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NEO-COMMODIFICATION OF PERSONS: EXPLOITATION OF PERSONAL DATA AND IMPACT ON THE SHARING ECONOMY

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Neo-Commodification of persons: exploitation of personal data and impact on the sharing economy

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Table of Contents

Abstract

The notion of commodification is a fascinating one. It entails many facets, ranging from subjective debates on desirability of commodification to in depth economic analyses of objects of value and their corresponding markets. Commodity theory is therefore not just defined by a single debate, but spans a plethora of different discussions. This thesis maps and situates those theories and debates and selects one specific strain to investigate further. This thesis argues that commodity theory in its optima forma deals with the investigation into what sets commodities apart from non-commodities. It proceeds to examine the many given answers to this question by scholars ranging from the mid 1800's to the late 2000's. Ultimately, commodification is defined as a process in which an object becomes an element of the total wealth of societies in which the capitalist mode of production prevails. In doing so, objects must meet observables, or indicia, of commodification provided by commodity theories.

Problems arise when objects are clearly part of the total wealth in societies without meeting established commodity indicia. In such cases, objects are part of the total wealth of a society without counting as a commodity. This thesis examines this phenomenon in relation to the novel commodities of audiences and data. It explains how these non-commodities (according to classical theories) are still essential elements of industry. The thesis then takes a deep dive into commodity theory using the theory on the construction of social reality by John Searle. This allows one to examine how the concept of the commodity can be adapted in order to encapsulate these novel objects that should objectively be given a commodity status.

Next, the thesis moves towards the manner in which persons are commodified in data driven economies through the exploitation of their data. Using literature on surveillance capitalism, this thesis argues that algorithmically influenced behaviour of persons is an object of great economic value. Following this, the work turns towards creating a new concept of the commodity, a neo-commodity concept, which is specifically designed to include algorithmically influenced behaviour into the sphere of commodities.

Finally, the sharing economy is introduced as the market in which such neo-commodities circulate. Historically speaking, the study of commodities and their markets is inextricably linked. But neo-commodities hold features that do not match classical markets and require a new place of commercialization. The sharing economy is analysed as a market that deals not with sharing, but with the commercialization of all aspects of life through digital connections. The conceptualized neo-commodity of algorithmically influenced behaviour circulates in this economy as a novel type of commodity on an access-base.

Abstract in German

Das Konzept der Kommodifizierung ist ein faszinierender Begriff. Es umfasst viele Facetten, die von subjektiven Debatten über die Zweckmäßigkeit der Kommodifizierung bis hin zu eingehenden wirtschaftlichen Analysen von Wertgegenständen und den entsprechenden Märkten reichen. Die Warentheorie wird daher nicht durch eine einzige Debatte definiert, sondern umfasst eine Fülle unterschiedlicher Diskussionen. In dieser Arbeit werden diese Theorien und Debatten dargestellt und es wird eine bestimmte Richtung ausgewählt, die stärker in den Vordergrund gestellt wird. In dieser Arbeit wird argumentiert, dass sich die Warentheorie in ihrer optima forma mit der Untersuchung der Frage beschäftigt, was Waren von Nicht-Waren unterscheidet. Im Folgenden werden die zahlreichen Antworten auf diese Frage untersucht, die von der Mitte des 19. Bis zum Ende des 20. Jahrhunderts von Wissenschaftlern gegeben wurden. Letztlich wird die Kommodifizierung als ein Prozess definiert, in dem ein Objekt zu einem Element des Gesamtreichtums von Gesellschaften wird in denen die kapitalistische Produktionsweise vorherrscht. Dabei müssen die Objekte die von den Warentheorien vorgegebenen Merkmale oder Indizien der Kommodifizierung erfüllen.

Probleme entstehen, wenn Objekte eindeutig Teil des Gesamtreichtums in Gesellschaften sind, ohne jedoch die etablierten Warenindikatoren zu erfüllen. In solchen Fällen sind Objekte Teil des Gesamtreichtums einer Gesellschaft, gelten aber nicht als Ware. In dieser Arbeit wird dieses Phänomen in Bezug auf die neuen Waren Publikum und Daten untersucht. Es wird erklärt, wie diese Nicht-Waren (nach den klassischen Theorien) dennoch wesentliche Elemente der Ökonomie sind. Anschließend wird die Warentheorie anhand der Theorie über die Konstruktion der sozialen Wirklichkeit von John Searle vertieft. Auf diese Weise kann untersucht werden, wie der Begriff der Ware angepasst werden kann, um diese neuartigen Objekte zu erfassen, die objektiv den Status einer Ware erhalten sollten.

Als Nächstes befasst sich die Arbeit mit der Art und Weise in der Personen in datengesteuerten Ökonomien durch die Verwertung ihrer Daten zur Ware werden. Anhand der Literatur zum Überwachungskapitalismus wird in dieser Arbeit argumentiert, dass das algorithmisch beeinflusste Verhalten von Personen ein Objekt von großem wirtschaftlichen Wert ist. Im Anschluss daran wird ein neues Konzept der Ware, ein Neo-Warenkonzept, entwickelt, das speziell darauf abzielt algorithmisch beeinflusstes Verhalten in die Sphäre der Waren einzubeziehen.

Schließlich wird die Sharing Economy als der Markt bezeugt, auf dem solche Neo-Waren zirkulieren. Historisch gesehen ist die Studie von Waren und ihren Märkten untrennbar miteinander verbunden. Neo-Waren weisen jedoch Merkmale auf, die nicht zu den klassischen Märkten passen und einen neuen Ort der Kommerzialisierung erfordern. Die Sharing Economy wird als ein Markt analysiert, der sich nicht mit dem Teilen beschäftigt, sondern mit der Kommerzialisierung aller Aspekte des Lebens

durch digitale Verbindungen. Die konzeptualisierte Neo-Ware des algorithmisch beeinflussten Verhaltens zirkuliert in dieser Ökonomie als neuartige Ware auf einer „Access-Basis".

1.0 Research introduction

The notion of commodification generally concerns itself with the division between objects that are deemed commodities and circulate in markets and objects that do not partake in circulation in markets. Historically this has resulted in endless discussions, based in part on individual judgement calls. Should poached ivory be allowed to circulate in markets? Or adoption rights? And what about historical artifacts robbed from their native place several centuries ago?

The answer to the question of which objects are commodities and which are not is deeply reflective of a person's stance on the affairs in the world and on society. The response to the commodity question sets the socialist apart from the capitalist and the liberal from the conservative. Some have a preference for a free and unregulated markets, in which all objects are commodities, whereas others opt for the state to prohibit certain objects to become commodities. As a result, commodification studies are often deeply cultural and subjective. Historical debates on which objects should be in- or excluded in markets have concerned themselves with objects such as un(der)-paid labour, adoption rights, human organs, surrogate mothership, fire arms, drugs and GMO chicken, to name just a few. But perhaps most importantly, never have these discussions been effectively put to rest.

That does not mean that the exercise of this thesis, understanding how persons are subjected to a process of commodification in data driven economies, is an effort that revolves around such a subjective debate. There are other ways to study the notion of the commodity, using a different method to approach the matter. This different approach flows from the question: what sets a commodity apart from a non-commodity in the first place? This specific approach is to be found in the countless commodification theories ranging from the 1800's to the late 1990's. Generations of scholars have reflected deeply on the concepts of commodification and commodities and have unearthed much of its metaphysical nature. The study of the commodity is therefore an interesting in itself since it deals both with the nature of the concept of the commodity and the repercussions of a commodity concept on societies.

As time progressed, and the digital became more prevalent, the study of the commodity changed in proportion to the change in societies. Our world is digitizing to rapidly that some have dubbed this as a fourth revolution.[1] This revolution fundamentally changes relationships between persons and informational agents and evokes many questions on the nature of the digital space in which such relationships take place. With the creation of digital spaces, artifacts and informational agents, a genesis of novel objects took place, resulting in objects that did not exist prior to the computational turn.[2] These products of a world in digital revolution scuffle with existing concepts in general, stretching them or breaking them entirely.[3] Whereas commodification theory has always debated the nature of the

[1] M. Durante, "*Ethics, Law and the Politics of Information A Guide to the Philosophy of Luciano Floridi,"* The International Library of Ethics, Law and Technology (2017) p.6
[2] L. Floridi, *"Information, a very short introduction,"* Oxford University Press (2010) p.15-16
[3] See for instance: P. Pałka, *'Virtual Property, Towards a General Theory,"* European University Institute (2019)

commodity and its relation to society, it rarely dealt with the influx of novel objects. For years the objects of commodification, be that iron, wheat, milk or leather has remained relatively stable. The influx of new and digital objects pushes commodification theory into unchartered territory, primarily because digital objects behave so differently from their analogue counterparts.

Much of this perceived difference between novel objects and established theory is analysed in many fields of literature. There is an ongoing examining on how much the new is like the old, and whether it can be expressed as such. Some examples include: Is Bitcoin money? Is data property? Are platform delivery-workers employees? Sometimes the answer to this question is affirmative, sometimes it is not. And sometimes, these investigations require entirely new semantic classes to express the nature of new objects.[4] This thesis investigates into the creation such classes, or rather, to the adaptation and updating of such an existing class. Commodification studies have always been a place where intense debates have been held on the desirability of specific objects in markets, but those objects have never pushed the boundaries of the concept of commodification like novel digital objects are currently doing. In a certain sense, the concept of commodification is stuck in history and it needs adaptation, in order to encompass the objects which it historically never needed to encompass. Encompassing of novel objects into commodity theory is not primarily aimed at making normative claims on whether or not Bitcoins, data, platform labour or digital aspects of persons should or should not be commodities. It rather describes the manner in which they *could be* commodities.

Without updating the concept of commodities and commodification, many objects cannot be classified as a commodity, given that classical commodification theory does not allow it. These theories set requirements for objects to be commodities, for instance, mandating that objects have use-value or that they are scarce and desirable. In many cases it may be clear that objects are valuable, but still miss important features that would make them commodities. Therefore, such objects are not commodities yet, given the current stance of commodification studies.

Including novel objects into the reach of a commodity concept allows for further debates on the desirability of the commodity status of an object. It welcomes the subjective discussion back into play. Some of these discussions deal with the following: To what extent may a specific object be a commodity? And under which conditions? Are all versions of a specific object a commodity, or can objects exist in commodified and non-commodified form? However, to engage in these questions, one must first establish the commodity status of such an object, this inevitably entails reworking outdated commodity theories.

This thesis entails an adaption of the notion of commodification and commodities to make them fit for digital objects. This, in turn, will lead to a healthier, more durable and more refined possibility to engage

[4] L. Floridi, *"Hyperhistory and the Philosophy of Information Policies,"* Philosophy and Technology 25, no. 2 (2012) p.131

in the desirability of commodification debates, in which each is entitled to his or her opinion. But the first step is to adapt the notion of commodification so that it becomes inclusive of novel digital objects. The goal of this thesis is therefore as follows. To understand and describe how persons are subjected to a process of commodification in the algorithmically mediated data-driven economy. The focus purely lies on the structural adaptation of existing commodity concepts in order for them to become inclusive of novel digital objects. This research therefore concerns itself only with how an object can be a commodity, with a specific focus on digital objects which are part of, or an aspect of, a person. This in turn frames the data driven economy as a place where practices of commodification of persons can be perceived in their 21st century form.

Research questions and thesis roadmap

In order to provide better understanding of commodification processes relating to persons in data driven economies it is important to comprehensively analyse many different facets. This results in the fact that each chapter has its own goal, own set of literature and therefore also its own ''feel''. The chapters build on each other chronologically but all have their distinct arguments. The main research question of this thesis is as follows:

''*In what manner are persons, or aspects of persons, subjected to a process of commodification in data driven economies, and what is the effect thereof on the understanding of the Sharing Economy?*''

In order to answer this question four sub-research questions, need to be answered in their respective chapters. The research question is followed by a short description of the chapter itself.

1. *What does the notion of commodification entail?*

This first chapter concerns itself with an analysis of ''first-wave'' commodification theory. It examines existing literature on what commodities are, what commodification is and how these notions and concepts relate to each other. Essentially this chapter unravels what commodification and commodities have been so far through the lens of established theory. The chapter starts off with an etymological analysis and progresses into the examination of commodity theory as posed by five different authors. Those authors being, Karl Marx, Karl Polanyi, the Chicago School of Economics, Jane Radin and Arjun Appadurai. One of the strategies to better understand the notion of commodification is to dissect all aforementioned commodification theories into the smallest bits and understand how they make up a given theory of commodification. In order to do so, the method of the level of abstraction by Luciano Floridi is deployed. This ultimately results in a list of elements that makes a commodity gain its ''commodity-ness''. The chapter concludes with a summary of that which has been found in the chapter and proposes to further examine a certain function and use of the concept of the commodity.

2. *Which aspects of persons in could potentially be subjected to processes of commodification in (digital) mass media systems?*

The second chapter builds on the discussed theories in the first chapter and finds manners in which they have been applied to more contemporary issues. As soon as more elaborate modes of production emerged, novel commodities were deemed to be of essential elements of industry. Novel objects then seek commodity status while not meeting established commodity concepts. Chapter two deals with the state of the art on the application of commodity theory to mass media systems from a neo-Marxist perspective by Dallas Smythe and Christian Fuchs. This chapter exemplifies that which has been hinted at in the introduction. When novel objects start to exist, the commodity concept must play a game of catch up. The manner in which Smythe and Fuchs do so is highly interesting to examine, since they argue that persons are commodified into ''audience commodities''. These audiences are then bought and sold on a market as if they were a kilo of gold or silver. The chapter continues along the thoughts of Smythe and Fuchs and examines the manners in which data, rather than audiences, is current situated in commodity debates. To sum up. this chapter analyses the literature that identifies commodities in mass media systems and examines what happens when novel objects meet existing commodity concepts.

3. *How can the notion of commodification be updated in order to accurately describe the 21st century processes of commodification of persons in the digital milieu?*

Not all objects exist in the same manner, in some cases, the prerequisites for existence of virtual objects differs from their analogue counterparts. As an example, an object in a video game disappears or stops existing when the servers of the game stop running. The same goes for cryptocurrencies that are no longer upheld by nodes. For classical commodities such as iron and coal this does not go, they exist without effort by other actors. This creates an interesting perspective in the case of commodity studies since the previous results in a fundamental mismatch between digital objects and commodification theory. Objects in digital economies have different rules for their transfer, exchange, accessibility or even existence, when compared to classic commodities. As a result, objectified aspects of persons in digital economies behave different compared to classical commodities. These objects do not follow the same rules of circulation when compared to regular commodities such as a kilo of silver or corn.

Chapter three therefore deals with the teleological adaptation of commodification theory, creating a framework to update the notion of commodification to explain value generation in digital economies. It relies on the work of Pałka and on elements from John Searle's theory on the Construction of Social reality in order to construct a theoretical backdrop of a novel approach to commodification theory. It departs from the assumption that commodities are social constructions, and that ''to counts as'' a commodity must mean something different for digital objects than it does for analogue objects. The theory provided by Searle provides plenty ground to analyse the manner in which the notion of the commodity can be adapted to include novel digital objects.

4. *''How can algorithmically influenced behavior be understood as an object of potential commodification?''*

The fourth chapter essentially repeats the exercise from chapter two. In the 1970's Smythe and Fuchs argue that mass media creates commodities from its audiences. Fifty years later the dominant mass media are no longer newspapers and TV but rather complex digital architectures in which persons roam. The technological landscape is completely different and this chapter argues that this technological infrastructure produces different objects which can be potential objects to a process of commodification. Whereas Smythe argues that persons, understood as audiences in their totality are commodities, this chapter frames the algorithmically influenced behaviour as an object which needs to be included into the sphere of commodities. Using literature on surveillance capitalism, this chapter follows a narrative of how algorithmically influenced behaviour starts to exist in an economic model dominated by big data, algorithmic steering and digital architectures. The chapter argues that the aspect of persons which is commodified in data driven economies is their algorithmically influenced behaviour. At the start of this process is the exploitation of data relating to persons in a way that influences their actions and behaviours.

5. *In which manner can the concept of the neo-commodity be conceptualized in order for it to include algorithmically influenced human behaviour into the sphere of commodities?*

Chapter five deals with the reconstruction of the indicia of commodification in order for them to capture the object described in chapter four. It restructures the elements of commodification theory, which were examined in chapter one, so that they fit the object of algorithmically influenced human behaviour. It does so with adherence to the theoretical framework that has been established in chapter three and results in a novel concept of the commodity that includes objects which are digitally constructed. Algorithmically influenced behaviour is one such object, but the created commodity theory may allow itself for wider application than just this specific object in the future.

6. *In what manner can the Sharing Economy be conceptualized as a market for algorithmically influenced behaviour as access-based commodity?*

Commodities require a social construct in which they circulate, for classical commodities these are classical markets. The manner in which algorithmically influenced behaviour circulates as a commodity is primarily through access-based commercialization. This is quite at odds with established forms of commodity circulation which are based on exchange and transfer. However, this narrative of access-based circulation of commodities is exactly the core characteristic of the sharing economy. The sharing economy defines itself by being plural in definitions, one of the few true characteristics of the sharing economy is that no definition of its nature is universally agreed upon. The main characteristics of the sharing economy however are more widely accepted, and those revolve mainly around access of assets and services rather than true exchange of objects. Therefore, the sharing economy is a prime candidate to be the social construct in which this novel commodity is circulated.

This intrinsic need to shift from transferability to accessibility, as means to circulate commodities, mirrors precisely all that is built up in the previous chapters. Neo-commodities do not let themselves be transferred or exchanged like ''old world'' objects can be. The sharing economy facilitates this new type of accessibility of commodities, to engender their circulation, including when it comes to novel objectified aspects of persons. Neo-commodities warrant a novel place of circulation, since traditional markets are less suited for accessibility of ''digital objectified persons commodities''. Markets have simply adapted to the objects it seeks to circulate; the sharing economy is a result of the need to circulate a new type of commodities which does not base itself on classic transfer and exchange. The sharing economy is therefore the place where these new types of commodities are circulated, based on a mechanism of access, rather than transfer and exchange. This adds another dimension to the manner in which the sharing economy can be understood. Arguing that algorithmically influenced behaviour of persons circulates as a commodity in the sharing economy provides a novel way of understanding of the sharing economy itself.

To repeat, the main research question of this research is: ''*In what manner are persons, or aspects of persons, subjected to a process of commodification in data driven economies, and what is the effect thereof on the understanding of the Sharing Economy?''* Based on the foregoing, this research question can be answered in chapter seven. Chapter seven deals with the conclusion of the thesis in its entirety.

Methodological remarks

The LAST-JD-RoIE programme under which this thesis is written characterizes itself as an interdisciplinary programme. It seeks to find the links between established fields of study and build on them in a manner that enhances understanding of the current state of the art in digital developments. This thesis is therefore written with an inter- or multidisciplinary approach, both by choice and by necessity. The study of the commodity is characterized by its influence by many academic fields. These fields include historical economics, sociology, media studies, legal studies, anthropological studies and many more. The approach this thesis takes to finding and using it sources is to find the ''purest'' form of the available argument. As an example, when legal studies argue that the sharing economy is not about sharing, the underlying argument is an anthropological one. Or when economists argue that audiences are commodified, its underlying argument is derived from media and communication studies. This thesis seeks to find and use the purest forms of the provided arguments, and therewith examines sources from many different fields of study. This results in an interdisciplinary study that brings many different fields of study regarding the commodification of persons in the digital sphere into perspective.

1.1 Analysing the notion of commodification

This first chapter deals with the understanding of the notion of commodification. It will depart from an etymological perspective, seeking to understand the origin of the word commodification and commodity, along with some linguistic perspectives. It will then move to a method for contextualizing the notion of commodification which revolves around different approaches that are deployed when contextualizing the notion of commodification. The notion of commodification is often contextualized in two parts. The first part requires an active part of a verb combined with the notion of a commodity. For instance: ''to apprehend as/to transform into/to be seen as'' combined with the stand-alone notion of ''a commodity''. The first part of chapter one deals with why such a strategy of examination is unideal and should be replaced with a holistic method.

The analysis then turns to first-wave, or original, holistic theories of commodification. Distilling five selected commodification scholars and their respective notion of commodification. Those five scholars being Karl Marx, Karl Polanyi, The Chicago School of Economics (Richard Posner, Gary Becker), Jane Radin and Arjun Appadurai. These five scholars will have their theories dissected into the smallest parts or elements possible, for which the theory of the levels of abstraction by Floridi will be employed. The final analysis in this chapter seeks to understand what the notion of commodification entails and the manner in which all five theories can be summarized under one (very abstract) header. The conclusion proposes one of the more concise functions of the notion of the commodity as general commodification definition that is applied throughout the rest of the thesis.

This detailed analysis of the theories of commodification then set the stage for chapter two. Chapter two deals with the objects which are seen as commodities in mass media or data driven systems. It is imperative that one first gets acquainted with first wave commodification theory before examining its applications to real world objects.

1.1.1 Etymologic perspectives on the word commodification

In order to accurately describe the term commodification, the origins of the word must first be examined. The word commodification originated from the Latin language and seems to have been passed on through Angelo Saxon and Germanic languages to eventually appear in modern English.

Starting the examination of the word ''commodity'' from its earliest appearance leads back to the Latin language. The Latin adjective *commodus* describes ''that which is suitable for a purpose, has due or proper measure, or is fit or complete''.[5] The Latin noun *commoditas* carries a similar meaning and is the etymological source of the French *Commodité,* which in turn means ''qualité de ce qui est commode, de ce qui se prête bien à l'usage''.[6] Translating to ''qualifying as being convenient and lending itself for

[5] Harpers' Latin Dictionary
[6] Larousse French Dictionary

usage''. These terms carry a primarily descriptive meaning, they impose onto an object the status of being useful, being fit for purpose, being fit, or complete.

From an etymologic perspective, the English verb *commodification* means turning an object into a commodity.[7] Commodification also exists as noun. In that capacity, commodification describes the way an object is treated. The Oxford dictionary states that *commodification* as noun means ''the fact that something is treated as or considered as a commodity.'' Therefore, when speaking of the noun commodification, from an etymological perspective, one describes the treatment of an object, treating it as if an object is a commodity. Several English dictionaries then define a commodity as ''being something that can be bought and sold''[8] or ''being an economic good''[9] *or* ''being a raw material that can be bought and sold''.[10] When speaking of the verb commodification, from an etymological perspective, one aims to describe the process in which a non-commodity is transformed into, or apprehended as a commodity.

An interesting detail is that Angelo Saxon and Germanic based languages seem to use the verb *to commodify*, English – Commodification, Dutch – Commodificatie, German – Kommodifizierung. Latin based languages however, tend not to speak of commodification but rather of ''marketification'', Italian – mercificazione, Portugese – mercantilização, Spanish – mercantilización, French - marchandisation.[11] The only exception seems to be the Romanian language, the only Latin-based language in Eastern Europe, in which commodification translates as comodificare. Other languages, for instance Dutch and German, call the commodity, ''waar'', or ''Ware''. But still use the derivative term of commodification to refer to that ''waar'' or ''Ware''.[12] In English, this results in the ''commodification of the commodity'', in Dutch this results in the ''commodificatie van de waar'' and in German ''kommodifizierung der Ware''.

In Italian, the verb 'to commodify' is translated as *mercificazione*, which has as translated definition ''seen only in the perspective of the economic interest that can be drawn from them.''[13] If other Latin-based languages express a similar notion with their respective version of the verb *mercificazione,* this means that for these Latin-based languages, the word commodification has an explanation that describes how an objects has become marketable, rather than solely meaning ''to be transformed/apprehended as/into a commodity''. By way of conclusion for the etymological part, the English version of commodification directs back to the process of becoming a commodity, which then refers back to the (Latin based) concept of a commodity which relates to the useability of an object.

[7] Marian Webster English Dictionary
[8] Cambridge English Dictionary
[9] Marian Webster Dictionary
[10] Oxford Dictionary
[11] This is not an existing English verb
[12] F. Jameson, *"Valences of the Dialectic,"* Verso (2009) p.257
[13] Devoto Oli Italian Dictionary

1.1.2 Further linguistic remarks

The verb ''to commodify'' is part of the -ify, suffix family of verbs. The -ify suffix is linguistically understood as a morphological derivation, or a class-changing suffix. More specifically, -ify verbs with a morphological derivation suffix are called verbalizers, they transform a noun into a verb. The ending -ify is not the only possible verbalizing suffix, think for instance of -ate in *orchestrate* or -en in *lighten* or -ize in *prioritize.* These suffixes make a verb from a noun-form. Next to re-classifying the type of word, from noun to verb, -ify suffixes also introduce a semantic state change in the subject to which the verb refers. That is to say, to liquify, describes a transition of an object from a certain state to a liquid. To mummify signals the transformation from an object into a mummy. To emulsify describes the transformation an object into an emulsion. To unify is to transform that which is not a unity into a unity.

The previous patterns imply an interesting dynamic between state transitions between two forms of existence of things. Going from one form to another form is transformative, but it also implies that once the transformation is done, there is no further transformation possible towards the same end. As an example: one cannot liquify a liquid, for it already is a liquid. Perhaps one could make a liquid have an increased number of liquid-like qualities compared to a liquid that has less liquid-like qualities, but a liquid cannot truly be liquified again. The same goes for emulsifying an emulsion, there is no further transformation to be described while making an emulsion from something that is already an emulsion. In the same way one could argue that there is no unification possible in a perfect unity, since it already is a unity. This adds an important notion to the etymologic perspective of ''to commodify'', because it signals a transition from non-commodity to commodity. To commodify, when used as a verb, therefore entails a sense of transformism. Even when ''to commodify'' is understood as ''apprehending an object as a commodity'', it becomes important to notice the change or transformation embedded in this notion. It is useless to speak of commodification of objects which are already apprehended as a commodity, therefore, the transformative element in the notion of commodification is crucial.

Commodification should also not be confused with commoditization. The two words are very similar; however, commoditization carries a notion that commodification does not describe. Commodification in English roughly means to transform an object into a commodity. Commoditization means the same and is simultaneously understood as ''the process in which more and more commodities become available to the market which lead consumers to pay lower prices since the commodity in question is more widely available''.[14] Several English dictionaries state that commoditization is ''to render (a good or service) widely available and interchangeable with one provided by another company''[15] The Collins dictionary states commoditization is a transitive (interchangeable) term, for commodification. In any case it can be argued that commodification generally does not carry the meaning of ''becoming widely available and therefore lowering prices'' while commoditization does carry that meaning. Commoditization has a

[14] Marian Webster dictionary
[15] Ibid.

wider, or broader meaning, when compared to the notion of commodification. Commoditization, with its more extensive meanings, encompasses commodification, while commodification does not encompass commoditization. Alternatively, some simply put commoditization away as an ''uglier'' version of commodification.[16] Some authors use both commodification and commoditization interchangeably.[17]

1.1.2 Commodification as verb, noun and holistic definition

When describing the notion of ''commodification'', the notion of commodification can appear in several different forms:

i. The act of treating/apprehending an object as a commodity (noun)
ii. Transforming an object into a commodity (verb)
iii. Holistic definitions (mix)

The word commodification can therefore have three different functions. The verb-approach touches upon the nature of the transformative relationship between objects and commodities. It highlights the transformation of things that are not commodities into things that are commodities. Structuring an analysis along the noun version of commodification would result in a more metaphoric approach. This would approach objects along the ''as if'' form, and examine the dynamic of acting ''as if'' objects were a commodity. Treating an object as if it is a commodity does of course not equate the full sense of transformation of objects into a commodity. The third option explores authors who define commodification through situating the notion in legal-economic analyses, often making it a richer notion compared to the other two approaches. The holistically focused authors often devote less attention to what commodification is, but rather what role commodification plays in markets and societies in a broader sense.

Point ii. which understands commodification as a transformative verb, meaning the transformation of something that was not a commodity into a commodity, requires a few more words. This idea of transformation is in and of itself interesting enough to warrant an expansion on the previous section of mere linguistical remarks regarding transformation.

1.1.3 The transformative & semantic status-imposing function of the verb to commodify

In the etymological discussion, some thought was devoted on the transformation from one state to another. Comparisons with other transformative verbs are interesting in this regard. Can one liquify a liquid, or is that impossible because it already is a liquid? Or even more troublesome, can one unify something that is already a unity? The same goes for the verb commodification, can a commodity be commodified, or can only non-commodities be commodified? This, in part, has to do with the ''rigidness'' of the status of the object or form that something is transformed into. To exemplify, one can

[16] F. Jameson, *"Valences of the Dialectic,"* Verso (2009) p.257
[17] See generally: A. Appadurai, *"The Social Life of Things, Commodities in Cultural Perspective,"* Cambridge University Press (1986)

easily distinguish between a liquid and the solid state of an element, these forms are rigid, there is little empirical unclarity to their status. They are what Searle would call, brute facts, their ''fact-ness'' is not depending on social convention.[18] Under normal atmospheric conditions, gold is a solid, water is a liquid and argon is a gas, these substances cannot be solid and liquid at the same time under the same conditions. It is easy to tell the different states apart and one can hardly confuse one of these states for the other. Speaking of ''liquifying'' an object therefore only makes sense when an object is clearly not a liquid and when there is no doubt towards the state of being a liquid. This becomes problematic as soon as there are cases in which an object is both a liquid and a solid at the same time or when there is uncertainty about what exactly separates the appearance of liquids from the appearance of solids or gasses.

The verb to liquify becomes troublesome when there is doubt to what a liquid is, or when it is difficult to examine whether an object is liquid or has another form. This idea carries over to the verb ''to commodify'' when understood as a transformative verb. When examining commodification, the transformation of a non-commodity into a commodity, the binarity of a ''gas or solid versus liquid scenario'' cannot be relied upon. Between gas and liquid state lies little grey area. It is almost always immediately clear to the observer what the difference is between a liquid and a solid. On the other hand, when stating that something is transformed into a commodity, the discussion only just begins. Since worldviews and definitions of commodification and commodities differ, so does that which is considered a commodity as a state of being. The state of ''being a commodity'' is therefore supremely un-binary in the sense that its status cannot be affirmed or denied through empirical logic. Some examples to illustrate the previous: those who argue that babies can never be commodities will instantly face the criticism of the Posner, Becker and the Chicago School of Economics.[19] On the other hand Kantians will refute the idea that a babies can be commodities, since it is impossible for humans to be *the proprietor and the property.*[20] Some argue that for-sale sex is a commodity, others are fiercely opposed and the list of such contested commodities is long and evolving.[21] This marks an interesting linguistic difference between verbs like ''to liquify'' and the verb ''to commodify''. There can be little to no discussion on whether an object has been transformed into a liquid or a gas. However, there is much debate about whether or not an object is transformed into a commodity. Therefore, when the verb to commodify is used to describe the status imposition of ''commodity'' onto an object, it primarily only opens up discussions, rather than impose true status. In other words, ''being a commodity'' is far from an absolute scientific observation, and very much unlike the brute facts in the sense that Searle describes.[22]

To sum up, since it is practically impossible to liquify a liquid, it must also be unfeasible to speak of commodification of commodities. Objects that are commodities cannot be commodified, such linguistic

[18] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.1-2
[19] See generally: R. Posner, *''Regulation of the Market in Adoptions,''* 67 Boston University Law Review (1987)
[20] I. Kant, ''*Lectures on Ethics,''* Cambridge University Press (1930) at 27:387
[21] See generally: M. Radin, *''Contested Commodities, the trouble with trade in sex, children, body parts and other things,''* Harvard University Press (1996)
[22] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.1-2

discourse would be counterintuitive. One of the possible meanings of ''to commodify'' must therefore be that objects that are not commodities are, in the broadest manner, transformed into commodities. Or, depending on the definition of commodification, that something happens or changes, which makes an object be seen/apprehended/treated as a commodity. The following section deals with the methodology for fleshing out the meaning of ''commodification'' further and critiques an often-used method of examination.

1.2 Contextualizing the notion of commodification

Two possible strategies remain for further examination of the notion of commodification. The first method is to examine the verb or noun form, departing from its two distinct elements which together form the whole notion of commodification. Those parts are: 1) ''To transform into a commodity'', ''to treat as a commodity'' or ''to apprehend as a commodity'' and 2) the meaning of the notion ''commodity''. For instance, one could define a commodity as ''something useful''. Commodification then becomes somewhat of a formula: (1 To treat as) + (2 something useful) = commodification. Both the true transformative meaning of commodification and the metaphorical approach to commodification deal with this shortcoming of not having defined the notion of the commodity clearly.

The second approach is to take a holistic view on the notion of commodification, which entails not just the examination of the notion of commodification, but also an analysis of the theories that are related to the notion of commodification. When theories explain how markets function, the commodity is often essential. In several of those theories, the notion of the commodity is introduced first, which then explains the process of commodification in a more overarching theoretical framework.

Therefore, the earlier distinction between the three forms of understanding can be separated into two categories in order to analyse them. Those with an undefined commodity notion, and those commodification concepts in which the notion of the commodity is given.

i. The act of treating/apprehending an object as a commodity (noun) (unclear commodity concept)
ii. Transforming an object into a commodity (verb) (unclear commodity concept)
iii. Rest category of holistic standalone definitions (both nouns and verbs) (given/clear commodity concept)

Point i. and ii. require the enquirer to understand what a commodity is in order to understand the notion of commodification. When this is not given, the definitions of commodification subsequently fall short. The iii. rest category does not require these two steps and captures the holistic approaches.

Commodities as concept and commodities as object

Even when one, prior to defining the notion of commodification, defines the notion of the commodity some pressing issues remain. Especially when the chosen notion of the commodity is one that confuses the commodity as a concept with its phenomenological objects. For instance, gold ore may be a commodity, but the features of gold do not describe the features of the notion of the commodity.

Therefore, there needs to be a distinction between objects that are empirically deemed to be commodities and the pure concept of a commodity. Stating for instance that apples, grain and honey are commodities, does not teach one anything about the concept of the commodity itself. Using such a deductive interpretation of the notion of the commodity then results in an impure definition of the notion of commodification.

The previous captures an attempt of explanation of the concept of a commodity by stating examples of established commodities. It is tempting to explain what commodities are by providing examples of commodities. However, such statements fail to inform the reader on the features that make up the category of a commodity. It confuses an example of an object of commodification with the concept of a commodity. In this sense, examining all different commodities and see what they have in common is not necessarily the best strategy to find out what makes a commodity a commodity. A classic Marxist move is therefore required: ''*In the analysis of economic forms, moreover, neither microscopes nor chemical reagents are of use. The force of abstraction must replace both.''*[23]

The analysis of commodities and commodification cannot be done at the level of substances or objects which are deemed to be commodities, at least not wholly at the phenomenological level. Some force of abstraction is therefore required to understand commodities. The preferred way of abstracting for this work is the method of the levels of abstraction as posed by L. Floridi. This method can be used in order to find the right ''observables'' of commodification.

Floridi's Levelism as applied force of abstraction

Commodification deals with abstracting from objects to commodities.[24] There are many ways to abstract, but for this thesis the manner to abstract will be that as proposed by Floridi. Floridi introduces the method of the levels of abstraction, which presents itself as a goal-oriented form of levelism.[25] The method is a form of epistemological levelism which captures objects into levels of abstraction (LoA) which are: *''a finite but non-empty set of observables.''*[26] For instance, wine may be observed from a wine collector's LoA which consists out of the following observables: ageing potential, scarcity, price etc. These observables are different from the observables of a sommelier, who applies the observables of food-pairing potential, year-round availability and customer desirability. These observables, of course, are different observables compared to those chosen by first year students, which might pick observables along the lines of alcohol content, potential to cause hangovers and low price. Observables then are: '*an interpreted typed variable, that is, a typed variable together with a statement of what feature of the system under* consideration it represents.''[27]

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[23] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) Preface
[24] A. Sohn-Rethel, '*'Intellectual and manual labour, a critique of epistemology,"* The Macmillan Press (1978) p.8
[25] L.Floridi, '*'The method of the levels of abstraction,"* Minds and Machines 18 (2008) & L. Floridi, ''*The Philosophy of Information,"* Oxford University Press (2013) p.75
[26] L.Floridi, '*'The method of the levels of abstraction,"* Minds and Machines 18 (2008) p.10
[27] L.Floridi, '*'The method of the levels of abstraction,"* Minds and Machines 18 (2008) p.6

More specifically: *''The definition of an observable reflects a particular view or attitude towards the entity being studied. Most commonly, it corresponds to a simplification, in which case nondeterminism, not exhibited by the entity itself, may arise. The method is successful when the entity can be understood by combining the simplifications.''*[28]

Floridi then states: *''because LoAs can be mutually comparable and assessable, in terms of inter-LoA coherence, of their capacity to take full advantage of the same data and of their degree of fulfilment of the explanatory and predictive requirements laid down by the level of explanation.''* And also adds that there are no correct levels of abstraction, rather LoAs are always chosen for a certain goal. *''There is not a 'right' LoA independently of the purpose for which it is adopted, in the same sense in which there is no right tool independently of the job that needs to be done.''*[29]

When used to study commodification and commodity, the method of the level of abstraction becomes useful. It allows one to study theories of commodification and distil from them the observables that make up the features of the commodity or of commodification. The task at hand lies in untangling the implicit LoAs employed by the authors when describing commodities and commodification. Therefore, rather than identifying what specific objects that are regarded as commodities have in common, there is a need to first understand what the features (or observables) of the concept of a commodity are and on which level of abstraction they are observed from. This will allow for better understanding of commodities and commodification since it takes the phenomenological appearance of commodities out of the equation of observeables. It would ensure that no characteristics of the objects themselves are mistaken for characteristics of the commodity as such.

The concept of commodities and commodification as moving targets and world views

Commodities as moving targets

The features of the different commodity concepts are constantly adapting to historical and geographical influences. While it is indeed correct that coffee, gold, orange juice and pork bellies are considered commodities in contemporary Western culture, this does not mean that this is universally or historically valid. In contrast, in certain parts of the world possession and sale of pork meat is illegal, rendering pork bellies outside of the notion of a commodity. (Just as it is illegal in Europe to own or sell ''bush meat'' from chimpanzees, lions or gorillas.) Moreover, both Sultan Murad IV and Pope Clement VII are rumoured to have installed bans on coffee, placing coffee beans outside of the notion of a commodity. Therefore, it becomes more important not to define a binary line between what commodities are, and what falls outside of the scope of the concept of commodities. But rather, it is important to understand the features of the concept of a commodity. And how, depending on that specific concept, objects may be, become, or cease to be commodities, depending on the level of abstraction used by the observer.

[28] Ibid. p.8
[29] L.Floridi, ''*The Philosophy of Information,''* Oxford University Press (2013) p.75

Understanding the creation of the features of the concept of a commodity and commodification will give better insight into what constitutes the notion of commodification.

Radin rightly observes that numerous discussions on the ontology of commodities are redundant for modern discourse on functioning of markets and dilute, rather than enhance, understanding of market processes.[30] There is no need to examine the bans of Sultans and Popes of sale of coffee beans in the 17th century to come to the modern features of commodities in the 21st century. On the other hand, one cannot be completely blind to the historical contexts in which commodities are situated and the contexts that created their features. Societies have defined the notion of a commodity through what they deemed acceptable as a commodity over time. Therefore, exploring different conceptualizations of commodities will inevitably bring to the surface that many of the concepts are products of a given world view.

Commodification as world view & mixing of world views

C. Rose captures the idea of commodification being dependent on world views perfectly.

''The word "commodification" is a kind of verbal giveaway, like "bourgeois," or "deconstruct" or "utility function." When you use a word of this sort, you convey a certain set of analytical categories or rather commitments—commitments that separate you from some other people who might well be interested in the same subjects but who think about them in very different terms.''[31]

The colloquial use of the verb ''commodification'' therefore gives away much about a person's world view. Its use often signals deep beliefs of how market and society interrelate, and the willingness to allow market mechanisms onto objects that some argue should not be marketed. Asking Marxists, American republicans, Christians, Buddhists, teenagers and elderly people what their views on the outcome of processes of commodification are will yield varying results. In that sense, the notion of a commodity is a moving target, constructed by a correspondent's world view rather than driven by observable features of an object.

To exemplify, Marx defines a commodity as ''*an external object, a thing which through its qualities satisfies human needs of whatever kind".*[32] Polanyi then defines a commodity as, '*'something that has been produced for sale on a market.'*[33] Thomas Aquinas rather states that objects carry value which they derive from the labour invested in them.[34] These definitions transcend the notion of commodity in the colloquial/dictionary sense since they are embedded in a larger economic and political theory. Especially because they have been formed by the manner in which people observe the world around them. For that

[30] M. Radin, *''Contested Commodities, the trouble with trade in sex, children, body parts and other things,''* Harvard University Press (1996) Chapter 1
[31] C. Rose, *''Wither Commodification?''* in M. Ertman & C. Williams, '*'Rethinking Commodification,''* New York University Press (2005) p.402
[32] K. Marx, *"Capital, Volume One, A Critique of Political Economy,''* Penguin Publishing Group (1992) p.1
[33] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) preface p.xxv
[34] T. Aquinas, ''*Summa Theologica*'' (1485) is one of the early works that frame how objects may embed labour in them

goes that neither Marx', Aquino's nor Polanyi's definition is blatantly correct nor incorrect, but they propagate world views through a commodity concept. And of course, these world views differ significantly.

The fact that studies into the nature of commodities and commodification are deeply embedded into world views does not mean they cannot be compared or analysed at all. Rather, all holistically viewed theories expand the ground of exploration considerably. The task becomes the understanding, through analysis and categorizing, the different ways in which scholars understand the notion of commodification. In other words, even though commodity and commodification theories have different LoAs and different world views, it is still interesting to see how they function, what end they serve and why they are constructed in the way that they are.

Categorizing world views into monists and pluralists

Although world views differ from person to person there are meaningful scales or categories in which they can be visualized. Classically this can be done by placing political thinkers on a ''left to right'' scale, to signify their relative distance to each other. Marx would be placed on the left, Polanyi in the left-middle, the Chicago School of Economics on the right and several others in between. The left in itself would be classified under headers as ''communist'' or ''socialist'', where the right would be captured under the header of ''capitalist''. Interestingly enough, this left to right scale also matches the scale in which these theories are prone to accepting the notion of commodification. Or rather, the extent to which thinkers deem commodification to be a desirable movement in societies goes from 0% on the left of the scale, to 100% on the right of the scale.

Monists

The level in which thinkers are willing to accept commodification can therefore be separated in three notions and in two categories: The non-commodifiers, the universal commodifiers and those in between. Radin categorizes and separates further between the non-commodifiers as pluralists and the universal commodifiers as monists. The monists are on the extreme end of the spectrum of willingness to engage in the process of commodification, either complete and universal or not at all. In the words of Radin: *''On this continuum, Karl Marx's theory can symbolize the theoretical pole of universal non-commodification, and Richard Posner's can be seen as close to the opposite theoretical pole.''*[35] Both Posner and Marx advocate a mostly black and white scenario. Where objects should either always be or never be commodities, with no ground in between. Their respective willingness to engage in, or acceptance of, the process of commodification of persons or objects matches their left-right distinction on the classical political scale. The Marxists believe a commodification is an undesirable feature of capitalist societies. On the other side, Posner of the Chicago School of Economics argues that everything that is transferable should indeed be transferred, babies included, as long as the costs of implementation

[35] M. Radin, *''Contested Commodities, the trouble with trade in sex, children, body parts and other things,''* Harvard University Press (1996) p.4

of a system of exchange is justified.[36] In Posner's view this transfer of all objects in markets is desirable. These two opposite ends of the spectrum are monists, either everything is or should be a commodity, or nothing at all.

Pluralists

The Polanyians argue that complete commodification is undesirable and will lead to destruction of societies through the markets, since these markets are built on societies.[37] Still, some commodification cannot be escaped and will benefit society. Radin and Appadurai also argue that some objects can be commodified and other things cannot, through examining contested commodities and the social function of commodities. Those in the middle of this scale are called pluralists. Pluralists believe that there are objects that are commodities which can exist while other things exist which are not commodities. Meaning that they adhere to a non-binary world view, they refute the idea that either everything is or should be a commodity, or nothing is or should not be a commodity.

Object based pluralism

The pluralist belief however, is different from the idea that objects can *at the same time* exist in a commodified and non-commodified version.[38] Think for instance of prostitution, or for sale sex. If societies deem sex as a commodity, one could have a discussion on whether all sex in that society is therefore a commodity. Through commodification, the uncommodified form of an object may cease to exist. Many argue that sex exists in its non-commodified version too, regardless of its commodity status in some contexts. This means that regardless of the observer, objects that are normally commodified can also exist in their non-commodified version.

1.2.1 Towards a holistic approach of examining commodification

The previous sections highlighted that it in order to examine what commodification is, the idea of simply using the notion of a commodity and combining it with a precursor is insufficient. One cannot state that commodification means ''to transform'' or ''to approach as'' and subsequently add the notion of a commodity without unduly simplifying the overall notion of commodification. What is left is therefore examining every notion of commodification in a holistic manner, precisely because it entails so many nuances, depending on the different theories. The first hurdle then becomes the selection of which theories will be examined, and which will be left out of the examination. Identifying every existing conception of what commodification entails by analysing its economic and political background would entail a summary of economic and political theory of the entire world. Since that is unfeasible, the focus must turn to which commodification theories are selected to provide a decent representation.

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[36] Ibid. p.4
[37] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.76
[38] M. Radin, *''Contested Commodities, the trouble with trade in sex, children, body parts and other things,''* Harvard University Press (1996) chapter 7

An even spreading of world views

In order to get a mixture of both monist and pluralists, left, right and centre on the political scale, the following theories will be examined with specific relevance to the notion of commodification. Karl Marx, Karl Polanyi, the theories of the Chicago School of Economics though the ideas of Richard Posner and Gary Becker and finally, the theories of Arjun Apadurai and Jane Radin will be discussed. This selection provides a coherent representation of several points in the political spectrum, at roughly equal distance from each other. Hettne rightfully argues that a '*'left versus right axis''*, as yardstick to view the political world, is losing its relevance.[39] However, this linear representation still speaks to the imagination of most people, and is a useful tool in that regard. This puts Karl Marx on the communist left, the Chicago school of Economics on the capitalist right, Karl Polanyi with Radin and Appadurai in the mediating centre. The three first mentioned scholars and school provide a nuanced, albeit mostly Western and masculine view of the economic understandings of the world. Therefore, it is imperative to include the analysis of Radin in the discussion, first, because it is one of the most impressive analyses of the notion of commodification, but also in the hope it will broaden the perspective on the notion of commodification with a feminist view. Her analysis of commodification may not be intrinsically feminist, but it uses notions included in her earlier feminist work.[40] The same goes for Appadurai's work on postcolonial economic theory and commodification. Including a theory by a scholar with a keen focus on colonialism and postcolonialism will help broaden the scope of this research to a more inclusive set of views. And although Appadurai's analysis on commodification is not intrinsically focussed on non-Western theory, it is a meaningful step away from solely Western discourse.

Two waves of commodification literature

The theories that have been selected for discussion are from the timeframe of the mid 1800's to the late 1990's. These theories will be referred to as the first wave of commodification studies. These works are fundamental for the literature which comes after it, which will be referred to as second wave commodification studies. These second wave studies follow a call to action by Radin and Sunder to investigate the processes of commodification on a more case to case basis.[41] This resulted in studies that do not depart from the purely theoretical background of commodification and that focus more on the object of commodification and on debates on desirability of commodification. Whereas the first wave seeks to explore the process of commodification and the nature of commodities, the second wave applies them to objects. There are many second wave studies into the commodification of African/Indian culture, or the commodification of bio-power (surrogate mothership etc.), feminized sex work performed by male prostitutes and the list continues.[42] The problem here is that these studies are culturally very

[39] B. Hettne, '*'The contemporary crisis: the rise of reciprocity,''* in: K. Polanyi-Levitt, '*'The life and work of Karl Polanyi,''* Black Rose Books (1990) p.208
[40] M. Radin "*The Pragmatist and the Feminist,"* Southern California Law Review 63 (1990)
[41] M. Radin & M. Sunder, '*'The subject and object of commodification,''* Stanford Law School Public Law and Legal Theory Working Paper Series (2004) p.11
[42] See for overview of such topics: M. Ertman & C. Williams, '*'Rethinking Commodification,''* New York University Press (2005)

interesting but they inform the reader less about the intrinsic features of commodification and of commodities.

For the remainder of this thesis, the term first wave commodification theory will be used for those theories that concern themselves with the nature of commodification and commodities. Second wave theory are the discussions that follow from application of such theories to objects or on the desirability of commodification in general. One example of such second wave commodification theory is found in the work of C. Hermann, when he critiques commodification and suggests that alternatives to commodification are required. *"… an alternative to commodification must focus on satisfying human needs rather than the expansion of private profit."*[43] This inherently entails the view that commodification is unfit for satisfying human needs, which remains debateable.

A full review of commodified objects, from a plethora of different cultural angles, dilutes the sharpness or the conciseness of the original theories. Approaching different objects from the perspective of different theories is a delicate exercise since not all authors are as clear with their theoretical background as for instance M. Joseph who states: '*'From my Marxist perspective (…)'*[44] If one argues that persons should not be able to sell their own kidney as a commodity, this argument is in most cases based on subjective (and wholly understandable) opinions, and not on first wave commodification theory. Bringing these subjective discussions into the realm of commodification and commodities is not beneficial for the overall clarity of the concept of the commodity. Therefore, the theories that will be discussed are all first wave commodification scholars. These theories focus on the essence of commodities and commodification rather engaging in subjective commodification debates.

1.2.2 The Cell-Form Function of the Commodity

When speaking of commodification and commodities there are many different ways to understand or approach this notion, as discussed in the previous paragraph. Different goals make uses of different functions of different commodity concepts. In contrast to what the notion of commodification entails in general, it is important to define commodification specifically for this thesis. The chosen function that will define commodification in thesis revolves around its explanatory value as the cell-form of value. As will be discussed in the next section on the analyses of different commodity theories, the commodity is employed as a cell form of value. As if it were a cell of an organism, or an element that creates something bigger. The sum of all commodities is described by Marx and by Polanyi (indirectly) as the total wealth in societies.[45] The single commodity is therefore the tiniest piece or element that makes up the total wealth in capitalist societies. Therefore, commodification is a tool for explaining generated of value through circulation of objects in markets or economies with a focus on its constructive parts. In that way

[43] C. Hermann, *"The Critique of Commodification, Contours of a Post-Capitalist Society,"* Oxford University Press (2021) p.135
[44] M. Josep, '*'The Multivalent Commodity, On the Supplementarity of Value and Values,"* in M. Ertman & C. Williams, '*'Rethinking Commodification,"* New York University Press (2005) p.383
[45] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1

one can understand the commodity as cell form of value, which depicts the commodity as a unit of the entirety of wealth in capitalist societies.

This function allows the enquirer to understand the role of certain objects, which are not apprehended as commodities, and how they can become included in the sphere of commodities. In doing so, these objects now fulfil a role as the cell form of value. And therefore, as a commodity be an individual unit of wealth, which makes up a larger body of wealth. This process will be further elaborated on in the beginning of chapter 2.

1.3 Examining theories on commodification and commodities

The order in which the different notions of commodification will be discussed is as follows. First, Marx's vision on commodification and commodities. Then the theories by the Chicagoans, followed by the theory of Karl Polanyi. Finally, the theories of Margaret Radin and Arjun Appadurai are discussed.

1.3.1 Karl Marx' perspective on commodities and commodification

Karl Marx introduces his notion of commodities in Capital in the middle of the 19th century, a time in which the West had undergone rapid industrialization through capitalist development. Marx's analysis is based on observations in England analyses the abstract workings of capital. The choice for England as subject of enquiry can be deduced from the preface to Capital and is twofold. First, England was further down the line of capitalist development and second it had transparency tools that aided the observation of the capitalist system. As the next excerpt indicates:

''Intrinsically, it is not a question of the higher or lower degree of development of the social antagonisms that result from the natural laws of capitalist production. It is a question of these laws themselves, of these tendencies working with iron necessity towards inevitable results. The country that is more developed industrially only shows, to the less developed, the image of its own future.''[46]

Compared to Germany or France, England was further along the road of capitalist development, Marx decided therefore to base his abstract observations on England. The study of England helps Marx to unravel the ''*natural laws of capitalist production''* in which he describes that the basic structure of capitalism is the same globally. Regardless of where capitalist development takes place, it follows the same intrinsic laws. This in turn makes the most advanced capitalist society the most interesting to abstract since it ''*'shows to the less developed, the image of its own future.''* The countries that were not as far developed as England would at some later stage still arrive at the point described in Capital. The second reason for examining England closely is its political structure at the time. England had far-reaching political committees that inspected the working conditions of labourers in the factories. Where in Germany or France factory working conditions were without a doubt comparably bad, in England they were also exposed and observable:

[46] Ibid. preface

''We should be appalled at the state of things at home, if, as in England, our governments and parliaments appointed periodically commissions of inquiry into economic conditions; if these commissions were armed with the same plenary powers to get at the truth; if it was possible to find for this purpose men as competent, as free from partisanship and respect of persons as are the English factory-inspectors, her medical reporters on public health, her commissioners of inquiry into the exploitation of women and children, into housing and food.''[47]

Marx' ultimate aim in Capital then is to *''lay bare the economic law of motion of modern society''*.[48] In explaining this system, Marx first turns to the notion of the commodity in order to do so. According to Marx, the cell-form of wealth is the commodity and without the commodity, this law of motion cannot be explained.[49] The notion of the commodity is so crucial to Marx that he starts off with his analysis of the commodity on the very first page of Capital.

