GÖTEBORGS UNIVERSITET

STUDENT

0003-DLT

TENTAMEN

TIA301 Tentamen

Kurskod	--
Bedömningsform	DT
Starttid	27.09.2023 17:00
Sluttid	27.09.2023 19:00
Bedömningsfrist	--
PDF skapad	17.11.2025 13:05
Skapad av	Golsa Nouri Hosseini

ℹ Welcome to examination!

This examination consists of open questions, sometimes referred to as 'essay questions'. It includes ***7 questions***, each rewarded with a maximum of 3 points. The examination is limited to ***2 hours.*** To pass it you need ***13 points*** (60%)

The grading will focus on the overall capability to explain and apply ideas. It will assess whether (1) answers are logically coherent, whether (2) they are grounded in readings, lectures, and discussions, and, when applicable, that (3) answers engage the key concepts of the course.

It could be worth noting that longer answers are not necessarily better answers, since long texts increase the risk of ending up with inconsistencies.

1 HT23 Question 1

Laura reads about actor network theory (ANT). She likes the idea of humans and things shaping social phenomena together. However, she is puzzled by the principle of ***generalized symmetry***. You need to help her. In you own words:

1. Explain how humans and material artefacts can be viewed/understood as identical, in terms of agency.
2. Describe how this principle is useful when analyzing how socio-technical systems (systems involving humans as well as technologies) behave and evolve.

Skriv in ditt svar här

As stated in the text a human and a non-human can influence it's surrounding in the case of the human. If you inject this new person into a actor network it means that this person brings in their new ideas, ways of working and thinking into the system. The same should be said about the non-human that enters this actor network. For instance if you would inject chatgpt into this system it would also provide the network with new ways of thinking, working and ideas. That is the main idea behind generalized symmetry that humans and non-humans should be treated in the same way.

This is useful for analyzing how sociotechnical systems behave and evolve because it can explain why the surrounding adapts to new technologies and people over time. Cole (2019) mentioned that structues also influence peoples choices, thinking and behaviour which could be applied to the non-human sense as well with all regulations appearing regarding generative AI that evolves with time.

Ord: 163

Besvarad.

2 HT23 Question 2

Kevin has read about operand and operant resources. He has understood that an operand is a resource that can be acted upon to get things done. This resonates well with him, since he sees technologies as tools. However, he finds ***operant resources*** mysterious.

Explain to Kevin what an operant resource is and how it is different from an operand. Also, explain why digital artifacts are more often considered as operant resources.

Skriv in ditt svar här

An operant resource is by definition a resource that acts upon another resource. For instance one might argue that a nail is a resource and that a hammer is another resource which would make the hammer into the operant resource meanwhile an operand resource could be explained in terms of the actor whom acts upon the resource which in this case could be the carpenter.

Digital artifacts such as an app (for instance a camera app) on a phone could be seen as the operant resource acting upon the camera (resource) meanwhile the actor which is the user of the phone could be seen as an operand once again.

Usually this could be due to the fact of isomorphism and analogue technology. Analogue technology is seen as 'copy' that is representing the original and that isomorphism is transfering the form of the original in that sense from sound wave to small crevices on an LP disk. Digital however is different due to the fact that it doesn't always transfer the time stamps etc when this occurs and are in need of data(binary) and as well as a codec(algorithm) to make sense of it.

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Besvarad.

3 HT23 Question 3

Simon is confused about the concept of ***affordances***. He knows it focuses attention on meanings rather than attributes of digital artifacts. His problem is that affordances are defined in *relation* to an observer or user. If an affordance is a relative thing, it comes out as useless to him.

What did Simon miss about affordances? Explain to him why an affordance, although being defined in relation to an observer, can be useful to explain general aspects of material artifacts.

Skriv in ditt svar här

Affordances is the ability to be used for something or have a meaning to something. An example of this would be a chair, it would afford sitting to a person and could be used as a toy for an elephant which would be it's affordance.

When speaking about affordances one will often mention the Von Neumann architecture. The Von Neumann architecture is also called the "anything machine" because it can over it's lifetime change it's output, with new instructions and inputs due to the basic afforances of reprogrammability and reproducibility.

Reprogrammability is the ability to add new functionality over it's lifetime. For instance the "anything machine" is a black box or a computer in common terms which hides it's functionality because it could download new software such as Photoshop or Microsoft Office Word during the course of its lifetime and therefore be used for different purposes, photoediting or writing documents.

Reproducibility means that it can make another copy of these software without any marginal cost (cost of producing an additional unit of the software).

Therefore just because something doesn't seem useful to Simon doesn't mean it is for someone or something else and maybe it will be in the future instead.

Ord: 201

Besvarad.

4 HT23 Question 4

Sara knows that ***reproducibility*** refers to the capability of producing copies of a digital artifact, without triggering any marginal cost. However, she is confused about the consequences of it. The lecture she is following argues that reproducibility tends to make markets more diverse, i.e., including more niche products/services.

Explain to Sara why the reproducibility of digital technology tends to produce markets with more diversity.

Skriv in ditt svar här

You could explain this with the use of aggregate affordances such as diversity, mallebility, scalability and transparency.

