, moral, bahatost

[5] **strah**, dnevnik, činjenica





# Strah 'fear' *perAuthor* – order by freqPerAuthor

```
...: print("Lema, ukupni broj, freqInCorp, freqPerZastupnik, percPerZastupnik, ZastupnikAll, percLemaInZastupnikAll")
strah 3343 0.004256444423014385 136 4.068202213580617 1513103 0.008988152161485371 Antičević Marinović, Ingrid
strah 3343 0.004256444423014385 114 3.410110679030811 1174368 0.009707348974086486 Lesar, Dragutin
strah 3343 0.004256444423014385 105 3.1408914148967995 2171645 0.004835044401824424 Kajin, Damir
strah 3343 0.004256444423014385 78 2.3332336224947654 1199818 0.006500985982874069 Stazić, Nenad
strah 3343 0.004256444423014385 70 2.0939276099311996 1738793 0.00402578110217835 Šuker, Ivan
strah 3343 0.004256444423014385 64 1.9144481005085252 704904 0.009079250507870576 Linić, Slavko
strah 3343 0.004256444423014385 58 1.734968591085851 1484462 0.0039071394215547455 Grubišić, Boro
strah 3343 0.004256444423014385 45 1.3460963206700567 756311 0.00594993329463673 Kosor, Jadranka
strah 3343 0.004256444423014385 43 1.2862698175291656 779332 0.005517545795630104 Vukšić, Branko
strah 3343 0.004256444423014385 41 1.226443314388274 216754 0.01891545254066822 Letica, Slaven
strah 3343 0.004256444423014385 41 1.226443314388274 369894 0.011084256570801365 Kramarić, Zlatko
strah 3343 0.004256444423014385 39 1.1666168112473827 627371 0.006216417398955323 Hrelja, Silvano
strah 3343 0.004256444423014385 37 1.1067903081064911 186877 0.019799119206750964 Juričev-Martinčev, Branka
strah 3343 0.004256444423014385 37 1.1067903081064911 482666 0.007665756444414978 Bunjac, Branimir
strah 3343 0.004256444423014385 36 1.0768770565360455 592833 0.0060725364478698045 Pupovac, Milorad
strah 3343 0.004256444423014385 36 1.0768770565360455 196971 0.01827680216884719 Blažeković, Boris
strah 3343 0.004256444423014385 36 1.0768770565360455 912713 0.003944284786126635 Borić, Josip
strah 3343 0.004256444423014385 34 1.0170505533951542 575021 0.005912827531516241 Beus Richembergh, Goran
strah 3343 0.004256444423014385 34 1.0170505533951542 305994 0.011111328980306803 Lalić, Ljubica
strah 3343 0.004256444423014385 34 1.0170505533951542 331373 0.010260341065808016 Jelaš, Nadica
strah 3343 0.004256444423014385 34 1.0170505533951542 298674 0.011383649062188205 Milinković, Stjepan
strah 3343 0.004256444423014385 34 1.0170505533951542 219976 0.015456231588900608 Vlaović, Davor
strah 3343 0.004256444423014385 33 0.9871373018247084 461554 0.007149759291437188 Pernar, Ivan
strah 3343 0.004256444423014385 32 0.9572240502542626 308075 0.010387081067921772 Sumrak, Đurđica
```

# Teror "terror"

Clustering with 41 elements and 6 clusters

[0] **strah**, teror, bojazan, sram, skeps, stranka, dnevnik, bol

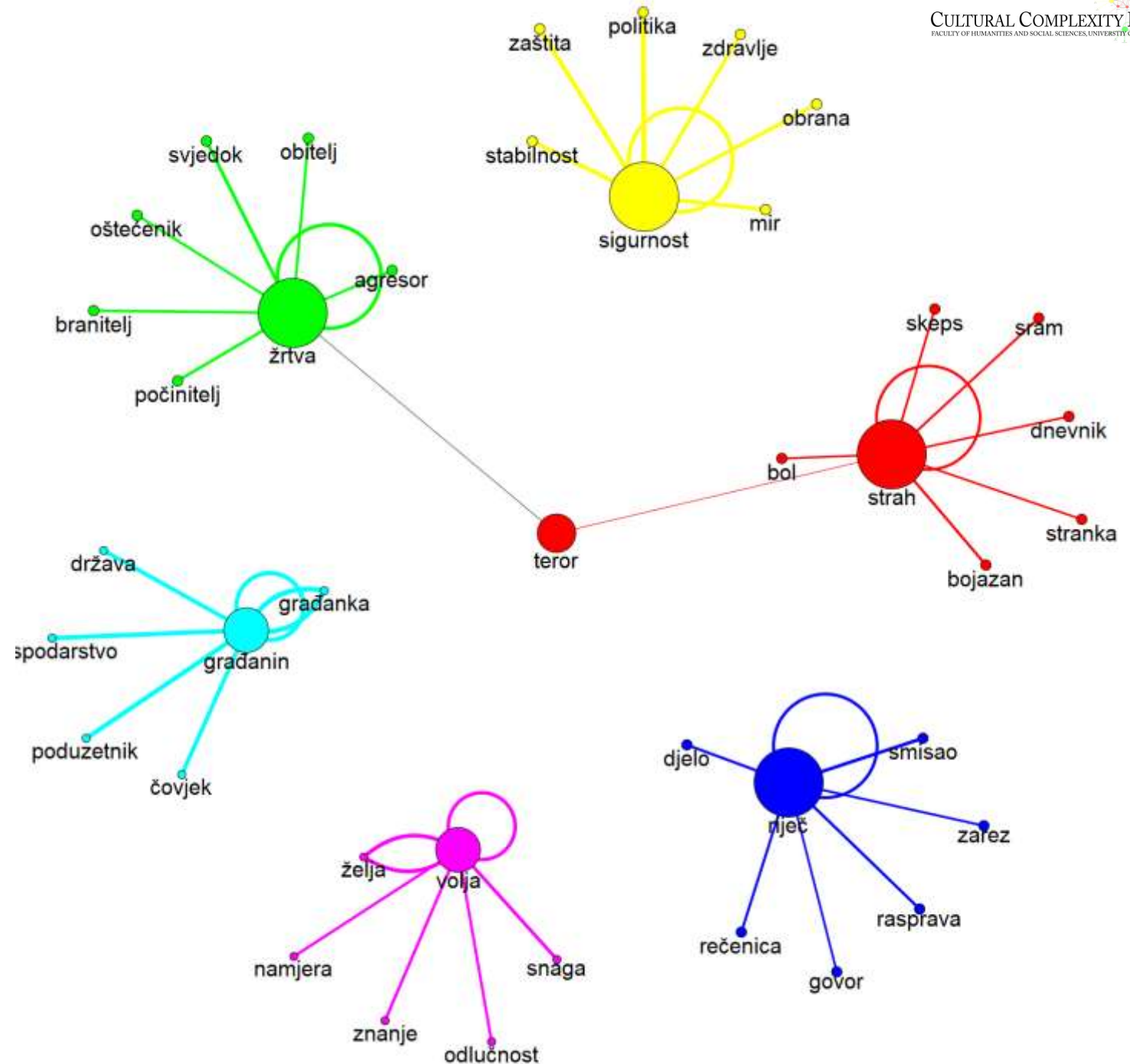
[1] **žrtva**, svjedok, počinitelj, branitelj, oštećenik, obitelj, agresor

