



representasjoner & målinger, data & indikatorer

in3220/in4220

representasjoner & målinger, data & indikatorer

Pensum for alle:

- Muller m.fl.: How data science workers work with data: Discovery, capture, curation, design, creation
- Svein Hovdes notat om Tillit til tall (+ Makt gjennom tall)

Master:

- Jones: What we talk about when we talk about (big) data

Ekstra

- *Om kvantifisering: Berman & Hirschman*
- *Om kategorier og deres konsekvenser: Star, Suchman x 2*
- *Om indikatorer: Balka m.fl.*
- *Om data: Winthereik, Bopp m.fl.*
- *Om representasjoner: Schmidt, Dourish & Button, Bratteteig*

data som representasjoner

**data er ikke noe man oppdager eller «plukker»:
de produseres**

(s. 126)

«The value of data explodes when it is integrated»

«the computer becomes an active question asking machine»

«There do not appear to be any humans in this view of data science. ...
As we will show, human expertise intervenes between the raw data
and the analysis, crucially shaping the data, the choice of analysis, and
in some cases the truth claims»

RESEARCH-ARTICLE

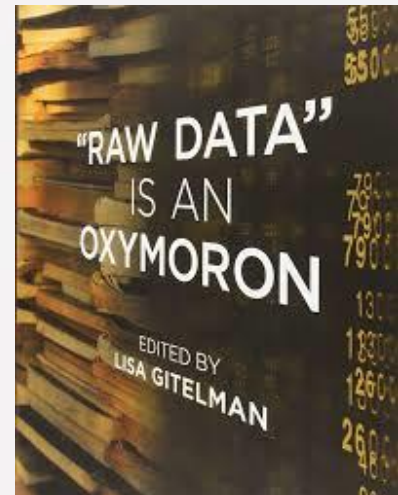
How Data Science Workers Work with Data: Discovery, Capture, Curation, Design, Creation

🐦 in 🌐 f ✉

Authors: [Michael Muller](#), [Ingrid Lange](#), [Dakuo Wang](#), [David Piorkowski](#), [Jason Tsay](#), [Q. Vera Liao](#), [Casey Dugan](#), [Thomas Erickson](#) [Authors Info & Claims](#)

CHI '19: Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems • May 2019 • Paper No.: 126 • Pages 1–15 • <https://doi.org/10.1145/3290605.3300356>

Online: 02 May 2019 [Publication History](#)



data som representasjoner

**data er ikke noe man oppdager eller «plukker»:
de produseres**

- data vaskes: «data cleaning», «data wrangling» tar mesteparten av tiden (opp til 80%), mest tid på «preparing» data, mindre tid på analyse
- data science workers bestemmer hvilke data som skal «fanges» og hvordan, hvordan de «lables» & lagres + bestemmer når dataene er komplette
- data «kurateres»: data som inneholder de attributtene som anses nyttige velges ut
- data designes når det ikke fins nok data («missing», «non-conformant») => syntetiske data («synthetic data»)
- «validation set» av data & «the ground truth» is crafted
- data produseres for at beregningsmodellen skal fungere

RESEARCH-ARTICLE

How Data Science Workers Work with Data: Discovery, Capture, Curation, Design, Creation



Authors: [Michael Muller](#), [Ingrid Lange](#), [Dakuo Wang](#), [David Piorkowski](#), [Jason Tsay](#), [Q. Vera Liao](#), [Casey Dugan](#), [Thomas Erickson](#) [Authors Info & Claims](#)

CHI '19: Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems • May 2019 • Paper No.: 126 • Pages 1–15 • <https://doi.org/10.1145/3290605.3300356>

Online: 02 May 2019 [Publication History](#)

- *en studie av 21 data science workers og deres praksiser*
- *studie av data scientists arbeid som håndverk med fokus på*
 - *samtale med materialet*
 - *kontroll*
 - *metoder og verktøy*
 - *tilpasninger*

data som representasjoner

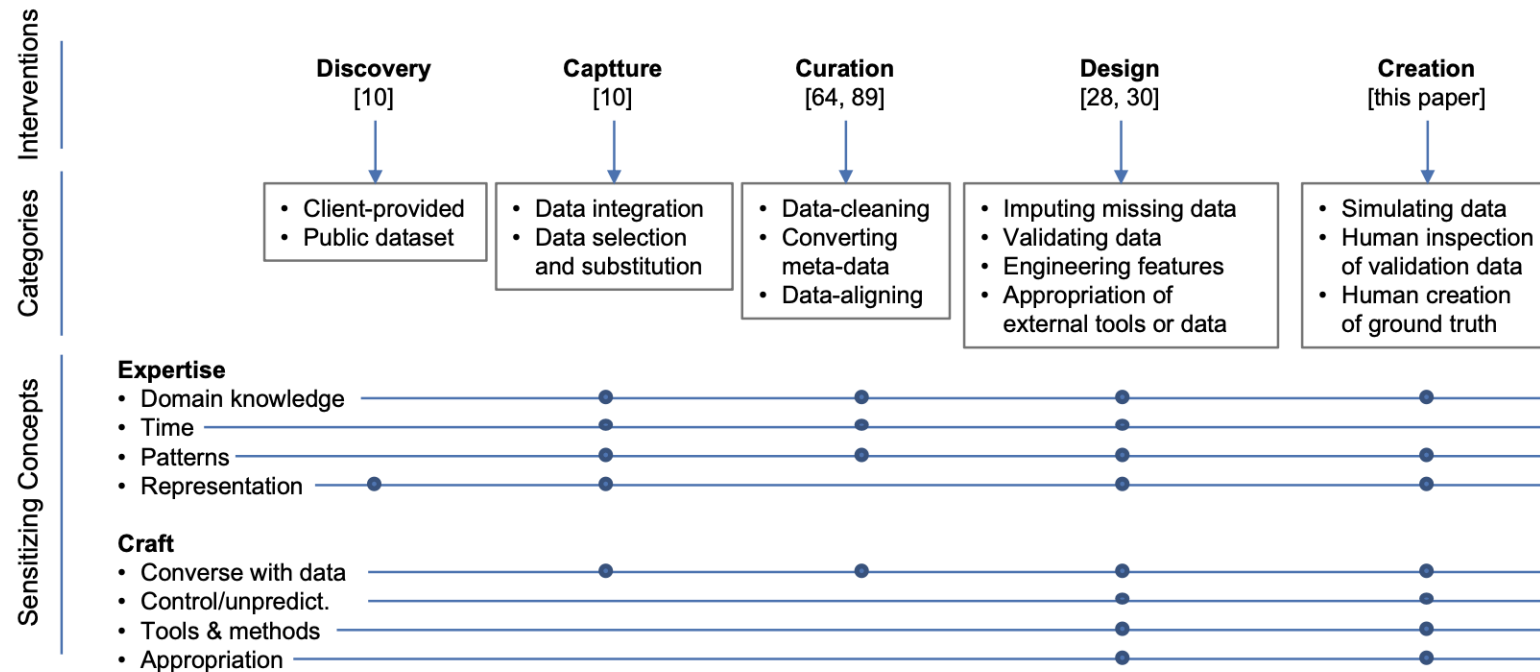


Figure 1. Human interventions in data science work practices.

«they move farther and farther from what boyd and Crawford called the 'mythology' of the aura of truth, objectivity, and accuracy' in ... analyses» (s.126)

RESEARCH-ARTICLE

How Data Science Workers Work with Data: Discovery, Capture, Curation, Design, Creation

in f

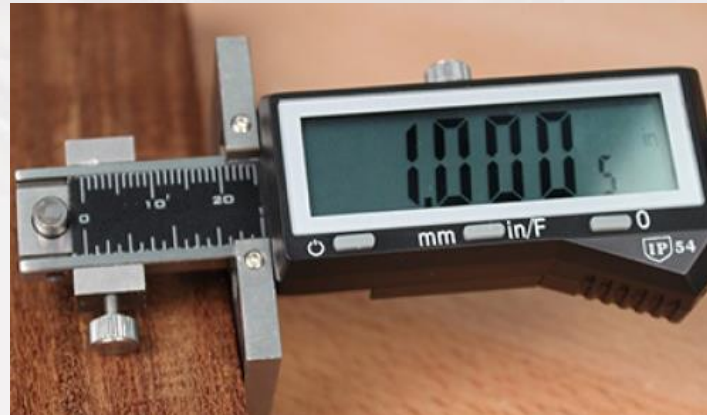
Authors: Michael Muller, Ingrid Lange, Dakuo Wang, David Piorkowski, Jason Tsay, Q. Vera Liao, Casey Dugan, Thomas Erickson [Authors Info & Claims](#)

CHI '19: Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems • May 2019 • Paper No.: 126 • Pages 1–15 • <https://doi.org/10.1145/3290605.3300356>

Online: 02 May 2019 [Publication History](#)

målesamfunnet

Et konkret eksempel på dette er mitt digitale rissemål. Dette risser en strek på et emne (oftest av tre) i en avstand angitt med en hundredels millimeters nøyaktighet. Dette overgår betydelig hva som er mulig å oppfatte med det menneskelige øye og utføre ved hjelp av håndverkerens hender. ... I overskuelig framtid (for alltid?) er vi henvist til å oppleve oss selv som uperfekte og omtrentlige i en verden av finjusterte, finurlige og raffinerte måleinstrumenter.



Alle målestokker vi benytter oss av for å bedømme er historiske og kulturelle produkter s. 7

1. feb. 2022

SAMMEN MED TINGENE

12. februar - 6. mars 2022



Elisa Helland-Hansen | keramikk

Bent Vinkler | pilefletting

Svein Hovde | 400 rissemål i prosjektrummet

Galleri Zink ønsker velkommen til utstillingen "Sammen med tingene", med keramiker Elisa Helland-Hansen og pilefletter Bent Vinkler i hovedrommet, og sosiolog Svein Hovde som viser 400 rissemål i prosjektrummet.



data som representasjoner 2

Journal of Strategic Information Systems 28 (2019) 3–16



Contents lists available at ScienceDirect

Journal of Strategic Information Systems

journal homepage: www.elsevier.com/locate/jsis



What we talk about when we talk about (big) data

Matthew Jones

Judge Business School, University of Cambridge, Trumpington Street, Cambridge CB2 1AG, UK



ABSTRACT

In common with much contemporary discourse around big data, recent discussion of datafication in the *Journal of Strategic Information Systems* has focused on its effects on individuals, organisations and society. Generally missing from such analysis, however, is any consideration of data themselves. What is it that is having these effects? In this Viewpoint article I therefore present a critical analysis of a number of widely-held assumptions about data in general and big data in particular. Rather than being a referential, natural, foundational, objective and equal representation of the world, it will be argued, data are partial and contingent and are brought into being through situated practices of conceptualization, recording and use. Big data are also not as revolutionary voluminous, universal or exhaustive as they are often presented. Some initial implications of this reconceptualization of data are explored. A distinction is made between "data in principle" as they are recorded, and the "data in practice" as they are used. It is only the latter, typically a small and not necessarily representative subset of the former, that will contribute directly to the effects of datafication.

