Critique of Digital Money

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Preface & Acknowledgements

"Here the word, there the meaning.
The money, and the cow that you can buy with it."
(Wittgenstein, 1958 p.49)

During the past summer (2014), the country of Ecuador made a ground-breaking announcement: that it will be the first state to legally introduce a "digital currency": a form of money that people can store in electronic wallets on their phones that can be used next to the official currency of the country (BBC, 2014). Ben Dyson, the founder of the organization "Positive Money" argues that this state-issued, digital currency is totally different from the well-known crypto-currency Bitcoin, whereas "Bitcoin is creating new money, which the Ecuadorians won't. [Ecuador's digital initiative] is someone giving you a box to put your cash in then giving you an electronic number that says how much money's in the box" (Banning-Lover, 2014). Such statements, especially when analysed with a philosophically, incite certain questions that aim at their disambiguation. What does it mean to have "new" money? How can digital records represent "actual" money – and what does it even mean to have "actual" money? To what extent can we say that such digital currencies represent the value of objects in the economy – and to what extent can we say such things at all about money in the general sense of the word? How do numbers "say" things?

The Ecuadorian case represents one of the many technological initiatives that shake the foundations of our understanding of money – a tendency that is reflected by the greatly increasing public interest in monetary issues that would have been seen as boring at the very most just ten years ago. In 2010, an apparently very different event in the global financial system, the so-called "flash crash" gained considerable public attention. In the context of the flash crash, people began wondering what the impact of algorithmic trading might be on the global financial system. It has been events as these that incited my own interest into the impact of technology on the way that the global monetary system is constructed. How do technologies change the way we think about money, how we use money in our daily lives and how we theorize money in the academic and political discourse? I have turned to the basic phenomena which form seems to influence all instances of technological innovation in the monetary system: plainly *money.* And in order to capture the specific technological transition that makes this endeavour historically relevant I turned toward money in its *digital* form.

The first spark of this project was ignited in the winter of 2013 when I wrote my essay for the course "Ethics and Technology" titled "Fake money", exploring the ethical impacts of digitalization of money. Already during this project I made use of the works of the philosophers Searle and Simmel in order to analyse the phenomenon of digital money, though merely superficially and unaware of the consequences of the conception of money as a socially constructed phenomenon. One of the consequences of the conceptualization of money in this thesis is the refusal of

the commodity theory of money in which money is theorized as a means to simplify barter; a theory that was nonetheless still present in this early essay *Fake money* as an obvious point of departure. In hindsight, it seems to me that the commodity theory of money is so much embedded in the common-sense understanding of money - not in the first place because of its central position in our educational system - that it might be in need of a serious opposition. Hopefully, I will be able to contribute with this thesis to the resurgence of the intellectual and perhaps even public debate about money and especially concerning its intimate relation with (digital) technology.

During the writing of this thesis, I have been supported by a number people that helped me structure, re-think and enrich the arguments in this thesis. First of all, I want to thank Peter-Paul Verbeek my first supervisor, for his help: both for supporting me throughout the entire writing process and for giving me the opportunity to spend three months of writing in Paris; which resulted in a truly wonderful time, full of inspirational meetings and great places and times for thinking and writing. Without his enthusiasm and constant willingness to arrange meetings at difficult times and circumstances (in the morning on Skype from Paris, in front of the Notre Dame), I would not have been able to complete this thesis in the way I did. I would also like to thank Michel Puech, my external supervisor in Paris for his valuable and critical input. He supported me a lot in re-structuring the thesis and making drastic revisions: changing one of the main philosophers (from Adorno to Feenberg), deleting and adding two entire chapters and making sure that I would not lose the connection to the actual technology of digital technology throughout the writing. I also like to thank Johnny Soraker for his continued advice and support during my both years of studying PSTS and his great help during the writing of my thesis. Our meeting in Paris during a conference at the Sorbonne about Searle helped significantly in having my arguments in place. Moreover, I would like to thank Ringo Ossewaarde, who previously supervised my Bachelor Thesis (for European Studies) for his advice on my writing. He initially made me acquainted with the subject of philosophy in 2012 by advising me to read "Dialectic of Enlightenment" of Adorno and Horkheimer and kept supporting me after I chose for the PSTS master programme.

Next to the people who aided me mostly academically, I have felt supported by people that are personally close to me. One of the main inspirations remains my mother, though she is not physically on this earth anymore, while in spirit she is one of the main reasons that I've been drawn towards philosophy. Also, I'd like to thank my father and my sister for their unconditional support and love during the time of writing. Moreover, my fellow study friends, friends in Warsaw and Paris, fellow Kadmos (fraternity) members and housemates of Schildpatio (my student house) have been a continuing source of support and guidance. I would especially like to thank my fellow student Beer Sijpesteijn in this respect, whereas he has been a good friend and philosophical discussion partner throughout the past two years.

Contents

Introduction

The Purpose of this Thesis

This thesis is meant as a first orientation, a beginning of a philosophical project that concerns a critique of the positive social sciences, notably the science of economics, and an attempt to reconcile two philosophical traditions that are referred to as "philosophy of technology" and "philosophy of society", a reconciliation which I argue will be needed in order to construct such a critique. This preliminary and limited work focuses on **money,** as a phenomenon that I would argue is necessary to be subjected to one's understanding, if one would want to endeavour on such an enterprise as I intend to. Moreover, I focus on money in its digital form; *not* out of ontological interest[1] but out of interest in the relation between the meaning and use of money and its technological[2] form. The constitution of digital money penetrates the theories and models that are used in economic sciences and needs to be thoroughly understood in order to comprehend the relevance and limitations of those models and their applications.

My initial inclination towards this endeavour has been the apparent absence of involvement of philosophy of technology into the dealings of economic sciences and especially into the phenomenon of money. While philosophy of technology is aimed at understanding the human-made artificial world, its dealings seem somewhat restricted to the confines of the artefacts themselves. On the (post-) phenomenological side of the debate, attention is drawn to the phenomenological, reciprocal relation between the subject and material artefacts (Verbeek, 2005). Philosophical inquiries in this tradition are aimed at understanding phenomena like robotics, medical applications, human enhancement technologies and ICT-technologies in the context of their use and interactions with human agents. On the analytic side of the debate, the focus is mostly to be found in the matters of cognitive sciences (language of thought), artificial intelligence and recently the novel branch of philosophy of information (Floridi, 2011).

As much as money seems to have been a marginal phenomenon in the philosophy of technology, as much it seems to have *become* marginalized in philosophy in general. While it is argued that "monetary theory has not provided a satisfactory definition of money yet" (Piffaretti, 1998 p.4), its philosophical origins do affect the economical theories and models that are based on it. The main theories of money stem from the works of great philosophers including Aristotle, Locke and Marx and philosophically inclined economists like Menger, Knapp and Keynes but in the current age they seem to have been handed over to the formal science of economics[3] itself. Although it is probably justifiable to leave the

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[1] Not out of ontological interest; meaning that I do not intend to make a claim concerning what Floridi designates as "digital ontology" – "according to which the ultimate nature of reality is digital, and the universe is a computational system equivalent to a Turing machine" (Floridi, 2011 p.316). A claim that Floridi himself argues *against* in favour of an informational ontology.

[2] Arbitrarily, though hopefully justified – see chapter 1 - denoted as "digital"

[3] It is argued that the field of economics "emancipated" from its philosophical roots after the publication of Leon Walras' 'Elements of pure economics' in 1874, after

technicalities of economics that are present within the doctrines of its science to its own domain, it seems hazardous to leave the fundamentals of its primary phenomenon confined within the same science. As Geoffrey Ingham argues in his book *The Nature of Money*: "The inquiry into the nature of money was one of the most serious casualties of the increasing separation and fragmentation of the social sciences" (Ingham, 2004 p.197).

The Czech economist Sedlacek points at a similar problem, stating: "We may say that a great economist can be either an outstanding mathematician or an excellent philosopher. It appears to me that we have given lawyers and mathematicians too large a role at the expense of poets and philosophers" (Sedlacek, 2011 p.321). In some way, this thesis is an answer to this call to action and hence a beginning of my search for philosophical accounts of money. Eventually, it is aimed at bringing forward a number of substantial claims by means of the critique of digital money. One of these claims is that money is essentially technological and as such not a neutral economic phenomenon but a socially constructed one that impacts power-relations between people and institutions. Following on this basis, the digitalization of money as a paradigmatic technological transformation carries with it the transformation of these power-relations. The different digital forms of money need to be subjected to a critique in order to scrutinize the ways in which they shape power-relations between people and institutions and hence the moral and political constitution of our human societies. I hope this thesis will lead towards a justified and thorough understanding of these claims.

§ 1 Urgency of the investigation

This Thesis is concerned with the phenomenon of digital money: its philosophical analysis and its impact on the relations between individuals in society. Digital money brings together a socially constructed phenomenon and the profound technological development of introducing ICTs in our life world. Of all phenomena that are brought into existence through human intention and action, two seem to have a very peculiar role in our understanding of the human-made world: language and **money**. Language provides us with the ability to represent facts in the world and communicate these with each other. Money enables us to express the values of objects and communicate or rather exchange these values. Both phenomena seem to depend for their existence in our life world on large institutional and technological structures that govern their use and media of their communication or exchange: ranging from uttered sound waves to paper, ink, pixels and million kilometres of glass fibre. In this thesis language, money and technology as intertwined phenomena will be subjected to a philosophical inquiry.

I argue for the urgency of an inquiry into digital money with reference to the increasing public interest in the monetary system as well as in the influence of ICTs on our societal structures. In the global media and on the political levels of states and international organizations, monetary concerns have appeared on the top of the agenda since the financial crisis and Eurozone crisis hit the world economy. With these events, a global economic calamity seemed to have been happening not because of political instability or trade "bubbles" but because of structural

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which economics "became the subject matter of a scientific inquiry with clearly defined methods and goals" (Papadopoulos, 2011 p.36)

deficiencies at the basis of the economy: money itself (Papadopoulos, 2011 p.106). This situation illustrates a move from the instability in prices of (material) goods to instability in prices of financial products, which are – as we will see later in the discussion of Searle – the constituents of the institutional structure of money. One of the challenges of this thesis will be to assess the importance of digitalization of money in the emergence of such events. Apart from the question whether the digitalization of money signifies a fundamental change in the meaning of money, it seems to open up the possibility of phenomena that could not have emerged without digital technologies. Major examples of these phenomena are digital currencies like the Bitcoin, which are defined as "digital, decentralized, partially anonymous currencies, not backed by any government or other legal entity, and not redeemable for gold or other commodity" (Grinberg, 2011 p.159). Amongst the phenomena and practices that are more embedded in our economical system, algorithmic trading and financial derivatives are typical examples. Both these aspects of the global economy have profound influence on financial markets and on the conceptualization of trades and volumes of trades in economical space and time. Such examples point at a paradigmatic change in economic realities resulting from the incorporation of digital technologies. Hence, the enterprise to create a philosophy of money that takes into account the mediation of digital technologies seems relevant and needed: the creation of a philosophical critique of digital money.

Money as a phenomenon in its digital transformation has a profound societal significance. This appears to be the case for money as a subject in economics, sociology and other positive sciences. However, this thesis will provide a philosophical investigation of digital money. The importance of philosophy in understanding the phenomenon of digital money is two-fold: first of all it provides us with an understanding of money as an expression and embodiment of *value,* which in itself is a metaphysical and ethical notion and therefore belongs to the realm of philosophy. Secondly, money and especially digital money, provides us with an insight into the fundamentals of monetary institutions and the power relations between subjects, institutions and the mediation of (digital) technology. Since the phenomena and practices of digital money impact the power relations between people and institutions, they have moral significance and are therefore relevant for being scrutinized within the field of moral philosophy.

Summed up, a number of academic and practical tendencies lead towards the claim for the urgency of a philosophical critique of digital money. First of all, the theory of money has been neglected within the field of philosophy, which has led to a lack of reflection on the transformations that money has been subjected to during the past decennia. Secondly, the technological character of money has not been an element of reflections on money, which has instigated a neglect of digital technologies as game changers in the use of money and its moral and political impact. Thirdly, phenomena and practices have emerged in the practical world of the global economy and monetary systems that strongly depend on digital technologies. Taken together, these three reasons provide a solid justification for starting an inquiry into digital money and its moral and political significance.