[2] **riječ**, smisao, rasprava, djelo, rečenica, zarez, govor

[3] **sigurnost**, politika, zaštita, stabilnost, mir, obrana, zdravlje

[4] **volja**, želja, snaga, znanje, namjera, odlučnost

[5] **građanin**, građanka, poduzetnik, gospodarstvo, čovjek, država



# Nasilje “violence”

Clustering with 37 elements and 5 clusters

[0] **problem**, pitanje, poteškoća, nedostatak, potreba, stanje, zakon, pravo,

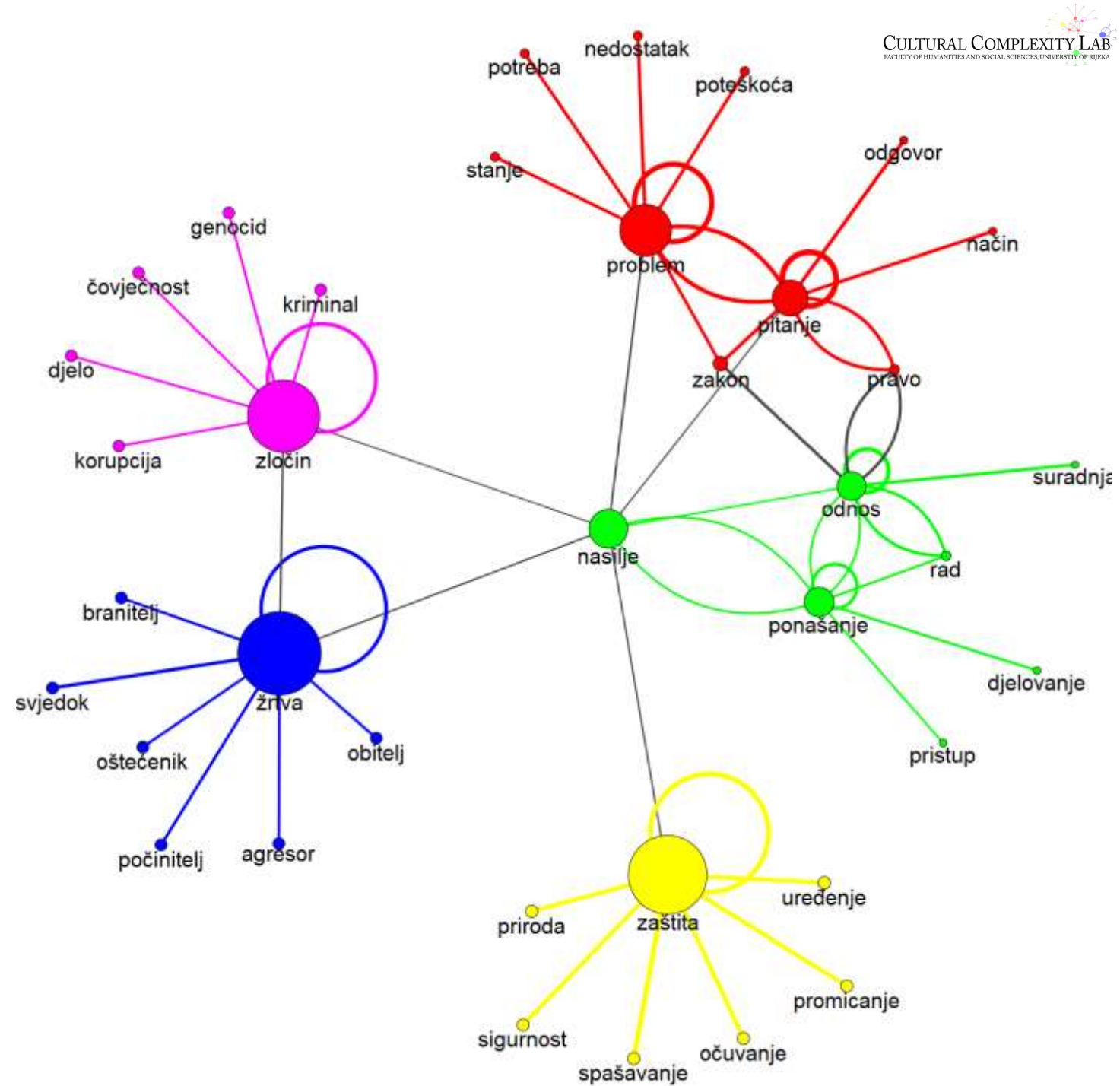
odgovor, način

[1] **ponašanje**, **nasilje**, odnos, djelovanje, rad, pristup, suradnja

[2] **žrtva**, svjedok, **počinitelj**, branitelj, oštećenik, obitelj, agresor

[3] **zaštita**, **spašavanje**, očuvanje, promicanje, uređenje, priroda, sigurnost

[4] **zločin**, **kriminal**, genocid, djelo, korupcija, čovječnost





# Radost “joy”

Clustering with 49 elements and 7 clusters

[0] **ponos**, dostojanstvo, čast, zadovoljstvo, interes, dika, primjer, dik

[1] **ljubav**, poštovanje, sigurnost, toplina, odgovornost, razumijevanje,

pažnja, vrijeme

[2] **zajedništvo**, **solidarnost**, jedinstvo, konsenzus, vrijednost, odlučnost,

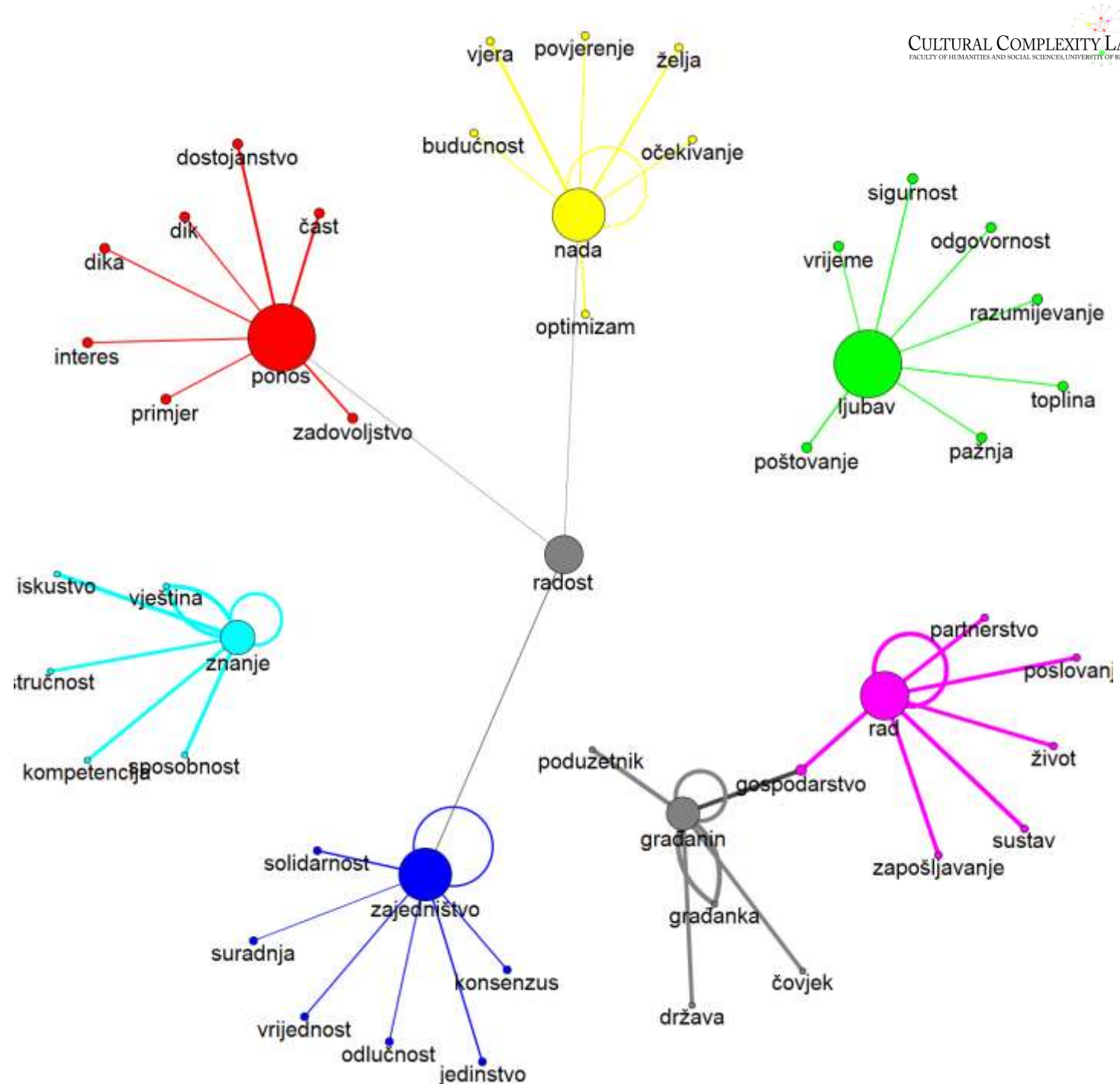
suradnja

[3] **nada**, vjera, želja, optimizam, povjerenje, očekivanje, budućnost

[4] **rad**, **sustav**, **gospodarstvo**, zapošljavanje, partnerstvo, poslovanje, život

