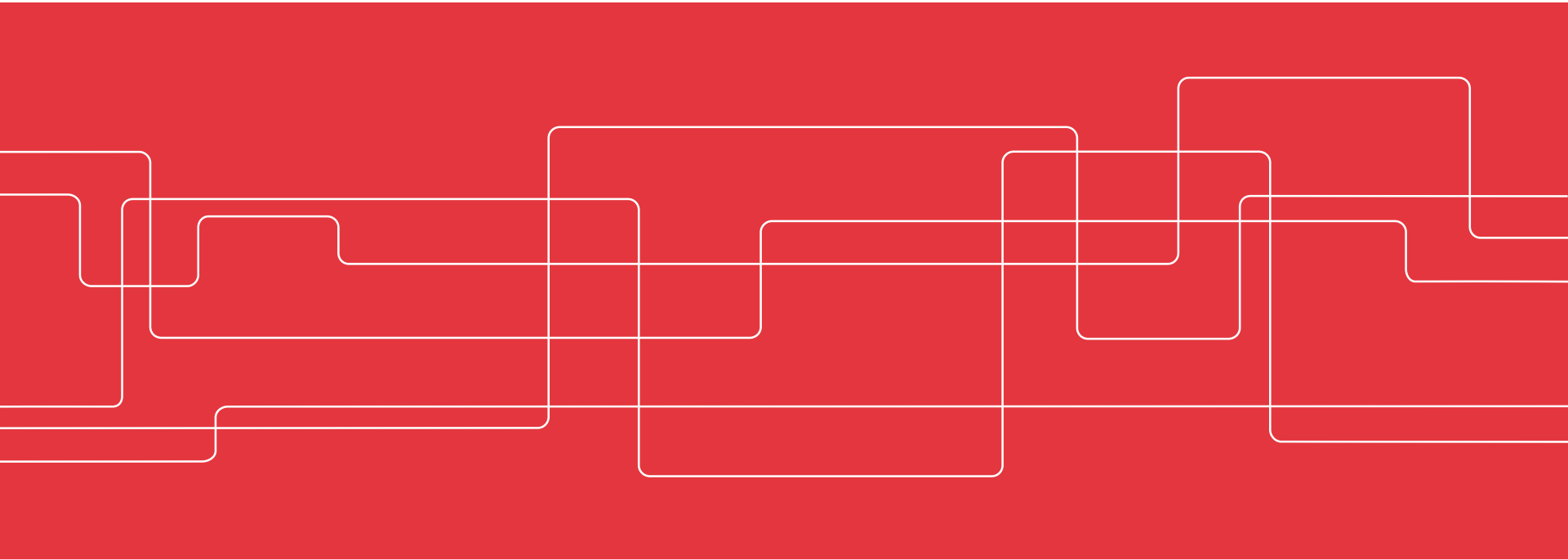




Fact or Fiction? – Citation Categories and their Use Cases in Thesis Bibliographies at KTH

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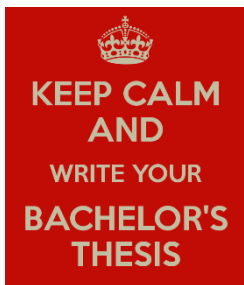


Background and purpose

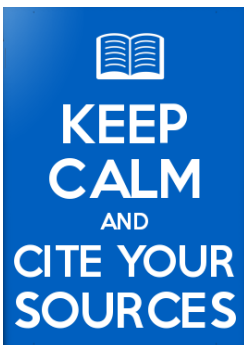
- Since the first level (bachelor) thesis was introduced in the degree programs at KTH students are exposed to scientific writing at an early stage in their education
- Key element of scientific writing - **efficient use of citations** - references to published work in the area
- From a “teacher perspective” many first level thesis reports show poor quality in this respect
- Development a well-defined, quantitative, or qualitative, empirical, scientific method was highly motivated