§ 2 The philosophy & critique of digital money

As for the significance of money for philosophical inquiry, Georg Simmel very powerfully states: "the philosophical significance of money is that it represents

within the practical world the most certain image and the clearest embodiment of the formula of all being, according to which things receive their meaning through each other, and have their being determined by their mutual relations" (Simmel, 1900 p.137). This might sound to be slightly over-stating or obscuring our actual understanding of money. Nevertheless, put differently, money indeed seems to have a representational character that encompasses the value of countless objects and at the same time is as real and practical as something can get: it is something everybody uses, talks about and thinks about every day. Why are we confronted with the paradox that something as simple and down-to-earth as money can appear to be so vague, difficult to capture and subject of an endless amount of scientific inquiries?

A number of philosophical questions arise when considering the phenomenon of digital money. First of all, the concept of money seems to provide an insight into the ability of the human mind to grasp the meaning of an object or symbol as expressing or representing the value of another object. Why do we have the ability to express value by the use of money and how does this relation between our minds, money and the object of value arise? Secondly, money is to be understood in terms of the interrelations between subjects: as an intersubjective phenomenon that is constructed in a societal setting. How do these relations between subjects arise and how do they influence the meaning of money? Thirdly, money is expressed and communicated through a medium that is essentially and increasingly technological; ranging from objects found in nature like cowrie shells in early civilizations to the digital records in contemporary electronic banking and trading systems. How do these technological changes alter the relation between subjects and objects that is mediated by money? It seems that digital money raises important questions in the branches of philosophy of mind, philosophy of language, philosophy of society and philosophy of technology.

One of the contemporary philosophers that interest themselves in the phenomenon of money is John Searle. He convincingly constructs a philosophical framework that aims at providing an account of the structure of our language, our minds, our institutions and our society as a whole. Although his philosophical framework gives rise to a comprehensive and fundamental structure of such an essential institution as money, it falls short however in answering the question "what money does" and leaves us groping in the dark at this point. In Searle's philosophical system, we can analyse money as a system of linguistic rules (status function declarations) that imply power relations between people. However, it does insufficiently tell *what* these power-relations are, *how* these are constituted by linguistic rules and especially *how* it is possible that such institutions as money become recognized; a characteristic of institutional facts that Searle designates as "collective intentionality" but with an insufficient account of to how this collective intentionality emerges.

In order to tackle these issues and to proceed from an analytic theory of digital money to a normative critique of digital money, I have incorporated the works of two philosophers most capable of paving the way towards this goal: those of Georg Simmel and Andrew Feenberg. Simmel's work is to a certain extent in line with Searle's thoughts, stating: "money, which is entirely a *social institution* and quite meaningless if restricted to one individual, can bring about a change in general conditions only by changing the relations between individuals" (Simmel, 1900

p.173). As a much-needed addition to Searle, Simmel provides the theory of digital money with a relationist account of money as an expression and embodiment of economic *value*. However, a theorization of digital money according to a synthesis of the theories of Searle and Simmel is not yet a basis for constructing a critique of digital money by normatively assessing its impacts on power relations between people and institutions. Feenberg offers an account of technology that enabled me to critically assess digital money *as* a technology. His critical theory of technology allows digital money to be subjected to a normative critique, assessing the actual moral and political consequences of its constitution. In order to incorporate the theories of Searle, Simmel and Feenberg in this thesis, I need to overcome two apparent dichotomies: those between an analytic and a phenomenological account of money and between the philosophy of society and the philosophy of technology. In the course of the argument I will argue that money cannot be surrendered to either side of these dichotomies and requires an integral approach.

§ 3 Points of inquiry

While this thesis is concerned with the phenomenon of *digital* money instead of money in the general sense of the word, it focuses on the intertwined relation between digital technology, society and the individual. This project has a three-fold structure, which is reflected by the three chapters of this thesis. Starting point will be an empirical and conceptual exploration of digital money and its place in the established academic discourse on the theory of money. The second part will concern a discussion and theorization of digital money that incorporates the works of Searle and Simmel according to which the constitution of digital money can be analysed. Thirdly, I will construct a critique of digital money on the basis of this analysis along the lines of Feenberg's critical theory of technology. The main question that will be the guiding thread throughout the text of this thesis will be: *how does the digitalization of money change the meaning of money and its corresponding moral and political structure of power-relations?* This question requires insights into the nature of money, its relation with technology and in the overall position of its phenomena and practices in the power relations between people and institutions.

The first chapter will be aimed at answering the question: *what are the historical, empirical and theoretical conceptualizations of digital money and what are their shortcomings?* Digital money as a categorical designation of phenomena and practices finds its origins in the history of money, the introduction of ICTs in its use and the theories of money that have guided its conceptualization. In the first section, I will discuss the history of money and the specifics of its contemporary digitalization. This discussion will include a reflection on the specific phenomena and practices that are implied by its digitalization, notably Bitcoins, algorithmic trades, derivative trades and short selling. In the second section, I will discuss the current theories of money and their shortcomings. This discussion will include the major theories of money, being the commodity theory, the state theory and sociological theories. In the third section, I will argue for the importance of the inclusion of philosophy of technology in the discourse about digital money by focusing at the intrinsic relation between money, society and technology.

The second chapter will be aimed at answering the question: *how can a theory of digital money be constructed that takes into account its socially*

constructed and essentially technological character? Notably, this does not concern the construction of a full-fledged theory of money but rather a theoretical framework through which we will be able to understand the constitution of digital money and the way it is deployed as an expression and embodiment of economic value. The first section is aimed at framing digital money as a system of constitutive status function declarations; laying bare the ways in which it is socially constructed. I will do so by subjecting it to an analysis according to John Searle's theory of social reality. The second section will shed light on some important shortcomings of Searle's theory in gaining a full understanding of digital money. Central will be the absence of a normative element, which makes it difficult to account for the notion of *value* and the way money is recognized as an embodiment and expression of economic value. In order to overcome these difficulties, I will incorporate Simmel's theory in the third and fourth section of this chapter. The third section will be aimed at providing the philosophical framework of reasoning as based on a theory of value while the fourth section is concerned with the explication of Simmel's theory of exchange and money; connecting them with the dialectical movement of sacrifice, distance and judgement in economic exchange.

The third chapter will be aimed at answering the question: *how does digital money impact the power relations between people and institutions and what are its moral and political consequences when subjected to a philosophical critique?* This question enables a normative critique of the impacts of digital money as they can be established according to the theory in chapter 2. The first section of chapter 3 will be aimed at providing the analysis of digital money according to the theory of chapter 2; articulating the impacts of digital money according to the theories of Searle and Simmel. The second section will concern the construction of a critical theory of digital money along the lines of Feenberg's critical theory of technology. Along the lines of this critical theory, and the notions of power-relations as conceptualized by Searle (considering deontic powers) and Foucault (considering structures of possible actions of free individuals), I will scrutinize the impact of the digitalization of money on the power-relations between people and institutions in the third section. Finally, I will conclude the critique of digital money by discussing the overarching problematic of the digitalization of money and human agency. As a reflection on this conclusion, I will discuss a number of ways in which we might deal with this problem of human agency in the constitution of digital money.

Chapter 1:
Digital Money & Technology

The aim of this chapter is to gain better understanding of the phenomenon of digital money through an analysis of its historical development, its meaning and use and its place in the history of ideas about money. Unlike branches of philosophy that find themselves exclusively surrounded by phenomena that ultimately belong to the subject, philosophy of technology is mainly concerned with our relation to things in the world: technological objects, artefacts and systems. Just as natural philosophy ultimately had to face its empirical substantiations (data from experience instead of theory) in order to advance, philosophy of technology needs to be empirically informed to be fruitful. Technology is out there in the world, made by people and used by people, rather than merely confined to the isolated subject. There are no grounds for discussing a technological artefact without discussing the actual artefact: a common sense reflection that nonetheless needs justification, especially in philosophy. Hence, in order to analyse and argue about the technological phenomenon of digital money I will need to turn towards the phenomenon itself first: what is to be understood by digital money and how is it used? The purpose of this chapter is to answer this question by providing an empirical, historical and philosophical background analysis of the phenomenon of digital money.

The historical transition of money from its non-digital form to its digital form is one that has happened in relative silence. Of all the technological transitions of the post-Second World War era, the first that usually come to mind are those of cars to space shuttles, grenades to nuclear bombs and of the LP-player to smart-phone and Facebook. It's unlikely that anyone would show his online banking account when being asked what is the most profound *technological*[4] change he has witnessed during his lifetime. Nonetheless, the use of digital money was amongst the first Information and Communication Technologies (ICTs) that have been made publicly available far before the introduction of any personal computer in people's households. Already in the 1970s the first credit cards and ATMs (Automated Teller Machines) were introduced to the general public (Giannakoudi, 2010 p.206). It took some decades before the interfaces at home caught up with this trend with the introduction of Personal Computer use during the 1980s and 1990s and the introduction of the Internet in the late 90s, which enabled the widespread use of Internet banking.

In this chapter, I will first of all discuss the history of money and the recent digitalization of money, including some of its most prominent phenomena and practices. Secondly, I will shortly sketch the historical background of the philosophical debate about money in order to provide a context for my thesis. In this section I will discuss the established theories of money, including the

[4] Here, I do not intend to claim that the introduction of such monetary technologies has not been experienced as significant in any way. People who experienced the actual transition from getting cash at the bank to obtaining it from an ATM *will* probably designate it as significant for their way of living – only not as significant *as* a *technological* transition.

commodity theory, the credit and state theory and the sociological theories of money. Moreover, I will critically discuss their shortcomings with regards to the extent to which they are capable of theorizing digital money. In order to provide a starting point for a theorization of digital money that incorporates both its social construction and its technological character, I will finish the chapter by discussing the intrinsic relation between money, technology and society.

§ 1 Money, its origins and contemporary digitalization

The purpose of this section is to provide a descriptive analysis of the development of money and its significant transformations up until the digitalization of money. Money is a phenomenon with which we are confronted on a daily basis in a seemingly increasing scope of activities. Whenever we go to a shop to buy our groceries, on the Internet to book a flight ticket or sign a contract for water or electricity use we will be involved in a money exchange. It is remarkable and yet understandable that we don't often inquire into the nature and the meaning of the money we use. Remarkable, because money is one of the most significant cornerstones of human civilization, penetrating almost all social structures and all relationships between people. Understandable, because of its paradoxical character of on the one hand appearing to be very close, down-to-earth and obvious part of our everyday reality while on the other hand dissolving in a multitude of abstractions and complexities as soon as we ask ourselves the question: "what is money?"

This question has nonetheless been a prominent one throughout the history of ideas, up until the "increasing separation and fragmentation of the social sciences" of which the inquiry into the nature of money can be regarded as "one of the most serious casualties" (Ingham, 2004 p.197). Philosophers have been dealing with different aspects of money: its historical and conceptual origins, its societal significance and its moral implications. However, the historical roots of money do not lie with philosophy but with the use of the phenomenon itself. In order to get a better grip on the matter, I will start by briefly discussing the development of money, first focusing on its historical origins (as far as they are tentatively accepted) and subsequently focussing on its digital form; on the way it is to be understood in this thesis and on the practices that are related to its use.

1.1 <<The origins of money: its history and etymology>>

Before embarking on the discussion of the historical origins of money, it will be worthwhile to reflect on the origin of the concept of money. The English word *money* borrows its meaning from the Latin word *moneta,* which refers to coins of the mint; the place of coining. Its etymology hints towards the philosophical significance of money while it originates in *Moneta,* the Roman name for the Greek goddess of memory, *Mnemosune*. Moneta was an epithet of Juno meaning "the warner" and refers to the temple of Juno where the coins were being struck (Partridge, 2006). Bearing reference to the goddess of memory, the concept of money has a connotation with the mental realm of remembrance as if it were a materialization of a memory itself. Although *money* in its original meaning refers to coinage, pre-coinage or primitive forms of "money" existed long before the first coins were struck.