[5] **znanje**, **vještina**, iskustvo, sposobnost, kompetencija, stručnost

[6] **radost**, **građanin**, **građanka**, **poduzetnik**, čovjek, država





# Radost 'joy' *perAuthor* – order by freqPerAuthor

```

...: print("Lema, ukupni broj, freqInCorp, freqPerZastupnik, percPerZastupnik, ZastupnikAll, percLemaInZastupnikAll")
radost 320 0.00040743709702799975 31 9.6875 55176 0.05618384804987676 Karlič, Mladen
radost 320 0.00040743709702799975 18 5.625 1513103 0.0011896083743142402 Antičević Marinović, Ingrid
radost 320 0.00040743709702799975 10 3.125 461554 0.002166593724677936 Pernar, Ivan
radost 320 0.00040743709702799975 9 2.8125 238068 0.003780432481475881 Babić, Ante
radost 320 0.00040743709702799975 9 2.8125 336381 0.0026755375600881143 Milanović, Zoran
radost 320 0.00040743709702799975 8 2.5 216754 0.0036908200079352627 Letica, Slaven
radost 320 0.00040743709702799975 8 2.5 102671 0.007791878914201673 Pešić-Bukovac, Dorotea
radost 320 0.00040743709702799975 7 2.1875 296173 0.0023634835045733406 Petir, Marijana
radost 320 0.00040743709702799975 7 2.1875 337400 0.002074688796680498 Milinović, Darko
radost 320 0.00040743709702799975 7 2.1875 15646 0.04473986961523712 Janić, Stanko
radost 320 0.00040743709702799975 7 2.1875 912713 0.000766944263969068 Borić, Josip
radost 320 0.00040743709702799975 7 2.1875 1199818 0.000583421818975878 Stazić, Nenad
radost 320 0.00040743709702799975 6 1.875 255965 0.002344070478385717 Rađenović, Igor
radost 320 0.00040743709702799975 5 1.5625 119009 0.0042013629221319395 Ostojić, Ranko
radost 320 0.00040743709702799975 5 1.5625 2171645 0.00023024020961068682 Kajin, Damir
radost 320 0.00040743709702799975 5 1.5625 451095 0.0011084139704496837 Matušić, Frano
radost 320 0.00040743709702799975 5 1.5625 1484462 0.0003368223639271332 Grubišić, Boro
radost 320 0.00040743709702799975 5 1.5625 756311 0.0006611036994040811 Kosor, Jadranka
radost 320 0.00040743709702799975 5 1.5625 1033596 0.0004837480021207512 Leko, Josip
radost 320 0.00040743709702799975 5 1.5625 644263 0.0007760805757897008 Arlović, Mato
radost 320 0.00040743709702799975 4 1.25 124230 0.0032198341785398053 Janjić, Želimir
radost 320 0.00040743709702799975 4 1.25 298674 0.001339252830845671 Milinković, Stjepan
radost 320 0.00040743709702799975 4 1.25 226649 0.0017648434363266548 Jurjević, Marin
radost 320 0.00040743709702799975 3 0.9375 592833 0.0005060447039891504 Pupovac, Milorad
radost 320 0.00040743709702799975 3 0.9375 106245 0.002823662289990117 Hursa, Danica

```

# Ponos "pride"

Clustering with 27 elements and 5 clusters

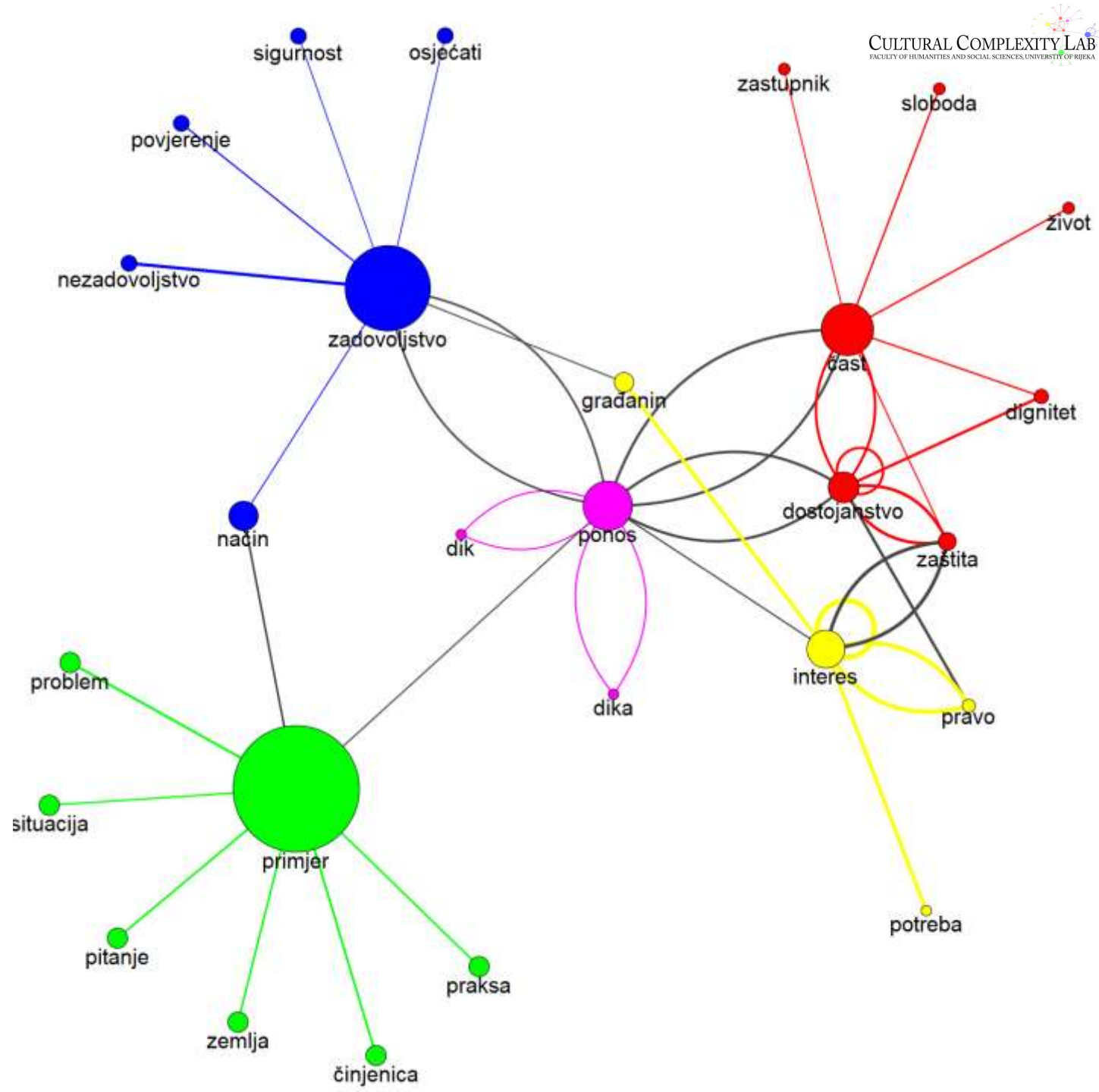
[0] dostojanstvo, čast, zaštita, dignitet, život, sloboda, zastupnik