The Student Perspective



- All first level students at KTH receive at least a module on Information Literacy before starting their thesis
- Teachers have a similar module in LH219V - Supervision and Assessment of Degree Project Work in First and Second Cycle



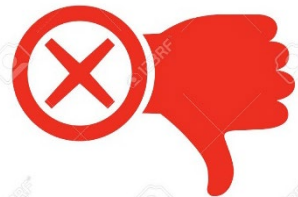
"Every report will present various facts and conclusions based on those facts... This fact or conclusion needs to be supported by evidence," [Lim]

Method

- Examine how **in-text citations** are used, focus on the context **in a paragraph or sentence in the text** ...
- do NOT look at the **Bibliography (Reference List)** per se

is often what occurs when first entering the classroom.
Classroom management begins by forming a positive
relationship with the students (MacFarlane, 2004, p. 90).
This links to success by encouraging connections and giving

1. In-text Citations



London, England: Pearson.
MacFarlane, A. (2004). *Kia hiwa ra: Listen to culture: Maori students' plea to educators*. Wellington, New Zealand: New Zealand Council for Educational Research.
Macmillan, S., & Macmillan, E. (2011). *Teachers coach:*

2. A Reference List Entry



Method

- The in-text citations were studied using methods adapted from **content analysis** [3]
- Content analysis is typically used in e.g. social science on large bodies of electronically available texts
- **Certain elements** in the texts are **coded**. The coding of the found text segments generates an **empirical material** that can be treated statistically

Inquiry methods in SOTL include reflection and analysis, interviews and focus groups, questionnaires and surveys, **content analysis** of text, secondary analysis of existing data, **quasi-experiments** (comparison of two sections of the

Empirical Data Set

- The empirical results were based on 9 first level (BS) reports. These were selected to represent programs at the 10 different schools at KTH
- A full search was done in DiVA for the time span June 2013 - June 2015 and the selected reports are a random sampling of the 1300 reports, found in the in the database
- The Data Set was used to **investigate and develop** the method, the limited size does not allow far reaching conclusions yet

Document type

Full-text in DiVA (4590)

Full-text not available in DiVA (571)

Publication type

Student thesis (5161)

Level

Independent thesis Basic level
(degree of Bachelor) (5161)

Independent thesis Basic level
(professional degree) (4)



Do we agree on the coding?

- The citation category method, proposed here, starts from my **a priori** set of “use cases” or “in-text citation categories
- Could proceed in an **iterative or emergent** fashion, where additional categories are amended in order to better match the bibliography material under study. [Stemler][Hamrin]

Use Cases 'A priori'

A citation to a source in bibliography (numbered reference list) is:

C1 used to support a statement (strengthening a statement) [Hamrin]

C2 to present a fact

C3 to refer to a datasheet

C4 to provide technical documentation other than datasheets, including manuals and handbooks

C5 to introduce a formal definition

C6 to support an argument

C7 to introduce different and contrasting views (contrasting or conflicting opinion) [Hamrin]

C8 to give a background survey

C9 to avoid writing up a section



Use Cases - amended

A citation to a source in bibliography (numbered reference list) is a:

C10 Data Source

C11 Statistics

C12 Legislation

C13 Press

C14 White Paper

C15 Standard

C16 Other, suggested by [Hamrin]

C1 Supporting a Statement

Sequencing identifies Mendelian disorders early in life and before symptoms emerge, eliminates exhaustive biomolecular tests and enables life-saving procedures (Vasta et al. 2009).

C2 to present a fact

Membrane technologies have applications in several fields. In waste water treatment membrane filtering can be used to separate small particles and/or large organic molecules, these includes viruses, oils and proteins etc. [3]



C6 In support of an Argument

Den största säkerhetsfrågan som troligen uppstår hos en användare av molntjänster är huruvida den information och data man hanterar via molnet är tillgänglig för alla andra som använder sig av samma leverantör [10].