The use of money can be considered as one of the basic cornerstones of organized society and its history goes back thousands of years. It is often considered

as a manifestation of the practice of barter, which in itself is argued to be as old as the existence of human kind (Davies, 2002 p.9). Possibly counter intuitively barter[5] and gift exchange, as primitive ways of economic activity, are in contemporary history of economics not considered to have been the origins of money. Rather, non-economic religious or political forces like bride-money and blood-money together with the development of legal practices are considered to have been leading towards the gradual adaptation of money (Davies, 2002 p.24). A well-known early form primitive money that came straight from nature is the cowrie shell, a little shell that was easily cleaned and counted and was used as money around the pacific, India, the Middle and Far East and in Africa already in pre-historical times. Cowries were used as payment method in Africa until the beginning of the 20th century and still in 1860, thousand cowrie shells in Uganda entitled a man to buy a female (Davies, 2002 p.36). Other widespread forms of money, which were at the same time commodities, were cattle: horses, camels and goats. These forms of money stand in contrast with the forms of money that were intentionally fabricated in order to serve *as* money: coinage.

One of the first historical obstacles one encounters when trying to find the origins of the coin as a form of money is the very definition of "coin". What properties define the object coin? A proposed first versions of the coin are the tool-coins in ancient China that were actually metal spades, hoes and knives that were authorized by state-issued inscriptions in the objects (hence, these inscriptions typified these objects as coins). These appeared somewhere around the end of the second millennium B.C. (Davies, 2002 p.57). Quite independently from its first appearance in ancient China, coinage was gradually introduced in ancient Greece and played a significant role in the economical and industrial development of the region. The first Greek coins that reached their final stage of being clearly recognizable as coins ("rounded, stamped with fairly deep indentations") originate from Lydia around 650 B.C. (Davies, 2002 p.63). The Romans, from whom we gained the term "money" gradually adapted the Greek coinage and banking culture and established them throughout their empire. Just as was the case with coinage, the use of paper money was established in ancient China and its earliest form goes back to around 118 B.C. Though it was used in China for about 500 years after its second introduction there in 900 A.D. it was not until the 13th century that the "bill of exchange" found its way to the European continent; being introduced by Italian traders who adopted it from Islamic culture (Ingham, 2004 p.118). With the reign of the British Empire in the 18th century, the use of paper money became a common practice in Europe (Davies, 2002 p.184).

Apart from the development of coinage and paper money, the practice of bookkeeping and banking was most likely established by the first human civilizations in Mesopotamia. Notably, the development of bookkeeping coincides with the first recorded instances of written language found on clay tables that originate from around 3100 B.C. (Davies, 2002 p.48). The early bookkeeping accounts were held in commodities like grain and the development of banking is to seen quite apart from the practice of coinage. Mesopotamian civilizations displayed

[5] The activity of barter has different connotations, ranging from the exchange of goods to down-right cheating (originating from old French, *barater*) and to deal or practice tricks (originating from Greek, *prattein*) (Partridge, 2006).

a widespread use of banking practices while not having developed coinage. However, banking and coinage soon appeared together when instead of commodities like grain, coins were used as the basis of bookkeeping accounts.

Both the use of money as well as the practice of bookkeeping and banking went through many significant historical changes up until the day of today; too many to cover in this thesis. One of the most noteworthy insights to be gained from the history of money and banking might be first of all that these phenomena have existed as long as the recorded history of mankind. Moreover, where the origin written scripture -coinciding with the origin of banking - can be considered as the most significant transition in human communication, the origin of coinage can be given similar importance with respect to the communication and exchange of value. The revolutionary change from pre-coinage to coinage money shows that differences in the form of money can have profound impact on the way human civilizations are organized. Therefore, it provides sufficient reason to at least inquire into the recent transition of money from its non-digital to its digital form.

1.2 <<On the meaning of digital money>>

As has been considered in the previous section, two distinct forms of money have been paradigmatic in its "non-digital" history: primitive money and coinage money (from now on also referred to as "cash"). One of the accepted definitions of primitive money is constructed as a negation, being "all money that is *not* coin or, like modern paper money, a derivative of coin" (Davies, 2002 p.23). Regarding non-digital money, a similar definition that is formed by a negation might be most suitable for demarcating it from digital money. Hence, I will define non-digital money at this point as "money which constitution is *not* dependent on the use of ICT technologies."[6] It might become clear in this way that there is a demarcation between the use of a natural shell, a metal coin or a piece of paper money and an amount of currency stored on an Internet bank account. To be more precise, my concept of "digital money" refers to all forms of money that for their existence depend on the introduction and development of the transistor from 1947 onwards and the thus related technologies, notably the computer and the Internet. Hence, *digital money,* in the general way it is used in this thesis, is to be understood as a categorization rather than as a definite description of a single phenomenon: there are different forms of digital money that nonetheless all categorically differ from non-digital money.

As for the designation of the phenomena with which this thesis is concerned there seems to be a lack for a coherent definition in academic deliberations on the meaning of "digital money". Some sources refer to digital money as money stored directly on an electronic card distinct from a debit card (Berentsen, 1998), some refer to it as programmed currencies like Bitcoin (Grinberg, 2011) while others refer to it in a broader sense similar to the way I use it in my thesis (Rahn, 2000)(Lefebvre, 1999). Even others refer to different terms in order to designate the category that I'm aiming at by calling it "electronic money" (Piffaretti, 1998) or "postmodern money" (Thrift & Leyshon, 1994). The reason why I chose to stick to

[6] The practice of providing definition by negation is also to be found in business reports like the World Payment Report; in which the categories are defined as "cash" and "non-cash" (Capgemini, 2013)

the term *digital money*[7] is because of its strong connotation with both digital computation and technology.

Let us at this point consider the actual development of digital money and its dissimilarity with respect to money in the form of coins or bank notes. It might already appear to people's intuitions that a difference can be found between a banknote that we keep in our wallet and a number displayed on a screen; both representing a certain quantity of money. This difference, whether or not it is fundamental in any sense, finds its origin in the development of a certain technology: ICT, computational or digital technology. Central to this development and the reason for it to be regarded as a paradigmatic transition (Mellor, 1989 p.47) is the transition of computational machines from the realm of logical possibilities to empirical reality. The construction of computational machines has been correlated to advances in the deductive sciences of mathematical logic and theoretical physics and finds a significant share of its origins in philosophical deliberations[8]. Some of the first lines of Alan Turing's paper "On computable numbers" hint towards the philosophical and anthropological significance of computing machines:

> *"We may compare a man in the process of computing a real number to a machine which is only capable of a finite number of conditions q1, q2, ...qn, which will be called "m-configurations" (Turing, 1936 p.231).*

What can be inferred from this passage is that a computing machine is a technology which function is related to an activity that has been considered exclusive to the *human* mind (computing or even "thinking"). Therefore, we can tentatively assert that the paradigmatic way in which ICT technology differs from other technologies is that it performs actions that show similarities to human cognition and therefore provide some kind of mirror for the human mind and for the debate on the essence of a human being, which in the Cartesian tradition has been found in the very faculty of thinking. Moreover, ICT technologies are argued to have impacts as far as they mediate between humans and reality, amplifying or reducing this relationship (P. Verbeek, 2002 p.88). I will return to the philosophical significance of digital technologies in § 2 of this chapter.

Though computational machines have been the basis for countless different technologies, the scope of this thesis limits its discussion to the specific application of ICT to digital money; putting many interesting debates aside about artificial intelligence, social media or cyber warfare. I will discuss the specific application of ICT in the use of money in the next section.

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[7] Next to the term digital money, "computational money" might be an equally justifiable conceptualization of the category I'm aiming at.

[8] The philosopher Leibniz is often referred to as contributor to the discipline of computer science because of his invention of the binary system and his first conception of a computer as "a new instrument which will enhance the capabilities of the mind to a far greater extent than optical instruments strengthen the eyes, and will supersede the microscope and telescope to the same extent that reason is superior to eyesight" (Crane, 2003 p.112). Moreover, a paper by Turing that is closely related to his work "On computable numbers" is "Computer machinery and intelligence", which is a seminal work in the field of philosophy of artificial intelligence.

1.3 <<On the practice of digital money>>

In order to get a better grip on the impact of digital money, I will provide a description of its actual practices in the global economy. In the current day, a decreasing though still significant share of monetary transactions is conducted according to the exchange of physical objects: an exchange of cash in the form of coins or paper money. An increasing share of monetary transactions is conducted according to the exchange of "non-cash" categorized money that does not involve the exchange of actual physical objects[9] that are counted as money. These exchanges include transactions by direct-debit or credit cards, e-money (money in e-commerce environments) and m-money (payments by mobile phone) transactions (Capgemini, 2013). In developed economies like the UK, it is likely that the relative share of cash transactions in relation to the non-cash transactions will stay decreasing in the near future (Strategic Cash Group, 2010).

The transition from cash to non-cash digital payments has occurred relatively fast, similar to other transitions connected to digital technologies like the digitalization of mail services. As recent as in 1995, only 6% of payment volume in Western countries was digital (or electronic) (Lefebvre, 1999 p.242). From that time on till the current day non-cash payments have come to dominate global finance with a recent yearly growth rate of around 8.8% in 2011 with even a 18.7% yearly growth in developing economies in the same year (Capgemini, 2013 p.6). Next to the payments conducted by individual consumers, institutional transactions (e.g. between banks and corporations) are mostly carried out with the use of digital money. Moreover, international currency trades and trades in stocks on global stock exchange markets generally take place in digital cyberspace without the interference of non-digital forms of money. Apart from the question whether digital money is fundamentally different from non-digital money, we can establish quite firmly that it has become a significant factor in the world economy. Nevertheless, this has not incited a noticeable amount of attention among the general public considered in contrast with reactions on other profound technological changes like the introduction of social media. Some reasons for the seemingly silent transition from the non-digital to the digital money era might be found first of all in the design of the technologies that support it. Most of the monetary technologies have been designed to give an impression that it is analogous to coins or paper money. Such an impact of design on the impression of a technology adheres to the idea of "remediation" in which a new technology borrows its appearance from earlier technologies; just as for example the Internet borrowed its early design to a great extent from printed newspapers and magazines (Bolter & Grusin, 1996 p.356). Technological design "provides the illusion to the user that he is confronted with the exact same phenomena only in a different way. However, for banks the digital form of money is essentially different from its non-digital forms" (Piffaretti, 1998 p.7).

Having discussed the scope of its use, I will shed light on the actual characteristics of digital money. What makes it differ in its practice from non-digital

[9] The non-cash category includes payment by cheques as well but these have a peculiar position while their share in the totality of payments is decreasing and in their exchange a physical object (the cheque) is still required. Moreover, a cheque is not generally considered as a genuine form of money as means of payment (Piffaretti, 1998 p.10).

money? First of all, a very straightforward characteristic of the use of digital money is that the digital instances of money have lost their physical objects (Piffaretti, 1998 p.3). Any amount of digital money is accessed as an "immaterial"[10] instance that is not fixed to the object on which it is shown. Whether I transfer money from my computer in the Netherlands to a bank account of a company in the United States or I conduct a similar transfer from an Internet café in Paris, the numbers seem to refer to the *same* money while their instances are completely different in space and time. While with coins the money and the medium coincide in the same physical objects this seems to be difficult to assert with digital money. Secondly, a third party is always involved in the transfer of digital money between two individual agents, which is conducted in a closed system (as opposed to the open circulation of cash money). In such a system, "after every payment, recipients of electronic money must surrender electronic money to the *issuer* for destruction; this fact prevents electronic money forgery" (Piffaretti, 1998 p.8). Fourthly, Digital money differs from cash money in the sense that it is not issued by a central bank authority but by any party that can issue the money, which could be banks, payment agencies like Pay-pall and currently even corporations like Google[11]. Digital money is therefore not homogeneous like cash but differs in its structure for every issuer (Piffaretti, 1998 p.8).

Next to the differences between cash and digital money that are inherent to the digital money (that is, to the direct instantiations of the "money"; including the visual representations of digital records), the infrastructure that is essential for the money exchanges has gone through profound changes as well. With the infrastructure of digital money I mean the structural elements of the system of people and artefacts that render the exchange of digital money possible. Elements that belong to the infrastructure of digital money are ranging from datacentres to banking software, from undersea glass fibre cables to bankcards. It would not be suitable for the purpose of this thesis to provide a semi-complete taxonomy of these elements but I will rely for this on the reader's imaginative powers to create a coherent picture of what is meant here. The issue I would like to discuss at this point concerns the infrastructural elements and characteristics that are particularly linked with digital money and not with money in general; thus including elements like glass fibre networks and banking hard- and software but excluding elements like money printing presses and postal services (though these themselves might very well rely on digital technologies).