[1] primjer, problem, činjenica, pitanje, praksa, zemlja, situacija

[2] zadovoljstvo, nezadovoljstvo, povjerenje, način, sigurnost, osjećati

[3] interes, pravo, građanin, potreba

[4] ponos, dika, dik





# Ponos 'pride' *perAuthor* – order by freqPerAuthor

```

...: print("Lema, ukupni broj, freqInCorp, freqPerZastupnik, percPerZastupnik, ZastupnikAll, percLemaInZastupnikAll")
ponos 1094 0.0013929255754644742 34 3.1078610603290677 1738793 0.001955379392486627 Šuker, Ivan
ponos 1094 0.0013929255754644742 33 3.0164533820840953 1513103 0.0021809486862427742 Antičević Marinović, Ingrid
ponos 1094 0.0013929255754644742 30 2.742230347349177 1484462 0.0020209341835627993 Grubišić, Boro
ponos 1094 0.0013929255754644742 28 2.5594149908592323 1199818 0.002333687275903512 Stazić, Nenad
ponos 1094 0.0013929255754644742 28 2.5594149908592323 347859 0.008049238340822 Novak, Mladen
ponos 1094 0.0013929255754644742 27 2.46800731261426 756311 0.0035699599767820382 Kosor, Jadranka
ponos 1094 0.0013929255754644742 27 2.46800731261426 484510 0.005572640399578956 Hebrang, Andrija
ponos 1094 0.0013929255754644742 25 2.2851919561243146 668505 0.003739687810861549 Bulj, Miro
ponos 1094 0.0013929255754644742 21 1.9195612431444242 305211 0.006880485958894011 Burić, Dinko
ponos 1094 0.0013929255754644742 21 1.9195612431444242 1174368 0.001788195863647511 Lesar, Dragutin
ponos 1094 0.0013929255754644742 19 1.736745886654479 196971 0.009646090033558239 Blažeković, Boris
ponos 1094 0.0013929255754644742 19 1.736745886654479 430966 0.004408700454328183 Salapić, Josip
ponos 1094 0.0013929255754644742 17 1.5539305301645339 2171645 0.0007828167126763351 Kajin, Damir
ponos 1094 0.0013929255754644742 16 1.4625228519195612 308075 0.005193540533960886 Sumrak, Đurđica
ponos 1094 0.0013929255754644742 15 1.3711151736745886 336381 0.004459229266813524 Milanović, Zoran
ponos 1094 0.0013929255754644742 14 1.2797074954296161 130516 0.01072665420331607 Vujić, Antun
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ponos 1094 0.0013929255754644742 10 0.9140767824497258 406587 0.002459498213174548 Radoš, Jozo
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ponos 1094 0.0013929255754644742 9 0.8226691042047531 105079 0.008564984440278268 Babić-Petričević, Zdenka
ponos 1094 0.0013929255754644742 9 0.8226691042047531 37890 0.023752969121140142 Hodžić, Nedžad

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# Stid "shame"

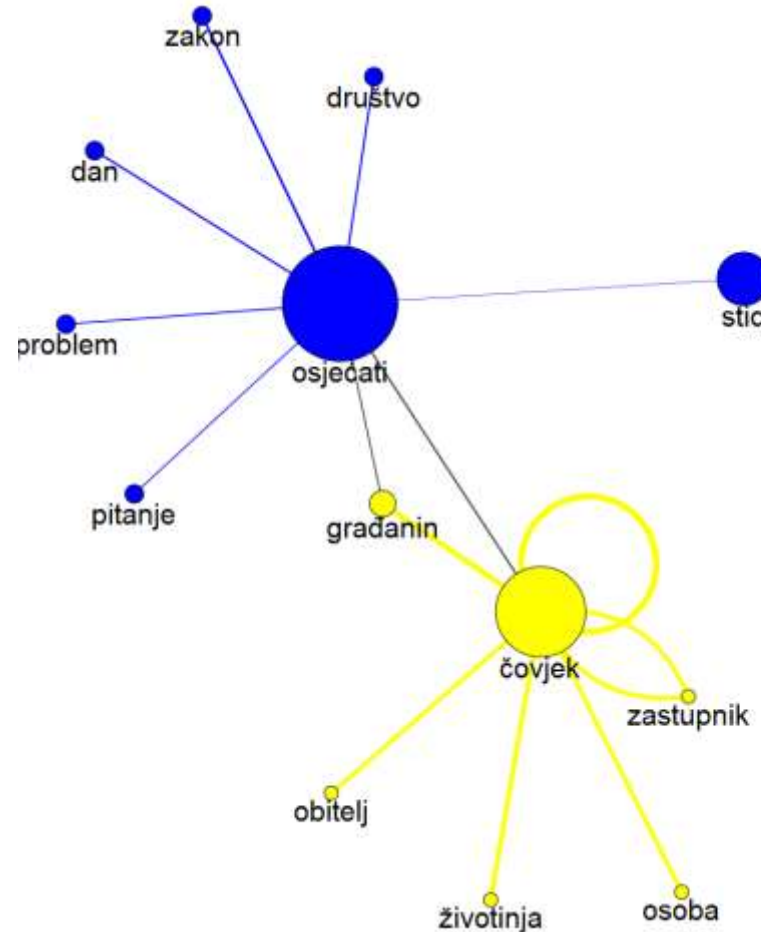
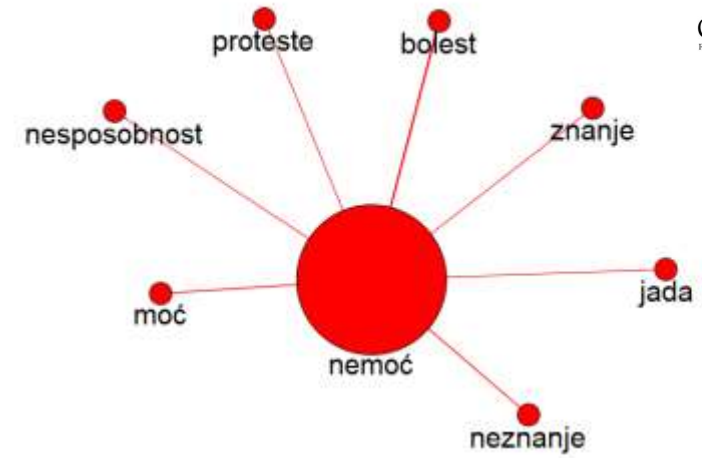
Clustering with 28 elements and 4 clusters

[0] **nemoć**, **bolest**, **neznanje**, moć, **nesposobnost**, jada, proteste, znanje

[1] **strah**, bojazan, sram, skeps, stranka, dnevnik, bol

[2] osjećati, **stid**, zakon, dan, društvo, problem, pitanje

[3] **čovjek**, građanin, životinja, zastupnik, osoba, obitelj





# Stid'shame' *perAuthor* – order by freqPerAuthor

```

...: print("Lema, ukupni broj, freqInCorp, freqPerZastupnik, percPerZastupnik, ZastupnikAll, percLemaInZastupnikAll")
stid 138 0.0001757072480933249 17 12.318840579710146 1199818 0.0014168815603699894 Stazić, Nenad
stid 138 0.0001757072480933249 9 6.521739130434782 1247153 0.0007216436154986597 Šeks, Vladimir
stid 138 0.0001757072480933249 7 5.072463768115942 1484462 0.0004715513094979865 Grubišić, Boro
stid 138 0.0001757072480933249 6 4.3478260869565215 79322 0.007564105796626409 Matković, Borislav
stid 138 0.0001757072480933249 6 4.3478260869565215 336381 0.0017836917067254095 Milanović, Zoran
stid 138 0.0001757072480933249 6 4.3478260869565215 216754 0.002768115005951447 Letica, Slaven
stid 138 0.0001757072480933249 6 4.3478260869565215 2171645 0.00027628825153282416 Kajin, Damir
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stid 138 0.0001757072480933249 5 3.6231884057971016 118114 0.004233198435409858 Marasović, Dujomir
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stid 138 0.0001757072480933249 4 2.898550724637681 96918 0.004127200313667223 Mišić, Ivica
stid 138 0.0001757072480933249 4 2.898550724637681 668505 0.0005983500497378478 Bulj, Miro
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stid 138 0.0001757072480933249 3 2.1739130434782608 471651 0.0006360635300253789 Vinković, Zoran
stid 138 0.0001757072480933249 2 1.4492753623188406 482666 0.0004143652132116205 Bunjac, Branimir
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stid 138 0.0001757072480933249 2 1.4492753623188406 1513103 0.0001321787082571378 Antičević Marinović, Ingrid
stid 138 0.0001757072480933249 2 1.4492753623188406 412423 0.00048493900679642013 Sobol, Gordana
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stid 138 0.0001757072480933249 2 1.4492753623188406 569439 0.0003512228702284178 Marić, Goran
stid 138 0.0001757072480933249 2 1.4492753623188406 29716 0.006730380939561179 Kolar, Željko
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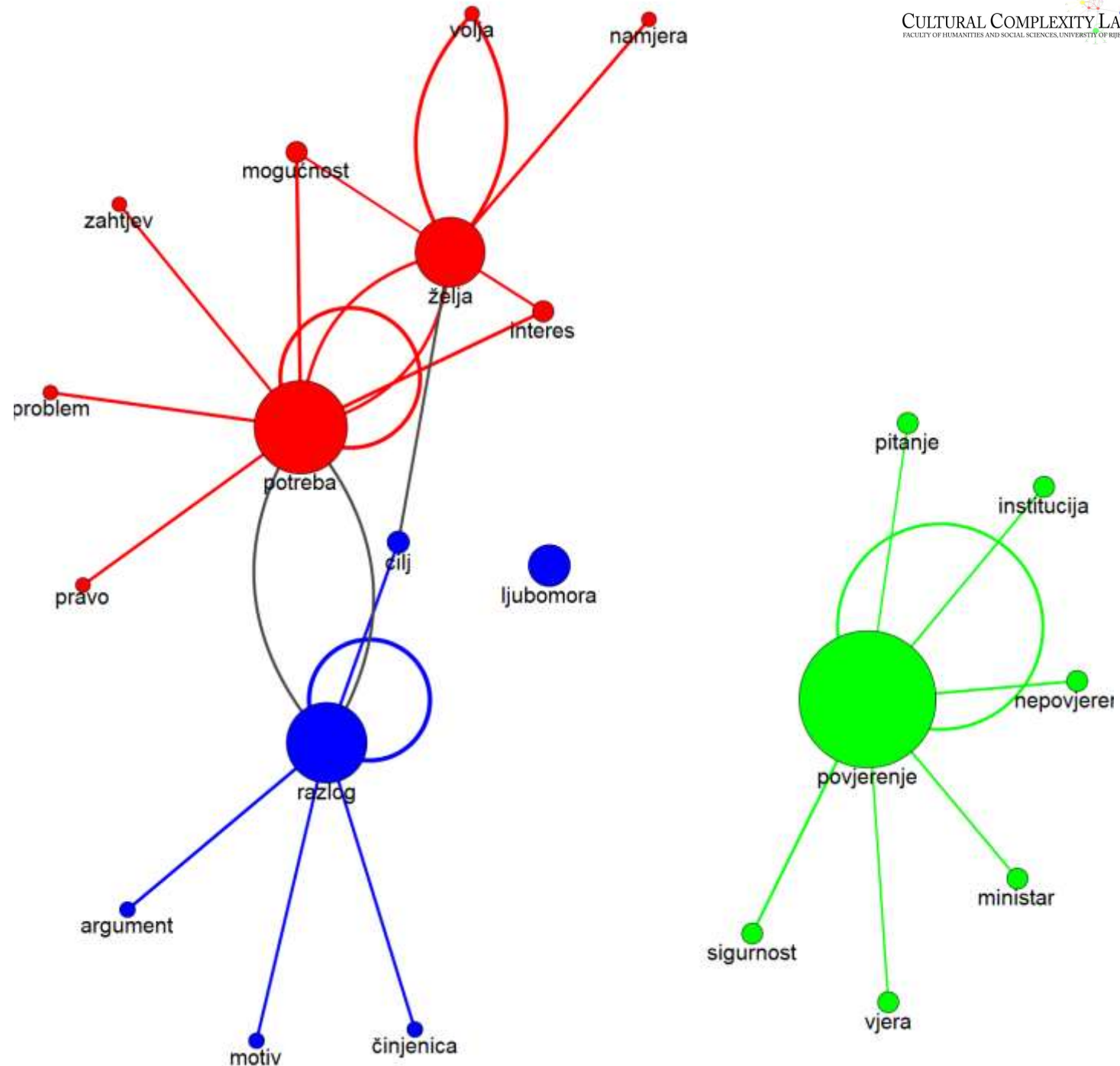
# Ljubomora “jealousy”