C7 to introduce Different and Contrasting Views

ABB ser att implementeringen av elbilar kommer att ställa mycket högre krav på elproduktionen, medan andra källor ser en ökning på högst fem procent orsakat av implementerandet av elbilar (van Essen & Kampman, 2011). I samma scenarioanalys uppskattas utsläppen av koldioxidekvivalenter minska totalt med 4-21 %. Detta tar i hänsyn de utsläpp som orsakas av den utökade produktionen (van Essen & Kampman, 2011).

En slutsats som samtliga analyser delar är osäkerheter gällande laddning och toppbelastningar på elnätet (ABB 2013b; van Essen & Kampman, 2011). Detta skulle leda till högre toppar

C8 Background Survey

1.1 Compression Methods

A lot of research has been done in the area of graph compression with existing methods including Virtual Node Miner[5], Dense Subgraphs with Virtual Nodes (DSM)[6], k^2 -tree[10], WebGraph[2], Re-pair[9], a modified version of Re-pair by Claude and Navarro[4] and Graph Compression by BFS by Alberto Apostolico and Guido Di Giovanni[1]. Out of these k^2 -tree, Re-pair and BFS are the only ones not specifically developed for use on web graphs. The compression methods that have been developed for use on web graphs are based on characteristics of these and therefore might not work as well on other types of graphs.

C13 Public press or media

3.1.2.3 Sveriges etanolimport

Etanol som bränsle i Sverige har varit starkt omdebatterat de senaste åren och bland Svenska Dagbladet (Lomberg, S, 2007) har publicerat artiklar om dåliga arbetsförhållanden i etanolens ursprungsländer.

Det finns också artiklar från senare år som beskriver en inte bättre bild av odlingarna. En studie från 2012 gjord av bland andra Edgard Dias Batista på Kungliga tekniska högskolan, omnämnd i en artikel från SVT Nyheter (2012) sammanställde etanolens för- och nackdelar utifrån infallsvinklarna "utsläpp av växthusgaser, potential som fordonsbränsle, sociala frågor, förändrad markanvändning, ekonomiska frågor och mat kontra bränsle".

När etanolen först kom ut på den svenska marknaden följde subventionerade etanolbilar och lovord i dess fotspår. Sedan kom vittnesmål om dåliga arbetsförhållanden, skogsskövling och problematiken med att odla drivmedel kontra att odla mat. (SVT Nyheter, 2012)

I denna studie drogs slutsatsen att etanol är ett hållbart bränsle eftersom 65 % av effekterna var positiva, och 25 % negativa. Resterande procent var neutrala. Det är dock viktigt att notera vilken växt etanolen kommer ifrån och var växten odlas. Exempelvis är etanol från sockerrör bättre än den från majs. (SVT Nyheter, 2012)

C14 White Paper

2.2.2 Svenskt Näringsliv och ÅF

Ytterligare prognoser om den framtida el- och energimarknaden redogörs för i en rapport som teknikkonsultbolaget ÅF genomfört på uppdrag åt Svenskt Näringsliv. ÅF:s prognoser sträcker sig till år 2050. Nedan beskrivs resultatet av rapporten kortfattat.

ÅF framhåller bland annat att fossila bränslen i transportsektorn troligtvis kommer att ersättas med förnybara drivmedel för att klara klimatfrågan och ser att omställningen inom transportsektorn med stor säkerhet kommer att medföra en ökad efterfrågan på el (ÅF, 2011).

Vindkraften spås genomgå en kraftig utbyggnad, där kapaciteten år 2030 väntas uppgå till 30 TWh (ÅF, 2011).