1. Introduction

Data and their effects on individuals, organisations, business models and society have, rightly, attracted growing attention in the *Journal of Strategic Information Systems* (Newell and Marabelli, 2015; Loebbecke and Picot, 2015; Gunther et al., 2017; Markus, 2017). The immediate prompt for this attention has been the "widespread diffusion of digital devices that have the ability to monitor our everyday lives" (Newell and Marabelli, 2015: 3), a process that is referred to as "datafication". Discussions of this phenomenon, however, have largely taken the data themselves for granted and have focused on how data "are being used, and by whom and with what consequences" (Newell and Marabelli, 2015:3). While, as Galliers et al. (2017) argue, the uses of data raise important questions that deserve the attention of scholars in the IS field (and more widely) in this Viewpoint paper I would like to switch the focus around and consider what constitutes these data, the effects of the accumulation of which we have begun to explore. What actually is it that is having these effects?

This enquiry will critically examine a number of commonly held, and often implicit, assumptions about the nature of data. In doing so I hope to extend the discussion of the datafication phenomenon beyond "its issues, impacts and implications" (Galliers et al., 2017: 188) to include an awareness of the particular character of the 'material' on which this phenomenon is based. A better appreciation of this character, it will be argued, may inform a richer understanding of the effects of datafication and open them to more rigorous scrutiny.

What has given questions about the nature of data a particular relevance, of course, is not just the increasing datafication of contemporary life. Rather it is the accumulation of these data in repositories, the analysis of which, often by "pre-determined algorithms that lead to decisions that follow on directly without further human intervention" (Galliers et al., 2017: 185), is seen as transforming work, organisations and society, a development commonly referred to as "big data".

Although, as will be discussed, "big data" are not necessarily a product of datafication and the meaning of the term itself is highly contested, there is little doubt both that the volume of data being created has greatly expanded in recent years and that techniques to analyse data at this scale have significantly advanced. The paper will therefore also examine assumptions that relate specifically to



Fig. 1. The Knowledge Pyramid (after Kitchin, 2014a).

Table 1
Assumptions about data and big data and potential challenges to them.

Assumption	Description	Potential challenges to the assumption
<i>Data are ...</i>		
Referential	Data report a reality that exists independent of themselves	Data may not always report reality accurately or completely
Natural	Data exist independent of their use	Data are constructed
Foundational	Data are the base on which our understanding of the world is built and themselves stand directly on that world	What is taken to be data reflects a particular way of understanding the world
Objective	Data represent the world, without interpretation	What is taken to be data involves subjective judgements
Equal	All data are equivalent	Data vary in their characteristics, provenance and quality
<i>Big data are ...</i>		
Revolutionary	Big data are unprecedented and transformational	Big data are not necessarily new and their effects are not determined by their characteristics
Voluminous	Data are accumulating at large scale and at a high rate	The significance of data does not depend on their volume and velocity
Universal	Everything is, or will become, data	Not everything is effectively represented by data. Datafication is selective
Exhaustive	N = all	Data are a sample of the reality they describe. Data that are usable, and used, are a subset of data that are recorded

data som representasjoner 2

Journal of Strategic Information Systems 28 (2019) 3–16

Contents lists available at ScienceDirect

Journal of Strategic Information Systems

journal homepage: www.elsevier.com/locate/jsis

What we talk about when we talk about (big) data

Matthew Jones

Judge Business School, University of Cambridge, Trumpington Street, Cambridge CB2 1AG, UK

ABSTRACT

In common with much contemporary discourse around big data, recent discussion of datafication in the *Journal of Strategic Information Systems* focused on its effects on individuals, organisations and society. Generally missing from such analysis, however, is any consideration of the effects of datafication on the data themselves. What is it that is having these effects? In this Viewpoint article I therefore present a critical analysis of a number of assumptions about data in general and big data in particular. Rather than being a reflection of a foundational, objective presentation of the world, it will be argued, data are partial and contingent and are shaped by the situated practices of their conceptualization, recording and use. Big data are also not as revolutionary voluminous, universal and unproblematic as they are often presented to be. Initial implications of this reconceptualization of data are explored. A distinction is made between “data in practice” as they are used. It is only the latter, typically a small and not necessarily representative subset, that directly to the effects of datafication.

1. Introduction

Data and their effects on individuals, organisations, business models and society have been the focus of much recent discussion in the *Journal of Strategic Information Systems* (Newell and Marabelli, 2015; Lounsbury et al., 2017). The immediate prompt for this attention has been the “widespread diffusion of data into everyday lives” (Newell and Marabelli, 2015: 3), a process that is, however, have largely taken the data themselves for granted and have not considered what consequences” (Newell and Marabelli, 2015:3). While, as Galvin (2017: 188) has argued, that deserve the attention of scholars in the IS field (and more widely), it is also important to consider what constitutes these data, the effects of the accumulation of data and having these effects?

This enquiry will critically examine a number of common assumptions about data and what is being done so I hope to extend the discussion of the datafication phenomenon (Newell and Marabelli, 2015; Lounsbury et al., 2017: 188) to include an awareness of the particular character of this character, it will be argued, may inform a more rigorous scrutiny.

What has given questions about the nature of data a particular resonance in contemporary life. Rather it is the accumulation of these data in repositories, the algorithms that lead to decisions that follow on directly without further human intervention, transforming work, organisations and society, a development commonly referred to as “big data”. Although, as will be discussed, “big data” are not necessarily a product of datafication and the meaning of the term is contested, there is little doubt both that the volume of data being created has greatly expanded in recent years and that the analysis data at this scale have significantly advanced. The paper will therefore also examine assumptions that relate to the effects of datafication.



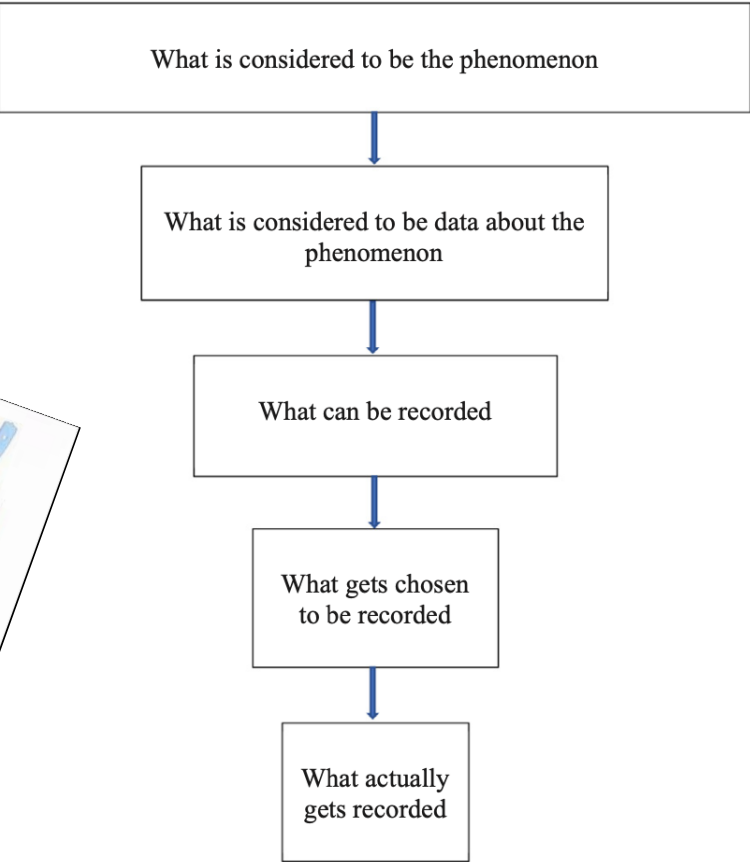


Fig. 2. How data come to be.

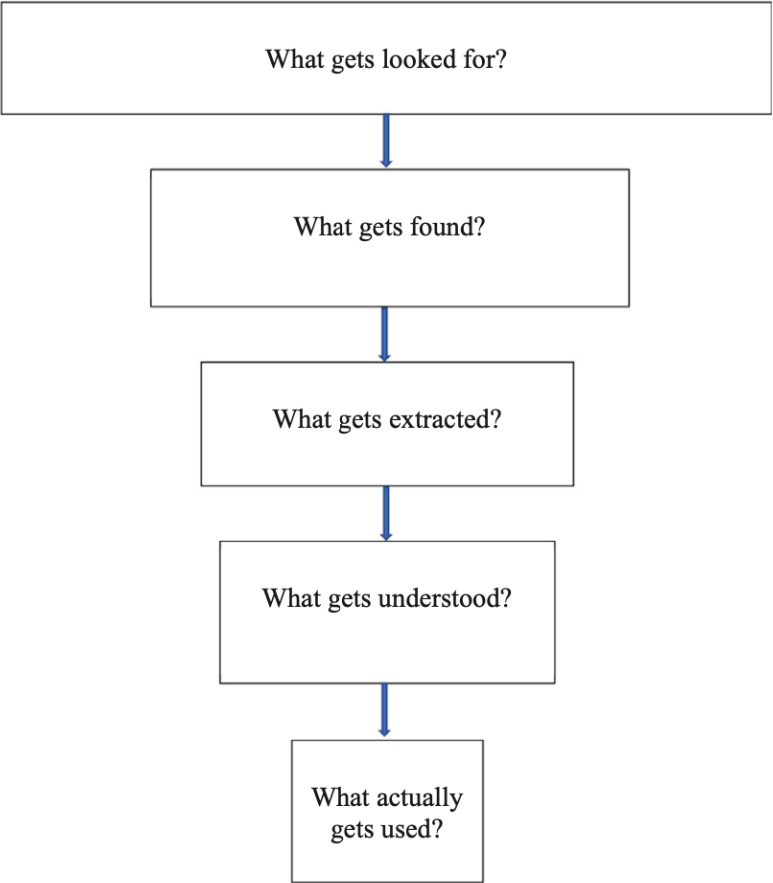
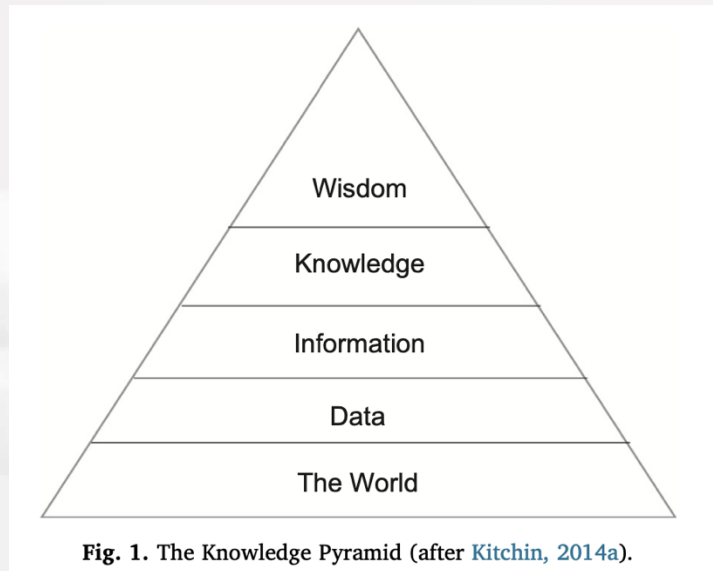


Fig. 3. How data come to be used.

