



# EXPLORING THE IDENTITY OF THE RULING ELITE IN CUNEIFORM TEXT

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CENTRE OF EXCELLENCE IN ANCIENT NEAR EASTERN EMPIRES  
UNIVERSITY OF HELSINKI

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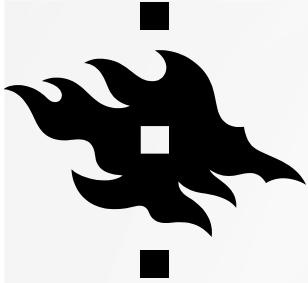


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- Ancient Near Eastern Empires
- Center of Excellence
  - 2018-2025
  - Academy of Finland
  - Director: Saana Svärd
- How do changing imperial dynamics impact social group identities and lifeways over a long period of time?



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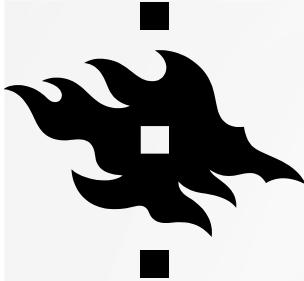
- Team 1 Digital Humanities Approaches
  - develops the digital humanities approaches of social network analysis and language technology
- Team 2 Social Scientific Theory and Applications
  - tests and refines theoretical models from the social sciences for textual and archaeological evidence
- Team 3 Material Culture and Community Heritage
  - investigates the impact of each empire on ancient local communities inhabiting the imperial fringes



# TEAM 1

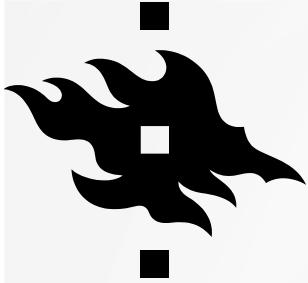
## DIGITAL HUMANITIES APPROACH

- Team leader: Saana Svärd
- Semantic Domains in Akkadian Texts
  - Academy of Finland 2016-2020
  - Krister Lindén, Tero Alstola, Heidi Jauhiainen, Saana Svärd
- Deep Learning and Semantic domains in Akkadian texts
  - University of Helsinki 2017-2020
  - Aleksi Sahala (Saana Svärd)
- Johannes Bach, Ellie Bennett, Sebastian Fink, Gina Konstantopoulos, Mikko Luukko, Shana Zaia

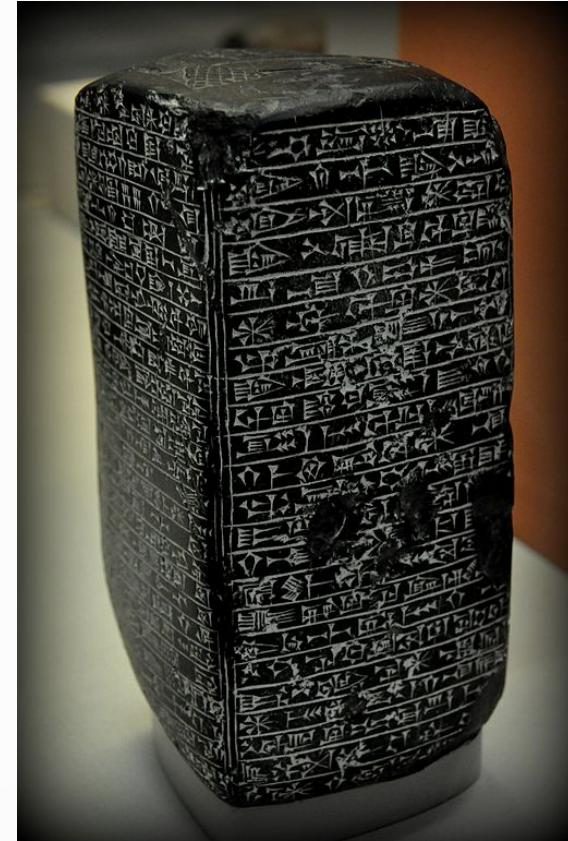
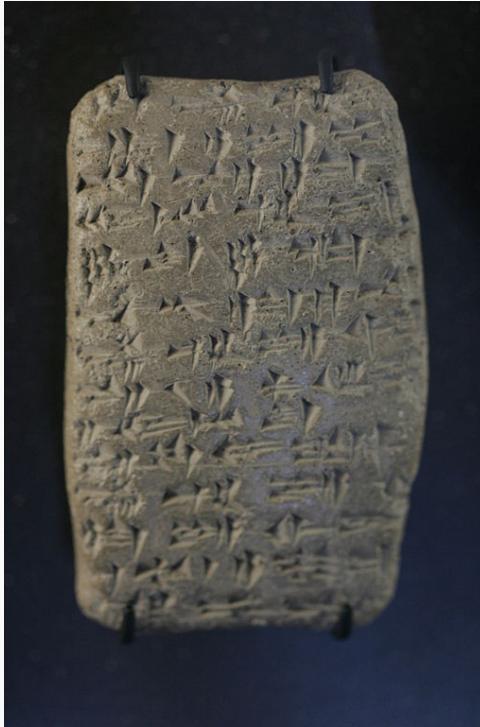


