



# **SHOCK ARCHITECTURE AND THE OPTICS OF CHOICE**

Mireille Hildebrandt

# What's next?

- The (im)materiality of proxies
- The materiality of self making
- From text to code to data
- Shock architectures: the optics of choice

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# The Issue of Proxies and Choice Architectures. Why EU Law Matters for Recommender Systems

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Recommendations are meant to increase sales or ad revenue, as these are the first priority of those who pay for them. As recommender systems match their recommendations with inferred preferences, we should not be surprised if the algorithm optimizes for lucrative preferences and thus co-produces the preferences they mine. This relates to the well-known problems of feedback loops, filter bubbles, and echo chambers. In this article, I discuss the implications of the fact that computing systems necessarily work with proxies when inferring recommendations and raise a number of questions about whether recommender systems actually do what they are claimed to do, while also analysing the often-perverse economic incentive structures that have a major impact on relevant design decisions. Finally, I will explain how the choice architectures for data controllers and providers of AI systems as foreseen in the EU's General Data Protection Regulation (GDPR), the proposed EU Digital

Mistaking the proxy for the 'principal' (pun intended)

- You want to provide folk with what they **like**
- You take their **given preferences** as a proxy
- Which you infer from their **click behaviour**

In the mean time you develop a **choice architecture**

That attunes their click behaviour to **your** given preferences

The algorithms may decide this requires a **shock architecture**

**perverse economic incentives**

Mistaking the proxy for the 'principal' (pun intended)

[ the 'real' thing ]

Behaviourism may 'believe' that the proxies are actually the principal  
(the real thing)

called 'behavioural primitives'

From a computer science perspective this may be more attractive  
than acknowledging the proxy may get it wrong

While nevertheless having far reaching performative and other effects

- This has implications for behavioural economics, game theory, MAS









# Placeholder





# Placeholder



# The issue of proxies

Data science, language, art, society

- Substitution

- Placeholder

- Representation

- Numbers and computation

- Political theory, sovereignty

- The empty space of the sovereign





# PRESENTATION

TANYA GOEL:  
OPTICS AND DURATION  
BRUSSELS MUSEUM OF FINE ARTS





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WHAT IS THE PROXY?

WHAT IS THE PRINCIPAL?



DOES THE PROXY REFER TO

- WHAT ALREADY EXISTS?
- OR TO WHAT WILL COME?
- OR TO WHAT IS  
IMAGINED?
- OR TO WHAT IS ENACTED?





– CAN A **MATERIAL PROXY**  
INSTANTIATE AN IMMATERIAL  
THING/CONCEPT/

– CAN AN **IMMATERIAL PROXY**  
INSTANTIATE A MATERIAL  
THING/CONCEPT

[MUTUAL INSTITUTION OF  
PROXY AND PRINCIPAL]

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# The materiality of self making

- Ensor
- Masks – Persona – **proxies for the self**
- The choice architecture of carnival
- The anthropology of role inversion
  - *Offering a new way to look at one's role from perspective of other roles*
  - *Offering an escape that reasserts inescapability of assigned role*