data som representasjoner 2



data som representasjoner 2

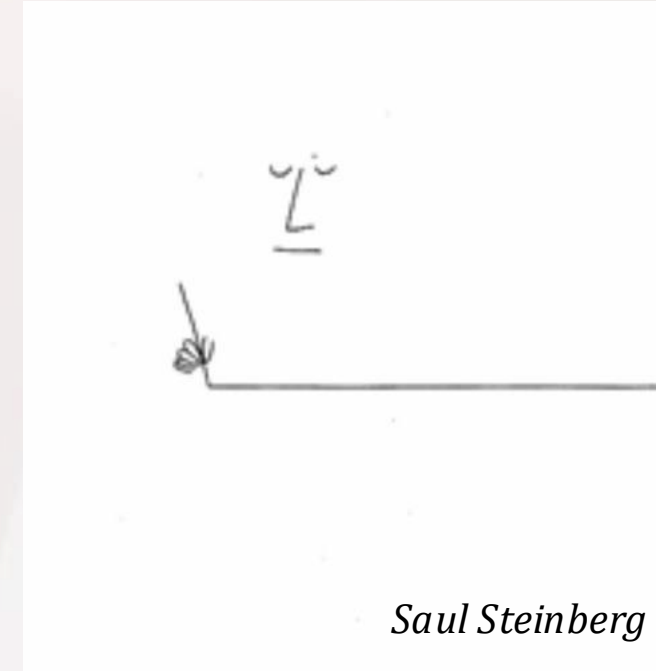
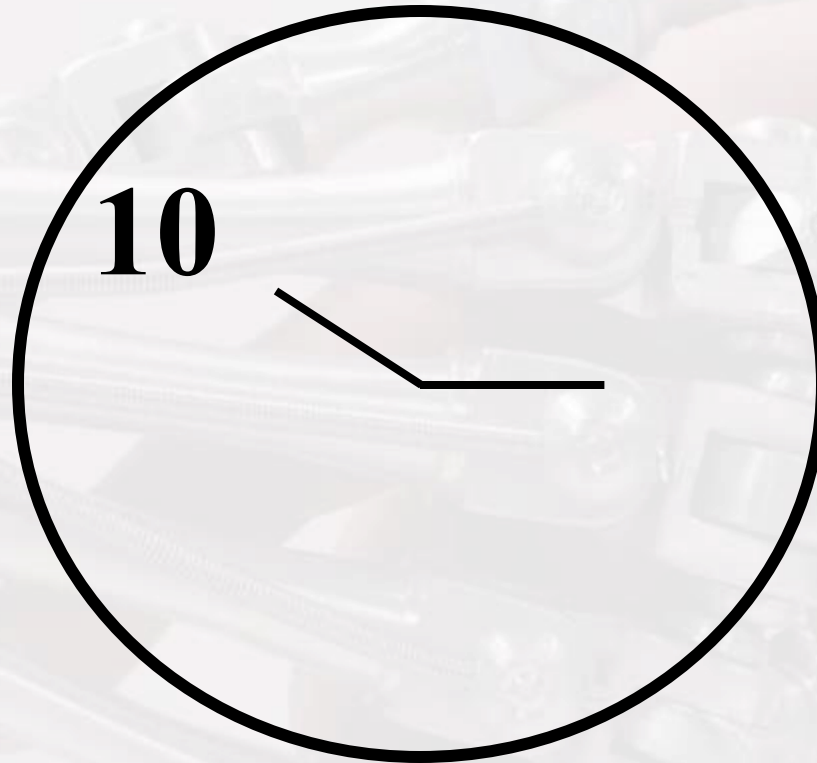
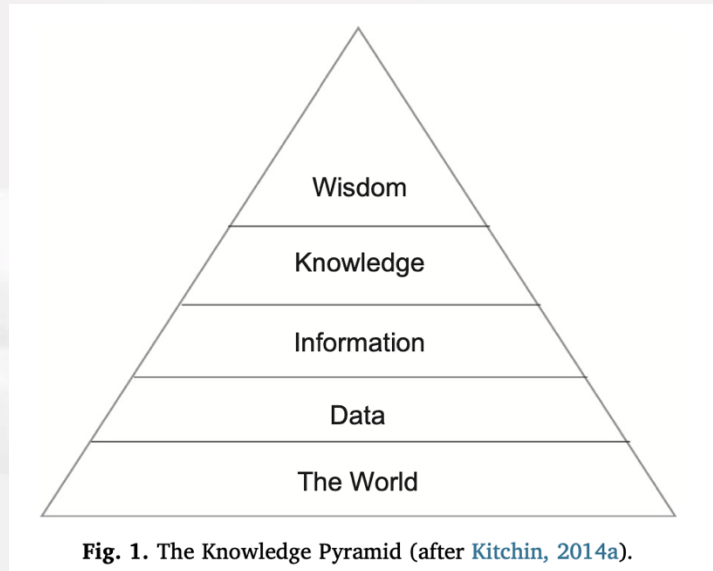


10

10

10

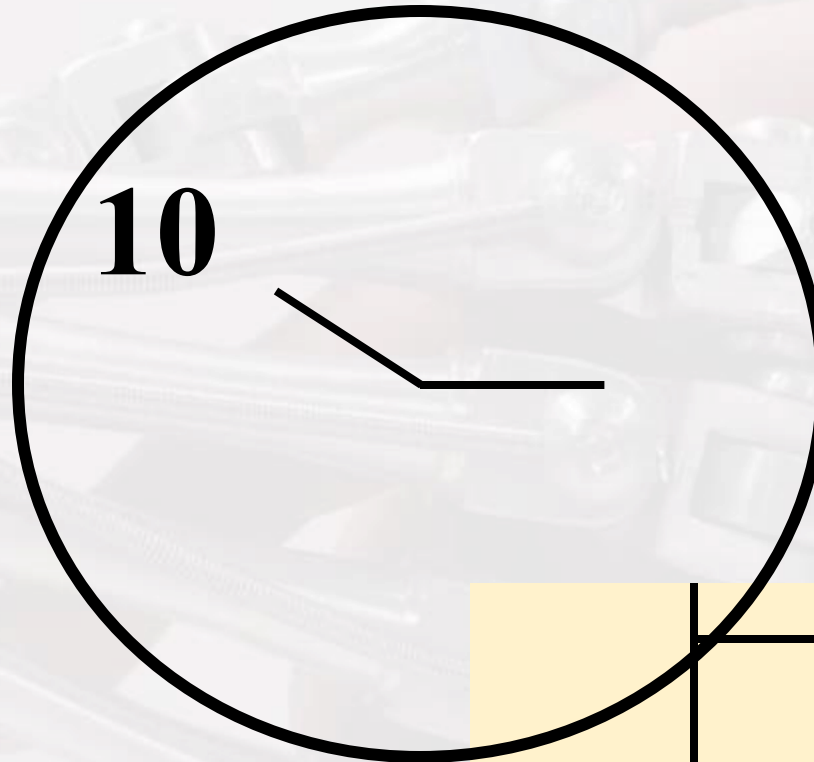
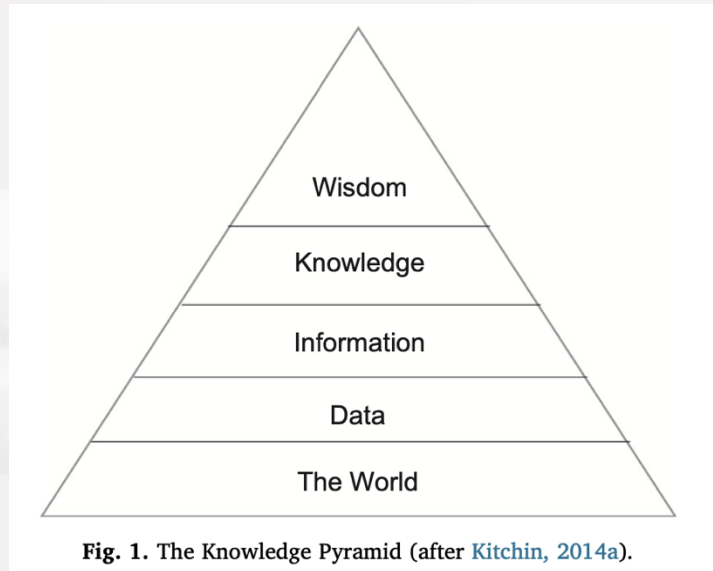
data som representasjoner 2



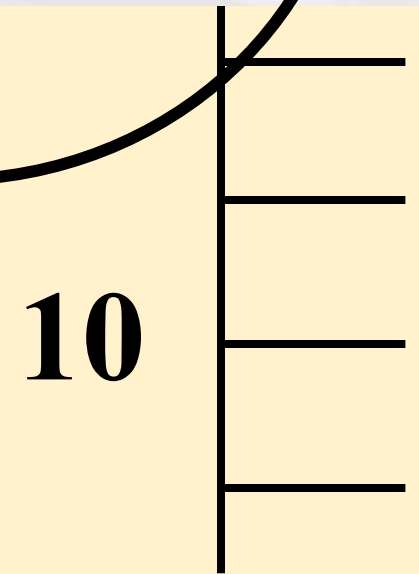
10

10

data som representasjoner 2



10



hva menes med «en representasjon»?

representasjon:

- det å være representant, være stedfortreder ...
det å representere, være bilde, eksempel på

representere:

- fra latin *repraesentare*: vise seg på ny, vise fram
- opptre på vegne av, i stedet for ...
være (typisk) eksempel på, tjene som

→

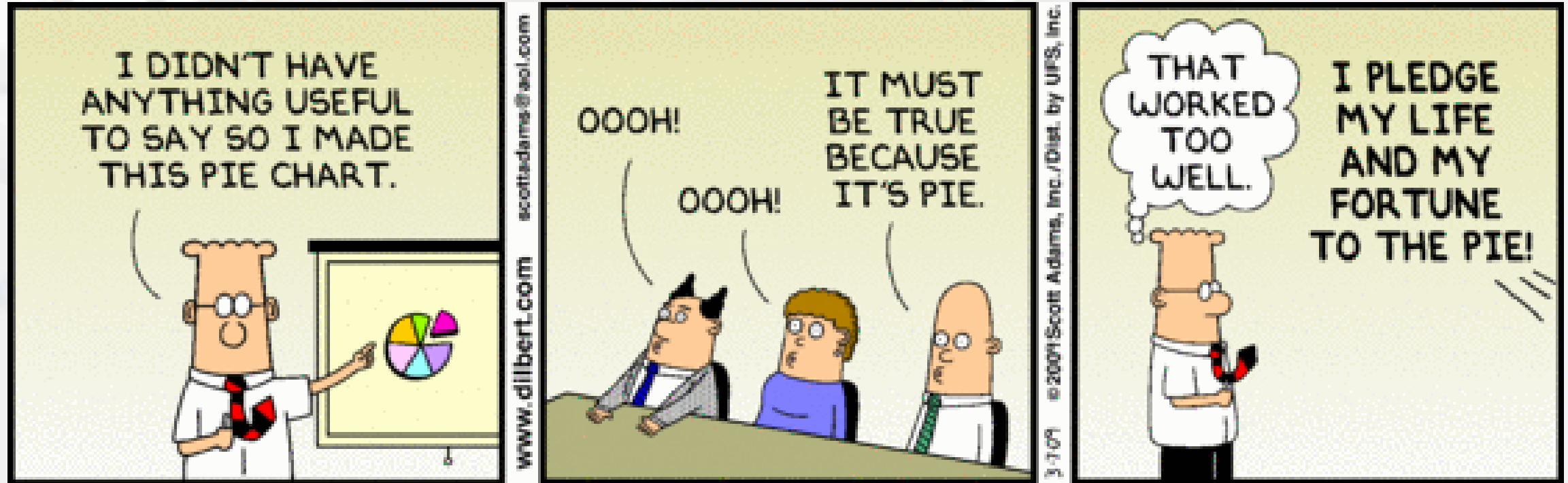
- noe som står i stedet for noe annet
- og som uttrykker viktige egenskaper ved dette
- og er tilstede i den aktuelle situasjonen