Marx on commodities

Marx begins by stating that the wealth of societies in which the capitalist mode of production prevails presents itself as an immense accumulation of commodities.[50] The single unit thereof is a single commodity.[51] Marx is argued to be influenced by all sorts of scientist, but in the case of the commodity he is said to have drawn inspiration from biologists.[52] The notion of the commodity as cell-form of value furthers this idea. It conveys the thought that the entirety of wealth produced in capitalist societies is made up of small units of wealth, just as organism are made up of smaller cells that create a larger whole. That cell-form of wealth is dubbed the commodity by Marx. He then carefully lays out the features (or observables) of commodities, explaining how an object is regarded as a commodity through possessing inherent qualities.

''A commodity is, in the first place, an object outside us, a thing that by its properties satisfies human wants of some sort or another. The nature of such wants, whether, for instance, they spring from the stomach or from fancy, makes no difference.''[53]

The very first elements of commodities that Marx describes are that they are objects and that those objects exist ''outside of us''. Moreover, commodities satisfy human wants, meaning they are in one way or another the object of human desire. Marx does not differentiate between the different natures of that human want or desire. Objects that are vital to survival, such as food or water, or objects that are only desired from fancy, such as diamonds or pretty flowers, both satisfy the criterium of satisfying a want or

[47] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) preface
[48] Ibid.
[49] See generally: J. Prodnik, *"A Note on the Ongoing Processes of Commodification: From the Audience Commodity to the Social Factory,"* TripleC 10, no. 2 (2012)
[50] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1
[51] Ibid. p.1
[52] B. Jessop, "*'Every Beginning Is Difficult, Holds in All Sciences, Marx on the Economic Cell Form of the Capitalist Mode of Production,"* Consecutio Rerum 3, no. 5 (2018)
[53] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1

need. The nature of the ''want'' is therefore not important. However, the manner in which that object satisfies that human want is *through its properties*. The sparkle of a diamond, which makes it desirable, is in that sense to be equated to the nutritional value of a loaf of bread. The manner in which an object satisfies the human want or need matters not, as long as it is done through its properties. Marx also states that the manner in which that object satisfies the want or fancy is not important. It can be *''directly, as means of subsistence, or indirectly as means of production.''*[54]

According to Marx, the many different ways in which a ''useful thing' can be used are the work of history and have become apparent over time. Marx seems not to interested in all of the different use cases of grain, iron and water, since those use cases have become apparent throughout history. Clearly, he is not interested in finding all use cases for all objects in the world. Marx rather states that useful things, have two points from which they can be observed. They can be observed from a quality and a quantity standpoint. Useful objects have a manner in which their quantity can be measured. From this stems that Marx seems not too preoccupied with the manner in which a certain amount of water or grain is measured, as long as there is a standard to measure these objects. Gallons, litres, cups or teaspoons are all units used to indicate a measurement of, in this example, liquid. The quality of a certain commodity can also be measured. Not all rice, bread, iron or liquids are of the same quality and this affects their value.

On use values

Next, Marx states that usefulness of an object makes it a use-value. Therein he quotes Locke, "*The natural worth of anything consists in its fitness to supply the necessities, or serve the conveniencies of human life.''* [55] For instance, the use vale of a hammer is its ability to drive nails into a board, the use value of a chair is that it can be used to sit on. The use value of a diamond is that it is beautiful to behold. Crucially, the use-value of a commodity is limited by its *physical properties,* and has no existence apart from that commodity. Whatever physical properties corn, iron, diamonds or wool have; they cannot exist outside their physical embodiment of that useful thing itself. The use-value of a useful thing exists independent of invested labour, rather, they are intrinsic in physicality of useful things. These use-values then constitute the substance of all wealth, whatever may be the social form of that wealth.[56]

On exchange values

Next to use-value, useful things also have an exchange value. ''*Exchange-value, at first sight, presents itself as a quantitative relation, as the proportion in which values in use of one sort are exchanged for those of another sort.''*[57] Naturally, exchange value fluctuates, depending on the level of desire that is present for a given object. The exchange value therefore signifies that a given amount of linen and a

[54] Ibid. p.1
[55] J. Locke, *''Some Considerations of the Consequences of the Lowering of Interest and the Raising the Value of Money,''* (1691)
[56] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1
[57] Ibid. p.1

given amount of gold are either replaceable by each other or are equal to each other in terms of use value. The exchange value then signifies how much a given commodity is worth in terms of its use value.

Next Marx abstracts again, because use value and exchange value require a third type of value to make exchange work. If objects have an exchange value there must logically be a third value that represents both commodities. Meaning, 20 grams of gold and 5 kg of cotton share another feature that is independent from the two intrinsic commodities. *''The two things must therefore be equal to a third, which in itself is neither the one nor the other.''*[58] *''Each of them, so far as it is exchange-value, must therefore be reducible to this third.''* Here Marx speaks of that ''common something'' and how it is, unlike use-value, independent from the natural properties of commodities. Repeating the idea that exchange values are not based on the use-value or materiality happens a few lines later: *'As use-values, commodities are, above all, of different qualities, but as exchange-values they are merely different quantities, and consequently do not contain an atom of use-value.'*[59] Therefore, while commodities have exchange values and use values, they also possess a third value, which Marx only calls ''value''. This value allows for the exchange of commodities because it introduces a value which can be assigned to commodities regardless of their specific use value or exchange value. This value allows commodities that are not alike in use value to be valuated and therewith exchanged. Through value, one can exchange a commodity such as bread with a commodity such as gold. Value then circumvents the difficulty in comparing use values of commodities that have completely different use values. To return to gold and bread, the question of how much ''gold sparkle'' is equitable to ''bread nutritional value'' is answered not through comparing these two use values, but through taking recourse to the notion of value.

On crystalized labour

Consequently, the factor that makes the two commodities comparable, or the only common property they share, is that both objects are products of labour. The next passage is too crucial not to repeat in full:

'They have only one common property left, that of being products of labour. But even the product of labour itself has undergone a change in our hands. If we make abstraction from its use-value, we make abstraction at the same time from the material elements and shapes that make the product a use-value; we see in it no longer a table, a house, yarn, or any other useful thing. Its existence as a material thing is put out of sight. Neither can it any longer be regarded as the product of the labour of the joiner, the mason, the spinner, or of any other definite kind of productive labour. Along with the useful qualities of the products themselves, we put out of sight both the useful character of the various kinds of labour embodied in them, and the concrete forms of that labour; there is nothing left but what is common to them all; all are reduced to one and the same sort of labour, human labour in the abstract.''[60]

[58] Ibid. p.2
[59] Ibid. p.2
[60] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.2

Marx states that commodities fundamentally have human labour embodied in them. Ultimately, this investment of labour creates the possibility to compare wildly different commodities with different use-values and exchange-values. The ''something'' that all commodities have in common is therefore that they are products of human labour and therefore have human labour crystallized in them. Marx understands the material object, the commodity, as a vessel in which human labour is captured. When observing chairs, or cheese or diamonds, he sees no physical objects, but objects that contain human labour power in them. In an earlier section some words were devoted to understanding commodification as a world view. When Marx views a commodity, he literally sees objects containing human labour. His views on commodities are quite literally a view of the world that sees objects as well as the abstract labour invested in them. In Marx's own words: *''All that these things now tell us is, that human labour-power has been expended in their production, that human labour is embodied in them. When looked at as crystals of this social substance, common to them all, they are — Values.''*[61] This notion of labour power is interesting. Because labour power too is abstracted. It is not the work of the baker, the mason or the supermarket employee specifically that is captured, but rather their abstract labour.

Investing labour into commodities

Interesting here is how Marx seems to be pointing to unspent or potential labour power as a *social substance*, while the invested, or spent, abstract labour is then crystalized *within* a physical commodity. Investing human labour literally crystalizes abstract labour into a tangible or physical form of a commodity. Marx then turns to the problem of abstract labour, as many would instantly raise the point that not all labour is equal.[62] However, just like with commodities, the quantity of labour is easily measured and expresses itself in days, months or hours. This of course leads to a problem, the lower the efficiency or skill of the worker, the more labour time is invested into a commodity. This in turn makes the commodity contain more crystalized labour and therefore raises its value. Of course, this cannot be accurate. Inefficient fishermen would then capture more valuable fish compared to efficient fishermen, since they invested more labour time in their slower process.

In order to circumvent this, Marx repeats an abstraction from the opening words of Capital and re-purposes it. *'The wealth of societies in which the capitalist mode of production prevails presents itself as an immense accumulation of commodities. The single unit thereof is a single commodity.''*[63] Is followed up by: *''The total labour-power of society, which is embodied in the sum total of the values of all commodities produced by that society, counts here as one homogeneous mass of human labour-power, composed though it be of innumerable individual units.''*[64]

In the same way that wealth in societies in which a capitalist mode of production prevails is constructed out of commodities, of which the single unit is one commodity. Labour, as one homogeneous mass, is

[61] Ibid. p.2
[62] Ibid. p.3
[63] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.3
[64] Ibid. p.3

also divided into single units, single units of labour power. But whereas one commodity is one physical, observable object, one unit of labour is not a tangible object and cannot be separated from other units as easily as can be done with physical objects.[65] Again, Marx abstracts when he states:

''The labour-time socially necessary is that required to produce an article under the normal conditions of production, and with the average degree of skill and intensity prevalent at the time.''[66] This move allows the understanding of commodities as physical object that captured crystalized labour better. The labour contained in commodities is not that which has been poured in by one specific labourer, which may be more efficient or less efficient than his colleagues or those performing the same profession. Rather, the invested labour is one part of the mass of all labour in society, pieced up into one single unit, which corresponds to the socially necessary labour time required to create a specific commodity.

Marx then remarks: *''the value of a commodity would therefore remain constant, if the labour-time required for its production also remained constant. But the latter changes with every variation in the productiveness of labour.''*[67] Of course, this also means that the same number of units of labour will extract more gold from rich mines than it will from depleted mines. Or the same number of units of labour will extract more fish from the sea than from a muddy pond. At the same time, some commodities, like compasses and retrieval of diamonds require far more labour than other commodities such as corn or iron. Marx captures this as follows:

''In general, the greater the productiveness of labour, the less is the labour-time required for the production of an article, the less is the amount of labour crystallised in that article, and the less is its value; and vice versa, the less the productiveness of labour, the greater is the labour-time required for the production of an article, and the greater is its value. The value of a commodity, therefore, varies directly as the quantity, and inversely as the productiveness, of the labour incorporated in it.''[68]

Labour as peculiar commodity

For those who are well versed in Marxist thinking, the facts that units of labour power themselves are also commodities comes at no surprise. However, since commodities are objects outside of us, which have value, use value, exchange value, embody crystalized labour and have physical properties, it is not straight forward that labour too is a commodity. Marx deals with this in chapter 6 of Capital. In order for labour-power to be bought, some conditions must be fulfilled.[69] The most important condition is that the owner of the labour power, the individual sells his or her own labour for sale.[70] *''labour-power can*

[65] There are two camps in contemporary Marxism, those who believe commodities are physical and those who believe commodities may also be immaterial. See generally: F. Tregenna, *''Services' in Marxian economic thought,''* Cambridge working papers in Economics (2009)
[66] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.3
[67] Ibid. p.3
[68] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.4
[69] Ibid. p.106
[70] Ibid. p.106

appear upon the market as a commodity, only if, and so far as, its possessor, the individual whose labour-power it is, offers it for sale, or sells it, as a commodity.''

The second requirement is that the seller of labour power, as a commodity, must have no other option than to sell the power in his or her living self. For if a person has access to means of production, he or she would be able to sell commodities, which embodied their own labour power of other people. However, those without means of production have no option but to sell their own labour power and to alienate their productive power from themselves. As Marx writes in his early writings:

''What constitutes the alienation of labour? Firstly, the fact that labour is external to the worker, i.e. does not belong to his essential being; that he therefore does not confirm himself in his work, but denies himself, feels miserable and not happy, does not develop free mental and physical energy, but mortifies his flesh and ruins his mind.''[71]

''Finally, the external character of labour for the worker is demonstrated by the fact that it belongs not to him but to another, and that in it he belongs not to himself but to another.''

In here are several fundamental observations. Referring back to labour as ''something outside of us'' can only be archived when understanding labour as something external to the worker. Marx advocates this prior to writing Capital, stating: ''*The alienation of the worker in his product means not only that his labor becomes an object, an external existence, but that it exists outside him, independently, as something alien to him, and that it becomes a power on its own confronting him; it means that the life which he has conferred on the object confronts him as something hostile and alien.''*[72]

It is the external character of labour that makes it a commodity, that makes it exist outside of us and allows for it to be exchanged on the market. Still, even Marx calls labour power the peculiar commodity, since it is clearly not alike the other commodities.[73]

Labour geared towards the generation of surplus value

Surplus value is a crucial Marxist term that explains how capturing of labour into objects increases the value of such object by more than the cost of its separate parts. As Marx states himself:

''Since the value of the constituent elements of the product is equal to the value of the advanced capital, it is mere tautology to say, that the excess of the value of the product over the value of its constituent elements, is equal to the expansion of the capital advanced or to the surplus-value produced.''[74]

What Marx means here is that when one buys for instance, grapes and units of labour power to turn those grapes into wine, the wine needs to cost more than the grapes and the units of labour power did separately. As an example, when both grapes and labour cost 1000 euro each, making the investment a total of 2000

[71] K. Marx, ''*Early writings,''* Penguin Books Classics, (1992) p.326
[72] K. Marx, *''Economic and Philosophic Manuscripts of 1844,''* Prometheus Books (1988) p.72
[73] K. Marx, *''Capital, Volume One, A Critique of Political Economy,''* Penguin Publishing Group (1992) p.108
[74] Ibid. Part 3 Section 1

euro, the produced amount of wine would need to be worth at least 2001 euro. This 1 euro, which did not come from the labour nor the grapes themselves is surplus value. This surplus value makes the creation of wine possible for the capitalist. The greater the surplus value, the greater the expansion of capital at the end of the capitalist.

Labour that is not geared towards the generation of surplus value

Finally, Marx differentiates between labour that is used to create surplus-value (productive labour) and labour that goes to waste because no surplus-value is created (unproductive labour). However, it seems that not all labour is invested into commodities in the context of services. For instance, what happens when the labour of a barber goes to cutting hair, or to shaving beards, or other activities that produce no commodities? The answer to this question keeps opinions divided. In the 1850's, providing services constituted a lesser part of the economy compared to today. Production of commodities consumed the majority of labour power in industrial times. Naturally, the labour invested in services got less attention by Marx, which deemed services of negligible significance.[75] The underlying problem here is actually far more fundamental than appears at first. It begs the question, can immaterial commodities, such as performed services, exist in Marxist tradition of creation of commodities? There is no right or wrong answer here, many advocates exist on both sides.[76] Perhaps the existence of abstract labour as a commodity is enough proof of the existence of immaterial commodities, but Marx rarely touches upon the idea of immaterial commodities. In chapter 16 of Capital can one find a trace of evidence.

''If we may take an example from outside the sphere of production of material objects, a schoolmaster is a productive labourer when, in addition to belabouring the heads of his scholars, he works like a horse to enrich the school proprietor. That the latter has laid out his capital in a teaching factory, instead of in a sausage factory, does not alter the relation.''[77]

Unfortunately, the excerpt is not entirely clear. Does this mean that the schoolmaster is a productive labourer only when he, next to unproductive labour of teaching his students, also works like a horse to enrich the school proprietor in different activities? Or does this mean that creating value through services is to be equated with the creation of value through production of commodities? The quote seems to imply that providing a service, teaching pupils, in itself is not an activity that produces Marxist value. Then again, this is subject to heavy debate and seems somewhat unresolved. Therefore, it seems quite a likely assumption that Marx, when describing labour that creates value, envisions that this labour is geared towards the production of commodities.

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[75] F. Tregenna, *''Services' in Marxian economic thought,''* Cambridge working papers in Economics (2009) p.13
[76] Compare E. Mandel *'Introduction' In Marx, K. Capital: A Critique of Political Economy, Volume 1,''* Penguin (1976) with F. Tregenna, *''Services' in Marxian economic thought'',* Cambridge working papers in Economics (2009)
[77] K. Marx, *''Capital, Volume One, A Critique of Political Economy,''* Penguin Publishing Group (1992) p.305 chapter 16

Commodities without labour?

Marx ends section one of chapter one on commodities by stating that there are also objects that have use-value, but are not commodities since they have no labour invested into them. *''Such are air, virgin soil, natural meadows.''*[78] Furthermore, there are objects that have use-value and have labour invested into them without being a commodity. Marx introduces the social element of commodities here, if one creates products for one's own consumption, in the form of wants and desires, then he or she does not create commodities. Think for instance of a vegetable garden of which the produce is not destined for exchange but for own consumption or use. The same goes for the construction of a wooden kart, which is meant to be used in that vegetable garden and not to be sold to anyone else. In Marx's own words: '' *To become a commodity a product must be transferred to another, whom it will serve as a use-value, by means of an exchange.''*[79] Objects can therefore only have value when they are produced for others. The idea that commodities are objects which require the existence of social interaction is an idea that will be frequented in almost all other writers after Marx. One cannot create commodities when stranded on a deserted island, since there are no persons with which commodities can be exchanged.

As a last remark, there are also objects that crystalize human labour without having a use-value, if so, these objects are not commodities. Think for instance of objects that serve no purpose, like burnt pie, spoiled fish or rotten eggs.

Summarizing Marxist commodities and commodification

The dictionary definition of a commodity being: *'being something that can be bought and sold''* is near incomparable with the richness of Marx' definition of a commodity. The sheer dynamic of the different elements of Marx' commodity makes for a far richer debate on the nature of the definition of commodity. To sum up, Marx's commodity is constructed as follows: A commodity is an object, it is external to man, it represents a human want or desire. It has three types of value, a use-value, an exchange value and a value. Value of a commodity expresses the crystallization of the amount of labour embedded or incorporated in the commodity. When an object has a price, it does not mean that this object is always a commodity, like virgin land and honour.[80] Finally, a commodity is intended to be exchanged, object that embed human labour are not commodities when the intention is to consume them by the labourer him- or herself. From an etymologic perspective Marx does not speak of commodification in Capital, he at least does not literally use the word commodification. If one has to distil the meaning of what Marx would understand with the word commodification it is likely as a process. Meaning to transform an object

[78] Ibid. p.4
[79] Ibid. p.4
[80] K. Marx, *''Capital, Volume One, A Critique of Political Economy,''* Penguin Publishing Group (1992) p.53 Although such object may take on the ''commodity form'' since their value is imaginary: '' *Objects that in themselves are no commodities, such as conscience, honour, etc., are capable of being offered for sale by their holders, and of thus acquiring, through their price, the form of commodities.''* … '' *Hence an object may have a price without having value. The price in that case is imaginary''*

into a commodity through investing human labour in a standardized form into an external object that satisfies human wants and is intended to be exchanged for other commodities or money.

1.3.2 The Chicago School of Economics on commodities and commodification

The Chicago school of economics' take on commodities and commodification of objects is a particularly interesting in its relation to the theory of Marx. First, whereas Marx devotes ample pages to the features of the concept of a commodity, the Chicago School does not, since in their view, almost every object already is a commodity. Whereas Marx provides a theory based on what a commodity is, without explain commodification in too much detail, the Chicago school takes a different route. They normatively advocate complete commodification of all objects in society, without dissecting the notion of a commodity thoroughly. In other word, the Chicago School advocates that everything is a commodity and where they are not yet, objects should become commodities through permeation of markets into everyday life.

The Chicago School of Economics

The Chicago School of Economics consists of a wide variety of scholars, Frank Knight, Milton Friedman, Gary Becker, Richard Posner and Jacob Viner to name a few. Their legacy spans over several generations of scholars and amongst them they hold a significant amount of Nobel prizes for Economics. To speak of one single common theory between all of these scholars does not do justice to the richness of their individual arguments. The term ''school'' should therefore be understood as the common set of methodological and theoretical assumptions.[81] The common thread weaved into the works of the Chicago Scholars is a very clear normative stance on economic conservatism. These scholars share the belief that laissez-faire economies are the best functioning economies. Laissez-faire then roughly translating to *''let it happen''* in French, which is exactly the core of the economic philosophy of the Chicago School of Economics. Part of the essence of the of the economic stance of the Chicago School of Economics boils down to the following excerpt:

''The Chicago School believes that markets — that is, millions of individuals making separate decisions almost always function better than economies that are managed by governments. In a market system, prices adjust whenever there is a shortage or a glut, and the problem soon resolves itself. Just as important, companies constantly compete with each other, which helps bring down prices, improves the quality of goods and ultimately lifts living standards.''[82]

Those who believe in such 'free' market functioning are often also believed to be those who advocate a smaller government, increased civil liberties and general conservatism. However, this is not always the case. There are many aspects of the Chicago School of Economics that are shared by scholars who would otherwise deem themselves liberal rather than conservative. Barack Obama, after lecturing on the

[81] R. Emmett, "*The Elgar Companion to the Chicago School of Economics,"* Edward Elgar Publishing Ltd (2010) p.1
[82] D. Leonhardt, "*How Obama Reconciles Dueling Views on Economy,"* The New York Times (2008)

Chicago School for many years, is often described as a Chicago School Democrat.[83] A strong belief that markets are the most effective tool to improve quality of life is not at all a purely conservative stance, nor is it incompatible with other strains of political thinking. At the same time, not all those who research and lecture at the Chicago School of Economics believe in the same stamina of laissez-faire. In the words of Miller: *''not all members of the Chicago faculty nor all Chicago-trained economists are Chicagoans''*.[84] Miller then states that the school is not monolithic but centred around five distinct points:[85]

1) Emphasis on private enterprise economy and limited government
2) Advocating an individualistic market economy
3) Emphasis on neo-classical economic theory
4) Application of economics in every nook and cranny of life
5) Hypothesis testing as tool in development of positive economics

The basic structure that the Chicagoans adhere to is the adoption of at least these five premises that sets them apart from other economists. This in turn also allows for the analysis of the Chicago School of Economics as distinct view on commodification and commodities, rather than framing a world view on commodification by one specific Chicagoan. In other words, there is enough ground to bind the Chicagoan together to collapse their view on commodification and commodities into one shared theory.

Early Chicago school views on commodification and commodities

The examination then starts with perhaps the most famous (second generation) Chicagoan, Milton Friedman. Or rather, with the comments that C. Rose makes on Friedman's definition on commodification:

''I would be willing to bet, for example, that the word "commodification" never appears in the entire oeuvre of the neo classical economist Milton Friedman.''[86]

On closer examination, there indeed seems to be no point in the work of Friedman in which he ever speaks of commodification as such, or of commodities as a concept. The same goes for Stigler, another great in the Chicago School. In his work The Theory of Price, a foundational work for the Chicago school, the word commodification is mentioned 0 times and the word commodity around 150 times. Every time the word commodity is used, it is used in relation to the theory of price, while never establishing what a commodity is exactly. The inquiry what commodities are exactly according to the Chicago School becomes a bit of a dead end if through only studying the text. The more accurate question is, why does the Chicago School omit a definition of commodification and commodities? The

[83] R. Emmett, "*The Elgar Companion to the Chicago School of Economics,"* Edward Elgar Publishing Ltd (2010) p.1
[84] H. Miller, *"On the Chicago School of Economics,"* Journal of Political Economy Vol. 70, No. 1, Chicago University Press (1962) p.64
[85] Ibid. p.65
[86] C. Rose, ''Wither Commodification?'' in M. Ertman & C. Williams, '*'Rethinking Commodification,"* New York University Press (2005) p.402

primary reason for this this is that the school as a whole is aiming to include nearly everything in the sphere of commodities in the first place. Or to repeat Miller, to apply economics *''in every nook and cranny of life''.*[87] It would be counterintuitive for the Chicagoans to frame commodities as a narrow concept, because that makes the expansion of economics into all aspects of life more difficult. It is one of their aims to apply economics as broadly as possible, which requires a concept of a commodity that knows very little, if any, limits. Therefore, in the eyes of the Chicagoans, as much as possible is a commodity and the commodity concept responds by being limitless.

3rd generation Chicagoans on commodification

Since the foundational members of the Chicago School scarcely appear in literature that specifically focusses on commodification, it is interesting to shift the focus of examination to a later ''generation'' of Chicago School of Economics members. Some of who do touch upon commodification in more detail. The third generation Chicagoans devote more attention to the notion of commodification as such, or at least provide analyses that are closer situated to the idea of commodification. Posner and Becker advocate universal commodification in their work and therewith cannot completely escape the definition of commodities and commodification. Posner, in his Economic Analysis of Law states that everything that is valuable should be captured in a property right and be subject to sale:

(This discussion implies that…) if every valuable (meaning scarce as well as desired) resource were owned by someone (universality), ownership connoted the unqualified power to exclude everybody else from using the resource (exclusivity) as well as to use it oneself, and ownership rights were freely transferable, or as lawyers say alienable (transferability), value would be maximized.[88]

Posner states that in principle, everything can be a commodity, as long as it is scarce, as well as desired and can be owned by someone. The limits to this ''commodity-ness'' seem to be the limits that a given system of property law sets to what can be owned and to the existence of objects in the world that are not yet owned. This implies that limits to commodification seem to be the limits to ownership itself. Surely nobody under a serious system of property law can lay exclusive claim to the breathable air on planet earth, or the sun or the seas or of undiscovered land. The history of the United States shows this process of accumulation of land, not so far from the city of Chicago.[89] Whereas the Great Plains of the Mid-West used to be inhabited by the Crow and the Sioux, to the incoming settlers, the plains really appeared to be there for the taking. Capture of everything that was not laid claim to under a system of

[87] H. Miller, *''On the Chicago School of Economics,''* Journal of Political Economy Vol. 70, No. 1, Chicago University Press (1962) p.65
[88] R. Posner, *''Economic Analysis of Law,''* Aspen Publishers (1986) p.32
[89] A term coined in D. Harvey, *''The 'new' imperialism: accumulation by dispossession,''* Socialist Register (2004) *''Accumulation by dispossession involves policies that result in a centralization of wealth and power in the hands of a few by dispossessing the public and private entities of their wealth or land''*

property law is inherent to the idea of commodification for the Chicagoans, not doing so is not maximizing value.[90]

This idea of capturing ''everything'' in private law systems is a fundamental part of Chicagoan theory, in order to reach a state where every valuable resource is owned by someone, there must be an original division that keeps on expanding until all objects are owned and marketed. This idea is not novel, Marx calls this primitive accumulation; Adam Smith calls it the previous accumulation.[91] But whereas Marx calls this original accumulation comparable to the biblical original sin, to the Chicagoans it is the beginning of the strive to the highest quality of life in society.[92] In Posner's view, the capturing of everything as a commodity, leads to wealth maximization and therefore to the overall highest quality of life. Posner therefore differentiates from Marx in the sense that he supports the original move of accumulation and sees its continuation as a utilitarian move towards the highest quality of life in society. The idea of early-stage accumulation that continues in all directions is therefore not unique in itself, but Posner makes it a precondition of value maximization if it is combined with a property law system that allows for the expression of power to exclude everybody else from using a resource.

Or in Posner's words: *''The creation of exclusive rights is a necessary rather than sufficient condition for efficient use of resources. The rights must be transferable.''*[93]

Returning to the idea of what a commodity is, Posner seems to mean that *''every valuable (meaning scarce as well as desired) resource''* can be a commodity. To which he then requires a system of solid private law rules in place, which allows for the power to hold a commodity exclusively and which allows for the transferability of that commodity. Only such a system in which every valuable resource is captured in an exclusive right of property systems can lead to the maximization of wealth in society. In turn this results in the best living standard and best possible life in societies. Having objects that are valuable, meaning scarce and desired, which are not included in this capitalist system equates to bad policy since it counteracts the idea of wealth maximization. It leaves economic opportunities to waste.

The previous requires the notion of what constitutes a commodity to be near limitless. For the sake of this analysis, it would be ideal if the Chicago School would present objects that are contested as commodities, in order to display the extent to which they are prepared to consider objects as commodities. Chicagoan commodities could then be compared to Marxist commodities and to Polanyian commodity concept and their limits compared. Unfortunately, the Chicagoans do not limit themselves to objects that are contested as commodities in order to show the limits of their concept of commodities. Instead, they often double down and delve into the utmost contested examples of commodities and

[90] H. Miller, *"On the Chicago School of Economics,"* Journal of Political Economy Vol. 70, No. 1, Chicago University Press (1962) p.68
[91] For a broader description of these historic notions of accumulation see: D. Harvey, *''The 'new' imperialism: accumulation by dispossession,''* Socialist Register (2004)
[92] D. Leonhardt, "*How Obama Reconciles Dueling Views on Economy,"* The New York Times (2008)
[93] R. Posner, *''Economic Analysis of Law,''* Aspen Publishers (1986) p.31

commodification of persons. Controversially, sex and babies are considered to be commodities by Posner and Becker, but perhaps mainly to prove their earlier point that indeed every resource is a commodity.[94] Specifically in the context of children, Becker states:

''Most families are no longer self-sufficient in any major commodity other than children. Because children are produced at home, each uncertainty in production is transferred into a corresponding uncertainty in consumption, even when there is no uncertainty for all families taken together.''[95]

Although again neither Becker nor Posner provides definitions for what a commodity is, a few important details stand out. First, all that has value seems to be left to the devices of the market in a very utilitarian manner in order to maximize wealth and human flourishing. Second, there seem to be few moral or ethical limits to the question which objects are or can be commodities. If even children are commodities in the view of the Chicagoans, it would be hard to envision any objections to objects that would be outside of their scope of commodities. Through examining and defending the fringes of the debate, the entire centre of the debate becomes much more acceptable to the reader. The Chicagoans do make some remarks on the manner in which these commodities are alienable, children as commodities does not equate them directly to saleable objects, but the manner in which children can be distributed is best done through a market system.[96] Commodification does therefore not always mean objectification, or as Posner himself states, *''babies are not chattel''*.[97] Therefore, even when economists do not treat everything as an object, economic approaches can still permeate into the realm of these ''objects'' in different ways.

The Chicago School of Economics on commodification as a process

In contrast to the other definitions of commodities, the Chicago School presents the most stripped back definition of commodities and commodification. It is precisely this feature that makes this definition of a commodity interesting, it supposes the encompassing of every desirable and scarce object as a commodity. There are few limits to the commodification processes because the driving force behind them is best left unchecked in the view of the Chicago School. Economic laissez-faire yields the best results for societies, therefore, all that the market wishes to encompass should be encompassed.

On desire and scarcity

In order to understand Chicagoan commodification as a process, one needs to address the manners in which objects or things become: 1) desirable, 2) scarce, 3) subject to ownership and 4) transferable. When more objects become desirable, scarce, subject to ownership and transferrable, more objects become commodities. Reiterating whether something becomes understood as a commodity is then best summarized as follows. An object might have been undesirable or non-scare and becomes scare or desirable. Think for instance of crude oil, which used to well up from the soil in California. Perhaps

[94] R. Emmett, "*The Elgar Companion to the Chicago School of Economics,"* Edward Elgar Publishing Ltd (2010) p.307 & R. Posner, '*'Sex and reason,"* Harvard University Press (1992) p.410
[95] G. Becker, ''*Economic approach to Human Behavior,"* University of Chicago Press (1976) p.178
[96] Ibid. p.179
[97] R. Posner, '*'Sex and reason,"* Harvard University Press (1992) p.410

crude oil has always been desirable but it surely was not scarce before the 19th century. The same goes for salmon in the Alaskan rivers at the time when the salmons migrate, desirable, but not scarce. Think of images of grizzly bears being unbothered by the appeal of another salmon since the rivers are literally overflowing with migrating salmon. Objects may therefore move between desirable and abundant to desirable and scarce. Crude oil and Alaskan river salmon are now highly coveted where they used to be ''non-scarce''.

The other way around is also possible, for objects to become desired, while they are in the beginning plentiful. Think for instance of rare metals, before the discovery of their specific capabilities and qualities they may have been relatively available in the soil, but were undesired. After the discoveries of their properties and use in modern day electronics their consumption led to increased desire and therefore scarcity. When an object becomes valuable, meaning scarce and desired, it partially fulfils the elements of becoming a commodity. Therefore, commodification in Chicagoan context can be seen as a rather external factor to the respective object. An object becomes a commodity when it is perceived as being scarce and desirable by an external observer. This is very different from for instance Marx who believes that commodities embed labour, that labour then being constitutive for the classification of commodities, which focusses on the object itself rather than the judgement of the observer of a given object.

On capturing in private law systems

Another element of the way in which objects can become commodities depends on their ''capturing'' in property law systems, where they previously were not. This capture presupposes two aspects, the ownership aspect and the transferability aspect. There are two main possibilities here to satisfy these criteria.

First, jurisdictions can expand to places where they had not been prior, therewith expanding the objects of and possibility of ownership and exchange under a property law system. Some places of the world were uninhabited and when no prior claim was laid to land, it was deemed there for the taking as *res nullus*. historically, the inhabitants of a region had a system of law that did not deal with ownership in the same manner as European colonists did. Often, such unowned land was held in common, for instance by the native inhabitants of the American plains. (Although it has been convincingly argued that it was a completely erroneous idea to believe that all native Americans actually held land in common.[98]) However, several other nomadic people did govern land division through a more common type of ownership or custodianship.[99] These Nomadic property law systems were different from the atomistic property system that settlers introduced during their introduction in Northern America. That is not to say that the indigenous inhabitants of Nomadic regions had no means to distribute land and goods, but *their* land had

[98] See Generally: K. Bobroff, "*Retelling Allotment: Indian Property Rights and the Myth of Common Ownership,"* Vanderbilt Law Review 54, no. 4 (2001)

[99] See generally: J. Gilbert, *"Nomadic Territories: A Human Rights Approach to Nomadic Peoples' Land Rights,*" Human Rights Law Review 7, no. 4 (2007)

not been subjected to European style atomistic private law yet. With the arrival of the settlers and the commodification of ''new land'' came the expansion of the realm of commodities through the expansion of the reach of European style private law. The total amount of commodities thus expanded with the expansion of jurisdiction, in that sense, commodifying that specific plot of land for the first time under Chicagoan theory.

The second manner in which more commodities can be captured in a private law system is through the increased technological capture of valuable objects. Not all objects could be captured and separated from their environment in a manner that allows them to be controlled by an owner. Precious gasses are an example thereof. Only when the technological advancements were made that allowed for the containing of gasses in a canister could they be owned and exchanged. One cannot own argon gas if one cannot separate it from the air around the gas, or when one has no meaningful method to exclude others from its use. The capture of argon gas in a cannister is therefore a conditional requirement for its exchange. Other examples could be substances that need to be kept at high pressure, or cold temperatures, like liquid nitrogen. Liquid nitrogen became a commodity after the possibility to engage in fractal distillation of liquid air and the technique used to keep it at the right temperature. Liquid nitrogen in a 19th century glass bottle would shatter the bottle and then (literally) disappear back into ''thin air''. Things that could not be transferred because they could not be kept in a stable condition could therefore also not be a commodity.

These last two elements, being ownable and transferrable are mostly satisfied through a system of property law and the technological requirements for the meaningful transferability of an object. However, even these limits to what commodities are too constraining for the Chicago School, when speaking of babies, for sale sex or other contested commodities, the requirement of capturing as physical objects seems is moved to the background. The right to access to for sale sex or to the right to the adoption of children, understood as commodities, then replaces this capturing requirement. In other words, even the limits of the capabilities of objects to be captured is not a real limit to the commodification urge of the Chicagoans. Reiterating the idea that the Chicagoans truly seek the application of economics in every nook and cranny of life.

1.3.3 Karl Polanyi's perspective on commodities and commodification

Karl Polanyi has a different notion of a commodity when compared to the definition of Marx and the Chicagoans. The Viennese theorist Polanyi wrote his work ''The Great Transformation'' in the 1940's, with the aim to explain how the laissez-faire approach in capitalism caused such violence and disorder in the European Continent in the 20th century. In his own words: *''the origins of the cataclysm lay in the Utopian endeavor of economic liberalism to set up a self-regulating market system.''*[100] In which the cataclysm hinted at is not only the First- and Second World War but also the Great Depression and the

[100] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.31

more general rise of fascism. Polanyi's magnum opus, The Great Transformation, has never gone out of print in the first 50 years of its existence and remains one of the greats of economic history with Capital and The Protestant Ethic and the Spirit of Capitalism.[101] Just like the Chicagoans and Marx, Polanyi never mentions the word commodification literally, he instead uses the word commercialization to describe a similar process.[102]

The Polanyi family, originally from Hungary, were no strangers to academic endeavours. Cecile Planyi, the matriarch, hosted a salon in Budapest in which many Hungarian intellectuals were *''fortified and encouraged with revolutionary zeal.''*[103] Karl's brother, Michael Polanyi, was a polymath responsible for what later became known as the Polanyi Paradox: '*''We know more than we can tell.*''[104] Karl himself was '*''always pleased to fight you, by intellectual arms'',* however his fighting by physical means got him expelled from the university of Budapest in the early 1900's.[105] In later life, Polanyi was exiled twice, first from his native Budapest and second from his adoptive Vienna.[106] In a short biographical piece Polanyi states: '*''My mother was Russian, my father Hungarian, but of German culture and western education.''*[107] It is therefore that Dale, when writing a biography of Polanyi calls chapter one ''the East-West Salon''. Referring to the salon that mother Polanyi ran and the push and pull of an Eastern and Western world view, which characterised the upbringings of Polanyi. After being exiled Polanyi lived in the UK and in the USA. Rendering the impressions on which he based his world view extensive and based on exposure to many different world views and opinions.

Polanyi on markets and society

In order to understand the importance that the concept of a commodity plays in Polanyi's theory it is necessary to highlight how Polanyi understands market economies. Polanyi states that markets and regulation ''grew up together'' and reshaped each other in the transformation from an agricultural society to a capitalist industrial society.[108] In the view of Polanyi, humans have always traded, with or without money and both local and international. In his view, trade is not a logical precondition for the emergence of markets.[109] Barter and trade never fuelled the expansionism found in markets and can therefore not be a logical foundation for the existence of markets. In other words, markets came into existence not because

[101] S. Hejeebu & D. McCloskey, '*''The Reproving Karl Polanyi,''* Critical Review (2008) p.286
[102] C. Hermann, *''The Critique of Commodification, Contours of a Post-Capitalist Society,''* Oxford University Press (2021) p.2
[103] E. Vezer, '*''The Polanyi Family''*, in K. Polanyi-levitt, '*''The life and work of Karl Polanyi,''* Black Rose Books (1990) p.21
[104] D. Autor, *"Polanyi's Paradox and the Shape of Employment Growth,"* National Bureau of Economics Research Working Paper (2014) p.136
[105] G. Dale, *''Karl Polanyi, A Life on the Left,''* Columbia University Press (2016) p.41
[106] S. Hejeebu & D. McCloskey, '*''The Reproving Karl Polanyi,''* Critical Review (2008) p.286
[107] G. Dale, *''Karl Polanyi, A Life on the Left,''* Columbia University Press (2016) p.11
[108] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.71
[109] Ibid. p.64

of a natural emergence from human trading, rather their genesis required a *deus ex machina* of state intervention.[110]

Moreover, understanding markets and states as isolated, or independent from each other, would amount to an institutional separation of society in an economic and political sphere.[111] This separation is a fallacy in Polanyi's view, since one of the core businesses of a society is to ensure production and distribution of goods. The economic order is thus merely a function of the social order.[112] Polanyi states that a market economy can only exist in a market society, which has an imperative that land labour and money must be subordinated to market mechanisms since they are essential elements of industrial life. Polanyi dislikes this subordination, since it amounts to subordinating integral parts of society to market mechanisms, he senses danger in that subordination. Polanyi states, *''it would be detrimental to leave market forces to govern land, labour and money, which in his view causes massive human and ecological detriment''*. In other words, leave price of labour to the market and results in the overrun of the poor houses. Leave to the market the use of land and ecological disasters are bound to happen. Or as Polanyi states: *''To allow the market mechanism to be sole director of the fate of human beings and their natural environment indeed, even of the amount and use of purchasing power, would result in the demolition of society.''* Polanyi therefore does not agree with the Chicagoans, in the sense that he refutes their ideal of the laissez-faire approach. At the same time Polanyi is not quite the Marxists because he fundamentally believes that capitalist societies are not by definition detrimental as long as they are kept in check through counter movements.[113] Polanyi therefore primarily refutes the sole market function as only option to structure the relationship between markets, state and society.

Polanyian commodities

Polanyi then turns to the notion of a commodity when he speaks about the market economy and the manner in which it encompasses society.

''A market economy must comprise all elements of industry, including labor, land, and money.'' … ''But labor and land are no other than the human beings themselves of which every society consists and the natural surroundings in which it exists. To include them in the market mechanism means to subordinate the substance of society itself to the laws of the market.''[114]

As mentioned earlier, this subordination in the view of Polanyi is a great peril. It would amount to letting the market economy destroy the market society that served as its fundament. Polanyi then uses the commodity concept to better understand the manner in which the market society relates to the market

[110] Ibid. p.67
[111] Ibid. p.74
[112] Ibid. p.74
[113] Ibid. p.136
[114] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.75

economy. *''It is with the help of the commodity concept that the mechanism of the market is geared to the various elements of industrial life.''*[115]

Interestingly Polanyi understands that all elements of industry are seen as commodities, and therefore the concept of commodities become important to *explain* the relationship between market economies and market societies. Polanyi seems to be primarily interested in using the notion of commodities in order to better understand the relationship between the two and specifically, how the commodity concept allows the market mechanisms to be geared towards the elements of industrial life. His interest is not intrinsically focussed on the features of the commodity concept, like for instance Marx was. Finally, he turns to the concept of a commodity:

''Commodities are here empirically defined as objects produced for sale on the market; markets, again, are empirically defined as actual contacts between buyers and sellers.''[116]

While Polanyi's notion of a commodity seems rather simple in terms of its features and comparable to the commodity concept in its colloquial use, they differ radically. Polanyi's definition of a commodity is simplistic, but because it is encompassed in such a rich theory his definition is uplifted through its context. This can be observed when Polanyi states that his definition of commodities has a fundamental issue when used to describe the practical reality instead of the merely theoretical one. When only things that are produced for sale on the markets are commodities that means that objects that exist without being created to be sold on the market are not commodities. Many elements of industry are not created for sale on the market and therefore fall out of scope of the commodity concept of Polanyi. This is a mismatch between Polanyi's theory and reality which Polanyi solves through a second class of commodities which he calls the fictitious commodity.

Per Polanyi, land is not created for sale on the market, it is another name for nature and nature was not created to be sold. Labour is another name for human activity which goes with life itself.[117] Money is merely a token of purchasing power created by the state. And although they are essential elements of industry they cannot be counted as commodity in Polanyi's definition. Polanyi then states that the description of land, labour and money as commodities is entirely *fictitious*. The concept of fictitious commodities elevates the tension between Polanyi's theory and observed reality. Fictitious commodities are only regarded as commodities because they are not real commodities, but are still affected by market mechanisms. Or more precisely, fictitious commodities are not created for sale on the market but are still *elements of industry* which circulate in markets. Polanyi is therefore interested in the both fictitious and in original commodities because they help further the understanding in which the markets for these commodities are organized. In the words of Polanyi:

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[115] Ibid. p.75
[116] Ibid. p.75
[117] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.75

''The commodity fiction, therefore, supplies a vital organizing principle in regard to the whole of society affecting almost all its institutions in the most varied way, namely, the principle according to which no arrangement or behavior should be allowed to exist that might prevent the actual functioning of the market mechanism on the lines of the commodity fiction.''[118]

In essence, Polanyi created a system that allows one to think of an object as if it were a commodity, while acknowledging that these objects were not created for sale on the market. This move also comes with a certain sense of epistemological honesty in terms of what labour, land and money really are. ''*But as the organization of labor is only another word for the forms of life of the common people, this means that the development of the market system would be accompanied by a change in the organization of society itself.*''[119] If this move reminds of anything it is the commodity as cell form of value function that Marx uses in his analysis. If commodities do not describe the entirety of wealth, or all elements of industry, the commodity concept cannot fulfil its role as cell form of value.

Polanyian commodification

Polanyi understands two types of commodities, real and fictitious commodities. Real commodities are objects that are actually produced for sale on the market. Fictitious commodities are essential elements for industry that are not produced for sale on the market but are still governed by market logics. This in turn, allows Polanyi to grasp the manner in which society responds to the transformation or commodification of objects that were not produced to be sold on the market. Again, like Marx or the Chicagoans, Polanyi never mentions the word ''commodification'', rather he uses the term commercialization to express a closely related meaning. Some authors remark that Polanyi speaks of commodification of labour as *proletarianization,* which indeed he does in some occasions.[120] However, Polanyi also speaks of *commercialization* of labour and land:

''But they were all equally averse to the idea of commercializing labor and land—the precondition of market economy.''[121]

In Polanyi's reading, commodification is the genesis of an object as a real commodity or the apprehension of an object as a fictitious commodity. In the case of genuine commodification one can observe that objects truly have to be created as intended for sale on a market, their function as commodity is the reason for their creation. With fictitious commodities this is different, these commodities already exist but come to be apprehended as commodities. In the case of fictitious commodities this primarily means that an object is subject to the working of the forces of the market but also that it such objects have inherent qualities which make it transcend the market logics. Land, labour and money have characteristics which

[118] Ibid. p.76
[119] Ibid. p.79
[120] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) preface p.86 & C. Hermann, *''The Critique of Commodification, Contours of a Post-Capitalist Society,''* Oxford University Press (2021) p.2
[121] Ibid. p.73

should not only be understood from their commodity function. Commodification in Polanyian discourse therefore has nothing to do with transformation of objects from one form into another. Merely with creation of objects for sale on the market and with apprehension of commodity status of objects that are not created for sale on the market, but nonetheless find themselves in markets.

1.3.4 Margaret Radin's perspective on commodification and commodities

Margaret Radin provides another interesting concept of the notion of commodification. Her writings start in the early 80's where she poses several preliminary definitions of commodification. Her clearest definition follows from her book ''Contested Commodities'' from the 1996. [122] This section analyses the full theory of commodification by Radin including some of her earlier partial definitions.

Radin finds herself on the very edge of the first wave and second wave of commodification scholars. The first wave being interested in the pure features of commodification and commodities and the second wave being more focussed on the objects of commodification. Radin, in her work ''Contested Commodities'', uses objects which commodity status is disputed in order to explain how commodification works by using inquiring into the limits of the concept of the commodity. Radins work into understanding how and why certain objects are borderline commodities, or rather, contested commodities, partly define her concept of commodification itself.

Anti-Commodification or market-inalienability

Radin's first publications on commodification revolve around a topic closely related to commodification. it revolves around the notion of *anti-commodification*. In a certain sense, it is a reply to the Chicagoan idea that everything should be a commodity. Radin asks how an object or a person can be a commodity without being sold. Referring specifically to the Chicagoan idea that children are commodities in non-literal markets. In 1987 Radin fills this gap by arguing that there are multiple manners of understanding to the notion of inalienability in itself. Inalienability can mean non-transferability, it can mean a right that cannot be lost at all, it can mean non-relinquishable by a rightsholder or non-saleability of an object. This last type, non-saleability of an object is what Radin calls market-inalienability.[123] And it explains in part how Chicagoans can state that children are commodities while not stating children are for sale.

The problem with market-inalienability, in Radins view, becomes that objects often do not carry the same value, meaning or significance, in different contexts. Meaning that a binary choice, market-alienable or market-inalienable is not possible given the context in which objects find themselves. Marital sex and for sale sex differ in context as much as a professional athlete's performance differs in context from a gym-goer on a treadmill. Radin concludes the following: ''*Thus, we may decide that some things should be market-inalienable only to a degree, or only in some aspects.*''[124] To understand which objects can

[122] M. Radin, *''Contested Commodities, the trouble with trade in sex, children, body parts and other things,''* Harvard University Press (1996) p.118
[123] M. Radin, *''Contested Commodities, the trouble with trade in sex, children, body parts and other things,''* Harvard University Press (1996) p.1 & M. Radin, *''Market-Inalienability,''* Harvard Law Review (1987) p.2
[124] M. Radin, *''Market-Inalienability,''* Harvard Law Review (1987) p.4

circulate in markets is then to primarily understand which objects are market-inalienable and the reason thereof. This then determines in part whether or not objects are commodities.

Radin on Commodification as debate

Commodification has two constructions in Radin's early work in 1987. The first one is a narrow construction, meaning: *''Commodification describes actual buying and selling (or legally permitted buying and selling) of something.''*[125] The second construction is broader: *''Commodification includes not only actual buying and selling, but also market rhetoric, the practice of thinking about interactions as if they were sale transactions, and market methodology, the use of monetary cost-benefit analysis to judge these interactions.''*[126]

Radin makes further distinctions when separating universal commodification from incomplete commodification. The general gist of the difference is that there can be a situation in which every object is deemed a commodity (universal commodification) or that not all objects are deemed to be commodities (incomplete commodification). In Radin's view, universal commodification is a caricature.[127] She critiques the Chicagoan Posner when he argues such a point by stating that *''the prohibition against rape is to the marriage and sex 'market' as the prohibition against theft is to explicit markets in goods and services.''*[128] Radin refutes both universal commodification and universal non-commodification since neither are projected towards the highest possible level of human flourishing. This then is exactly what market-alienability and commodification studies and debates should aim for. Understanding how much market functioning leads to the best societal outcomes, which she believes are not found in the fringe-positions of the debates of complete commodification or non-commodification. Radin states that rhetoric on market-alienation *shapes* reality, and not is not just shaped *by* reality.[129] Therefore, how much or how little commodification occurs in society is formative for who ''we'' are as society.[130] One function of commodification is therefore to shape rhetoric on how societies project themselves to the most possible human flourishing.

In Radin's later work, stemming from 2004, in collaboration with Madhavi Sundar, she and Sundar pose alternative views on commodification in its relationship to persons:

''Commodification scholars focused our attention on the choices made, and consequences felt, of reducing aspects of our lives to market exchange. Viewed this way, the topic of commodification is reduction of the person (subject) to a thing (object). Viewed in terms of society as a whole, the inquiry is who would be the subjects of commodification—controlling the terms of the sale—and who would be

[125] Ibid. p.4
[126] Ibid. p.4
[127] Ibid. p.5
[128] Ibid. p.5
[129] M. Radin, *''Market-Inalienability,''* Harvard Law Review (1987) p.7
[130] Ibid. p.32

its objects—turned into mere commodities in a global trade? The answers to these crucial questions determine the distribution of wealth in society, and indeed throughout the world."[131]

In this second consideration, Radin and Sundar focus more on the meaning of commodification as an entire debate, rather than a process in which an object becomes a commodity, which is the focus of other first wave authors. Commodification debates as a whole deal more with the structuring of persons, objects and markets, in which the act of commodification is mainly an objectifying act.

Radin on the process of commodification

Next to understanding commodification debates primarily as a place where ideas on marketability of objects or persons occur, Radin also provides a more process focussed view on commodification, which she describes in terms of the indicia that such processes share in common.[132] The four indicia of commodification as a process are *objectification, fungibility, commensurability and money equivalence.*

1) Objectification in this sense requires that something becomes manipulable at the will of persons, Radin focuses extensively on the philosophy of Kant in this regard. Since Kantian ethics refute the idea that a person can at the same time be an object and the master of an object. Or to quote Kant: *"He is, however, a person, who is not property, so he cannot be a thing such as he might own; for it is impossible, of course, to be at once a thing and a person, a proprietor and a property at the same."*[133] Objectification is then to see an objects as a thing that is perceived only in its potential to be marketed, rather than an object in which complex social relations exist.

2) Fungibility means that an object can be exchanged and be exchanged without losing value, or the possibility to be exchanged repetitively.

3) Commensurability means that an object can be expressed through another set of values than the value it intrinsically possesses. Or to have a common measure in which something may be compared. This commensurability is perhaps best understood as a notion very close to Marx's notion of value (rather than exchange-value or use-value). Commensurability describes the value that exists at the intersection between two objects that have equal exchange and use-value and which makes them comparable in terms of a third value. Commensurability means that there is a single value under which two different objects can be expressed through. This is possible with a kilo of iron and a gram of gold but never with objects that are not commensurable, like valuable high-school memories compared with a kilo of potatoes. This leads nicely into the last indicia, which is money equivalence, indeed, the most likely value through which objects become commensurable.

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[131] M. Radin & M. Sunder, '*"The subject and object of commodification,"* Stanford Law School Public Law and Legal Theory Working Paper Series (2004) p.2
[132] M. Radin, *"Contested Commodities, the trouble with trade in sex, children, body parts and other things,"* Harvard University Press (1996) p.118-119
[133] I. Kant, "*Lectures on Ethics,"* Cambridge University Press (1930) at 27:387

4) Money equivalence of an object means it can accurately be expressed through a given currency or valuta. That valuta then can be the Dollar, the Euro, or primitive currencies such as sea-shells.