The roles of the infrastructural elements of systems of digital money seem to be focussed on three main aspects of its use: *mobility, automation* and *security* (Giannakoudi, 2010 p.211). Money has become increasingly mobile in the sense that monetary transactions can happen in a matter of split seconds. Moreover, the global infrastructure of the Internet enables people and institutions to perform monetary

[10] Strictly speaking the term "immaterial" is misleading here when regarded as an ontological claim. Even the digits displayed on screens have their own material existence as complexes of electrical circuits, strings of programmed code and pixels. However, "immaterial" here is to be understood in the sense in which it denotes an instance of money as independently existing from a particular object like a coin.

[11] In 2007, the Dutch central bank has issued a banking licence for "digital banking services" for Google (King, 2010)

transactions at any location where the Internet is available to any bank account of any person or institution on the globe. This increase in mobility, both compressing the barriers of space and time, has enabled multiple different financial practices to emerge: high frequency trading, foreign exchange swaps and the nowadays-common practice of Internet banking. Another feature of money that came along with its digitalization is the automation of transactions, implying the loss of direct human interaction in financial transactions. This automation has been translated into practices like automated payments on private accounts like monthly payments for mobile phone contracts and to algorithmic trading practices that enable e.g. the automation of stock trades. The security aspect of digital money is concerned with the authorization of payments as well as the identification of the parties involved in the payment. Through encryption and identification methods, it is made sure that the money is being transferred by its actual owner and not transferred by third parties that ought not be authorized to transfer the money.

Henceforth, we have established a number of characteristics of digital money that differentiate it from non-digital money, be it in absolute or gradual terms. Intrinsic to the digital money itself are its characteristics of its immaterial existence (being disconnected from particular objects), the interference of its issuer in every transaction and its heterogeneous structure. Characteristics of its infrastructure imply changes in its mobility, its automation and its security. While this section was aimed at a descriptive account of these characteristics, I will return to these issues in chapter 3 when formulating the critique of digital money.

1.4 << Instantiations of digital money: Bitcoin, algorithmic trading, the Flash Crash & derivatives>>

In order to relate the conceptual generalizations established in the previous section to their instantiations, I will discuss some paradigmatic phenomena and practices that can be directly or indirectly linked to the digitalization of money. These phenomena and practices ought not to be considered as standing in a *causal* relation with their digital form; their being is not causally dependent on this digital form but rather made possible by it. In this section, I will briefly describe them, analyse their relation with digital money and point at their societal significance.

A phenomenon that in current deliberations about money and technology is one of the most likely to come to mind is **Bitcoin**: a "digital, decentralized, partially anonymous currency, not backed by any government or other legal entity, and not redeemable for gold or other commodity" (Grinberg, 2011 p.160). A Bitcoin is a programmed instance of a digital currency that is secured by its own formal structure instead of by government backing. This implies that the program controls the total quantity of Bitcoins[12], making it impossible for people to just "produce" them at will. Instead, Bitcoins are "mined" (as if they were gold) on computer servers by means of running the Bitcoin protocol and save them on a "wallet" file (Grinberg, 2011 p.162). Bitcoin has a strong connotation with the concept of "digital money" while it is considered to be just that: a digital currency. It is therefore relatively easy to discern the importance of digital technology for the very existence

[12] The Bitcoin algorithm "releases 50 Bitcoins per 10 minutes with the pace halving in increments until around 2140" (Wallace, 2011 p.4). The program was initiated by the "mysterious" founder of Bitcoin, Nakamoto (Bergstra & Leeuw, 2013 p.15)

of this instance of money: without ICTs we would most probably not be able to discuss about Bitcoins. The societal significance of Bitcoins is still rather speculative while its future is not at all certain (Bergstra & Leeuw, 2013 p.9). What can be said however is that its value equivalent in government backed currencies has fluctuated hugely, rising from $ 1,- in the beginning of 2011 to $ 27,- in June of the same year, losing about a third of its value in dollar-equivalents just a couple of weeks after its peak in 2011 (Wallace, 2011 p.7). It can be argued that Bitcoin is inspired by a libertarian ideology that a "spontaneous" order can exist without the state (Ingham, 2004 p.177). The partial anonymity of Bitcoin and its state-independent growth in quantity make it adhere to certain libertarian ideas of global market cosmopolitanism in which value is based on some external source of value (like gold) and as such being a "neutral" mediator in commodity exchange. This "neutrality" can be considered to have been translated to the ability of any party to use Bitcoins as means of payment; ranging from libertarian organizations like "Wikileaks" to criminal sales of drugs and weapons on sites like the anonymous "Silk road" (Grinberg, 2011 p.165).

Next to digital currencies like Bitcoin[13], digital technologies have enabled the use of money in practices on stock markets and currency markets that have heavily influenced the global financial landscape. The possibility of electronic trading "both removes geographical restraints and allows continuous multilateral interaction" (Allen, Hawkins, & Sato, 2003 p.204). Digital market architectures can influence trading outcomes, prices and quantities; allowing amongst other much higher volumes of trades. Despite the apparent influence of digital technologies on market practices, it is difficult to assess how directly they affect them or whether they rather provide a scope of possibilities. The latter seems to be the case with regards to practices like **short selling** that have existed before the digitalization of money but arguably have greatly profited from its application. Short selling is a practice that originates from 1609, when it was first applied on stocks of the Dutch East India Company (Marmol, 2011 p.10). It has ever since been a controversial trading technique, subject to regular prohibitions and strict government regulations. Short selling basically implies a selling technique of constructing a short speculative position on the falling prices of assets (Bianchi & Drew, 2012 p.2); in more strong wordings profiting from the loss of other stock owners with long positions. It can be rightfully argued that short sellers might be considered as "forensic accountants" that seek out over-valued assets and by means of short selling balance the market; making it stronger and more efficient (Bianchi & Drew, 2012 p.16). However, the price for these services can become disproportionally high, as was arguably the case when the investor George Soros made about 950 million dollar when short selling on British Pound Sterling on the infamous "black Wednesday" in 1992 (Farida, 2013 p.20). A question that might arise in the context of this thesis is whether digital technology has turned the practice of short selling into a more powerful instrument

[13] Different alternative digital crypto currencies are emerging on a regular basis, including variants like "Litecoin", "Namecoin" and "Peercoin" (Gibbs, 2013)

on the market and whether this has altered the power relations between e.g. governments and institutions involved in short selling[14].

A trading practice in which the presence of digital technologies is not only possibly augmenting the strength of the instrument (as is the case with short selling) but also even creating the very possibility of its existence is known as **algorithmic trading**. This type of trading might be defined as "electronic trading whose parameters are determined by strict adherence to a predetermined set of rules aimed at delivering specific execution outcomes" (Chlistalla, 2011 p.3). These trades do not require human interference in order to be conducted and rely for the determination of their "timing, price, quantity, and routing of orders, dynamically monitoring market conditions across different securities and trading venues" on algorithmic procedures that are executed by means of digital technologies. Algorithmic trading has gained significance during the past decennium, increasing in share of the total equities trading volume in the U.S. from about 25% in 2004 to more than 50% in 2010 (Chlistalla, 2011 p.2). A subset of algorithmic trading practices that seems to be very responsive to technological advances is the practice of **high frequency trading** or HFT, "where a large number of orders (which are usually fairly small in size) are sent into the market at high speed, with round-trip execution times measured in microseconds" (Chlistalla, 2011 p.3). One of the consequences of the increasing predominance of HFT in stock trading is a so-called "arms race" in which HFT traders "employ high-speed hardware, software and bandwidth, to execute orders as fast as possible, in order to gain an edge in trading" (Arnuk & Saluzzi, 2009 p.1). This implies that the "closer" a trader is in space-time dimensions to the trade information released at the source (the lower the latency), the bigger his advantages are in the HFT trades. Hence, it seems to be the case that an intimate relationship exists between the practice of HFT and the possibility of digital money and its infrastructure.

An event that seems to be closely related to the practice of algorithmic trading is the so-called **flash crash** on may 6th, 2010. Though this event is not very known to the general public, it can be considered to have been significant while the Dow Jones index suffered one of its most severe price drops in history; "dropping almost 1,000 points in a matter of minutes, only to recover a significant portion of the loss later in the same day" (Chakravarty & Wood, 2011 p.3). Though the direct cause of the flash crash is difficult to point at, algorithmic trading did play a significant role in the event while the execution of a large sell algorithm by a fundamental trader as well as the consequent trades of high frequency traders contributed to the high market volatility that lead to the flash crash (Kirilenko et al., 2011 p.35). Since it is not my intention in this thesis to speculate about the exact causes of this event, I will mostly consider it an illustration of the impact of algorithmic trading on market prices.

A last instantiation concerning a class of phenomena that I would like to discuss in light of the influence of digital money is the class of financial products and more specifically the class of so-call **derivatives**. Derivatives are referred to as "financial instruments" or "financial products", which have the peculiar feature that

[14] While it is argued that parties involved in short selling, apart from solving market problems of over-valued assets, can dictate the financial world by means of their financial capacities (Farida, 2013 p.20)

they represent trades in risks, rather than trades in actual commodities, stocks or currencies. "Risk" is to be understood as the conceptualization of the movement of the prices of "underlying" entities from which the derivative *derives* its own value (Pryke & Allen, 2000 p.265). The trade in derivatives is not a new practice or depending on digital technologies per se since one of the earliest instances of a derivative market was the Dojima rice exchange market in Osaka, Japan, which was founded in 1730 (Takatsuki, 2008 p.1). A very simple example of a derivative trade can be illustrated as follows: a farmer sells derivatives (makes a contractual agreement) of his rice production for € 5,-. If his harvest goes well, the owner of the derivatives receives the margin of the sales (e.g. € 2,- if the price of the sales is € 7,-) or loses the margin of the loss in case of a bad harvest(e.g. € 1,- if the price of the sales is € 4,). After the collapse of the Bretton-Woods system in the 1970's, trade in derivatives gained momentum leading to a state of affairs in 2005 in which they represent a $ 169 trillion in "money supply" and a daily transaction volume of $ 2.4 trillion (Bryan & Rafferty, 2007 p.135). Though derivatives do not depend on the existence of digital technologies, they have been greatly augmented by them; expressed by their enormous growth and variety (Solomon, 1999 p.111). Moreover, they occupy an interesting position while derivatives themselves can be considered to be a form of money (Pryke & Allen, 2000 p.265). If such a claim is correct, digital technology influences the constitution of money by means of its influence on the constitution of derivatives. As such, financial derivatives are argued to constitute a "new form of monetized space-time" (Pryke & Allen, 2000 p.282). I will return to the discussion on the impact of digital technologies on derivatives in chapter 3.

What can be concluded from this short inquiry into the phenomena and practices in this section is first of all that they seem at least partially to depend for their constitution on digital technologies. Secondly, while some of them only seem to be augmented by the use of digital technology, others are totally dependent on it. Thus, according to these primary examples we can provide a tentative taxonomy with four categories of phenomena and practices that are related to digital money:

- Phenomena like *Bitcoins* that depend for their constitution on the use of digital technology and **are** themselves instances of digital money.
- Phenomena like *derivatives* that don't necessarily depend for their constitution on the use of digital technology, but are augmented by it and **can** be counted as instances of digital money.
- Practices like *algorithmic trading* that depend for their constitution on the use of digital technology and are consequently dependent on the use of digital money while not *being* money themselves.
- Practices like *short selling* that don't necessarily depend for their constitution on the use of digital technology, but are augmented by it and as such are dependent on the use of digital money while not *being* money themselves.

It might not be directly clear what the exact connection is between the existence of these technologies and the use of digital money. Since I will return to this issue in chapter 3, it might suffice at this point to state that money, as an expression of value is the form in which the mentioned phenomena and practices find their instantiations. An expression of Bitcoins is always a monetary expression, an

expression of a derivative is always based on monetary expressions, and expressions of a HFT or short selling positions are always based on monetary expressions. Just as these phenomena and practices at least partially depend for their constitution on digital technology, they similarly partially depend for their constitution on digital money and its infrastructure.

In order to provide a starting point of a philosophical theorization of digital money, I will discuss the established theories of money. As already stated in the introduction, money has been the subject of philosophical deliberations ever since the time of the ancient Greeks. In the next section I will discuss the dominant ideas that have emerged during the history of the theorizing of money as well as their shortcomings when it comes to their application to digital money.