f.eks. en kjøpekontrakt med min signatur representerer meg

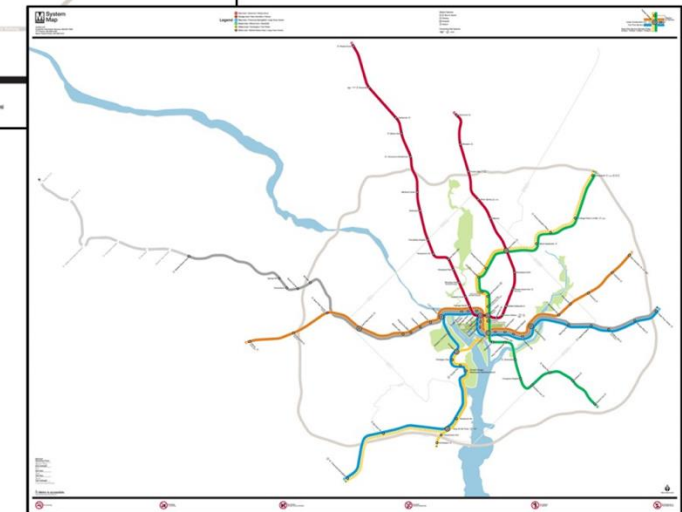


representasjoner = indikatorer, data, målinger

representasjoner **re-presenterer** virkeligheten og blir en del av virkeligheten



kjente representasjoner



Subway map. The official subway map for the Washington DC metro (left) compared to a map of the subways drawn to scale (right). Subway maps prioritize the names of stops and connections between subway lines over the geographical location of the stops.

Kilde: Manson, S. M. (ed.) (2017). Mapping, Society, and Technology. Minneapolis, Minnesota: University of Minnesota Libraries Publishing. URL: <http://z.umn.edu/mst>



Centre for Tele-Inquiry _____

© 1999 Elsevier Science B.V. All rights reserved.

Keywords: Cooperative work; Coordination; Coordinative artifacts; Rural contexts; Procedures

[illegible]

There is considerably less certainty can be successfully over, as to whether computer work by providing, redesigned to support cooperative work by providing, representations of formal organizational constraints—processes, restrictions of formal models, etc.—so as to regulate routine workflows, processes and thereby enable cooperative coordination activities and thereby enable efficiently in ensembles to perform more reliably and efficiently in fact, there are strong concerns about the status of such formal constraints.

NSCWC can be said to have been born with these formal constraints. The movement had already

However, work is still far from unaided action" prout explicitly admits: the "scientific approach" (18, p. 178 ff.), it offers the time is promising to have been offered the CSW researchers have attempted to address [15,16].

Perhaps, therefore, it is not surprising that CSW was — include influence on the development of workflow technologies [17]. These technologies have not been applied to the (the crucial role of) become similarly

which responsible and competent actors may construct (and accept) their work (H1, p. 188 f.; C91, p. 114). The acceptance of the radical concept of cognitive science / Lucy Suchman's radical concept of cognitive science / and the "situated action" perspective of the CSCW age played a significant role in defining the CSCW age and has become a shared frame of reference to many designers most, of us. For good reasons, then, designers have been advised to heed them with:

CSCW systems have been advised to heed them with caution (cf. for example [10]).

(2). The issue of how computer systems can be used fully tends to regulate or govern routine coordination activities has been surprisingly marginal on the activities has one can detect a pronounced selective agenda and one can detect a pronounced selective design systems which regulate coordinative activities the work of many common CSCW researchers who pursue different "minimalist" design strategies (e.g. [14]). This is quite legitimate and reflects some longstanding concerns about the status of formal organizational contracts.

However, the role of formal contracts in a work is still far from understood. Although explicitly submits the "situated action" perspective approach (31, p. 178 f), it often the issue is presumed to have been settled. CSCW researchers have attempted to address [15,16].

Perhaps, therefore, it is not surprising that CSCW has little influence on the development of workflow technologies [17]. These technologies have not benefited from the crucial role of mutual awareness.



Legg opp 44 m. Strikk vrangbord, 2r 2vr:
10 omg hvit, 2 sort, 2 hvit, 3 sort, 2 hvit, 2 sort og 6 hvit. Strikk en omg
glattstrikk, øk 4 m jevnt. Strikk mønster etter diagrammet.

Ved streken i diagrammet settes de 11 tommelmaskene på en tråd.
Legg opp 11 nye m. over tommelhullet på neste omg.

Når diagrammet er ferdig klipp garnet, trekk tråden gjennom de siste m og fest godt.



Sett de 11 m. fra tråden på p.,
strikk opp 11 m. bak tommelen og
1 m. i hver side. Strikk mønster og
fell som diagrammet viser

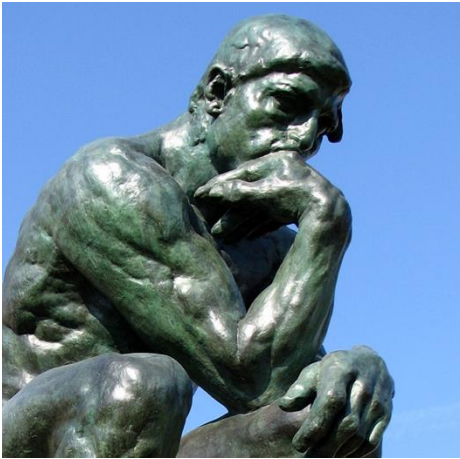
Tadaa! En vott!

Strikk en til men reverser mønsteret så du får en venstrevott også.

kjente representasjoner: det uttrykksfulle smilefjeset



(«the thinking face»)



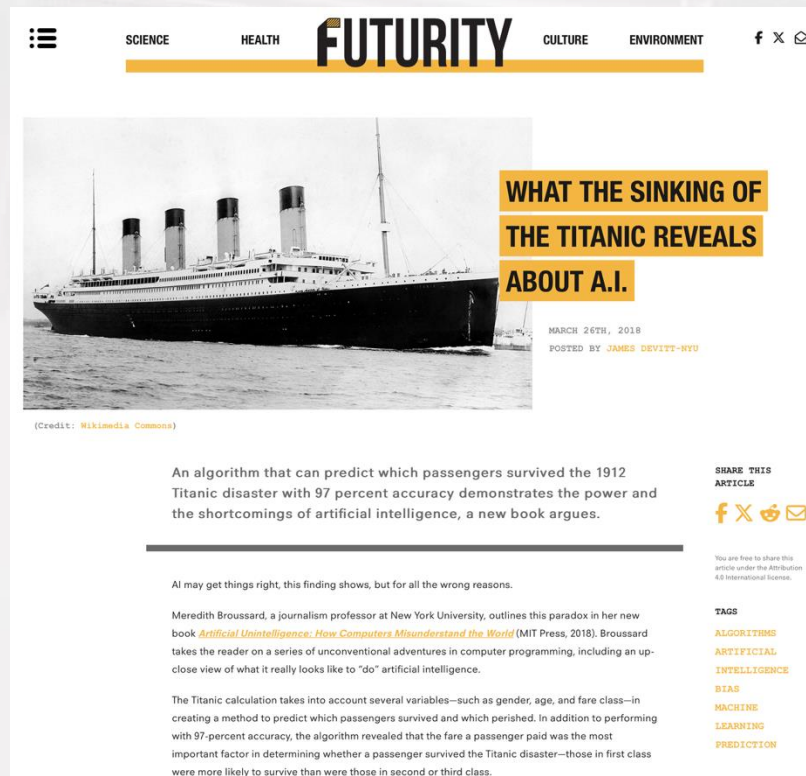
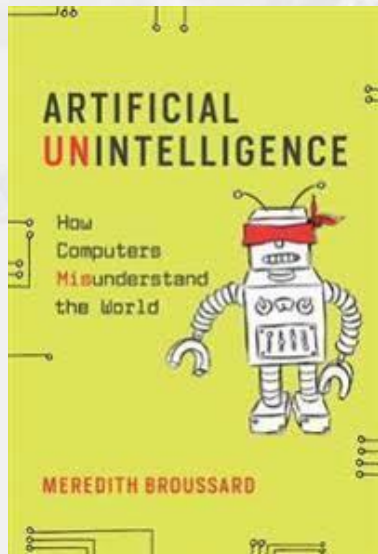
August Rodin:
Tenkeren (1880)



indikatorer

«variables linked to the variable (studied), which itself cannot be directly observed» (*Balka m.fl. 2006:46*)

- mye brukt i helsevesenet (måle feber, hvite blodceller, blodtrykk mm)
- tolkning av data