Clustering with 22 elements and 3 clusters

[0] **potreba, želja**, interes, mogućnost, problem, pravo, zahtjev, volja, namjera

[1] **povjerenje, sigurnost, nepovjerenje**, ministar, institucija, vjera, pitanje

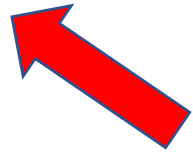
[2] **ljubomora**, razlog, cilj, argument, činjenica, motiv



# Gađenje 'disgust' *perAuthor* – order by freqPerAuthor

```

...: print("Lema, ukupni broj, freqInCorp, freqPerZastupnik, percPerZastupnik, ZastupnikAll, percLemaInZastupnikAll")
gađenje 20 2.5464818564249985e-05 2 10.0 1513103 0.0001321787082571378 Antičević Marinović, Ingrid
gađenje 20 2.5464818564249985e-05 2 10.0 2171645 9.209608384427472e-05 Kajin, Damir
gađenje 20 2.5464818564249985e-05 2 10.0 320258 0.0006244964996971192 Jovanović, Željko
gađenje 20 2.5464818564249985e-05 1 5.0 756311 0.0001322207398808162 Kosor, Jadranka
gađenje 20 2.5464818564249985e-05 1 5.0 47980 0.0020842017507294703 Dobrović, Slaven
gađenje 20 2.5464818564249985e-05 1 5.0 336381 0.0002972819511209016 Milanović, Zoran
gađenje 20 2.5464818564249985e-05 1 5.0 1199818 8.334597413941114e-05 Stazić, Nenad
gađenje 20 2.5464818564249985e-05 1 5.0 360671 0.0002772609940915682 Dorić, Miljenko
gađenje 20 2.5464818564249985e-05 1 5.0 1484462 6.736447278542664e-05 Grubišić, Boro
gađenje 20 2.5464818564249985e-05 1 5.0 461554 0.00021665937246779357 Pernar, Ivan
gađenje 20 2.5464818564249985e-05 1 5.0 132214 0.0007563495545101124 Bodakoš, Dragutin
gađenje 20 2.5464818564249985e-05 1 5.0 79322 0.0012606842994377348 Matković, Borislav
gađenje 20 2.5464818564249985e-05 1 5.0 36609 0.00273156873992734 Vučetić, Marko
gađenje 20 2.5464818564249985e-05 1 5.0 108254 0.000923753394793726 Vrdoljak, Ivan
gađenje 20 2.5464818564249985e-05 1 5.0 5850 0.017094017094017096 Radić, Ivan
gađenje 20 2.5464818564249985e-05 1 5.0 305211 0.00032764218851876245 Burić, Dinko
gađenje 20 2.5464818564249985e-05 1 5.0 149974 0.0006667822422553242 Škare Ožbolt, Vesna
Lema, ukupni broj, freqInCorp, freqPerZastupnik, percPerZastupnik, ZastupnikAll, percLemaInZastupnikAll
    
```



# Mir “peace” lexeme\_F 10 by 5 Speakers

Clustering with 39 elements and 6 clusters

[0] mir, stabilnost, zaštita, Gjurković, Srđan, **Bačić, Branko**, **Marić, Goran**, Bulj, Miro, Vujčić, Boris, Holy, Mirela, Hrelja, Silvano

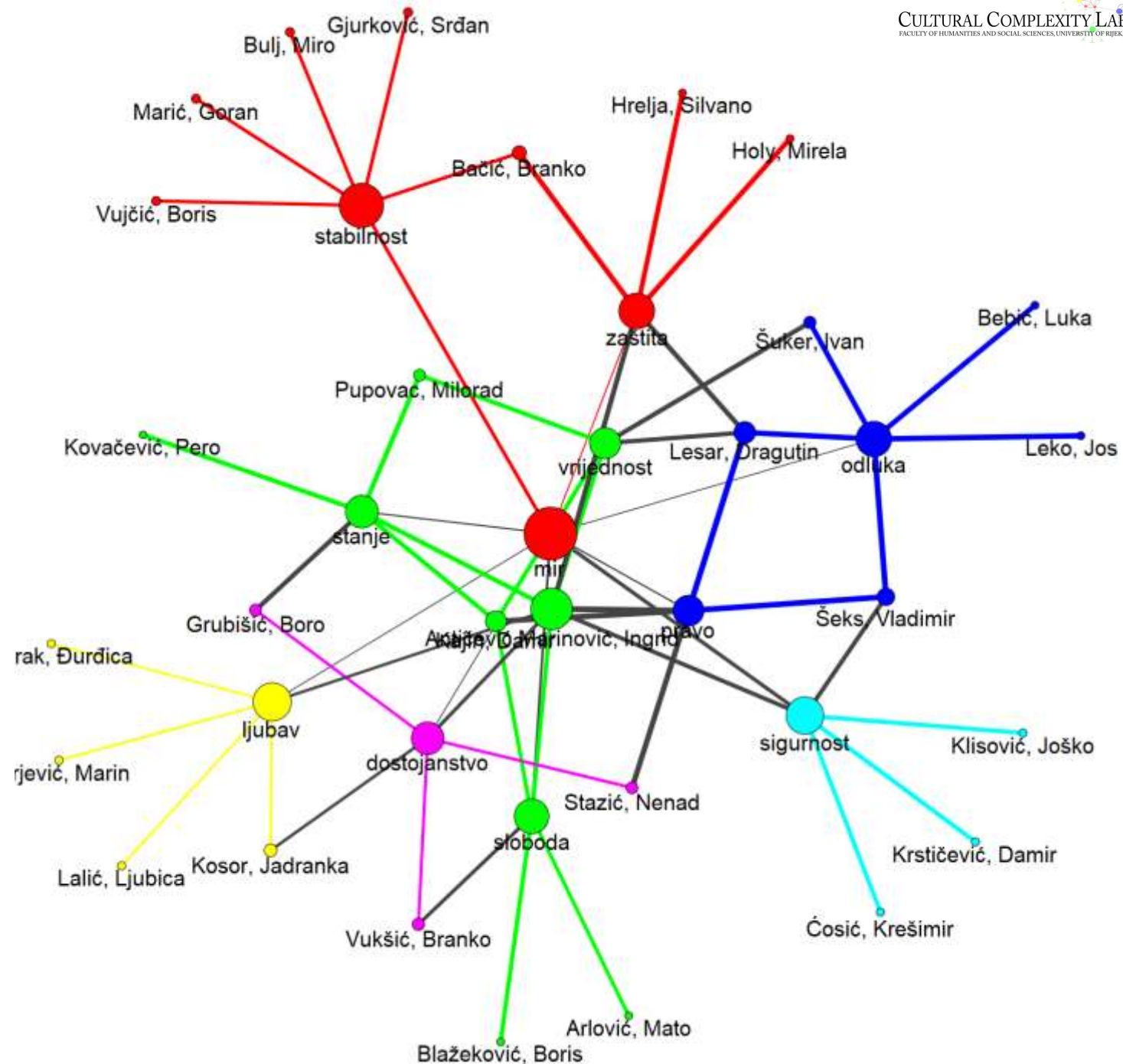
[1] sloboda, stanje, vrijednost, **Antičević Marinović, Ingrid**, Blažeković, Boris, Kajin, Damir, Arlović, Mato, Pupovac, Milorad, Kovačević, Pero

[2] pravo, odluka, **Šeks, Vladimir**, Lesar, Dragutin, Šuker, Ivan, Leko, Josip, Bebić, Luka

[3] ljubav, **Kosor, Jadranka**, Jurjević, Marin, Lalić, Ljubica, Sumrak, Đurđica

[4] dostojanstvo, Vukšić, Branko, **Stazić, Nenad**, Grubišić, Boro

[5] sigurnost, **Krstičević, Damir**, Ćosić, Krešimir, Klisović, Joško





# Rat “war” lexeme\_F 10 by 10 Speakers

Clustering with 55 elements and 6 clusters

[0] stanje, **pravo**, situacija, Kajin, Damir, Grubišić, Boro, Kovačević, Pero, Lesar, Dragutin, Šuker, Ivan, Beus Richembergh, Goran, Arlović, Mato, Leko, Josip, Pusić, Vesna

