CONSPIRACY THEORIES, UFOS, AND VACCINE HESITANCY — NON-EXPERT HYPERLINK NETWORKS ON THE DANISH WEB 2006-2015

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AGENDA

1. Aim and theory
2. Data and method: The archived web and hyperlink network analysis
3. First digs
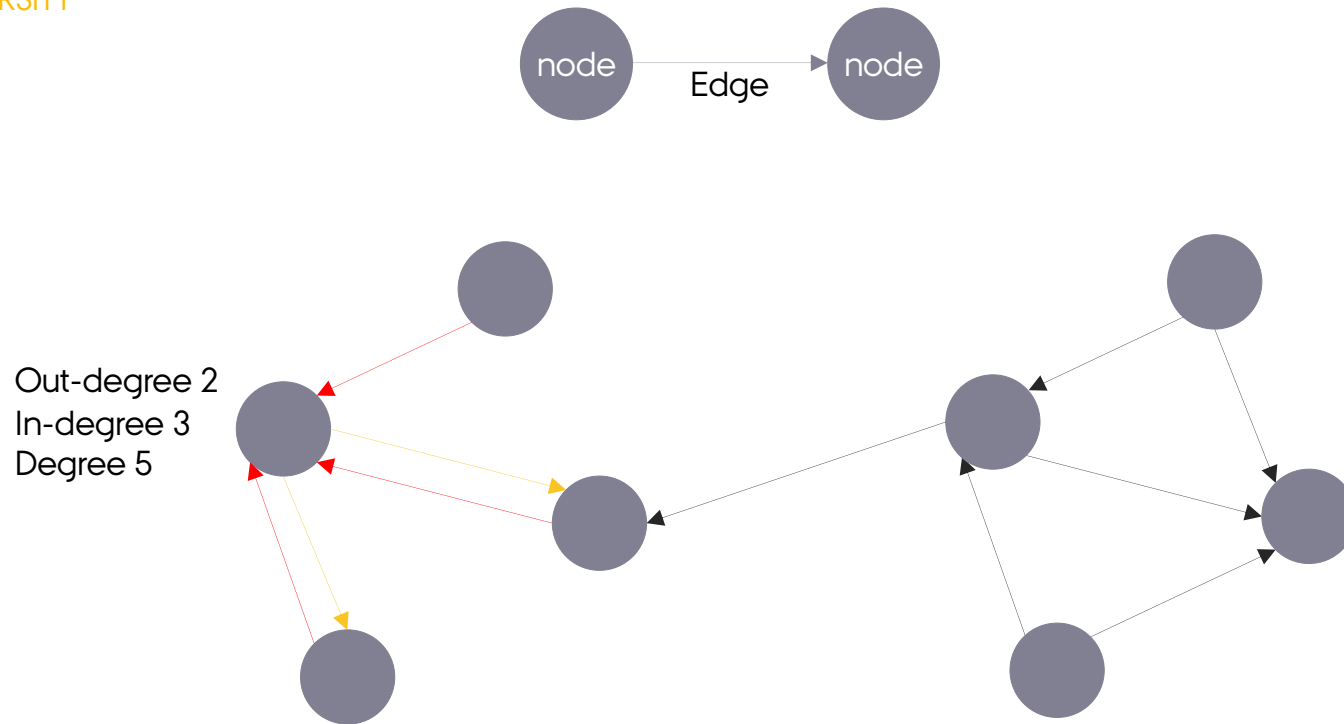4. Next steps

1. AIM AND THEORY

> <u>aim</u>: to map the 'roads' — hyperlinks — between websites related to vaccine hesitancy to be able to identify the most central websites — those that are most central on the map
> roads are needed to come from one place to another — hyperlinks are needed for web content to travel

2. DATA AND METHOD: THE ARCHIVED WEB

> material extracted from the national Danish web archive Netarkivet, hosted by the Royal Danish Library

> annual 'time slice' of the entire Danish web domain .dk, 2006-2015

> all hyperlinks extracted from these data, app. 10 million hyperlinks per year

> used as the basis for the hyperlink network analysis

2. DATA AND METHOD: HYPERLINK NETWORK ANALYSIS

› network analysis well known method within the social sciences for decades
› combined with web studies in the late 1990s because a hyperlink constitutes a materialised relation
› recently also used for historical studies of the archived web

node — Edge → node

Out-degree 2
In-degree 3
Degree 5

Importance in the network measured as centrality:
› in-degree centrality
› out-degree centrality
› betweenness centrality

2. DATA AND METHOD: HYPERLINK NETWORK ANALYSIS

> existing literature tends not to include <u>the network</u>, non-expert websites seen as isolates (e.g. Moran et al.: "What makes anti-vaccine websites persuasive? A content analysis of techniques used by anti-vaccine websites to engender anti-vaccine sentiment")

