Analysing changes in official use of the design concept using SweCLARIN resources

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Overview

- Problem description

- Resources and methods

- Results

- Conclusions and reflections

Problem description (from a design researcher)

- "there has been an increased effort, not least from the side of the Swedish government, to place architecture and design under the same umbrella…"
    - (and this is likely to be detrimental to the design field)
- Is there textual evidence that support this impression?

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Terms in focus for the study

- *Arkitektur* (architecture)

- *Design*

- *Form*

- *Formgivning* (cf. German *Formgebung*)

- **Note**: *form* is a common word with many meanings outside the field of design

Dictionary definitions

- arkitektur
  - art (of building);
  - science (of building);
  - artistic and technical design
    (of something)

- design
  - artistic form giving
    (of everyday objects)

Resources and methods

Resources

- The primary texts to be analysed were two official government reports:

  - SOU 1999:123: *En mötesplats för form och design*

    'A meeting-place for form and design'

    - 37,880 tokens

  - SOU 2015:88: *Gestaltad livsmiljö: en ny politik för arkitektur, form och design*

    'Shaped habitat: a new policy for architecture, form and design'

    - 47,345 tokens

- (and more, not dealt with in this study:

  - government proposals, internal reports, responses, …)

Tools and corpora used for the study

Swe-Clarin resources

- ***Sparv*** parsing pipeline
- ***SenSALDO*** sentiment dictionary
  - More than 12000 entries
  - Sentiment -1, 0, +1
- Swedish Culturomics Gigaword corpus

Other resources

- Gensim package for
  - Word embeddings
  - Topic modelling
- VADER system for sentiment analysis
- Python 3

The Swedish Culturomics Gigaword Corpus (SCGC)

- 1 billion words

- five different genres

- years 1950-2015

- our selection:
  - news 1990-99
  - news 2010-15

Sentences per year for each genre

	fiction	government	news	science	socialmedia
1950	-	420 413	-	-	-
1960	-	424 920	-	-	-
1965	-	-	53 624	-	-
1970	-	459 867	-	-	-
1976	-	-	89 175	-	-
1977	499 030	-	-	-	-
1980	-	534 194	-	-	-
1981	307 597	-	-	-	-
1987	97 398	-	364 226	-	-
1990	-	551 988	-	-	-
1991	330 127	-	-	-	-
1992	-	-	-	44 538	-
1994	-	391 882	1 538 748	-	-
1995	-	-	514 797	-	-
1996	-	-	449 148	118 542	-
1997	-	-	980 230	125 096	-
1998	-	-	804 178	121 895	1 638
1999	194 699	-	-	113 568	40 099
2000	-	-	-	109 289	12 945
2001	-	-	1 393 257	115 012	20 006
2002	-	41 066	2 610 740	110 830	191 234
2003	-	-	2 095 700	96 778	16 382
2004	-	-	2 094 251	103 881	487 447
2005	-	-	3 013 787	85 023	985 094
2006	-	50 684	2 634 386	-	408 425

Frequencies in SCGC

	News1990-99	News 2010-15	Expansion
all tokens	60,038,000	168,998,000	2.82
arkitektur	793	1,595	2.01
design	1,008	4,042	4.00
formgivning	204	303	1.48
form	10,400	28,100	2.70

Results

Word embeddings from SCGC

1990-99

arkitektur

    1. stadsplanering (0.800)

        eng. *city planning*

    4. formgivning (0.776)

    11. design (0.703)

design

    1. formgivning (0.850)

    6. arkitektur (0.703)

2010-15

arkitektur

    1. konst (0.798)

        eng. *art*

    2. formgivning (0.787)

    4. design (0.763)

design

    1. formgivning (0.859)

    2. arkitektur (0.763)

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Topic modelling on chapters of the SOU:s

SOU1999:123

- 16 topics

- *design* appears among top-10 topical words in 11 topics, where *arkitektur* is found in 2 of them.

SOU2015:88

- 14 topics

- *design* and *arkitektur* appear together among top-10 topical words in 8 topics

- There is no topic where *design* is found and not *arkitektur*, and vice versa, among the top-10