# ANCIENT NEAR EASTERN EMPIRES

	ca.
• Neo-Assyrian	911-612 BCE
• Neo-Babylonian	612-539 BCE
• Persian	539-330 BCE
• Hellenistic	330-63 BCE
• early Roman/Parthian	63 BCE – 70 CE



# CUNEIFORM



Sources:

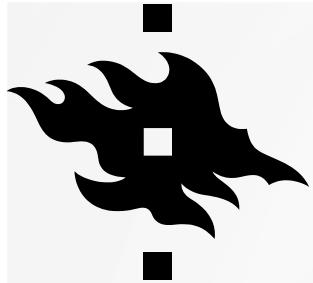
[[https://commons.wikimedia.org/wiki/File:Ayyab\\_letter\\_mp3h8880.jpg](https://commons.wikimedia.org/wiki/File:Ayyab_letter_mp3h8880.jpg) (Photographer: Rama)]  
[[https://commons.wikimedia.org/wiki/File:Black\\_basalt\\_monument\\_of\\_king\\_Esarhaddon\\_It\\_narrates\\_Esarhaddon's\\_restoration\\_of\\_Babylon\\_Circa\\_670\\_BCE\\_From\\_Babylon\\_Mesopotamia\\_Iraq\\_The\\_British\\_Museum\\_London.jpg](https://commons.wikimedia.org/wiki/File:Black_basalt_monument_of_king_Esarhaddon_It_narrates_Esarhaddon's_restoration_of_Babylon_Circa_670_BCE_From_Babylon_Mesopotamia_Iraq_The_British_Museum_London.jpg) (Author: Osama Shukir Muhammed Amin FRCP)]

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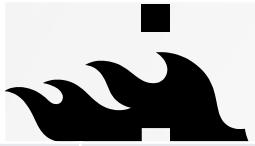
Academy of Finland Center of Excellence  
Ancient Near Eastern Empires



# AŠŠUR A CASE STUDY ON IDENTITY

- Analysis of Mesopotamian gods using computational methods
- Aššur's central role in the Assyrian royal ideology / his centrality from a statistical perspective
- Network analysis – co-occurrences of divine names in
  - Full texts
  - Small windows of ten words

Tero Alstola, Shana Zaia, Aleksi Sahala, Heidi Jauhainen, Saana Svärd, Krister Lindén. Aššur and his friends: A statistical analysis of Neo-Assyrian Texts. *Journal of Cuneiform Studies* 71. 2019.