# The materiality of self making

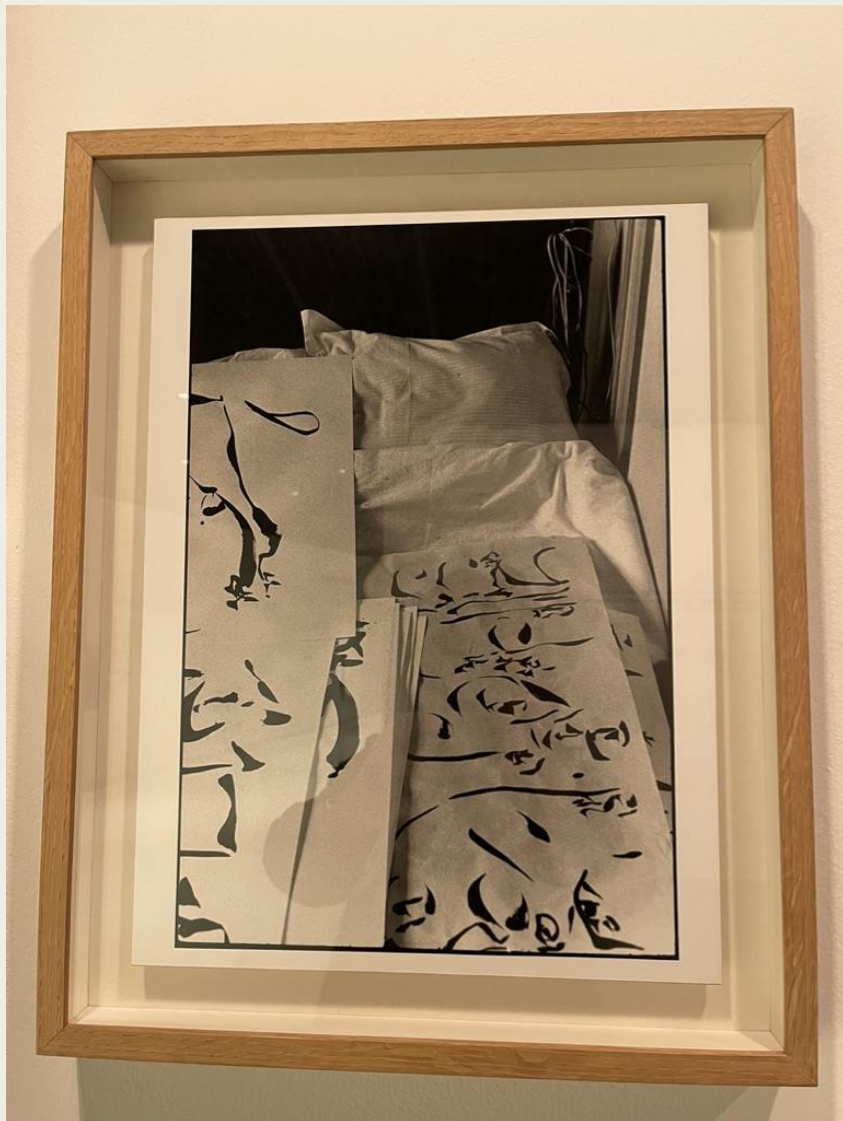
- The materiality of roles/masks/dressing up/acting out **matter** –
- as ‘material’ with specific affordances
- Paul Ricoeur: ‘**Oneself as another**’ (we don’t make our selves)

# The materiality of language





# The materiality of text



*Les mots ne sont pas les choses qu'ils disent,  
mais sont des choses, évidemment  
(à tel point que les linguistes ne s'en aperçoivent pas).*

*Woorden zijn niet de dingen die ze zeggen,  
maar zijn dingen, uiteraard  
(in die mate dat linguïsten zich er niet bewust van zijn).*

*Words are not the things they say,  
but are things, obviously  
(so much so that linguists don't realise it).*

# The materiality of self making

- Words are things, they (are also) matter
- They offer proxies for the self, the other and the world
- They offer proxies that enable both
  - *adscription* (**being identified as**)
  - *Inscription* (**identifying as**)

# The materiality of self making

- The materiality of words and language usage is twofold:
  - Referring to the **embodiment of human speech** (*throat, tongue, larynx and vocal cords, diaphragm, breath, connection with eardrums, cochlea and neurological motor embodiment: perception is oriented towards action – Gibson's ecological psychology*)
  - Referring to the **inscription** of discrete signs/words/sentences/texts, whether based on logograms or phonograms

# The materiality of self making

- The materiality of words and text is again twofold:
  - The **signifier** (*part of an interrelated network of signifiers*)
  - The **signified** (*brute and institutional facts*)
    - Some ‘signifieds’ can be pointed at
    - Some are constituted by the way signifiers are used



# The materiality of self making

- Words are proxies for the sense we make of things
  - They are the **metaphors we live by** (Lakoff and Johnson, Ricoeur, Derrida)
  - They refer to each other – intra-linguistic reference
  - And to ‘things’ in our shared world - extra-linguistic reference
  - Thus constituting our shared world and our self
  - Text presents us with the **proxies we live by** (Hildebrandt 😊)

# The materiality of self making

- Moving from orality to script and printing press matters
  - *It moves us from primary and secondary retention (Husserl)*
  - *To **tertiary retention** (Stiegler) – our external memory*
  - *Affording abstract thought (think also of music notation and algebra)*

# The materiality of self making

- Moving from orality to script and printing press matters
  - *Destabilising meaning, introducing plurality, ambiguity and contestability*
  - *Resulting in a need for coordination, orchestration, harmony and counterpoint*
  - *Our humanity hinges on*
    - the destabilising effects of multi-interpretability (our **double contingency**)
    - myriad ways of stabilising, enabling us to make plans and trust the future (**speech acts**)



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# The materiality of computers

Original meaning of **computers**:

- A computer was a human person, part of a large group of human persons
  - Who sat down to calculate specific results
  - Which could then be aggregated and integrated for a final result
  - Alan Turing: a person "supposed to be following fixed rules; he has no authority to deviate from them in any detail."
  - [fun fact: computers were usually women]