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Relative frequencies in the two corpora
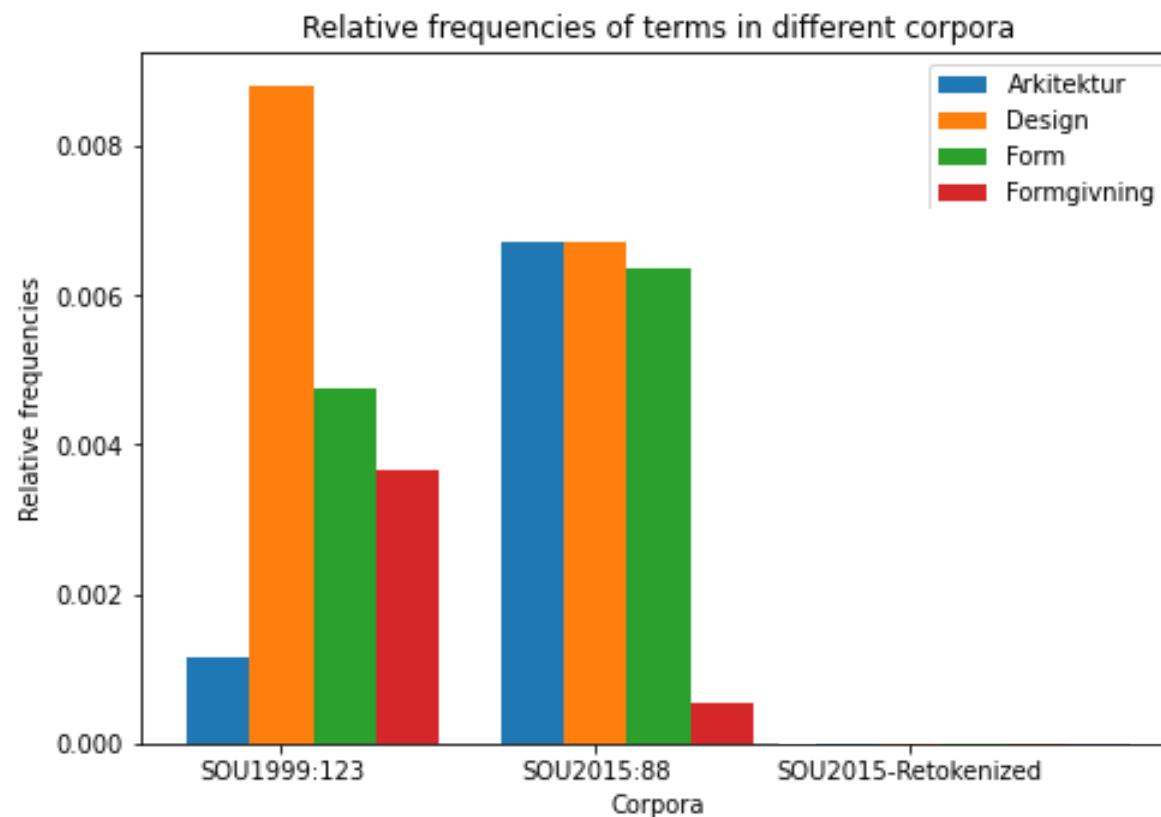
Concordancing

```
redningens uppdrag den gällande politiken för arkitektur , form och design antogs 1998 genom handlings
ingen gestaltad livsmiljö – en ny politik för arkitektur , form och design ( ku 2014:02
ingen gestaltad livsmiljö – en ny politik för arkitektur , form och design ( ku 2014:02 ) har enligt d
bland annat : • föreslå hur en ny politik för arkitektur , form och design kan utformas utifrån
                : • föreslå hur en ny politik för arkitektur , form och design kan utformas utifrån en bed
mning av områdets framtida utmaningar och hur arkitektur , form och design kan få ett ökat genomslag i
gskolor och representanter för forskning inom arkitektur , form och design .
promemorian inordnande av statens centrum för arkitektur och design i moderna museet – en kraftsamling
                    41 2 politiken för arkitektur , form och design sedan framtidsformer 2.1
                    41 2 politiken för arkitektur , form och design sedan framtidsformer 2.1 ut
8.sex nationella mål för statens engagemang i arkitektur , formgivning och design formulerades i framt
            • intresset för hög kvalitet inom arkitektur , formgivning , design och offentlig miljö sk
                        • svensk arkitektur , formgivning och design ska utvecklas i ett
                                arkitektur , form och design beskrivs som en del av kult
                        kvalitativ arkitektur , form och design ska möta våra behov och väg
            enligt propositionen har god arkitektur , form och design lång livslängd , bygger på
k och kostnadseffektivitet ” resulterar i god arkitektur , formgivning och design .
            en offentlig debatt om hur arkitektur , form och design påverkar människornas varda
 måste även andra yrkesområden få kännedom om arkitektur , form och design .
                        svensk arkitektur , form och design ska kunna påverkas av inter
```

Finding

- The terms frequently occur coordinated together, and particularly frequently in a phrase we refer to as the triad:

- Government proposal from 1999 (follow-up on SOU1997:123):
  - arkitektur, formgivning och design   66 instances
  - arkitektur, form och design   0

- SOU2015:88
  - arkitektur, formgivning och design   8 instances
  - arkitektur, form och design   170 instances

Frequencies in two versions of SOU2015:88

Corpus	arkitektur	form	design	arkitektur,_form_och _design
Original	318	301	317	-
Retokenized	148	131	147	170