Commodification as process is thus the process in which an object acquires these four indicia of commodification. Just as in the analysis of the commodification process as described by the Chicagoans, there are many ways in which objects can become objectified, commensurable, fungible and have money equivalence. The reaching of those statuses or capabilities of an object is therefore the core of this specific commodification theory by Radin.

Radin as second wave commodification theorist

As mentioned earlier, Radin is less of a ''hardcore'' commodification theorist compared to the others that have passed so far in the analysis. Radin is not solely occupied with the law and economics or theoretical approach to what makes objects into commodities. Often, the analysis is focussed on understanding the *''why''* of commodification, why should babies or surrogate mothership be commodified, or why should they be protected from commodification. In that sense, she also crucially invites normative tools into her research, perhaps most important in that regard is the notion of the Double Blind.[134] Commodification has aspects that can be perceived as negative or invasive, for instance, the sale of sex out of pure economic necessity. However, a turn to self-commodification can be the better option compared to a possible scenario of starvation of self and family. The Chicagoans have little to no message to the grief that forced self-commodification brings and see it in terms of increased market efficiency, Radin normatively states that such self-commodification should not happen. Although very interesting, these normative exercises often do not lead to true understanding of what exactly commodification entails, but rather, what it should not entail for normative reasons.

1.3.5 Arjun Appadurai's perspectives on commodification and commodities

Arjun Appadurai is a professor of anthropology and South Asian Studies at the University of Pennsylvania. His earlier work focussed on worship and conflict under colonial rule. Whereas Radin's analysis of commodification provided a theory with some feminist elements on self-commodification, Appadurai generates understanding of different cultural workings on the notion of commodification. Appadurai never speaks of commodification, just like, Marx, Polanyi and the Chicagoans never do, however he does use the term commoditization.

Appadurai on commoditization as inherently social process

The spirit of Appadurai's thesis on commodification is as follows:

''The gist of this perspective can be put in the following way. Economic exchange creates value. Value is embodied in commodities that are exchanged. Focusing on the things that are exchanged, rather than simply on the forms or functions of exchange, makes it possible to argue that what creates the link

[134] M. Radin, *''Contested Commodities, the trouble with trade in sex, children, body parts and other things,''* Harvard University Press (1996) p.123

between exchange and value is politics, construed broadly. …. this essay, justifies the conceit that commodities, like persons, have social lives."[135]

Appadurai provisionally defines commodities as objects of economic value. He uses Georg Simmel's theory to explain the meaning of that economic value. *''Value, for Simmel, is never an inherent property of objects, but is a judgment made about them by subjects."*[136] In doing so, Appadurai states that there can never be an object that intrinsically possesses value through its qualities, but it is the real or imagined exchange that endows an object with value. Exchange is therefore the source of valuation of an object: *''exchange is not a by-product of the mutual valuation of objects, but its source."*[137]

Just as seen in other first wave theorists, exchange, or the idea of social relations between persons in which objects partake, is crucial. Appadurai states this when he says: *''Few will deny that a commodity is a thoroughly socialized thing. The definitional question is: in what does its sociality consist?"*[138] Appadurai remarks that that without a social structure of exchange in place, commodities cannot exist. When one is stranded on an uninhabited island, the objects on that island cannot be exchanged with others and are therefore not commodities. In the same spirit, the Chicagoans and Radin have also put heavy focus on the notion of exchangeability, transferability and fungibility for objects to become commodities. Appadurai then continues to state that what sets a commodity apart from another object is its social potential. *''I shall suggest that commodities are things with a particular type of social potential, that they are distinguishable from "products," "objects," "goods," "artifacts," and other sorts of things — but only in certain respects and from a certain a certain point of view."*[139] This idea of social structures dictating the commodity status of objects has passed implicitly in this thesis when objects as bush meat, coffee or pork were ascribed to have different commodity status based on their positioning in geographical space and temporality. That statement is to be seen as a rudimentary or underdeveloped element of Appadurai's theory of commodification.

Appadurai's requirements for commodification

Appadurai states that it is not the question, *''what is a commodity?" that is interesting. But rather, ''what type of exchange is a commodity exchange''?*[140] He then moves towards an analysis which describes gift-giving, barter, commodity-money-commodity exchanges and commodity—money-commodity exchanges. These analyses are a bit to extensive to describe in full detail here. But they put Appdurai in the position to state a full flexed theory on commodification, which very interesting because it is the only theory that shifts the main gravity not on the *object of commodification,* but on the *commodity situation.*

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[135] A. Appadurai, *''The Social Life of Things, Commodities in Cultural Perspective,"* Cambridge University Press (1986) p.3
[136] Ibid. p.3
[137] Ibid. p.4
[138] Ibid. p.6
[139] A. Appadurai, *''The Social Life of Things, Commodities in Cultural Perspective,"* Cambridge University Press (1986) p.6
[140] Ibid. p.9

Apapdurai focusses on the context in which objects are commodities, not on the features of an object in the first place.

''Let us approach commodities as things in a certain situation, a situation that can characterize many different kinds of thing, at different points in their social lives. This means looking at the commodity potential of all things rather than searching fruitlessly for the magic distinction between commodities and other sorts of things. It also means breaking significantly with the production-dominated Marxian view of the commodity and focusing on its total trajectory from production, through exchange/distribution, to consumption.''[141]

In the view of Appadurai therefore, what is a commodity is fundamentally depended on the commodity situation. That commodity situation he describes as: *''The commodity situation in the social life of any "thing" be defined as the situation in which its exchangeability (past, present, or future) for some other thing is its socially relevant feature.''* [142] The main reason for an object to be a commodity exist separately from the object, it is the social aspect that shapes an object into a commodity. Commodification therefore is a result of a social sphere, not an intrinsic feature of an object. This idea sets the theory of Appadurai apart from all other commodification theories.

Appadurai on the commodity situation

The commodity situation can then be further divided into three main points.

the commodity phase of the social life of anything

Objects can move in and out of their commodity phase. This idea has been frequented often in this analysis when speaking of objects that had no prior use, like Plutonium in the early 1500's or electricity to the ancient Romans. Such objects had yet to move into their respective commodity phase. Interestingly, with the New Green Deal plans of the European Union, the end of the commodity phase of fossil fuels might have started. In the same manner, coffee has rumoured to be banned from sale by several historic figures, it has therefore entered in and out of its commodity phase. All manners in which objects may move in or out of a commodity phase given geographical space and time are relevant under this header and determine the commodity phase of a given object.

the commodity-candidacy of anything

The commodity candidacy of object is characterized by its potential to become a commodity. It is conceptual rather than temporal and ''refers to the standards and criteria (symbolic, classificatory, and moral) that define the exchangeability of things in any particular social and historical context.''[143] It is therefore the cultural framework in which an object is candidate to

[141] Ibid. p.13
[142] Ibid. p.13
[143] A. Appadurai, *''The Social Life of Things, Commodities in Cultural Perspective,''* Cambridge University Press (1986) p.13

become a commodity. In 21st century Europe, guns, drugs and elephant tusks are not commodities (under most definitions) because the standards and criteria that define exchangeability of things does not allow exchange of such objects. Sale of such objects is forbidden under different private law regimes, when sold, the contracts are often said not to have existed at all. They are *nietig* (Dutch) or *nullità* (Italian) from the get-go.

These different commodity candidacies are of course, very much culturally defined. Reason therefore is that different regimes of value exist, and in a successful exchange of commodities, those regimes are converging to the point of mutual understanding. A German could exchange a commodity, for instance an apple, to a potential buyer in Amsterdam. But the buyer in Amsterdam may not exchange that apple for a gram of marijuana on the territory of Germany. Even when that gram of marijuana is considered a commodity in Amsterdam. Regimes of value must converge for objects to be commodities, in Germany marijuana is illegal, in The Netherlands it is not completely illegal. Thus, rendering marijuana outside the commodity concept in one context, but not in the other. Regimes of value describe how the commodity-candidacy may exist across cultures or highlight how it does not.

the commodity context in which anything may be placed

The commodity context is then the different cultural arenas in which the concepts of commodification may exist. Or to put in in Appadurai's words, *''the commodity context refers to the variety of social arenas, within or between cultural units, that help link the commodity candidacy of a thing to the commodity phase of its career.''*[144]

Appadurai on the full notion of commodification and commodities

These three notions finally allow Appadurai to pose his ultimate remarks on commodification, or as he states it, commoditization:

'*''Thus, commoditization lies at the complex intersection of temporal, cultural, and social factors. To the degree that some things in a society are frequently to be found in the commodity phase, to fit the requirements of commodity candidacy, and to appear in a commodity context, they are its quintessential commodities.''*[145]

Which then ultimately result in the commodity concept by Appadurai:

''By this definition, the term "commodity" is used in the rest of this essay to refer to things that, at a certain phase in their careers and in a particular context, meet the requirements of commodity candidacy.''[146]

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[144] A. Appadurai, *''The Social Life of Things, Commodities in Cultural Perspective,''* Cambridge University Press (1986) p.15
[145] Ibid. p.15
[146] Ibid. p.16

In other words, a commodity is an object that exist within a social reality that is structured in such a way that it converges at the right point in the object's phase, context and commodity-candidacy. What then sets commodities apart from non-commodities is primarily the social relations between people and objects in a cultural context. This is a truly different view from all the other theories which have been object or process focussed, rather than completely context focused.

1.4 Chapter conclusion

The previous analysis examined the manner in which different commodification theories function in depth. There are countless nuances and approaches to be found in the different theories and comparing them is a tedious task. However, there can be roughly three different categories in which these theories may be placed. But it remains possible that a single theory exists in multiple categories at the same time. These categories highlight the function that the theory of commodification represents.

1) **A theory of commodification that sets features for the concept of a commodity or for the process of commodification based on an object**

   Here the theories of Marx, Polanyi and Radin can be placed, given that they describe what a commodity is based on the features of the commodity concept which identifies objects as commodities. To a lesser extent, the commodity theory of the Chicagoans fits under this header, since their commodity concept is rather uncomprehensive.

2) **A theory of commodification that sets features for the social structure in which commodities exist or in which commodification occurs**

   This category is reserved for the theory provided by Appadurai. Appadurai shifts the focus of commodity studies from the object towards the structuring of social reality as primary driver for ''commodity-ness'' of objects.

3) **A theory of commodification that acts as debating ground for desirability of commodification as processes within a social context**

   This is most likely only the theory of Radin, who invites normativity into the debate of commodification. Although a large part of the second wave theory of commodification can also be placed here. To a lesser extent, the theories of Marx, Polanyi and the Chicagoans also belong to this category, because they propagate a world view, which has normative characteristics. This category primarily views commodification as a discussion or a debate.

4) **A theory of commodification that understands the commodity as an individual unit of the total wealth generated in societies**

   Here the theory of Marx and Polanyi are put most prominently. For Marx this is derived from his opening words in capital where Marx calls the commodity the smallest unit of value. However, other authors can be understood under this category in a similar manner, but are perhaps not as vocal about this specific function of the commodity as cell form of value. Polanyi's notion of fictitious commodities, which are not true commodities but essential elements of industry is another example of the commodity form as the cell-form of value.

Polanyi too creates a commodity concept that understands the commodity as an individual unit of the total wealth generated in societies.

The sub-research question of this chapter is *''what does the notion of commodification entail?''* And it must be answered in the following manner: Commodification, as a holistic notion, entails the following primary elements:

1) *Commodification is a process describing the requirements that objects or social structures must meet, in order to be considered as permitting, or forbidding, the circulation of objects in markets or other places of exchange, in the context of a specific theoretical commodification framework.*
2) *Commodification is a debate on the normative desirability of such circulation of objects in markets under a specific theoretical commodification framework.*
3) *Commodification is a process that facilitates the understanding of how objects become apprehended as commodity, not solely through their features, but also to their relationship with social spheres and markets.*
4) *Commodification is a tool for explaining generated of value through circulation of objects in markets. In that way, understanding the commodity acts as cell form of value, which depict a unit of the entirety of wealth.*

This four-legged summary, derived from all different theories, is so abstract that one can wonder if it is a fitting definition of commodification, or that it merely encapsulates all that is discussed under the banner of ''commodification''. In other words, this summary of five different commodification theories does not provide a decent working definition, fit for application, but rather provides the most complete view on everything that the notion of commodification entails. Therefore, using the method of the levels of abstraction, the following observables of commodities can be extracted. These depict what the notion of commodification entails for both objects and social spheres around commodities.

Intrinsic features of Commodities	Non-intrinsic features of Commodities
Object outside of us (Marx)	Exchange value (Marx)
Use value - has utility value derived from its physical properties (Marx)	Transferable (Chicagoans)
Embeds crystalized labour (Marx)	Exchangeable (Chicagoans)
Exchangeable (Chicagoans)	Money equivalence (Radin)
Produced for sale on the market (Polanyi)	Scarce (Chicagoans)
Objectified (Radin)	Desirable (Chicagoans)
Commensurable (Radin)	Fictitious (only seen as commodity to explain organization of markets)
Fungibility (Radin)	Existing in its commodity-phase (Appadurai)

	Existing in a state of commodification-candidacy (Appadurai)
	Existing in a commodity context (Appadurai)

2.0 State of the Art: The Cell-form of value, Commodification of Audiences and Commodification of Data

2.1 Introduction

This chapter builds on the previous chapter in the sense that it examines the application of commodification theory to objects. Now that commodification as a notion has been analysed, it is possible to analyse what happens when these theories confront novel objects. Whereas the previous chapter dealt with the notion of the commodity in isolation, this chapter analyses that which is argued to be a commodity in practice. This is most interesting when the objects in question are newly conceived as commodities. This confrontation of novel aspects of persons with commodity theory has happened many times but two cases stand out. In the 1970's audiences are declared a commodity, in the 2000's the object of commodification is data. These confrontations of novel objects with established commodity theory will be discussed in this chapter in their relation to the established commodity concepts. These two debates allow for lessons to be drawn for future studies of aspects of persons in digital economies. This chapter therefore deals with describing how the process of commodification took place with these novel commodified aspects of persons.

In order to do so this chapter deals with the sub-question:

> *Which aspects of persons in could potentially be subjected to processes of commodification in (digital) mass media systems?*

2.1.1 The search for the cell form of value & the function of the commodity

The specific function of the commodity concept that will be used is that of its ''cell-form'' of value function as described in chapter one. One of Marx' most interesting contributions lies in his abstract reduction of wealth to individual commodities. Marx' Capital, opens as follows: *''The wealth of those societies in which the capitalist mode of production prevails, presents itself as "an immense accumulation of commodities," its unit being a single commodity. Our investigation must therefore begin with the analysis of the commodity.''*[147]

This method, of reducing wealth to its definable units, has been proven fundamental in Marxist and Polanyian literature. Marx proposes to zoom in on the tiny, individual units of wealth, which he calls commodities, in order to understand how capital functions. Chasing the smallest unit of a given system or body was a method often employed by biologists at the time of Marx' writing of Capital.[148] For living organisms, such smallest units were believed to be cells. For wealth created in capitalist societies, the smallest unit is the commodity. Interestingly, Polanyi's move of the fictitious commodity does exactly the same as Marx' use of the commodity as the cell form of value. Polanyi argues that objects which are essential elements of industry must be captured in the commodity concept. For objects such as land, labour and money, the commodity status is only assumed in order to capture all essential elements of industry into the sphere of commodities. Both authors therefore seek to encapsulate all elements of wealth or capital under the commodity concept. The idea of the commodity, as ''cell-form'' of wealth and capital, remains vital in order to understand the creation of wealth in capitalist societies.

The composition and nature of the objects that hold value in capitalist economies changes over time. This means that the concept of the commodity must evolve with capitalist progression, in order to keep its explanatory usefulness. Marx himself dealt with this as follows: *"as capitalist production i.e. capital develops the general laws governing the commodity evolve in proportion."*[149] In other words, even when the commodity objects change, the frame of the ''cell-form'' remains in place, but it undergoes adaptation in proportion. In the 1850's, the commodities, or ''cell-forms'' of capital, often contained fabric, labour, corn or iron. In today's society, the ''cell-forms'' contain different matter in data driven economies. Data, attention, audiences and other objects, which are somewhat difficult to define, are all introduced into the commodity debate with varying accuracy and results. When scholars depict how the value in data driven economies exist, they too zoom in on its tiniest individual unit. Doing so, their use of the concept of the commodity is different than the classic Marxist approach to the commodity, but it remains questionable whether their usage of adapted versions of the commodity concept is proportional. On the other hand,

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[147] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1
[148] B. Jessop, "*'Every Beginning Is Difficult, Holds in All Sciences, Marx on the Economic Cell Form of the Capitalist Mode of Production,"* Consecutio Rerum 3, no. 5 (2018) p.2
[149] N. Couldry, U. Meijas *"The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,"* Stanford University Press (2019) p.31
Unfortunately, there are many different versions and translations of Capital in circulation. Where and in which version or translation of Captial Couldry finds this exact quote in Marx' Capital remains a mystery to me. I trust its accuracy.

in explaining how capital functions in the 21st data driven economy, commodities concepts must encapsulate all those (digital) objects with which value is created, at risk of not being able to explain creation of value. In this chapter, this specific function of the commodity concept will be adhered to. The use of the commodity concept as tool to explain how wealth is created in the form of commodities. This chapter therefore uses the commodity concept as tool to explain the creation of value, in the form of the commodity, understood as a unit or cell of wealth created in capitalist society.

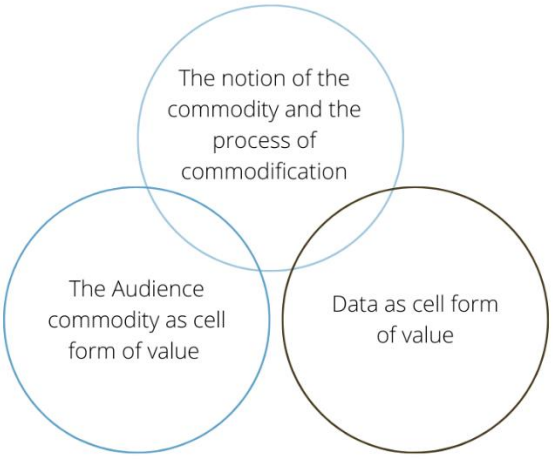
Since many objects circulate in economies, authors have made plenty claims as to which commodities are vital in value generation in data driven economies. They do so with a focus on different objects and use different ''cell forms'', or commodity concepts, to explain this value generation. Both the concept of the cell form of wealth (the commodity) and the object of commodification (data, audiences) are widely discussed. It is therefore unsurprising that many different concepts of the commodity are employed together with many different objects of commodification. This chapter deals with the analysis of the state of the art of which objects are included in data driven economy debates, as tiniest unit, or cell form of created value. This state of the art summarizes the work of many authors who use the notion of the commodity in their search of the object in their specific cell-form, which represents value in the data driven economy or in mass media systems. This section deals with the state of the art and aims to describe to different and separate debates that engage with the cell-form of wealth in different contexts.

1) The first debate deals with the state of the art of a discussion instigated by Dallas Smythe in the late 1970's. In his view, Marxist literature had a blind spot. That blind spot was to be found in mass communication systems and the commodity that it produced. According to Smythe, this blind spot caused the difficulty in understanding how value was created through mass-media systems. Shortly after the turn of the millennium, Smythe's ideas were reinvigorated. His idea of the ''audience commodity'' was adapted and used by authors such as Fuchs, in order to explain what the ''cell form'' of data-driven capitalism truly is. Interestingly, this entire debate is fully construed around the Marxist notion of the commodity. This debate is characterized by its background in social sciences.

2) The second debate is that where the source of value in the cell of data driven capitalism is data itself. Here, several approaches are examined that seek to depict in what manner data entails economic value. Legal scholars have sought to apply existing categories, concepts and notions of existing law onto data as new source of value. This debate primarily sprung from a legal background, mainly from the field of private law, but heavily influenced data protection and privacy scholars.

2.1.2 Chapter visualization

Interestingly, the debate between Smythe and Fuchs, on the ''audience commodity'' and the debates which seek to depict data itself as the source of value, hardly interact. There is little to no crosspollination between the two debates which is somewhat remarkable. Both debates however, draw on the earlier established definitions and literature on the notion of the commodity. This creates the following representation:



2.2 Commodification of Audiences

2.2.1 Dallas Smythe on the commodification of Audiences

In 1977 Dallas Smythe provokes Western Marxism by arguing that it has neglected the role communications systems. This neglect, and the blind spot it resulted in, is the reason why Marxist discourse on mass communication systems demands updates. Smythe opens a debate on the role of communications systems in another manner than classic Marxism normally speaks about. That classic Marxist sense focusses on ideology that communication systems produce, which benefits the ruling class, rather than focussing the products that mass media produces.[150] Smythe argues that the Marxist materialist approach must be updated and account for what he calls the ''conscious industry''.[151]

Smythe wonders, if Marxist explanations of capitalism are geared towards creating an objective reality, normally in the form of a commodity, then what is the commodity that mass media produces? The answer to his own question is *''its audiences and readerships''*.[152] He argues that the time spent at home and exposed to mass media is a form of work that persons perform for advertisers. ''The material reality under monopoly capitalism is that all non-sleeping time of most of the population is work time''.[153] Of course, the majority of the day, for most people, consists out of the sale of their labour power to the capitalist. But in their free time, their exposure to mass media turns audiences into commodities that are sold to advertisers. According to Smythe, advertisers buy audiences, in their entirety, as commodities:

[150] K. Marx, ''A critique of the German Ideology'' (1932) p.26 *''The ruling ideas are nothing more than the ideal expression of the dominant material relationships, the dominant material relationships grasped as ideas; hence of the relationships which make the one class the ruling one, therefore, the ideas of its dominance''*
[151] D. Smythe, *"Communications: Blindspot of Western Marxism,"* Canadian Journal of Political and Social Theory (1977) p.1
[152] Ibid. p.3
[153] D. Smythe, *"Communications: Blindspot of Western Marxism,"* Canadian Journal of Political and Social Theory (1977) p.3

''I suggest that what they buy are the services of audiences with predictable specifications who will pay attention in predictable numbers and at particular times to particular means of communication. As collectivities these audiences are commodities.''[154]

''The work which audience members perform for the advertiser to whom they have been sold is to learn to buy particular "brands" of consumer goods, and to spend their income accordingly. In short, they work to create the demand for advertised goods which is the purpose of the monopoly capitalist advertisers.''[155]

Smythe's Critical use of Marxist concepts

An initial reply to the arguments that Smythe makes, is that they are not strictly adhering to classic Marxist tradition. As discussed, prior, Marx' commodity concept is one that is rigid, it assigns cumulative elements to the notion of the commodity, which audiences in general do not seem to adhere to. Commodities have ''use value'' derived from their physical properties, commodities embed crystalized labour and are something ''outside of us''.[156] Understanding ''audiences'' as a Marxist commodity then seems not to abide by these characteristics at first glance. Moreover, the idea of the ''cell form of value'' does not do well with the idea with audiences ''as collectivities'' being the identified commodities. Perhaps it would make more sense to understand a single media consumer, affected by mass media advertisement, as a single commodity, which advertisers then buy in bulk. The very idea of the cell form of value, that of which one unit can be distinguished from the other, tends to be more individualistic in its nature. This is why Marx was so keen on establishing a clear relation of quality, quantity and measurable units within his commodity concept. Audiences are made up of even smaller units, namely, the individual. Therefore, characterizing audiences, in their collectivism, as one single commodity it positioned a tad award in its relationship to the idea of the cell-form of value.

Next, Smythe refers to ''work'', which audience members perform for advertisers as a second identified commodity. This object of ''work'' is a different kind of object compared to the other commodity that Smythe identifies, namely the audience as collectivity. It remains partly unclear if Smythe refers to the audiences themselves as commodities or to the work they perform for advertisers, or to both separately. Perhaps the accuracy with which Smythe deals with Marxist concept is of lesser importance than it is to the Marxist purists. Smythe has already succeeded in the two claims he makes in the introduction of his paper. The first being, to start a debate on Marxism applied in mass media and the commodities that it produces. And secondly to assess the ''adequacy'' of certain generally accepted Marxist categories and assess how they account for the change in capitalistic value generation since the 1850's. Herein he quotes Lenin, stating one cannot make an omelette without cracking the eggs first.[157] Smythe seems to purposefully crack some Marxist concepts through introducing audiences as commodities which are not

[154] Ibid. p.4
[155] Ibid. p.6
[156] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1-2
[157] D. Smythe, *"Communications: Blindspot of Western Marxism,"* Canadian Journal of Political and Social Theory (1977) p.1

at all adherent to the Marxist commodity concept. This creative use of Marxist concepts will later be classified as ''critical'' use of Marxist concepts. While there are many remarks to be made on Smythe's reading and application of notions developed in Marx' Capital, he reaches his two goals. To start a debate on audience commodities and rejuvenate some Marxist elements to see how they may be put to novel use.

The Blind Spot debate as foundational discussion

During the late 70's, two authors, Murdoch and Livant reply to Smythe's work on the audience commodity. Smythe eventually replies back to Murdoch who seeks to expose potential flaws in his work while Livant shares sides with Smythe. Their interaction will later become known as a fundamental debate in media sociology as ''*The Blindspot Debate*''.[158] It remains questionable why not more attention was paid to this debate in general commodification studies. Perhaps McCarthyism is to blame, or perhaps the value generation in mass media systems was better explained through the study of advertising as process, rather as a system that produces commodities using a creative reading of Marx' work.

In any case, Smythe's notion of the audience commodity seems to have flown under the radar, both from a commodity studies perspective and later from the perspective of the 2020's debate for data as a commodity. One of the few exceptions is the work of C. Fuchs, who analyses the data economy applying the Marxist tradition and Smythe's work. Fuchs reinterprets the work of Smythe in a paper uses Smythe's notion of the audience commodity in the context of data driven capitalism.

2.2.2 Christian Fuchs' reinterpretation of Dallas Smythe in digital economies

Just as Marx, for whom the exchange of commodities is a crucial theoretical component, both Smythe and Fuchs depart from the idea of communications systems being apparatuses for the exchange of commodities.[159] Fuchs turns to the interpretation of commodity exchanges in the context of data driven mass media systems in the 21st century. Of course, such systems are quite unlike the printing press and the television systems which Smythe originally concerned himself with in the 70's. Fuchs reiterates that Smythe is one of the first that seeks to understand which products, or commodities, are produced through newspapers and television systems.[160] Television and newspapers appear to be a free lunch in such schemes of production, but in reality, prove to be structures of commodification. Because both the penny press and social media seem so cheap or even free, that they lure persons inside an audience commodity. Fuchs makes this connection between free social media and free classical analogue media such as TV and Radio.

Fuchs engages in a vivid and multifaceted analysis of the use of Marxist terminology in data driven online mass media. He states that exposure to digital mass media renders non-sleeping time of persons as work

[158] C. Fuchs, *"Dallas Smythe Today - The Audience Commodity, the Digital Labour Debate, Marxist Political Economy and Critical Theory. Prolegomena to a Digital Labour Theory of Value,"* Triple C 10, no. 2 (2012) p.693
[159] Ibid. p.697/698
[160] Ibid. p.694

time.[161] The reason therefore being that this ''off the job time'' is sold to advertisers, which perform marketing functions on these groups of media consumers. Even sleep time itself is productive in the sense that it creates labour power, and by extension, the audience commodity. Moreover, another type of power, ''audience power''', derived from the audience commodity.[162] This audience power is then consumed, produced, sold and purchased by advertisers. The work that audiences then engage in is to market things to themselves. According to Fuchs, the previous turns new types of media, such as social media or large search engines, into means of production themselves, and not just as means of communication.[163] Fuchs argues that all time spent on social media platforms is therefore productive time, that produces commodities for the platforms, in the form of ''data commodities''.[164] This data consists out of what one would normally expect in social media systems, data revolving the users themselves, their browsing data, their demographics and much more, is sold to the advertisers.[165] In this, Fuchs finds confirmation of Smythe's thesis, that *''the audience itself, its subjectivity and the results of its subjective creative activity – is sold as a commodity.''*[166]

As Fuchs reiterates, one has to use the concepts of work, labour, labour power, commodity and other Marxist terms in a critical manner. His critical use of concepts implies somewhat creative application of some concepts in order to see how well they function in novel contexts, as Smythe did earlier. Some have pointed out that Fuchs and Smythe are somewhat outliners in Marxist theory, referring to them as ''alternative strands of Marxist analysis''.[167]

'Collectivity'' of Audiences and the cell-form of value

An issue that Fuchs confronts is the problem of the audience commodity not being a consistent unit. Audiences could only be approximated rather roughly in the age of analogue mass media such as TV and radio. The introduction of mass surveillance data driven capitalism deals with this issue of granularity of the person and ''collectivity'' of the audience through the use of computational power. Computational power allows more granular observation of the audience commodity, as smaller units. Therefore, allowing the examination of audiences as individuals, rather than only observing audiences as a collective. After the big data turn, it is not the aggregate audience commodity, but rather the level of the person itself that can be studied. Smythe faced this exact critique, that his audience commodity is constructed too broadly, in the 1980's already.[168] Unlike Smythe, Fuchs does not have to deal with this problem because his data driven assumptions deal with more specific focus on the individual, rather than the collectivity of

[161] Ibid. p.697/698
[162] Ibid. p.702
[163] Ibid. p.704
[164] Ibid. p.704
[165] Ibid. p.704
[166] Ibid. p.704
[167] N. Couldry, U. Mejias, *"Data Colonialism: Rethinking Big Data's Relation to the Contemporary Subject,"* Television and New Media 20, no. 4 (2019) p.3
[168] C. Fuchs, *"Dallas Smythe Today - The Audience Commodity, the Digital Labour Debate, Marxist Political Economy and Critical Theory. Prolegomena to a Digital Labour Theory of Value.",* Triple C 10, no. 2 (2012) p.702/703

audiences.[169] It remains therefore interesting that Fuchs defends the idea of the audience as a commodity, rather than fully committing on its smaller components which are individuals themselves.

Alienation of the Audience commodity from the audience

Fuchs addresses further critique on the idea of the audience commodity. Some argue that audience commodity cannot be alienated from the audience itself, in the way labour power can be alienated from the worker.[170] Fuchs refutes this critique through the idea of ideological violence, whereas wage labour is alienated through the threat of hunger, poverty and homelessness, the audience commodity is alienated through the idea of ideological violence. If one does not partake in the production of the audience commodity, one cannot partake in certain facets of social life, since much of it takes place on platforms. Being left out of social activities is therefore the ideological violence with which the audience commodity is alienated from the audience. He then proposes that labour of the audience commodities results in data commodities being locked up at the side of the platforms, which is a process of alienation of the commodity that is produced. Finally, three Neo-Marxists elements are identified according to Fuchs. 1) The coercion for users to use platforms 2) the alienation from the created profit and 3) the appropriation of unpaid digital labour which consists out of time spent on the corporate platforms.

2.2.3 Fuchs' analysis of commodities in data driven economies

If one struggles to fully understand the coherent representation created by Fuchs, specifically regarding the part on commodities, this is quite understandable. Fuchs often refers to the audience as a commodity, then to audience power, then to data commodities and then to its labour or work during sleep or non-sleep time. Moreover, Fuchs introduces the notion of the ''Internet Prosumer Commodity'', reflecting that in a certain sense consumers of digital media produce their own consumed content. But then the notion of an internet prosumer commodity has unclear boundaries with the existing notion of the audience commodity.[171] In other words, there are so many different commodities, relationships and ideas proposed by Fuchs that one can seriously wonder how they all interrelate, and how accurate they can be while existing together. The way in which value is produced in mass media, and its small units, is so elaborate and complicated in Fuchs' analysis of both Marx and Smythe, that it becomes difficult to understand.

Fuchs reinterpretation of Marxist concept, although extensive, relies on a critical approach which grants Fuchs leniency to move away from rigid or strict reading of Marxist concepts. The problem with Fuchs' analysis of commodities in data driven mass media then becomes twofold. First, there are too many commodities being analysed and mentioned in the context of mass social media companies or on digital mass media. So many, that the relationships between them, becomes difficult to unearth or map. Next to that, one never truly knows how much value Fuchs assigns to Marxist theory as Marx himself framed it.

[169] Ibid. p.712
[170] Ibid. p.704
[171] C. Fuchs, ''*Labor in Informational Capitalism and on the Internet,*'' The Information Society 26 (2010) p.192

It is difficult to understand if Fuchs uses a Marxist concept accurately, or uses it in a ''critical'' manner and takes a more relaxed approach. For instance, Fuchs argues that ''social media prosumers'', those who provide ''labour'' for social media corporations have Marxist ''use value''.[172] Marx leaves no doubt as to the nature of the concept of use value. Use value is the value which commodities derive from their physical properties.[173] When referring to the use-value of the ''internet prosumer commodity'', Fuchs argues the following: *''Its use value is the multitude of personal data and usage behaviour that is dominated by the commodity and exchange value form.''*[174] It leaves to be seen in which way personal data or behaviour is physical, or has physical properties. The nature of the digital is intangible, unlike the physical world. Whether behaviour or data have Marxist use value seems to be subject to debate.

This constant critical use of Marxist terminology by Fuchs almost automatically refutes any criticism it faces, based on the fact that is used in a critical manner. This critical use allows one to reimagine concepts, for instance Marxist literature, without really justifying the obvious deviations in depth. In a sense, this critical use goes back to Smythe's idea of seeking to assess how well Marxist concepts can explain value production happens in mass media systems. Fuchs then promotes this idea further into digital media systems, but introduces ideas that really stretch Marxist concepts to their limits.

2.2.4 Key take aways from the work of Smythe and Fuchs

This analysis is of the work of Fuchs' and Smythe is far from extensive, however it captures much of the essence. A complete review of Smythe's and Fuchs' arguments would be too lengthy to discuss in full, especially because of the large number of arguments made and the constant creative use of Marxist concepts used. Smythe and Fuchs make an important contribution to the debate on commodities in mass media and digital mass media. According to both, in both analogue and digital mass media, audiences are commodified. Prior to the blind spot debate, the notion of commodities in the context of mass media was hardly a topic of discussion. Interestingly, the notions that both scholars introduce is largely based on Marxist literature, and both seek to reinterpret the notions that Marx uses. It remains arguable how effective these Marxist notions are in order to explain manner in which commodities are actually created in digital economies. By way of conclusion, the objects which are deemed a commodity by Smythe and Fuchs are novel but the commodity concept which they employ is that of Marx. The overlap between the novel object of commodification, the audience commodity, and the commodification theory of chapter one can therefore be depicted as follows:

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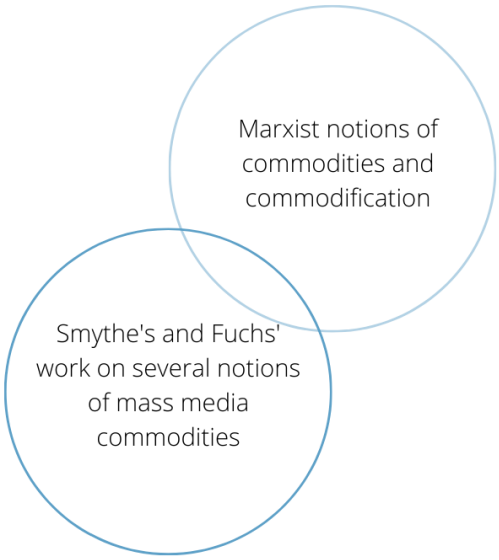
[172] C. Fuchs, *"Dallas Smythe Today - The Audience Commodity, the Digital Labour Debate, Marxist Political Economy and Critical Theory. Prolegomena to a Digital Labour Theory of Value,"* Triple C 10, no. 2 (2012) p.711-712

[173] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1

[174] C. Fuchs, *"Dallas Smythe Today - The Audience Commodity, the Digital Labour Debate, Marxist Political Economy and Critical Theory. Prolegomena to a Digital Labour Theory of Value,"* Triple C 10, no. 2 (2012) p.711



2.3 State of the Art Commodification of Data

2.3.1 Introduction to the commodification of data

The second debate that needs to be examined in more detail is the debate that depicts data as the source of value in data driven economies. Fuchs mentions data being a commodity at some point in his analysis, but the core of his and Smythe's argument revolves around audiences as commodity. The idea that is it not audiences, but rather data, that provides the cell form of value is proposed from many different perspectives. It is without a doubt that the current data economy uses data as its main and most important resource. Data lies at the very core of digital economic processes and fulfils the role of the most important resource. Data is therefore automatically the most important object that could fit in the cell form of value of the commodity. This chapter examines how data, as an object of value, relates to existing commodity theory. It compares the object of data with existing commodity concepts. Stating that these do not match perfectly does not mean that data is not the most important source of value, it merely affirms that data sits uneasy with classical commodity theory.

Furthermore, this research deals not with the commodification of data, but with the commodification of aspects of persons. Therefore, the discussion on the commodification of data in the following sections needs to be read from a utilitarian perspective in its relation to commodity theory. Just as with audiences, this section analyses how a novel object, in this case data, relate to existing commodity concepts. It remains without a doubt that colloquially speaking, data is the most important commodity in digital economies. However, the way in which data can be understood as a commodity in commodification theory as described in chapter one will warrant a PhD thesis in itself. Given this, the commodification of data will only be described here from an analytical perspective in this chapter.

The chapter proceeds as follows. In the following section the current leading approach is examined. This approach is formulated by the European Law Institute and the American Law Institute, titled Principles

for a Data Economy.[175] It deals with older theories of commodification of data to highlight their inefficiency when compared to the Principles for a Data Economy.

2.3.2 Principles for a Data Economy

Recently the European Law Institute (ELI) and the American Law Institute (ALI) cooperated on a set of principles for a data economy.[176] The entire set of ELI/ALI principles proposes a way of setting up the data economy from an interjurisdictional perspective since current legislation does not do justice to the peculiar nature of data and data transactions. The contribution of both the European perspective and the perspective of the USA ensures that the principles can be applied across the board in two major data-driven economies. The European Commission has recently adopted its notion of co-generated data in its European Strategy for Data.[177] Furthermore, the co-generated data approach provides direction for the forthcoming European Data Act.[178] Since the effects of the principles are currently seen in novel legislation, it is not necessary to investigate other ideas or approaches in extensive detail. The next section deals briefly with other ideas because they put the need for the Principles for a Data Economy into perspective.

The need for a novel approach

The need for this novel set of principles flows in part from the fact that ''data is different''.[179] Data possesses characteristics that are unprecedented in the study of commodities. For instance, data can be consumed without being depleted, it can be copied at near zero cost and its use by others does not diminish its value to its original seller. Data is therefore often classified as a non-rivalrous good.[180] As Wendehorst and Cohen argue, items of trade in the data economy are often not goods, rights or services, but are simply data.[181]

Prior to the publication of the Principles for a Data Economy, many argued that data trades should be regulated through existing legal systems. For instance, there has been a substantial debate on the application of Intellectual Property rights in data. See for instance Hugenholtz, who points out the many unwanted effects of regulating data trades through a system of IP Law.[182] Or Determan who argued that using a copyright law system in the context of data trade makes little sense because copyright law requires creative acts, generation of data often does not meet this criterium.[183] Some have even argued that a

[175] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at: https://www.principlesforadataeconomy.org/
[176] Ibid.
[177] European Commission, *"A European Strategy for Data,"* (2020) p.13
[178] Ibid. p.13
[179] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at: https://www.principlesforadataeconomy.org/ p.7
[180] S. Viljoen, "*A Relational Theory of Data Governance,"* Yale Law Journal (2020) p.23
[181] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at: https://www.principlesforadataeconomy.org/ p.6
[182] See generally: P. Hugenholtz, *"Data Property: Unwelcome Guest in the House of IP," Essays on Intellectual Property* III Kritika (2017)
[183] L. Determann, *"No One Owns Data,"* Hastings Law Journal (2019) p.18/19

system of trade secrecy and patents could be imposed to regulate data trades.[184] Next to this an extensive debate on IP rights to regulate data, a debate arose on the idea of data ownership. If data is conceptualized as a good, it can be owned by the persons from which the data stems. [185] Others have replied to the idea of data ownership from a private law perspective, stating that the act of owning takes up a new meaning in the case of data.[186] The approaches to regulate data trades or aspects of data trades are even extending to the field of consumer law, investment law and competition law.[187]

Through these analyses it became apparent that none of the existing regulatory systems do justice to the particular nature of data trades in the data economy. Wendehorst and Cohen then argue that the prolonged legal uncertainty could lead to market failures, inhibition of innovation and unfair commercial relationships along with general unpredictability which efficient data transactions require.[188] The principles for a data economy do not seek to replace existing fields of law such as intellectual property law, trade secrecy law or data protection law. It rather seeks to work in complement to those existing fields of law.[189] The need for a novel approach is therefore to bring proper and reliable legal structuring into the data economy and do so without a grand ''overhaul'' of the entire legal landscape which comes into contact with issues of data.

Principles on co-generated data

The principles deal with a large body of subject matter, ringing from data contracts to multi-state issues. Interesting for this discussion are the principles that deal with value in data which is co-generated by different actors. The notion of co-generated data confronts the nature of contemporary data sets, which are construed by many actors with different roles. As stated by Wendehorst and Cohen: *''A party can have a share in the generation of data by being the subject of the information coded in the data, or by being the owner or operator of something that is the subject of the information, or by otherwise providing a contribution to data generation…''*[190]

Co-generated data is therefore data to which several different actors have contributed to its existence in many different manners. An example of such co-generated data can be observed in the ROMO project

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[184] See generally: J. Drexl, *"Designing Competitive Markets for Industrial Data - Between Propertisation and Access"* (2017)
[185] N. Purtova, "*The Illusion of Personal Data as No One's Property,"* Law, Innovation and Technology 7, no. 1 (2015) p.17
[186] See generally: S. van Erp, *"The Covid-19 App: What Data 'Ownership' Really Means,"* European Property Law Journal 9, no. 1 (2020) & See generally: A. Boerding et al., *"Data Ownership - A Property Rights Approach from a European Perspective,"* Journal of Civil Law Studies 11, no. 2 (2018)
[187] C. Helberger, F. Borgesius, *"The Perfect Match? A Closer Look at the Relationship between EU Consumer Law and Data Protection Law,"* Common Market Law Review, Volume 54 (2017) p.2 & See generally: T. Kim et al., *"Are data subjects investors?"* Berkeley Business Law Review (2021) & H.Wai, J. Cheng, *"Economic Properties of Data and the Monopolistic Tendencies of Data Economy: Policies to Limit an Orwellian Possibility,"* United Nation Working Paper (2020) p.9
[188] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at: https://www.principlesforadataeconomy.org/ p.6
[189] Ibid. p.7
[190] Ibid. p.134

in the Netherlands which collects data through the use of car-sensors.[191] Different data generating actors perform different tasks, such as driving a sensor equipped car, combining and cleaning the data and reinterpreting the data. In some imaginable cases, participation on social media is also an act of co-generating data, since the collected data deals with many different subjects that provide their information. The co-generated data approach acknowledges that data is not simply a finished product by one data proprietor, but that there are many different actors involved in its creation. The contributions of these actors then result in certain data-rights being conferred onto them, in proportion to their contribution to the process of data creation.[192]

Principle 18 then set out the factors that determine whether or not data is co-generated. Some of the factors that are taken into account are: 1) the extent to which a party is subject to the information coded in the data. 2) whether or not the owner or operator of an asset is the subject of that information 3) the extent to which an activity of a party results in the generation of data. These factors allow for case-by-case analysis of the identity of those who co-generate data, thus stepping away from the idea of the ''first'' producer of data. This approach therefore quite effectively breaks with the data ownership approach.[193] Instead, it furthers the idea of data rights in co-generated data. Depending on the role that actors have had on the process of creating data, their rights on the co-generated data will vary. Some of those interest may be access to co-generated data, its correction or a share in the economic aspects.

Data rights to economic shares

Principle 23 subsequently highlights how individual actors may be entitled to parts of the economic share of co-generated data. In normal cases, the economic profits in co-generated data do not have to be divided amongst all those who participate in the value in co-generated data. There are however exceptions. Principle 23 provides two options in which actors may demand a share of the profits that are derived from co-generated data. Actors are entitled to an economic share of co-generated data on grounds of fairness, which stems from principle 19. Or, when there are no such arrangements, principle 23 grants economic shares in a few predetermined cases. For instance, when the co-generated data could not have been generated without a certain party, or when the controller's profits are exceptionally high. The principles therefore create a system in which the value of co-generated data may end up at a diverse set of actors.

Value in co-generated data

The principles for a data economy therefore have an entirely new perspective on the manner in which value in data and data trades can be regulated. Because of the peculiar nature of data and of data trades, the value in data is approached in a more dynamic manner. The principles depict different types of actors

[191] For more information regarding the ROMO project see:
https://dutchmobilityinnovations.com/spaces/1262/road-monitor/landing
[192] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at:
https://www.principlesforadataeconomy.org/ principle 18
[193] Ibid. p.139

and different types of rights based on the role that individuals and other actors play in the data economy. The value in data then comes from contributions of different actors, who in different ways co-generate data which used as an assets, resource or tradeable commodity. The principles word this as follows: *''… these principles are not primarily concerned with single pieces of information provided with the aim of immediately letting another party know something, but more about 'bulk' or 'serial' data, usually to be processed with the help of machines, and used as an asset, resource or tradeable commodity.''*[194] As described earlier, bulk data sets will often be constructed out of data of various data subjects and involve many different actors. It is therefore quite likely that value in the majority of data sets is co-generated and therefore reflects the valuable contributions of many different actors.

2.3.3 Commodification of Data in Principles for a Data Economy

As seen in the previous quote, the principles view bulk and serial data which is processed with the help of machines as an asset, resource or a tradeable commodity. There is an interesting parallel between the work of Fuchs and Smythe in audiences and the principles from the perspective of commodification. Both the principles and Fuchs and Smythe argue that there is a certain novel object, respectively data or audiences, which fulfils the cell form of value and should be counted as a commodity. Fuchs and Smythe focus on the adaptation of the Marxist commodity concept in order to argue that audiences are a commodity. The Principles for a Data Economy seem to connect the notion of data as a valuable object to its status as a commodity. Some commodity theories that could support this are those of Polanyi and Appadurai. For Polanyi all objects that are an essential element of industry are a fictitious commodity, even when objects are not created for sale on the market. If data is a valuable object, then naturally it is a commodity in Polanyi's fictitious commodity reading. For Appadurai, the fact that data exist in a commodity context proves that data is a commodity from an anthropological perspective. Therefore, when society in general speaks of data as a commodity it must also be understood as such. Still, for other commodity theories the discussion on the commodity status of data may prove more troublesome. Especially from a Marxist or a Chicagoan view data might possibly not be considered a commodity given that it is not scarce and does not have use-value derived from physical properties. The principles therefore deal with data as a commodity in the sense that it is a valuable asset, object or resource for which an entire economy emerged.

2.3.4 Reflections on Data as Commodity

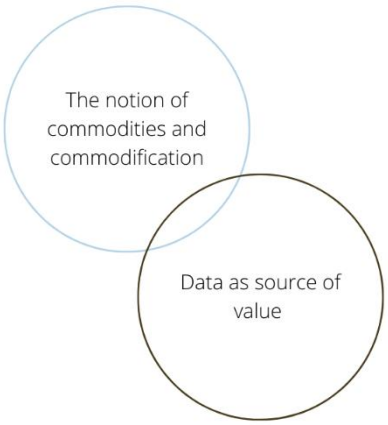
Understanding data as a commodity is a logical reaction to its use in the data economy. Data really is the most important resource in the data economy and fuels an immense economic activity. Still, this does not mean that data fits the commodity theories of chapter one without further ado. Rather, the application of commodity theory to data requires a complete analysis of how data relates to all of the described elements of commodification in chapter one. To repeat just a few of the elements of commodity

[194] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at: https://www.principlesforadataeconomy.org/ p.24

theory against the backdrop of data that may be troublesome. Data is not scarce, data has no use-value derived from its physical properties and data is not per definition created for sale on the market. This does not mean that data is not the most important resource in the data economy, rather it is the single most important resource. But for current commodification theories, one must conclude that data, even though it is the most important object that should fulfil the cell form of value, does not meet all existing commodity concepts.

There are some features of data that make it distinct from other objects, as Wendehorst and Cohen state, *''data is different from other resources''.*[195] In a certain sense, no commodity theorist has ever wondered what would happen if valuable commodities could simply be duplicated at no cost. For Marx, Polanyi, Radin and the Chicagoans this problem simply never arose since the commodities they dealt with did not posses this feature. Never before have valuable objects such as chairs, rice, petrol or iron been able to be copied instantly or consumed without their depletion. Classical commodity theories would have likely been drafted radically different when other commodities or resources possessed the features that data possesses. Therefore, the relation of data towards commodity studies requires research in itself and seems to be a rewarding field of future research. However, the previous does in no way mitigate that the object that fills the cell-form of value these days is data. It is the most important resource in data driven economies, but its relation to commodity theory remains only partially clear.

The previous results in the following graph:



2.4 Further Mass Media Commodities

Next to data and audiences, some other commodities are proposed as the source of value in digital mass media systems. Clifford argues that online emotions are monetized and part of a commodity sphere.[196]

[195] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at: https://www.principlesforadataeconomy.org/ p.6

[196] See generally D. Clifford, *"The Legal Limits to the Monetisation of Online Emotions,"* Katholieke Universiteit Leuven (2019)

Other have put the focus on attention as a commodity.[197] These approaches are interesting and provide a different angle to view the source of value in digital economies but they do not provide reasons for further investigation in the context of this chapter.

2.5 Chapter conclusion

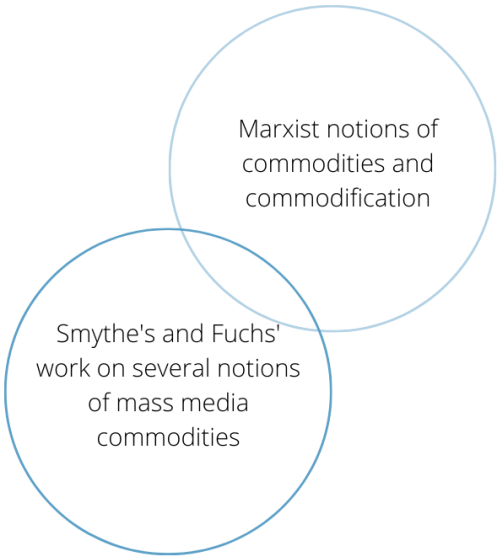
This chapter depicted the main approaches to the sources of value in digital mass media and in the later data economy. It depicts what happens when novel objects become important sources of value and subsequently meet established commodity theory. This happened for both persons in the form of audiences and for data, which are both approached as cell-form of value and as commodity. The two approaches overlap and are in some regards a logical continuation of each other. The idea of providing persons with a cheap or even free form of media to subsequently expose them to either general advertisement or data collection practices is present in both streams of thought depicted in this chapter. Sometimes the analyses overlap when the source of value is seen as both an audience and the data of an audience. To return to the research question of this chapter:

Which aspects of persons in could potentially be subjected to processes of commodification in (digital) mass media systems?

Must be answered in the following manner: The aspects of persons that are created in digital mass media systems which are potentially subjected to commodification are: 1) persons themselves, understood as audiences, which provide work to advertisers. 2) Data retrieved from persons when they provide this data to data driven industries, often through a system of co-generated data. Both audiences and data are subjected to the idea of commodification from different perspectives as this chapter highlighted. Further aspects of persons, such as their attention or emotions also noticed as potentially commodified.

The next chapter deals with the theoretical issues that the notion of commodification introduces when approached from the theory of John Searle. This allows the ''critical'' use of the commodity concept with a more elaborate approach in its relation to novel object that the commodity concept seeks to encapsulate. It essentially builds on that which this chapter described, the problems that arrive when objects with novel features meet classical commodity theories.

[197] See generally: G. Franck, *"The Scientific Economy of Attention: A Novel Approach to the Collective Rationality of Science,"* Scientometrics 55, no. 1 (2002) & Z. Sherman, *"Commodified Attention, Commodified Speech, and the Rejection of Expertise,"* Forum for Social Economics 47, no. 2 (2018)



3.0 Theoretical challenges of commodification of unprecedented objects

This chapter contributes to the theoretical debate on commodification as a concept and on the manner in which that concept can be employed as tool to understand value generation in data driven economies. It deals with the problems created by the limits to the existing notion of the commodity itself. The commodity form has been used in the previous chapter in order to explain the cell-form of value in mass media systems. Several objects have been introduced as possible content of that cell-form of value, such as data or audiences or emotions. However, it is questionable whether all novel objects in data driven economies are properly captured through established commodity concepts. In other words, that which is not a commodity by the standards set in classical commodity theory, can still be a very important element in the data value chain. This is most clearly observed with data, which is the most important resource in the data economy but at first glance does not meet classical commodity theories as described in chapter one. If this is the case, value generation is being left unexplained, in the case where classic commodity concepts do not cover novel essential elements of industry. To overcome this hurdle, the functioning of the notion of the commodity must be explored in more detail, specifically regarding its potential act as cell-form of value. The method developed by the philosopher John Searle can be used in order to better understand how the notions of commodification and the commodity function and what their limits are. This in turn will provide ground for the goal-oriented application of the notion of commodification in the chapters that follow.