§ 2 Confronting the history of ideas of money

The purpose of this section is to provide a brief overview of the history of ideas of money in order to be able to place the critique of money within the existing philosophical deliberations on the topic. It is argued that the two fundamental ideas about money find their origins in the writings of the Greek philosophers Plato and Aristotle. Plato, in the few sections that he dedicated to discussing money, argued that money is to be regarded as a symbol that functions as a means of exchange which value is not derived from any material substance; introducing the first beginning of the credit theory of money. Aristotle, on the other hand, argued that the value of money is derived from the inherent value of its substance; introducing the first beginning of the commodity theory of money (Monroe, 2001 p.6-8). In modern orthodox monetary theory, the commodity theory of money is still the predominant one although having been subjected to convincing critiques (Ingham, 2004 p.19). One of the main problems of the commodity theory of money in the context of this thesis is its inability to comprehend the constitution of money as a significant factor within the economy since money is supposed to be a "veil" through which genuine, "natural" economic activity is being conducted. Hence, the commodity theory seems to be unable to deal with the impact of digital technology on money since non-digital and digital money fulfil just the same role of fixing the inconveniences of barter economy (Ingham, 2004 p.17).

The credit theory of money and the related "state theory of money" find their origins in Plato's thought; regarding money as a symbolic entity. This theory of money is reflected in the works of the Austrian school as well as in early Keynsian economic theories. The credit theory of money contains the advantage within the context of this thesis that it does not regard money as a "neutral" phenomenon but as a phenomenon that actively constitutes economic behaviour. However, though such an account allows for an analysis of money as a socially constructed phenomenon it does not give any clear guidance for ways in which we could assess the technological constitution of money.

Next to the commodity theory of money and the credit theory of money, sociological theories of money have been mostly concerned with providing an account of money that analysed its social and cultural impact. However, these theories typically take money itself for granted (Ingham, 2004 p.59-60); mostly due to the separation between economic and sociological sciences. Nevertheless, Marx, Simmel and Weber provided some significant contributions to the money theory and

Simmel's theory will be one of the main works that will function as the basis of the theory of money as articulated in this thesis.

In order to give a coherent overview of the main existing theories of money, I will discuss the commodity theory of money, the credit theory of money and sociological theories of money. Furthermore, I will reflect on their shortcomings with respect to the critique of digital money and explain how I try to deal with these shortcomings in the construction of the theory of money that is central in this thesis.

2.1 <<THE COMMODITY THEORY OF MONEY>>

The commodity theory of money originates from the works of Aristotle and though it has been thoroughly revised it rests on some basic assumptions that have "survived" its theoretical transformations. One of these assumptions is that the use of money is to be regarded as a logical consequence of the more basic form of exchange, which is considered conceptually equal to barter. The second is that there is a need of existence of some natural basis, some "object in nature" as argued by Ricardo that can be referred to as the basis of value of money. These assumptions have led to the general conception in the theories that are based on the commodity theory that money is not to be considered as an essential part of the economy. The economy itself is still grounded on the basic activity of barter; and in such framework money is not to be regarded as "one of the wheels of trade" but as the "oil" that renders the motion of the wheels smooth and easy", as Hume put it (Ingham, 2004 p.18).

Around the time of the division of economical science and philosophy (halfway the 19th century), the commodity theory of money was based on four propositions: (1) that money does not interfere with operations of any laws of value; (2) that the value of money is determined by the value of the precious metals it contains, which can be explained under the rubric of the theories of *relative* prices and costs of production; (3) that variations in quantity of money cause price movements and not vice versa, and (4) the existence of bank liabilities in the form of notes and bills are acknowledged as part of the money supply only if they are convertible into gold and/or silver (Ingham, 2004 p.19). Because of problems with sustaining the link between money and precious metals, by the late nineteenth century the focus switched from the use of gold and silver to the individual demand for money, which depended on its "marginal utility" for the individual. Hence, the focus of the theory was not really based on the question of "what money is" but "how it functions"; rather dealing with the consequences of the variations in money supply than with its causes.

A number of serious objections can be issued against the commodity theory of money. First of all, the commodity theory disregards the "moneyness" of money by referring to its basis in the value of a commodity. It takes money as such for granted, as resulting from a natural state of the economy that transcends somehow the human conceptualization of money, and focuses instead how individuals are supposed to rationally interact within a certain institutional framework. Secondly, the theory fails to provide an explanation of money of account[15], while this would

[15] In economics, *money of account* refers to *unit of account* as one of the basic *functions* of money, referring to the nominal monetary unit or measure of economic value.

need an explanation of how the value of money can be stabilized. Considering money as a commodity would allow for a diverging value of the commodity from trade to trade, which would not allow for the use of money of account. Finally, and most importantly in this thesis, the neutral perception of money as a "natural veil" does not explain the ways in which the institution of money is socially constructed; thus, for example, how certain "new forms" of money like derivatives can be constructed while basically being spontaneously derived from a natural basis that transcends its social construction (Ingham, 2004 p.33-35).

2.2 <<The credit and state theories of money>>

The credit theory of money originates according to Schumpeter from the works of Plato and theorizes money as a phenomenon that in its essence bears no material significance but only receives its significance by means of being assigned the universal measure of value (Ingham, 2004 p.40). This theory recognizes the value of money as residing in the individual and his societal context rather than in a natural object that transcends these. According to the extreme interpretations of the credit theory of money, all money is to be regarded as - or can be reduced to - credit. The ideas of the credit theory of money emerged against the background of de-linking of money of account and "actual" forms of money, leading to the claim that money is no more than the claim against goods (Ingham, 2004 p.40). The state theory of money that was fully developed by the German economist Knapp (who was influenced by Georg Simmel) was based on the assertion that money essentially presupposes the existence of an authority (a state). According to Knapp, money is a means to account for and to settle debts, the most important of which are tax debts. The state therefore creates money when accepting it as the legal tender with which taxes can be paid. The credit- and state theories of money have also had some important impact on Keynes early theory of money, though he later returned to a conception of money that was more in line with the commodity theory.

At their bases, the credit and state theories of money (or more generally the class of "heterodox" theories of money as opposed to the "orthodox" commodity theory) encompass certain assumptions: "(1) that money is essentially an *abstract* measure of value, (2) that money consists in a claim or credit, (3) that money has the necessary condition of recognition by an authority and (4) that money is not a neutral phenomenon in the economic process" (Ingham, 2004 p.56). These theories of money recognize money as a human construct that does not operate as a "veil" within the limits of the real, natural, economy. Such a theoretical framework is essential for being able to assess the impact of technology on our use of money because it puts money in the category of phenomena that can be technologically mediated; that are not "neutral" in the sense of being insusceptible to changes in its social construction.

Although the credit and state theories of money have the advantage of denying the conception of money as a neutral instrument, they are not providing a coherent answer to the question of how money gets its value or how it relates to value (Ingham, 2004 p.56). Moreover, their insights about the social construction of money by means of authority do not guide us towards a conception of how such construction takes place. Do we necessarily need a state in order to have money and even more: what does it mean to have a state in such a case? As we will see later on during our discussion of Searle, if we would consider money as an institution – in

line with the state theory of money – than we would need to inquire into the nature of an institution itself and consequently into its linguistic basis.

2.3 <<Sociological theories of money>>

Another approach towards the theory of money is to be found in several sociological deliberations on the topic; the most of which are primarily interested in the social and cultural impacts of the monetary system. Ingham argues that in contemporary sociological theory of e.g. Parsons, Habermas and Giddens the theory of money has been disregarded to the extent that it reduces money to a "symbolic generalized medium of communication and interaction" (Ingham, 2004 p.60); in the basis agreeing with the conception of money in mainstream economics as a "neutral" symbol. Nevertheless, some classical sociologists have been contributing to the theory of money in a more fundamental way, notably Marx, Simmel and Weber. Unfortunately, Marx based his theory of money that was closely connected to his labour theory of value on the commodity theory of money, stating that one needs to understand that commodity is the origin of money before one is able to understand money (Ingham, 2004 p.61). He therefore incites the same objections that can be raised against the commodity theory of money and fails to give an account of credit money as money of account.

Since Simmel's theory will be dealt with extensively in chapter 3, I will only shortly mention Weber's contribution to monetary theory at this point that, as Ingham argues, has been largely ignored by contemporary sociological theories (Ingham, 2004 p.66). Weber explicitly addressed the political significance of money by arguably putting it at the same level of relevance as religion in ways it impacts societal structures (Ingham, 2004 p.66). According to Weber, the "possibility of monetary calculation" is the most important element of money, not its alleged basis in its inherent value as a commodity. He therefore embraces Knapp's state theory of money, referring to the definition of money "in terms of a unit of account for the legal payment of debts, as its formal validity". However, he did still uphold a part of the orthodox theory of money arguing for the necessity of money being exchangeable against certain commodities "in price relations which are capable of approximate estimate" (Ingham, 2004 p.67). Though I will not directly use Weber's theory in the next chapter on a theory of money, his ideas will indirectly be touched upon in the critique of digital money through the works of Andrew Feenberg.

2.4 <<Problems in the theories of money as theories of digital money>>

A convenient way of answering the main question of this thesis would be by using one of the existing theories of money and analyse its digital form within such a framework. However, when we consider the question "how does the digitalization of money change the meaning of money and its corresponding moral and political structure of power-relations?" we would soon encounter serious difficulties in the theories of money. For this reason, it will be important at this point to identify the shortcomings of the existing theories of money and to explain why the theories of Searle, Simmel and Feenberg might help us in overcoming these shortcomings. Before going into the analysis, it seems prudent to reflect on Ingham's claim that the theory of money is one of the most serious casualties of the division of the social sciences. Most importantly, this division has resulted in a serious neglect of the increasing significance of the development of technology, while the theories stayed

lingering within more-or-less the same frameworks as they did at the beginning of the 20th century. Such neglect apparently need not be troublesome per se; for it might turn out that these technological developments do not have any significant impact on money. However, I argue that the neglect could be seen as problematic while it refuses any answer to the question of the significance of these developments. By refusing to ask the question, any possible answer becomes directly void.

The most serious shortcomings in answering the question of the impact of digitalization can be found in the commodity theory of money, while within its framework the question can simply not be asked. If we would consider money in a Ricardian sense, of constituting a neutral "veil" that merely facilitates the actual primary economic processes that have the natural, deterministic character of the markets, we would not be able to see how technology and money are interrelated. Money remains a neutral phenomenon and all power-relations that it seems to constitute are mere illusions, which in reality function on a more basic level of the market mechanisms of exchange between rational agents. The answer to my research question would be very simple in that sense: "there is no change in meaning of money, because its constitution doesn't impact moral and political power-relations at all". However, if we accept the arguments that money can at least to a certain extent be regarded as a technology and that technology is not neutral but mediates the relation between subject and reality, the commodity theory becomes simply inadequate in answering the question of this thesis.

The credit and state theories of money are more compatible with the question of this thesis. The most fruitful insights of these theories are the anti-theses they provide against the commodity theory of money, rendering it possible for money to be socially constructed and to refrain from being theorized as a neutral phenomenon. Hence, they open of the possibility of analysing the impact of the digitalization of money on its constitution and the consequent power-relations it instantiates. However, such accounts do not seem to provide a fundamental basis of how this social construction comes about. The credit theory of money mostly seems to focus on the assertion that money is to be considered as essentially a universal measure of value without explaining how such "essence" gets socially constructed. The state theory of money expands this idea by arguing for the necessity of an authority or a state. However, such interpretation would lead to the question what a state or an institution is and how it uses its authority in order to render the existence of money possible. Moreover, the impact of technology is not addressed by either of these theories of money.

The sociological account of money can be considered both as the most important casualty of monetary theory and at the same time as providing the greatest opportunities for its revival. Though the contemporary theories of money in sociological theory can be argued to have been exclusively concerned with money's social and cultural impacts, the classical theories of Simmel and Weber provide significant insights into monetary theory and its social construction within a philosophical framework. Simmel explicitly attacks all existing theories of money and argues for money as a "representative of abstract value" and moreover a form of sociation, meaning to be "constituted by social relations" (Ingham, 2004 p.63). Furthermore, he theorizes money as a technology, as the purest example of a tool, and its relation with the social relations through which it is constituted. However, as Ingham rightfully argues, Simmel seems to give no account of the origins of the

concept of money as value and he gives no account of the way in which digital, dematerialized money is established and maintained (Ingham, 2004 p.66).