Relative frequencies in three corpora

Relative frequencies of terms in different corpora
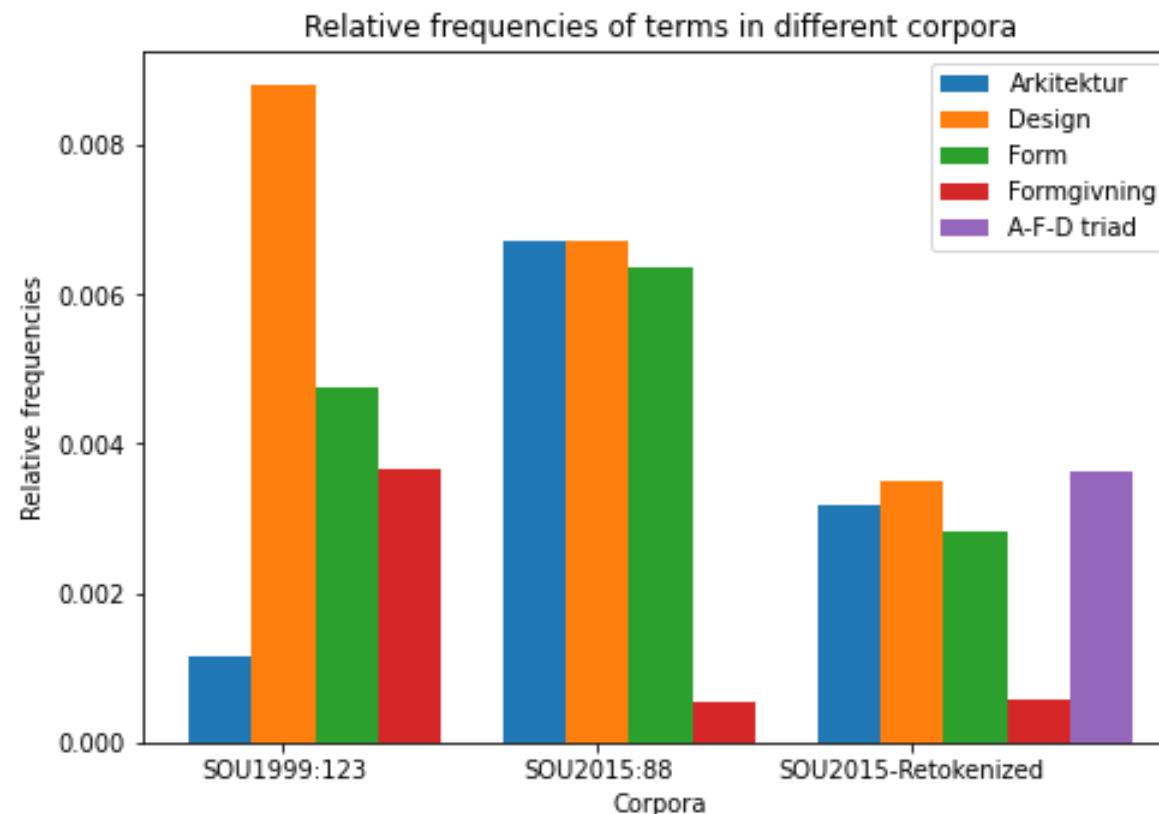
Sentiment analysis

- Overall neutral tone

- Based on all sentences the 2015 SOU uses a more positive tone than the 1999

  – 0.155 vs 0.106 (significant $p < 0.001$)

- Based on sentences with the terms from both SOUs

  – The terms *form* and *design* are used with a more positive tone in the 2015 SOU ($p < 0.001$)

  – However, this depends on the triad. Outside of the triad the sentiment does not differ between years

- In the 2015 SOU the triad is presented with a more positive tone compared to the concepts *form* and *design ($p < 0.001$).* Not significantly different to *arkitektur.*

Conclusions and reflections

Summary of findings

- We see indications of a semantic convergence of the word *design* with the word *arkitektur* over the last twenty years, and strongest in the 2015 SOU

- The term *formgivning* is increasingly giving way to the term *design,* both in the reports and in news media

- The compound term *arkitektur, form and design* is very frequent in the 2015 report and, compared to *form* and *design* as individual terms, significantly more positively described there.

    → there is textual support for the impression that "architecture and design are placed under the same umbrella"

Conclusions

- The tools and language resources available in the SweClarin infrastructure for analysis of Swedish texts enable comparisons of language use also over such short time spans as 20 years.

  – SOU reports could be compared to news media for the same time period

- Sentiment analysis was the method that provided the most reliable results. For this the following Swe-Clarin resources were critical:

  – The Sparv parser's ability to identify word senses for sentiment analysis,

  – The SenSaldo dictionary for sentiment analysis with VADER

- The combination of tools and methods used requires programming skills

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Final reflection

Photo: André Savik

At a Nordic design conference in Oslo, the Danish poet, mathematician and designer Piet Hein presented the following:
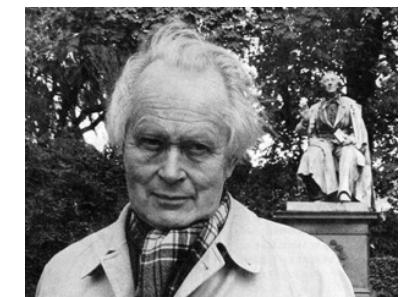
Om en produkt är 50 meter lång kallar vi den arkitektur, är den större kallar vi den stadsplanering, är den mindre kallar vi den design.

If a product is 50 meters long we call it architecture, if it is bigger we call it urban planning, if it is smaller we call it design.