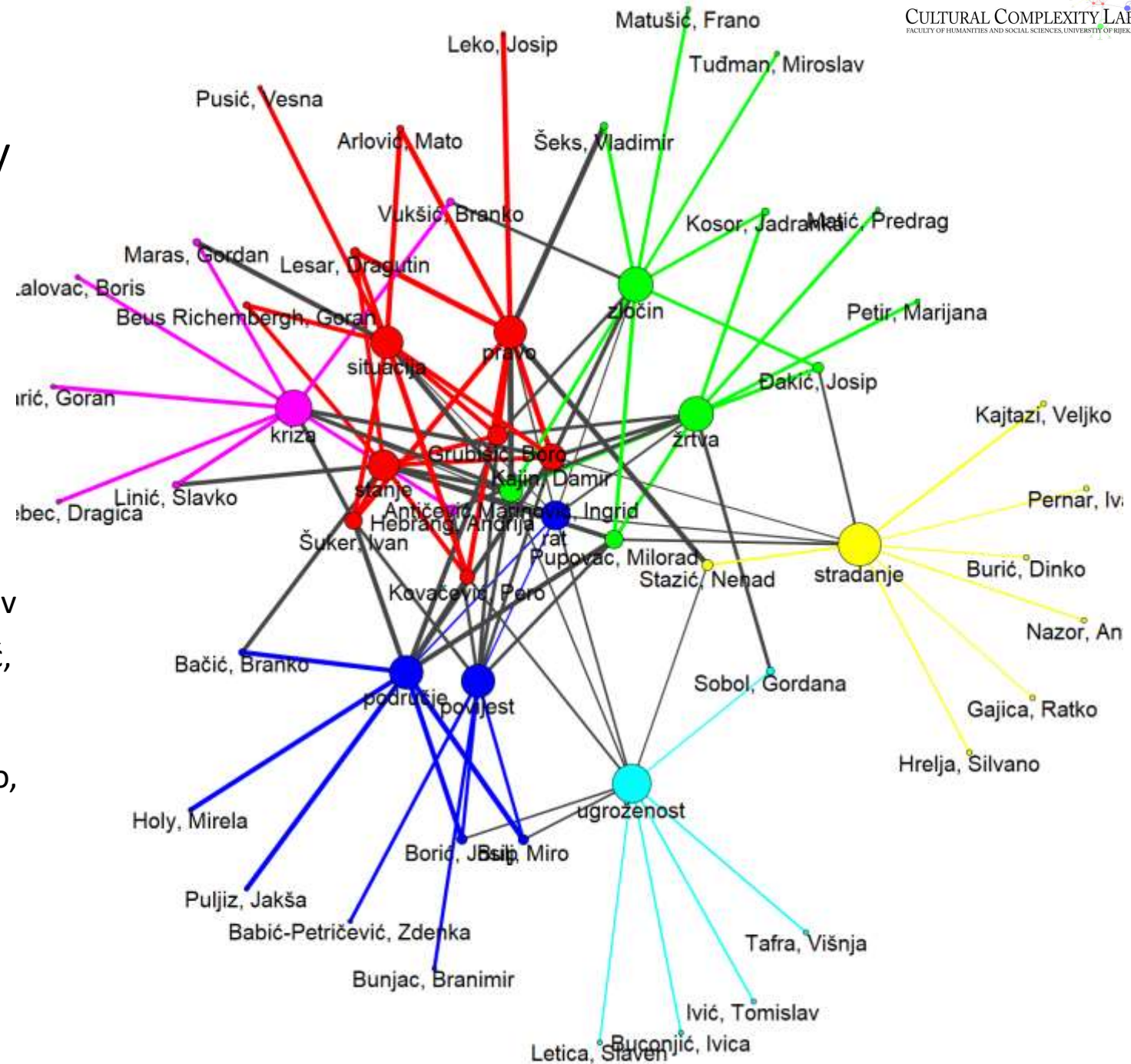
[1] **žrtva**, **zločin**, Antičević Marinović, Ingrid, Đakić, Josip, Pupovac, Milorad, Kosor, Jadranka, Petir, Marijana, Matić, Predrag, Šeks, Vladimir, Matušić, Frano, Tuđman, Miroslav

[2] **rat**, **područje**, **povijest**, Bačić, Branko, Bulj, Miro, Borić, Josip, Puljiz, Jakša, Holy, Mirela, Babić-Petričević, Zdenka, Bunjac, Branimir

[3] **stradanje**, Stazić, Nenad, Kajtazi, Veljko, Hrelja, Silvano, Nazor, Ante, Pernar, Ivan, Burić, Dinko, Gajica, Ratko

[4] **kriza**, Hebrang, Andrija, Linić, Slavko, Vukšić, Branko, Marić, Goran, Zgrebec, Dragica, Maras, Gordan, Lalovac, Boris

[5] **ugroženost**, Sobol, Gordana, Tafra, Višnja, Ivić, Tomislav, Buconjić, Ivica, Letica, Slaven



# Ponos "pride" F by Speakers (10x10)

ustering with 60 elements and 6 clusters

[0] ponos, interes, primjer, Antičević Marinović, Ingrid, Stazić, Nenad, Šuker, Ivan, Bulj, Miro, Lesar, Dragutin, Maras, Gordan, Salapić, Josip, Borić, Josip, Burić, Dinko

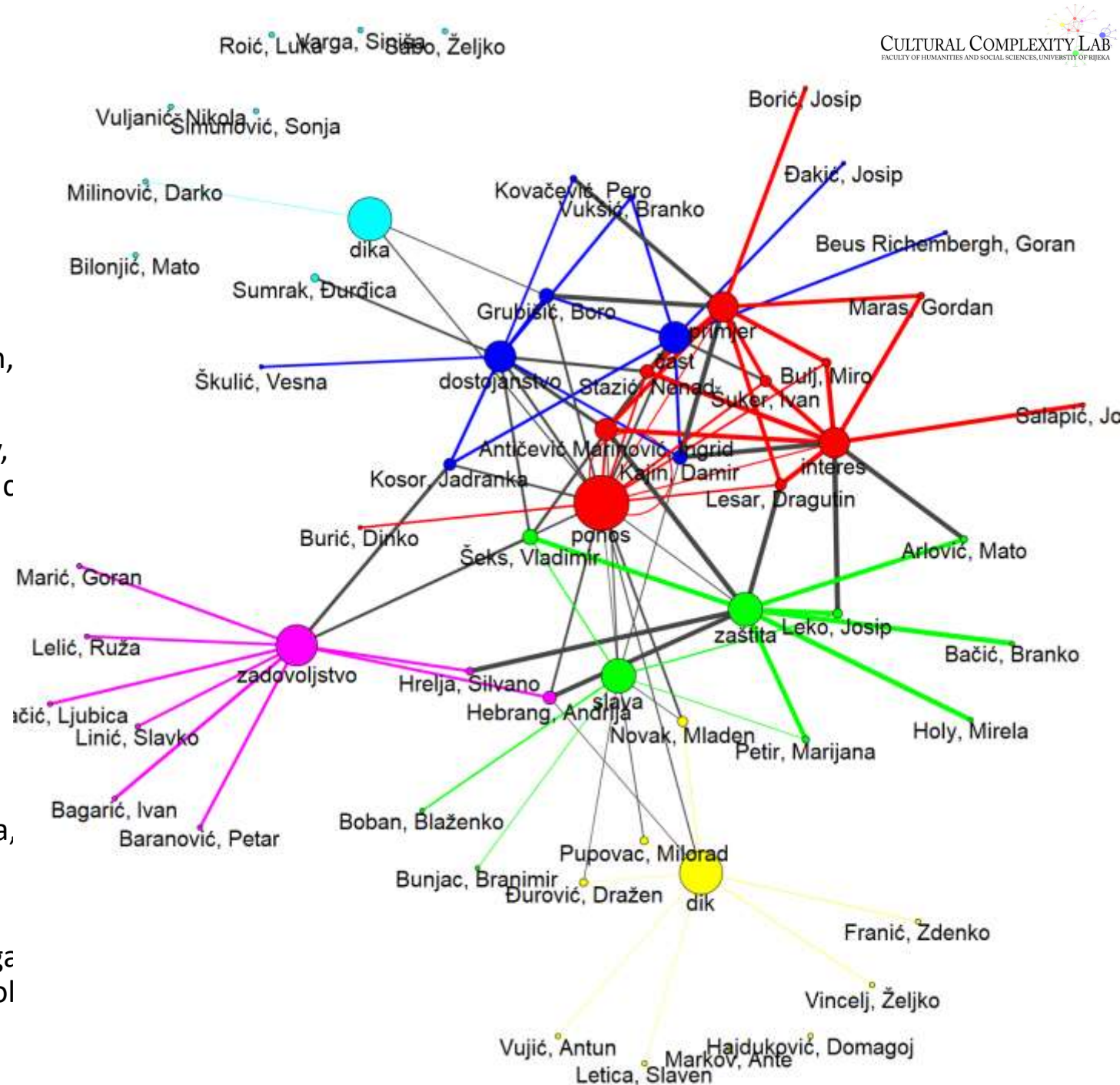
[1] zaštita, slava, Šeks, Vladimir, Leko, Josip, Arlović, Mato, Holy, Mirela, Bačić, Branko, Petir, Marijana, Boban, Blaženko, Bunjac Branimir