Because that reproducibility allows copies of apps(digital artifacts) to be made without additional cost (marginal cost). One could in a e-book store such as Barnes and Nobles create niche books on romance between animals and humans without having to deal with the fixed cost of production from a economics of scale point of view with the latter being the cost reduction made by creating many copies of the same product in order to reduce the cost.

Mallebility would be the Barnes and Nobel's store's ability to add new sections to it's website or functionality over time for these niches making it easier to find for the end user.

This also has to do with the fact of scalability due to the fact that you can rapidly bring an e-book from local markets into global markets with ease when reproducibility reduces the costs of expansion when being digital which can be seen taken advantage of in the market by Amazon for instance.

Transparency can also explain this by being able to reduce the prices of the digital version of a product. You will also be able to outcompete many physical store selling the same product but only in a physical form when a end-user searches for the product through a pricecomparing search engine such as pricerunner or prisjakt.

Ord: 234

Besvarad.

5 HT23 Question 5

According to Jonathan Zittrain, ***generativity*** is found in “a technology’s overall capacity to produce unprompted [spontaneous] change driven by large, varied and uncoordinated audiences”. He also proposes that such generative capacity derives from four attributes of the technology.

What are the four attributes, and how do they make the technology generative?

Skriv in ditt svar här

Zittrain states that there are four attributes which are the following:

1. Capacity for leverage, which is the more effort something saves and the more uses it can be used for the more generative it is. For instance chatgpt allows people to use it for generating text for essays, code and more. Saving the user a lot of effort and time which provides leverage.
2. Ease of mastery, how easy it is for a user to learn how to use the tech effectively without having to resort to expensive courses, tutorials or documentation.
3. Adaptability, that the tech could be used for unforeseen actions.
4. Accessibility, that it allows any user from any social context or world the ability to use the tech without hampering the ability to understand and use it. As an example a colorblind person may be able to use the technology as well as a fully functional individual the technology should not discriminate the end-users usage of the tech.

These four all increase the generative capability of the technology in use due to the fact that heterogeniety of the user base increasing it. Which in turn is based on the generative community and the feedback loops which it provides that remains constantly evolving in an iterative emergent process (ear to the gound).

Emergent processes rarely have an end goal and constantly changes with previous patterns not occuring a second time. One could argue that recombination of previous software frameworks(Volvo On Demand) or parts(Mechano) could be used to enhance a technology as well as reframing from the different perspectives of the generative community(software engineers and designers etc) also provides the technology with more generativity.

This is also a part of Thomas and Tees theory of generative community, governence, architecture. Generative fit, cominatorial fit, generative outcomes and community/governance/architectural feedback.

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Besvarad.

6 HT23 Question 6

Elisabeth tries to understand how the concept of ***boundary objects*** can be useful in the context of design. The idea that boundary objects can take on different meanings in different contexts, yet be easy to recognize and put into action by various designers is appealing to her. However, to fully understand Elisabeth needs an illustration.

Pick an example of a digital design boundary object. Use that example to explain to Elisabeth how a boundary objects can be *plastic* enough to adapt to local needs and constraints and, at the same time *robust* enough to maintain a common identity across sites.

Skriv in ditt svar här

A digital design boundary object in this case could be Microsoft Office Powerpoint. The powerpoint software can illustrate different charts and tables to people not understanding the subject or langauge through it's mathematical and visual designs which would be close to the definition of being the "bridge between social worlds that facilitate the alignment of interests". Which would allow for people from the local economic department to understand it and adapt(plastic) the information in it according to the need to review the company data with certain economical constraints (the accountants) and the design of the software allows it to be robust enough to allow people from different background to understand it too (the shareholders of a company and other people) as in the charts and the procentages on the screen.

Design boundary objects according to Bergman (2017) had four aspects regarding it. It allowed for

- Representation of the design knowledge
- Capability of transforming the design knowledge
- Capability to mobilize
- Capability to legitimize the design knowledge

In the case of Powerpoint you could say that the economical data is both transformed and represented on the screen of a powerpoint page. The shareholders can mobilize the economics department to make the annual report. Together with others they can also validate the information presented on the screen which fulfils the statement above.

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Besvarad.

7 HT23 Question 7

Explain the basic idea behind ***ontological reversal*** and reflect on the consequences of ontological reversal for the design of digital systems.

Skriv in ditt svar här

Ontological reversal is one part of the transdiciplinary nature of digital innovation, the others being semiotic bindning and agential core.

Ontological reversal is based on the thought that the digital being more 'real' than the physical representation of an object from a historical standpoint. An example of this would be the digital version of an airplane ticket being more important than the physical one because when it's stored in a cloud database one could access it to print out the physical version at an airport. Although this is not neccessary when people could download an app and show it to the guards at the airport instead of a physical copy as is common here in Sweden with bus tickets and the Västtrafik app.

There is still a problem to this new kind of thinking where the older generation might prefer to still print out the physical copy in order to "do things as it has always been done before". Semiotic bindning such as 'like' buttons in Facebook is also an example of something that the older generation may not understand and neither want to adapt to.

So as a consequences that would mean that the users would be divided with a user group using the physical copy and another one with the digital one. Where there are people willing to adapt to the ontological reversal and the late laggarts who are unwilling to. This can also be seen in the stock market with certificates and physical resources.

Ord: 247

Besvarad.