Actual data (vs. School)

School	ABE	BIO	CHE	CSC/ECE	EES/ECE	ICT	ITM	SCI	STH
C1 statement	9	8	3	2	7	16	2	1	2
C2 fact	28	7	7	2		17	8		2
C3 datasheet									
C4 tech doc	2	7	4	3		7	3		8
C5 formal def	4		7	3	7	8	5	5	
C6 argument		2				1			
C7 contrast	1	1				3	7		1
C8 bkgd survey	17	7	5	10	21	1	34	3	2
C9 write-up								3	
c10 data source	3				3		5		
c11 stats	1						14		
c12 legis	2					4	3		
c13 press	4				6		2		
c14 white paper					1	1	33		
c15 std					6	1			
Bibl. Entries	34	26	16	11	18	44	34	12	15
Marked-up In-text Citations	71	32	26	20	51	59	116	12	15

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Take-home Message

- As students are exposed to scientific writing for the first time they display a pattern of using citations mainly to **present facts**. They have not yet learned that citations have many other valid use cases such as **supporting** an **argument** or introducing or **discussing contrasting** views.
- Students need training and exposure to scientific writing in order to develop and broaden their use of citations.
- Students could use my method on their own reports!

C4 Technical Documentation

The setup schematic can be seen in **Figure 9**.

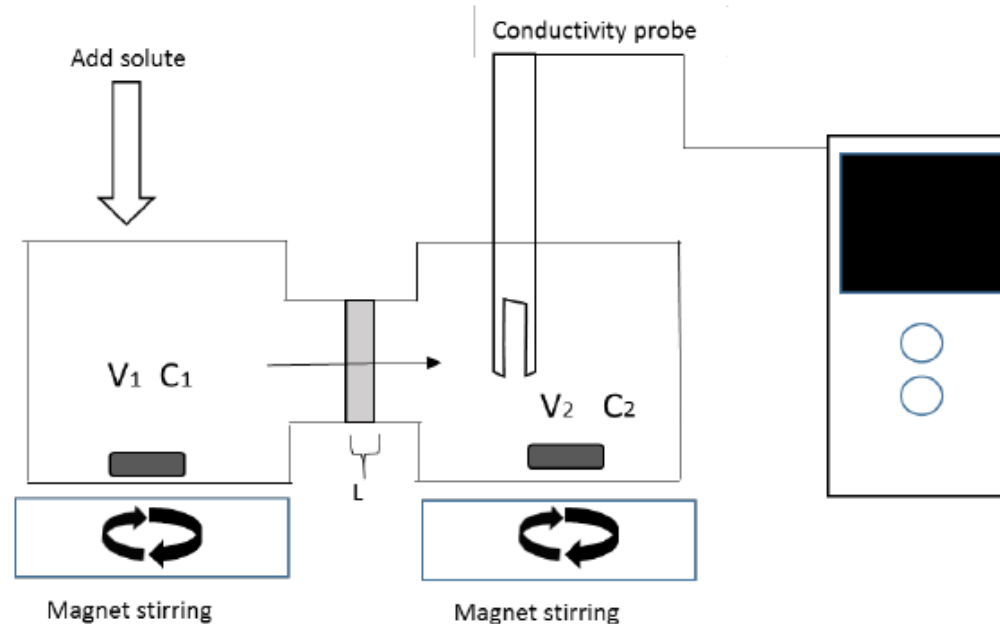


Figure 9: Setup schematic adapted for the lab

It turned out that a setup fulfilling these requirements already had been built for a KTH project testing supported liquid membranes with acids solutions. [12] The setup was



C5 Formal Definition

To simplify the proof of the last part of Frobenius' normal p -complement theorem we want to use Alperin's fusion theorem. For this we need a property of the so called *focal* subgroup which was first introduced by Higman [9]. To prove the