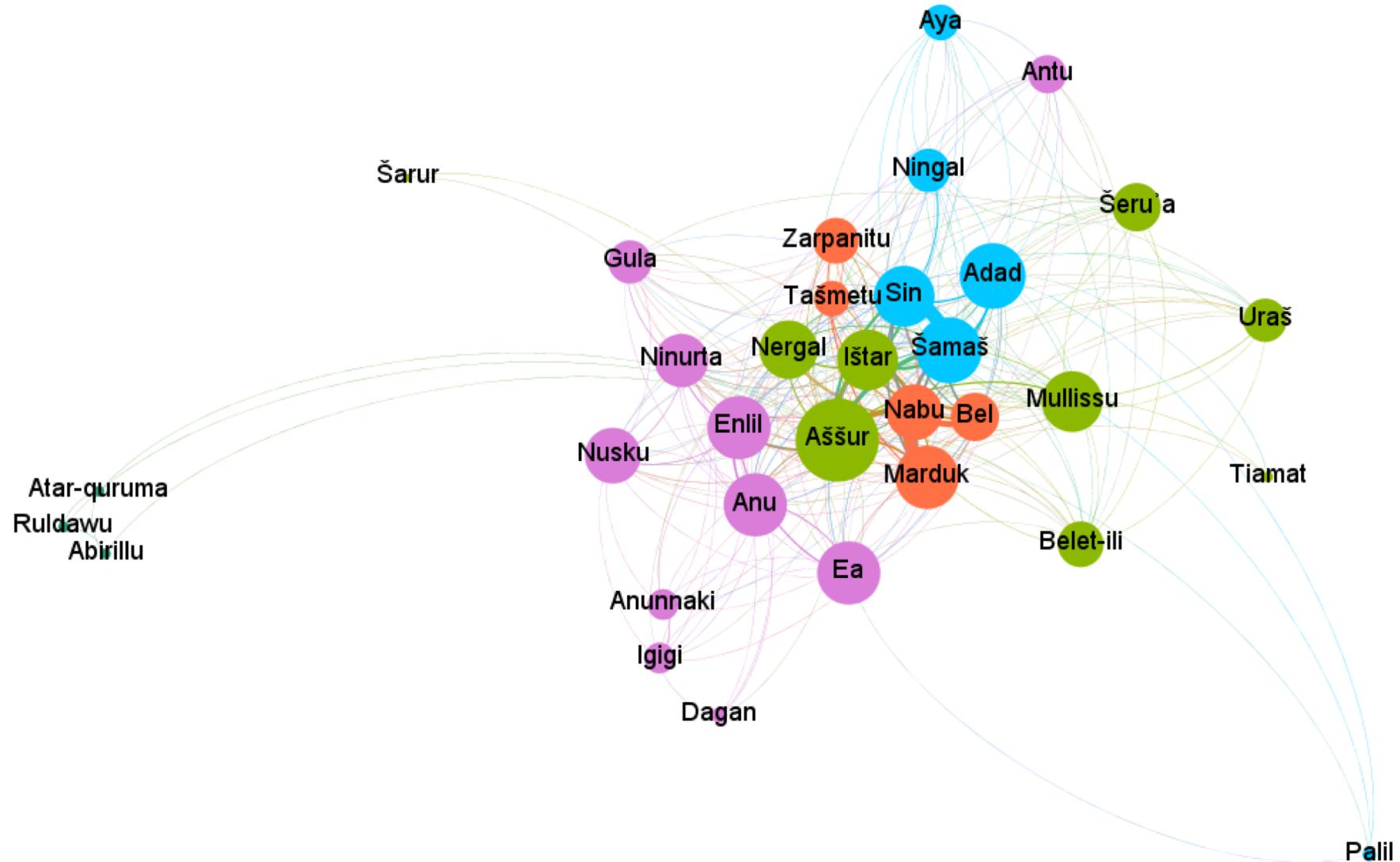
## Co-occurrences in full texts

Number of attestations		Degree centrality		Eigenvector centrality		Betweenness centrality		
Rank	Name	Score	Name	Score	Name	Score	Name	Score
1	Sin	1541	Šamaš	143	Šamaš	1.00	Marduk	859.2
2	Aššur	1141	Enlil	137	Anu	0.98	Šamaš	807.6
3	Marduk	1049	Anu	136	Enlil	0.98	Enlil	772.8
4	Šamaš	1039	Marduk	136	Ea	0.97	Nabu	768.1
5	Nabu	988	Ea	135	Marduk	0.95	Sin	730.6
6	Ištar	598	Sin	132	Sin	0.95	Anu	708.8
7	Enlil	387	Nabu	129	Adad	0.94	Ea	672.0
8	Bel	375	Adad	125	Nabu	0.93	Ištar	637.3
9	Adad	317	Ištar	122	Ištar	0.91	Adad	544.3
10	Anu	229	Ninurta	116	Ninurta	0.90	Ninurta	396.8
11	Ea	215	Nergal	115	Nergal	0.89	Nergal	375.4
12	Ninurta	207	Anunnaki	102	Nusku	0.82	Anunnaki	316.2
13	Nergal	192	Aššur	97	Anunnaki	0.80	Nusku	285.2
14	Mullissu	128	Nusku	97	Aššur	0.79	Asalluhi	267.1
15	Anzu	104	Asalluhi	88	Sebettu	0.75	Nanaya	256.3
16	Zarpanitu	100	Belet-ili	87	Belet-ili	0.74	Aššur	225.0
17	Tašmetu	80	Igigi	82	Zababa	0.72	Bel	189.8
18	Nusku	75	Uraš	81	Zarpanitu	0.72	Uraš	186.8
19	Anunnaki	70	Sebettu	80	Igigi	0.70	Belet-ili	158.0
20	Igigi	67	Zababa	79	Asalluhi	0.70	Gula	153.1

## Co-occurrences in windows of 10 words

Degree centrality			Eigenvector centrality		Betweenness centrality		Betweenness, excl. the gods of the Arabs	
Rank	Name	Score	Name	Score	Name	Score	Name	Score
1	Ištar	49	Ištar	1.00	Ea	1355.9	Ea	1274.0
2	Ea	47	Marduk	0.98	Šamaš	1186.6	Šamaš	1126.3