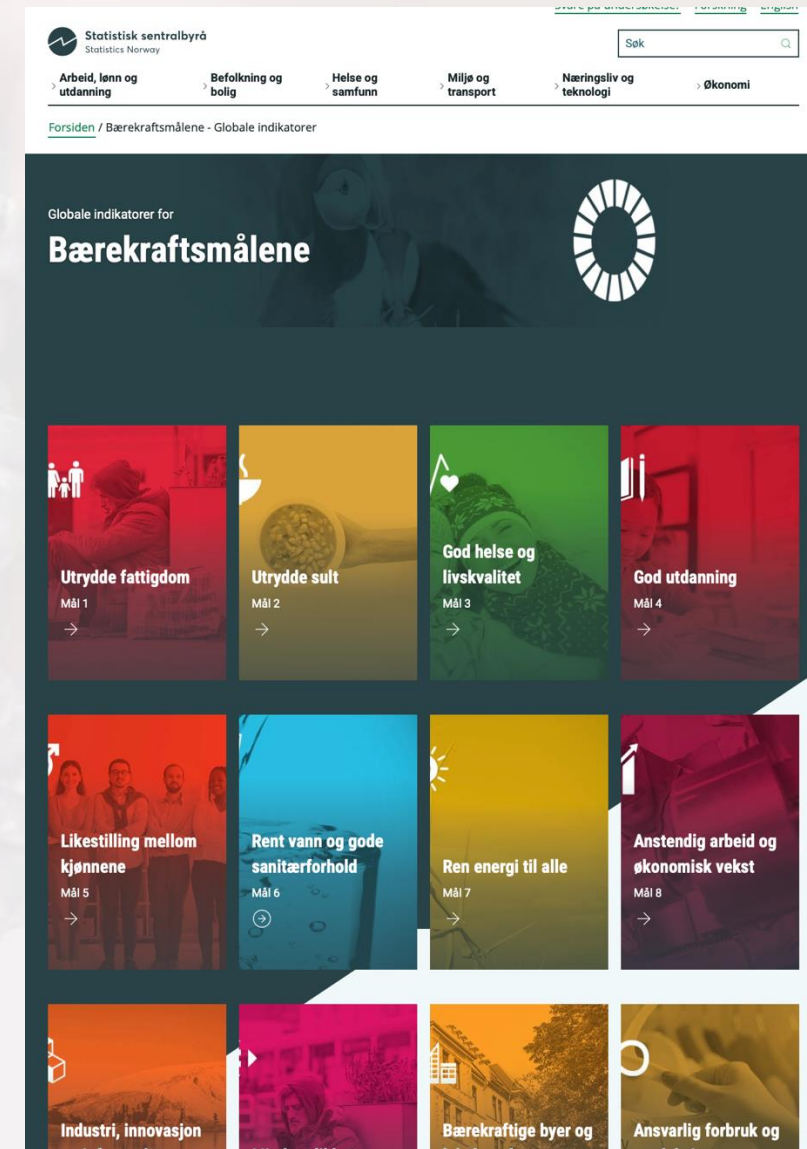


Original Articles

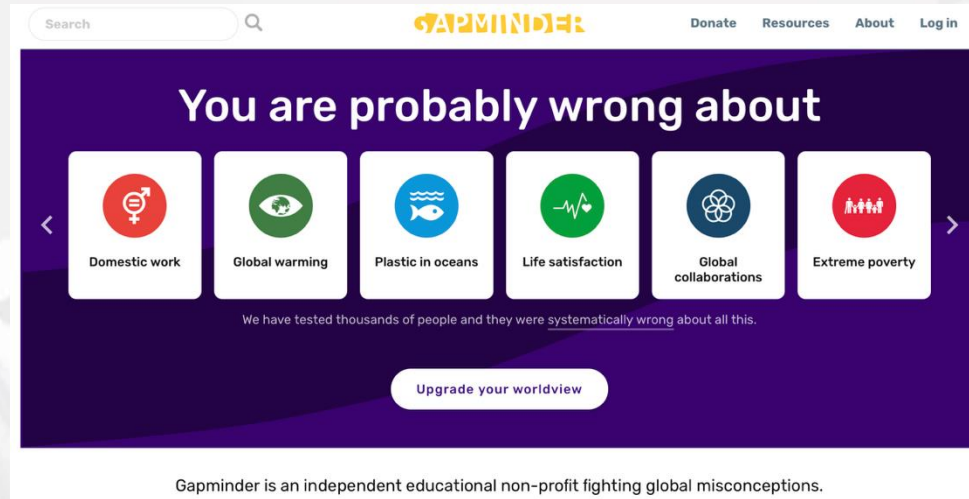
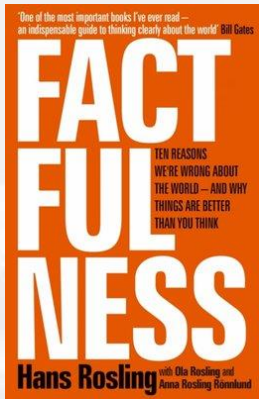
Indicators for all: including occupational health in indicators for a sustainable healthcare system

Ellen Balka, PhD, Karen Messing, PhD & Pat Armstrong, PhD

Pages 46-61 | Published online: 05 Jan 2016



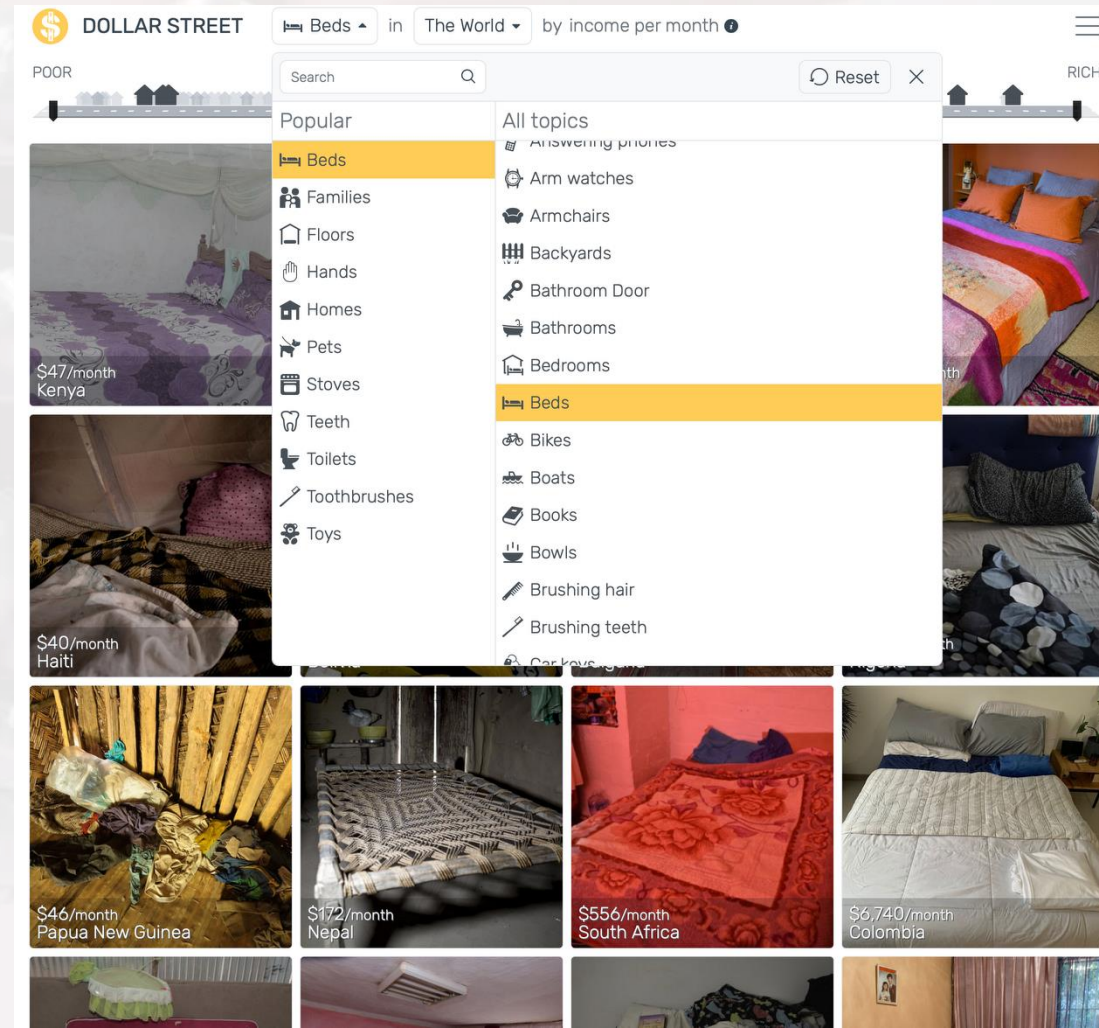
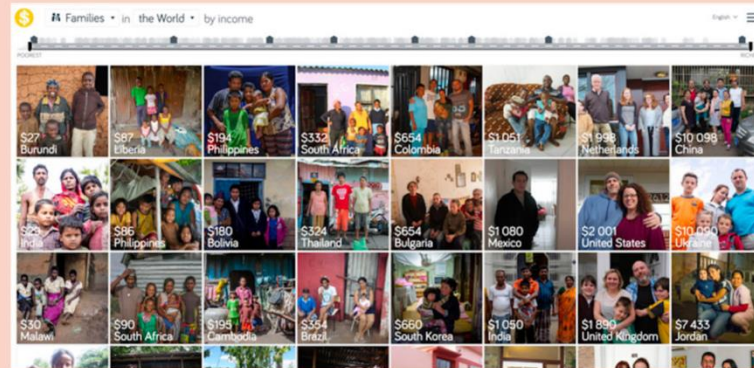
indikatorer



Dollar Street

Watch everyday life in hundreds of homes on all income levels across the world, to counteract the media's skewed selection of images of other places.

See the reality behind the data



Tillit til tall (Svein Hovdes notat)

om tallenes og tellingers betydning i samfunnet, dvs

- om målesamfunnet (typiske fortetninger, forenklinger og abstraksjoner)
- om hva målinger gjør (performativitet)

- Kvalitet representeres ved



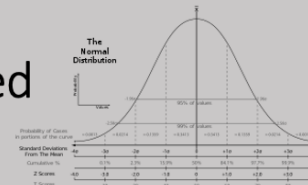
- Terreng representeres ved



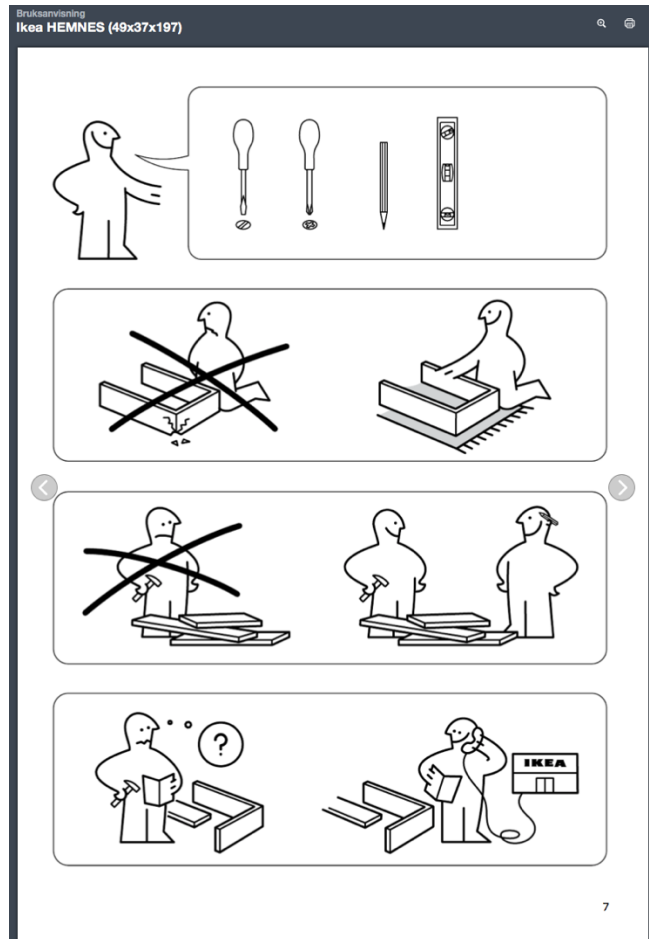
- En hel, sammenhengende tekst representeres ved et «abstract»