The research question of this chapter is teleologically constructed in the following manner:

How can the notion of commodification be updated in order to accurately describe the 21st century processes of commodification of persons in the digital milieu?

3.1 Introducing Searle's theory on the construction of social reality

The notions of the commodity and commodification can be studied further using the method developed by John Searle, in order to understand the construction of its social reality.[198] Searle inquiries into the ''constructed-ness'' of the social reality of different phenomena. These social phenomena stand in contrast with phenomena that are not observer relative, for instance, facts in nature. Whether or not there is snow on mount Everest does not depend on the observer of mount Everest. The same goes for the temperature at which water boils, regardless of the observer, the boiling point of water remains around 100 degrees Celsius. Facts that are independent of human observation are what Searle calls brute facts.[199] He contrasts those to social facts, for instance, being an employee, being married, owning a 5-euro bill and many more. These social facts function and exist in a completely different manner compared to brute facts.

Searle therefore states that social facts should be understood as follows:

X counts as Y in context C

This structure presents the possibility to represent objects or acts as ''something else'', based on the context in which they are observed. For instance, one may count as an employee of the University of Torino, or as a talented rugby player, or as a registered nurse. A social gathering of people may count as a cocktail party, while another gathering may count as a demonstration. These ''facts'' are social in their nature, their fact-ness does not flow logically from the electrons or atoms that make up its subject. Social facts are therefore wholly dependent on the social structures in which they are presented. The difference between brute facts and social facts is that social facts gain statuses which are not imposed through their physicality.

Searle puts it as follows:

''the "counts as" locution names a feature of the imposition of a status to which a function is attached by way of collective intentionality, where the status and its accompanying function go beyond the sheer brute physical functions that can be assigned to physical objects.''[200]

Durante explains the use of the notion of Searle when he states: *''X is an act (or object) that takes on the specific meaning Y (meaning that the act or material object X is the act or social object Y) in a given context C. In that specific context C, collective intentionality attributes to the act (or the object) X a function, which constitutes it as the act (or the object) Y.''*[201] Searle himself provides the following

[198] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.1-2 & M. Durante, ''*Computational Power, the Impact of ICTs on Law, Society and Knowledge,''* Routledge (2021) p.89
[199] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.2
[200] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.36
[201] M. Durante, ''*Computational Power, the Impact of ICTs on Law, Society and Knowledge,''* Routledge (2021) p.89

working-example: ''Bills issued by the Bureau of Engraving and Printing(X) count as money(Y) in the United States (C).''[202] Again, the physical construction of the dollar bills is not explanatory of the value of a dollar bill in modern day economy. Printed bills of money do not represent only the value that emerge from the physical properties of the printed bills. The value of a 5-dollar or 100-dollar bill is a social construct because the physical paper itself is not worth more than the cost of production and the raw materials used. The construction of the value of a dollar bill therefore does not flow from its physical properties. Dollar bills gain the social fact of their value from something other than its material form. This is perhaps best summarized by Sohn-Rethel when he states: *''But that which makes this thing 'money' in the sense of value and of equivalence is of a quality radically different from all the properties that can be seen or felt or counted or otherwise perceived.''*[203]

3.2 Applying Searle's theory to commodification and commodities

When transposed to commodification as a notion, there are two options to make use of Searle's method:

1) The act of x,y,z (X) counts as commodification (Y) in context (C)
2) An object (X) counts as a commodity (Y) in context (C)

Both approaches are interesting. The first approach focusses more on an active movement and transformative act and the second approach deals more with objects in themselves. The discussed commodification theories have named many different features for an act to amount to commodification and for an object to be a commodity. For instance, ''to invest labour into an object that exists external to man that contains value, use-value and exchange-value'' (X) counts as commodification (Y) in Marxist's tradition (C). Or ''To become an object destined for sale on the market (X) counts as commodification (Y) in Polanyian tradition (C). The first chapter has explored, multiple of those notions and their context. Using the notion of Searle, it becomes apparent that a key difference between the commodity theory of Appadurai and all other scholars lies in this use of the social construction of reality. To reiterate, according to Appadurai, commodities are not objects with certain characteristics. Rather, it is the social sphere around an object that makes exchange of a certain object a commodity exchange. This stands in contrast with the theories of the other authors that focus on commodity concepts with features specifying the objects in question, rather than on social constructs in which they circulate. Therefore, whereas plenty authors focus on (X) being an object, Appadurai focusses on the social structures under (X). However, other features of the commodity concept that other authors introduce have social elements. For instance, when requiring commodities to be objects of exchange, this entails an imposition of a certain social construct upon commodities as a feature on the specific object itself. The tool that Searle provides opens up another level of nuance to the notion of commodification and commodities, based on the context involved. The next sections deal with exploring this nuance.

[202] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.24
[203] A. Sohn-Rethel, ''*Intellectual and manual labour, a critique of epistemology,''* The Macmillan Press (1978) p.6

3.2.1 Effects of the context on the commodity concept

Dealing with context is vital for understanding social facts in general, the social construction of the commodity is no different. Significant changes in context have great effects on the notion of the commodity and commodification. This chapter argues that none of the classical commodity theories are specifically fitted for the context of a 21st century data economy of the European Union (C). The introduction of big data and data driven capitalism reconfigures some of the assumptions inherent in classical commodity theories. For instance, not all objects that hold value in the 21st century have use value derived from their physical properties, as Marx required in his commodity concept. Moreover, personal data, an essential element of industry, is not produced for sale on the market as Polanyi describes in his commodity concept. Finally, personal data is not scarce, as the Chicagoans imply in their commodity concept. Furthermore, the approach towards commodities in second wave commodity theory has immensely impacted the nature of commodities and their circulation. For instance, unlike what Marx, Polanyi or the Chicagoans advocate, drugs, ivory and guns are not commodities in the context of the European Union anno 2022. Objects that clearly meet commodity concepts from several authors can still not be regarded commodities in contemporary society. This tension highlights how the context in which classical commodity theories were written differs substantially from the current context. It does so in two manners. First, commodification theory in its classical sense is out of sync with the objects that produce value in the data economy. There are multiple objects that are essential resources of industry in the data economy that mismatch with established commodity theories. Second, second wave theory, that removes contested commodities such as children or guns from the realm of commodities, introduced further nuances to first wave commodification theory which classical theory had not foreseen.

As a result, it becomes important to situate the context in which an act counts as commodification in the context of the European Union's data driven economy. That act of commodification then leads into the following examination. An object, must count as a commodity in the context of the European Union's data economy. Understanding how objects are commodified in the European context is therefore to carefully delineate the following social fact and acts with their respective social reality:

Act of x,z,y (X) counts as commodification (Y) in the European data economy(C)

+

Object (X) count as commodity (Y) in the European data economy (C)

can be represented as:

Object (X) count as commodified (Y) in the European data economy (C)

If one were to strictly adhere to the classical commodity theories of Marx or Polanyi, a stalemate would arise, caused by the difference in context between the pre- and post-big data era. In many cases, object

that represent value in 21st century digital markets, do not adhere to the classical theories of commodity features. As briefly mentioned before, many digital objects will not have use value derived from physical properties, since they are intangible. Alternatively, digital objects may not be created for sale on the market, which is a requirement of Polanyi's non-fictional commodities.

This leads to the following representation of Searles theory and the mismatch between novel objects and outdated contexts:

Digital object (X) **does not** count as Marxist/Polanyian/Chicagoan commodity (Y) in the European data economy (C)

If one wants to understand processes of commodification of novel objects, it is not satisfying to learn that plenty novel objects simply are not commodities in first wave theory. Especially when these novel objects play a vital role in the creation of economic value, leaving them out of the commodity realm is problematic. The change in context in which the commodity concept operates creates a misalignment for the functioning of the concept of the commodity. Therefore, the use of the notion of the commodity itself must be examined further, to see how it aids in better understanding of where economic value resides.

3.2.2 Commodification as tool for explainability and its relation to Searle's theory

Commodity theory fulfills an important explanatory component in economic literature. In order to understand how value is created and dispersed, the concept of the commodity is impassable. This goes back to the idea of the commodity as cell-form of value, where the commodity is understood as a unit of the total wealth of societies in which a capitalist mode of production prevails. When commodity theory fails to explain which objects are responsible for generated value, it loses one of its core explanatory functions. The concept of the commodity then no longer explains the formation and nature of value in its totality but merely deals with an incomplete depiction of value generation.

It is not at all strange that commodity theory must evolve and adapt to new economic realities when new commodities start to exist. The flexibility of the commodity concept is then tested over time in novel contexts and onto novel objects. New objects constantly test the abilities of the established rules that classical theorists have set for their commodity concepts. In certain cases, this involves reinterpretation of the rules of the commodity itself by those who believe that the commodity concept loses too much of its explanatory value through its strictness. This reminds of Fuchs and Smythe's ''critical use'' of Marxist notions, from chapter two. Reinventing the use of Marxist concepts in order to explain how value is generated was key in Smythe's and Fuchs' approach. Without creative/critical use of these concepts, Fuchs and Smythe would not be able to explain how value is generated in mass media systems. Their ''alternative Marxist strain'' was really an attempt to re-configure the Marxist commodity concept so that it regained its explanatory importance of the generation of value.

The shortcomings in commodification theory caused by introduction of novel objects present themselves almost naturally over time. For instance, Marx hardly focused on the importance of services as labour commodity. In his view, services were of microscopic significance and only amounted for such a small portion of wealth creation that they could be neglected in the overall depiction of wealth.[204] The Soviet Union's National Material Product, used instead of GDP, never mentioned services as part of its total produced product either.[205] Leaving out services may have been feasible in the 1850's, but as time went on, leaving services out of the depiction of the total produced product must have resulted in a blind spot regarding total wealth. In other words, not counting service labor as a commodity must have resulted in a commodity concept that does not explain all created value in a given society. This approach of leaving out services as a labor commodity become untenable in the early 2000's in the EU, where services amount to 70% of the GDP.[206] When stating that wealth is an immense accumulation of commodities, and that its single unit is a commodity, the totality of all commodities must also account for either all- or an overwhelming part of that wealth. When a commodity concept only depicts a large fragment of wealth, but not the (near) totality of wealth created in societies where a capitalist mode of production prevails, it is only logically that scholars seek to expand the notion of the commodity. Therefore, over time, commodity concepts are required to encapsulate novel forms of units of wealth which their original creators could not have foreseen.

This begs the question, do current conceptions on the nature of the commodity suffice in providing a tool that captures the explanation of value creation in data driven economies? The effectiveness of the concept of the commodity, understood as explanatory tool of total value, will inevitably be tested in the data economy. In essence, this is a repetition of Dallas Smythe's contribution when he introduced the audience commodity for the novel context of mass media TV and newspapers. Naturally, if classical commodity concepts do not explain the manner in which value is generated, the commodity concept itself needs ''maintenance'', much in the sense of the work Smythe and Fuchs. However, when taking in to consideration the social construction of reality as posed by Searle, performing ''maintenance'' on the concept of the commodity might result in creation of a concept that is not a commodity. Describing something that is not commodification does simply not refer to commodification but something else. Deviation from the commodity concepts, as done for instance by Fuchs and Smythe, might result more in the following formula:

Object (X) **does not** count as Marxist/Polanyian/Chicagoan commodity (Y) in a given context (C)

And as reaction:

[204] S. Marginson, "*Value Creation in the Production of Services: A Note on Marx,"* Cambridge Journal of Economics 22, no. 5 (1998) p.528
[205] F. Tregenna, *'Services' in Marxian economic thought",* Cambridge working papers in Economics (2009) p.9
[206] Directive 2006/123/EC of the European Parliament and of the Council of 12 December (2006) recital 4

Object (X) **should** count as **creatively interpreted** Marxist/Polanyian/Chicagoan commodity (Y) in a given context (C)

The issue of derivation of the constitutive rules of the social fact of the commodity, and the acceptability of that deviation, becomes a field of tension that needs to be understood better. How much room is there to adapt the concept of the commodity to have it regain its explanatory function and where does one simply describe something that is not commodification?

3.2.3 Constitutive rules of the commodity & the explanatory function of commodities

Searle calls the rules that make up social facts ''constitutive rules''.[207] Such rules are constitutive for the existence of a social fact. As an example, the traffic rules on the road are not constitutive for the act of driving in itself. Whether local traffic rules dictate driving on the left or the right matters not, because driving itself, predated those driving rules. The traffic rules are thus not constitutive for the act which they in part govern. However, with chess or commodities, the social facts do not exist without the constitutive rules. The rules of chess create chess, just as the he features of the commodity create the commodity. The constitutive rules make chess something different than wooden pawns on a board. In the same way, these rules constitute commodities from objects such as apples or grain. As Searle states: *''The systems of rules create the possibility of facts of this type''.*[208] Next, Searle provides guidance, or rather leeway, on the specific matter of deviation from social constructions when he describes the notion of constitutive rules. '*''If you don't follow at least a large subset of the rules, you are not playing chess.''*[209]

What Searle implies here is that social facts, unlike brute facts, are subjected to some flexibility in their status, since that status is not derived from physical properties. Brute facts cannot be altered, the boiling temperature of water or the density of gold remain the same regardless of the observer. However, when it comes to concepts such as marriage, employment or cocktail parties, the rules for their social construction are not absolute. This makes sense, because otherwise all social facts would be uniform in their appearance, which is clearly not the case. Think for instance of the social fact of the birthday party, which varies widely in its appearance and content across different ages groups and demographics, but is still considered a birthday party regardless of its exact form and appearance. There needs not to be complete and absolute agreement by ever participant in the social realm that a given act or object counts as ''something else'', for instance, a birthday party or a commodity. Neither are constitutive rules constructed so that only one possible form of a social fact is acceptable. This idea is explained through what Searle calls collective intentionality.

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[207] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.27
[208] Ibid. p.28
[209] J. Searle, ''*The Construction of Social Reality,''* Free Press (1995) p.24

3.2.3 Collective intentionality and disputed commodities

Searle argues that social facts can only exist when there is collective intentionality, since is impossible for persons to create social facts by themselves.[210] Think for instance of the difference between real money and Monopoly board game money. If a single person decides that Monopoly (board game) money counts as real money, he or she will be the only one thinking so, while the collective does not. Those who receive the Monopoly money do not share this specific individual intentionality held by this individual, nor does any other member of society. Collective intentionality sees on only making real money count as money and not to make Monopoly money count as real money. Collective intentionality, as opposed to individual intentionality, makes real money count as real money, precisely because collective intentionality affirms it as such. It can rest on the common agreement and intention of persons to understand a certain objects as ''something else''.

Disputed commodities

For the notion of the commodity this collective intentionality introduces two interesting perspectives. First, one might say that disputed commodities such as drugs, guns and ivory lack collective intentionality, since the collective clearly does not unanimously agree on their commodity status. This first perspective deals with the idea that there is no complete agreement on which objects are commodities and which are not. Such a disagreement seemingly implies a lack of collective intentionality on the commodity status of an object. However, this lack of unanimous agreement on employs different interpretations of the notion of commodification. This disagreement highlights the debate function of commodification, where commodification is understood as a tool which opens debates on which objects should be commodities and should not. When one argues that guns should not be commodities, such statement is built on second-wave commodification theory. It is a subjective call on the desirability of guns as objects of exchange in markets. Lack of collective intentionality on commodity status of an object signals how objects are entered into commodity debates under second wave commodification theory.

Alternatively, even the fiercest gun critics cannot deny that a part of the Gross Domestic Product in the US is created through the sale of guns as a commodity. Whereas persons may disagree on the desirability of guns as commodity, collective intentionality sees that guns are commodities from the perspective that their commodity status represents a part of the total wealth in a capitalist society. Therefore, even when there is disagreement on the desirability of commodity status of an object in collective intentionality, there can still be collective intentionality in acknowledging that certain objects play a role as commodity understood as cell form of value.

When the exact commodity status of certain objects may be disputed, the collective can still acknowledge that disputed commodities are impassible in order to explain the generation of total value. When there is no complete agreement on whether or not objects are commodities because they are disputed like drugs

[210] Ibid. p.22

or guns, the problem does not reside in the explanatory value of the commodity concept. Rather, the debate function of the notion of the commodity is affirmed. Disagreement on commodity status therefore does not diminish the commodity status of an object, but it rather affirms another function of the commodity. That function being the notion of the commodity as arena for debate.[211]

World views as individual intentionality

A second perspective deals with the specific choice of the notion of the commodity within objects that are deemed commodities through collective intentionality. Objects which are deemed commodities in one theory are not always considered commodities in all theories. Even when there is collective intentionality on, for instance, apples being commodities, that collective intentionality does not specify which concept of the commodity is adhered to. In some cases, the collective intentionality that apples are commodities may be based on varying commodity concepts held by individuals, while the outcome of collective intentionality remains the same. Searle refutes this approach, since in his theory, collective intentionality is one single collective intention, and not the individual intention of many different persons in accumulation. Therefore, understanding an object as a commodity through collective intentionality is a truly social act, rather than an act that flows from one's own personal world view.

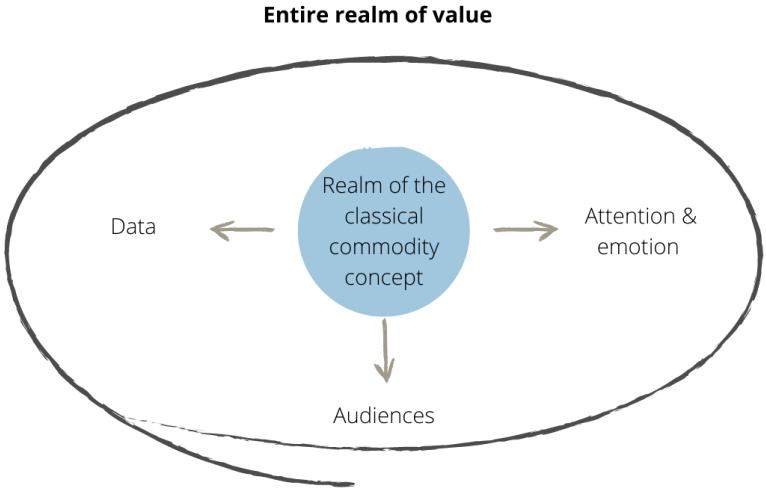
3.2.4 Section Visualization

Visualization of the realm of total value and the commodity

As discussed in the previous sections, commodification can be understood from its explanatory perspective. The concept of the commodity is a tool for understanding which objects circulate in markets and therewith contribute to the totality of wealth and which objects remain out of that sphere. However, when commodification theory does not sufficiently describe the generation of all value in its totality, because the social facts it creates are not in line with objective reality, the constitutive rules of the commodity may be re-evaluated. Both the example of Marx' shortcoming in the ''service commodity'' and the use of neo-Marxist concepts by Smythe and Fuchs highlight this idea. The classical social fact of being a commodity in those aforementioned cases no longer explains all objects that contribute to generated value due to a changing context. The evidence for the insufficiency, or at least disputability, of the accuracy of the commodity concepts is found in the fact that since the introduction of mass media, the commodity concept has run out of sync with the total wealth. Smythe and Dallas argue so in the 1970's and 2010's, but the recent debate on data ownership is another signal that some reform of the commodity concept is required in order to better explain the creation of value in digital economies. It is abundantly clear that objects such as data are a commodity, but they do not find support in existing commodity theory.

[211] A. Appadurai, ''*The Social Life of Things, Commodities in Cultural Perspective,''* Cambridge University Press (1986)

Next to data, alternative objects such as, attention, emotions, data and other objects are constantly proposed in the commodity discussion.[212] This often results in creative use of the commodity concept to broaden its explanatory function. The big data turn has only further engendered the need for an inclusive commodity concept, as it moved modes of production even further away from an objective material reality in the form of a commodity and into semantic territory on the notion of data as value.[213] It appears that the notion of the classical commodity only partially covers the creation of value in digital economies. This process, where novel objects create value but escape commodity concepts, can be can be visualized as follows:



Visualization of Commodification as a loop

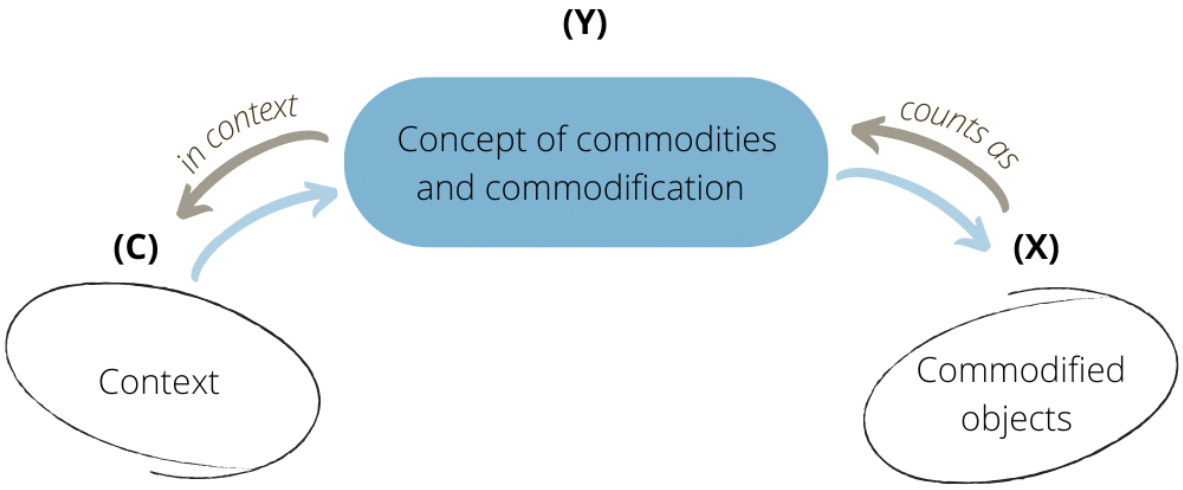
Following from the work of Radin and Appadurai, the influence of context, culture and political perspective make the notion of commodification very multifaceted. This echo's when M. Rose speaks of commodification as a world view. Rose describes that the concept of commodification of commodities (Y) can never been seen as completely detached from context or world view(C) as Searle intends.[214] A key difference between Rose and Searle is the intentionality. Rose describes individual world views and Searle describes contexts as based on collective intentionality.

This ultimately means that the identified object of commodification (a table, a hammer, a mince pie) stands in communicative relation to its context and the accompanying concept of commodification. Or more specific, the context decides what the process of commodification entails which in turn decides the

[212] See generally: Z. Sherman, *"Commodified Attention, Commodified Speech, and the Rejection of Expertise,"* Forum for Social Economics (2018) & to some extent: D.Clifford, *"The Legal Limits to the Monetisation of Online Emotions,"* Katholieke Universiteit Leuven (2019)
[213] See generally: L. Stark et al., *"Data Is the New What ? Popular Metaphors & Professional Ethics in Emerging Data Culture,"* Journal of Cultural Analytics 127, no. 127 (2019)
[214] C. Rose, *"Wither Commodification?"* in M. Ertman & C. Williams, '*'Rethinking Commodification,"* New York University Press (2005) p.402

limits to the set of features of the object of commodification. But the other way around is also true, if a certain object is a commodity, that means the process of commodification must allow this object to become a commodity, which is derived from the context in which the notion of commodification is observed. From this stems that one can never make meaningful comments on what the process of commodification is without examining its context and without drawing inspiration from that which is deemed a commodity (object) in reality. These three notions, X, Y and C, communicate, but never necessarily in a hierarchical or chronological manner.

Starting to explain either world views, commodification or specific objects of commodities then depends on the selection of a starting point between those three options, X, Y or C. In the discussion in chapter one on general commodification theories, those starting points have differed significantly. Marx starts with the concept of the commodity (Y), Polanyi and Chicagoans with the world view (C). Appadurai starts with the connection between context (C) and commodity concept (Y). In other words, authors ''jump'' into the loop of commodification of X, Y and C at different starting points. Going either from the object of commodification to context or the other way around. Objects of commodification, contexts and processes of commodification are so closely interrelated that they feed spill over into each other. They affect each other in more ways than are directly apparent to observer and should be seen from that interrelated perspective. Combining Searle's theory and the search for the definition of the notion of commodification gives this observation the following structure:



This figure depicts two main moves, from context (C) to commodity concept (Y) to the object of commodification (X). The context, or world view, requires further elaboration because it consists of two elements that both have different workings on the notion of commodification (Y). Contexts entail more than just a set of values or perceptions of the world after the computational turn, they also entail technological imperatives that underpin the 2020's digital economy.

3.3 Decoupling world views from technological contexts

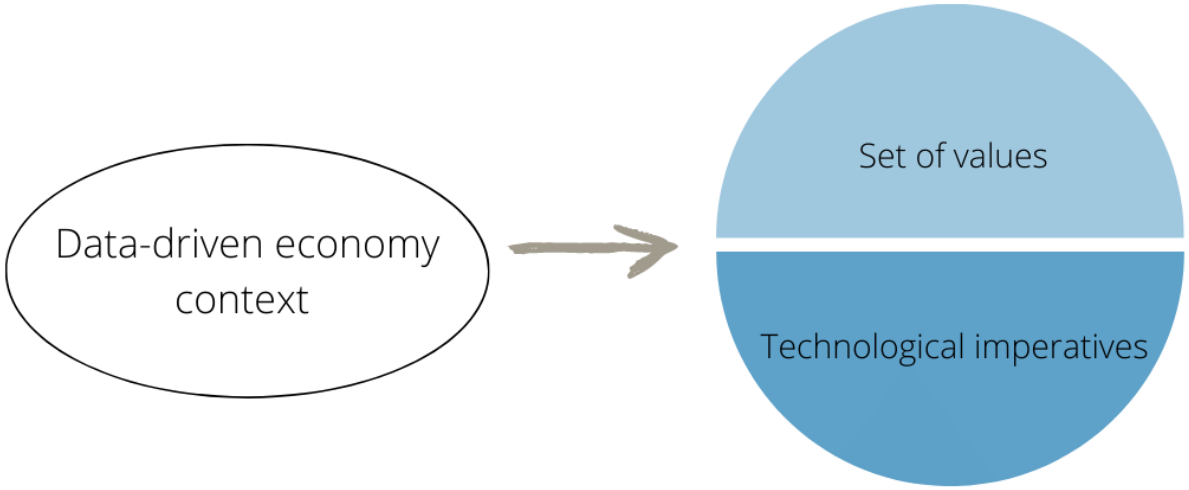
The European Union's Data Driven Economy provides a context as described by Searle. This context carries both an ''ethical value'' laden approach to what can be a commodity and what cannot be a commodity, while simultaneously providing the technical possibilities of existence for objects in a more general manner.[215] Therefore the context deals both with which objects can exist in general, and which objects can simultaneously be understood as commodities.

This idea has already passed multiple times in the analysis so far, albeit implicitly and from different perspectives. That is to say, Marx, the Chicagoans and Polanyi have provided their ethical value driven world views and included in that all objects which were technically possible to speak of as commodities. Still, none of these authors has discussed the possibility of ''liquified time'' or ''cannisters of gravity'' as commodity, since it is and remains technologically unfeasible to create such objects and therefore conceive such commodities. This is the reason that no commodity concept is geared towards data or digital aspects of persons as a commodity, since commodification theories all predate the existence of such advanced digital technologies. The context at the time when these theories were written simply did not require a commodity concept that encapsulated the specific objects that are data, algorithms, or other futuristic objects. This in turn results in a situation where most first wave commodity concepts do not support ''futuristic'' or non-existent objects at the time of drafting of their commodity theories.[216]

In that sense, both the set of values that make up the world view and the technological possibilities determine what the object of commodification (X) can ultimately be. These factors dictate which technologies create or capture objects and constitutive rules on the commodification status of these objects. Whereas both these elements, (context and technological possibilities) have largely been a coherent unity, they diverge from each other with the advancements of ICTs. Or rather, their working on the notion of commodification and object of commodification starts to function differently. What is required therefore is to acknowledge the decoupling of world views from the technological possibilities for the sake of analysis, since both affect the possibilities of existence of the object that is a commodity.[217]

These two different aspects of context must be discussed separately and are decoupled as follows:

[215] Read value here as a set of ethical judgement, not as economic value
[216] Exception is the notion of fictitious commodity as proposed by K. Polanyi
[217] Inspired by: L. Floridi, '*'Digital cleaving power and its Consequences,''* Philosophy & Technology (2017)



The next section discusses the technological imperatives in the Data Driven Economy that make up the context or world view and determine which objects exist in the commodity debate.

3.3.1 The Data Driven Economy as technological increase of objects of commodification

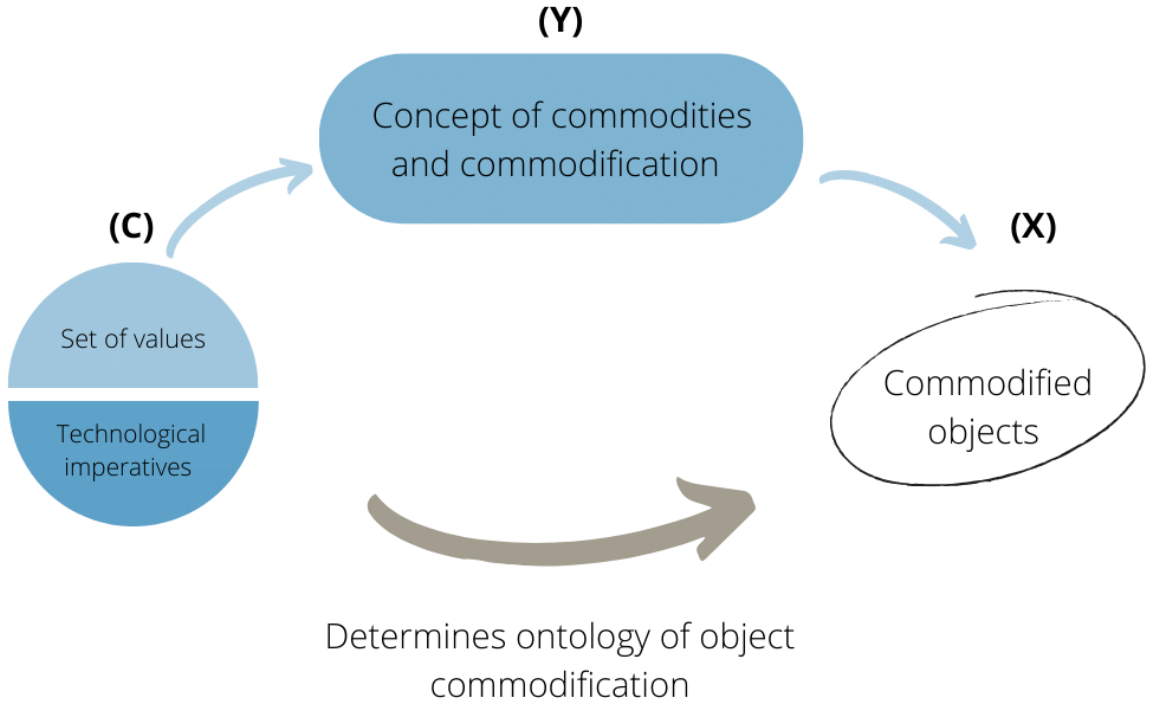
When referring to the Data Driven Economy as part of the context (C), the data economy can be roughly defined as an economy that used data as its main source of productive value through processing data using computational techniques. These techniques bring about novel technological possibilities that introduced all sorts of novel objects and relationships into the sphere of economic activity.[218] As hinted earlier, the technological possibilities for the existence of novel objects of commodification (X) has changed so starkly that objects produced in digital markets are not always equitable to analogue objects of commodification. Or more precisely, in the formula X counts as Y in the context of C, digital objects of X respond differently to the concept of commodification than analogue objects of X do. The following distinction can be applied in order to separate these two classes of objects: analogue (X^1) and digital (X^2). This helps structuring the argument.

The difference between the class of classical objects such as coal, coffee, labour (X^1) is immense when these objects are compared to objects such as, data, digital identities, screen time, digital audiences, in-game items and NFT's (X^2).[219] For better understanding of the working of the formula of Searle applied to the notion of commodification, these new digital objects will now be referred to as (X^2). The differences in objects between (X^1) and (X^2) is of importance because signals that classes of truly different types of objects of commodification react differently to established commodification theories. The grey arrow in the following graph highlights how part of the Context, understood as technological imperatives

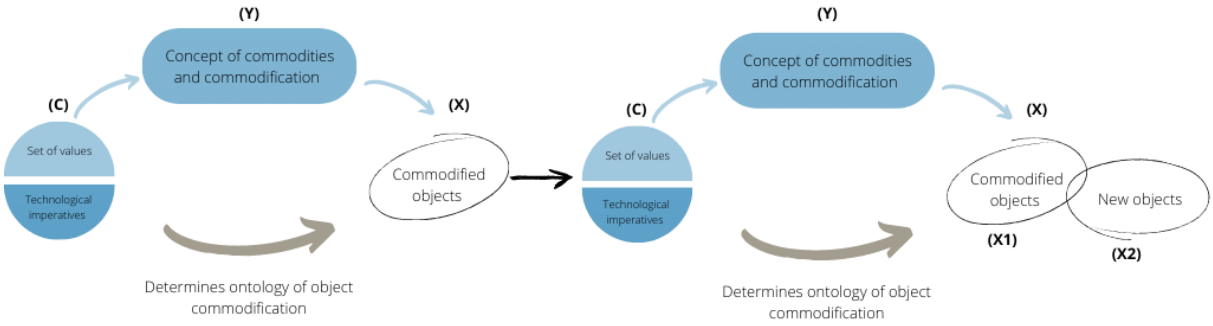
[218] Y. Hui, "*On the Existence of Digital Objects"*, University of Minnesota Press, (2016) p.142 In the sense that ICTs materialize objects & L. Floridi, *"Information, a very short introduction,"* Oxford University Press (2010) p.15-16

[219] See generally: P. Pałka, *Virtual Property, Towards a General Theory"*, European University Institute (2019)

in the Data Driven Economy, have profound effect on the existence and genesis of objects of commodification in (X). The context of the data driven economy is the reason for the existence of novel objects, which seek commodity status.



This expansion of the realm of the possibilities of existence of objects in which (X) has implications on the working of the commodification and commodity concepts of (Y). This move can be visualized as follows:



3.3.2 Classes of objects of commodification created through technological context

The potential objects of commodification (X) must be examined more closely since they are a generalization, or a class, of objects that are potential commodities. Within classic commodity objects there is a wide range of possible objects, ranging from gold to oil to chairs and so forth. In other words, even within the class of objects (X) there is a further analysis required. This section describes the differences between (X^1) and (X^2) objects, what their boundaries are, and how they may be confused for each other. To repeat, (X^1) refers to classical analogue objects that classical commodification theory

concerned itself with and (X^2) covers digital objects which fall outside of most classical commodity concepts.

As stated before (X^1) are those objects which are ''old world'' objects with which first wave commodification theory concerns itself. Think of cloth, oil and wool, or any object that existed and was subjected to debates on commodification. (X^2) represent a different class of objects that cannot be truly equated with (X^1) objects such as data, captured screen time and virtual items in an online game. Their difference ultimately lies in their ''digitality'', but that observation is not specific enough. What ultimately sets (X^1) objects apart from (X^2) objects is their mode of existence. The mode of existence of virtual objects is an idea borrowed from P. Pałka. Pałka describes different modes of existence of objects and how those different modes of existence have implications for the manner in which they can be owned. The following excerpts are too concise not to repeat in full:

''Examples of entities with primary mode of existence are tangible things (choses in possession), literary works 'as such' or information as facts (abstract objects, existing in a 'metaphysical' way), and computer files stored locally, not depending on any network or service. Entities with a secondary mode of existence are those that will cease to be when a third party stops doing something.''[220]

What Pałka argues here is that in the case of virtual objects in games, for instance, a sword of a character or any other virtual object, exists in a different manner compared to regular objects. The only manner in which those objects can exist in the first place is when another party sustains the existence of that object through its actions. Pałka describes it as follows:

''This is crucial, because any 'property' right granted in them, in its negative dimension, meaning a right to be left in peace with one's objects, would mean not only obligation of non facere towards others but also a positive obligation to keep doing something towards the responsible party. This is a complete novum for private law. In the case of virtual items, this would mean 'keep sustaining the service, to keep sustaining my gems'.''[221]

Logically, the haling of ''3rd party action'' makes the virtual object in question disappear. This idea, of objects which only exist through the sustained action of another party, is quite unlike other objects that private law regimes have concerned themselves with, Pałka argues.

''Starting with those existing 'by action': files stored in a cloud will 'disappear' when the provider stops the service; virtual items within online games will cease to be when the service is turned off; but also dematerialized money or shares in companies could 'disappear' when the electronic system sustaining them is shut down''[222]

[220] P. Pałka, ''*Virtual Property, Towards a General Theory,''* European University Institute (2019) p.154
[221] P. Pałka, ''*Virtual Property, Towards a General Theory'',* European University Institute (2019) p.154
[222] Ibid. p.154

The files or entries in databases might still 'exist', but if the service is inoperable, their 'owners' could no longer access them. That is the essence of the 'secondary mode of existence'.[223]

The previous justifies the setting of objects with a secondary mode of existence apart from objects which have a first mode of existence for the context of commodity theory. The key difference is that classical objects exist by themselves and need no third-party action for their existence. Wood, cloth, corn and coffee exist without needing third party to uphold their existence. Alternatively, digital objects as described by Pałka require third-party action in order to exist. The reason for the difference between classical and novel objects as described in this chapter is to be found in the difference between their modes of existence. First wave theory commodification theory never imagined digital objects that did not continue to exist if it was not for the actions of another party. When it comes to separating those objects that exist from a primary mode of existence and objects that do require ''action'' from another party, the action itself must be defined. What exactly makes an object exist through third party action? Or rather, how is that action defined? The difference between (X^1), primary mode of existence, and (X^2), secondary mode of existence, is then defined by a relatively simple but effective distinction.

Objects in class (X^2) come into existence through the investment of computational power into an object or artifact and require the continuous investment of computational power as prerequisite for continued existence of that object or artifact.[224]

In other words, the duration of the existence of the (X^2) object exists parallel in time to the continuous investment of computational power into the object. This fundamentally sets apart a virtual object or artifact on a CD-ROM, which exists on a physical carrier, from a document in the cloud, which stops existing when the investment of computational power stops.[225] In the same way, objects in games stop existing when the provider of the game ends the service, such an ending of service of virtual games makes in-game objects seize to exist.[226] This group of objects thus entails everything from virtual money and items in virtual games to online identities and playable characters on platforms. Any object that requires constant computational power for its existence fundamentally sets it apart from classical objects and is therefore categorized under class (X^2).

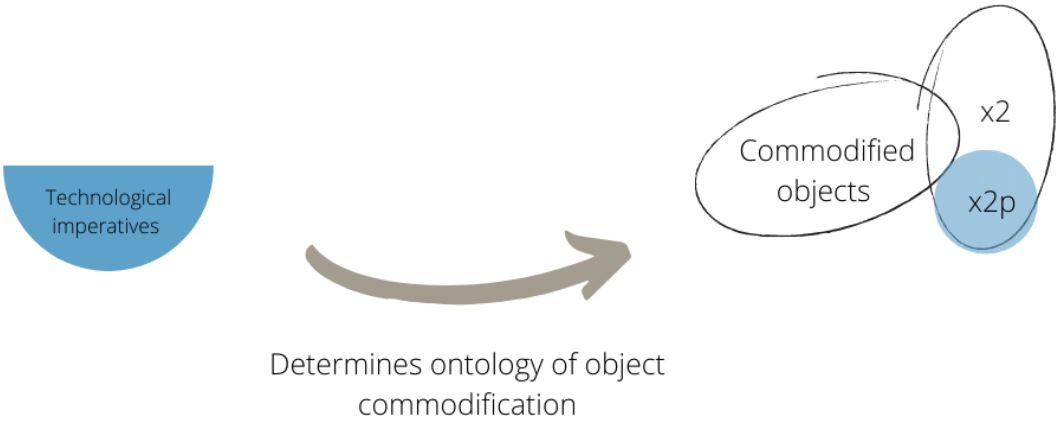
These objects did not exist before roughly the 1990's and have become widely prevalent and in part fundamental for current forms of life.[227] This does not only limit itself to digital or virtual objects, made of bits and bytes. Aspects of persons can also belong to class (X^2) as long as ICTs facilitate their capture

[223] Ibid. p.154
[224] See M. Durante, ''*Computational Power, the Impact of ICTs on Law, Society and Knowledge,''* Routledge (2021) preface: ''*Computational power lies at the core of our ever-increasing interaction with non-human agents and mobile devices; it is a form of power constitutive of both world adaptation as well as the reproduction and transformation of representations of reality.''*
[225] P. Pałka, *Virtual Property, Towards a General Theory,''* European University Institute (2019) p.154
[226] Ibid. p.154
[227] M. Durante, ''*Computational Power, the Impact of ICTs on Law, Society and Knowledge,''* Routledge (2021) p.8

and computational power is required for their sustained existence. Think for instance of real time digital profiles or behavioural predictions which are products of the continuous investment of computational power into data sets.

3.3.3 Identifying aspects of persons in class (X^2)

Just as class (X^1) exists out of many objects, class (X^2) also consists out of many more sub-classes in itself, computational power does not only result in creation of Bitcoins and in-game items. Rather, class (X^2) encompasses all the objects that require computational power for their existence and these objects may also include aspects of persons. It is possible to zoom in into the class of (X^2) by adding extra requirements to narrow the class down further. This narrowing down then concerns itself with only those objects in class (X^2) that represent aspects of persons. The class that contains aspects of persons, that is a subclass of (X^2), will be called (X^{2P}). (X^{2P}) exists within the general (X^2) class and is fully encompassed by the requirement for computational power for its existence. (X^{2P}), however, is a subset of (X^2) and therefore requires additional features that sets it apart from the general (X^2) class.



The preliminary observation in this case must be that there are aspects of persons that only exist when they are sustained through the investment of computational power while simultaneously being aspects of persons. The entry requirement for class (X^2) objects must be merged with another requirement which delineates the number of objects in this class even further. From class (X^2) to class (X^{2P}) requires the addition of another requirement that limits the number of objects in the class and is represented by the additional ''P''. This new requirement for class ''P'' is its relationship to persons, or rather its encapsulation of aspects of persons. Therefore, the two new requirements for the entrance to class (X^{2P}) are teleologically constructed as:

1) *Class (X^2) comes into existence through the investment of computational power into an object and requires the continuous investment of computational power as prerequisite for continued existence of the object.*

Combined with

2) *Class (X^{p}) contains objects that are aspects of persons, parts of persons or integral factors of persons.*

Together this creates a new class of objects, called (X^{2P}), which provides guidance on the class of ontology of the commodified objects. Both requirements for access to the class combined are then:

Class (X^{2P}) consists of aspects of persons, features of persons or integral factors of persons that come into existence through the investment of computational power into such an object relating to persons and requires the continuous investment of computational power as prerequisite for continued existence of said object of persons.

This provides ability to meaningfully separate new objects relating to persons from objects of persons have existed separately of computational power. Examples of analogue aspects of persons may be their labour or their physicality, which is frequently present classical approaches to commodification. The novel class (X^{2P}) then depicts a new group of objects that are created through computational power. Solely that which is computationally constructed *and* is an aspect of persons can end up in class (X^{2P}). The construction of these classes enables the observer to deal with computational aspects of persons in more detail and nuance. Note for instance that a fundamental concept such as ''Personal Data'' under the GDPR, but also ''Personal Information'' under Californian Privacy law does not automatically meet class (X^{2P})'s requirements. Class (X^{2P}) is constructed so that a piece of information, which counts as personal data, is excluded when that piece of information is stored on analogue paper or on a pen drive. A name in a physical phone book may be personal data, but it does not require constant computational power for its existence. It therefore exists outside of class (X^{2P}). Other personal data, such as imagery produced by camera feeds that register and capture real-time emotions are dependent on continuous investment of computational power. Stop the camera and image analysis, stop the existence of real-time captured emotions or attention. In the latter case, this type of personal data or personal information may very likely enter class (X^{2P}) since it is both an aspect of a person and exists only as long as computational power is invested into its existence. Class (X^{2P}) allows this important nuance to be made. Chapter four will deal with the identification of an example of such computationally supported human aspects in full detail.

3.4 Novel objects and existing commodity concepts

As described earlier, the influx of digital or virtual objects changes the relationship between objects of commodification and established commodity theory. The discussed theories of commodification, between 1850 and 2005, all deal with the world before it was re-ontologized through digital ICT's.[228] Therefore, the first wave theories on commodification deal with a fundamentally outdated set of assumptions to describe contexts, technological possibilities and other prerequisites that capitalist systems operate on. The contexts of the historical theories, versus the current hyper-historical context, are not

[228] For the notion of re-ontoligation see: L. Floridi, "*The ontological interpretation of informational privacy,*" Ethics and information Technology (2005) p.188

comparable from their technological perspective. [229] The issue then becomes, how can one speak of digital objects (X^2) as potential commodities after the big data turn, in a datafied world, using theories of commodification that did not imagine the existence of such objects in classical commodification theories (Y)? It is only logical that outdated commodity concepts cannot grasp novel objects as commodities, it is the change in context that makes this impossible.

To give an example, Marx states that commodities have labour embedded in them, Chicagoans say commodities are scarce, Polanyi say commodities are created for sale on the market. None of these things can be said about (X^2) objects in many cases. These objects are not always scarce, nor always created for sale nor do they possess use value derived from their physical features. Capturing (X^2) objects as commodities under first wave theory is therefore inherently problematic since these theories are not designed to capture such (X^2) objects. Following those first wave theories, real time data, captured human attention, digital profiles and many other objects are not commodities if classical theory is followed.

This yields two important observations:

1) First wave theories do not provide ground classify these specific objects as commodifies without extensive conceptual stretching.

2) Stretching concepts of (Y) has its limits, but without stretching, the (Y) concept of commodities and commodification excludes almost all (X^2) objects. In such cases, the commodity concept loses its key function to explain the cell-form units of generated value.

The next section therefore deals with the re-interpretation of the commodity concept of (Y) in general manner.

3.4.1 Rejuvenating Searle's social facts (Y, counts as)

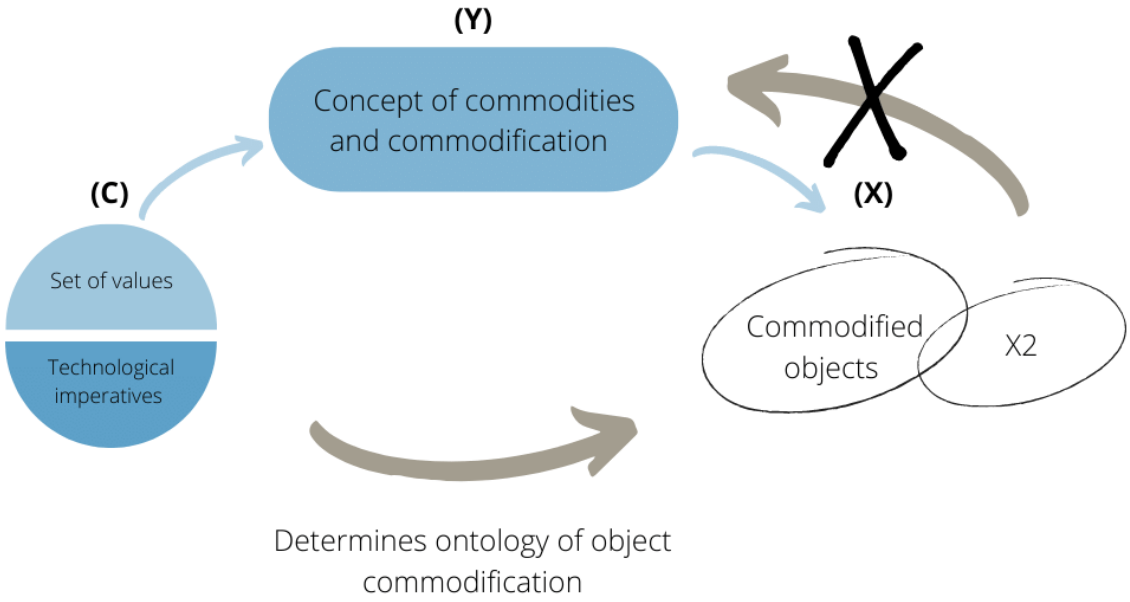
The general idea of concepts and notions being reinterpreted and pulled in many directions as a result of rapid digitization happening all across the board. Some analogue notions or concepts remain useful even in the current hyper historical context. Think of the notion of ''identity theft'' (Y) when applied to signature forgery (X) in the 1950's (C) to the 2022 (C) practice of Deep fake videos (X) that serve the same purpose.[230] The notion of identity theft perhaps has more severe consequences and a broader range of possibility in the 21st century than it had in the 1950's but the notion of identity theft covers both stealing of signatures and creation of deep fake videos. In that case the concept of identity theft, the (Y) concept, absorbs novel acts and novel objects. The notion of identity theft encapsulates many more processes, actions and relationships than it did earlier in the 1950's (X), but identity theft (Y) is able to describe that which is 21st century identity theft (X) accurately. If the concept of identity theft (Y) failed

[229] M. Durante, "*Ethics, Law and the Politics of Information A Guide to the Philosophy of Luciano Floridi,"* The International Library of Ethics, Law and Technology, (2017) p83-84. ''*in hyper-history, there are ICTs, they record, transmit and, above all, process data, and human societies are vitally dependent on them"*

[230] For the idea of legal concepts and their implications: A. Ross, "*Tû-Tû,"* Harvard Law Review, vol .70, no.5 (1957)

to capture novel acts and it only covered classic signature forgery, it would not adequately describe 21st century reality of deep fake practises that also amount to identity theft.

Alternatively, there are concepts that have been stuck in time and do not accurately describe the present reality, these concepts rather remained fixated on historical concepts and situations. This is what has happened with the notion of commodification. This is also exactly why it is so problematic to speak of commodification of data or any object that pushes its way into commodification discourse using the theories of the first wave or the ''old world''. The concepts of commodification and commodities have not proven to be as replenishable as for instance the notion of identity theft. Put in the simplest terms, data, attention harvested through a screen and clicks behave so vastly different from coal, coats, linen and labour that one cannot use theories based on outdated context to accurately describe them as commodities in a novel context. Most of these problems appear in the feature sets that the first wave commodification scholars have drafted which are unsuited for application for many objects created in the digital economy. The next figure depicts how the technological advancement have reworked rules for existence of the objects of commodification (X) faster than the concept of commodification and commodities (Y) has been adapted. Whereas the notion of identity theft has absorbed novel acts and objects, the commodity concept has not absorbed novel objects.



Some of these new objects might still be grasped into classical commodity (Y) concepts. This explains why many law and technology scholars frame data or other digital objects as a Polanyian commodity.[231] Essentially, Polanyi argues that objects that are not real commodities might still be fictitious commodities. In doing so, no essential element of industry is ever left out of the commodity sphere. The concept of the commodity as framed by Polanyi provides a commodity (Y) concept that is flexible enough to

[231] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.25

encapsulate a whole array of novel objects such as data and Facebook friendships.[232] However, it must be possible to look at these new objects without the socialist views derived solely from Polanyi. There must be a more neutral way of understanding commodity processes other than only through the fictitious commodity concept created by Polanyi or through the market frenzy of the Chicagoans. The next section deals with the idea of re-interpreting a commodity concept that fits novel objects, which is not coloured to one single political view.

3.5 Strategy for re-interpreting a commodity concept in the context of the data economy

Most first wave commodity concepts are not fit for the purpose of examining how persons are commodified in the context of the data economy. As argued in the previous section, the main reason these theories are outdated lies in the novel context of the data driven economy. The main issues of first wave theories of commodification are found in its problematic encounter with novel objects which first wave theory did not foresee. As Palka demonstrated in the context of ownership, digital objects exist in a different manner compared to analogue objects and this mode of existence continues to cause problems where novel digital objects and outdated classical commodity concepts meet.

The analysis now turns to the manner in which a commodity concept may be construed so that it regains its explanatory value, where it reclaims to be the cell-form of wealth. But in order to regain its status as the cell form of value, the commodity concept must be constructed so that it indeed captures the value created in the data economy. This exercise entails two parts. First, it requires summary of that which the previous chapters have unearthed. Second it requires a point on the horizon, so that the re-structuring of the commodity concept becomes goal oriented. The next section deals with a summary of the building blocks that have been produced in the previous chapters.