All in all, the established theories of money do not provide a framework that is sufficiently capable of theorizing digital money. In order to embark on a first orientation towards a theory of digital money that takes in account both the social construction of digital money and its technological character, I will continue by elaborating on the way money relates to its societal and technological context.

§ 3 The intrinsic relation between money, society & technology

The purpose of this section is to discuss the intrinsic relation between money and technology as well as its consequent influence on society. I argue that money and technology are not to be considered mutually exclusive categories but rather that money is essentially technological. Even more, I contend that money can be considered as a primary instance of technology or "as the purest example of the tool" as Georg Simmel puts it (Simmel, 1900 p.225). However, such claims face an on-going debate of definitions of both money and technology that goes on until today and probably will continue into the foreseeable future. Both money and technology appear to be concepts that apply to a great range of phenomena and practices and are therefore very difficult to assimilate to any definite description. Probably the best way to start reflecting on such a matter is by considering our every-day use of money and describing the mediation of artefacts in its use-context.

Whenever we are confronted with a monetary exchange, we are almost invariably confronted with technological artefacts that mediate the exchange. In the case of the exchange of money through an Internet banking account, we are using artefacts like a computer, a bankcard, possibly an identification device and an Internet connection. In the case of the exchange of money in a shop, we are either confronted with the exchange of physical artefacts like coins and banknotes and the usage of a counter or we use a bankcard and an identification device. Regarding institutional exchanges of money, extensive networks of artefacts and systems are used as well to identify, authorize and conduct the exchanges. We might tentatively conclude on the basis of these descriptions that the use of money invariably goes together with the use of technology. Nevertheless, the question remains, *is* money a technology[16]?

In order to answer this question, I will first of all turn to the current debate in the philosophy of technology concerning the meaning of technology and assess whether money should be considered as a technology. Secondly, I will discuss the peculiar character of money as a digital technology in order to focus on the form of money discussed in this thesis. Thirdly, I will reflect on the influence of money *as* a digital technology along the lines of some core debates in the philosophy of technology on the ways that technology is part of and mediates our human life world.

[16] The question "*is* money a technology?", since it can only be considered in a use-context, is equivalent to the question "is the *use* of money the *use* of a technology?"

3.1 << MONEY AS ESSENTIALLY TECHNOLOGICAL >>

Though the tradition of philosophy of technology provides many different definitions of technology, three characterizations of technology comprise a substantive account of its meaning: technology as material artefacts, technology as rules and technology as a system (Dusek, 2006 p.31). In every-day discourse, the concept technology often incites images of the technological artefacts, the instantiations of technology: images of computers, aircraft carriers and space shuttles. Thus, the meaning of technology is often captured by its material instantiations, the material artefacts that we designate as technological. Secondly, technology can be understood as the *rules* of mean-end relationships; not existing in the separate technological artefacts but as their rule governed relation to each other. Hence, an isolated technology like a hard drive can be understood in the context of its means-end relationship with a computer. Thirdly, technology can be understood as a technological system that includes its material artefacts but as well the human *skills* and operations that are used to maintain it (Dusek, 2006 p.33). This latter definition might be closer to the original meaning of money, originating from the Greek word *tekhné*[17].

It seems that money fulfils at least the second and the third definitions of being understood as a technology. As will be argued in chapter 2, money can be conceptualized as a system of constitutive rules; hence comprising a range of material artefacts as well as the human skills and operations (language) to maintain its system. There seems to be some ambiguity with regards to money as fulfilling the first definition, since it seems to be unclear to *what kind of* material artefact we refer. For sure, the early forms of money like cattle and cowrie shells have at least a material presence (though their categorization as technology is less obvious), but the significance of materiality seems to diminish with the development of money. Is money itself actually an artefact or is it merely the immaterial instantiation of a *system* of artefacts? Regardless of the answer to this question it seems that similar phenomena whose meaning as technology might be considered ambiguous according to the first definition - like instantiations of computer programs - are still generally counted as technologies. Hence, I would argue that the reasons presented are sufficient at this point for counting money as a technology.

For a more extensive inquiry into the relation between money and technology, we might consult the work of Georg Simmel. Though Simmel does not appear to have any place in the academic dealings of philosophy of technology, he does provide some enlightening observations concerning the conception of money as a technology, notably as a *tool*. He argues for the conception of money as the purest example of the tool. A tool, for Simmel, is on the one hand "a mere object which is mechanically effective, but on the other hand it is also an object that we not merely operate *upon*, but operate *with*, as with our own hands[18]." Moreover, he argues,

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[17] The etymological origins of *tekhné* imply "a working with the hand, a craft, a manual skill"; bearing close relations to the words *tekton,* meaning "carpenter" or "a builder" and *arkhitekton,* "the chief" or "master builder" (Partridge, 2006 p.3387).

[18] One might entertain the thought of conceiving a striking similarity of such an account of technology as provided by Simmel and the one provided by Heidegger of technologies as tools being able to be "present-at-hand" or "ready-to-hand" (Verbeek, 2005 p.79)

"Money in its perfected *form* is an absolute means because, on the one hand, it is completely teleologically determined and is not influenced by any determination from a different series, while on the other hand it is restricted to being a pure means and tool in relation to a given end, has no purpose of its own and functions impartially as an intermediary in the series of purposes[19]" (Simmel, 1900 p.226). For Simmel, it is not the materiality that defines money as a technology or even as a primary example of technology, of a pure tool. Rather, it is its *mediating relation* between the subject and its ends that signifies it as a technology. A technology, as such, is not to be understood merely as an object or collection of objects in the world but as a phenomenon that mediates between the subject and the reality with which it interacts[20].

Hence, we can argue that money is essentially technological while it first of all fits the delineations of technology as rules and technology as a system. Secondly, we can argue that the essence of technology, if we can even speak of an "essence", is not to be found in its materiality but rather in its ability to stand in a mediating relation between the subject and its ends. In line with Simmel, the use of money can indeed be seen as an ultimate example of technology in that sense, while money mediates between the subject and its ends as an absolute means – nothing that is contained in the ends of its use can be founds in its own being. Presented in this light, it appears even more curious that money has no or only a very marginal position in the current tradition of philosophy of technology. I would argue that especially money is one of those human-made phenomena that belong to the core interests of this discipline.

3.2 <<The mediating role of digital money between individual and society>>

We have established an argument that supports viewing money as a technological phenomenon. Yet, this claim does not lead to a justification of assigning significance to *digital* technology in the constitution and use of money. Why is digital technology, amongst all other types of technology, the one that signifies a transition that is worth inquiring into in this thesis? In § 1, when discussing the separate phenomena and practices that are connected to the use of digital money, I argued for the influence of digital technology in two different ways: *constituting* and *augmenting* (the aspect of constitution being closely related to the phenomenon of digital money and the aspect of augmentation being closely related to its infrastructure). The issue of constitution is concerned with the question of possibility: did digital technology provide the *possibility* of a phenomenon or practice? As we saw with the example of Bitcoins and algorithmic trading, some phenomena and practices indeed provide a positive answer to this question.

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[19] We ought not to confuse this interpretation of money as a tool with the interpretation of money as a "neutral" medium. Simmel points at a paradoxical characteristic of money, of being teleologically determined *and* having the function of an impartial mediator; which excludes a one-sided conception of money as a neutral medium.

[20] Interestingly, Simmel designates money both as a tool and as an institution; providing interesting points of connection with the theory of Searle about institutional facts. I will return to this issue in Chapter 3.

The aspect of augmentation is concerned with the question of a phenomenon's' historical transformation: did digital technology significantly contribute to the historical transformation of the phenomena and practices of money? This question appears more ambiguous than the question of money's constitution, for it seems fairly arbitrary to assign "significance" to such transformational contributions. Though one might have an intuitive feel that derivative trades significantly changed in scope justification. I argue that the issues of constitution and augmentation reflect two important sides of the philosophical debate on digital technologies (as discussed in § 1): one that considers its significance as a mirror of human thinking and one that considers its significance according to the ways in which it mediates our relation to reality. We are to take into account both sides of the debate in our discussion of digital money while they illuminate both the structural characteristics of digital money as well as their impact on its meaning and social significance.

Since this thesis is concerned with a *critique* of digital money, it does not suffice to merely provide a description of how digital technology changes the constitution and meaning of money. As a crucial addition, I will have to provide an answer to the question why this change *matters*; why we ought to be bothered by it. One can just accept the premises and the conclusions and happily return to ones every-day life, but this thesis tries to assess whether we actually should do so or whether we should be getting actively involved in critically scrutinizing and possibly revising our monetary structures. In order to do so, we need not only to analyse the interplay between money and digital technology but moreover its moral and political implications. If money is to be regarded as essentially technological than we would have to see how technology and our morality are interrelated; how money mediates between the individual and reality and between individuals in a society.

Philosophy of technology is in its basis concerned with the relations between people and technologies in the contextual framework of a society. It is concerned with ways in which we shape our technological life world and how the technologies we construct influence our way of being in this world. Such discussions may take many different forms, but all of them seem in one way or another to agree with the crucial point that Heidegger made in his "Question concerning technology": "that we are delivered to it [technology] in the worst possible way when we regard it as something neutral" (Heidegger, 1977 p.4). That is, we cannot single out technology in the equation of our relation with reality and in that sense pretend that it does not actually exist; that it can be regarded as something analogous with "the veil" that the commodity theory of money presupposes. Such a conception of technology would presuppose a situation in which technologies neutrally function as instruments through which we conduct some kind of "pure" or "natural" human relations – degrading technologies to the mere level of unchangeable facts of life. In opposition to this idea, philosophy of technology admits that technologies actually exist and influence people as much as people influence technologies by creating and maintaining them.

So then, how could we understand the moral and political significance of the impact of digital technologies on the constitution and meaning of money? In the tradition of philosophy of technology, several different conceptions of technology exist, many of which borrow parts of each other's ideas. Some theorists consider the human-technology relation to be a hybrid, symmetrical one that depends for its

meaning on the network though which humans and technologies interact. Such an approach is notably advocated by Latour in his actor network theory (Dusek, 2006 p.207). Others, like Ihde and Verbeek, adhere to a post-phenomenological conception of technology that combines an "anti-essentialist" version of American pragmatism with classical phenomenology; considering the mediating role of technologies and the way in which they reciprocally constitute the relation between humans and reality (Verbeek, 2005 p.119). Critical theory, originating from the neo-Marxian Frankfurter Schule, provides another – more politically focused – conception of technology. In this thesis, I will mostly relate to the theory of critical theorist Andrew Feenberg who embarked upon a philosophical project to articulate a political theory of technology. His work, that is indebted to the writings of critical theorists like Marcuse and Habermas as well as to the writings of classical philosophers of technology like Heidegger and Ellul, tries to join the critical merits of these philosophies of technology with an "anti-essentialist" conception of technology that allows for the influence of (political) human agency in the constitution of technology. As such, Feenberg manages to articulate a theory that is not merely critical about technological aspects of our life world but also allows for the formulation of ways in which humans can cope with these aspects.

§ 4 Conclusion: the need for a theory of digital money

Digital money is a phenomenon that confronts us with a number of clear delineations when considered in contrast with non-digital money. The origins of money lie in a distant past and money has since its appearance gone through a number of paradigmatic changes, one of which can be considered to be the introduction of coinage and another the introduction of digital money. Digital money demarcates itself from non-digital money because of its dependence on ICT technologies. This dependence is to be interpreted in light of the particular characteristics of ICT technologies that give rise to the philosophical significance of digital money: its capacities to constitute and augment the ways in which humans relate to the world. Instantiations of digital money include phenomena and practices like Bitcoins, algorithmic trading, derivatives and short selling; of which the first two illustrate the inherent, constituting features of digital money and the latter two its infrastructural, augmenting character. These phenomena and practices have a societal significance in the way in which they affect power-relations between people and institutions.