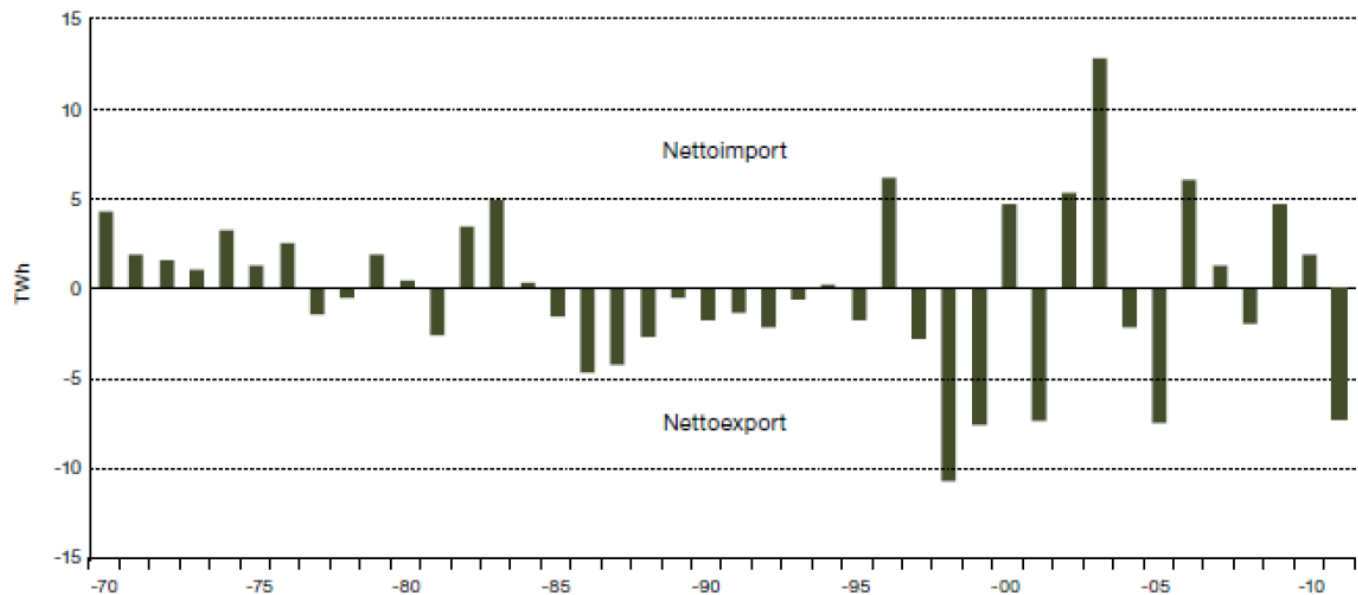
C9 to avoid writing up a section

A special case of fusion systems are the *saturated* fusion systems and one can show that all finite groups have saturated fusion systems but not all saturated fusion systems belong to some finite group. This makes the study of saturated fusion systems very interesting since it might simplify classification of finite simple groups.

Two books were released on the subject in 2011. One by David Craven [5] and one by Michael Aschbacher, Radha Kessar and Bob Oliver [4]. These have been crucial for this thesis.

C11 Statistics

antas att det inhemska utbudet och elanvändningen är likställd (Energimyndigheten, 2012a).



Figur 4: Sveriges nettoimport och nettoexport av el, 1970-2011 (Energimyndigheten, 2012a)

C12 Legislation

Det har redan konstaterats varför EU och relaterade myndigheter har incitament att implementera smarta elnät. Incitament är de tidigare nämnda 2020 och 2050 målen. Utöver detta påpekar EU vikten av att konsumenterna finner nytta i dessa implementeringar. Med andra ord är det imperativt för framgången av smarta elnät att marknaden har incitament att införa dessa (EU Kommissionen, 2011).

C15 Standard

inom specifika områden[31]. VMware uppfyller ISO/IEC 27001:2005 som för tillfället har blivit reviderad till ISO/IEC 27001:2013[32][27]. Denna standard innehåller krav på hur hanteringssystem för informationssäkerhet inom organisationer ska implementeras, etableras, underhållas och förbättras. Standarden innehåller även krav på bedömningar och hantering av olika säkerhetsrisker vad gäller informationssäkerhet [33].