Summary of the State of the Art

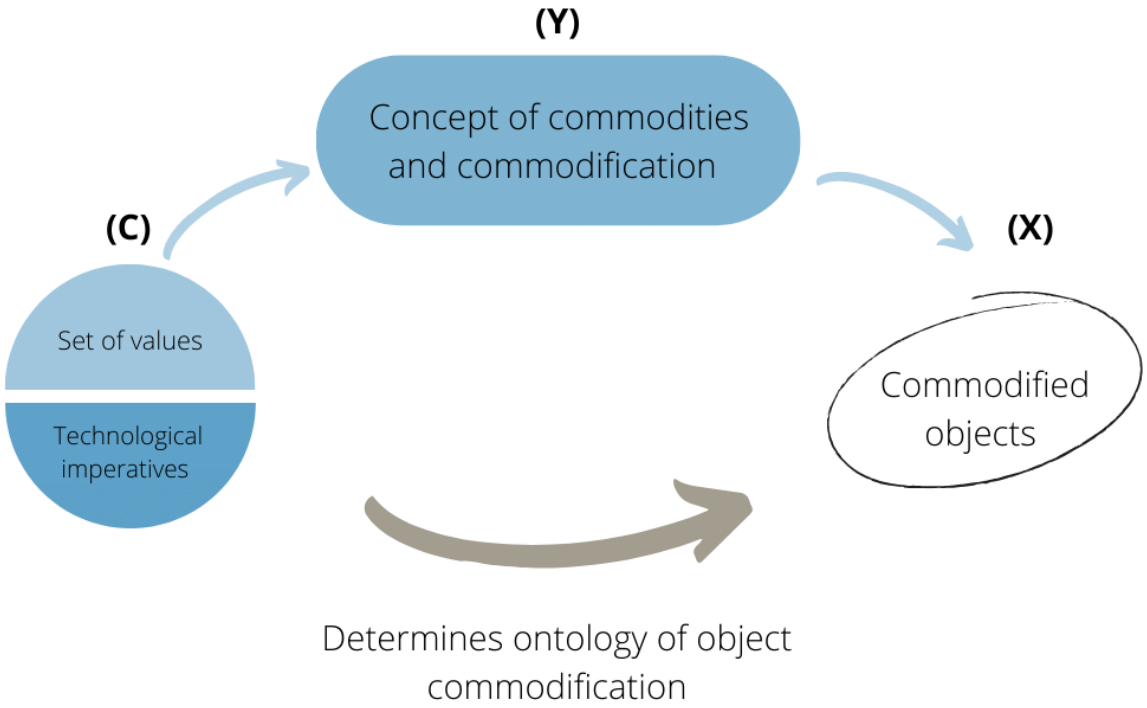
1) The observables of the notions of commodities and commodification derived from the first wave theories have been described in chapter one.

Intrinsic features of Commodities	Non-intrinsic features of Commodities
Object outside of us (Marx)	Exchange value (Marx)
Use value - has utility value derived from its physical properties (Marx)	Transferable (Chicagoans)
Embeds crystalized labour (Marx)	Exchangeable (Chicagoans)
Exchangeable (Chicagoans)	Money equivalence (Radin)
Produced for sale on the market (Polanyi)	Scarce (Chicagoans)
Objectified (Radin)	Desirable (Chicagoans)

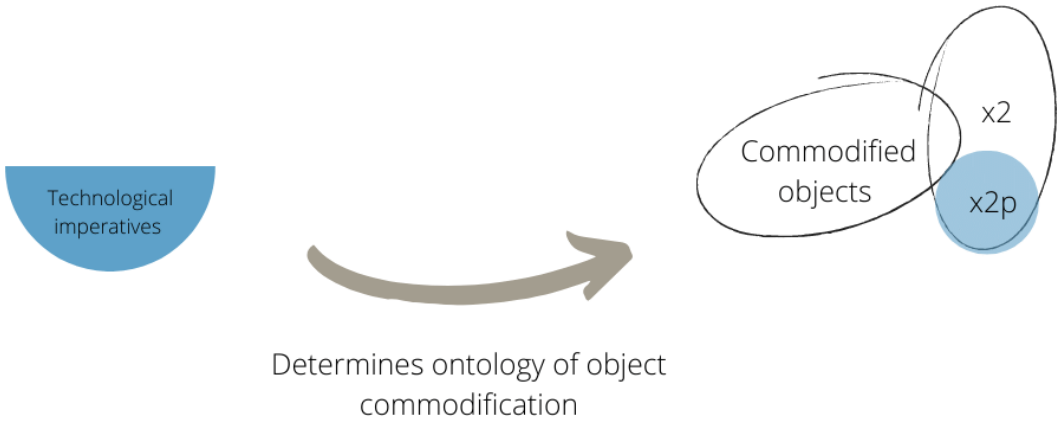
[232] See generally: F. Marshall, "*The ' Ugly Truth ' of Facebook Friendship : An Expansion of Polanyi's Fictitious Commodity to Friendship within Facebook and Modern Social Media,"* A Haberdashers' Aske's Occasional Paper (2019)

Commensurable (Radin)	Fictitious (only seen as commodity to explain organization of markets)
Fungibility (Radin)	Existing in its commodity-phase (Appadurai)
	Existing in a state of commodification-candidacy (Appadurai)
	Existing in a commodity context (Appadurai)

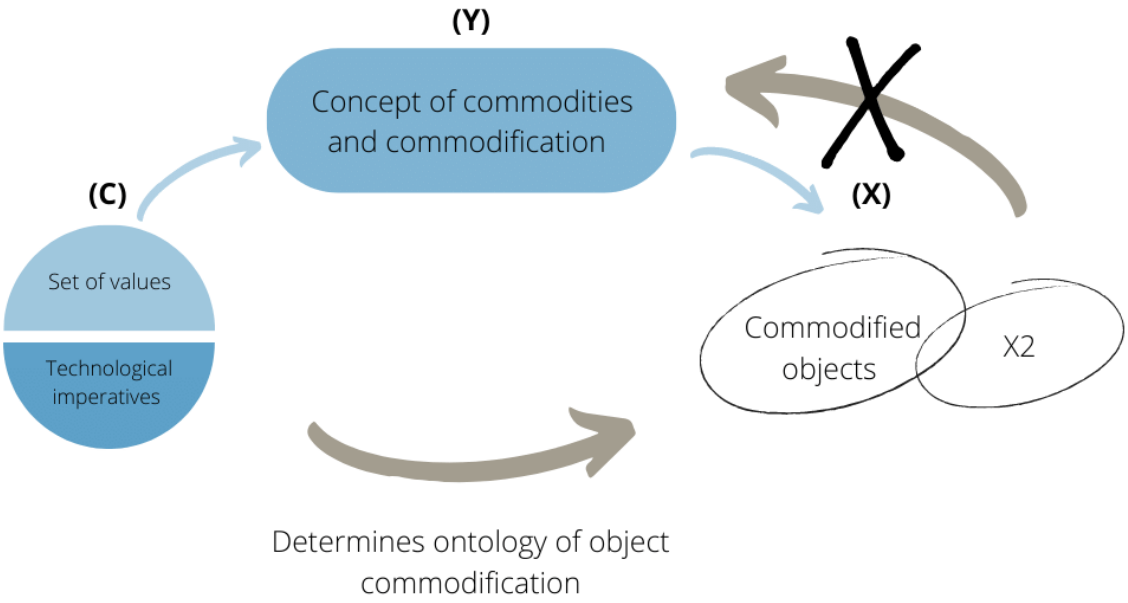
2) The understanding that the notions of context, commodification and objects of commodification communicate and must be examined together. This follows from the extensive application of the theory of construction of social reality by J. Searle to commodities and commodification.



3) The idea that new objects are created in the data driven economy, some of which refer to aspects of persons. These new objects then clash with established commodity concepts. The first figure shows how novel objects are created within the general class of objects in the data economy context.

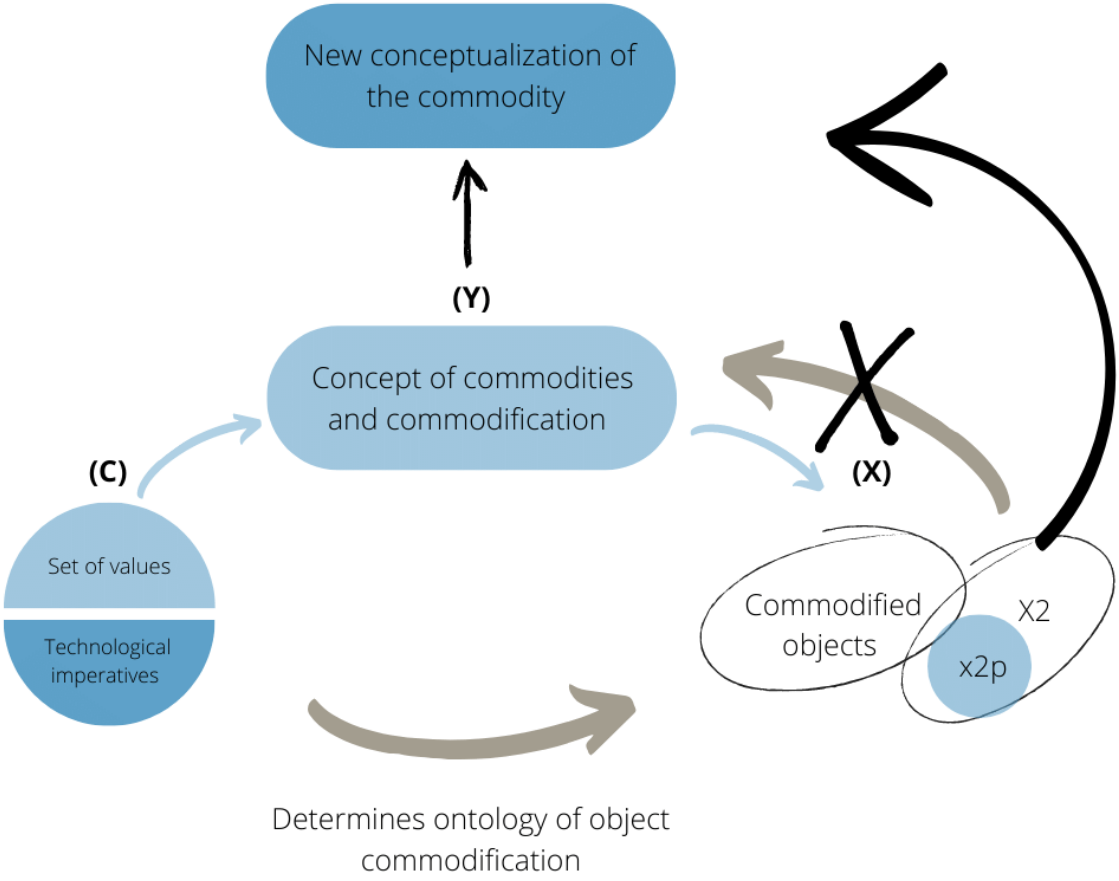


The second graph depicts how those novel objects create clashes with established commodity concepts.



4) Finally, the idea that as long as there is adherence to *"a large subset of the rules"*, there may be a restructuring of these observables of the notions of commodification in order to fit a novel context in which a social fact operates.[233] Where new objects create clashes with established commodity concepts, the commodity concepts may be adapted to encapsulate novel objects in order to restore the commodity concept in its specific use as cell form of value.

[233] L. Floridi, *"The method of the levels of abstraction,"* Minds and Machines 18 (2008) & J. Searle, *"The Construction of Social Reality,"* Free Press (1995) p.24



5) The features, or observables, of the notion of commodification can now be restructured in order to encapsulate those novel objects in class (X^{2p}). This will result in a restructured notion of the commodity which, by definition, cannot be the classical concept of commodification of (Y). Therefore, this new concept will be referred to not as (Y), which has depicted the classical commodity concepts so far. But rather it will be referred to as ($Y^{1.5}$). Highlighting that it is a distinct concept from classical commodity concepts, but still refers to the notion of commodification, and not to something that is not commodification. A concept that is not commodification would be depicted as (Y^{2}), since it refers to something other than commodification. To return to the idea of Searle, one may adhere to a large subset of the rules of a social fact, but not replace them entirely. In order to remain in the realm of commodification and commodity concepts, any new theory of commodification will be primarily made up of many of first wave theory observables.

3.6 From state of the art towards a functioning commodity concept in a novel context

Recontextualizing the notion of commodification, so that it encapsulates novel objects, is a departure from the classical notion of Searle where X counts as Y in the context of C. The previous section highlighted how often, (X^{2p}) does not count as (Y^{1}) in outdated context (C). Commodification of persons in digital economies must therefore be depicted as:

(X^{2p}) which counts as ($Y^{1.5}$) in context European Union's Data Economy (C).

3.6.1 Goal orientation of an adapted commodity concept

The exercise of creating an updated commodity concept involves building it up from an existing cluster of observables with a definable goal. Rather than randomly restructuring the commodity concept to encapsulate (X^{2P}) objects, the exercise of restructuring must be specifically geared towards a certain goal. That goal must align with the main research question of this thesis:

In what manner are persons or aspects of persons subjected to a process of commodification in Data Driven Economies and what is the effect thereof on the Sharing Economy?

The intrinsic goal of the updated commodity concept for this research is the further the understanding of the manner in which persons are subjected to processes of commodification, through ICTs a digitized world. It is to restore the functionality of the commodity concept that makes it identify the units of wealth in capitalist economic production. If successful, the commodity concept then acts as the cell-form of value again, explaining how smaller units of value make up a larger whole. The goal that the novel commodity concept must serve is therefore the explanation of the manner in which new economic value is retrieved from the process of commodification in the digital milieu on aspects of persons.

3.7 Chapter conclusion

This chapter dealt with the theoretical interpretation of the commodity and the notion of commodification in the light of the work of Searle. This provided a more nuanced depiction of what commodification is and how it can be altered in order to restore the explanatory function that it once had. That function being the specific function of the commodity as cell-form of value, as unit of total wealth. As argued in this chapter, the genesis of novel objects and the immovability of the commodity concept resulted in a reality where value is being generated outside of the commodity concept. The commodity concept then no longer suffices as tool to examine individual units of wealth. In order to restore this lost function of the commodity, the commodity concept can be adapted through the use of its existing observables or features of the commodity that are already available. Most aspects of the sub research question of this chapter are dealt with through these previous considerations. The question:

How can the notion of commodification be updated in order to accurately describe the 21st century processes of commodification of persons in the digital milieu?

Can best be answered in the following manner: Updating the notion of commodification can be done through restructuring the indicia of commodification as unearthed in chapter one in a manner that does justice to the goal of capturing novel essential elements of data driven economies into the new commodity concept. This can be best done through applying Searle's theory, ensuring adherence to a large sub-set of the constitutive rules that make commodities count as commodities in existing theory. The ultimate goal of the updating of the commodity concept then remains the goal of restoring its function of explaining value of the commodity concept by making it inclusive of the essential elements of industry which it currently fails to capture. This chapter also described how the different commodification theories

all have different starting points for X, Y and C. It argues that the sequence in which one starts to analyse these does not matter. More important is that all three elements of X, Y and C are discussed in conjuncture, since doing so provides a complete and nuanced depiction.

Next, chapter four continues with the understanding of a specific object that adheres to the (X^{2p}), for this thesis, that object is algorithmically influenced behaviour of persons. Chapter five describes the notion of the commodity in its updated version that specifically fits algorithmically influenced behaviour. Chapter five therefore deals with the actual restructuring of the commodity observables and features. Chapter six deals with the context in which that object circulates as a commodity, where it argues that the sharing economy is the market in which this novel commodity, under a novel commodity concept circulates. In essence, the remainder of this thesis deals with algorithmically influenced behaviour as X in chapter four. A new commodity concept as Y in chapter five. And the context of the sharing economy as C in which this commodity circulates in chapter six.

4.0 Algorithmically influenced behaviour as object of commodification through exploitation of data

This chapter proposes a novel object that occupies the cell form of value in data driven economies. Rather than data or audiences, this chapter proposes that algorithmically influenced behaviour exists as content of the cell form of value. This object is part of the explanation of generation of value in data driven economies when understood as commodity without diminishing the role of sources of value such as data and other digital objects. This chapter thus frames algorithmically manipulated, influenced, human behaviour as an object of commodification. The nature of this object however is far more intricate than the nature of classical commodities such as coal, iron or labour. It therefore requires a detailed analysis of digital value chain in order to understand its genesis and general existence. The identification of manipulated human behaviour, as object of commodification, will be structured using the following research question:

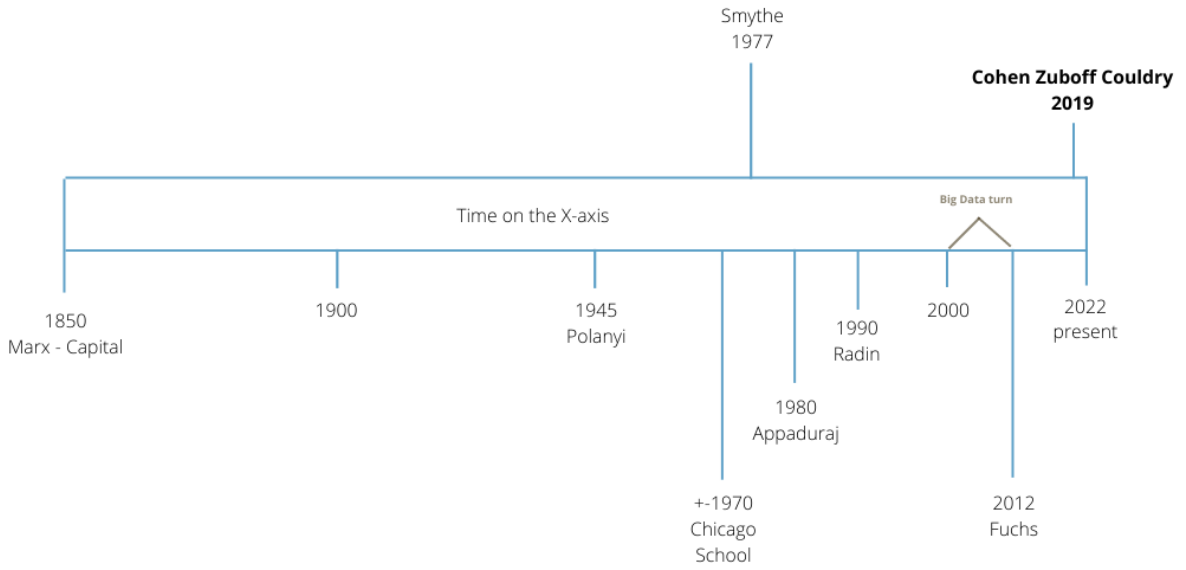
''How can algorithmically influenced behavior be understood as an object of potential commodification?''

The strategy to identify this object is to examine the value chain that leads to the creation of algorithmically influenced behaviour. This allows for better understanding of the nature of these objects in digital markets and, in a following chapter, how these objects relate to novel commodity concepts. The exercise of this chapter is to go down the stream of value creation in digital economies, where data is used to alter the behaviour of persons. This chapter is structured as follows: The first section deals with the selection of literature that depicts the entire data-value chain of digital and sharing economies. It explains why only a few selected theories are fit for examination for this specific purpose. The analysis then turns to the ''human source of value'' and explores the relationship of persons towards the data that is captured from their interactions with the world and with digital environments. Next the chapter highlights how data is subjected to pattern finding algorithms that generate knowledge on the possible futures and traits of persons. The last section argues that cyberspace is constructed so that actors can exert power over those of whom have their future predicted, and subsequently shape parts of their behaviour and actions. The chapter concludes by framing this algorithmically influenced behaviour as an object which circulates in economic relationships.

4.1 Literature selection & methodological considerations

In 2019 several authors publish their ideas on the holistic value chains in digital economies that use (personal) data as input. Prior to 2019, these holistic approaches were not available in comparable granularity. In other words, there are many detailed analyses on parts of the economic data ecosystem, but very few attempted to create a holistic overview of the data economy. The three main theories that provide such a holistic picture of these processes are those of S. Zuboff, C. Cohen and N. Couldry & E.

Meijas.[234] The titles of the 2019's works are telling, *Surveillance Capitalism, Data Colonialism and The Legal Construct of Informational Capitalism.* These three works will be referred to as the ''School of 2019'' in the remainder of this thesis. The next graph shows the time line from the first wave commodification theories to the school of 2019 and the event that inspired the school of 2019.



Of course, many authors have inquired into sections of the entire data value chain that explains how value is generated in data driven economies. Many authors produced pieces of the puzzle that help depicting parts of digital value chains, without necessarily depicting a coherent holistic picture. Shorter work on aspects of digital economies ranges from examinations of data as property, data as essential facility, the nature and workings of algorithms and much more.[235] When reading these shorter works, it is important to be aware of the time-frame from which these theories or observations are derived from. Given the recent debates, most of the ideas and concepts in digital economies are still subjected to fierce debate. See for instance Reviglio's work on Data Brokers, who states that there are hardly any proper definitions of data brokers.[236] The descriptions of how digital economies function therefore developed greatly in the last decade and research in this area progresses at a high pace. However, some older literature remains undeniably relevant. Think for instance of the effect of propertization of digital identities of

[234] S. Zuboff, *''The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,"* PublicAffairs (2019) & J. Cohen, *"Between truth and power, the legal Constructs of Informational Capitalism,"* Oxford University Press (2019) & N. Couldry, U. Mejias, *''The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,"* Stanford University Press (2019)
[235] See for instance: S. Wachter, B. Mittelstadt, *"A Right to Reasonable Inferences: Re-Thinking Data Protection Law in the Age of Big Data and AI,"* Columbia Business Law Review 2 (2019) & A. Aaltonen, C. Alaimo, J. Kallinikos, *"The Making of Data Commodities: Data Analytics as an Embedded Process,"* Journal of Management Information Systems vol 38, issue 2 (2021) & I. Graef, "*Data as Essential Facility. Competition and Innovation on Online Platforms*," International Competition Law Series, Wolters Kluwers (2016)
[236] See generally: U. Reviglio, *"The Untamed and Discreet Role of Data Brokers in Surveillance Capitalism: A Transnational and Interdisciplinary Overview,"* Internet Policy Review 11, no. 3 (2022)

persons, written in 2004.[237] Or the examination of KDD (knowledge discovery in databases) in 1999, which later on became captured under a combination of the terms ''algorithms, machine learning and artificial intelligence''.[238] Naturally, the School of 2019 builds on these older works and encompasses them into a grander depiction of the entire digital value chain. Therefore, this chapter is made up from different types of literature. Preferably, the complete depictions of value chains, such as provided by Couldry & Meijas, Cohen and Zuboff will be referred to. Partial depictions will be used when required to generate better clarity on the points made.

4.1.1 Big data turn of the 21st centrury

Sitting in between the first wave commodification theory and the holistic data-value-chain theories of 2019 sits an event that can be roughly described as the ''big data turn''. Other authors have given this event different names, but the general idea remains that increased levels of digital connectivity, a rejuvenated use of ''data'' and the emergence of algorithms set in motion movements that altered existing forms of capitalism and forms of life in general.[239] The difference between the theories of 2019 and those before that, is the deliberate attempt to explain new economic phenomena resulting from the use of big data. It is perhaps comparable with the efforts of Marx during and after the ''turn'' of industrialization, new conditions and possibilities require new explanations and ways of thinking. The school of 2019 does so for the big data turn, rather than the industrial turn.

It is likely that the transformative movement from established capitalism to new forms of data capitalism is still ongoing. Some examples of the approach to this digital transformation are as follows: Durante calls the transformation process, in which forms of life are reworked through computational power, an everyday revolution which subverts existing order.[240] Sartor and Reichman argue that the computer- internet- and AI- revolution are phases that are indistinguishable from each other, thus calling the current transformation a revolution.[241] These ideas signal that the ''turn'' which currently transforms the world is grand and that it will have enormous implications, but also that it is still an ongoing process. The school of 2019 therefore to explains how the capitalist system is changing, in a world that is rapidly digitizing, at the time in which it is still undergoing changes. The purpose of this paragraph is thus not to provide absolute retrospective clarity of the forces of ICTs that are reworking the world, and therefore also methods of economic production, but to stress that these forces have been major and difficult to capture precisely.

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[237]See generally: J. Prins, *"The Propertization of Personal Data and Identities,"* Electronic Journal of Comparative Law 8, no. 3 (2004)

[238] See generally: A. Vedder, *"KDD: The Challenge to Individualism,"* Ethics and Information Technology 1, no. 4 (1999)

[239] M. Durante, ''*Computational Power, The Impact of ICT on Law, Society and Knowledge,"* Taylor and Francis (2021) p.8

[240] M. Durante, ''*Computational Power, The Impact of ICT on Law, Society and Knowledge,"* Taylor and Francis (2021) p.168

[241] A. Reichman and G. Sartor, ''Algorithms and Regulation,'' in Constitutional Changes in the Algorithmic Society, Oxford press (2021) p.140

Attempts to understand how capitalist production changed after the big data turn leads to varying outcomes on different levels of abstraction. Some state, like Couldry and Meijas, that economies established on the use of data are an unmetaphorical return to colonialism.[242] Stating that these new phenomena are repetitions of the old ways. Contrastingly, Zuboff states that surveillance capitalism is entirely unprecedented.[243] Therefore, there is plenty discussion possible on how the ''new is like the old'', to speak in Franklins words.[244] But the scale of the transformation, reworking, re-ontologzation or simply ''change'', that capitalist modes of production undergo can only be described as profound.[245]

4.1.2 Methodology for describing data-value-chains after the big data turn

This chapter deviates from the strategy adopted in chapter one. It will not summarize the individual theories on how the means of production in digital economies function and how they relate to the collection of data and genesis of value. Doing so would be quite the repetition of a similar narrative three times. Therefore, the theories will be discussed through a summary of the commons elements that all three theories contain. Supporting literature will be referred to when necessary.

4.1.3 Introduction to the value-chain analysis

The analysis of the data-value chain is structured as follows. 1) Commodification of persons starts and finishes with aspects of persons. Therefore, ''the human source of value'' will be identified and discussed in its relation to persons and to data. 2) Second the notion of algorithmic data mining will be discussed, with brief recourse to the notion of artificial intelligence. 3) Finally, the idea of ''moving'' persons through algorithmic mediation will be discussed with an analysis of the notions of power. This is the section where exploitation of data becomes most visible, it describes how data is processed in a manner that allows for the altering of behaviour of persons. 4) The final section deals with algorithmically influenced behaviour created in these data value chains as object of potential commodification.

4.2 The human source of value

Behavioural surplus

Somewhere around 2011, a search engine operator discovers what Zuboff calls, *''behavioural surplus data.''*[246] Zuboff's descriptive novelty lies in the realization that some data 'entails' value that can be used beyond improvement of service. Data which in principle has no connection to the improvement of the specific provided service. According to Zuboff, the behavioural surplus found in data will provide the foundation for surveillance capitalism and its logic of intense accumulation data.[247]

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[242] N. Couldry, U. Mejias, *''The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,''* Stanford University Press (2019) p.4
[243] S. Zuboff, *''The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,''* PublicAffairs (2019) p.17
[244] U. Franklin, *''The Real World Of Technologies,''* The Massey Lectures Series, House of Anansi (2003) p.87
[240] For the notion of re-ontoligation see: L. Floridi, "*The ontological interpretation of informational privacy,''* Ethics and information technology (2005) p.188
[246] S. Zuboff, *''The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,''* PublicAffairs (2019) p.76
[247] Ibid. p.78

It would be difficult not to see the parallel with Marx's notion of surplus-value. Surplus value is the value that is derived through the merger of several different commodities (and labour) after its exchange. Surplus value is that which sits in on top of the value of commodities which are a merger from other commodities and labour. Zuboff extents this notion onto data. In her view, the data that persons provide for a service has more value embedded in it than just the value required to improve a given service. This surplus value, found in our voices, personalities, emotions and geo-locations, is then ruthlessly expropriated.[248] In her words, companies *''surveil, capture, expand, construct and claim behavioural surplus''*, even when persons chose not to share certain data.[249]

However, the idea that behavioural surplus is simply captured is perhaps a bit strange. It is never behavioural surplus that is captured or harvested in the first place. Just as the idea of Marxist surplus value, behavioural surplus starts existing when there is an action that extracts it as such, but always from another object or commodity. Behavioural surplus is not simply caught like one would catch a lobster or forage a mushroom. This means that the idea of surplus value is ultimately dependent on another object which allows for the extraction of surplus value or behavioural surplus. For Zuboffs analysis, this goes too. It is not behavioural surplus that is harvested or found, but rather an object from which surplus value can be extracted. For Zuboff, that object is human experience, translated into behavioural data. Or rather: *''Surveillance capitalism unilaterally claims human experience as free raw material for translation into behavioral data''*.[250]

According to Zuboff, the core object that allows for the extraction of surplus value is human experience. In her words, all aspects of human experience are captured, through devices and sensors.[251] In here Zuboff mentions that human experience is subjugated through market mechanisms into behaviour and subsequently rendered into behavioural data. This data then embeds a new kind of surplus value. Since human experience is abundant in the world, so has its capture become, which accumulation processes now permeate many aspects of human life. Interestingly, Zuboff cites the neo-Marxist David Harvey's notion of *''accumulation by dispossession''*, a notion which crucially depends on the ever-ongoing expansions of capitalism into novel territory through dispossession of assets.[252] Now of course, human experience, and the data flowing therefrom are certainly accumulated through data collecting practices. But arguing that human experience is also dispossessed would be a stretch that is quite difficult to imagine.[253] Especially if data and human experience are not ''owned'' in the first place, and cannot be disposed against the backdrop of a notion of legal possession. Furthermore, one can take human experience or personal data without deleting, removing or dispossessing those objects at the source.

[248] S. Zuboff, *''The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,''* PublicAffairs (2019)p.15
[249] Ibid. p.80
[250] Ibid. p.14
[251] Ibid. p.25
[252] Ibid. p.99
[253] Ibid. p.99

Taking a person's data does not equate the removal of that data on the end of the person. The idea of true dispossession is therefore placed a tad awkwardly.

Personal data in the public domain

Cohen, in her book Between Truth and Power, picks up at the idea of absence of legal possession of data, or human experience, from the perspective from the USA. She argues that personal data exists in a public domain. Defining public domains as a situation where objects belong to the public, since they are not subjected to ownership rights or other legal restrictions by individual. More precisely, the public domain is '*'a zone of legal privilege: it demarcates conduct as to which no one has a right to object.''*[254] As a result, data derived from persons exists in a place where they are freely appropriable. This then legitimates appropriation techniques that arise from the availability of data as a resource. A public domain requires an abundance of an asset or resource, which is something that can hardly be denied from the perspective of personal data. In such cases, data must be appropriated without battling prior claims to the resource in question, this too is the case with a lack of property rights in data.[255] The legal regimes on data acquisition of the United States and the European Union diverge in some aspects, however, it can be said that neither regime envisions ownership of personal data or personal information.[256] Zuboff and Cohen have this element in common, namely the idea that human experience or data identifying people is there for the taking. There is so much of it, and its appropriation it done with such relative ease, that it resembles a type of public domain or green field.

After painting the picture of a large depository of freely accessible data resources that can be freely appropriated, the question remains, what is appropriated exactly? Cohen answers this by stating that the asset, or raw material, *''consists of data identifying or relating to people.''*[257] The step that Zuboff makes, between human experience and data seems to be paid less attention to by Cohen. It is not human experience that is the source of value, but rather data relating to persons, according to Cohen.

Colonization of the social, quantification of the person

Couldry and Meijas take a slightly different approach when it comes to the source of value in data driven economies, although the differences are minor. According to Couldry and Meijas, *''Data colonialism appropriates for profitable exploitation a resource that did not begin to be universally appropriated until two decades ago: data.''*[258] Human life is consequently structured so that it generates more data, which

[254] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.49
[255] Ibid. p.50
[256] See generally: S. van Erp, *"The Covid-19 App: What Data 'Ownership' Really Means,"* European Property Law Journal 9, no. 1 (2020) & N, Purtova, "*The Illusion of Personal Data as No One's Property,"* Law, Innovation and Technology 7, no. 1 (2015)
[257] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.49
[258] N. Couldry, U. Mejias, *''The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,"* Stanford University Press (2019) p.6

then is consequently appropriated continuously.[259] In essence, data is the core of value produced in digital economies and it is appropriated as were classical objects during colonial times. But data does not spontaneously come into existence, according to Couldry and Meijas, data exist because it is translated from the world. ''*Social quantification*'' is the term used in their work to describe how a scroll-time, typing-speed or geo-locations are translated into bits and bytes.[260] Social quantification therefore translates the notion of ''human life'' into machine readable data. Couldry and Meijas however, do not speak of human experience or human life in great detail, but rather highlight the ''social quantification'' part. Which ultimately results in *''the changing space of relations and interconnections on which the quality of human life depends.''*[261]

Data as captured human value

In all three theories deal with the relationship between data, human experience, and the quantified social. One can at least deduct from this that the very core of the digital economy starts with accumulation of data and this data ''sprung'' from the well of ''something human''. However, the relationship between data and ''human experience'', ''the social'' or human behaviour is not entirely clear. In order to provide at least some comments on the previous, this thesis follows several ideas from the field of cybernetics and the philosophy of information by Floridi to make some very general remarks on the nature of data. First it follows the idea of Wiener, stating that data is immaterial. As Wiener, the father of the field of cybernetics argues: *''information is information, not matter or energy''.*[262] Therefore, data does not need a physical representation, although it is not impossible for information and data to be represented physically, on for instance a CD or a vinyl record. Second, data is in itself a difference that makes a difference. Data is then ultimately a lack of uniformity.[263] A blank page can be informative, as long as it creates meaningful uniformity with pages that are written on. Just like the absence of engine sounds when turning a car key might be informative of the state of the car's battery.

The smallest unit of information is the bit, (which reminds of the idea of the ''cell-form'' in a different context). Per Floridi: *''A bit is the smallest unit of information, nothing more than the presence or absence of a signal, a 0 or a 1''.* Most information carriers function on such on-or-off systems to carry information. For the CD it is the presence or absence of pits, for the transistor it is an on or off switch and for the electric circuit it is high or low voltage.[264] When referring to the capturing of human experience in the

[259] N. Couldry, U. Mejias, *''The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,''* Stanford University Press (2019) p.6
[260] Further reading on quantification see: C. Besteman, ''*Life by algorithms, how roboprocesses are remaking our world,''* Chicago University Press (2019)
[261] N. Couldry, U. Mejias, *''The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,''* Stanford University Press (2019) Introduction p.xv
[262] N. Wiener, *Cybernetics or Control and Communication in the Animal and the Machine*, The MIT Press (1961) p.182
[263] L. Floridi, *''Information, a very short introduction,''* Oxford University Press (2010) p.24
[264] Ibid. p.28

form of data, the process of transposing human experience into to some form of data is meant. To record, transpose or in one way or another make human experiences expressible in data.

Capturing the human source of value into data

To conclude this section a summary of the previous is due. An important origin of value in digital economies is not made up of not sterile bits and bytes under the common heading of ''data''. The human source of value in data driven economies is fundamentally made up from human interaction with the world around them and the capture thereof. Any interaction that one has with its environment will exist in a volatile state unless it is recorded or made preservable in one way or another. Without capture, human experience vanishes. Think for instance of the sound of a voice that is no longer speaking, the feeling of laughter when it is gone or last week's unrecorded geo-location. Recording of this human experience is crucial for the extraction of its value in digital economies. This is the point in which human radiation becomes data through collection by sensors or other manners of capture. The idea of quantification of human behaviour and experiences into data does not duplicate a feature of a human, it rather produces a copy that can be stored in the form of intangible information. The human source of value is therefore in its essence human experience, or human life, which is made accessible in retrospect in the form of data.

4.3 Algorithmic Patterns finding in the human source of value

After ''data'', understood as stable representation of human radiation, is harvested or accumulated it must be introduced into processes which extract from it its surplus value. Value extraction from data relating to persons is inextricably linked to computational power.[265] The extraction of value from data starts with its introduction to computational power in the form of algorithms or other pattern finding operations. With the use of these techniques, patterns are discovered in data sets which uncover its value. This process entails several steps which will be discussed in the following sections.

Accumulation of data into big data

In order to engage in any algorithmic pattern finding in data sets, these data sets must first be substantial in size. The more relevant data is piled onto one data set, the more value can be extracted from it.[266] Of course, a huge data set of valueless data will not magically well up value to the surface, but meaningful units of data tend to increase in value when accumulated. As an example, four terabytes of data representing movement of mosquitos in captivity will likely not be a source of valuable information. However, four terabytes of data about the morning routines of European citizens between the age of 18 and 23 will entail considerable amounts of value, which can be extracted from this accumulation of data. Interestingly, this accumulation of such data generates a different value than the sum of all its individual parts. Weber calls this feature of data its anti-rivalness, which entails that more data holds disproportionally

[265] M. Durante, ''*Computational Power, The Impact of ICT on Law, Society and Knowledge,*'' Taylor and Francis (2021) p.38

[266] See generally: S.Weber, "*Data, Development, and Growth,*" Business and Politics vol 19, issue 3 (2017)

more potentially extractable value.[267] This can be thought of as the opposite of ''buy in bulk discount''. Next, sets of accumulated data displays what academics and industry dubbed the four Vs.[268] Volume, veracity, variety and velocity. These four Vs represent the characteristics which a data sets gains when they grow in sizes beyond human comprehension. These big heaps of data, which will subsequently be referred to as Big Data, are then inspected through algorithmic means in order to find that coveted encapsulated value.

Defining algorithms as working concept

There are thousands of descriptions of what an algorithm is and how it relates to artificial intelligence. Algorithms perform many different tasks in different contexts, so posing a definition of what algorithms are is perhaps not as useful as examining how they function in the specific context depicted by the 2019 theorists. Algorithms in many senses are a tool to achieve a goal and those goals may vary depending on context and economic or other interests. Algorithms regulate traffic lights, recommend videos, rank search results or predict the weather. This refers back to the idea that algorithms can be perceived at many levels of abstraction.[269] Similarly, one could argue that algorithms can be studied from different stances as described by Daniel Dennett.[270]

Therefore, this section proposes a pragmatic view of the use of algorithms in a specific context rather than defining their entity. There are three main elements that demystify the use of algorithms in order to approach algorithms as a working concept as described by the 2019 theories. 1) In relation to the finding of patterns in big data inspection or data mining, algorithms perform a relatively straight forwards task of pattern finding. 2) The introduction of artificial intelligence into this process removes the need for human intelligence from the task of pattern finding to be fulfilled, but it is no fundamental requirement for the ability to find small patterns in big data. Pattern finding in big data sets thus predates artificial intelligence and it is by no means a task that only machines can engage in. 3) In a different context, algorithms perform a nudging or steering (for lack of better word) function. This steering function is a fundamentally different use of the same tool, the algorithm, compared to a data-mining algorithm. This nudging function of algorithms will be discussed in part 4.4 in its relation to the notion of power.

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[267] S.Weber, "*Data, Development, and Growth,"* Business and Politics vol 19, issue 3 (2017) p.15 &
S. Weber, '*'The Success of Open Source,"* Harvard University Press (2005) p.154
[268] U. Sivarajah et al., *"Critical Analysis of Big Data Challenges and Analytical Methods,"* Journal of Business Research 70 (2017) p.269 Mentioning three V's or even six V's
[269] See generally: L. Floridi, '*'The method of the levels of abstraction,"* Minds and Machines 18 (2008)
[270] D. Dennett, *''Intuition Pumps and Other Tools for Thinking,"* Penguin Books (2014)
The intentional refers to the level of abstraction the behaviour of an entity is viewed in terms of mental properties

Algorithms tool to find patterns in data set in three phases

Floridi states in the context of data mining algorithms that ''Big Data'' relies on the identification of small patterns in large sets of data.[271] The workings of which are best demonstrated by Vedder as early as 1999.[272] Patterns are to be found in many contexts and in many types of data sets. There are three phases to this process according to Vedder: the data warehousing phase, the data mining phase and the result interpretation phase.[273] The data warehousing phase reflects the accumulation of data into big data sets, as discussed previously. Size is of course relative, *''the horse is a large animal, but not to the whale''*.[274] Therefore, ''big'' data refers to accumulation of data which is too grand for an individual to make sense of without proper tools.[275] Perhaps without the skill and tools of a librarian, a library is an analogue big data set, it contains too much information for a single person to digest within a reasonable period of time.

The subsequent data mining phase consist of the finding of patterns contained within the aggregated information. The result interpretation phase is the examination of the usefulness of the identified patterns. It is far from certain that identified patterns contain actual insight that one can derived power or knowledge from. Some patterns may be based on wrongful correlations or just be patterns from which no value can be derived. On the phase that Vedder calls the result interpretation phase, Floridi remarks that the game will be won by those *''who know to ask and answer questions''*.[276] To be able to find the right patterns for the right purpose, or the other way around, is a game won by those who can wield pattern insights best for their own goals. For instance, the patterns emerging from traffic data, stating that traffic is usually blocked at 19:00 on rainy nights, is valuable to hail-riding services because they are able to answer the pattern with their action of deploying more available cars to the area at the right time. It is therefore important to see that value generation from data is found in the three phases in conjunction, not in a single of the phases in isolation. It is only possible to act on identified patterns after they have been discovered. And they can only be discovered in large data sets.

Failure in one of the phases often leads to non-optimal economic results. This can be observed by the use of data by public sector bodies. Public bodies sit on large bodies of public data, use algorithmic means to inspect this data, but rarely translate these data sets into economic value.[277] The result interpretation phase and the ability to ''answer'' patterns are then missing when it comes to translating pattern data into economic value. In the case of public bodies his is largely due to legal constraints and the lack of economic value generation as a set goal. But in contrast, the private sector will always have players emerge that

[271] See generally: L. Floridi, *"The Search for Small Patterns in Big Data,"* The Philosophers' Magazine, no. 59 (2012)
[272] See generally: A. Vedder, *"KDD: The Challenge to Individualism,"* Ethics and Information Technology 1, no. 4 (1999)
[273] Ibid. p.1
[274] L. Floridi, *"The Search for Small Patterns in Big Data,"* The Philosophers' Magazine, no. 59 (2012) p.436
[275] Ibid. p.436
[276] Ibid. p.437
[277] Legal requirements stop public bodies from using data in such a manner that it generates value, but the problem remains in that third phase as described by Vedder in: A. Vedder, *"KDD: The Challenge to Individualism,"* Ethics and Information Technology 1, no. 4 (1999)

know how to put data-patterns to use in the most efficient way, simply by rules of competition with other private players. But those players may not have large enough data sets to retrieve patterns from or may not have sufficiently optimized pattern finding algorithms. Therefore, those who capitalize most efficiently on identified patterns will then reap the best economic results from the patterns found in data sets. This process implies a successful strategy in all three phases, the warehouse phase, the data mining phase and the result interpretation phase.

Applied pattern finding

In order to demonstrate the practical application of pattern finding, later work by Vedder provides interesting examples. Vedder wonders what happens when a machine reveals that people with a red Opel Corsa and a Jack Russel terrier run a higher risk on heart diseases. Apparently these two elements correlate with heart disease when both a person possesses both of these characteristics. The two characteristics, ownership of a red Opel Corsa and ownership of a Jack Russel terrier, form a pattern that may reveal who is more prone to heart diseases. These patterns may be merely based on statistics since selling the Opel Corsa will not remove the possibility of having heart disease. The pattern found in Vedder's specific hypothetical example therefore merely shows correlations which are not causality.

Correlative patterns found in big data sets often make little to no sense. See for instance the work by Tyler Vigen, who creates an entire book dedicated to correlations that arise out of random facts.[278] Some examples include: Honey bee-producing bee colonies in the United States correlates with the nuclear weapon stockpile of Russia. Law books published correlates with bicyclists injured in collision with stationary objects. Civil engineering decorates awarded correlates with consumption of mozzarella cheese. Such correlation is of course absolutely random. The previous also expresses how patterns can be found in data that does not reflect human radiation or human experience. There are plenty applications in big data analysis for agricultural purposes. Heavy rain and western wind in July may historically correlate with dry winters, or the other way around. In any case, patterns exist too in data that is not derived from human experience.

Moreover, it is not only the machine that can find patterns in data. Humans are excellent pattern finders in their own regard. When it comes to identifying non-correlative patters and misinterpreting them, the Covid-19 pandemic has been exemplary. The Covid-19 pandemic displayed what happens when the human pattern finding abilities are let loose on an overload of (dis-/mis-) information. Conspiracy theories emerged from erroneous pattern finding and the misinterpretation of these patterns. Leading persons to conclude that vaccines cannot be trusted and they are part of a global human depopulation programme ran by a shadowy elite.[279] In the words of Prooijen, '*'It has frequently been suggested that*

[278] T. Vigen, '*'Spurious correlations,''* Hachette Books (2015) chapter two
[279] J. van Prooijen, M. van Vugt, *"Conspiracy Theories: Evolved Functions and Psychological Mechanisms,"* Perspectives on Psychological Science 13, no. 6 (2018) & J. van Prooijen, K. Douglas, and C. De Inocencio, "*Connecting the Dots: Illusory Pattern Perception Predicts Belief in Conspiracies and the Supernatural,"* European Journal of Social Psychology 48, no. 3 (2018)

irrational beliefs are rooted in pattern perception, that is, the automatic tendency to make sense of the world by identifying meaningful relationships between stimuli".[280] In a certain sense this goes back to Vedder's third phase, the making sense of patterns, their interpretation and the failure thereof. Machines and persons are both capable to find patterns in data and to misinterpret those patterns.

Artificial Intelligence as engendering factor for pattern finding abilities

The information processing capacity of the human is limited in several senses. All humans have limits to their data processing capabilities caused by the human biological brain. There are only so many articles one can read in a day or books one can remember. According to Floridi it is therefore the decoupling of the need to be intelligent from the task at hand that artificial intelligence accomplishes when it searches through large data sets and processes more patterns than humans could. Artificial intelligence takes the place of real intelligence, since real intelligence is not required anymore to perform the same pattern finding task. This is one of the core arguments made by Floridi in his work on digital cleaving power:

''Many people today think that AI is about coupling artificial agency and intelligent behaviour into new artefacts. This is a misunderstanding. The opposite is actually true: AI is about decoupling successful problem solving from any need to be intelligent. And it is only when this decoupling can be achieved that AI is successful.''[281]

In other words, self-driving cars are not invested with some form of intelligence under their bonnet. Self-driving cars are objects that express the successful decoupling of the need to be intelligent form the task of driving, since it can accomplish that task without human intelligence. When viewed this way, the endless search for patterns in big data is not a magical mystical world of a digital hyper mind called AI. It is a machine that performs a simple human task, finding patterns, with greater efficiency than a human, without the need for human intelligence to accomplish the task. In the same manner that a navigation system is often better at finding the quickest route compared to humans. It is the accomplishment of a task without human intelligence which makes the machine appear to be intelligent in an artificial manner.

Of course, this does not mean that there is no technical aspect to the working of algorithms or to the working of artificial intelligence. There is a large body of literature on the technological aspects of algorithms and artificial intelligence. Such analyses deal with an inquiry into the manner in which a K-means-, GBM-, XGBoost- or Dimensionality Reduction algorithm differentiate amongst each other. As helpful as those explanations are to the computer scientists, to the theorist they remain vague concepts and opaque terms. This path of technological examination is arguably not the path that leads to the most clarity in this specific discussion. A technological review will most likely obscure, rather than enhance, the clarity of the point made on the effects that algorithms achieve and the general manner in which they

[280] J. van Prooijen, K. Douglas, and C. De Inocencio, "*Connecting the Dots: Illusory Pattern Perception Predicts Belief in Conspiracies and the Supernatural,"* European Journal of Social Psychology 48, no. 3 (2018) p.320
[281] L. Floridi, '*'Digital cleaving power and its Consequences,"* Philosophy & Technology (2017) p.126

do so. The level of abstraction on which these systems are studies for this purpose will not deal with these technological aspects in themselves.

On algorithmic prediction of human futures

To return to the use of algorithms on human features, Cohen, Zuboff, Couldry and Meijas all focus on the idea that the patterns found in data sets can reflect patterns in human behaviour.[282] When examining the patterns found in data created from human radiation, the possibility to make reasonable accurate predictions of future behaviour based on past behaviour becomes possible. For instance, Cohen calls these predictions of future behaviour "data doubles" of persons, as if one could duplicate the future behaviour of a person through extensive prediction and analysis.[283] Wachter calls the results of the patterns which are interpreted from the perspective of a single person inferences.[284] These inferences can then be found in all aspects of life, they are the expected future patterns, based on examination of the past. Or as Yeung puts it, *"these algorithmic machines infer, and therefore predict future human behaviour."*[285] Examples of such predicted future behaviour can entail anything: exhausted salarymen in Tokyo are more likely to eat ramen on Friday evening at 21:00 instead of cooking a healthy meal. First year university students are likely to sleep in longer on Friday, since their dorm parties are on Thursday. New fathers are likely to gain 8kg in the year after the first child is born. These patterns were observable to the naked eye and or to the non-algorithmic observer. However, computational power, and the introduction of artificial intelligence in pattern finding allows for far more granular patterns to be unravelled. A split second of slower scrolling over a social media post now conveys information to the algorithm, creating inferences from the tiniest pieces of information. Such incredibly tiny actions would not be enough for a human to identify a pattern, but given enough computational power, such micro actions can be sources of inferences to the machine.

The previous leads to the idea that these inferences possess a certain predictive knowledge, simply based on the fact that they may be reasonably accurate in some cases. Inferences help predict the individual based on the behaviour of the group in which the individual finds itself. In order for this process to be successful, there must be a group that shares certain characteristics that distinguishes them from other groups who do not share those characteristics.[286] If persons both belong to a group that loves lavender tea and heavy metal music, they form a group that possesses two characteristics from which inference could

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[282] S. Zuboff, *"The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,"* PublicAffairs (2019) & J. Cohen, *"Between truth and power, the legal Constructs of Informational Capitalism,"* Oxford University Press (2019) & N. Couldry, U. Mejias, *"The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,"* Stanford University Press (2019)

[283] J. Cohen, *"Between truth and power, the legal Constructs of Informational Capitalism,"* Oxford University Press (2019) p.64

[284] S. Wachter, B. Mittelstadt, *"A Right to Reasonable Inferences: Re-Thinking Data Protection Law in the Age of Big Data and AI,"* Columbia Business Law Review 2 (2019) p.4

[285] K. Yeung, *"Algorithmic Regulation: A Critical Interrogation,"* Regulation and Governance 12, no. 4 (2018) p.509

[286] L. Floridi, *"Group Privacy: A Defence and an Interpretation,"* in L. Taylor, L Floridi, B van der Sloot, *"Group Privacy New Challenges of Data Technologies,"* Springer (2017) p.85

be deduced. Metal fans for instance, are likely to belong to the ''herd'' of peace lovers rather than the group of aggressors.[287] While lovers of lavender tea might be prone to depression and anxiety.[288] Interesting for this research is not the construction of the group of metal fans or lavender lovers itself, but the information or knowledge that when a person is part of a group, he or she might therefore display predictable behaviour based on the behaviour and features of the group members. Examples of behaviour or features of persons, such as using drugs, being gay, being addicted to TV shows, having divorced parents, being religious, are all directly inferable from the granular traces of information present on internet platforms.[289] In that sense, algorithmic pattern finding can not only approximate likely future behaviour or traits, but also identify existing traits based historical data.

The next section will deal with the idea of predicting persons behaviour in more detail. Putting people in categories with associated likely future behaviour is not solely a matter of taxonomy or statistics. It is also a matter of knowledge, which Michel Foucault argues, is always related to power. Savoir-Pouvoir (knowledge and power) are closely related in much of Foucaults work. Therefore, the next section deals with the idea of application of power onto the knowledge of persons' predicted future. Reasonable predictions of persons' behaviour are not exactly worth investing into if such knowledge cannot be used in a for-profit scheme. The next section deals with the issue of the exertion of power onto the possible futures of persons. It examines what kind of power is used, and in what places is it expressed, by who and onto who.

4.4 Examining power in digital human behaviour alteration

Introduction

Knowing or predicting the likely future of a person is not the same as acting on that knowledge in order to influence a person's future behaviour. The phase of acting on this predicted knowledge is a distinct phase, which is not part of the three phases that Vedder introduced. (Data accumulation, pattern finding, pattern interpretation) The fourth phase is the phase which acts on the knowledge derived from patterns in human behaviour in a goal-oriented manner. If one knows that a person is sensitive to eating pizza on Fridays, an effective nudge might push him or her over to the local pizza store on Friday. At the same time, such a same nudge on Monday morning might not have effectively altered the course of action of an individual. Waldman states in this context that the information industry has perfected techniques of power.[290] Most School of 2019 members argues likewise in one way or another. For instance:

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[287] See generally: L. Sharman, G. Dingle, *"Extreme Metal Music and Anger Processing,"* Frontiers in Human Neuroscience 9 (2015)

[288] See generally: M. Bazrafshan et al., *"The Effect of Lavender Herbal Tea on the Anxiety and Depression of the Elderly: A Randomized Clinical Trial,"* Complementary Therapies in Medicine 50, no. February (2020)

[289] M. Kosinski et al., *"Private Traits and Attributes Are Predictable from Digital Records of Human Behavior,"* Proceedings of the National Academy of Sciences of the United States of America 110, no. 15 (2013) p.1 & C.Burr, N. Cristianini, *"Can Machines Read Our Minds?"* Minds and Machines, vol. 29 (Springer Netherlands, 2019) p.14/15

[290] A. Waldman. *''Industry Unbound, The Inside Story of Data, Privacy and Corporate Power'',* Cambridge University Press (2021) p.225

Zuboff, who calls the acting on pattern-knowledge ''instrumentarian power'' which evokes certain behaviour in people, for instance, making them buy a shoe or go to see a movie.[291] Cohen calls this'' biopolitical power'' in which she relies on the notion of Michel Foucault in order to explain how persons are moved through algorithmic mediation.[292] Couldry and Meijas mention many different notions of power in many different contexts. For instance, neo-colonial power, power to invade the private sphere or monopoly/monosophy power, in many ways these exertions of power influence human behaviour.[293]

Therefore, blaming algorithms for nudging or manipulating people is in the core an examination of an expression of power in a specific context within a digital context. Still, the narrative that algorithms nudge people into behaviour they would not display out of their own incentives is quite common in literature. The approach of blaming algorithms for manipulative practices can be better approached from a different angle that focusses more on the expressor of power, rather than the tool that was used to do so. The next sections deal with this idea in more detail.