- Menneskelige følelser og reaksjoner representeres ved 🤔

- Store datamengder representeres ved

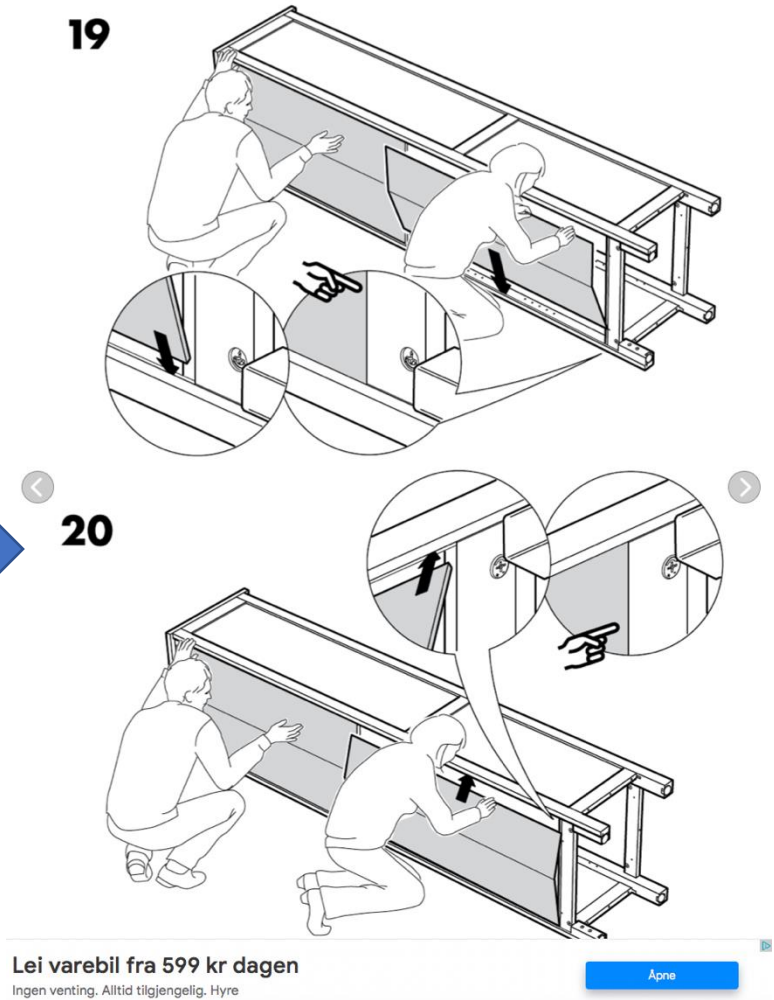


Bruks- og monteringsanvisninger fra IKEA som representasjon



← Før du starter:
Råd og advarsler

En god del seinere
strever vi med
bakveggen →



Bruksanvisninger som representasjoner

- En tolkning av Suchmans bok «Plans and situated action» er at den illustrerer hvor vanskelig det er å lage gode og veiledende representasjoner for brukere i situasjoner der de interagerer med maskiner.
 - Tilsvarende kan en hevde om skrevne bruks- og monteringsanvisninger. De fungerer ofte dårlig som representasjoner av det som skal lages, for eksempel montering av et møbel, bruk av en elektronisk dings eller maskin.
 - Det er en stor utfordring for designere eller teknologier å oversette sin ekspertkunnskap til noe brukere kan forstå, utfylle og gjøre anvendelig i sin situasjon.
- I situasjoner preget av problemer eller forstyrrelse manifesterer aktiviteten seg som en mål-orientert aktivitet og vi vil forsøke å lete etter eller formulere noen prosedyrer eller regler. (Suchman 1987:53)
 - Når vi jobber med noe vi ikke er kjent med eller opplever problemer gir de regler og prosedyrer en får tilgang til, gjennom for eksempel displayet på en kopimaskin, bare mening om de kan forankres i den konkrete situasjonen der problemene oppstår
 - *The representations involved in managing problems in the use of equipment presuppose the very transparent practices that the problem renders noticeable or remarkable. Situated actions, in other words, is not made explicit by rules and procedures.* (Suchman 1987:54)

Representasjoner og breakdown

- Suchman skriver at vi foretar rasjonelle overveielser både før og etter en handlingssekvens i form av å skue tilbake/gjøre opp status og å se framover og planlegge de neste trekk.
- Under selve utførelsen av en handling som forløper normalt er forløpet transparent og forståelig for oss
- Hun forbinder dette med Heideggers begrep om *tilhåndenhet* (*Zuhandenheit/ready-to-hand*). Det utstyret eller den teknologien vi bruker forsvinner ut av vår bevissthet og vi går opp i oppgaven og opplever mestringsfølelse
- I motsetning til dette er opplevelser av *utilhåndenhet* (*Unzuhandenheit/ unready-to-hand*) situasjoner der det vi bruker blir uhåndterlig, forbigående eller varig ødelagt eller utilgjengelig.
- Dette er eksempler på breakdown-situasjoner.



<https://www.youtube.com/watch?v=cNJWafS-BA4>

representasjoner i og av arbeidet

Making Work Visible

Maps are never value-free images ... Both in the selectivity of their content and in their signs and styles of representation, maps are a way of conceiving, articulating and structuring the human world which is biased toward, promoted by, and exerts influence upon particular sets of social relations (p. 78).

A map or other representational device is a piece of craftwork, crafted in the interest of making something visible. Things are made visible so that they can be seen, talked about, and potentially, manipulated. It is the last that constitutes the power, for better and worse, of the construction of representations of work. With agendas of intervention come questions of interests, questions that need to remain central and lively elements of research and design. Once we recognize that representations are artifacts constructed from particular social locations and within specific forms of practice, we can expand our concern with the adequacy of representational forms to include ongoing dialogue and debate regarding the various places of representations in work and system design.

Making Work Visible

"How people work is one of the best kept secrets in America."

This provocative statement by David Wellman, a sociologist and a kind of challenge to work researchers. The sense in it is particularly remarkable given the large and growing body of work on workflow mapping, business process reengineering and other ways of representing work in the service of transformation. Without taking over the connotations of collusion in it, we can ask who it might be not only invisible but also is less of an organization know their own work in ways that are different to the organization design. The premise that we have in relation to our own fields of knowledge and expertise should have the ability to shape not only how we work but also how we represent it. Self-representation on this view is a form of

This is the premise, for example, that Douglas Belbin and his colleagues have taken in their book 'The Power of Maps' (1999). The book is a collection of essays that explore the ways in which maps and other visual representations of work can be used to shape and structure the way we work.



ELSEVIER

Information and Software Technology 41 (1999) 319–329

INFORMATION
AND
SOFTWARE
TECHNOLOGY

Of maps and scripts The status of formal constructs in cooperative work

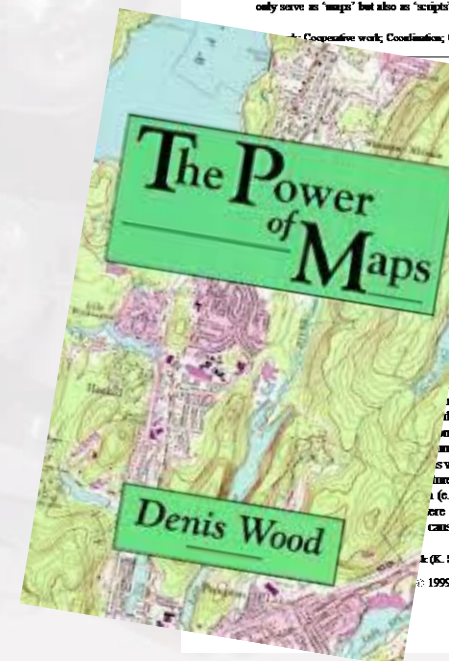
Kjeld Schmidt*

Centre for Tele-Information, Technical University of Denmark, DK-2800 Lyngby, Denmark

Abstract

The received understanding of the status of formal organizational constructs in cooperative work is problematic. This paper shows that the empirical evidence is not as strong as we may have believed and that there is evidence from other studies that contradicts what we may have taken for granted for years. This indicates that the role of formal constructs is more differentiated than generally taken for granted. They may not only serve as 'maps' but also as 'scripts'. © 1999 Elsevier Science B.V. All rights reserved.

* Cooperative work; Coordination; Coordinative artifacts; Formal constructs; Procedures



1 cooperative work [1], a [4], to name computer artifacts such as

d consensus, how- can be successfully by providing repre- ducts—procedures, s to regulate routine enable cooperative y and efficiency. In at the status of such

l (K. Schmidt)

© 1999 Elsevier Science B.V. All rights reserved.

which responsible and competent actors may consult to accomplish their work [8], p. 188 f., [9], p. 114). Thus, Lucy Suchman's radical critique of cognitive science [8] and the "situated action" perspective she proposed has played a significant role in defining the CSCW agenda and has become a shared frame of reference to many, perhaps most, of us. For good reasons, then, designers of CSCW systems have been advised to treat them with great caution (cf. for example [10]).

Thus, the issue of how computer systems can be successfully used to regulate or govern routine coordinative activities has been surprisingly marginal on the CSCW agenda and one can detect a pronounced reluctance to design systems which regulate coordinative activities in the work of many eminent CSCW researchers who instead pursue different 'minimalist' design strategies (e.g. [11–14]). This is quite legitimate and reflects serious and well-founded concerns about the status of formal organizational constructs.

However, the role of formal constructs in cooperative work is still far from understood. Although Suchman explicitly submits the "situated action" perspective as a research approach ([8], p. 178 f.), it often seems as if the issue is presumed to have been settled. Only few CSCW researchers have attempted to address this issue [15,16].

Perhaps, therefore, it is not surprising that CSCW has had little influence on the development of workflow technologies [17]. These technologies have not benefited from CSCW insights (e.g., the crucial role of mutual awareness and shared artifacts) while CSCW has become similarly

formelle representasjoner i arbeidet

fra masteroppgaven til Frode Mo



Figure 20: Oslo Gardermoen tower, ground north position (Mo 2002: 28)



(Bildet er for størrelse i Oslo Approach i Røyken)

Figure 18: A paper-based flight strip board Oslo Approach at Røyken (Mo 2002: 82)

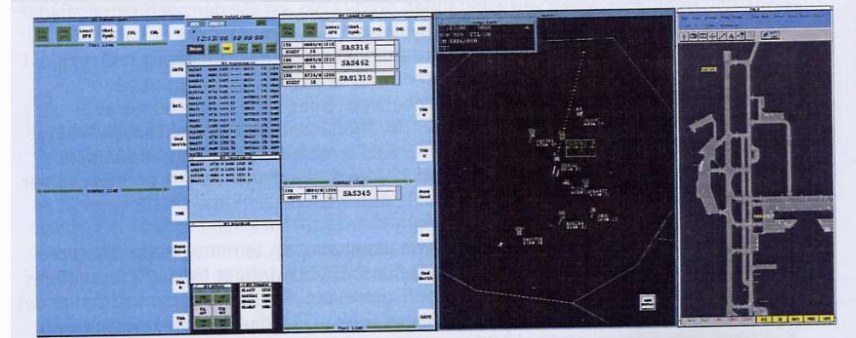
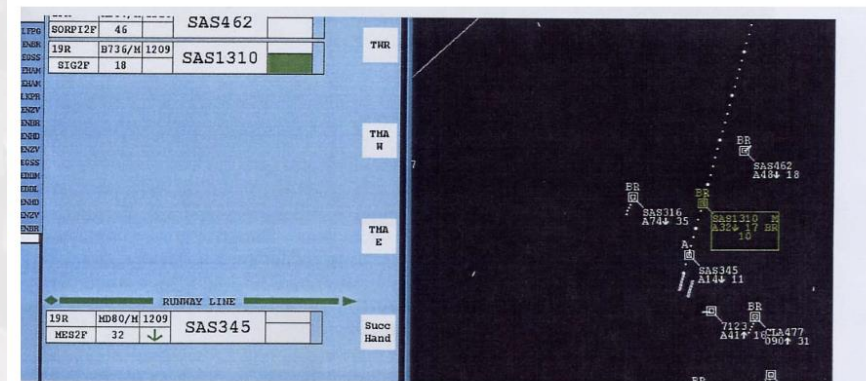