The established theories of money contain some serious shortcomings when it comes to the theorization of digital money. The commodity theory of money considers money as a neutral "veil", which functions as the "oil" in the "wheels" of a genuine barter economy. It therefore rejects the interpretation of money as a social institution that is capable of influencing power-relations between people and institutions. The credit and state theories of money break with the commodity theory by refusing to regard money as a neutral phenomenon. However, they insufficiently explain how money gets its value and how its social construction takes place. The contemporary sociological accounts of money have drifted away from the theory of money, merely theorizing its social and cultural impacts while taking money as such for granted. Nevertheless, the classical theories of Weber and Simmel provide fundamental insights regarding the theory of money that take into account its social construction. Still, they remain silent as to the origins of the concept of

money and on the ways in which digital money is established and maintained. Altogether, the established theories do not provide ways in which money as a digital phenomenon can be sufficiently theorized. We seem to be in need of a revised theory of money that can both account for the social construction of its digital form as well as its impact on this social construction; on the power relations between people and institutions.

A crucial step in theorizing digital money is the acknowledgement of money as being essentially technological. Money understood as a system of constitutive rules is a technology, or the purest example of a "tool" as Georg Simmel puts it. This acknowledgement puts the significance of the technological character of money not in its material presence but rather in its mediating relation between the subject and its ends. The philosophy of technology enables the construction of theoretical frameworks that are compatible with such a conceptualization of technology; though none of these frameworks have thus far been concerned with the theorization of digital money. All in all, the discourse on money seems to be in need of a new theoretical framework: one that considers its social construction, its impact on power-relations and its mediating character as a technology.

In order to take up these issues, I will firstly consider John Searle's theory of social construction of reality. His theory provides a fundamental account of the way in which facts in social reality are established and maintained by means of the concepts that originate from the structure of human language. His theory, combined with Simmel's relationist theory of money, provides a substantive insight into the constitution of digital money though it seems not to be capable of formulating a normative account of the impact of digital technologies on money. For this reason, I will construct my critique of digital money by both analysing the digitalization of money according to the theory of money of Searle and Simmel and critically assessing they way it influences the power-relations between people and institutions according to the critical theory of Feenberg. I expect that such a theoretical construction will provide the possibility of answering the research question of this thesis.

Chapter 2:
Theorizing Digital Money

The aim of this chapter is to construct a theoretical framework through which I will be able to construct a theorization of money and hence provide a basis towards a critique of digital money. The philosophical inquiry into digital money would not have a starting point without a theory of money itself by means of which its digital form can be scrutinized. I will start my inquiry with the very basic question: "what is money?" or perhaps rather "how can we *know* about money?" In the previous chapter I indicated why I have the conviction that the established theories of money fail to provide an answer to this question to the extent that it can be made intelligible as the basic question towards the assessment of the impact of its technological form. Hence, a critique of digital money asks for a revised philosophical theory that is capable of dealing with the question of the impact of its technological form. I did not intend to construct a theory of money from scratch, which would be an endeavour that seems to be easily filling up a whole academic lifework. Instead, I have tried to combine the insights from two distinct theories of philosophers that belong to different philosophical traditions but nonetheless seem to have remarkably compatible insights about the workings of institutional reality: the theories of John Searle and Georg Simmel.

While it is my aim to provide a systematic approach for the understanding of digital money I have decided to initiate the inquiry with the philosophy of John Searle as structural basis for my theory of money. Searle is a proponent of the school of Analytic philosophy, which arguably implies that the fundaments of his theories are to be found in the philosophy of language. His philosophy can be considered systematic while he uses his formal theories about speech acts in the philosophy of language in order to construct philosophical accounts of the human mind, human institutions and human social reality as such. By means of his theory, I will construct the claim that money is an institutional fact and hence a system of constitutive status function declarations. After assessing the value of this claim with regards to our understanding of money I will point at some structural characteristics of money that will guide our investigation into the digitalization of money. Moreover, I will discuss some serious challenges of Searle's theory that need to be addressed. In order to deal with these challenges, I will turn towards the "Philosophy of Money" of Georg Simmel in the sections § 3 and § 4.

With respect to the philosophical discourse about money it seems unsurprising to arrive at the thoughts of the German philosopher Georg Simmel[21] who wrote as his seminal work a book titled "The Philosophy of Money" (Simmel, 1900). Simmel focuses in his work on an account of money that is deeply rooted in his metaphysical worldview and a value theory that is based on a method of Hegelian dialectics. This philosophical basis leads him to the claim that: "the value of things, interpreted as their economic interaction [exchange of economic value], has its *purest expression* and *embodiment* in **money**" (Simmel, 1900 p.127). I will

[21] Simmel (1858-1918) is paradoxically considered both as one of the primary intellectuals in Germany at the turn of the 20th century - often considered as one of the founding fathers of sociology - as well as an academic outsider (Wolff, 2012).

use Simmel's theory to put so-to-say the "flesh on the bones" of Searle's formal account of money, especially through dealing with the nature of the notions of "value" and "recognition" in Searle's theory. After the reformulation of Searle's theory according to the incorporation of Simmel's thoughts about money, I will conclude by providing a coherent overview of the theory of money that will guide us in the investigation towards the critique of digital money.

§ 1 Money in human social reality: from speech acts to institutional facts

The purpose of this section is to elucidate John Searle's argument towards an understanding of social reality as a basis of our understanding of money. In his book "Making the Social World", Searle bundles his philosophical insights in a comprehensive philosophical theory, which he designates as "the philosophy of society". In this theory, he aims at extracting the fundamental structures of social facts; an endeavour he designates as serving the fundamental question in contemporary philosophy[22]. He claims to construct his "philosophy of society" as a new branch of philosophy, though not completely rightfully so while amongst others the earlier philosophy of Georg Simmel, yet less systematic, can rightfully apply to a similar title. Nevertheless, his project is indeed unique within the tradition of analytic philosophy while most analytic philosophers don't seem to move beyond the mental and linguistic constitution of the subject and its knowledge of the world.

The basic claim of his "philosophy of society" is that "all of human institutional reality is created and maintained in existence by (representations that have the same logical form as) Status Function Declarations, including the cases that are not speech acts in the explicit form of Declarations" (J. R. Searle, 2011 p.13). Probably, this claim needs considerable clarification for the reader in order to be properly understood. In order to provide a systematic analysis of money in the framework of Searle's philosophy, I will start by stating the formulation of the structure of money according to this theory: Money is an **institutional fact**, hence a **system** of *constitutive* **status function declarations** with the logical form **X counts as Y in the context C**. I will address each of the elements of the argument separately with their subsequent argumentation structures in order to show the reader the way in which the conclusive claim is constructed. The roots of Searle's theory lie in the works of Anscombe and notably Austin as theorists within the philosophy of language that were especially interested in the question "how to do things with words?"[23]. Such was a question that pointed at one of the structural problems within philosophy of language, a problem that originates in the two seminal works of Wittgenstein, which represent two different approaches. While the Tractatus Logico-Philosophicus was aimed at giving an account of the meaning of sentences, the Philosophical Investigations was aimed at expressions in speech

[22] He formulates this fundamental question as follows: "how, if at all, can we reconcile a certain conception of the world as described by physics, chemistry, and the other basic sciences with what we know, or think we know, about ourselves as human beings?" (J. R. Searle, 2011 p.3)

[23] A question to which one of the seminal works of Austin "How to do things with words" owes its title. The speech act theory of Austin served as the basis of Searle's theory of speech acts.

situations (speech acts) (J. R. Searle, 1969 p.18). Searle asserts that though these two works reflect different approaches in the philosophy of language, they nevertheless necessarily complement each other because "for every possible speech act there is a possible sentence or set of sentences the literal utterance of which *in a particular context* would constitute a performance of that speech act" (J. R. Searle, 1969 p.19). This approach would be needed for Searle to build his theory in which all human-made phenomena are eventually related to these two characteristics of language: it gives us the ability to logically represent states of affairs *and* to alter these states of affairs: constructing a social reality.

1.1 <<Money is epistemically objective with an observer-collective dependent referent>>

The first argument put forward by Searle in understanding our social reality is an argument about certain categories of facts. Though he claims to be avoiding any metaphysical assumptions, he starts with two claims that do appear to be at least on the verge of speculative reason: that we live in exactly one world and we need to preserve *respect* for the basic facts of the structure of the universe[24]. Up until this point of writing, I find it difficult to relate to these assertions and consider them to be, together with his stance on his "biological naturalism"[25] the frailer parts of Searle's theory. Fortunately, however, these assumptions are at the same time superfluous for appreciating the basic merits of Searle's theory in understanding language, the mind and social reality.

As interpreted in the light of my thesis Searle's theory especially addresses thoroughly the question of the epistemic status of social facts and their structure, which provides the great merit of his theory in understanding money. Through reconstruction of his argument, it becomes clear that his starting point is the epistemic relation between an agent and a certain intentional state concerning a state of affairs. Searle argues that all states of affairs or rather facts cannot be understood along similar lines because some of them are *in*dependent of the intentional actions of agents while others are dependent on the intentional actions of agents. This distinction is relevant while our knowledge about phenomena that are dependent on the intentionality of agents has a double role, in contrast with all other knowledge: it tries to understand a structure that itself is based on human action and understanding. Hence, while knowledge about such facts requires a "reverse" insight into the structure of human understanding and action such knowledge is not a prerequisite for understanding all other facts that become part of our understanding, which themselves are independent of the existence of human agents.

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[24] For Searle, this amounts to respect for atomic physics, evolutionary biology and embodied brain neurobiology on which knowledge about all "basic facts" rely (J. R. Searle, 2005 p.318).

[25] Searle asserts that though (1) mental states are *causally* reducible to brain states, they are (2) nonetheless *ontologically* irreducible (J. R. Searle, 2002 p.60). It is not clear, for my part, in what sense the word *ontology* is used here if not as a statement about our epistemic position, which is precisely why; statements like (1) are problematic while causality implies necessity.

I will start by elaborating on the categorization of the facts under consideration. Searle formulates the distinction of certain facts as follows: "Ontological objectivity and subjectivity have to do with the *mode* of existence of entities. Epistemic objectivity and subjectivity have to do with the epistemic status of claims". Consequently, he asks the question: "how can there be an epistemically objective set of statements about a reality which is ontologically subjective (Searle, 2011 p.18)?". In order to answer this question he first of all claims the existence of a certain set of statement about facts whose existence does not depend on the observer, or more precisely not on *any collective of present and past observers*[26]. An example for such a statement is "I believe that the weather outside is such that it is raining". The content of the proposition "the weather outside is such that it is raining" concerns a state of affairs that did not come into existence because of the mental activity of any collective of present and past observers. In other words, no mental sets of beliefs and desires have been responsible for the existence of the rain; it would be there even without the existence of beliefs and desires whatsoever.

However, another kind of facts in our set of possible statements implies states of affairs that would *not* have existed without the existence of corresponding beliefs and desires of any collective of present and past observers. Such states of affairs include examples like "I believe that such and such position in the game of Chess implies that it's checkmate". The content of the proposition "such and such position in the game of Chess implies that it's checkmate" concerns a state of affairs that depends for its existence on the beliefs and desires of a collective of observers in the present or the past. If no collective of observers would ever have come to the collective **belief**, originating from the **desire** to construct a rule for the game of Chess, to constitute the rule of checkmate the corresponding statement would be meaningless and would even more probably not belong to the total set of possible statements. This brings us to a situation in which we can have knowledge (beliefs) about states of affairs that are either independent of or constituted by mental states like beliefs and desires themselves.

Although adopting his general structure, I refrain from sharing Searle's conviction that the divide between facts is essentially *ontological*; that the epistemic status of states of affairs is the same though their ontological *mode* can differ, whatever such an ontological mode might be. Though Searle's argument that pain has an ontologically subjective *mode* seems correct, it is not obvious to extrapolate such ontological claim to institutional phenomena like money. Considering that ontology concerns in its basis the philosophical question of *what exists,* Searle does not seem to provide an answer except for the claim for the existence of only one world. If the answer would be *"observer-dependent" and "observer-independent" facts*[27], no information about the existence (except for relative dependence on the

[26] This addition seems necessary because the categories of "observer-dependent" or "observer-independent" do not only depend on the interference of *a* knowing subject but on the interference of *any collective of present or past observers* while any observer-dependent fact needs to be collectively recognized and entails interferences throughout history (consider e.g. the case of money).