[2] dostojanstvo, čast, Grubišić, Boro, Kosor, Jadranka, Vukšić, Branko, Kajin, Damir, Kovačević, Pero, Škulić, Vesna, Beus Richembergh, Goran, Đakić, Josip

[3] dik, Novak, Mladen, Franić, Zdenko, Vincelj, Željko, Vujić, Antun, Pupovac, Milorad, Đurović, Dražen, Letica, Slaven, Markov, Ante, Hajduković, Domagoj

[4] zadovoljstvo, Bagarić, Ivan, Baranović, Petar, Lukačić, Ljubica, Marić, Goran, Hrelja, Silvano, Hebrang, Andrija, Linić, Slavko, Lelić, Ruža

[5] dika, Sumrak, Đurđica, Milinović, Darko, Bilonjić, Mato, Varga Siniša, Šimunović, Sonja, Roić, Luka, Sabo, Željko, Vuljanić, Nikol







# Komunizam

Clustering with 69 elements and 6 clusters

[0] zločin, **kriminal**, genocid, djelo, korupcija, čovječnost, ubojstvo, zločinac, rat, profiterstvo, šteta, agresija, nasilje, kazna

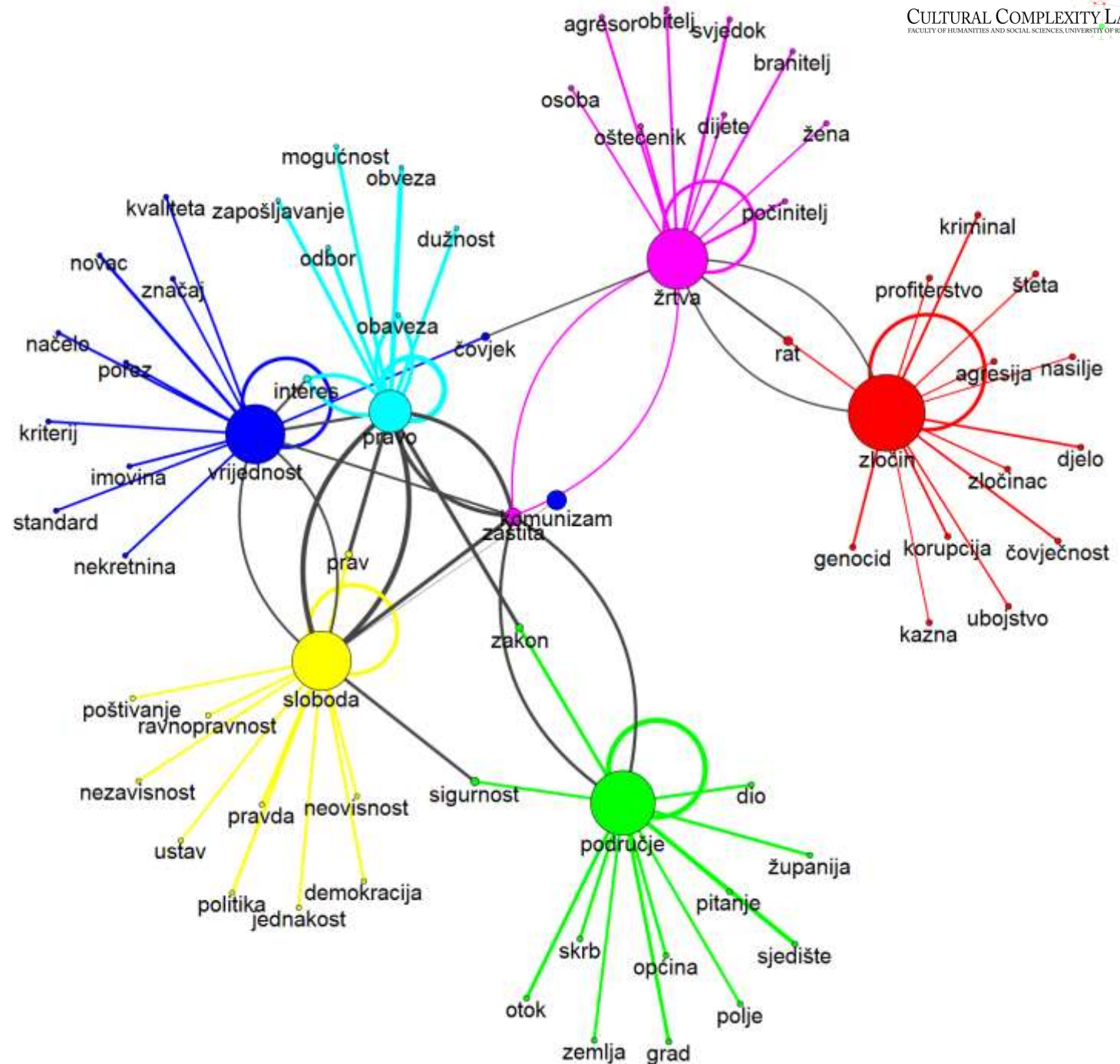
[1] područje, **sigurnost**, sjedište, otok, grad, zakon, pitanje, županija, skrb, općina, dio, zemlja, polje

[2] **komunizam**, vrijednost, novac, načelo, porez, imovina, kriterij, nekretnina, kvaliteta, standard, čovjek, značaj

[3] **sloboda**, prav, pravda, politika, demokracija, neovisnost, jednakost, ravnopravnost, nezavisnost, ustav, poštivanje

[4] **žrtva**, zaštita, svjedok, počinitelj, branitelj, oštećenik, obitelj, agresor, osoba, dijete, žena

[5] **pravo**, interes, obveza, obaveza, odbor, mogućnost, dužnost, zapošljavanje