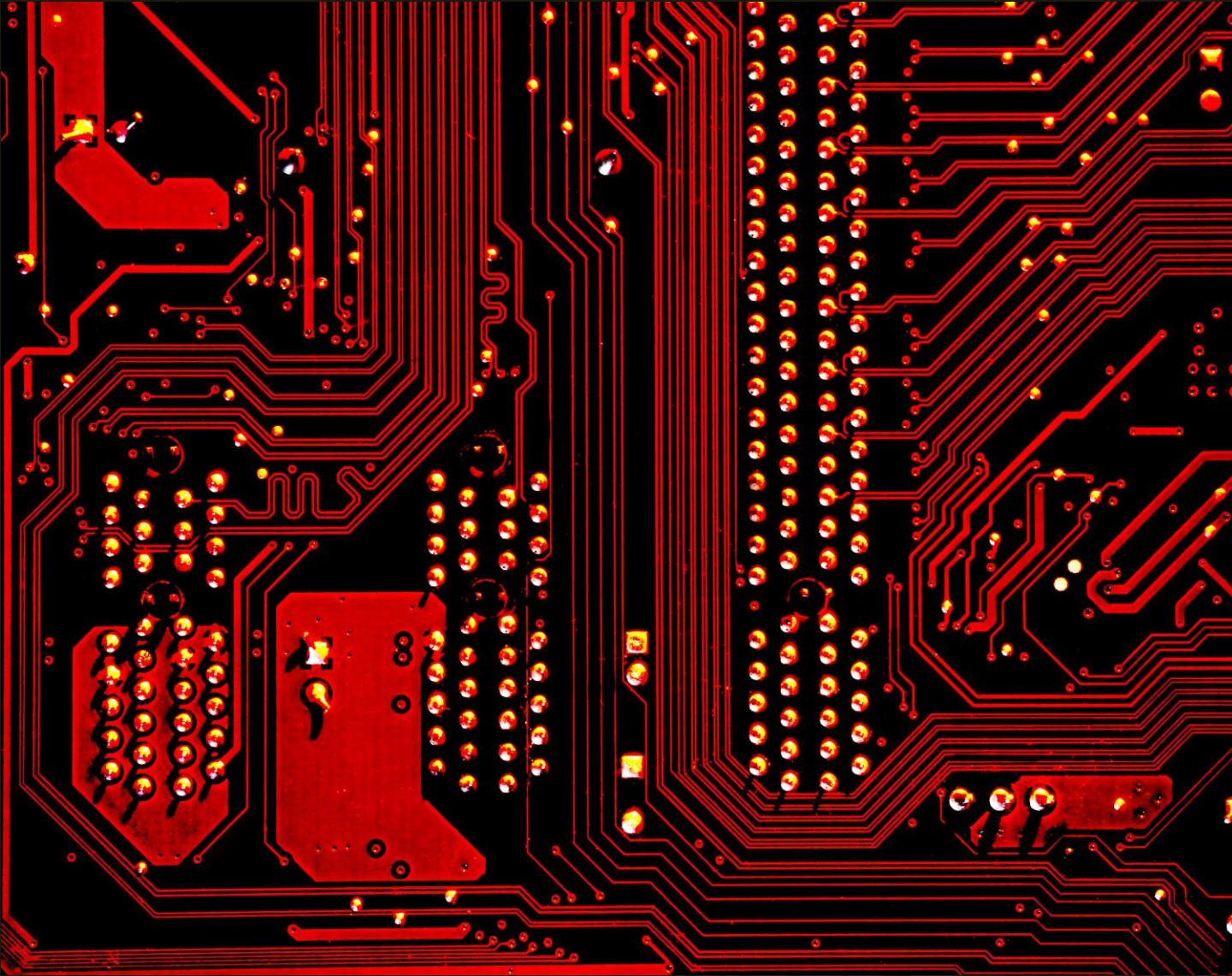




**The materiality  
of the cloud**

**The cloud is  
being served**





## The materiality of the logic gates



# Boolean algebra, logic and computation

LOGIC GATES are about a variable being either true or false: 1 or 0

- **NOT** for one input  $x$  (**output is the inverse of the input**):  $\text{not } x$
- **AND** for  $n$  inputs, e.g.  $x, y, z$  (**output is only true if all the inputs are true**)  $xyz$
- **OR** for  $n$  inputs e.g.  $x, y, z$  (**output is only true if one or more inputs are true**)  $x + y + z$
- **NAND** for  $n$  inputs e.g.  $x, y, z$  (**output is the inverse of the 'and output'**)  $\text{not } xyz$
- **NOR** for  $n$  inputs e.g.  $x, y, z$  (**output is the inverse of the 'or output'**)  $\text{not } x + y + z$
- **XOR** and **XNOR** (for two inputs and one output)