Figure 19: Electronic flight strips at Oslo Gardermoen tower (Mo 2002: 57 and 26)

formelle representasjoner i arbeid: skript

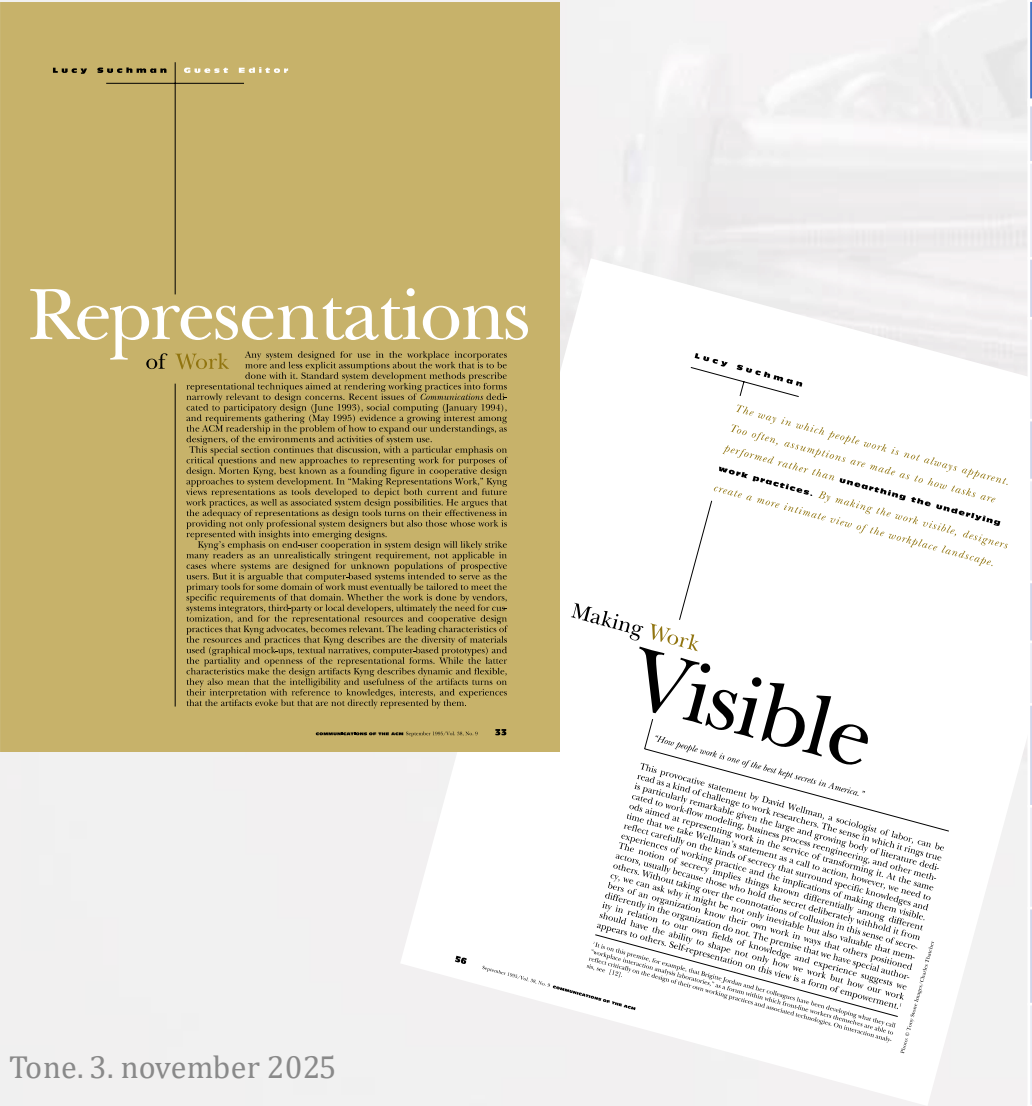


<https://nats.aero/blog/2017/08/making-paper-strips-digital/>

<https://www.alamy.com/stock-photo/flight-strips.html?sortBy=relevant>

representasjoner av arbeidet

politiske/demokratiske representasjon av arbeidstakere/brukeres stemmer	representasjoner for å utvikle teknologi
det som representeres får en stemme	synliggjøre arbeid for å finne teknologimuligheter
representasjon av arbeidet viktig for å designe gode redskaper	brukere er informasjonskilder, og mottakere av teknologi
de som utfører arbeidet kan definere teknologien	representasjoner kan representerer brukerne
de som utfører arbeidet kan uttrykke sin stemme gjennom representasjonene	representasjoner kan manipuleres strategisk
video gir arbeidstakerne egen stemme	video gir fler muligheter for synliggjøring
video gir mulighet for mange visninger og tolkninger	forskerne kan ikke kontrollere andres tolkninger av videoopptakene
video kan brukes som bevis ved uenigheter	videoopptak overbeviser og lukker debatt
videoopptak formidler dynamikken i praksisen	video fryser aktivitet og tilbyr illusjon om erfaring
arbeidspraksis og –erfaringer kan bare delvis representeres	arbeidspraksis kan «fanges» og omformes til objektiv kunnskap
å gjøre arbeidet synlig betyr å representere hvordan det utføres i praksis	å gjøre arbeidet synlig representerer arbeidet som rasjonelt, som abstrakte funksjoner & prosesser
representasjoner kan brukes i forhandlinger med ledelsen	arbeid som er eksplisitt utsettes for rasjonalisering
representasjoner kan virke mot forenklet syn på automatisering	representasjoner gjør arbeidet utsatt for videre rasjonalisering og automatisering



Of maps and scripts

The status of formal constructs in cooperative work

Kjeld Schmidt*

Centre for Tele-Information, Technical University of Denmark, DK-2800 Lyngby, Denmark

Abstract

The received understanding of the status of formal organizational constructs in cooperative work is problematic. This paper shows that the empirical evidence is not as strong as we may have believed and that there is evidence from other studies that contradicts what we may have taken for granted for years. This indicates that the role of formal constructs is more differentiated than generally taken for granted. They not only serve as ‘maps’ but also as ‘scripts’. © 1999 Elsevier Science B.V. All rights reserved.

Keywords:

Thanks
work (CS
GroupDesl
but a few,
facts can p
offering a
directly, i.
talking, ge
restraints t
on.

There is
ever, as to
designed t
sentations
workflows
coordinati
ensembles
fact, there
formal cor

In a way
concerns.
given way
was incre
promises.
had demon
procedures
protagonists of office automation (e.g. [5–7]). The general

tracts,
maps’

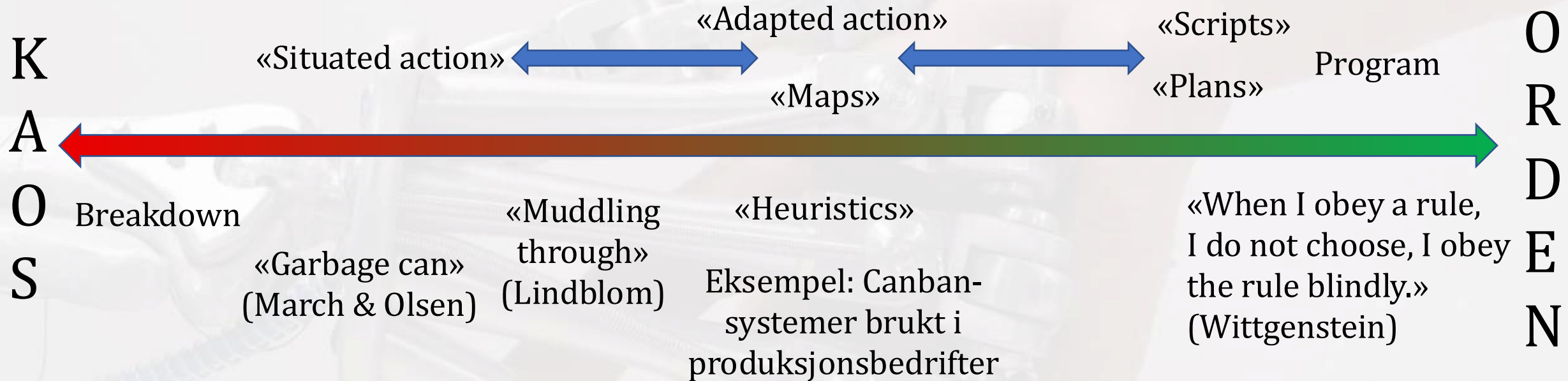
- *Just as it would seem absurd to claim that a map in some strong sense controlled the traveller’s movements through the world, it is wrong to imagine plans as controlling actions. (Suchman sitert av Schmidt, s. 323)*
- *Suchman sier at «that the procedural structure of organizational activities is the product of the orderly work of the office rather than the reflection of some enduring structure that stands behind that work» (s 323) tolket som at situerte handlinger er «løsrevet» fra planer og formelle strukturer*
- *protocols play very different roles in cooperative work. They may ... play the weak role of the ‘map’ of the traveller ... however, they may play the strong role of a ‘script’ that offers a precomputation of interdependencies among activities (options, required actions, sequential and temporal constraints etc.) which at critical points provides instructions to actors of possible or required next steps. (s. 326)*



[19,20].

Perhaps, therefore, it is not surprising that CSCW has had little influence on the development of workflow technologies [17]. These technologies have not benefited from CSCW insights (e.g., the crucial role of mutual awareness

Mellom (full) orden og (totalt) kaos



«There are good reasons to believe that formal constructs incorporated in computer artifacts may be quite helpful in reducing the complexity of coordinating cooperative activities and thus serve as genuine “resources for situated action” (Schmidt 1999, s. 327)