Analogue examples of nudging

A nudge is generally defined as: *''any aspect of choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives'.*[294] Or even more simple: *''a nudge is any factor that significantly alters the behavior of Humans''*[295]A classic example of an analogue nudge in aggregate is found in moving the healthy food options to the front of a buffet and the unhealthy options to the back. When apples and bananas are moved to the front of the buffet and the fatty/salty snacks to the back, more people opt for the healthier options. The same goes for supermarkets, supermarket designs are carefully moulded around the shaping of choice architecture of persons. This is why fruit and vegetables are always placed near the entrance of a supermarket. Buying healthy food first justifies makes the brain feel more easily justified in loading unhealthy food later in the shop. Moreover, supermarkets hardly have windows, which surely has some psychological effect on the choice architecture of persons. Some even argue that the tiles on the floor of supermarkets makes the wheels of the carts ramble at such a pace that it induces slower walking in shoppers, which consequently spend more time in the store and thus buy more.

It is still difficult to truly perceive the effects of such measures on individual choice making. Few individuals understand their reaction to nudges as explanatory as to why they chose a certain product in

[291] S. Zuboff, *''The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,''* PublicAffairs (2019) p.15 *''Instrumentarian power knows and shapes human behavior toward others' ends''*
[292] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.67
[293] N. Couldry, U. Mejias, *''The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism,''* Stanford University Press (2019) p.162
[294] K. Yeung, *''Hypernudge': Big Data as a Mode of Regulation by Design,''* Information Communication and Society 20, no. 1 (2017) p.120
[295] R. Thaler, C. Sunstein, *''Nudge, Improving Decisions About Health, Wealth, and Happiness,''* Yale University Press (2008) p.8

a supermarket over another product, simply because of the placement of that product. Even when persons may not believe that something as trivial as moving food positioning affects their choices, on aggregate this strategy seems to work.[296] Nudging power is therefore almost always described after the successful application of a nudge or a manipulation, and seen in the context of larger aggregates of persons. Likewise, one rarely reads of the examination of unsuccessful individual nudges through algorithmic mediation since its effect are hard to perceive. Solid proof of a single individual person being swayed in his or her actions, through a single through algorithmic mediation is therefore rare or even argued to be non-existent.[297] Successful nudging is therefore almost exclusively described in aggregate, both in the digital and analogue context.[298]

Nudging in the digital milieu

When algorithms nudge or manipulate in the digital sphere, they produce a different kind of outcome in behaviour than would have occurred without manipulation or nudging, much like it does in the analogue sense. This behaviour alteration spans plenty different contexts or dimensions. One may be algorithmically nudged to watch a movie while he or she really should be in the gym, or one may be algorithmically swayed to make a different choice that might actually benefit a person's health.[299] Not all algorithmic influence steers persons for the worst, not all nudging is ''bad'' for the recipient of the nudge. However, in a controversial experiment, a social media platform found that altering the time line in which information is being presented to individuals can alter their mood. to make them from sad to happy.[300] Unfortunately the reversed experiment, make persons change from happy to sad proved equally possible. The consequences of nudging and manipulation of persons in the digital milieu must therefore not be underestimated in its gravity. Whether or not nudging benefits the person that receives the nudge is therefore to a large part dependent on the goals of the nudging party.

Moreover, not all behaviour that is displayed by influenced persons is a direct product of the intrinsic aims of the proprietors of the digital nudging system. Nudging may create unintended side effects which exist next to the proprietors' goals. This unwanted behaviour is then a by-product of keeping persons attention on their screen for extended periods of time. Examples of this are self-harm amongst teenagers after algorithmic feed ranking continuously expose them to images of unrealistic body standards. Or the

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[296] See generally: C.Keller, F. Markert, T. Bucher, "*Nudging Product Choices: The Effect of Position Change on Snack Bar Choice,"* Food Quality and Preference 41 (2015)

[297] See generally: M. Maier, *"No Evidence for Nudging After Adjusting for Publication Bias,"* Psychological And Cognitive Sciences (2022)

[298] Some examples in: A. Schmidt, *"Getting Real on Rationality—Behavioral Science, Nudging, and Public Policy," Ethics* 129, no. 4 (2019) & U. Agudo, H Matute, *"The Influence of Algorithms on Political and Dating Decisions," PLoS ONE* 16, no. 4 April (2021) & Z. Bastick, "*Would you notice if fake news changed your behavior? An Experiment on the Unconscious Effects of Disinformation,"* Computers in Human Behavior 116, no. November (2021) & J. Hinds, *'It Wouldn't Happen to Me': Privacy Concerns and Perspectives Following the Cambridge Analytica Scandal,*" International Journal of Human Computer Studies 143 (2020)

[299] P. Pałka, "*Algorithmic Central Planning: Between Efficiency and Freedom,"* Law and Contemporary Problems 83, no. 2 (2020) p.142

[300] See generally: A.Kramer et al., *"Experimental Evidence of Massive-Scale Emotional Contagion through Social Networks,"* Proceedings of the National Academy of Sciences of the United States of America 111, no. 24 (2014)

radicalization and attacks that follows the continuous stream of misinformation offered to Q-anon followers, provided to them in order to keep them engaged on the platform. In other words, algorithmic nudging may to some extent be effective, but it is often not precise in the individual case.

Nudging and behaviour alteration as an expression of power

The previous demands a deeper inquiry into actions that follow out of algorithmic mediation of behaviour of persons. The power relationship between persons, algorithms, platforms and other players is more complex than the classic power-scheme of Dahl where *''A has the power to make B do what A wants''*.[301] Algorithms do not command people to harm themselves or to engage in radicalized attacks, nor do they command persons to order a pizza, buy sneakers or to vote for a certain candidate. What is left to analyse in more detail is therefore is the expression of power that successfully algorithmically alters behaviour of persons in the digital sphere. In the words of Zuboff, algorithms *''make them dance''*.[302] This fundamentally entails several conceptual enquiries, what expression of power constructs the ''make'' part? Who are ''them'' in relation to the expressor of power? And what does the dance consist of? The first step in understanding this in more detail is to briefly visit the notion of power.

A recourse to the Faces of Power

Power has been analysed extensively by plenty authors. This summary examines an ongoing debate on power drawn from 1956 to 2021 by several authors. It starts off with the concept of power as framed by Dale in 1957, then Baratz and Bachrach in their work ''Two Faces of Power'' in 1962. Followed by Lukes views on power, which is often dubbed the third face of power. Followed by the Foucauldian notion of power, understood as the fourth face of power, by Digiser. Finally, the notion of computational power by Durante is elaborated on. During the examination the power will be marked with their respective number to avoid confusion. E.g., Power[1], Power[2].

1) The first face of power[1] is the simplest notion of power, as posed by Dale:

''A has power over B to the extent that he can get B to do something that B would not otherwise''.[303]

This is the classic notion of power. Teachers tell pupils to read a book, with the possible sanction that there will be no playground time when failing to comply. Armies invade other countries, using violence to impose their will. Bosses make employees take overtime, knowing they can fire their employee when they refuse to work overtime. Dale's notion of power is the simplest notion of power.

2) The second face of power[2] is derived from Baratz and Bachrach:

[301] R. Dahl, "*The Concept of Power,"* Behavioural Science (1957) p.202/203
[302] S. Zuboff, "*The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,"* PublicAffairs (2019) Part Two, Section ten, Make Them Dance
[303] R. Dahl, "*The Concept of Power,"* Behavioural Science (1957) p.202/203

''Power is also exercised when A devotes his energies to creating or reinforcing social and political values and institutional practices that limit the scope of the political process to public consideration of only those issues which are comparatively innocuous to A''.[304]

Usually, this second expression of power is often reserved to the political sphere. In this case, A shapes information flows so that B cannot but act in the interest of A. For instance, one cannot engage in climate policy if one is unaware of the changing of the climate. Moreover, A can shape institutional practices so that meaningful change cannot be achieved by B, in which B ultimately must act along the route of A. In this manner, providing or withholding information and the shaping of social values and institutional practices are formed towards the goals of those wielding power.

3) The third face of power[3] is derived from Lukes' reading of power:

''If A and B are in conflict with one another, A wanting a and B wanting b, then if A prevails over B, we can assume that B would otherwise have done b. Where there is no observable conflict between A and B, then we must provide other grounds for asserting the relevant counterfactual. That is, we must provide other, indirect, grounds for asserting that if A had not acted (or failed to act) in a certain way and, in the case of operative power, if other sufficient conditions had not been operative then B would have thought and acted differently from the way he does actually think and act''.[305]

The first two faces contain the idea of clear conflict, A wanting something different then B. In Lukes' reading, power can be exerted even when B consciously does what A desires. Lukes' idea of the third power is therefore a manipulative form of power. This type of power departs from the idea that power can be exerted when A shapes the preferences of B towards those of A. B then acts consciously towards the goals of A, through manipulation of the goals of B. A then removes the conflict of interests and shapes B's interest towards its own. The difference between the third and the second face of power[3] is that in the third face of power[3], B does not know its own interests anymore. This is often referred to as classic manipulation.

4) The fourth power is the reading of the notion of power[4] by Foucault in the work of Digiser.

Unfortunately, Foucault's notion of power does not let itself be captured in a couple of sentences in italics. For Foucault there are two types of power. First, there is repressive power, which seems similar to the first three faces of power[1,2,3]. Second there is *productive* power, power that is not aimed solely towards the negative dimension of repression. In Foucaults own terms: *''We must cease once and for all to describe the effects of power in negative terms: it 'excludes', it 'represses', it 'censors', it 'abstracts', it*

[304] P. Bachrach, M. Baratz, *"Two Faces of Power,"* American Political Science Review , Vol . 56 , No . 4 (1962) p.29
[305] J. Whitt, S. Lukes, *"Power: A Radical View",* Contemporary Sociology 9, no. 1 (1980) p.44

'masks', it 'conceals'. In fact, power produces; it produces reality; it produces domains of objects and rituals of truth''.[306]

Next to that, power is not something that is only possessed by a certain individual or a group, like a king or a parliament, or a boss. Power[4], in Foucault's reading, is always everywhere and expressed by everyone. In that sense, persons are not victims of power but vehicles that produce and channel power.[307] Power[4] is not something held by a single authoritarian figure, as was the case in the first face of power[1]. Rather: *''Power must by analysed as something which circulates, or rather as something which only functions in the form of a chain.'' ''Power is never localised here or there, never in anybody's hands, never appropriated as a commodity or piece of wealth''.*[308] As argued by Digiser, the fourth face of power[4] then concerns itself by ''what kind of subjects are being produced'', rather than asking who wields repressive power[1] over who. Or what issues have been taken off the agenda as the second power[2] does. Or whose objectives and interests are being harmed through exercises of the third face of power[3].[309]

5) Computational power as posed by Durante

The first four faces of power lack a certain display of power that is present in the digital. When power is expressed through algorithms that affect human behaviour, this is always done in the context of cyberspace/the infosphere/the digital. This leads one to the enquiry about the nature of cyberspace, and while this is an incomprehensible task, one can still find clarity on some elements. Whatever cyberspace, the infosphere or the digital milieu is, it is per definition, man-made. As Lessig states: *''Code is never found; it is only ever made, and only ever made by us.''* As Mark Stefik puts it, *"Different versions of cyberspace support different kinds of dreams. We choose, wisely or not.*"[310] Or as Ursula Franklin states, *''As I see it, technology has built the house in which we all live. The house is continually being extended and remodelled. More and more of human life takes place within its walls''.*[311] From this flows that the previous four powers lack to explain a certain phenomenon, namely, the manner in which power works to create or shape the digital milieu and the determination of the architecture that dictates what a given space presents itself as. Durante provides tools for thinking when defining computational power as the power that shapes.

[306] M. Foucault, ''*Discipline and punish, the birth of the prison,''* Vintage Books (1995) p.194
[307] P. Rangan, R. Chow, *"Race, Racism, and Postcoloniality,"* Oxford Handbook Online 50, no. 11 (2013) p.7/8
[308] M. Foucault, *"Power-Knowledge Selected Interviews and Other Writings,"* Encyclopedia of Critical Psychology, (2014) p.98
[309] P. Digeser, *"The Fourth Face of Power,"* The University of Chicago Press (1992) p.980
[310] L.Lessig, '*'Code Version 2.0,''* SoHo Books (2009) p.6
[311] U. Franklin, '*'The Real World Of Technologies,''* The Massey Lectures Series, House of Anansi (2003) p.10

''Our computational power is exercised by adapting (or trying to adapt) not just the world but also our representation of reality to how computationally based information and communication technologies (ICTs) work.''[312]

''The exercise of this power, implemented within a variety of computer systems, entails a progressive adaptation of the environment and transforms the world in ways that have a bearing on a number of increasingly important sectors of society.''[313]

Therefore, computational power explains some aspects that cannot be explained by the first four powers. Namely, reshaping the analogue world through demanding adaptation of that analogue world to the architecture of the computational environment. But moreover, computational power redefines some of the relationships between the original four faces of power. For instance, in the digital milieu, withholding information is prima facie an expression of architecture of a digital space. Providing and withholding information is an act that creates digital interfaces and determines the manner such interfaces look or function. In that sense, withholding or providing information becomes a constitutive act of cyberspace. Therewith blurring some of the boundaries of the first, second and third power[1,2,3] as they existed in the analogue world.

Moreover, repressive power, expressed through digital architecture, is achieved by providing or withholding information which in turn dictates the architecture of cyberspace. This stands in contrast with classic withholding of information in the analogue world used to be a classic staple of the analogue second power[2]. Therefore, computational power touches on some of the conditions in which power[1,2,3,4] can be expressed and by who, based on the architecture of a digital milieu. In order to explain this in more detail regarding the manner in which behaviour of person in shaped, the next section applies these ideas of power to the scheme Zuboff provides, '*'make them dance''*. In which every section of that piece, ''make'', ''them'' and ''dance'', will be analysed from the perspective of power as has just been discussed.

4.4.1 'Make'' Examining power in the data-value chain

When human action is altered through algorithmic mediation, the first step in that process is to create or design cyberspace in such a manner that it facilitates a space for expression of the first four powers. Algorithms, understood as tools for nudging or manipulative goals, must have a digital place to roam since they cannot float around in the open air. This creative act, of calling cyberspace into existence, is one expression of computational power and it relates to the notion of ''architecture'' by Lessig.[314] The premeditated manner in which cyberspace exists is not governed by the laws of nature, which govern the analogue world.

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[312] M. Durante, '*''Computational Power, The Impact of ICT on Law, Society and Knowledge''*, Taylor and Francis (2021) p.2
[313] M. Durante, '*''Computational Power, The Impact of ICT on Law, Society and Knowledge,''* Taylor and Francis (2021) p.2
[314] L.Lessig, '*''Code Version 2.0,''* SoHo Books (2009) p.4

Making cyberspace

For instance, in the analogue world there are impossibilities governed by the laws of nature, they are, to use a term by Searle, brute facts. These laws dictate that water cannot be made to boil at 200 degrees Celsius and that humans cannot fly without aircrafts. These laws of analogue nature are given and fixed, they cannot be re-constructed. Contrastingly, the architecture in cyberspace, or the rules that govern its being, do not rely on a set of pre-given designs for cyber space. Everything in cyberspace is purposefully man-made and constructed. This is what Lessig means when he states that: '*''If there is any place that is constructed, cyberspace is it. Yet the rhetoric of "essence" hides this constructedness.''*[315] This deliberate architecture can be observed all over the infosphere or cyberspace. Architecture of digital spaces always forces one to engage with cyber space in a specific predetermined manner by the creator of that space. ''Make'' therefore in the first place refers to the creation of ''zones'' in cyber space.

To exemplify, analogue architecture can be thought of as a large gate in front of the train station. One cannot physically enter the train station if the gate is too high. However, a low gate might be jumped over. This idea of architecture, as expression of computational power, can be observed in many instances in cyberspace. For instance, there is no download button for videos on most video-platforms, not because this is technologically impossible, but because it is a deliberate design feature to prevent people from downloading content. Likewise, one cannot dislike videos on certain platforms, while its previous architecture did embed such a dislike button. Moreover, the number of likes on a social media post cannot always be seen, whereas previously this information was available to users. These designs or architectures are not accidents, but deliberate expressions of ''constructedness'' of cyberspace. Rather, these spaces too have been deliberately engineered towards the extraction of capital.[316] To return to the phrase ''make them dance''. When understanding ''make'' in ''make them dance'' as an expression of power, the first step is to create a digital space in which it is possible to set limits to behaviour in behaviour of persons through architecture. But it also sets the stage for further manipulation to occur.

Making behaviour

When persons are nudged or manipulated into certain behaviour through algorithmic means, the first form of power they encounter is the computational power that determines architecture of the digital space in which they roam. Other forms of power and other uses of power follow. For instance, the first form of power[1] is perhaps only found in the negative dimension in cyber space, since an algorithm may not be able to make one perform a certain action at the threat of a sanction. But the architecture in cyberspace does have power to make persons omit a certain action. For instance, when a loan is denied based on automatic decision making.

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[315] L.Lessig, '*''Code Version 2.0,''* SoHo Books (2009) p.31
[316] S. Zuboff, '*''The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,''* PublicAffairs (2019) p.150

The second form of power[2] persons face when interacting with algorithms and cyberspace is the selective information that persons can acquire in order to get to their own goals. For instance, it is not impossible to find out how and who processes data, collected through devices, one only has to plough through page after page of lawyer-talk hidden behind a small button.[317] If information is withheld, or not provided, in a manner that is meant to undermine user's perception of the power structure in which they are involved, the second form of power[2] is doing its work.

Next, persons can be truly manipulated through algorithms on platforms or cyberspace. This relates to the examples hinted at earlier in the context of algorithmic nudging. If one knows a teenager has a low self-esteem, algorithmically curating advertisements towards esteem-uplifting products is an autonomy undermining, manipulative expression of power[3]. Often the idea of presenting an advertisement of a ''cool'' leather jacket to an insecure teenager on a moment of weakness is mentioned in this regard. Through presenting information at the right time, a person may behave towards the goals of those who perform the manipulative nudging. Not all of these goals need to be economic in nature. Those who are vulnerable to fake news in order to support their belief systems can be offered more of such misinformation through algorithmic recommender systems. Those who create these recommender systems may seek to increase their political power instead of purely pursuing economic goals.

The fourth power[4] then is expressed by the idea that one can observe the other, trough for instance social media and produce other types of persons. Social media allows one to observe what other do in their daily lives and respond to it. This constant contact with other vehicles of power produces a certain person that is conforming to the other. This is one of the places where Foucauldian productive power[4] is found in cyberspace. And this power[4] is not at all solely expressed by the creator/architect of the cyberspace in which the algorithms are deployed. Rather, the fourth power is distributed horizontally amongst participants in cyberspace.

These few examples highlight how the digital milieu, or cyber space, is in many aspects a place that allows for expressions of power. It is a place where the behaviour and the possibility of behaviour is carefully orchestrated by the creator of a certain website or platform. But these ideas of power do not fully provide us with full clarity of how behaviour is shaped in digital economies. Building on the idea of power is the field of persuasive computing or persuasive technologies.

Persuasive technologies as applied persuasive power

Persuasive technologies focus on changing behaviour in persons from a design perspective. B.J. Fogg is one of the foundational members of this field of study. According to Fogg, ''captology'', a neologism referring to ''Computers as Persuasive Technology'', is the next frontier in the alteration of human

[317] See for instance the controversy on the Google Nest device, which turned out to incorporate a microphone, which was not commonly known except to those who examined all legal documents

behaviour. More specifically, captology is the *''design, research, and analysis of inter-active computing products created for the purpose of changing people's attitudes or behaviors''*.[318]

Fogg describes the way in which persuasive technologies are interactive, rather than static, when comparing persuasive technologies to older types of persuasive techniques.[319] The difference between bumper stickers, TV ads, newspaper ads and persuasive technologies is that persuasive technologies adapt themselves to the person they try to persuade, much like a veteran salesman would do. Fogg makes some implicit references to power, when he states that persuasion is not the same as coercion.[320] Coercion implies the threat or use of force, as would the first face of power[1]. If captology does not deal with coercion, then it is impossible to speak of persuasive technologies as a technology that forces persons to act or behave a certain way. Moreover, pure deception, which may be a feature of the second face of power[2], is also not captured under captology.[321] Therefore, captology deals to a large extent with the third face of power[3] which is the manipulative and persuasive face of power. In the context of social media, where persons do not only engage with persuasive technology themselves but also poise other to engage with such technology, Foucault's face of power[4] is observable since persons influence their peers to engage with technologies in a certain manner.[322] Fogg describes how some persuasive systems may therefore be systems of Mass Interpersonal Persuasion (MIP).[323] In such cases a large group of persons is not only actively persuaded by the digital architectures in which they roam, but that these architectures are inhabited by a larger social sphere in which persons subject each other to persuasive techniques. For instance, through being vocal about certain political ads on their social media accounts. Being subjected to persuasive techniques in the case of MIP's then becomes part of a larger social sphere when persons can observe how others are engaging with such techniques. As Fogg states:

''First of all, MIP builds on an experience designed to change attitudes, behaviors, or both. This implies that the creator of the experience intends to make impact on people's lives. For example, a political party could design an experience to win support for their candidate by asking people to watch a video online and then to add their name to a public petition. Or, in the health arena, an insurance company might reduce rates each time a person reports his or her exercise behavior to a group of peers online. These are both persuasive experiences; the creators intend to change people's behavior.''[324]

[318] B. Fogg, "*Persuasive Technology, Using Computers to Change What We Think and Do,"* (2003) p.5
[319] Ibid. p.5
[320] B. Fogg, "*Persuasive Technology, Using Computers to Change What We Think and Do",* (2003) p.15
[321] Ibid. p.15
[322] B. Fogg, ''*Mass interpersonal persuasion, an early view of a new phenomenon,''* in D. Hutchison, J. Mitchell, ''*Persuasive Technology - Third International Conference, Proceedings*, *Lecture Notes in Computer Science,''* Vol. 5033 (2008) p.24
[323] Ibid. p.24
[324] Ibid. p.26

Especially in the case of social media systems that contain persuasive technologies, these persuasive technologies are designed to identify audiences that are receptive to a certain nudge or persuasion.[325] When one is a devout Catholic, persuading one with the goal of making him or her take a trip to a Hindu sanctuary is difficult. However, such a person may be more open to persuasions to purchase a trip the Vatican City with an organized group tour. As described in earlier sections, the analysis of patterns in large data sets makes the knowledge of who is receptive to a certain persuasion relatively readily available in the digital context. Fogg then states that if the relevant target group is identified, persuasive technology takes away the inhibitor to the sought target behaviour. For instance, through creating motivation where there is no motivation, creating ability where there is a lack of ability and the introduction of a well-timed trigger to start the target behaviour.[326] In essence, these persuasive technologies seek to start new behaviour in persons or stop old behaviour in persons using technologies that lay on the intersection between computing technology and psychology.

Therefore, what truly sets persuasive technologies apart from classical ads on TV or radio is the knowledge that persuasive technologies possess regarding their subject and their interactive nature. Persuasive technologies are no widely cast fishing nets over a wide group of persons, rather they individualize their incentives to their individual targets. Moreover, through A/B testing and ''successful result imitation'', data of persons can be exploited to reveal their weaknesses and the nudges that are likely successful at a given time.[327] When nudges prove successful for certain persons, an identical nudge might prove successful in subsequent attempts for persons who share many characteristics with the person that was initially persuaded. In other words, persuasive techniques find successful application of nudges and repeat successful strategies of nudging through constant evaluation of their own performance.

Computational power plays a key role in this process. According to Fogg: *''software can deliver a persuasive experience over and over. Computer code doesn't take a vacation or go on coffee breaks; the machine keeps working''.*[328] What follows from this is that computational power is a necessary requirement for persuasive technologies to exist in this certain context. While analogue persuasive techniques might exist in the form of bumper stickers and paper ads, these persuasive attempts to not meet Fogg's notion of persuasive techniques.

To return to the idea of ''make'' in ''make them dance''. To make persons behave in a certain way is a process in power plays many roles. Fist power ''makes'' architectures of cyberspace so that is allows persons to be subjects to expressions of power in a manner designed by the architect. Secondly, ''make''

[325] B. Fogg, *"Creating Persuasive Technologies: An Eight-Step Design Process,"* ACM International Conference Proceeding Series 350 (2009) p.2 (step two)
[326] B. Fogg, *"Creating Persuasive Technologies: An Eight-Step Design Process,"* ACM International Conference Proceeding Series 350 (2009) p.3
[327] Ibid. p.3
[328] B. Fogg, ''*Mass interpersonal persuasion, an early view of a new phenomenon,"* in D. Hutchison, J. Mitchell, ''*Persuasive Technology - Third International Conference, Proceedings*, *Lecture Notes in Computer Science,"* Vol. 5033 (2008) p.27

reflects classic expressions of power[1,2,3,4] that shape persons behaviour, in a productive manner, and co-creates their actions, or ''dance'' through a given digital architecture. The expression of power in digital space allows for the productive shaping of behaviour, desires and belief systems into that of an external entity. The exact manner in which that behaviour is shaped is best explained through the notion of persuasive techniques. The next section examines the actors in power in digital value chains. Through examining the ''them'' in the phrase ''make them dance'', one can identify the different ''vehicles of power'', which extend beyond only the proprietors of cyberspace ecosystems and deployers of algorithms.

4.4.2 'Them'' The nudger and the nudged

When examining who is nudged or manipulated by who, or who is ''made'' to ''dance'', the examination essentially revolves around who expresses power over whom. There are two general actors in structures in which persons can be nudged or manipulated, which will be examined in two hypothetical case studies. The first case revolves around the intrinsic goals of the proprietor of the algorithm, or the architect of cyberspace and his or her power to persuade. The second case revolves around the algorithmic nudging of persons for the goals of another actor. This discussion develops a view where those in power are not always those who decide the goals of the nudging of persuasion. Some parties merely express their nudging powers on behalf of others.

1) Case study one

Ride-hailing services use the pattern knowledge derived from their data sets towards expanding their own business goals. The patterns are used to make as many persons as possible buy as many rides as possible. In case of bad weather, a blue Monday or rush hour, persons may receive a push notification, nudging or seducing them into taking another ride with the ride-hailing service. Algorithms make sure that there are plenty drivers in the area to make sure that the requests can subsequently be met. And algorithms attempt to persuade as many potential customers as possible buy a ride. The end-goal of such algorithmic nudging is always and exclusively geared towards the ride-hailing services' own business model and economic interests. The nudging does not take place on behalf of another actor.

In the same sense, platforms that deliver groceries or food have detailed insight into the profiles of their customers. What customers buy, at which time and for how many people speaks volume about the person in question and their future purchasing behavior. With the use of persuasive techniques, these repeat customers may then be targeted at times in which they are receptive for persuasion. In the case of flash deliveries, a service that delivers groceries in 10 minutes, several companies per city aim to become the largest player and gain network effect. Therefore, the race to become the biggest and only player requires these flash delivery companies to make optimal use of the patterns identified and persuasive techniques employed. In both the case of the ride-haling service and flash deliveries, companies use their own insights into data patterns for their own competitive advantage and do not allow others to use those insights. Sharing pattern knowledge or persuasive power with competitors would be economically unwise.

Pattern surplus

The previous leaves potential profit untouched, since it does not capitalize on all available patterns that can be found in the data sets retrieved from users. The ride-hailing service may also generate pattern knowledge on actions that are not so much related to getting as many people to use their service as possible. A scandal with a prominent ride-hailing service highlighted how, based on pattern data, identifying users with an ongoing extra-marital affair was painstakingly easy. Simply by examining the time, frequency and location of the requested rides one could spot those with extramarital affairs.[329] Another often heard example is that of a Chinese ride hailing service which predicted novel legislation based on the ride patterns of those in government buildings. When government staff took later rides than usual, therefore signaling overtime in work, this often meant that novel legislation was about to be published.

Just as in the idea of behavioral surplus, there is also a sense of pattern surplus, or even power surplus, to be identified. Since the ride-hailing services do not act on the knowledge that one of their customers might be having an affair, not all available patterns are used in a utilitarian manner. Other actors, who for instance sell ''perfume-removing wipes'' or other items that can cover up affairs, would make good use of the unused identified patterns. Weber coins a similar example, when he wonders what would happen when local municipalities get a hold of the real time pattern knowledge of ride-hail services in order to improve their own local infrastructure.[330] Weber too sees that not all patterns and powers are being used to their full potential. The problem remains that in this first case study the pattern-knowledge and nudging/persuasive power is not shared. Both pattern knowledge and persuasive power remains geared towards the business model of the proprietor of the algorithms which is never shared.

In that case, where A is the architect of cyberspace and proprietor of the algorithm and B is the user of the service. Where C represent external parties interested in the pattern surplus and power held by A:

A exerts power over B for the goals of A. It uses computational power to shape interfaces or cyberspace and uses a combination of the second, third, fourth and fifth face of power and persuasive techniques to influence B. A does not allow C to access its power and infrastructure for C's goals.

2) Case study two

In case two, the architect of cyberspace and proprietor of the algorithm does not generate all or most of its profit from the direct purchases that a user makes from its service or goods. Rather, the architect and proprietor solely rely on the outsourcing of the power to influence persons based on their in-house generated pattern-knowledge and power to alter behavior. This case is most frequently observed in social media applications. Social media applications nudge, manipulate and persuade, but

[329] This practice is referred to in media as the ''Uber God Mode''
[330] S.Weber, "*Data, Development, and Growth,"* Business and Politics vol 19, issue 3 (2017) p.410

they hardly do so with their own intrinsic goals.[331] Social media platforms do not sell shoes to troubled teenagers since social media companies have no inventory of shoes to sell. Nor do social media companies take stake in political elections. Still, election results have proven to be influenced through expressions of persuasive power on social media.[332] However, parties external to the social media companies do seek to sell shoes or influence elections. Therefore, the pattern knowledge and the expression of power is offered up for use towards the goals of those who do have goods or services to market.

In that case, where A is the architect of cyberspace and proprietor of the algorithm and B is the user of the service. Where C represent external parties interested in the pattern surplus and power held by A:

A exerts power over B for the goals of C. It uses computational power to shape interfaces or cyberspace and uses a combination of the second and third, fourth and fifth face of power and persuasive techniques to influence B. A allows C to exert its power, in exchange for payment.

To conclude, the Cambridge Analytica scandal, the consuming behavior of teenagers affected by social media and the manipulation of everyday behavior of those who use digital applications is not simply explained through the notion of (digital) advertising. Rather than advertising, there is an elaborate power structure at hand, in which computational power together with the other faces of power play a major role in shaping the actions of persons towards the goals of external actors. The move from regular advertising to persuasive technologies as described by Fogg depict this development. This section aimed to highlight how, in many different contexts, people are continuously altered in their behaviors and belief systems towards the goals of others. This is not exclusive to ride-hailing applications, nor to social media platforms. This alteration of behavior of persons is present in many contexts of digital- and sharing economies. To return back to ''them'' in ''make them dance'', ''them'' refers to the people who navigate through life using digital services and applications. This puts them in direct relationship with others, who are able to express power over them and persuade them for a wide array of goals. Either through being the wielder of such power, or through buying the right to use the power of others who wield such power.

4.4.3 'Dance'' Behavioural objects produced through computational power ''

This last sub-section of this section deals with the final part of the phrase ''make them *dance*''. In the previous parts the idea that action of persons can be produced through several exertions of power was

[331] P. Pałka, *"Data Management Law for the 2020s: The Lost Origins and the New Needs,"* (2019) p.44 & P. Pałka, *"The World of Fifty (Interoperable) Facebooks,"* (2020) p.19 & A.Reichman, G. Sartor, "*Algorithms and Regulation,"* (2022) p.179 & C. Helberger, F. Borgesius, *"The Perfect Match? A Closer Look at the Relationship between EU Consumer Law and Data Protection Law,"* Common Market Law Review, Volume 54 (2017) p.22

[332] J. Hinds, "*It Wouldn't Happen to Me': Privacy Concerns and Perspectives Following the Cambridge Analytica Scandal,*" International Journal of Human Computer Studies 143 (2020) & H. Afriat et al., "*This Is Capitalism. It Is Not Illegal': Users' Attitudes toward Institutional Privacy Following the Cambridge Analytica Scandal,*" Information Society 37, no. 2 (2020) p.119

elaborated on. When compared to other streams of academic thought, understanding the behaviour that is produced through algorithmic mediation as an object of commodification is novel and somewhat uneasy. In the case of classic commodity theory, the only expended human energy that is seen as commodity was labour. In the literature on persuasive technologies, the notion of the commodity is omitted and attention is focussed on the manner in which persons are persuaded. However, the actions and behaviours performed by persons after interaction with algorithmic systems can be understood as an object which can circulate in markets since it is an essential element of industry. This section argues so in a comparison of algorithmically altered behaviour to labour which is the only other expenditure of human energy that is present in commodity theory.

Comparing algorithmically altered behaviour to labour

In order to argue that algorithmically induced behaviour can be considered an object that markets are interested in, it is useful to consider how Marx and Polanyi deal with this problem in their work regarding the ''object-status'' of labour. Just as labour is not a tangible object that one can exchange as if it were a kilo of rice, and so is algorithmically induced behaviour. Both labour and algorithmically influenced behaviour are not tangible objects and lack ''object-ness'' in most senses of that word. The following analysis of how Marx and Polanyi deal with this problem of ''object-ness'' of labour highlights this unease and their solution.

For Marx

Marx states that commodities are objects that exist ''outside of us'' in chapter one, to later state that the exercised mental and physical capabilities existing in a human being can be offered to the market in chapter six. It is the process of alienation that makes labour an object that can be bought and sold in markets:

''The alienation of the worker in his product means not only that his labor becomes an object, an external existence, but that it exists outside him, independently, as something alien to him, and that it becomes a power on its own confronting him; it means that the life which he has conferred on the object confronts him as something hostile and alien''.[333]

Without fully engaging with Marx' concept of alienation, the idea becomes clear. Labour can exist as an object external to persons, that exist outside of us. This in turn allows the exercised physical and mental capabilities existing in a human to be sold on the market by individuals as labour power which is an object outside of them. Even when at first view labour does not appear to be an object, it is a necessary abstraction that makes it so. Marx therefore approaches labour as a true object, alternatively, Polanyi will acknowledge that labour is no real object and therefore adapt his commodity concept.

[333] K. Marx, *''Economic and Philosophic Manuscripts of 1844,''* Prometheus Books (1988) p.72

For Polanyi

Polanyi states that commodities are *''objects produced for sale on the market''*.[334] Further down the page Polanyi argues that: *''Labor is only another name for a human activity which goes with life itself, which in its turn is not produced for sale but for entirely different reasons, nor can that activity be detached from the rest of life.''* Polanyi therefore does not truly explain to his audience how human activity, which cannot be detached from the rest of life, suddenly becomes an object. Labour is undetachable from the rest of life itself and surely not produced for sale on the market. Polanyi fixes this problem through arguing that labour is a fictitious commodity, just as land and money are, but this essentially circumvents the issues thar come from understanding labour as an object. Labour is an essential element of industry and is therefore merely subsumed as a commodity. Just as Marx, Polanyi abstracts and argues that labour is an object for sale because labour is an essential element of industry.

Algorithmic human behaviour as object

Marx and Polanyi both give accounts as to how labour. either understood as expended human capabilities or as human activity, becomes an object. The objectification of labour is in their theories a fait accompli or a necessary abstraction that is required in order to allow the commodity concept to be inclusive of all essential elements of industry. The object-ness of labour is, to a large degree, simply assumed for reasons of absolute explanatory necessity. When using the commodity as cell-form of value it is imperative that labour is included in this concept, even when that means objectifying labour. It is exactly this ''object-assumption'' provides opportunities in this present analysis. Objectification of human behaviour produced in data driven economies is an equally necessary object-abstraction. Classical commodity theory framed labour as a commodity out of necessity to explain the generation of wealth in societies. In a similar sense, one cannot explain value generation in data driven economies properly without understanding algorithmically influenced behaviour as a new object of human expended energy.

To conclude, representing algorithmically influenced human behaviour as an object is rather complicated. Classical commodification theory largely assumes the object status of labour since explaining economic motions without including labour is impossible. Likewise, it is equally impossible to understand the functioning of digital markets without ascribing a sense of ''object-ness'' to algorithmically mediated human behaviour. The ''object-ness'' of influenced human behaviour will remain partly ambiguous, but assuming its ''object-ness'' is absolutely vital to explain how digital value-chains function in their relation to the creation of commodities.

4.5 Chapter conclusion

This chapter laid out, through examining data, big data processing and power, how algorithmically altered behaviour comes to existence as object in which markets are interested. Algorithmically altered behaviour

[334] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.75

is created as an object which fulfils an important role in digital value chains and can be seen as an object which circulates in economic spheres.

Algorithmically influenced behaviour in digital economies can only exist, as Zuboff puts it *''in the digital milieu''*.[335] Or as Fogg puts it: *''We have entered an era of persuasive technology, of interactive computing systems designed to change people's attitudes and behaviors.''*[336] Therefore, algorithmically influenced human behaviour requires the presence of computational power to exist. Computational power is present at every part of the value chain as described in this chapter. Data collection, data processing and steering and nudging through online architectures all rely on computational power.

This process has been carefully described in this chapter. First, going from the human phase, beginning when humans radiate data into their surroundings. Then to the data phase where data is used to infer information about persons. And subsequently to the power phase, where persuasive techniques and nudging operations capitalize on this new information about persons. This ultimately results in actions of persons which are shaped through computational- and other forms of power. Finally, the chapter argues that it is possible to see this behaviour as an object, in the sense as it has been used in commodity theory.

The research question of this chapter is: *''How can algorithmically influenced behavior be understood as an object of potential commodification?''*

And it must be answered by the previous paragraph. Digital media systems create influenced human behaviour, shaped through computational power in the digital milieu, which expresses itself through actions which persons would not have taken without digital mediation and which benefit the expressor of power in a material or immaterial manner. In that manner, persons expend energy, which can be understood as an object, which potentially allows itself to be captured in the form of the commodity.

The next chapter deals with the restructuring of the notion of the commodity to capture this specific type of expended human energy as a commodity, in order to regain the explanatory function of the commodity as cell-form of value. If indeed such human expended energy is an essential element of industry and it is not captured by existing commodity theories, the commodity concept must be updated in order to restore its ''cell-form of value'' function.

5.0 Neo-Commodification of Algorithmically Influenced Behaviour

5.1 Chapter Introduction

This chapter deals with the understanding of algorithmically altered behaviour as a commodity in the context of the European Union in the 21st century. It does so through re-combination of the findings of

[335] S. Zuboff, *''The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,''* PublicAffairs (2019) p.21
[336] B. Fogg, "*Persuasive Technology, Using Computers to Change What We Think and Do,"* (2003) p.1

the previous chapters, which provide the building blocks to engage in this analysis. To summarize, chapter one established classic commodity concepts, in their respective historical contexts. Chapter two dealt with the creative application of such established commodity concepts to novel sources of value such as audiences and data. Chapter three dealt with the theoretical background of the concept of commodification in more detail using a theory provided by Searle. Chapter four described and specified the object which in this thesis is depicted as a commodity. That object being:

''Algorithmically influenced behaviour of persons, shaped through computational power in the digital milieu, expressed through expended energy of persons."

The goal of this chapter is to rework the notion of the commodity so that it becomes inclusive of this novel object in question. As stated in chapter three, this results in the representation X^{2P} counts as $Y^{1.5}$ in the context of C. This is an adaptation of the classic notion of Searle, where X counts as Y in the context of C. the previous results in the following:

Algorithmically influenced behaviour of persons, shaped through computational power in the digital milieu counts as *a commodity* in the context of *the 21st century data economy*

The main problem that this chapter deals with is that this formula does not provide detailed explanation as to what ''counting as a commodity'' means for the context of a data driven economy. Therefore, it is imperative adapt the notion of ''counting as a commodity'' so that it encapsulates the object of algorithmically influenced human action, which is currently not captured by classical commodity concepts due to its peculiar nature. In order to do this, the elements (or indicia) of commodification are used to create a new concept of commodification specifically created to encapsulate the object of algorithmically influenced behaviour. This novel conceptualization of commodification will be referred to as neo-commodification. The neo-commodity concept will thus be constructed so that it runs in sync with current economic reality. The European Data Economy of the 20th century deals introduces a different set of assumptions and realities when compared to, Marxist, Polanyian or Chicagoans.

Chapter two dealt with the inclusion of audiences and data into the sphere of commodities. Smythe and Fuchs sought to include into audiences into the Marxist commodity concept with questionable outcomes. Their work described audiences as Marxist commodities while in reality audiences do not meet the Marxist definition of the concept of the commodity. This chapter performs a comparable exercise, but it does not limit itself to the creative interpretation of a single commodity theory, but rather draws from all of them.

It is therefore important to see how classical commodity concepts match up with the current digital reality and to see where the shortcomings are present in the classical theories. This can be done through application of the classical elements of the commodity concepts (Y) from chapter one that can support algorithmically influenced behaviour as a commodity and discarding those elements that cannot function to uphold it as a commodity. This pragmatic approach turns out to be more complex than simply

examining which set of features fits best to this specific object, because it also requires the introduction of new indicia of commodification.

To give some examples, algorithmically influenced behaviour might not meet the threshold of having Marxist ''use-value'' or that of being ''something that is scarce'' in the Chicagoan sense. However, this mismatch between these indicia of commodification and the object of algorithmically influenced behaviour needs not to be problematic. Surely, not all of the indicia of commodification of all classical theories will be met, which might give the impression that algorithmically influenced behaviour cannot be understood as a commodity. However, this failure to adhere to all the classical elements, or indicia, of one specific commodification may only signal the fact that algorithmically influenced behaviour is not a commodity in that specific historically outdated context. Novel contexts require novel sets of indicia of commodities in order to properly explain algorithmically influenced behaviour as a commodity. This restores the explanatory ''cell-form of value'' function to the notion of the neo-commodity.

5.1.1 Construction of a context appropriate commodity concept through reconfiguring its classic constructive elements

Many indicia of classical commodification theory can be applied to objectified algorithmically influenced behaviour. This opens up the possibility to gather these different elements and re-construct them in a manner that creates a new concept of the commodity that fits algorithmically influenced behaviour as an object. This move, of constructing a commodity concept is the constructive move of this chapter. It reconfigures all the first wave elements of commodification so that, in principle, the combination of the elements can capture algorithmically influenced behaviour as object. The first move of this chapter is therefore to identify the elements that support objectified algorithmically influenced behaviour as a commodity. If most indicia of commodification are met, or could be met, the object in question likely counts as a commodity in general, regardless of specific historical theoretical context from which is it now separated.

5.1.2 Chapter sub-question & roadmap

The commodity concept dictates the requirements for the ontology of the object that seeks commodity status, for instance mandating that an object is ''produced for sale on the market'', in order to be a commodity. Many different indicia or observables of commodity concepts flow from the discussion in chapter one:

Intrinsic features of Commodities	Non-intrinsic features of Commodities
Object outside of us (Marx)	Exchange value (Marx)
Use value - has utility value derived from its physical properties (Marx)	Transferable (Chicagoans)
Embeds crystalized labour (Marx)	Exchangeable (Chicagoans)

Exchangeable (Chicagoans)	Money equivalence (Radin)
Produced for sale on the market (Polanyi)	Scarce (Chicagoans)
Objectified (Radin)	Desirable (Chicagoans)
Commensurable (Radin)	Fictitious (only seen as commodity to explain organization of markets)
Fungibility (Radin)	Existing in its commodity-phase (Appadurai)
	Existing in a state of commodification-candidacy (Appadurai)
	Existing in a commodity context (Appadurai)

The main contribution of this chapter is therefore to restructure these indicia so that they include algorithmically influenced behaviour and its nuances. This provides for the following research question:

In which manner can the concept of the neo-commodity be conceptualized in order for it to include algorithmically influenced human behaviour into the sphere of commodities?

The next section starts this exercise of applying these indicia to algorithmically influenced behaviour and works towards a commodity concept that is inclusive of digitally mediated aspects of persons. First the analysis turns to the indicia of commodification that are applicable to algorithmically influenced behaviour. Next the indicia that are impossible to apply will be discussed. Then two new indicia will be introduced which are specific to algorithmically influenced behaviour. The chapter ends with a neo-commodity concept that is fit for purpose and provides some remarks on the consequences of this new commodity concept. One of those consequences being a revival of second wave commodification theory, which impacts this new concept from the very beginning.

5.2 Application of commodity theory elements to algorithmically influenced behaviour

Naturally, not all of the constructive elements of all commodity concepts can be met by algorithmically influenced behaviour. Digitally influenced or altered human behaviour is not easily understood as an object that is ''outside of us''. In the same manner, it is strange to speak of digitally influenced human behaviour as having ''crystallized labour embedded'' in it. These constructive Marxist elements of the commodity concept sit uneasy with algorithmically influenced behaviour. Clearly, not all of the constructive elements of all first wave theory are equally important in order to explain algorithmically influenced behaviour as an object of potential commodification. Ultimately, the new set of indicia of commodification, that describe algorithmically influenced behaviour, must be able to capture this specific object and its unprecedented features. The indicia that are fit to capture algorithmically influence behaviour as a commodity, will be discussed point by point in the coming section. Those indicia which cannot be applied will be discussed in a later section.

5.3 Applicable Commodity Indicia in relation to algorithmically influenced behaviour

- *Being an object*

The idea that ''algorithmically influenced behaviour of persons, shaped through computational power in the digital milieu, expressed through expended energy of persons'' is an object, is difficult to defend in its relationship to classical commodification theories. As argued in chapter four, the objectification of certain human exertions of energy, be that mental or physical energy, exists in a rather grey area of commodification studies. For both Marx and Polanyi this idea of objectification of expended human power which is exerted into other commodities is a necessary step seen from an argumentation perspective. The importance of labour as essential element of industry ultimately forces both Polanyi and Marx to abstract in such a way that labour or labour power can still count as an object and as a commodity. Marx does this through the abstraction of labour into an object through alienation, in which he states that only the individual can make of his or her labour power a commodity when he or she offers it for sale on the market. Important is the process of alienation here, that results in the fact that externalizes the effects of labour in to products that exist outside of persons. In Marx' own words: ''*The alienation of the worker in his product means not only that his labor becomes an object, an external existence, but that it exists outside him, independently.''*[337] Polanyi argues that his commodity concept does not support human energy as an object, and therefore merely treats labour ''as if'' it was a commodity through a fictitious commodity concept.[338]

The problem remains that, either through abstraction, or through adaptation of a commodity concept, exerted human energy is not really an object in most senses of that word. But, as can be observed by most commodification theories, exerted human energy needs to be understood as an object first, in order to later be understood as a commodity. Therefore, the ''object status'' of labour is mostly an assumption, but an important assumption. Explainability is the key reason behind this assumption that human energy is an object. One cannot explain the functioning of any economic system without understanding exerted human energy as an object, or a unit of some sort, which transforms other objects and therewith creating value when those objects are exchanged. Therefore, labour or units of labour power must be understood as an object. Without the understanding of labour as an object a crucial part of value creation remains unexplained in economies. In order for the commodity concept to fulfil its role as the cell-form of value, human energy must be understood as an object first and later as a commodity.

This assumption spills over to the specific type of human energy in this analysis. Algorithmically influenced behaviour is an object in the same sense of the word ''object'' which Marx and Polanyi deal with in their analysis of labour as an object. Still, algorithmically influenced behaviour is not equitable to objectified labour on all fronts. Since, rather than transforming commodities into other commodities

[337] K. Marx, *''Economic and Philosophic Manuscripts of 1844'',* Prometheus Books (1988) p.72
[338] K. Polanyi, ''*The Great Transformation, The Political and Economic Origins of our Time'',* Beacon Press Books (1944) p.75

(such as wood in to a chair) algorithmically influenced human energy changes the structure of and relationships in society itself. It changes the fabric of society through human action, rather than transforming commodities into other commodities holding more surplus value.

Algorithmically influenced behaviour can be understood as an object, but merely in the sense that it is required to be an object, in order to be understood as a commodity. It is an equal assumption of ''object-ness'', that algorithmically influenced behaviour and labour share, in order to explain how value is generated in (digital) economies.

- *That holds value*

Algorithmically influenced behaviour, understood as object, holds value. It holds value because it is a transformative force that can be expended towards a certain goal which exceeds the mere creation of physical commodities. Whereas labour transforms commodities into other commodities, algorithmically altered human behaviour holds value because it transforms social situations into other social situations. However, it is the perception of the value of algorithmically influenced behaviour which is most problematic.

A difference between labour and algorithmically influenced behaviour lies in the place in which these values can be perceived. For Marx, labour crystalizes in the production of other commodities. The difference between raw leather and a finished leather shoe is the crystalized labour that remains in that shoe. This process of expending labour into leather instantly reflects the labour in a given commodity. Units of expended labour power have always been perceivable in in objects because these expended units of human energy could be observed as crystalized units of labour power that transformed raw materials to finished commodities. Chairs require labour to become a chair when transformed from wood to chair, the invested transformative power remains visible to the naked eye. It is almost impossible not to see the traces of expended labour and the crystallization thereof in physical commodities.

It is more difficult to observe expended algorithmically altered behaviour. Algorithmically influenced behaviour crystalizes too, but it does not crystalize in physical objects, rather, it crystalizes in the changes which society and persons undergo. With its productive transformative force, algorithmically influenced behaviour produces other types of persons, other behaviour and other social relationships than would have occurred without exertion of the transformative power that algorithmically influenced behaviour holds. Algorithmically influenced behaviour therefore holds value in the sense that it is the capability to make ''something'' into ''something else'', just as labour does for physical commodities. It is not in the production of other physical commodities that algorithmically influenced behaviour presents itself as a crystalized version of itself, like Marxist labour does. Rather, algorithmically influenced behaviour is manifested, or crystalized, in the shaping of society in a wider sense towards the goal of those who purchase algorithmically influenced behaviour. But observing where and how algorithmically influenced behaviour has been expended in remains difficult to observe. To conclude, algorithmically influenced behaviour holds value in the similar sense as labour-power holds value, through being a unit of

transformative power. Algorithmically influenced behaviour, just as units of expended and crystalized labour power, is an expenditure of productive human energy; it makes persons, situations and relationships into something that the actors in a market demand. Algorithmically influenced behaviour therefore hold value as an object itself.

- *Is scarce*

Algorithmically influenced behaviour is scarce in the Chicagoan sense of the word. Posner defines scarcity as being a co-requirement of being valuable, together with desirability,.[339] Only that which is both scarce and desirable holds value in the Chicagoan view. Scarcity can thus be defined as a state of being in which there is not enough of a certain object ''to go around'' in order to satisfy demand. Of course, the scarcity of an object is in part determined by the social conditions in which it exists. When an abundance of human energy is present, for instance as available units of labour power, this human energy has historically been pointed towards goals that were not strictly necessary for human survival. Herodotus, a Greek historian, estimated that one-hundred-thousand people worked on the building of the pyramid. The gist here is that, depending on the goals one has with exerted human energy, there may always be a scarcity in relation to the sought-after goals. Scarcity is therefore not defined only by how much of something is available, but it is also defined by how much is required to meet the goals of those who seek to effectuate it for their own goals.

When it comes to altered human behaviour through computational power, there can never be enough to satisfy the goals of all those who seek to effectuate it. Just as there can never be enough labour to go around in societies in which a capitalist mode of production prevails.[340] The transformative effects of algorithmically influenced behaviour are so great that supply will always outrun demand. Algorithmically influenced behaviour can be geared towards monetary goals, when reconfiguring persons actions towards the purchasing of goods and services or other activities. Or it can be used for transformations in a wider sense, when effectuated to influence elections or other societal processes. As long as there will be a desire to shape persons towards acting towards the goals of one party, over the goals of another party, there will remain to be a scarcity of algorithmically influenced behaviour as an object.

- *Is desirable*

algorithmically influenced behaviour is desirable because it allows actors to transform elements of society and commerce in the direction of their own desired preference. As explained in chapter four, algorithmically altered human behaviour allows one to subtly shape commerce and other societal processes towards one's own desired outcome through different uses of power. Just as with labour, the transformative force following from the purchasing of algorithmically influenced behaviour is desired because it creates value which flow from societal re-configuration. Labour classically creates value through creation of commodities, algorithmically influenced behaviour creates value through transforming social

[339] R. Posner, *''Economic Analysis of Law,''*Aspen Publishers (1986) p.32
[340] D. Harvey, ' *''The 'new' imperialism: accumulation by dispossession''*, Socialist Register (2004) p.76.

processes. As long as there is a desire in markets to shape social- and market processes, there will be a desire for algorithmically influenced behaviour. It is near impossible to imagine a societal situation in which the power to alter the course of societal progression is not a desirable force in itself.