# The thought of a Turing machine



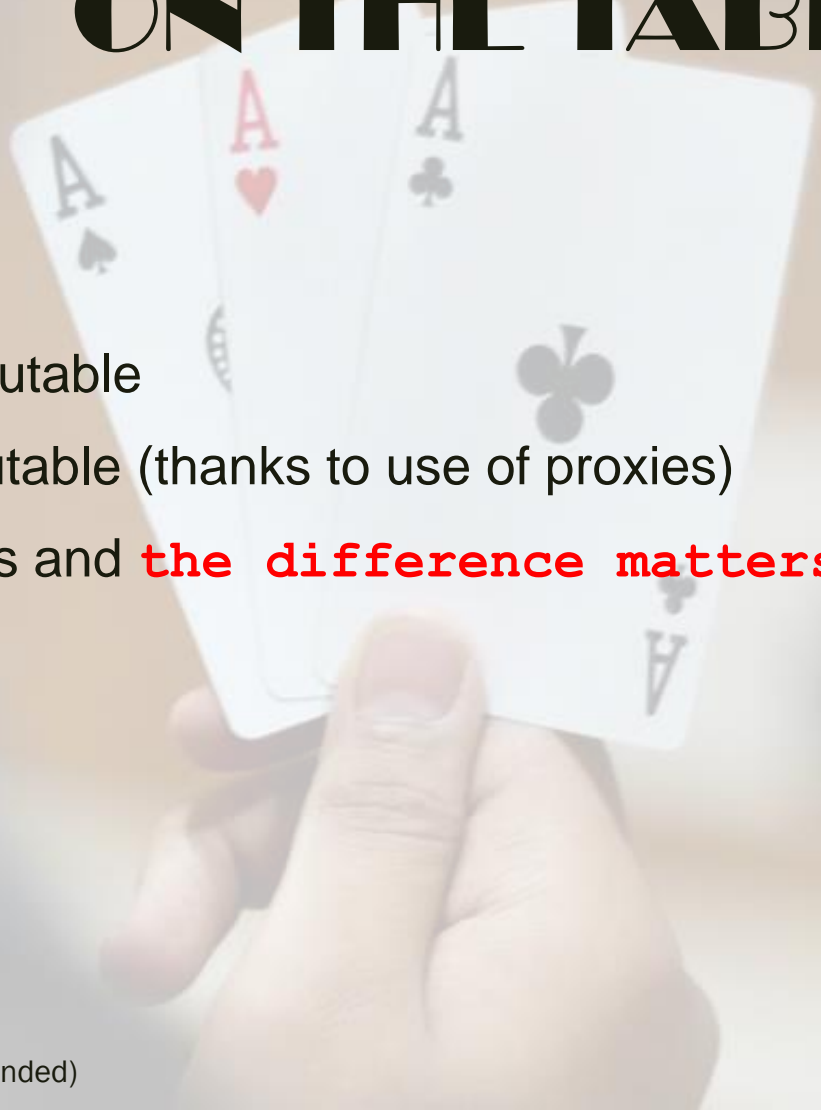
The idea behind digital computers may be explained by saying that these machines are intended to carry out any operations which could be done by a human computer.

— *Alan Turing* —

AZ QUOTES



# PUTTING MY THREE CARDS ON THE TABLE

- 
1. **Things that matter** are not computable
  2. They can nevertheless be **made** computable (thanks to use of proxies)
  3. They can be computed in different ways and **the difference matters**

# The proxies we live by

- In the case of computing the proxies are 'made of' data and code
- They must be formalised and disambiguated
- They need to pass the logic gates

# The proxies we live by

- Once they pass the logic gates we are in the realm of
  - *A program*
  - *Executing a code*
- The ambiguity and the adaptiveness of natural language are gone
  - *Speech acts live on the cusp of intra- and extralinguistic meaning*
  - *They are acts, folk can do things with words*
  - *Speaking is acting, framing, being framed, taking part in a shared world*



# The proxies we live by

- Once they pass the logic gates we are in the realm of
  - *A program*
  - *Executing a code*
- The user of the system has to live with the proxies
  - *Designed by the developer of the system*
  - *Who determines the choices users can make*

# The proxies we live by

- HMI cannot solve that problem, it rather **confirms** that
  - *Whether and how folk can interact with the system*
  - *Is decided by whoever developed the system and the interfaces*
  - *Even if such decisions are not necessarily intended*

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# The optics of choice

- Choice is about having different **options**
- The **optics** of choice are about whether you get to 'see' those options
- It relates to the difference between Gibson's and Norman's affordances
- The **affordances** an agent perceives and those that invisibly define them
- The notion of 'dark patterns' nicely captures **the optics of the subliminal**

# The optics of choice

- The optics of choice matter
- Materiality matters, proxy for and off the immaterial
- Those who develop the optics are not necessarily in control
- We need key attention to materiality's deep structuring of our shared world





# The End