Wood: Rethinking the power of maps

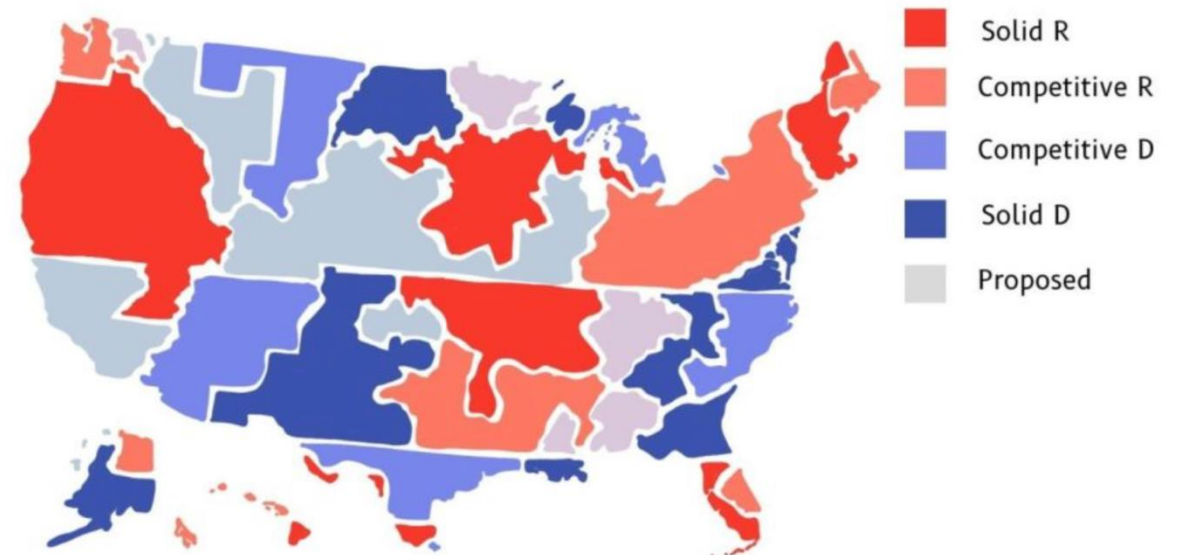
En kritikk av kart og kartproduksjon

College Heights Herald

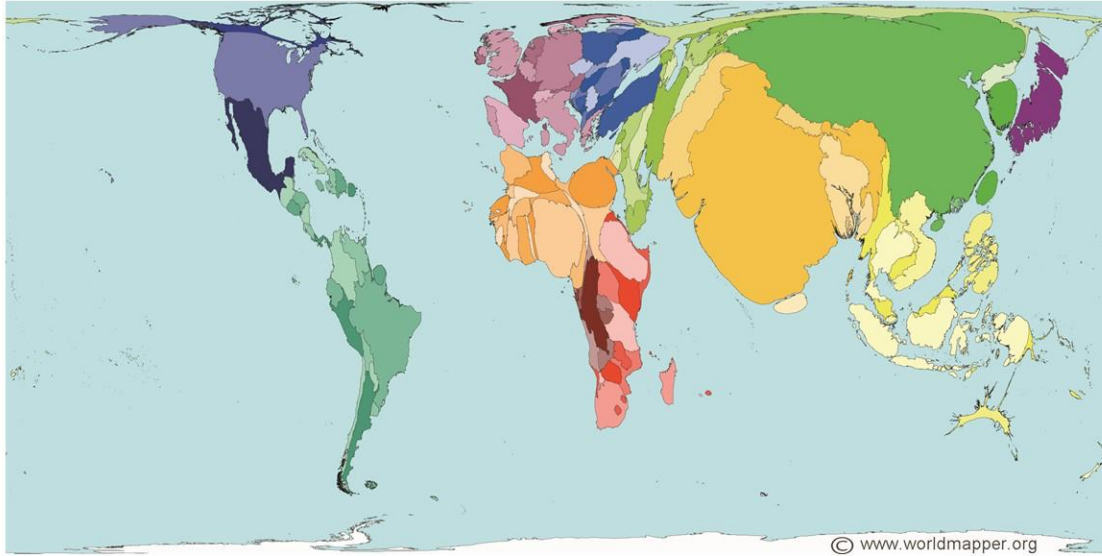
- *Maps convert social energy to social work by linking things in space*
- *The spatial linkages are selected by the cartographer to meet their own ends*
- *Maps are propositions (påstander som rommer en bedømmelse) devised to serve the interests of the state*
- *Maps are not merely representations of the world, but propositions with the power to alter it*
 - Kilde: D. Wood (2010): Rethinking the power of maps. Guilford press, New York

Gerrymandering: What is it and how does it affect voters?

Damon Stone, News reporter | October 19, 2022

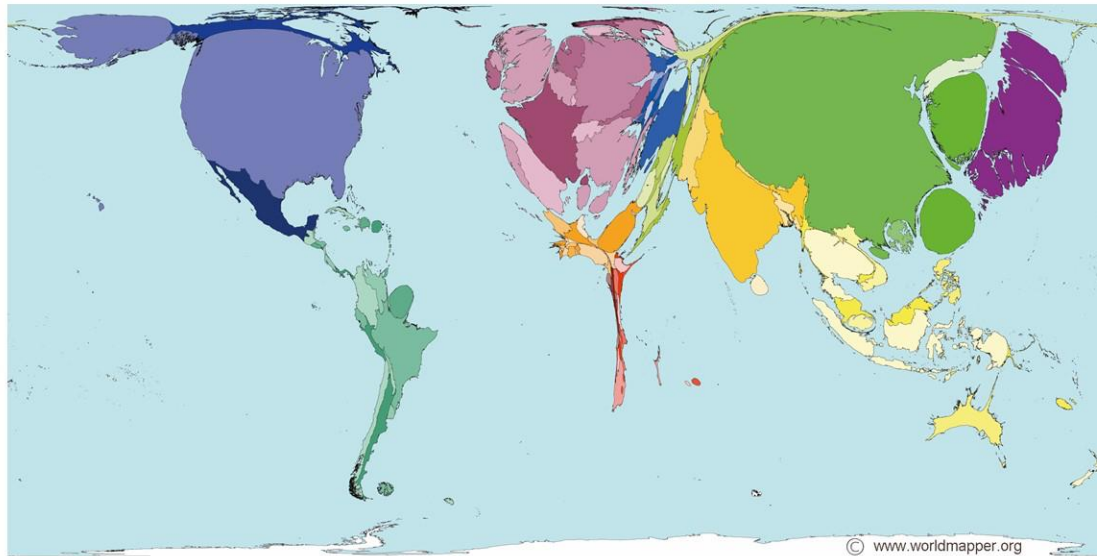


Population by Country (2015)



Lying with cartograms. Population total and wealth by country in 2015. Note how the size of countries on the map is not their actual area but instead proportional to the attribute being measured, population or wealth.

Wealth by Country (2015)



Kilde: Manson, S. M. (ed.) (2017). Mapping, Society, and Technology. University of Minnesota Libraries Publishing. <http://z.umn.edu/mst>

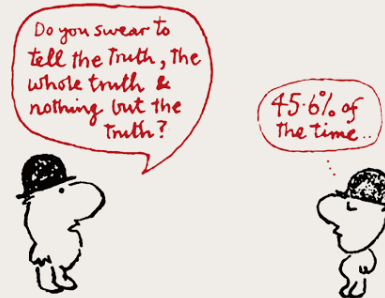
Hvordan lyve med statistikk?



On this truncated graph, however, it appears that profit is *rapidly* growing, because the empty space is gone:



How to Lie with Statistics



Darrell Huff
'More relevant than ever' Bill Gates

14:13 53

←

Samfunn

- Kamuflerer arbeidsledigheten

600.000 arbeidsføre personer i Norge fanges ikke opp av statistikken, selv om de står uten arbeid.

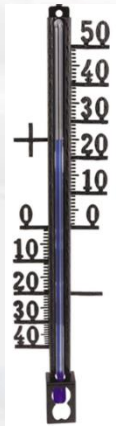
PUBLISERT: 06.10.10 — 10.40 OPPDATERT: 12 ÅR SIDEN

[null NTB](#)

Forsiden D2 DN Helg E-avis Meny

digitale representasjoner

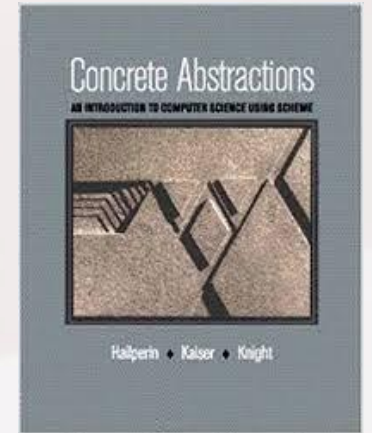
digitale representasjoner
(*digit = tall + elektronisk*)



digitale representasjoner

digitale representasjoner
(*digit = tall + elektronisk*)

digitale representasjoner =
abstraksjoner av objekter / data



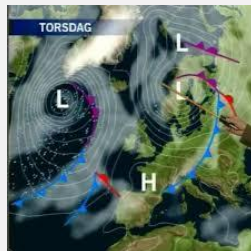
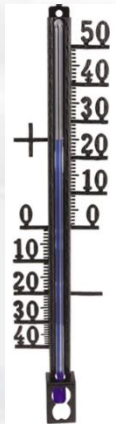
pick one element of the array (the "pivot").
partition the other elements into two groups:
 "little ones" that are less than the pivot value, and
 "big ones" that are greater than the pivot value.
recursively sort each group. (Kernighan and Pike 1999: 32)

og prosesser

Sende kommando til pin med digitalWrite()

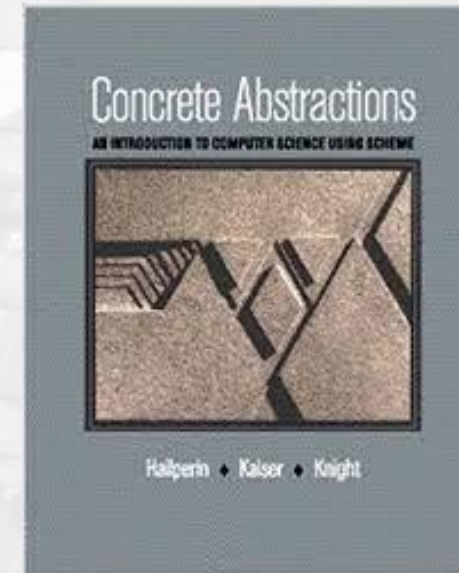
digitalWrite() tar imot variabler om hvilken pin det skal sendes noe til (digitalRead() tar tilsvarende i mot variabler om hvilken pin som skal leses av)
HIGH sender strøm til pin ved å angi strømmen som på, tilsvarende 5 volt og true
LOW slår av strøm til pin ved å angi strømmen som av, tilsvarende 0 volt og false
delay() pauser programmet, tar imot variabel i antall millisekunder, 1 sek = 1000 ms

```
void setup() {  
  pinMode(LED_BUILTIN, OUTPUT);  
}  
  
void loop() {  
  digitalWrite(LED_BUILTIN, HIGH);  
  delay(1000);  
  digitalWrite(LED_BUILTIN, LOW);  
  delay(1000);  
}
```



digitale representasjoner som designmateriale

- digitale representasjoner
 - abstraksjoner
 - symbolske re-representasjoner
 - (struktur for) prosess
- konkrete abstraksjoner
 - prosedyre / metode = struktur for prosess
 - tilstand – prosess = sekvens av tilstander
 - data: hva & hvordan informasjon er representert
- designmateriale
 - materialer: substans, struktur, overflate, egenskaper



5
A Matter of Digital Materiality
Tone Bratteteig

Original Articles

On "Technomethodology": Foundational Relationships Between Ethnomethodology and System Design

Paul Dourish & Graham Button

Pages 395-432 | Published online: 12 Nov 2009

mer om representasjoner

REVIEW ESSAYS

The Sociology of Quantification: Where Are We Now?

ELIZABETH POPP BERMAN
University at Albany, SUNY
epberman@albany.edu

DANIEL HIRSCHMAN¹
Brown University
daniel_hirschman@brown.edu

cal Review

the
Sociological
Review

Journal Journal Info Stay Connected

Submit Paper

Power, Technology and the Phenomenology of Conventions: On being Allergic to Onions

[Susan Leigh Star](#)

First Published May 1, 1990 | Other
<https://doi.org/10.1111/j.1467-954X.1990.tb03347.x>

[Article information](#)

Altmetric 12

Power, technology and the
phenomenology of conventions: on
being allergic to onions

Susan Leigh Star



Human-Computer Interaction >

Volume 13, 1998 - Issue 4

Submit an article

Journal homepage

Enter keywords, authors, DOI, ORCID

680

Views

112

CrossRef
citations to date

5

Altmetric

Original Articles

On "Technomethodology": Foundational Relationships Between Ethnomethodology and System Design

[Paul Dourish](#) & [Graham Button](#)

Pages 395-432 | Published online: 12 Nov 2009



[Proceedings of the Third European Conference on Computer-Supported Cooperative Work 13-17 September 1993, Milan, Italy ECSCW '93](#) pp 1-14 | [Cite as](#)

Do Categories Have Politics? The language/action perspective reconsidered

Authors

[Authors and affiliations](#)

Lucy Suchman