- *Is fungible*

To be fungible is to be able to be replaceable by an object carrying the same value. For instance, Euro bills are fungible. If one loans a friend twenty Euro, upon repayment it is not required to receive back the exact same twenty Euro bill. Any twenty Euro note will do, or even two bills of ten Euro. This means that money is fungible with other units of itself, it can be replaced with any other unit with the same value. Not all objects that are fungible in theory are fungible in practice. When one brings the family car to the garage for repair. Upon return, that exact car has to be delivered back to the customer. Another car with the same make and model, from the same year and with the same milage does not suffice. Therefore, in most cases, cars are non-fungible. The previous means that objects are not per definition fungible or non-fungible. When one buys a new car straight from the dealer, cars may also be fungible rather than non-fungible in that specific case. If two new cars are identical, the future buyer will not differentiate between new car A and new car B, given their identicality. Fungibility therefore is not only dependent on the item or object in question, it also has a human factor that needs to be taken into account. In essence, objects may quite often hold the same value, but be non-fungible based on human attachment to a single specific object.

When it comes to units of human exerted energy, its fungibility is largely assumed. When understood as a unit and object, labour power is exchangeable for other commodities of the same value. Meaning, an abstraction of labour power can be exchanged for other units carrying that same value. Reason for this is that, in principle, it does not matter which unit of labour power is sold or bought in order to transform commodities into other commodities, since units of labour power in the abstract are interchangeable. Without repeating the entire notion of socially necessary labour time as framed by Marx, the idea is that an abstract unit of transformative forces allow itself to be switched out for other units. Labour and algorithmically influenced behaviour share this fungibility. It matters little who performs a certain transformative action as long as it is performed.

Surely there will be instances where labour-power is perceived as fungible to the market, but not to the individual, in the case of specific specialized types of labour. However, in a time of mass production, fungibility of exerted human labour power is largely found in the anonymity of crystalized labour in products. One rarely comes in contact with the producer of commodities that are produced on a large scale and typically overseas. In that sense, the identity of the specific producer of a commodity does not matter much, given there is adherence to a certain level of quality. For algorithmically influenced behaviour this goes too. If one seeks to sell certain products and alters human behaviour into a purchase, it matters not who purchases the good, but that at least someone does. The same goes for altering human behaviour into voting for a presidential candidate, it matters none who votes, as long as there are votes

that are a product of expended units of algorithmically influenced behaviour. Algorithmically influenced behaviour is therefore also fungible, it can be replaced with another unit of the same value.

Some commodities are classed as semi-fungible, or fungible on a certain scale. Think for instance of oil and gas which require pipelines and refineries.[341] A certain use of the word fungibility in the context of commodities therefore deals with the difficulty of replacing it with objects of the same value. Gas is semi-fungible because both parties need the proper infrastructure to engage in the exchange of gas for money or other commodities. In such cases, fungibility is conditional to infrastructure. For algorithmically influenced behaviour this goes too. Not every actor can engage in the sale of algorithmically influenced behaviour since it requires a digital infrastructure that it optimized to the alteration of behaviour and the sale thereof. Algorithmically altered behaviour is semi fungible, as opposed to labour power. Labour power requires no infrastructure for its exchange, anyone can sell his or her labour power on the market. But when it comes to algorithmically influenced behaviour, it is the proprietor of a digital infrastructure that sells this commodity to the market and cannot do so without its own digital infrastructure. In conclusion, algorithmically altered behaviour is fungible, it can be replaced with other units of corresponding value. But the crucial part that makes the fungibility of algorithmically altered behaviour possible is the technical infrastructure, rendering it a conditionally fungible commodity.

- *Is commensurable*

Commensurability is the possibility to be expressed in a given unit or measure. For instance, flour and rice have a money equivalence when they are expressed in a certain quantity and quality. Alternatively, fond memories and good feelings cannot be expressed in a money equivalence, in part since they have no unit in which they can be expressed and are not commensurable. With expended human energy in general, this idea of its ''unit'' becomes a little less obvious. In order to mitigate this issue, the most famous move is that of Marx, who uses the power of abstraction to create units from labour. He does so in two steps, abstracting labour first into an amalgamation of all exerted human energy, which is used to transform commodities into other commodities. Next, abstracting a single unit of such labour power out of the entirety of all labour using the notion of ''socially necessary labour time''. There is an assumption of general skill and general speed of specific processes of labour, which allows for labour power to be understood as a general unit, which then can have a money equivalence when sold as a commodity on the market.

There are other manners in which ''unitization'' of labour took place. Historically, labour in British fabric industries was measured not by time, but by the length of the produced piece of fabric. Alternatively, the German system did not calculate labour based on the output of the end-fabric, but rather through the amount of raw material that went into producing a finished piece of fabric.[342]

[341] J. Sonnenfeld et al., *"Business Retreats and Sanctions Are Crippling the Russian Economy,"* (2022) p.14
[342] R. Biernacki, *''Labor as an Imagined Commodity,''* Politics and Society (2001) p.181

With the help of such an abstraction, algorithmically influenced behaviour can be understood as a unit of expended human energy. Although the discussion on the exact nature of the units in which it can be expressed remain unclear. Most likely the unit by which algorithmically influenced behaviour is expressed is related to its successful transformation social situations, brought about by algorithmically induced changes in behaviour of persons. But the correct unit in which algorithmically influenced behaviour can be measured therefore remains unclear. Its perception is highly contextual, algorithmically altered behaviour may for instance be perceived through an increased number of persons visiting a movie, because persons have been algorithmically seduced into viewing that specific movie. In other cases, such as the Brexit and Cambridge Analytics cases, the unit of algorithmically influenced behaviour may be perceived in the successful swaying of persons into voters for a different political stance. For algorithmically influenced behaviour, the discussion on the nature of its unit has only just begun and is by no means finalized. That does not mean that regardless of which unit is the correct unit of algorithmically influenced behaviour, there is some unit in which it can be expressed. The idea that there must be some sort of unit in which expended human energy can be captured must suffice for algorithmically influenced behaviour to be understood as an object that is commensurable.[343] This fundamentally rings Marx's words on commensurability:

''To discover the various uses of things is the work of history. So also is the establishment of socially-recognized standards of measure for the quantities of these useful objects. The diversity of these measures has its origin partly in the diverse nature of the objects to be measured, partly in convention.''[344]

What Marx states here is that it is not necessary to understand which unit depicts the quantity and quality of a commodity. Rice may be weighted in grams or in ounces or in stones, but this really does not matter much as long as a measure for the quantities is established. What counts is that there is some way in which quantity and quality of an object is determined and conveyed. These measures will change depending on convention and on the nature of the object. It is therefore not problematic that to this day there is no unit in which algorithmically influenced behaviour can be expressed in terms of quantity and quality. As long as there is a general possibility of some unit in which it may be expressed. The fact that there is as of yet no true measure to quantify algorithmically altered behaviour should therefore not be a roadblock to its commensurability.

- *Has money equivalence*

Money equivalence is the possibility of an item to be expressed in any given currency. The exercise of equating something into an equivalent sum of money requires the quantization of such an object. The exact nature of units of algorithmically influenced behaviour remain up for discussion, but the idea is that as long as there is a common measure, its money equivalence follows logically. In order to pay for a unit of the algorithmically influenced behaviour commodity, a single unit must be equivalent to a certain

[343] K. Marx, *"Capital, Volume One, A Critique of Political Economy"*, Penguin Publishing Group (1992) p.1
[344] Ibid. p.1

amount of money. Algorithmically influenced behaviour is unit a transformative force and expended human energy. It transforms relations, situations into other situation, rather than changing commodities into other commodities. A unit thereof is valuable, and therefore, has a money equivalent since it can be accessed for a given monetary fee. When understanding the data driven economy as an economic zone with no circulating commodities, it is not algorithmically influenced behaviour that is being bought and sold, but rather ''advertisement space''. Two out of the five largest technology companies in the world generate 90% of their revenue from advertisement.[345] The neo-commodification of algorithmically influenced behaviour therefore argues that it is not advertisement space that is being bought, but influenced human activity.

To conclude, there is a massive sum of money involved in the shaping of behaviour online. But it is possible to focus on the effects of data driven behaviour modification in persons, and valuate its output (human energy), rather than only putting a price tag on the factors that help shape it. Algorithmically influenced behaviour therefore has money equivalence, it can be valuated and attracts immense amounts of money towards those who provide access to this commodity.

- *Is produced for sale on the market or is fictitious is in its commodity status*

Being produced for sale on the market is a classic Polanyian criteria for an object to count as a commodity. However, Polanyi realized that the functioning of economies could not be explained through only those objects that are produced for sale on the market. When using that strict criterium, plenty objects are erroneously left out of the commodity sphere. Polanyi specifically focussed on money, land and labour which do not meet his own created commodity concept.

''A market economy must comprise all elements of industry, including labor, land, and money. … But labor and land are no other than the human beings themselves of which every society consists and the natural surroundings in which it exists.''

If algorithmically influenced behaviour is transformative power of persons that shapes social relationships and the wider society in which persons roam, then it would be hard to image that this power has been produced for sale on the market. There is a certain ''belonging'' of human actions that cannot be decoupled completely from the persons itself. Polanyi echoes this when he states that labour and land are no other than human beings being themselves and their natural surroundings. Algorithmically influenced behaviour is an aspect of a human being that exists without necessarily being specifically produced for sale. In that sense, algorithmically influenced behaviour is not produced for sale on the market, it can exist separately from the markets in which it is sold. Just like land, labour and money do not require markets for their existence, neither does algorithmically influenced behaviour. It can exist separately from the markets for which it is most often created.

[345] R. Woodcock, *"The Obsolescence of Advertising in the Information Age,"* Yale Law Journal 127, no. 8 (2018) p.1

As depicted in the hypothetical case studies in chapter four, companies consume algorithmically influenced behaviour themselves in order to better their economic position. In other words, actors shape behaviour of persons towards their own goals, therefore mitigating the need to sell algorithmically influenced behaviour as a commodity on the market. This has been argued in case study one of chapter four, where it is argued that corporations shape persons towards their own goals, without providing others to access to this power. This reminds of the Marxist notion of fruit produced in one's own backyard. If objects such as fruit, produced for own consumption, never enter the market they are not commodities. The same can be said for algorithmically influenced behaviour that is not created for sale on the market but only for own consumption. However, the second case study of chapter four deals with the idea of selling algorithmically influenced behaviour to others. In that case the idea that algorithmically influenced behaviour is specifically created for sale on the market is more defensible. In reality, both case studies do not differ much from a Polanyian view. Polanyi's real commodities are those objects which are created for sale on the market. Those objects that are not created for sale on the market are still fictitious commodities when they are essential elements of industry.

Therefore, just as Polanyi does for land labour and money, algorithmically influenced behaviour may very well be understood as both a fictitious and a real commodity. In the case where it is produced for sale on the market it meets Polanyi's classical commodity concept. In the case where it is consumed by industry without being sold on the market it is an essential element of industry of which a market economy is comprised. Algorithmically influenced behaviour of persons can therefore surely be understood as a Polanyian commodity, both in a fictional manner and a classical manner.

- *Exists in a commodity context or commodity phase*

Appadurai's notion of the commodity is the only theory that does not focus on the object of commodification. Whether something is a commodity or not does not depend on the object itself. It is the social context in which an object circulates that confirms or denies the commodity status of a given object. Inherent to this idea is that value of an object is not inherent to objects, but that value stems from the judgements of others.[346] Appadurai therefore proposes to look at social structures around objects to identify their commodity status and proposes that objects can enter and exist in a commodity phase based on the social context in which the object circulate. When these social structures change, commodity-statuses are revoked or confirmed. Of course, different social constructs produce different commodities. From the perspective of temporality objects therefore move in and out of their commodity phases and commodity contexts. An example thereof is fossil fuel, which seems to have started its exit from its commodity phase. Analysing algorithmically influenced behaviour in a commodity context leads to an unclear picture from Appadurai's perspective. There are very few, if any, voices that seek to apply the commodity status to digitally altered human behaviour. Most often, the discussions revolving around the

[346] See G. Simmel, *"The philosophy of money,"* Routledge Classics (2011) specifically regarding its theory of value, as adopted by Appadurai

algorithmic mediation of behaviour of persons are seen as an issue of privacy, of algorithmic accountability or as some sort of economic approach to data usage. Algorithmically influenced behaviour is therefore not in its commodity context because it is simply not considered a commodity by wider society.

However, there is a precursor to a confirmed commodity status. Objects may move in or out their future commodity phases through societal changes and increased awareness. In that process of becoming a commodity, objects first pass a commodity-candidacy phase. Commodity candidacy has little to do with the object in question. Rather it *''refers to the standards and criteria (symbolic, classificatory, and moral) that define the exchangeability of things in any particular social and historical context.''*[347] This entire thesis is a call to acknowledge algorithmically influenced behaviour as an object that is entering its commodity candidacy while acknowledging that it is far from being in its commodity phase.

5.4 Non-applicable commodity indicia in relation to algorithmically influenced behaviour

- *Use-value*

Use value is a Marxist term that describes the utility of an object. As Marx states*: ''But this utility is not a thing of air. Being limited by the physical properties of the commodity, it has no existence apart from that commodity.''*[348]Therefore it would be strange to argue that algorithmically influenced behaviour has use value derived from its physical property. Behaviour is not an object with physical properties, it cannot be held or touched. At the same time, one could wonder how labour power, a Marxist commodity, has use-value derived from its physical properties. There is a certain disconnect in stating that labour power has use-value, since labour too is not a tangible object. A full review of how Marxist labour and algorithmically influenced behaviour relate to the notion of use-value would be too extensive. But purely going on the definition that Marx provides regarding use-value, it cannot be said that algorithmically influenced behaviour possesses such use-value since behaviour is not a tangible object. If one decided to adopt a more Marxist approach and acknowledges that labour as a commodity has use value, then this must go for the equally intangible algorithmically altered behaviour. The conclusion remains that it is not clear that algorithmically influences behaviour has Marxist use-value. Therefore this indicium of commodification will not be applied to algorithmically influenced behaviour.

- *Embedding of crystalized labour*

Commodities embody crystalized labour in Marxist theory. As Marx states: *''commodities as values are nothing but crystallized labour.''*[349] Or*: ''a commodity has a value, because it is a crystallization of social labour.''*[350] When understanding labour as a commodity, a kind of infinite regress happens where labour itself must contain crystalized labour. It seems therefore that it at least doubtful whether or not Marx

[347] A. Appadurai, *"The Social Life of Things, Commodities in Cultural Perspective,"* Cambridge University Press (1986) p.14
[348] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.1
[349] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) Chapter VI. Value and Labour
[350] Ibid. Chapter VI. Value and Labour

means that the peculiar labour commodity crystalized labour in itself. More likely, Marx aims to describe that tangible commodities embed crystalized labour, and that the peculiar commodity of labour does not.

For algorithmically influenced behaviour things are similar. Some labour is clearly invested in certain aspects of the creation of algorithmically influenced behaviour in persons. Actors must engage in the analysis of big data sets and the generation of persuasive technologies in order to generate a specific type of behaviour in persons. However, that does not mean that algorithmically influenced behaviour itself is an object that embeds labour as if it were a tangible commodity. There may be labour involved in the generation of algorithmically influenced behaviour, but algorithmically influenced behaviour as an object does not embed crystalized labour. Just like the peculiar labour commodity cannot embed labour in itself. Therefore, to state that algorithmically influenced behaviour now ''contains'' crystalized labour is too far of a stretch of imagination. In any case one cannot state with certainty that the object of algorithmically influenced behaviour contains embedded labour. Therefore, this indicium will be rendered non-applicable.

- *Exchange and transfer*

Algorithmically influenced behaviour cannot rely on classic exchange and transfer schemes as for instance labour would. Unlike labour, which is sold on the market by individuals when they sell their units labour power to the capitalist, algorithmically influenced behaviour is not sold by persons themselves. Most of the times persons are unaware of the fact that their behaviour has been altered for the sake of the goals of another actor. The seller of algorithmically influenced behaviour can therefore be no other than those who generate it on their proprietary digital architectures for the goals of other economic parties. This also means that, just like other digital objects, algorithmically influenced behaviour can only exist in relation to a specific digital milieu in which it is generated. Without computational power, this type of human behaviour cannot continue to exist since the shaping of behaviour implies a prolonged relationship to a certain nudging architecture. This ties algorithmically influenced behaviour to the infrastructure of proprietors of digital platforms and bring makes this behaviour semi-fungible. Essentially this invites the idea of the secondary mode of existence of digital objects from chapter three back into the discussion.[351]

Algorithmically influenced behaviour does not exist separately from computational power and can therefore only be commercialized on an access-base by those who are willing to rent out their infrastructure to fulfil the nudging goals of others. There must be active provision of service by the creator of algorithmically influenced behaviour and continuous effort to uphold this neo-commodity. This separates algorithmically influenced behaviour radically from labour since it is not the labourer who transfers his or her units of labour power to the capitalist. It is the proprietor of the digital architecture that sells the behaviour that he or she managed to sway to its buyers, while at the same time this requires a constant effort from the seller side. Algorithmically influenced behaviour only exists as a commodity

[351] As described in chapter three, originally derived from P. Pałka, ''*Virtual Property, Towards a General Theory,*'' European University Institute (2019)

that can be accessed through computational architecture, and it halts to exist when the nudging operations stop to exist.

Another reason why labour can be exchanged and algorithmically influenced behaviour cannot lies in the concept of alienation. According to Marx, alienation is described as follows:

''The object that labour produces, its product, stands opposed to it as something alien, as a power independent of the producer. The product of labour is labour embodied and made material in an object, it is the objectification of labour...In the sphere of political economy, this realization of labour appears as a loss of reality for the worker, objectification as loss of and bondage to the object, and appropriation as estrangement, as alienation.''[352]

But for the case of algorithmically influenced behaviour this works differently. This specific form of productive energy is not crystalized or bonded in physical commodities but rather in social structures and relations between persons. It is understandable why Marx in his early works relied on the notion of alienation of labour to stress that labour can exist as a separate commodity from persons themselves.[353] But it is indefensible to argue that the thoughts and desires of persons and the actions that follow thereof are removed from persons in a scheme of dispossession and alienation. Marx's labour power exists in the first face of power. Where individuals know what their own interest is and that of the capitalist and choose to act in the interest of the capitalist. With algorithmically influenced behaviour, persons are not aware of the interest of the buyer of algorithmically influenced behaviour because they believe that their influenced behaviour is their own. Simply put, one may argue that labour exists as ''a power independent of the producer'', but this cannot go for algorithmically influenced behaviour when they are the actions that flow from a person's own belief system. Such actions may be based on manipulated desires, but they remain a person's own and can therefore not be alienated as easily as labour power can.

5.5 Novel Commodity Indicia to algorithmically influenced behaviour

- *Accessibility*

From the previous section flows that the indicia of exchange and transfer cannot be relied on for algorithmically influenced behaviour as they could be in the context of labour. The indicium of commodification that replaces these two indicia is accessibility, which highlights the manner in which algorithmically influenced behaviour is commercialized without it ever truly being exchanged or transferred as an object itself. Producers of algorithmically influenced behaviour commercialize the commodity they create through providing actors access to both their behaviour shaping infrastructure and the behaviour it shapes. This in turn allows those who pay for the commodity of algorithmically influenced behaviour to dictate the manner in which that behaviour should be shaped towards their goals.

[352] K. Marx, *''Economic and Philosophic Manuscripts of 1844,''* Prometheus Books (1988) Section 5
[353] See for a grand review of this concept of alienation the work of A. Wendling, *"Karl Marx on Technology and Alienation,"* Palgrave Macmillan (2009)

It also highlights that departure from a specific digital architecture precludes the possibility of access to algorithmically influenced behaviour. This is best exemplified by Zuboff's work when she describes the nudging elements of the Pokémon Go smart phone game. In the case of Pokémon Go, persons could be moved in the physical world through manipulative architectures. The places where the Pokémon resided and could be caught for points in the game logically coincided to be the place where fast food vendors had their franchises and Pokémon themed advertisements. As Zuboff puts it:

''The game had demonstrated that it was possible to achieve economies of action on a global scale while simultaneously directing specific individual actions toward precise local market opportunities where high bidders enjoy an ever-closer approximation of guaranteed outcomes.''[354]

But it is important to acknowledge that the actions of persons which were induced in them through this virtual game cannot exist separately from that specific game. That is to say, created algorithmically influenced behaviour is context specific and it's nudging architecture cannot be turned towards that for which it was not designed. In the case of Pokémon Go, the nudging architecture clearly worked to physically move persons towards certain areas of commerce in populated areas. But it would be far more difficult to sway a person's stance on political elections through the Pokémon game environment. Such swaying of political preferences seems far better achieved through Mass Interpersonal Persuasion platforms such as social media.[355] It is therefore important to acknowledge that certain types of behaviour alteration can be best produced in certain digital architectures, while for other architectures such behaviour is harder to create. But is also highlights how this influenced behaviour is semi-fungible and tied to a specific nudging architecture. It cannot exist separately from this digital architecture.

This is another reason why algorithmically influenced behaviour is so connected to the infrastructure that created it, that it cannot be separated from that infrastructure.[356] Hence, the commodity-indicium of access must replace those of transfer and exchange. It is the proprietor of a manipulative and persuasive digital architecture that provides access to algorithmically influenced behaviour of others, rather than an exchange and transfer of such behaviour as if it were a classical commodity. Therefore, the new indicium of commodification must be accessibility, which replaces the traditional indicia of both transferability and accessibility.

- *Guaranteed continuous investment of computational power*

Algorithmically influenced behaviour cannot exist without the continuous influx of computational power. To return to the example given a few paragraphs prior, if the Pokémon Go game experiences

[354] Zuboff, ''*The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,''* PublicAffairs (2019) p.299

[355] See generally: B. Fogg, ''*Mass interpersonal persuasion, an early view of a new phenomenon,''* in D. Hutchison, J. Mitchell, ''*Persuasive Technology - Third International Conference, Proceedings*, *Lecture Notes in Computer Science,''* vol. 5033 (2008)

[356] Similar observation from the perspective of power in: K. Pistor, *''Rule by data, the end of Markets?''* Law and Contemporary Problems (2020) p.2

downtime in its servers, its ability to move persons around disappears. Perhaps this is one of the reasons why the game has only been offline for a single period of seven hours since 2016.[357] These architectures are designed to continuously and reliably provide the opportunity to move persons towards places of commerce. Any downtime of servers precludes that ability.

Therefore, just as for some objects described in chapter four, the mode of existence of algorithmically influenced behaviour is secondary. Meaning that without active 3rd party effort, it does not continue to exist. Palka described this secondary mode of existence as a novum for private law, which does not deal with the idea that objects can only exist by the grace of active performance of a third party. But this distinction is equally important for the studies of commodities. Classical commodities, such as corn or iron do not need 3rd party input for their continued existence. Such objects simply exist, even when no attention is being paid to them. For algorithmically influenced behaviour this is different. Therefore, the element that classical commodity concepts do not acknowledge lies in the secondary mode of existence of digital objects. First wave commodity concepts miss the acknowledgement that some objects cannot exist without continuous computational power invested into them. Now that such objects become more prevalent, it is necessary to understand these objects as potential commodities too, regardless of their conditional existence. The indicia of continuous investment of computational power therefore safeguards the existence of algorithmically influenced behaviour or other digital commodities. Is keeps the object from vanishing and therefore is vital for its existence, both as object in general and as commodity.

5.6 The Neo-commodification concept fit for algorithmically influenced behaviour

Now that all indicia of commodification have been assessed in their relation to algorithmically influenced behaviour, the reconstruction of a new commodity concept can begin. Based on the foregoing, algorithmically influenced behaviour meets or does not meet the following indicia of commodification:

Intrinsic features of Commodities	Non-intrinsic features of Commodities
Object outside of us (Marx)	Exchange value (Marx)
~~Use value – has utility value derived from its physical properties (Marx)~~	~~Transferable (Chicagoans)~~
~~Embeds crystalized labour (Marx)~~	~~Exchangeable (Chicagoans)~~
~~Exchangeable (Chicagoans)~~	Money equivalence (Radin)
Produced for sale on the market (Polanyi)	Scarce (Chicagoans)

[357] https://www.eurogamer.net/pokemon-go-downtime-maintenance-offline-1st-june-7018 & https://www.eurogamer.net/pokemon-go-plans-unprecedented-downtime-next-week Accessed June 2022

Objectified (Radin)	Desirable (Chicagoans)
Commensurable (Radin)	Fictitious (only seen as commodity to explain organization of markets)
Fungibility (Radin)	~~Existing in its commodity-phase (Appadurai)~~
	Existing in a state of commodification-candidacy (Appadurai)
	~~Existing in a commodity context (Appadurai)~~

Based on the previous, algorithmically influenced behaviour is an object, it holds value, it is scarce and desirable. It is fungible, commensurable and has money equivalence. It is produced for sale on the market or fictitious in its commodity status and it is experiencing its first calls to commodity candidacy. At the same time, algorithmically influenced behaviour does not have use-value, it does not embed crystalized labour and it cannot be exchanged and transferred like regular commodities can be. It also does not exist in a commodity context nor in a commodity phase. Finally, the indicia that algorithmically altered behaviour demands from its commodity concept is that it can be accessed through digital means and that it is backed by an influx of computational power. The following table represents all possible indicia of commodification that are applicable to algorithmically influenced behaviour:

Intrinsic features of Commodities	**Non-intrinsic features of Commodities**
Object outside of us (Marx)	Exchange value (Marx)
Commensurable (Radin)	Fictitious (only seen as commodity to explain organization of markets) (Polanyi)
Objectified (Radin)	Existing in a state of commodification-candidacy (Appadurai)
Fungibility (Radin)	Money equivalence (Radin)
Produced for sale on the market (Polanyi)	Scarce (Chicagoans)
	Desirable (Chicagoans)
New features of Commodities	**New non-intrinsic features of Commodities**
	Accessibility

	Stable in its existence through investment of computational power by a third party

To count as a neo-commodity

This results in the following notion of commodification, specified for the object of algorithmically influenced behaviour. To allow algorithmically influenced behaviour to be introduced in the sphere of commodities, therewith making the commodity concept inclusive of an important object of value in digital economies, counting as a neo-commodity must mean:

''To be an object that holds value, is scarce, desirable, fungible, commensurable, has money equivalence, is produced for sale on the market, is accessible and is backed by continuous computational power to ensure its existence''

This new concept of the commodity allows algorithmically influenced behaviour to be captured as a part of the total wealth created in a capitalist society. It therefore restores the commodity concept to its original use of being the cell form of value. But since this commodity concept builds so heavily on that which has been argued in the theoretical chapter three, it does not stop there. In principle this commodity concept can be employed for a whole range of digital and virtual objects. Some of these may relate to persons or aspects of persons and others may not. This commodity concept is therefore not construed so that it solely captures algorithmically influenced behaviour. It could possibly be employed in plenty different contexts where the effects of digital mediation of persons and artifacts results in valuable digital objects. The first important consequence of this new commodity concept is that it allows for the understanding of digitally produced objects as neo-commodities.

From first to second wave neo-commodification literature

This encapsulation of digitally mediated objects then also re-introduces the possibility for persons to engage in the debate function of the commodity concept again. It allows discussions on commodification and de-commodification of certain types of digital and virtual objects and discuss their limits of marketability. Essentially, this welcomes the field of ''second-wave'' commodification into the discussion on the marketization of certain types of digitally mediated commodities. Without an inclusive commodity concept this was not possible, since speaking of de-commodification of ''non-commodities'' is senseless. What this commodity concept therefore also restores is the possibility to discuss the desirability of a given digitally mediated object as a commodity. The second consequence of this new commodity concept is therefore that it restores the opportunity to engage in a debate on the desirability of the commodity status of an object. The notion of de-commodification therefore mandates some words.

5.7 De-commodification of the algorithmically influenced behaviour neo-commodity

A major benefit from understanding algorithmically influenced behaviour as a neo-commodity entails the discussions that can be had on de-commodification of this novel commodity. Now that algorithmically

influenced behaviour is seen as a commodity, classical debates on desirability of commodification can be rejuvenated in a new context. Constructive elements of commodity concepts do not determine with absolute certainty which objects are commodities and which objects are not. Broad definitions of historical commodity concepts often included objects that are not meant to be included at all. Commodity concepts are often so wide that they include many unwanted objects. The broadness of these concepts troubles several authors, since their own created commodity concepts inevitably include objects that they would rather not see as commodities after all. See for instance the writings of Marx in 1866, where Marx struggles with child labour as a commodity. Marx states:

''… the children and juvenile workers must be saved from the crushing effects of the present system. This can only be effected by converting social reason *into* social force*, and, under given circumstances, there exists no other method of doing so, than through* general laws*, enforced by the power of the state. ''*[358]

Marx clearly aims to exclude an object, labour of children, from markets and transactions. At the same time, the object in question, labour performed by children, does adhere to his concept of commodities. According to Marx, the only manner to revoke the commodity status of unwanted objects is then to converting social reason into social force through laws. Creating specific rules will remove objects of which it is clear that they should not be a commodity from the commodity concept.

The same goes for the notion of the commodity by Polanyi, in The Great Transformation he states:

''To allow the market mechanism to be the sole director of the fate of (…) nature, nature would be reduced to its elements, neighbourhoods and landscapes defiled.''[359] And further: *''For a century the dynamics of modern society was governed by a double movement: the market expanded continuously but this movement was met by a countermovement checking the expansion in definite directions. Vital though such a countermovement was for the protection of society … ''*[360]

In other words, even when land and labour are fictitious in their commodity status in the reading of Polanyi, Polanyi is not at all happy with these objects having the commodity status. Polanyi warns that leaving the fate of nature to the market mechanisms, leads to defiling of neighbourhoods and nature. In the same way, leaving the markets in control of the labour market would ensure the poor houses to overrun as they did before. Ergo, Polanyi would rather see specific objects only being a conditional commodity, even after he specifically creates a commodity concept that encapsulates them. It highlights the struggle that broad commodity concepts will always include objects that one would rather not have

[358] K. Marx, *''The International Workingmen's Association, Instructions for the Delegates of the Provisional General Council, The Different Questions,''* (1866)
[359] K. Polanyi, *'' The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.76 (shortened for readability)
[360] K. Polanyi, *''The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) p.136

included. Polanyi then advocates for counter-movements to shield objects from their own commodity status.

On the other hand, there are those that advocate that everything should be a commodity, as the Chicago School of Economics does. It is therefore not strange that Richard Posner finds it ''absurd'' that marijuana is illegal since Posner's commodity concept, in principle, allows for A-list classified drugs to be a commodity. Posner, who advocates that everything should be a commodity extends that opinion to dangerous substances as well: *''I am inclined to think that cocaine, heroin, methamphetamine, LSD, and the rest of the illegal drugs should be decriminalized as well—though not deregulated.''*[361] This highlights that it is not unthinkable to have a large commodity concept, and even within that concept, put up hardly any boundaries as to what cannot be a commodity. Posner and the Chicagoans are somewhat isolated in their quest to commodify every existing object including drugs. The other theories are all subjected to mechanisms that take certain objects out of their commodity concepts, after initially including them in their wide definition. These other theories are subject to a movement of de-commodification within their own theory of commodification.

The notion of debating whether or not objects should be inside or outside of commodity concepts, even when it meets the requirements for those commodity concepts, has been referred to in chapter one as being ''second wave theory''. Essentially, most of second wave commodification theory is an exercise in selective de-commodification of theoretical commodities based on subjective preference.

Deconstructing de-commodification

The most cited author on the notion of decommodification is Esping-Andersen.[362] In his view, welfare states pivot on the notion of de-commodification, since it decouples the rights to livelihoods from markets. De-commodification in welfare states allows people to *''opt out of work when they themselves consider it necessary''*, and doing so should not result in loss of general welfare.[363] Interesting here is the inherent scope, or lens, that sees de-commodification as a process that is aimed at workers and labour. In Esping-Andersen's words, ''de-commodification occurs when a service is rendered as a matter of right, and when a person can maintain a livelihood without reliance on the market.''[364] Interestingly, and this will become a theme in other notions of de-commodification, this begs the question, which object is de-commodified? And what does that de-commodification mean exactly? Esping-Andersen provides the answer to parts of this question himself, when he states that:

[361] R. Posner, *''We need a strong prison system, but we need to imprison people for fewer crimes and for less time,''* The New Republic, May 25th (2014)
[362] J. Vail, *''Decommodification and Egalitarian Political Economy,''* Politics and Society, vol. 38, (2010) p.312
[363] G. Esping-Andersen, *''The three worlds of welfare capitalism,''* Polity Press (1990) p.22
[364] Ibid. p.22

''Decommodification should not be confused with the complete eradication of labor as a commodity; it is not an issue of all or nothing. Rather, the concept refers to the degree to which individuals, or families, can uphold a socially acceptable standard of living independently of market participation.''[365]

This is a crucial passage because it signals some rather implicit assumptions. First, Esping-Andersen describes de-commodification as a concept referring to a specific commodity, that commodity being labour and only in the context of social policy. Second, in Esping-Andersen' view, de-commodification does not have to be complete, it is not a black and white scenario. Esping-Andersen' decommodification therefore reminds of what Radin calls incomplete commodification where objects can exist as partially commodified. As an example, labour is incompletely commodified since it is not an issue of all or nothing, which means labour can exist in varying degrees of commodity statuses simultaneously. This is different from for instance poached ivory, in the context of the European Union, where it is absolutely and completely de-commodified. Decommodification, thus means the partial removal of the commodity status of labour, in the context of social policy, where the commodity status of all labour is not eradicated. Esping-Andersen' view on de-commodifcation is therefore very specific to both context and object of commodification.

To little surprise, with commodification existing in so many different theories, so does the notion of de-commodification. As is the case with the notion of commodification, the notion of de-commodification is also used in a rather varied and contextual manner. Some examples of this can be found in the work of Galtier et al, in their view, de-commodification of the supply side of the coffee bean market could result in a fairer division of benefits generated from sale of coffee beans.[366] As admirable as the idea of providing coffee growers with a bigger piece of the economic pie sounds, it leaves one to wonder where the generated benefits stem from, when coffee is removed from the commodity sphere? The exact meaning of the process of decommodification also remains partly unexplained in the work of Galtier et al.What follows from this is that the use of ''de-commodifcation'' in this context is different and perhaps vaguer that that of Esping-Andersen.

In the same manner, the Burning Man Festival in Black Rock City, USA, hold the principle of decommodification as one of the most important principles on its festival ground. The philosophical centre of the Burning Man Festival has extensively published on the idea of de-commodification. According to the centre: ''*the process of commodification – of turning something into a product suitable for purchase (..) seeks to make us all simpler and shallower rather than deeper and more complex.''* [367] Festivalgoers at the festival are therefore enticed to ''de-commodify'' their appearance, urging them not to wear visible brand logos on their clothes. In their understanding, self-commodification is: *''To*

[365] Ibid. p.32
[366] F. Galtier, *"Are Geographical Indications a Way to ' Decommodify ' the Coffee Market ?"* 12th Congress of the European Association of Agricultural Economists (2008) p.2
[367] Retrieved from: https://journal.burningman.org/2014/02/philosophical-center/tenprinciples/what-does-it-mean-to-have-decommodification-as-a-principle/ accessed 28-4-2022

commidify (sic) oneself (or to be commidified) (sic) is to be easily measurable, rankable, and knowable."[368] De-commodification in this context carries yet another meaning, that of self-expression, to be free from the shallowness of brand logos and to remain unknowable.

To summarize, the notion if decommodification is incredibly context dependent. The three cited notions of de-commodification vary wildly, which is unsurprising given its relation to original commodity concepts which also differentiate a lot. Unfortunately, this provides little ground to argue how or what de-commodification should mean for the neo-commodity central in this research. But it is important to acknowledge that the idea of de-commodification opens up an entire new field of possible research. To what extent should algorithmically influenced behaviour be considered a neo-commodity? Are there cases in which this commodity should be de-commodified? And if so, what does this de-commodification entail? As the next section describes there are only very few ideas of de-commodification present in current literature for this specific commodity.

Movements of decommodification of algorithmically influenced behaviour

After establishing a neo-commodity concept for algorithmically influenced behaviour it is likely that the movement to partially de-commodify this object will follow swiftly. This is a natural tendency that even within a commodity concept calls for de-commodification will be voiced. It would be hard to imagine a situation in which all versions of commodified algorithmically altered behaviour maintains its commodity status after societal scrutiny. Just as for labour, the de-commodification move will partly de-commodify and sets limits to the manner in which this commodity can circulate in markets. For labour, such decommodification moves set limits to acceptable working hours, age from which persons can legally work and the list continues. However, it would be too early to make sensical comments on the nature of this decommodification move in the context of algorithmically influenced behaviour. Perhaps Cohen's comments on the transformation towards informational capitalism depict this more clearly*: "Whether the effects of the transformations explored in this book will elicit meaningful countermovements is yet to be seen."*[369] Whether the conception of a neo-commodity in this research will result in calls for de-commodification, countermovements or anti-marketability is uncertain.

5.8 Chapter conclusion

This chapter dealt with the construction of a commodity concept that fits the purpose of including algorithmically influenced behaviour into the sphere of commodities. This move introduces an important or essential element of industry into the sphere of commodities, whereas it could not be included prior. Through proposing a neo-commodity concept, the cell-form of value function of the commodity regains its explanatory function. In order to reconfigure the commodity concept towards this explanatory goal, the indicia or observables of commodification have been individually assessed for their fitness to capture

[368] Ibid.
[369] J. Cohen, *"Between Truth and Power, The legal construction of Informational Capitalism,"* Oxford University Press (2019) p.270

algorithmically influenced behaviour. Those indicia that could not be used were stripped from the novel commodity concept. The previous covers the research question of this chapter to a large extent.

In which manner can the concept of the neo-commodity be conceptualized in order for it to include algorithmically influenced human behaviour into the sphere of commodities?

The manner in which the neo-commodity concept can be conceptualized for it to include algorithmically influenced behaviour into the sphere of commodities is done in two manners. First, it is done with the intrinsic goal of including algorithmically influenced behaviour into the sphere of commodities to make the commodity concept regain its cell-form of value function. Second, it is done through restructuring and updating the observables of commodification into a neo-commodity concept that, as Searle puts it, plays by a large sub-set of the constitutive rules of the commodity. The commodity concept created in this chapter therefore does not describe something that is not a commodity, it plays by enough of the rules to qualify as a commodity concept, albeit an updated novel one. This resulted in the following commodity concept. In which, to count as a commodity in the context of the current data economy means:

'To be an object that holds value, is scarce, desirable, fungible, commensurable, has money equivalence, is produced for sale on the market, is accessible and is backed by continuous computational power to ensure its existence"

The next chapter deals with an analysis on what Searle would call context. It deals with a fundamental part of the neo-commodity concept, namely the space in which this neo-commodity is commercialized. As circulation of commodities is vital for the study of commodities in general, a discussion on the markets on which this neo-commodity roams, is warranted. The next chapter examines classical markets, data markets and the sharing economy in order to assess their implication on the concept of the neo-commodity.

6.0 The Sharing Economy as access-based economy for algorithmically altered behaviour

6.1 Introduction

This final chapter deals with the space in which the novel algorithmically influenced behaviour commodity circulates. This is a paramount element because the study of commodities is inextricably linked to the notion of the marketplace or economy in which commodities circulate. This warrants some comments on the markets and economies in which algorithmically influenced behaviour is commercialized. As argued in the previous chapter, accessibility, rather than exchange and transfer, is the norm for the circulation of this specific commodity due to its particular nature. This results in a juxtaposition between the circulation of this new commodity on an access-base against the circulation of classic commodities on an exchange-base.

By definition, the algorithmically influenced behaviour commodity requires computational architecture in order to be accessed, rendering its true exchange impossible. Therefore, in order to circulate the algorithmically influenced behaviour commodity, there is a need for a market or economy that provides features to uphold precisely this particularity. The previous creates many parallels with an access—based economy which has gained plenty attention in the past decade. The sharing economy provides a blueprint for the circulation of algorithmically influenced behaviour as a commodity since it is fundamentally based

on access-based consumption and reliance on computational infrastructures. This chapter discusses how classical understanding of markets as places for calculated exchange fail to provide a place for the circulation of the algorithmically influenced behaviour commodity. As a solution, it argues that the sharing economy is a suitable contestant as place in which this novel commodity circulates.

However, since algorithmically influenced behaviour does not frequent in commodity discourse in general, it also does not frequent in sharing economy discourse. To argue that the sharing economy is the place in which the algorithmically influenced behaviour commodity circulates requires a more extensive analysis of the sharing economy. Since algorithmically influenced behaviour has not been conceptualized as a commodity prior to this work, there are no analyses of how this commodity relates to the sharing economy. This analysis must be made from scratch.

This chapter therefore deals with the parallels between the sharing economy and the market in which algorithmically influenced behaviour can circulate and examines its connections and overlap. The previous does require a sense of expansionism in the scope of the economic objects that the sharing economy classically concerns itself with. This results in the following sub-research question:

In what manner can the Sharing Economy be conceptualized as a market for algorithmically influenced behaviour as access-based commodity?

The chapter proceeds as follows. First the general circulation of commodities in markets is discussed, followed by a discussion on the nature of markets as institutional structures for calculated exchange. Then different steams of thought on data markets are examined because many aspects of the process of creation of algorithmically influenced behaviour touch upon data markets. Some of these approaches to data markets argue that it is not data that is being sold on data markets but rather access to data power. This has interesting effects on the notion of data markets themselves and positions them close to access-based markets in general. The analysis of data markets is important because it provides a better perspective into the manner in which algorithmically influenced behaviour can be bought and sold. The analysis then turns to a more established access-market through digital mediation, that of the sharing economy. The final section deals with how algorithmically altered behaviour can be understood as a commodity that circulates in the sharing economy.

6.2 The circulation of commodities in markets

The commodity abstraction generally resonates that commodities cannot exist separately from their circulation through and in social relations.[370] In that sense, objects can never be commodities without social structures that abstract them as such.[371] Many indicia of commodification reflect this social nature

[370] A. Sohn-Rethel, '*Intellectual and manual labour, a critique of epistemology,*' The Macmillan Press (1978) p.20
[371] Ibid. p.20

of the commodity, think for instance of Appadurai's use of Simmel's theory of value.[372] According to Simmel, objects have value because others perceive an object as valuable.[373] Without the assigning of value by the other, there is no value in objects since this value springs from the social structure around commodities. The same goes for Marx who deems that objects destined for self-consumption, such as apples grown in one's backyard, are not commodities since they will never be exchanged. Polanyi follows by stating that commodities are produced for sale on the market, implying its circulation in markets and therefore implying a set of social relations. Since, according to Polanyi, a market economy is embedded in a market society, which implies social relations.[374] What follows from this is that commodities must by definition roam in some type of place in which they become susceptible to partaking in economic social relations. This space is often referred to as the market. This begs two fundamental questions, what are markets in the first place and what type of market or economies support the circulation of access-based commodities?

6.2.1 Markets as institutional structures for calculated exchanges

Starting off with a classical take on markets. Surely there are as many definitions of the notion of a market as there are of the commodity, but for this section the following definition suffices since it describes the fundamental importance of markets as places of exchange. According to Callon and Munisa, markets are *''institutional structures for calculated exchanges''*.[375] Markets structures have three main characteristics:

1) First, markets require that a given object is commensurable in order for that object to be exchanged. As long as there is a certain measure of a given fungible object, from both the perspective of quality and quantity, it is commensurable. This is not possible for every object. For instance, fond memories or a person's honour cannot be valued in objective economic terms, such objects are simply not fungible, not commensurable and have no money equivalence other than an imaginary price.[376] Interestingly, this first characteristic of markets is not a characteristic of a market itself but rather of the objects which circulate through them. These objects must be commensurable in some manner, as prerequisite for exchange in markets.

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[372] A. Appadurai, *''The Social Life of Things, Commodities in Cultural Perspective,''* Cambridge University Press (1986) p.3

[373] Ibid. p.3

[374] K. Polanyi, *'' The Great Transformation, The Political and Economic Origins of our Time,''* Beacon Press Books (1944) Introduction p.24/25
''Our thesis is that the idea of a self-adjusting market implied a stark Utopia. Such an institution could not exist for any length of time without annihilating the human and natural substance of society; it would have physically destroyed man and transformed his surroundings into a wilderness.''

[375] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.68 & see generally: M. Callon, F. Munesia, *''Economic Markets as Calculative Collective Devices,''* Organization Studies, 26 (2005)

[376] K. Marx, *"Capital, Volume One, A Critique of Political Economy,"* Penguin Publishing Group (1992) p.53 In such cases objects take on the ''commodity form'' while being without value and possessing only an imaginary price: *''Hence an object may have a price without having value. The price in that case is imaginary''*

2) The second characteristic of a market is that it contains an agency that mobilizes calculative power in a distributed manner.[377] As Callon and Munisa argue, *''Calculative agencies are not human individuals but collective hybrids, 'centres of calculation*.''[378] In other words, it is not just the human that assigns a certain value upon a commodity or an object but rather the collective hybrid that does so with its calculative power. Whereas in the most basic scenario, a market vendor in the 1800's would price his or her fruits and vegetables on the town square market according to what he or she believes is the right price, the calculative structures in the 21st century are far more elaborate. In present day algorithmic stock trading and real-time trading in ad-tech contexts highlight how ''centres of calculation'' emerge as a fusion between human and computational modes of calculation that establishes the value of a commodity or object.

3) Finally, after encapsulating commensurable objects and having a distributed calculative agency, the market is the place where exchange can occur.[379] Exchange in this case is understood as an action in which one gives ''something'' and receives another ''something''. Exchange must not be read in the sense that one may receive temporary access to something, but that one truly receives ''something''. Furthermore, the market also sets the positions and relations of the involved actors involved in that transaction. Per Callon and Munisa, regarding all participants in the market: *''the respective positions and relations depend on a particular architecture of exchange.''*[380] The market therefore does not only refer to the place of exchange, but also to the positions and relation of persons that flow from the architecture of a place of exchange. Finally, exchange of objects and commodities therefore becomes a calculated encounter, which according to Cohen is an encounter which is *''mediated by distributed, materially embedded techniques and practices that all parties understand as transactional.''*[381]

Several problems emerge from this understanding of markets when related to digital objects and data. This can be observed best in academic descriptions of data markets which sets the stage for the later discussion on the markets of algorithmically influenced behaviour. The following sections deal with the problems that the digital brings to the established notion of the market when understood as institutional structure for calculated exchange of commensurable commodities.

6.2.2 Emerging conceptualizations of Data Markets

Data markets deal with two distinct situations of commercialization of data. First, data may actually be the object for sale on the market. In that case data is exchanged as if it were a regular commodity. In

[377] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.68
[378] M. Callon, F. Munesia, *''Economic Markets as Calculative Collective Devices,''* Organization Studies, 26 (2005) p.1236
[379] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.69
[380] M. Callon, F. Munesia, *''Economic Markets as Calculative Collective Devices,''* Organization Studies, 26 (2005) p.1240
[381] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.69

other cases, it is not data that is sold but the access to ''predictive power''. Both of these ideas are discussed in the Principles for a Data Economy as discussed in chapter two. Wendehorst and Cohen state: *''Where A sells a machine to B, A will no longer have the machine in the end, but where A sells data to B, both A and B can have and use the data, and the multiplication of the data does not in any way reduce its practical utility (without prejudice to the fact that the market value of data may decrease rapidly with increasing numbers of persons having the data).''*[382] In this case, data is being sold as an object of commerce, with the interesting connotation that it after its sale it still remains at the original seller. The second scenario deals with access to data and to computational infrastructure. Wendehorst and Cohen depict this as follows and their principles follow accordingly: *''If A allows B to access data in a secure space on A's servers with an algorithm to run certain processing activities, this would be a very common type of transaction in the data economy, but there is no established body of applicable contract law that would fit precisely this type of transaction.''*[383] In this case, access is given to both data and infrastructure but no real exchange of data as an object seems to happen. The next sections deal with these two situations and the manner in which they result in the conceptualization of data markets.

The first approach of a conceptualization of markets for data will be discussed along the work of Taylor et al. Their work deals with possible legal structuring of data markets which naturally deals first with a general conceptualization of data markets.[384] According to Taylor et al., the data market is *''a sphere of economic activity where what is exchanged is either data or insights based on data, but also as an assemblage (of actors, practices and technologies) where what is exchanged is either data or insights based on data''*.[385] Moreover, according to Taylor et al., the contours of such markets are starting to become visible through its clashes with established legal regimes.[386] Therefore it is not at all clear what the data market is until it its clashes with existing legal systems have been largely settled, it currently remains a moving target. The plurality of legal systems with which the data economy finds itself in question or dispute is in that sense a major shaping factor of the data market itself.[387] This data market is thus revealing itself slowly while currently maintaining rather vague contours. This connects to the Principles for a Data economy in the sense that there is no established body of applicable contract law to certain practices of data access.

Another important observation by Talor et al. is that data in data markets can be seen both as capital and as commodity and as both at the same time.[388] Data can thus both be that which is exchanged and that

[382] ALI-ELI, ''Principles for a Data Economy - Data Transactions and Data Rights'' (2021) Accessible at: https://www.principlesforadataeconomy.org/ p.6
[383] Ibid. p.6
[384] See generally: L. Taylor et al., *"(Re) Making Data Markets: An Exploration of the Regulatory Challenges,"* Law, Innovation and Technology 20 (2022)
[385] Ibid. p.2
[386] Ibid. p.2
[387] Ibid. p.2
[388] Ibid. p.7 see also J. Sadowski, *"When Data Is Capital: Datafication, Accumulation, and Extraction,"* Big Data and Society 6 (2019)

from which insights can be withdrawn, as if it were simultaneously part of the means of production and a commodity. If this is true, and if it is true that and the most important characteristic of the data market is the exchange of data and insights reaped from data, this has consequences for the required infrastructure of the players involved in the data market. Referring back to the idea of Callon and Munisa, stating that the market sets '*''positions and relations of persons that flow from the architecture of a place of exchange''*, some of these positions must deal with the computational infrastructure present at parties.[389] As a result, part of the relation and position of market participants reflects this dual nature of data as both capital and commodity. Some parties are in the position to use data as capital and derive other types of value from it than those who can only sell data as an object of exchange.

Between renting and exchanging

Talor et al. refer to two situations of data-exchange. The first deals with the sale of data by data-brokers. *''…known as data brokers, these companies and business units earn [their] primary revenue by supplying data or inferences about people gathered mainly from sources other than the data subjects themselves.''*[390] The second scenario deals not with sale of data but with the *''renting of profiles''* which Taylor et al. describe as an act of exchange. *''Google and Facebook act as fully automated, 'high-frequency' exchanges where customers can 'rent' profiles to advertise to.''*[391] This is fully in line with the principles for a Data Economy as mentioned in the introduction. In here a new tension arises that follows from all previous sections so far because there is an important nuance to be made between the two situations. In the first situation, a true scheme of exchange and transfer is followed, meaning that data changes hands as if it were a kilo of sugar. However, in the second situation things are different. The renting out of profiles is not an act of exchange, it is rather an act of accessibility of refined data through the digital architecture of a data processor. When parties rely on the digital infrastructure of a tech-giant to purchase access to profiles, the idea of the market as place for calculated exchange becomes uneasy. In such cases, markets of exchange of data should be understood as economies of *access* to refined data and computational infrastructure. In one case data actually moves from one party to the other, while in the other case only temporary access is granted. These are two different situations which should be examined separately. This is best observed in the work of Pistor.

6.2.3 Emerging conceptualizations of access-based markets for predictive-power

Pistor argues that in data markets, true exchange of data is not the standard modus-operandi. Rather, *''money changes hands, yet only access to data and their predictive power is granted in return.''*[392] The previous stresses again how sale of data and sale of access to data-insights are two different situations. Moreover, the previous has effect on the nature of data markets themselves since it undermines the

[389] M. Callon, F. Munesia, '*'Economic Markets as Calculative Collective Devices,''* Organization Studies, 26 (2005) p.1240
[390] L. Taylor et al., *"(Re) Making Data Markets: An Exploration of the Regulatory Challenges,"* Law, Innovation and Technology 20 (2022) p.16
[391] Ibid. p.10
[392] K. Pistor, *"Rule by Data: The End of Markets?"* Law and Contemporary Problems 83, no. 2 (2020) p.102

fundamental notion of exchange which is so essential to classical markets. The situation of the classical market seems only fit when data is actually sold as if it were a classical commodity, as something that is transferred to another party. But even then, it is placed awkwardly, since the selling party can sell its copy of the data again and again. The situation of selling access to predictive power is a different and therefore may not even be considered a market at all since it lacks true exchange. Pistor states in that regard that: *''If this is a market in the original sense of the word, it is a rather peculiar one.''*[393] In Pistor's opinion the monetization of data occurs mainly through the intermediation of global corporate behemoths between providers of data and those who seek to effectuate power over those who provide data.[394] In that sense, Big Tech is inserting itself into the transaction between these two parties. This creates a monopoly position for informational governance power, to which only those who pay gain access from the Tech companies.[395]

The idea of semi-fungibility echoes in the work of Pistor as well in its relation to data. According to her data itself may be non-rivalrous, but its *use* becomes rivalrous through the mediation of the Tech-Companies.[396] Therefore, making use of data and the predictive power that it entails requires the informational infrastructure of the Tech-Giants. In that sense, both data, the effective use of data and data-insights become tied to a digital infrastructure, making them semi-fungible. The resulting supply of predictive power is then carefully curtailed and sold by large tech companies. The previous results in the following conclusion, *''in the world of big data controlled by Big Tech, data are not primarily objects of exchange transactions; rather, they are both the source for and the means of control by Big Tech and their clients over others: consumers of goods and services, workers, voters, members in organizations, or whatever other targets they might choose.''*[397] This conceptualization of data markets understands them as a structure of calculated *access* data-power, rather than a structure of calculated exchange of data.