3	Marduk	45	Anu	0.96	Ištar	1142.2	Ištar	1085.8
4	Anu	44	Adad	0.96	Aššur	888.7	Marduk	751.2
5	Enlil	43	Enlil	0.94	Marduk	792.0	Enlil	695.4
6	Adad	42	Ea	0.93	Enlil	735.0	Anu	597.1
7	Šamaš	39	Šamaš	0.91	Anu	629.4	Adad	581.3
8	Ninurta	35	Sin	0.87	Adad	612.1	Sin	579.9
9	Sin	35	Nergal	0.85	Sin	611.7	Uraš	543.5
10	Nergal	34	Nabu	0.85	Uraš	582.3	Enki	534.3
11	Aššur	32	Aššur	0.83	Enki	557.4	Asalluhi	434.0
12	Nabu	32	Mullissu	0.81	Asalluhi	440.0	Ninurta	374.9
13	Uraš	28	Ninurta	0.80	Ninurta	399.4	Nanaya	340.9
14	Nusku	27	Nusku	0.76	Nanaya	352.9	Nergal	323.9
15	Mullissu	26	Belet-ili	0.70	Nergal	346.0	Nabu	296.6
16	Bel	25	Bel	0.69	Nabu	314.9	Enkidu	248.0
17	Belet-ili	25	Uraš	0.68	Enkidu	260.0	Gula	173.3
18	Gula	22	Šeru'a	0.67	Gula	185.1	Mullissu	152.8
19	Zarpanitu	22	Šala	0.67	Mullissu	160.9	Nusku	151.5
20	Asalluhi	21	Zarpanitu	0.67	Nusku	160.8	Damgalnunak	136.4
21	Šala	21	Gula	0.63	Damgalnunak	143.2	Bel	132.8
22	Šeru'a	20	Ningal	0.61	Bel	143.1	Aššur	132.7

# Aššur's ego network with windows of 10 words





# CURRENT WORK ON IMPERIAL ELITE

- Network analysis on persons
  - *The Prosopography of the Neo-Assyrian Empire* (1998-2011)
  - co-occurrences in documents
- No preconceptions on who belongs to which group
  - e.g. priests, governors, etc.
  - want to see what kinds of groups we get
    - > the elite of the Neo-Assyrian period



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# THANK YOU!