> "let the network talk", include the web ecology in which non-expert websites are embedded

3. FIRST DIGS

Analytical steps:
› identify website type:
  › non-expert websites ('nothing is what it looks like', conspiracy theories, UFOs, alternative medicine...)
  › official expert websites (the Danish Ministry of Health, etc.)
  › semi-official expert websites (patients associations, NGOs, etc.)
› start list of 355 websites

Non-expert website: tagryggen.dk, right-wing, anti-establishment, conspiracy theory-like Christian website

Non-expert websites: mayday-info.dk, provides critical information about health issues

3. FIRST DIGS

Analytical steps (continued):
> extracting all in-/outgoing links from these websites in the total link graph of the Danish web
> mapping the hyperlink network, using Gephi

Size = degree
Color:
> green = non-expert
> red = expert, official
> blue = expert, semi-official

Immediately visible results:
> official and semi-official websites are the most central
> fact checking website present, faktalink.dk
> non-expert websites are also predominant, in particular alternative medicine, but also tagryggen.dk
> antivax: mayday-info.dk, degree 4, sund-skepsis, degree 0 (top-40 >5)
> social media absent

The hyperlink network 2006 — degree centrality, 692 nodes, 451 edges

Size = degree
Color:
> green = non-expert
> red = expert, official
> blue = expert, semi-official

netdoktor.dk

drk.dk

psykosyntese.dk

esoterisk-astrologi.dk

anima.dk

dyrenes-beskyttelse.dk

psykoweb.dk

sundhedsguiden.dk

Immediately visible results:
> not many links between the websites
> some clustering around the official website sst.dk
> and a little around visdomsnettet.dk
> (almost) no links between the different types of websites
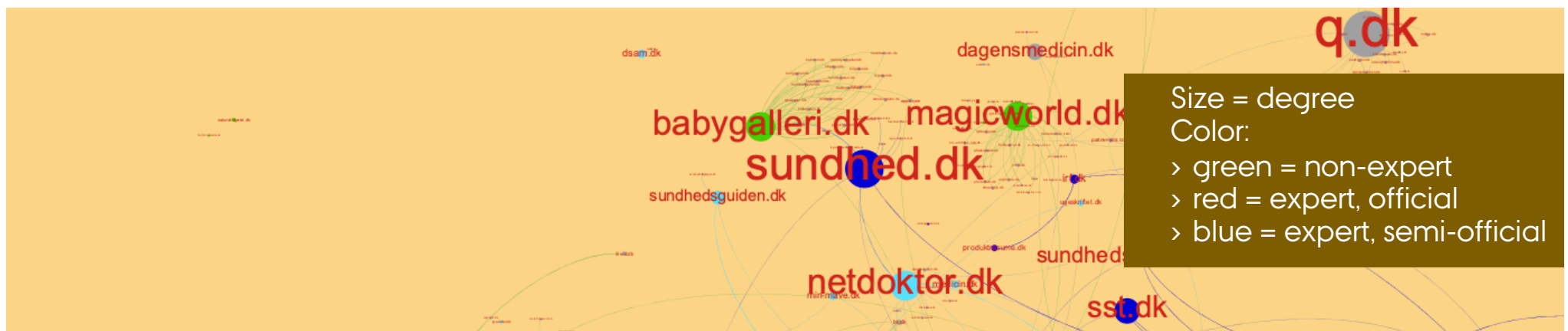
copa.dk
dsohh.dk

psychedelia.dk

kronisktraethedssyndrom.dk

The hyperlink network 2006 — filtering for the three types of websites

Size = degree
Color:
› green = non-expert
› red = expert, official
› blue = expert, semi-official

Immediately visible results:

› uriasposten.net, non-expert most central, like tagryggen.dk

› other non-expert websites still predominant, alternative medicine and conspiracy theory tagryggen.dk + oplysning.org (new)

› when filtered: expert websites tend to cluster, non-experts do not, no links between the two types

› antivax: mayday-info.dk, degree 3, sund-skepsis, degree 0 (top-40 >10)

› mainstream media present (e.g. dr.dk, q.dk)

› social media present (Facebook, YouTube, Twitter)

Immediately visible results:

> same clustering structure

> right-wing conspiracy theory-like websites and websites about alternative medicin are central

> antivax: not very predominant

> mainstream media appear in 2015

> social media appear in 2015

Development in the hyperlink network 2006 to 2015

4. NEXT STEPS

> expand the start list of websites
> trim the data
> work more in detail with the hyperlink network analysis
> combine with discourse analysis of central websites

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