6.2.4 Data Brokers in data markets

Pistors' comments on the nature of data markets does not mean that data is never sold as a stand-alone object. This type of commercialization of data is prevalent too in the data economy and it is done by data brokers that sell raw or processed data. It is therefore somewhat problematic that the role of data-brokers in this economic ecosystem is underappreciated in academic literature, even as late as September 2022.[398] Reviglio observes that Zuboff only mentions the word ''data broker'' once in her work on Surveillance capitalism and this happens to be in a quote from the Wall Street Journal.[399] According to Reviglio the

[393] K. Pistor, *"Rule by Data: The End of Markets?*" Law and Contemporary Problems 83, no. 2 (2020) p.102
[394] Ibid. p.102
[395] Ibid. p.103
[396] Ibid. p.103
[397] Ibid. p.104
[398] U. Reviglio, *"The Untamed and Discreet Role of Data Brokers in Surveillance Capitalism: A Transnational and Interdisciplinary Overview,"* Internet Policy Review 11, no. 3 (2022) p.1
[399] S. Zuboff, *"The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,"* PublicAffairs (2019) p.168

post big data turn literature on the nature of data brokers is limited to around ten papers.[400] Data brokers are therefore quite easy to identify as actors with headquarters and websites, but very difficult to truly understand and define from an academic perspective. In other words, one might know who the data brokers are, but not what they are and what they do.

Cohen states in that regard that *''the data processing practices of platform firms and data brokers also are shrouded in secrecy.''*[401] Data brokers therefore remain vague entities, and more troublesome, it remains entirely unclear whether or not they operate in true data exchange markets as proposed by Taylor et al or on an access-based scheme as proposed by Pistor. It is not impossible that there is a mix or overlap of both of these approaches which underpin the business models of Big-tech Concluding, it is very difficult to truly understand in what manner these key players in the data market operate and what the effect thereof is on the nature of data markets. This is another reason why the Principles for a Data economy are so important, they structure the contractual side of these difficult to unearth situations.

6.2.5 Assessment of data- and data-power markets

The previous depictions of emerging data markets by Taylor et al. and the depiction of the sale of predictive data-power by Pistor and the introduction to the Principles for a Data Economy highlight some very interesting features of existing data markets. From the foregoing analysis, it seems that that there are two main theorized manners of commerce of data in data markets. The first option deals with the sale of data as if it were an object of some sort in which the commercialization of data requires true exchange of that data while also retaining a copy at the original seller. Alternatively, the commercialization of data happens through access-based renting out of profiles or insights which are based on collected and refined data on the computational infrastructure of others. In the latter case, no data is exchanged as raw product, but buyers have access to the refined data profiles or data insights in which they are interested.

Finally, it seems that the pure exchange and sale of data is reserved for data brokers and is not the mode of production that grants Tech-Giants their economic power. The evidence is somewhat anecdotal, but Google, Facebook, Amazon and Instagram in their current privacy communication state something along the line of ''we never sell your data''. Instead, advertisers pay to access the profiles that such tech giants establish from the data that they collect and process themselves. The massive consolidations of economic power observable in tech-giants seems not to be derived from their ability to sell data. When it comes to the relationship between big-tech and data-brokers the picture becomes increasingly foggy. It is not at all clear what the exact relations between big tech and data brokers are. In the words of Reviglio: *''The relationship between big tech and data brokers remains complex and opaque. The inclusion of big tech*

[400] U. Reviglio, *"The Untamed and Discreet Role of Data Brokers in Surveillance Capitalism: A Transnational and Interdisciplinary Overview,"* Internet Policy Review 11, no. 3 (2022) p.3
[401] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,''* Oxford University Press (2019) p.66

in the definition of data brokers depends on how the latter is defined. Big tech indeed have substantial relations with data brokers, but they ultimately operate differently."[402]

The previous leads to three important observations:

1) Straight sales of data exist and are widely prevalent in the practices of data brokers. However, such sales of data are not the source from which tech giants derive their economic power since those actors specifically and repeatedly preclude data sales in their communications and data sales are only a relatively small fraction of a larger economic transformation.[403] If one were to forbade the manner in which data is sold in straight data sales, tech giants would not seize to exist. Selling data is simply not the main form of production of capital in the case of tech giants, rather they provide access to their collected and refined data on their own infrastructure.[404]
2) If it is data power that is the object of transaction, rather than data itself, the mode of commercialization of data is inextricably tied to computational infrastructure. Providing access to data power cannot be done without digital architecture which ties data-power to infrastructure that allows the effectuation of data power onto persons.[405] This means that access of such power is the only possible option for its commercialization.
3) Markets for data power or data insights, in which no exchange and transfer of data occurs, are in conflict with established notions of markets, which are defined as structures for calculated exchange. If there is no exchange of objects, but merely access to data-powers, the markets are '*'peculiar in nature."*[406] Finally, access markets resemble a distinct type of commercialization which is incompatible with the idea of classical markets of exchange.

This idea of access-based commercialization cannot only be observed in markets for data and data power. Rather, it is part of a larger trend in digital markets. When aspects of persons are marketed over an access-based scheme, the conversation turns to the phenomenon of the sharing economy. Noteworthy here is the use of the word economy instead of market. Since exchange occurs in markets, which precludes access-based models, the sharing economy is referred to as the sharing economy, rather than the sharing market. The algorithmically influenced behaviour commodity shares facets with the data market as described by Pistor. Power is required to alter the behaviour of persons, and it is Pistor's conceptualization of data markets that deal with this power. Moreover, data is required to create algorithmically influenced behaviour, meaning that data markets are inextricably linked to the production of this neo-commodity. However, algorithmically influenced behaviour is not the same as power, it is another object in itself.

[402] U. Reviglio, *"The Untamed and Discreet Role of Data Brokers in Surveillance Capitalism: A Transnational and Interdisciplinary Overview,"* Internet Policy Review 11, no. 3 (2022) p.4
[403] P. Baldwin, "*Assetization Turning Things into Assets in Technoscientific Capitalism,"* Massachusetts Institute of Technology License (2020) p.76
[404] K. Birch, D. Cochrane, C. Ward, *"Data as Asset? The Measurement, Governance, and Valuation of Digital Personal Data by Big Tech,"* Big Data and Society 8, no. 1 (2021) p.4
[405] E. Mik, *"The Erosion of Autonomy in Online Consumer Transactions,"* Law, Innovation and Technology 8, no. 1 (2016) p.2
[406] K. Pistor, *"Rule by Data: The End of Markets?*" Law and Contemporary Problems 83, no. 2 (2020) p.102

One can therefore conclude that the markets or economies for data deal with many aspects that create algorithmically influenced behaviour, but they do not sell that object itself. Therefore, the analysis now turns to the widely established access-based market of aspects of person which goes by the name ''sharing economy''. In this Sharing Economy, many aspects of persons are being commercialized on an access-base.

6.3 Introduction to the Sharing Economy

Early academic conceptualizations of the sharing economy (SE) emerge around 2010's in tourism studies.[407] Alternatively, others argue that the sharing economy is first described in the late 2000's.[408] It is at least around this time that the sharing economy becomes a topic of academic and societal interest. Already in the early 2010's the sharing economy is depicted as ''*an umbrella term for a variety of non-ownership forms of consumption activities such as collaborative consumption and access-based-consumption''*.[409] Umbrella terms cover a wide-ranging subject rather than one specific subject; this is highly applicable to the sharing economy as it entails many (sometimes contrasting) facets. There are many academic streams of thought on the nature of the SE and many companies claim to be SE companies for meeting some of its many characteristics. The previous makes defining the SE an exercise that results in a catch-all concept very difficult. According to Trabbuci this results in a blanketing fog over the notion of the sharing economy.[410] Dillahunt et al. even state that there has been no consensus on a definition of the sharing economy at all.[411]

In order to provide some of the many characteristics that the sharing economy entails it is useful to examine the systematic literature review papers. These highlight that of the many of papers dealing with the sharing economy, most papers have their own distinct perspective. Rigo and Spalenza describe the six main perspectives on the sharing economy identified in their literature review. Those being: a) business models for generating value and profit; b) business that migrate from ownership-oriented to access-focused models; c) sustainable business in a changing society; d) new forms of work; e) regulatory aspects; and f) conceptual framework analyses.[412]

The previous list depicts how the sharing economy deals with too many different topics to provide one concise definition. Therefore, instead of providing an extensive list of the practices in the SE and all configurations of sharing-modalities present in its business models, this section analyses the notion of SE

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[407] J. Molz, *"Social Networking Technologies and the Moral Economy of Alternative Tourism: The Case of Couchsurfing.org,"* Annals of Tourism Research 43 (2013) p.215
[408] T. Dillahunt et al., *"The Sharing Economy in Computing: A Systematic Literature Review,"* Proceedings of the ACM on Human-Computer Interaction 1, no. CSCW (2017) p.2
[409] N. Agarwal, R. Steinmetz, *"Sharing Economy: A Systematic Literature Review,"* International Journal of Innovation and Technology Management 16, no. 6 (2019) p.2
[410] D.Trabucchi, L. Muzellec, S. Ronteau, *"Sharing Economy: Seeing through the Fog,"* Internet Research 29, no. 5 (2019) p.2
[411] T. Dillahunt et al., *"The Sharing Economy in Computing: A Systematic Literature Review,"* Proceedings of the ACM on Human-Computer Interaction 1, no. CSCW (2017) p.2 & 16
[412] A. Spalenza, A. Rigo, *"Sharing Economy and the Trends of Publications: a Systematic Literature Review,"* Revista de Administração Da UFSM 14, no. 4 (2021) p.794

in a different manner. The first section deals with the idea of sharing as an anthropological notion, and argues that what the sharing economy was meant to be is a logical response to novel digital possibilities of connection. The second section highlights how business practices in what is currently understood as the sharing economy have nothing to do with either sharing nor with the initial hopes of collective and sustainable consumption that the original SE provided. It describes how the sharing economy is a euphemistic term for an access-based market that efficiently connects people and businesses over digital platforms.

6.3.1 The Anthropology of Sharing and the Paradox of Sharing

Sharing is distinct from gift-giving, from commodity exchange and from acts of reciprocity.[413] A commonly quoted authority on the notion of sharing is Russel Belk. Belk states that the dynamics hidden in sharing practices make them stand out from gift giving or classical exchanges in interesting manners. In 1996 Belk argues that the difference between sharing and commodity exchanges on the one hand and gifting on the other hand can be something as trivial as the wrapping of gifts.[414] This is merely one of the interesting examples of how, from an anthropological perspective, the notion of sharing differentiates itself from gifting or exchanging.[415] Other examples of sharing relate to the sizes of containers in which beverages are consumed in different cultures. Small cups of tea need to be replenished by others more frequently, inducing emphasis on the act of sharing a larger pot of tea. The same goes for large bottles of beer, which mandate sharing due to their size. However, sharing is not always an activity that sits at the centre of attention of social relations, persons can share their house and food with family members without that sharing act being noted and appreciated.[416] Sharing in such cases becomes a point of discussion when it is ended, for instance when family members begin to eat their dinner separately and do not share a common space to dine anymore.[417]

These examples highlight the importance of social relationships in the activity of sharing where objects or interpersonal attention are involved. Sharing dinner, or a good time, highlights that the social connotation of the act of sharing is an important element which makes sharing different from mere co-consumption of food. Widlok states in that regard that it is not always the exchange of objects that denotes sharing from other practices, since not all that is shared is exchanged.[418] The most obvious example of Widloks claim refers to sharing dinner, where sharing dinner is not only sharing the object of food, but also of space, time and conversation. Moreover, reciprocity is not always involved during sharing but the parties involved may have different intentions when they share. Whereas one may share food in an altruistic manner, the receiving party may understand this act of sharing as creating an implicit future

[413] T. Widlok, "*Anthropology and the Economy of Sharing,*" Routhledge (2017) Chapter 1.
[414] R. Belk, *"The Perfect Gift,"* in C. Otnes, "*Gift-Giving: A Research Anthology,"* Bowling Green State University Press (1996) & R. Belk, *"Sharing,"* Journal of Consumer Research, Vol. 36, No. 5 (2010) p.717
[415] R. Belk, *"Sharing,"* Journal of Consumer Research, Vol. 36, No. 5 (2010) p.715
[416] Ibid. p.715
[417] T. Widlok, "*Anthropology and the Economy of Sharing,*" Routhledge (2017) p.22
[418] Ibid. p.22

demand of reciprocal sharing.[419] Hunter gatherer communities are often mentioned in this regard, since sharing their contribution to the food supply of a community implicitly mandates access to the goods of others in the future which entails a certain kind of reciprocity.

When the sharing economy first emerged in the 2010's, the idea of sharing that it employed was mostly the idea sharing as utilization of assets without gifting or exchanging. As Stephany argues: *''The sharing economy is the value in taking under-utilized assets and making them accessible online to a community, leading to a reduced need for ownership of those assets.''*[420] The idea that one could share a spare bed in an apartment or an empty seat in the car resonates deeply with both the idea of sharing and with the absence of the need to own an asset. The sharing economy in its optima forma therefore deals with the collaborative consumption of goods, spaces and anything of which a surplus existed with those outside one's own direct community, connected over the internet. Noteworthy is that this sharing in the sharing economy is per definition reciprocal, it mandates payment, therefore the act of sharing is not anthropologically pure. The sharing economy thus deals with the *''middle ground between sharing and marketplace exchange, with elements of both.''*[421] Where reciprocity is always demanded in these economic transactions in the form of payment for access, these transactions still meet many of the characteristics of the notion of sharing.

As mentioned earlier, the sharing economy has a clear technological component which enables sharing transactions over the internet '*'in ways and at a scale never before possible, creating a culture and economy of what's mine is yours.''*[422] However, it is this technological component pushes the commercial facet of the sharing economy to the foreground. Rather than being a place of sharing resources with a wider community, the sharing economy becomes a place of economic action where participants are increasingly met with a paradox. That paradox entails the following: *"Sharing" implies a moral economy of "sharing in" within a small community of close others…, while "economy" implies a market economy where access-based consumption takes place within a potentially large community of distant others.''*[423] In other words, the idea of sharing does not sit easy with the idea of the market place, since sharing is not per definition about reciprocity. The act of sharing with an unlimited community and the functioning of markets creates some sort of antithesis. One cannot share and partake in markets at the same time. As time progressed, the sharing economy thus became more of an economy and less of a place for sharing. As summarized best by Muguel et al.: *The sharing economy has been moving away from local and*

[419] Ibid. p.23
[420] A. Stephany, *''The Business of Sharing: Making it in the New Sharing Economy,''* Palgrave Macmillan, (2015) p.9
[421] N. Agarwal, R. Steinmetz, *"Sharing Economy: A Systematic Literature Review,"* International Journal of Innovation and Technology Management 16, no. 6 (2019) p.3
[422] R. Botsman, R. Rogers, *''What's mine is yours, Introduction to collaborative consumption,''* HarperCollins (2015) Introduction p.xv
[423] A. Lukasiewicz et al., *''The Sharing Economy in Europe Developments, Practices, and Contradictions''*, Palgrave Macmillan (2022) Foreword p.vii

solidarity-based sharing, gifting, bartering, commoning (non-market-based ways of supply), and drifted easily towards commercialised and business-like activities''.[424]

6.3.2 Sharing as euphemism for novel economic relations

The previous section described how sharing is a modality of consumption and circulation of goods and services which is distinct in character. Sharing deals not exclusively with commodity exchanges, gifting or bartering. As hinted in the end of the last section, the sharing economy drifted from a place of sharing between larger communities towards an economically incentivised market economy. As Bardhi and Eckhardt put it, *''the sharing economy is not about sharing at all''*.[425]

The role of persons within a sharing economy situation matters (and differs) greatly. As an example, persons may actually ''share'' their apartment with a stranger in exchange for some monetary benefits. But when the apartment that is being ''shared'' is a third or fourth apartment owned by someone who never resides in that apartment the situation should simply be called renting out.[426] Widlok states in that context *''calling it "sharing" is a euphemism at best and mystification of commercial market relations, at worst."*[427] The same goes for mobility-focussed sharing economy companies. Where one could share empty car-seats with strangers during a long trip, the sharing of countless electric scooters that litter pavements in many European cities at best a mystification of pure market interests. Sharing is hardly present in many cases in the sharing economy, since the created relationships are purely economic in nature. The sharing economy therefore deals with novel schemes of accumulation, rather than with interpersonal sharing of goods and services.[428] But the previous depiction leaves wanting, because if the sharing economy is not about sharing, then why does it attract so much attention? The answer lies in the fact that the sharing economy really does possess novel forms and possibilities of commercialization. These will be discussed in the following section.

6.3.3 The Sharing Economy as digitally mediated access-based economy

If it is correct that the sharing economy is not primarily about sharing there must be an explanation for all the attention it is receiving. It cannot be that a topic that gains attention by influential actors such as the European Commission or the World Economic Forum is just a one-dayer or a buzzword.[429] The sharing economy truly brings to the table a new and innovative mode of consumption of goods and services, and the attention it gains is wholly justified. These following section deals with the true novelty in the sharing economy, which, as argued before, deals not with sharing but rather with the peculiar nature of the sharing economy as a ''*middle ground between sharing and marketplace exchange, with*

[424] Ibid. Foreword p.viii
[425] Ibid. Foreword p.viii
[426] T. Widlok, "*Anthropology and the Economy of Sharing,*" Routhledge (2017) p.140
[427] Ibid. p.140
[428] T. Widlok, "*Anthropology and the Economy of Sharing,*" Routhledge (2017) p.141
[429] World Economic Forum, *"Understanding The Sharing Economy,"* World Economic Forum, no. 66 (2016) & European Commission, "*Communication from the Commission to the European Parliament, the European Economic and Social Commitee of the Regions: A European Agenda for the Collaborative Economy,"* European Commission (2016)

elements of both."[430] The true novelty that the sharing economy introduces is its response to economic opportunities that flow from an increase in (digital) connection between persons. It connects persons and allows for marketization of objects which happens outside the sphere of exchange and therefore outside of the sphere of markets. However, exactly as seen in the discussion on data markets and data-power access markets, this reliance on digital infrastructure puts access-based consumption to the foreground, at the expense of exchange-based structures. It is the act of digitally connecting, which induces access-based consumption of commodities and neo-commodities in many different contexts, that is the fundamental novelty of the sharing economy. The next section deals with the idea of connection through the notion of digital cleaving power and intermediation. Because the connections that the sharing economy creates follow to some extent from existing relationships that it destroys.

(De)coupling of existing economic ties and their dis- and reintermediation

Many observe how the sharing economy is based on the idea of connecting peers through platforms. See for instance the supporting analysis for the EU agenda on the sharing economy.[431] Peer to peer relationships have also been dubbed fundamental in the sharing economy by Boar et al.[432] However this idea of connecting peers is interesting in the context of economic processes, since the connection of persons with peers through platforms has direct consequences for existing economic relations. In other words, connecting persons in one way comes at the cost of disconnecting persons in other economic contexts.

Both Floridi and Cohen speak of this phenomenon caused by ICTs which cuts or disintermediates reality, relationships and economic processes. Floridi calls this the cleaving power of ICTs when he states that: *''The digital cuts and pastes reality, in the sense that it couples, decouples, or recouples features of the world—and therefore our corresponding assumptions about them—which we never thought could be anything but indivisible and unchangeable."*[433] Cohen rather speaks of disintermediation and reintermediation when she refers to the way in which companies cut existing economic relations and reintermedite the benefits thereof towards themselves. Regarding sharing economy companies, she states: *''Their true business, they argue, is disintermediation; they are simply facilitating the emergence of a new, freelancer-driven economy that is nimbler, more cost-effective, and less impersonal."*[434] In this case, disintermediation refers to the cutting of the ties between employers and employees and creating a space of commerce where freelance work becomes the norm. This cuts ties between employers and employees but it also inserts platforms into the equation who benefit from the data generated from the newly created

[430] N. Agarwal, R. Steinmetz, *"Sharing Economy: A Systematic Literature Review,"* International Journal of Innovation and Technology Management 16, no. 6 (2019) p.3
[431] European Commission, *''European agenda for the collaborative economy - supporting analysis,"* COM 356 (2016) p.5
[432] A. Boar, R. Bastida, F. Marimon, *"A Systematic Literature Review, Relationships between the Sharing Economy, Sustainability and Sustainable Development Goals,"* MPDI (2020) p1/2
[433] L. Floridi, *''Digital cleaving power and its Consequences,"* Philosophy & Technology (2017) p.123
[434] J. Cohen, *''Between truth and power, the legal Constructs of Informational Capitalism,"* Oxford University Press (2019) p.31

connections. In the words of Cohen: *"… businesses such as Uber and TaskRabbit are disintermediators but also reintermediators, converting the labor of user- workers (and user- customers) into flows of monetizable data."*[435]

In such cases, ICTs are responsible for creating and destroying relationships of commerce. It is precisely this that the sharing economy builds on when it connects peers together and therewith creates wholly novel modes of commercialization of different areas of economic activity. Through cutting and pasting and disintermediating and reintermediating, novel economic relations start to exist where others seize to exist. An important feature that the sharing economy bring to the table is exactly this idea of cutting and pasting relationships and making goods and services accessible to all participants in the sharing economy. To provide some examples. Whereas one may have delivered pizzas as a job in the past, now most pizza places operate with a delivery platform. ICTs cut or disintermediated the relationship between worker and employee and re-intermediated the worker as a labourer for every restaurant in town. Workers are cut from their existing labour relations and pasted to every potential employer that seeks to hire them as freelancer.

Other relationships or realities are also cleaved or dis- and reintermediated in the sharing economy. The relationships between objects or commodities and their owners are also cleaved or dis- and reintermediatied. For instance, the relationship between persons and their private homes or private cars is affected through novel forms of sharing economy commercialization. These relationships, of a person to their home or car as a private space, are cut and replaced by a relationship to one's home or car as space of commerce accessible to the public through platforms.[436] It is obviously not so that every car in the city becomes a place of commerce through converting it into a ride-haling participant, but economic situations force many to participate in sharing economy participation out of economic necessity.[437] The sharing economy therefore changes some homes to bookable rooms and therewith changes the nature of that home towards its original occupant. In that sense the sharing economy reintermediates or pastes these rooms or cars to those who seek to buy access to them, while simultaniously cutting or disintermediating these spaces in their original meaning from their owner.

In the same way common spaces such as parks, playgrounds or pavements are increasingly becoming places of commerce, with piles of electric scooters and bikes occupying space. Public spaces are being reintermediated into spaces of commerce where they previously were not. The sharing economy is cutting the relationships of persons with their surrounding or assets and turning these relationships into commercial relationships. This process, of cutting and pasting of aspects of life that were not included the sphere of commerce into that economic zone by means of connecting peers, is the essence of the sharing economy.

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[435] Ibid. p.33
[436] T. Widlok, "*Anthropology and the Economy of Sharing,*" Routhledge (2017) p.159
[437] Ibid. p.142

The Sharing Economy as frontier for accumulation outside markets

What the sharing economy therefore truly does is opening a new frontier of accumulation. It creates the necessary conditions in which people can connect and offer each other access to many aspects of their life and to assets which they control. The sharing economy therefore rings a distant Chicagoans call to the application of economics in every nook and cranny of life.[438] Arendt refers to this idea as further accumulation: *"the original accumulation of capital" and had started all further accumulation, had eventually to be repeated lest the motor of accumulation suddenly die down."*[439] It is the furthering of accumulation through ICTs of economic potential which needs not to be in the form of commodity exchanges that makes the sharing economy so interesting. The sharing economy allows the commercial accumulation of private space, of unexcavated human energy and of assets without mandating their exchange, therewith creating a new frontier of accumulation. While doing so, the sharing economy is simultaneously creating novel streams of data, which come as by-product of the intermediation service it provides between peers. Having persons connect and deliver services to each other is in turn a profitable business because it extracts data as surplus from the relations that it creates itself.[440] Ultimately, the whole scheme of accumulation in the sharing economy happens without the exchange of objects, it therefore happens wholly outside of markets since its mode of commercialization is not exchange but access.

The objects of sharing in the Sharing Economy

The previous depiction of the sharing economy provided some examples of the objects that are shared in the sharing economy. Most notable business models revolve around rides or mobility services, temporary living spaces and freelance labour. However, there are many more objects that are being shared in the sharing economy. For instance: parking space, office space, laboratories, storage space, boats, bikes, art, clothes, pets, books, food, WIFI networks, access to funds and the list goes on. Therefore, while the sharing economy seems dominated by a few large companies that engage in intermediation of housing or taxi services, the scope of the sharing economy is far wider than it initially appears. There is no consensus on which objects cannot be shared by the sharing economy. Rather, the list of possible sharing objects only seems to expand as the sharing economy matures. This ultimately signals that there is no obvious limit as to which objects can be included in the sharing economy, as long as it is possible to create a manner of access-based consumption of a certain object. It is therefore not entirely unfathomable to argue that the access-based models of data-power by Big Tech are in reality just another sub-set of the sharing economy. The commercialization of access to data power is the exact same mode of consumption when compared to objects which are not exchanged but rather accessed in the sharing economy. It is not clear why some access-based models are referred to as being part of the sharing economy and others as relating

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[438] H. Miller, *"On the Chicago School of Economics,"* Journal of Political Economy Vol. 70, No. 1, Chicago University Press (1962) p.65
[439] H. Arendt, *"Imperialism, Part two of the Origins of Totalitarianism,"* Harvest (1976) p.28
[440] S. Zuboff, *"The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,"* PublicAffairs (2019) p.76 & N. Couldry, U. Mejias, *"Data Colonialism: Rethinking Big Data's Relation to the Contemporary Subject,"* Sage Publications (2018) p.12

to data markets. Much of the idea of the access-based commercialization of data-power by Big Tech differentiates little from observable practices in the sharing economy.

Alternative names for the Sharing Economy

In that sense, the sharing economy may relate to data-power markets in the same way as it relates to other terms used for the sharing economy. Many different names for the sharing economy are proposed in contexts which seem only marginally different. For instance, in the context of freelance work, the sharing economy is referred to as the gig-economy. The sharing economy is called the on-demand economy when there is a limited time between ordering and receiving something, say groceries delivered within ten minutes. Therefore, what is accessed is often not a ''pure'' object in the sense that one accesses multiple objects at the same time. When using a ride-hailing service one buys access to both a personal vehicle and buys the labour of a person that performs the driving service. Therefore, ride-hailing services display characters of both the sharing economy and the gig economy at the same time. These alternative names for the sharing economy therefore at most highlight some of the specific economic processes at hand, but the sharing economy's core premise of access-based commercialization remains the same for all these objects. Concluding, the differences between the sharing, gig, collaborative, peer to peer, on demand, rental economy, platform and the access economy are nuanced but they ultimately describe the same business model of digitally mediated access-based commercialization.

There are other arguments why some alternative names for the sharing economy are not particularly fitting for the sharing economy, as described by Lichfield in 2015.[441] For instance, Lichfield states in the context of the peer-to-peer economy: *''First, it implies that you and the poor soul who bikes across the city in the snow to deliver a gift for your child's birthday are peers, when in fact, wealth inequality is essential to making this kind of economic relationship work.''*[442] Moreover, the gig economy describes an economy in which persons are hired for freelance jobs and have single ''gigs'', but that practice has always been the case for plumbers and many journalists before the emergence of platforms.[443] The gig economy is therefore no novelty, the only novelty that it introduces is again the access-based commercialization of everything under the umbrella of the sharing economy.

To conclude, some of these alternative terminologies have some merit to them, since they specify in a bit more detail what the economic processes at hand are, or rather, which object is commercialized exactly. But for the majority of the economic business models, it is best to describe them by the

[441] G. Lichfield, *''all the names for the new digital economy and why none of them fits,''* Quartz (2015) https://qz.com/548137/all-the-names-for-the-new-digital-economy-and-why-none-of-them-fits/ Accessed 1/10/2022
[442] Ibid.
[443] Ibid.

overarching term sharing economy, not because actual sharing takes place, but because the sharing economy acts as an umbrella term for all these sections of access-based economies.[444]

6.3.4 Conclusion on the nature of the Sharing Economy

The sharing economy is a space in which commerce takes place without markets since the sharing economy deals with commercialization of objects on an access-base. In its most basic form, markets deal with exchange and the contrasting sharing economy deals with access. The notion of sharing in this context is mostly a euphemistic term that hides the commercial nature of the relationships between persons partaking in the sharing economy. Sharing in most cases in the sharing economy means renting out or performing freelance labour through connection with other over digital platforms. In that sense, it is important to observe that the sharing economy steps further into zones of accumulation through commercializing access rather than exchange. The sharing economy is an economy without markets that sucks up many aspects of life which previously existed outside zones of commercialization. ''Objects'' ranging from pets to bedrooms, from bikes to laboratories and from clothes to home cooked meals have now been included in economic processes where previously they had not been.

It is unclear how far the nature of the objects in the sharing economy extends. The many different names that the sharing economy has implies that it is not only access to assets but also to labour, private spaces and many more objects that are being commercialized. This creates an interesting parallel with the access to data-power markets, since this type of commercialization fits the blue print of the sharing economy. This leads to the final part of this chapter, the analysis of the manner in which algorithmically influenced behaviour can be understood as an object that circulates in the sharing economy. Circulating in this case refers to the act of commercialization, in markets one would say ''exchange'', but since that does not occur in the sharing economy, the verb ''to circulate'' is adopted. As will be argued in the following analysis, this impacts the sharing economy itself, because it expands the scope of objects which are commercialized in it even further.

6.4 Circulating the Algorithmically Influenced Behaviour Commodity in the Sharing Economy

In chapter three and four the object of algorithmically influenced behaviour was described as an object that can only exist in the presence of continuous computational power. Continuous computational power is not only a prerequisite for algorithmically influenced behaviour to exist, but also for its sale and commercialization. To repeat Zuboff's example, the mobile phone game Pokemon Go was an excellent tool to make persons physically move into a certain area where they could be seduced into impulse purchases.[445] But the altered behaviour of persons that companies were buying could not be sold separately from the architecture of that game. It required the infrastructure of that game to move persons around and to commercialize the behaviour it created. In that sense, the generated algorithmically influenced

[444] N. Agarwal, R. Steinmetz, *"Sharing Economy: A Systematic Literature Review,"* International Journal of Innovation and Technology Management 16, no. 6 (2019) p.2
[445] S. Zuboff, *"The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,"* PublicAffairs (2019) p.292 and on

behaviour cannot be exchanged because it cannot be seen separate from the digital infrastructure from which it sprung. It is therefore unsurprising that an access base scheme arose where companies and individuals could purchase access to what Zuboff calls ''Instrumentarian Power'', what Pistor calls ''Predictive Power''.[446] This thesis has argued that it is not the commodification of power that is at stake, but the commodification of the behaviour that results after the successful exertion of power.

The previous discussion on the sharing economy and of data markets reveals that the market/economy in which algorithmically influenced behaviour circulates must have traits of both the sharing economy and data markets. Since both the sharing economy and the data market are far from clearly defined entities, both the sharing economy and the data market will be discussed in their relation to algorithmically altered behaviour.

6.4.1 Algorithmically altered behaviour in Data Markets and Data Power markets

Algorithmically altered behaviour is an object that results from clever data processing and persuasive technologies, as described in chapter four. However, it is highly questionable whether those who engage in the production of such behaviour also sell the data which was used in creating the altered behaviour in persons. Even those who are skilled in the art of manoeuvring persons around, such as the mobile phone game Pokemon Go, specifically state in their privacy policies that they do not sell the data they collect from persons.[447] One may argue that Pokemon Go sells its predictive power to those who are interested in the possible movement of persons. In that case, it is the prediction that is sold, which connects to the theory on prediction-power markets as described by Pistor and the Principles for a Data Economy.[448] A crucial element to this narrative is provided by Mik who notices that predictive power without a means to effectuate the generated knowledge on persons is economically unideal.[449] It is not only important to know when a person may act a certain way, but it is important to reach that person in some manner, in order to capitalize on that predicted knowledge.

Therefore, what is being bought and sold in data markets or data-power markets is something that is very close to algorithmically influenced behaviour but it is not that behaviour itself. It is not the actual movement of persons, as expended human energy, that is being bought and sold in data markets and data-power markets. Rather, data markets deal with the sale of data or the sale access to power that is offered up for sale on access-based terms. This does not mean that companies who engage in this specific mode of commercialization data power do not also sell the algorithmically influenced behaviour of persons, but that the market in which it happens is most likely not the data market itself. The reason for

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[446] S. Zuboff, *"The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power,"* PublicAffairs (2019) p.15 *"Instrumentarian power knows and shapes human behavior toward others' ends"* & K. Pistor, *"Rule by Data: The End of Markets?"* Law and Contemporary Problems 83, no. 2 (2020) p.104

[447] To access their privacy policy, see: https://nianticlabs.com/privacy/?hl=en (accessed 1-10-2022)

[448] See generally: K. Pistor, *"Rule by Data: The End of Markets?"* Law and Contemporary Problems 83, no. 2 (2020)

[449] E. Mik, *"The Erosion of Autonomy in Online Consumer Transactions,"* Law, innovation and technology 8 (2016) p.2

this is trifold. First, data is not the same object as algorithmically influenced behaviour. Second, data may be bought and sold as if it were a regular commodity but algorithmically influenced behaviour cannot. Third, the types of accessed data power as decibed by Zuboff, Cohen and Pistor, (Instrumentarian/Predictive/Governance) are also not algorithmically influenced behaviour in themselves, they are two different ''objects''. These types of power cannot be sold in markets because they cannot be exchanged but only accessed since they require computational infrastructure which can only be accessed.

The problem with understanding the circulation of algorithmically influenced behaviour in data markets or data power markets lies in the fact that these markets do not deal with the object that is central in this thesis. Algorithmically influenced behaviour *is* neither data nor commodified power. Therefore, both the data market and the data-power ''market'' does not provide enough reasons to argue that algorithmically influenced behaviour circulates in these markets. It is more helpful to examine how the sharing economy could mitigate the limited scope that data markets entail.

6.4.2 Algorithmically altered behaviour in the Sharing Economy

As discussed in this chapter the sharing economy is a space in which commercialization of many aspects of persons or general assets is achieved on an access base. Contrary to data markets and data-power markets the sharing economy deals with more than access to just data or power. Next to assets, the sharing economy also commercializes human aspects, which is primarily observed when the sharing economy creates economic relationships where human labour is involved. Some of these labour relationships are directly visible, for instance when one hires a freelance plumber or lawyer over platforms like Task-rabbit or when ordering a delivery service over a platform. But often the labour relationships in the sharing economy are somewhat more concealed, in the case of ride-sharing apps, persons do not only ''share'' their vehicle (asset) but also drive their passenger to their location. In the case of apartment sharing, persons do not only ''share'' their apartment but also clean the apartment afterwards, but the cleaning would have happened without the stranger sharing regardless, rendering it to some form of quasi labour. Unlike the data market or data-power market that provides access to data or to predictive power, the sharing economy also deals with aspects of human, sometimes in the form of labour but also in other forms. From a more general perspective, the objects which the sharing economy commercializes are not clear cut and seem to expand as more and more platforms ''share'' novel objects. Aspects of persons play a crucial role in this commercialization scheme.

Aspects of persons in the Sharing Economy

As described by Widlok, when persons rent out or ''share'' the apartment in which they reside with strangers they do not only rent out a physical space but also their own private space.[450] There is a real human element that is part of the transactions in the sharing economy when persons are proving access to assets or services which were previously excluded from the sphere of commercialization. As argued in

[450] T. Widlok, "*Anthropology and the Economy of Sharing,*" Routhledge (2017) p.136

this chapter, much of the sharing economy deals not with sharing at all but mainly with renting out on an access base. The sharing of one's own current home with a stranger is in that sense a radically different situation from renting out two unoccupied ''spare'' apartments over a platform. The latter deals only with commercialization of an asset, rather than of a personal element. What can be deduced from this is that, unlike the data market or data-power market, the sharing economy can be a place where actual human features are commercialized, whereas in data markets only data about persons or power is commercialized. This is the first reason why the sharing economy is a better fit for the circulation of algorithmically influenced behaviour when compared to data markets. The sharing economy already intrinsically deals with the commercialization of features of persons, including their expended energy, either in the form of labour, as a form of quasi labour which is required to provide access to an asset or as interpersonal interaction when co-consuming an asset. Algorithmically influenced behaviour is a new type of expended human energy. As seen in the previous discussions on the sharing economy, the sharing economy already penetrates novel types of human expended energy, be it in the form of sharing of private spaces or the performing of (quasi) labour.

The impossibility to exchange

The second reason why algorithmically influenced behaviour fits betters as object that circulates in the sharing economy as opposed to the data market or data-power market lies in the fact that the sharing economy is not a market. As described in section 6.2, markets deal with exchange of objects, the sharing economy deals with access to assets and services. If it is correct that algorithmically influenced behaviour can only be accessed, rather than exchanged, it can per definition not be an object that is exchanged in a market. However, the reasons for the access-based consumption of assets in the sharing economy and the reason for access-based commercialization of algorithmically influenced behaviour are not entirely the same.

Rooms or cars can be commercialized without exchange of the asset in question in the sharing economy. In other words, it is possible to sell and exchange cars and real estate in general markets, but the sharing economy does not require actual sale of these objects as condition for commercialization. In the case of algorithmically influenced behaviour, the true exchange is not possible at all and it must therefore rely solely on access-based schemes. Reason for this is twofold, first there is a reliance on computational infrastructure at the party that engages in the steering of persons behaviour. Algorithmically influenced behaviour is in that sense at least tied to its means of production in an inextricable manner. It stops to exist when the influx of computational power that generates it ceases to flow.

Second, it is questionable whether or not algorithmically influenced behaviour can exist separately from persons in general. This goes back to the idea of alienation of labour as described by Marx. To briefly reiterate the idea of alienation, Marx argues that '*'labor is external to the worker''.*[451] This type of human expended energy can exist separately from persons as an object in itself. However, it is not easy to argue

[451] K. Marx, *''Economic and Philosophic Manuscripts of 1844,''* Prometheus Books (1988) p.74

that one's personal choices and the actions that follow, which are perceived as autonomous, are alienated from persons. Whereas Marx argues that labour *''does not belong to his (the worker's) essential being'',* the behaviour of persons which they perform for others which does not crystalize in physical commodities nor is perceived as sold human energy cannot be seen as alienated from the person.[452] The shaping of preferences and the behaviour that follows is intrinsically human and cannot be seen as energy that is alienated from persons like labour is in the Marxist sense. Algorithmically influenced behaviour cannot be exchanged because it is not like labour in the Marxist sense, it is not something that exists externally.[453] Whereas labour can be externalized into objects, or rather be embedded in commodities, behaviour cannot. Therefore, whereas for real estate and cars the access-based commercialization is an option of commercialization next to exchange on markets, for algorithmically influenced behaviour access-based commercialization is the only possible mode of commercialization. The sharing economy supports the construct of access-base consumption of assets and human energy throughout. The conceptualization of both types of data markets differ from the sharing economy in this respect since they solely deal with data and power.

6.5 The effects on the Sharing Economy

The sharing economy is currently understood as a place in which assets and services are being consumed in an access-based scheme. However, it is not clear where its limits are regarding the objects it deals with. Many different sub-regions of the sharing economy hint at the fact that many different objects circulate in the sharing economy. For instance, the gig-economy is a part of the sharing economy that deals exclusively with labour. Or the ''renting economy'' is a part of the sharing economy that deals with access to goods but not with services. The many different names that the sharing economy has hints at the same mode of commercialization in which different objects are being accessed. When examining the ''market'' for data power it can be argued that such an access-based consumption scheme for power fits the idea of the sharing economy relatively well. In that sense, the access to data power ''market'' is just one of many types of subset access economies under the large umbrella of the sharing economy.

The access-based commerce in ''data markets'' fit the narrative of the sharing economy so well that it is possible to understand the sharing economy not just as a place in which sharing occurs between strangers, but that it also encapsulates parts of data markets under its umbrella. Persons may first perceive the sharing economy as a place where cheap rides or stays can be found, but the discourse (to borrow a term from Foucault) around the sharing economy should be changed towards a more general and inclusive mode of commercialization of everything. The current sharing economy seems to hardly have limits to the objects which it seeks to commercialize. Sale of access to data-power is a scheme of commercialization that should therefore be included under the wider sharing economy banner.

[452] Ibid. p.74
[453] Ibid. p.74

Moreover, the effect of understanding algorithmically influenced behaviour as a commodity that circulates in the sharing economy increases the range of objects that it captures under its wide umbrella even further. Again, this inclusion is wholly justified because the object in question is not out order when compared to the many different types of features of persons that are already encapsulated in the sharing economy. Therefore, the current framing of the sharing economy, which makes it seem to be about the sharing of underutilized assets with a communal sense of ''stranger sharing'' should be lifted and replaced. In reality, the sharing economy is not about sharing but about commercialization of everything through access-based schemes.The effect that understanding the circulation of algorithmically influenced behaviour has on the sharing economy is that it increases the types of objects that circulate in the sharing economy. It places the sharing economy in a light that stresses again that the sharing economy is not about sharing but about commercialization of objects without warranting their exchange. The comparison with the existing conceptualizations of data markets furthermore proposes that the sharing economy is really an all-encompassing umbrella term that encapsulates all platform-based access-based commercialization practices. The ultimate effect on the sharing economy of the foregoing analysis is therefore that it widens the scope of the objects that circulate in the sharing economy even further.

6.6 Chapter Conclusion

This chapter analysed the different markets and economies in which data, data power and algorithmically influenced behaviour can be commercialized. It argued that there are different scenarios to be identified in different cases with different corresponding markets and economies. In other words, distinct uses of data create distinct economic scenarios and markets. Part of this goes back to the idea by Taylor et al. that data can be both a commodity and capital at the same time.[454] What follows from this is that data can be seen as an object that is being bought and sold in literal markets, sometimes through the intermediation of data brokers.[455] In such cases, data connects to classical markets as described by Callon and Munisa.[456]

In the case where data is not bought and sold but rather commercialized through access-based markets for data-power, the idea of markets becomes somewhat disconnected. The reason for this is that data-power cannot be exchanged and classical markets fundamentally deal with exchange. As observed by Pistor, this makes markets where data and its predictive power is accessed very peculiar types of markets since they are ''markets'' where money changes hands but only access is granted.[457] Therefore, those who engage in the sale in predictive power do not seem to be the parties that sell data. The evidence for this is rather thin but follows from the privacy policies of major platforms. None of the GAFAM companies confess to the practice of selling data, all state something along the line of ''we will never sell your data.''

[454] L. Taylor et al., *"(Re) Making Data Markets: An Exploration of the Regulatory Challenges,"* Law, Innovation and Technology 20 (2022) p.7
[455] See generally: U. Reviglio, *"The Untamed and Discreet Role of Data Brokers in Surveillance Capitalism: A Transnational and Interdisciplinary Overview,"* Internet Policy Review 11, no. 3 (2022)
[456] See generally: M. Callon, F. Munesia, *'Economic Markets as Calculative Collective Devices,"* Organization Studies, 26 (2005)
[457] K. Pistor, *"Rule by Data: The End of Markets?"* Law and Contemporary Problems 83, no. 2 (2020) p.102

How true this statement is leaves to be seen, but it remains unlikely that these companies gain most of their economic benefit through the sale of data but rather through the sale of access to data power. Sale of data seems to be more reserved for the opaque data brokers which actually sell data to interested parties.

However, when it comes to algorithmically influenced behaviour as a commodity, the picture changes. Because this type of created behaviour is intrinsically neither data nor predictive power. It is the result of the exertion of data-power onto persons with the goal to steer their behaviour which results into expended human energy in the form of algorithmically influenced behaviour. It is precisely that expended human energy that is the neo-commodity framed in this thesis and therefore also the object that must be circulated in one way or another. The chapter argued that both the data market and the data-power market do not deal with this type of object. Since commodities per definition need a space in which they are commercialized, the analysis turned to the sharing economy.

The sharing economy was approached first from an anthropological perspective, which highlights that very few relationships in the sharing economy actually deal with the notion of sharing. This has been advocated by several authors, who state that the sharing economy is the *''middle ground between sharing and marketplace exchange, with elements of both.''*[458] It is not entirely impossible for the sharing economy to facilitate the anthropological notion of sharing, but the primary goal in the sharing economy drifted towards pure commercial interests rather than anything else. The sharing economy is primarily viewed as a way to access to houses, cars and delivery services over platforms which are an alternative for taxi and hotel services. But the sharing economy also proved to have little limits when it comes to its scope of objects that are commercialized in an access-based scheme. Pets, pools, toys and clothes are all being commercialized in the sharing economy but gain somewhat less attention. Included in the scope of commercialized objects in the sharing economy is labour of persons and other aspects of expended human energy, for instance when persons share a private space such as an appartment.

This led to the final part of this chapter, which argued that the schemes of commercialization on an access base fit very well with the object of algorithmically influenced behaviour. Contrastingly, the markets for data and data-power run out of sync when it comes to actual features of persons, since these markets deal only with data and with power. Since algorithmically influenced behaviour can only be accessed, but not transferred to others like regular commodities can, the sharing economy is a better fit for this novel commodity to circulate because it already deals with aspects of persons.

The previous leads to the answering of the research question of this chapter:

In what manner can the Sharing Economy be conceptualized as a market or economy for algorithmically influenced behaviour as access-based commodity?

[458] N. Agarwal, R. Steinmetz, *"Sharing Economy: A Systematic Literature Review,"* International Journal of Innovation and Technology Management 16, no. 6 (2019) p.3

It must be answered in the following manner. The sharing economy is an economy, rather than a market, because it does not deal with exchange. Some of the objects that circulate in the sharing economy are susceptible to both the sharing economy and regular markets. Examples of those objects are cars and real estate, which can both be truly exchanged or commercialized through an access scheme in the sharing economy. However, for other objects, the only mode of commercialization lies in access-base commercialization. Especially for algorithmically influenced behaviour goes that it cannot be effectively separated from the digital infrastructure that created it and it cannot be truly alienated from persons like labour can be in the Marxist reading. Rending algorithmically influenced behaviour as an object that can only be accessed, rather than truly exchanged.

Moreover, the sharing economy can be conceptualized as a place in which many different objects are commercialized on an access-base, some by choice, others by necessity. This alternative reading is a deviation from the standard reading of the sharing economy that emerged around the 2010's, but it is also a reply to the many who argue that the sharing economy is not about sharing at all. In its core, the sharing economy is about commercializing almost everything through an access-based scheme. In that sense, it allows for the conceptualization of the sharing economy as an economy in which algorithmically influenced behaviour is commercialized. The strict reading of the notion of the market precludes the sharing economy to be understood as a market for algorithmically influenced behaviour since it cannot be exchanged.

7.0 Conclusion

This final section deals with a brief summary of the thesis and the answering of the main research question of this thesis. The answering of the research question has implicitly been done in the chapters leading up to this final chapter, but still mandates a concise answer. To reiterate the main research question as framed in chapter one:

''*In what manner are persons, or aspects of persons, subjected to a process of neo-commodification in data driven economies, and what is the effect thereof on the understanding of the Sharing Economy?*''

Essentially this research question falls apart in three discussions. First, on the object of commodification, then on the process of neo-commodification and finally on the economy in which this process happens. To start off with the object of commodification.

Novel objects of commodification

As argued in chapter two and three, the idea of novel objects becoming commodities is inherent to the extension of capitalist processes. As modes of production become more technological advanced, new objects are created and thus potentially commodified. This was first observed in the Blindspot debate by Dallas Smythe in the context of paper- and digital mass media mass media. Smythe argued in the 70's that audiences were commodified in their entirety and that they performed labour for the advertisers in the media they consumed. Currently, data is widely understood as a commodity. This thesis proposed a 21st century version of that narrative. Rather than commodified audiences, this thesis argues that it is the altered behaviour of persons that is commodified through exploitation of data. Such altering or influencing of behaviour occurs through nudging, behavioural modification and persuasive technologies which are increasingly effective in the digital age. The difference between a paper newspaper and a 21st century digital nudging factory are of course immense in terms of their workings and effectiveness. Chapter four described the whole process in which such behaviour is created and its relation to power. The first part of the main research question deals therefore with the ''what'' or the object of commodification. Whereas several influential works describe the working of data-capitalism, surveillance capitalism or informational capitalism, none take the leap from describing the behaviour it results in as a commodity. Most conceptualizations rather deal with data being the core commodity at hand. It is undeniable that data is an object that satisfies the cell form of value and should therefore be understood as a commodity but this research focusses on the commodification of persons which required further investigation into the processes of commodification applied to persons. Most likely they are many more aspects of persons which are commodified through data and surveillance capitalism and these aspects should be researched in more detail in the future. Behaviour influenced through algorithmic means is not

the only object produced in surveillance/informational capitalism, but it is one of its most important novel commodities.

The process of neo-commodification

The process of commodification has been discussed in chapter one, three and five. In its core, commodification can mean many things to many people. There is a real difference in first wave and second wave commodification theory. Second wave commodification theory deals with the subjective preferences of persons regarding processes of commodification. Radin describes this perfectly when she refers to the double-blind problem. In some cases, commodification may be unpreferable, but still beats the alternative of non-commodification. For instance, commodification of underpaid labour is undesirable but starvation is worse. Commodification of personal data may be undesirable, but very few chose not to own any digital devices and live in analogue isolation in order to circumvent this. Second wave commodification theory debates are highly interesting but perhaps also too subjective to really break any ground. The opinion of persons on the desirableness of commodification will change and be subjected to a double-blind problem and that is the fundamental nature of that particular debate.

First wave commodification theory is different. Original theories of commodification ascribe specific characteristics to commodities and it has become apparent that the commodities that drive current economies are not at all captured by those characteristics. Theories on commodification as recent as the 1990's or early 2000's prove to disconnect with the commodities that are circulating in 2020' data economies. This warranted the rewriting of the notion of commodification in chapters three and five. The goal of this rewritten commodity concept was to restore a specific function of the commodity concept, that of the commodity as the ''cell-form'' of value. Understanding data and algorithmically influenced behaviour as a commodity and therefore as cell of value restored the notion commodity to its former glory. This exercise did require the addition of novel characteristics to the notion of commodification, such as its accessibility and the acknowledgement of the computational power that it is fundamentally linked to. Commodification in digital and data driven economies thus reflects a different process than it has reflected for the past 200 years. Therefore, this thesis refers to the novel process of commodification as neo-commodification, signalling a significant break with classic commodity theory.

This in turn warrants a future discussion on what the limits to commodification should be in digital economies. Since commodification has always come with a discussion to its limits and desirability, the process of neo-commodification call for the creation of new arenas of debate for digital de-commodification or general prohibitions of neo-commodification.

The effect on the Sharing Economy

Neo-commodities warrant novel approaches to their circulation. In the specific case of algorithmically influenced behaviour as a commodity, its access-based commercialization is sets it apart from all earlier conceptualizations of commodity exchanges. Since, unlike all previously known commodities, algorithmically influenced behaviour cannot be exchanged but only accessed. Some aspects of the creation

of algorithmically influenced behaviour are marketed in data markets, such as data and data power. The emerging literature on data markets acknowledges a dual nature of data markets where data is dealt with as a classical commodity while at the same time describing an access-based market for data power. The access-based commercialization of data-power entails a type of commercialization of power which is not commodity exchange. It is however problematic that data markets deal with data and not with algorithmically influenced behaviour as an object. Therefore, data markets can only be the markets for certain relating to algorithmically influenced behaviour. When it comes to the object of algorithmically influenced behaviour, the sharing economy proves a better fit since the sharing economy is the blue print for access-based commercialization of everything. In this light, it can be argued that algorithmically influenced behaviour is a commodity that circulates in the sharing economy, since it too requires an access-based commercialization but is something different than data or data power itself. The previous does requires a wider scope of appreciation of the sharing economy, but as argued, there are currently no limits to the objects that are commercialized in the sharing economy.

Concise main research question answer

The previous leads to the to the main research question: ''*In what manner are persons, or aspects of persons, subjected to a process of neo-commodification in data driven economies, and what is the effect thereof on the understanding of the Sharing Economy?''* which must be answered as follows:

Algorithmically influenced behaviour of persons is commodified in data driven economies. The creation of such influenced behaviour flows from the interaction of persons with commercial nudging architectures that exploit personal data to steer persons in premeditated directions. Commodification should be understood in a novel manner in this context, rendering it a form neo-commodification rather than classical commodification. The need for the concept of a neo-commodity flows from the peculiar characteristics that algorithmically influenced behaviour possesses. As there is no current economy for such neo-commodities, the sharing economy which its misleading name, can be conceptualized as the economy in which these neo-commodities circulate. However, that entails that the understanding of the sharing economy should be widened to encompass these peculiar objects of commerce.

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