# Fašizam

Clustering with 61 elements and 5 clusters

[0] čovjek, građanin, životinja, zastupnik, osoba, obitelj, priroda, tisuća,

stručnjak, okoliš, ministar, roba, dijete, stranka

[1] sloboda, prav, sigurnost, pravda, politika, demokracija, neovisnost,

jednakost, ravnopravnost, nezavisnost, ustav, vrijednost, poštivanje

[2] način, pravo, uvjet, model, sadržaj, zakon, mogućnost, pitanje, sredstvo,

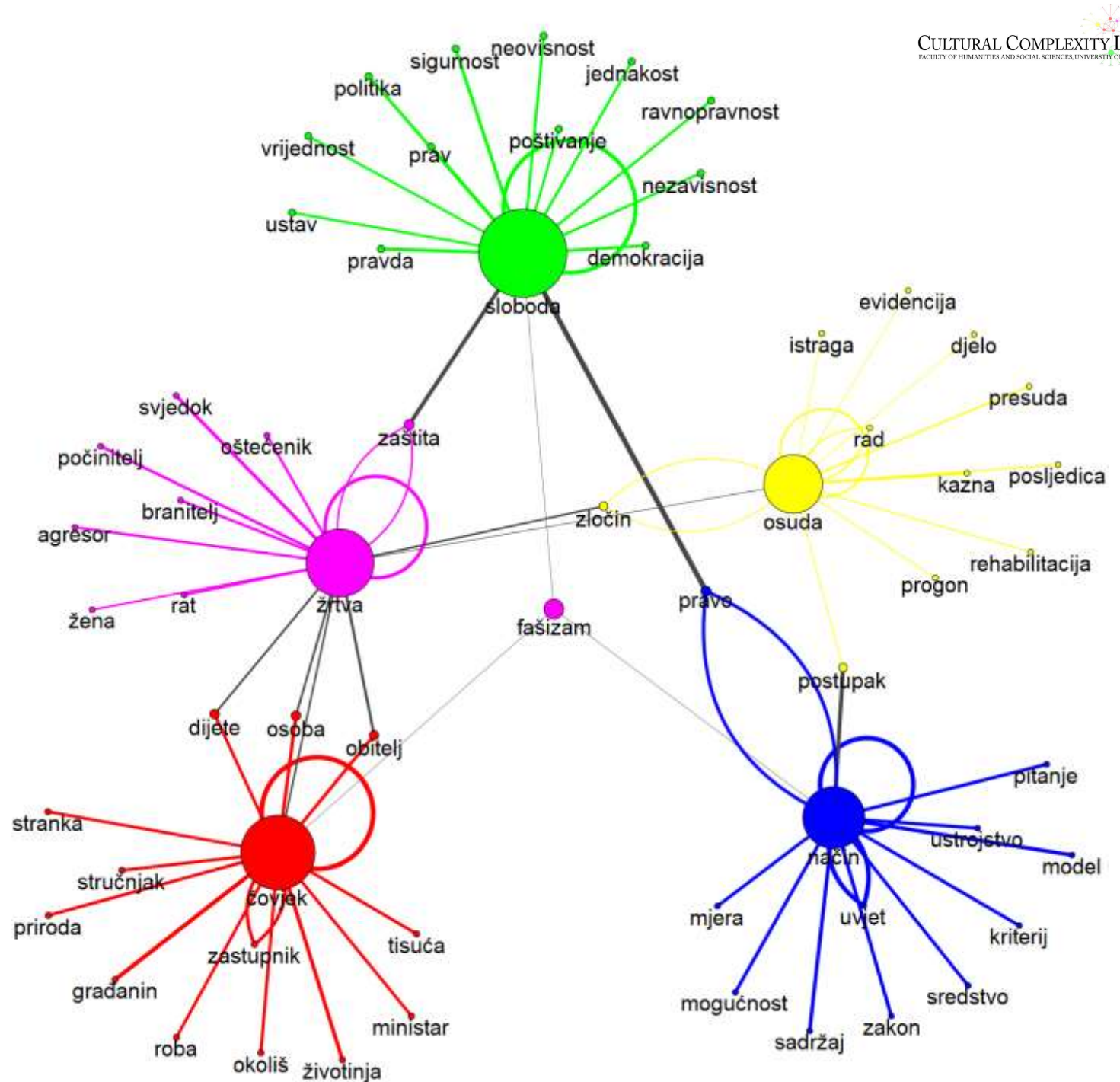
kriterij, ustrojstvo, mjera

[3] osuda, postupak, kazna, presuda, rad, posljedica, zločin, rehabilitacija,

progon, evidencija, djelo, istraga

[4] fašizam, žrtva, zaštita, svjedok, počinitelj, branitelj, oštećenik,

agresor, rat, žena



# Fašizam F by Speakers

Clustering with 38 elements and 5 clusters

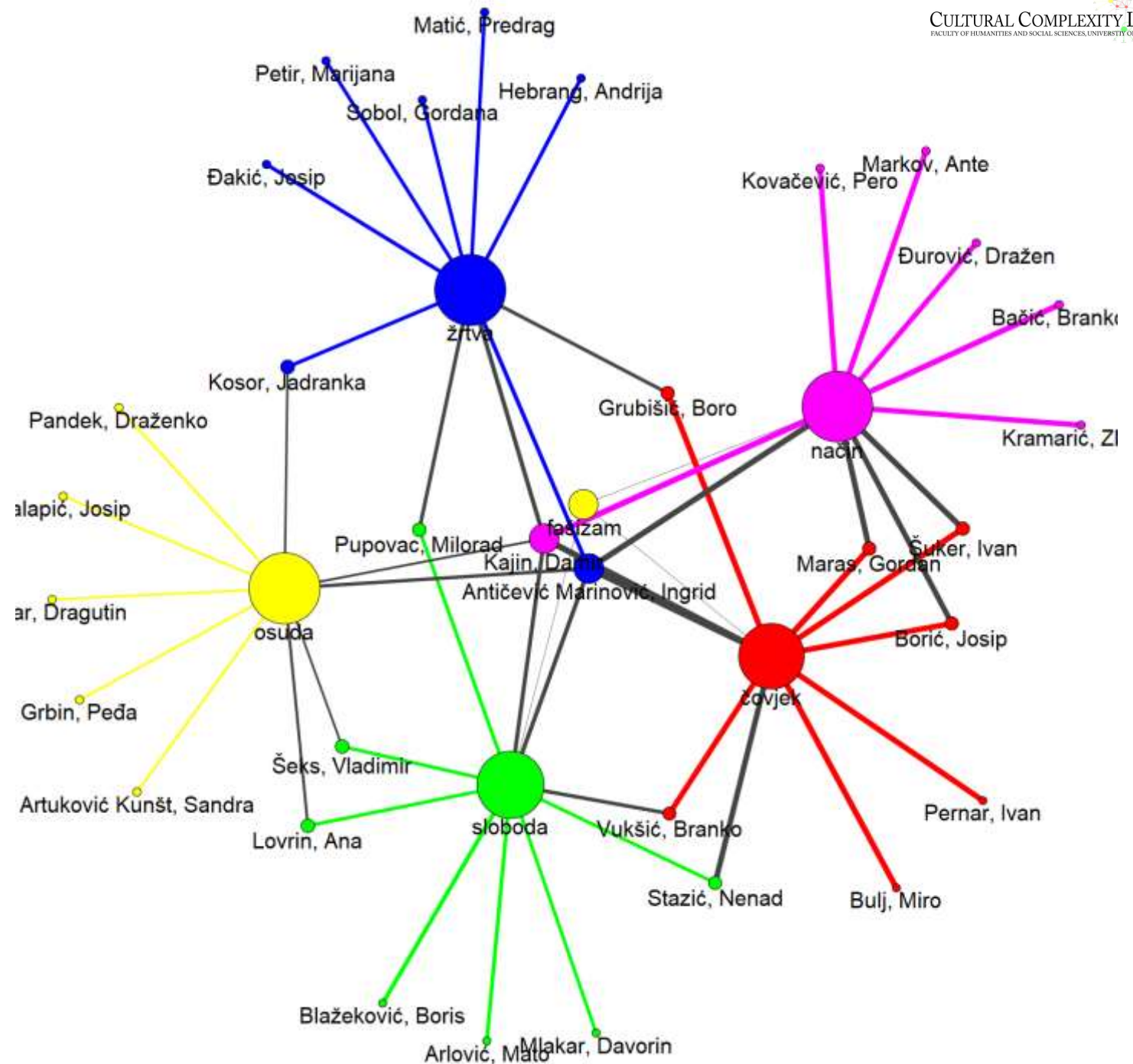
[0] **čovjek**, Maras, Gordan, Bulj, Miro, Šuker, Ivan, Grubišić, Boro, Pernar, Ivan, Borić, Josip, Vukšić, Branko

[1] **sloboda**, Stazić, Nenad, Blažeković, Boris, Arlović, Mato, Pupovac, Milorad, Šeks, Vladimir, Lovrin, Ana, Mlakar, Davorin

[2] **žrtva**, Antičević Marinović, Ingrid, Kosor, Jadranka, Đakić, Josip, Hebrang, Andrija, Petir, Marijana, Sobol, Gordana, Matić, Predrag

[3] **fašizam, osuda**, Pandek, Draženko, Artuković Kunšt, Sandra, Grbin, Peđa, Salapić, Josip, Lesar, Dragutin

[4] **način**, Kajin, Damir, Bačić, Branko, Markov, Ante, Kovačević, Pero, Kramarić, Zlatko, Đurović, Dražen





# Ustaša Examples

[ <Record Person='Borić, Josip' SentenceExample=['I onda je najprije bila jedna napeta atmosfera, uvijek je bilo na granici izdržljivosti onda je to eskaliralo, uglavnom bi pričao o poreznim reformama završavale na pričama o partizanima i ustašama.'] FrequencyOfUse=15>,

<Record Person='Stazić, Nenad' SentenceExample=['A slušajte, ja ne znam tko su ali ako se netko oblači kao ustaša, ako misli kao ustaša, ako govori kao ustaša, ako pozdravlja kao ustaša a onda je valjda ustaša.'] FrequencyOfUse=5>,

<Record Person='Grmoja, Nikola' SentenceExample=['Ja se neću osvrtni na ove teme o kojima je govorio moj kolega Bulj, znači koji se tiču toga što Srpsko narodno vijeće prijavljuje sve, tako da sam i ja u njihovom biltenu ispao ustaša, a jasno je poznat moj stav tako da koga oni proglase ustašom, znači po njima smo svi vjerojatno zastupnici ovdje u Hrvatskom saboru i bilo tko što je nešto kritizirao rad SDSS-a i Milorada Pupovca i njegov etno biznis mi smo svi valjda svi ustaše po tome.'] FrequencyOfUse=3>,

<Record Person='Salapić, Josip' SentenceExample=['Što će biti sa kažnjavanjem zločinaca, zločina na koje se odnosi od toga danas od ove rasprave nitko u Hrvatskoj neće bolje niti sretnije živjeti jer smo postali dosadni i dosadni sami sebi jer čim upališ TV svaki dan na vijestima 'Lex Perkoviću', hoće li biti izručenja, što kaže Njemačka, što se govori u Saboru, tko je koga više nadmudrio, tko je više spominjao ustaše, tko partizane, tko četnike itd., itd. a većina ljudi nema pojma o čemu se ovdje radi, ne zna što je prava srž europskog uhidbenog naloga i koje su naše obveze koje smo potpisali kao punopravna članica EU koja je ponavljam prošla najteži put.']] FrequencyOfUse=3>,

<Record Person='Milas, Zvonko' SentenceExample=['Spominjali ste nedavno i ustaše i partizane, također živite u prošlosti.']] FrequencyOfUse=3>,



# Conclusion

Corpus method of extracting cooccurrences in a coordinated coordination can :

- Provide with a measure for defining the conceptual / ontological distance between two concepts,
- Describe the polysemic structure of semantic domains necessary for understanding a single concept
- Reveal cultural / corpus specific configurations
- Aid in the qualitative assessment of the speakers contribution to the conceptual framing