[27] Compare such an answer as provided by Searle with ontological claims like "reality consists of undividable particles" (Democritus), "reality consists of the extended world and thinking substance" (Descartes) or "reality consists of the

possibility of existence of something else) or inherent qualities of these facts or entities is given. Rather, Searle seems to provide an epistemic categorization of facts that seems necessary for understanding the fundamental difference between two basic categories of facts within our realm of knowledge. He appears to claim that our understanding encounters an essential divide between facts that are subjected to knowledge claims, since some of those facts are independent of former beliefs and desires while others are necessarily dependent on them. Though Searle's theory might henceforth have lost some of its philosophical strength, its merits for understanding our epistemic relation towards social reality remains and even becomes more clearly present.

For the reasons stated above, I will re-formulate Searle's framework and provide a categorization of knowledge about states of affairs that I think most rightfully reflects the status of these categories as epistemic classifications:

- Epistemologically objective facts, with an observer-collective independent referent (e.g. rain, the sun, oxygen)
- **Epistemologically objective facts, with an observer-collective dependent referent (the rules of chess, money, tools)**
- Epistemologically subjective facts (also called *opinions* about states of affairs, e.g. "I believe that the rain made me depressive" or "I believe that the paintings of van Gogh are more beautiful than the ones of Monnet")

Such a structure of Searle's theory adheres to the necessity of the elaborated version of "observer-dependent" in which this implies a dependence on any collective of present or past observers, rather than just any observer. In that sense, facts with an observer-collective dependent referent, or rather inter-subjective facts are neither ontologically subjective (like pain) nor ontologically objective (like the sun).

Through relating this overall categorical structure to the subject of money, the first important characteristic of money and our knowledge about it becomes clear: namely that money belongs to the category of epistemologically objective facts with an observer-collective referent. When we gain knowledge about any statement concerning money, e.g. "a banknote of € 5,- has the same value as a set of five coins of € 1,-", we gain objective knowledge about a statement that would be meaningless or not belonging to the possible set of statements if not it would have been constituted by beliefs and desires of any collective of present or past observers. As a next step, we need to make sure that we actually gain information from this categorization through finding out about its distinctive features and the way in which they can be made intelligible.

1.2 <<Money as originating from human intentionality>>

The main shared characteristic of facts that are designated in the previous section, as "epistemologically objective facts with an observer-collective referent" is their origin in human beliefs and desires, or rather generally in mental dispositions of any collective of present or past observers. In other words, these facts originate from human *intentionality,* to which the classes of mental states, beliefs and desires,

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things-in-themselves (noumena) that are unknowable to us and the things-for-me (phenomena) that are knowable to us" (Kant). A statement like "reality consists of observer-dependent and observer-independent facts" is not a statement about existence of these facts but rather about our knowledge about these facts.

belong. In order to understand what intentionality implies with regards to our mental dispositions towards the objects or contents of these dispositions, it might be important to first of all confront the origins of the philosophical debate on this subject.

The question of intentionality is one of the major inquiries in contemporary philosophy and was firstly articulated by Franz Brentano (though he based it on writings in Scholastic philosophy). His "Brentano thesis" aims at discerning mental phenomena from physical phenomena, stating that "the intentional *inexistence*[28] of an object, and what we might call, though not wholly unambiguously, reference to a *content*, *direction* toward an object (which is not to be understood here as meaning a thing), or immanent objectivity" (Brentano, 1874 p.68). In other words, our mental phenomena are different from physical phenomena (physical phenomena understood as phenomena that are still experienced in the mind, not the "thing in-itself") to the extent that we are indifferent about their existence. For example, we cannot be indifferent about the existence of the phenomenon of "redness" though we can be so about the objects of our imagination. Although Brentano himself was merely concerned with intentional inexistence in a descriptive rather than an ontological sense[29], his thoughts were very influential in the emergence of the two major philosophical traditions of the 20th century that were involved in ontology: the continental and analytic tradition. According to the analytic tradition that mostly focuses on a linguistic, propositional account of intentionality, human actions are to be explained by mental states and their intentional content[30]. The continental tradition focuses on the nature of human experience: on the intentional act instead of on its contents. Brentano already recognized this dissection, when he distinguished within the intentional relation (between subject and mental object) the two correlates of the act of consciousness and that upon which it is directed[31] (its contents).

Searle's theory can be considered a hybrid between the two approaches and an attempt to reconcile them. In his speech act theory, the intentional *act* and its propositional *content* are both incorporated in a single theoretical framework. Though Searle distances himself explicitly from the phenomenological inquiry into intentionality I consider the sources pointing at the similarities between e.g. his view and Husserl's (Moran, 2010)(Mcintyre, 1983) as more enlightening than Searle's own interpretation of "the phenomenological illusion" (Searle, 2005a); an interpretation that is in my view more due to the confusion between ontological and

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[28] Intentional inexistence is not to be confused with non-existence; rather as a modification of a mental object's existence from the very fact that it exclusively belongs to the mind (Bartok, 2005 p.18)

[29] Brentano didn't intend to ontologically classify the mental contents or objects that we are intentionally directed towards (Bartok, 2005)

[30] Mental contents in the analytic tradition is mostly interpreted as "propositional attitudes", in the form of e.g. "I believe that X (X being a proposition, e.g. Paris is the capital of France)".

[31] As quoted by Bartok from Brentano: "As in every relation, two correlates can be found here. The one correlate is the act of consciousness, the other is that upon which it is directed . . . the two correlates are only distinctionally separable from one another" (DP, pp. 21/23–24) (Bartok, 2005 p.20)

epistemological claims than to any fundamental disagreement. I will return to this issue in § 3 of this chapter because it deals with some limitations of Searle's theory. For now, however, we might continue with the notion of a hybrid interpretation of intentionality that it presents.

A basic characteristic of intentionality is that it is *about* a certain state of affairs in the world, or *directed* towards it, for which it is also often mentioned as "aboutness" or "directedness". According to Searle, the content of any intentional state is always *propositional*[32] which entails certain *conditions of satisfaction* and a certain *direction of fit*. The propositional character of intentional states implies that mental states have a similar structure as propositions in language (a subject + predicate structure e.g. "snow is white"). However, it is important to note that Searle does not imply here that intentionality is essentially linguistic because that would turn the argument around[33]. While pre- or non-linguistic creatures like young children, pre-historic humans and some kinds of animals have intentionality they probably do or did not have any language. Language is to be regarded merely a pedagogical or didactic tool in understanding intentionality; as a mirror of the propositional content of our intentional states that nevertheless does not display *that* exact content. It is important to note that the propositional content of an intentional state is not what the intentional state is directed at, or about. While the aboutness implies a relationship between our psychological mode (belief, desire) and the *object* of our belief or desire, the propositional content is meant to *fit* the belief or desire. By means of this argument, Searle tries to avoid the linguistic trap that we only have beliefs about our propositions and therefore not about the actual state of affairs in the world (though this indirectly implies acceptance of Searle's correspondence theory of truth[34]). In Searle's account, intentionality is a property of certain mental states to match propositional content of those states with the actual states of affairs in the world. A belief containing the propositional content "it rains" therefore matches, or rather fits the actual state of affairs when it has been coinciding with the actual perception of rain.

The *direction* of the intentional state is determined by the psychological mode and is characterized by Searle as having either the "world-to-mind" (in case of desire) or the "mind-to-world" (in the case of belief) direction of *fit* (Searle, 2011 p.28). A belief containing a certain propositional content "belief (x)" has the mind-to-world direction of fit while the content of the proposition is to fit (or in Searle's words is *responsible* to fit) the actual state of affairs in the world. Consider the belief "the weather is such and such that it rains". Searle considers such a statement

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[32] Though some intentional states don't have a "whole" proposition as content but contain rather a representation of an object as in the form "Love (Sally)". However, this amounts to quite an ambivalent situation where "a representation of an object" is not propositional though it *might* be (in case Sally is used as a definite description).

[33] Some philosophers of mind do hold this position in defence of the representational theory of the mind and the language of thought theory (with Jerry Fodor as a main proponent).

[34] Searle's arguments for the correspondence theory of truth are to be found in "the Construction of Social Reality" stating that *statements are true if and only if they correspond to facts* (Searle, 1995 p.208-216).

to be an *illocutionary*[35] *act* with which the speaker tries to match a propositional content with the state of affairs. An illocutionary act is to be understood as a *complete* speech act that typically correlates with the use of the English words "promising, stating, questioning" and contains illocutionary force indicators (like "promising") and proposition indicators (that *such and such is the case*). In the example as states above, the illocutionary force is "belief" and the proposition is ("that the weather is such that it is raining"). According to Searle the proposition is meant to fit the state of affairs, which implies that it is satisfied in case the state of affairs is such that the weather is such that it is raining. Plainly, the illocutionary act is satisfied when the actual state of affairs is indeed such that the weather is such that it is raining and not satisfied in cases when for example the weather is such that it is sunny. Typically, we refer to the first situation as a belief being *true* and to the latter situation as a belief being *false.* The conditions of "the world" or rather the conditions of the state of affairs that are necessary to be satisfied if the illocutionary act or rather *intentional state* is to be satisfied are designated by Searle as "the conditions of satisfaction". In our example, the condition of satisfaction is the weather to be such that it is raining.

Next to intentional states that have a mind-to-world direction of fit one can have intentional states with a world-to-mind direction of fit, of which desires are the typical form. A desire with the illocutionary force (desire) and propositional content (e.g. "exchange € 35,- for Kants 'Critique of pure reason'") has the direction of fit world-to-mind because the configuration of the world is to fit the propositional content of the desire. In such a case, the desire "exchange € 35,- for Kants 'Critique of pure reason'" is satisfied in case it indeed turns out to be the case that € 35,- is exchanged for the acquisition of Kants 'Critique of pure reason'. Note that "satisfaction" does not refer to some psychological state of "being satisfied" in the common use of the term. While it could be the case that it would turn out to be "The week of philosophy" during which Kants Critique is given away for free, which would make one feel very satisfied, this would typically not satisfy the propositional content of the initial desire. In order to provide a connection with money, the foregoing points at a typical feature of its structure as an institutional fact. Consider again "exchange € 35,- for Kants 'Critique of pure reason'. Though I might have a desire with this exact propositional content, the content itself might very well be *desire-independent.* One might have a general displeasure in reading Kant and have the personal opinion that paying any money for it an act of stupidity. However, in a given institutional structure of a philosophy course at a university and a money economy, it is perfectly possible to have the desire with this precise propositional content. In order to know how these kind of situations are possible we will need to expand the current framework in order to account for the emergence of such institutional structures like money, education and bookstores.

In order to shortly recapitulate before turning towards the issue of institutional facts: epistemologically objective facts with an observer-collective dependent referent originate from human intentionality. Intentional states have an

[35] "Illocution" is derived from the Latin words "il-" (not) and "locution" (speech); corresponding with the act of expression (*expression of speech situations* as examined by Wittgensteins Philosophical Investigations) as opposed to the meaning of sentences (examined in Wittgensteins Tractatus-Logico Philosophicus)

illocutionary force indicator and a positional content. The first determines the direction of fit of the intentional state, while the latter determines the conditions of satisfaction.

1.3 <<Money as a system of constitutive status function declarations>>

Where did we get so far in the discussion? I have argued that money is an epistemologically objective fact with an observer-collective referent. Moreover, I have examined the constitution of such facts as originating from human intentionality. In order to analyse these kinds of facts, the speech act theory provides an insight into their structure according to which our involvements in speech acts (that have an illocutionary force, a propositional content, a direction of fit and conditions of satisfaction) constitute such facts. However, it doesn't seem obvious that from plain intentional states like beliefs and desires we could arrive at complex institutional structures like money. In order to understand such institutions we would have to consider a certain type of speech acts that has a peculiar nature: the declaration.

In his speech act theory, Searle discusses the five types of speech acts: (1) assertives (*beliefs* - statements, description), (2) directives (*desires* - commands, requests) (3) commisives (*intentions* - promises, pledges), (4) expressives (apologies, congratulations)[36] and (5) declarations. It is the last type of speech acts that deserves our attention here while declarations provide us with the ability to "make something the case by declaring it to be the case": they have a double direction of fit (Searle, 2011 p. 69). Though all the other types of speech acts correspond to a non-linguistic intentional state (e.g. assertives to beliefs), declarations can only be made the case if there is already a language involved: language is a necessary condition for the possibility of declarations. This is an important notion, while it shows the importance of understanding language in understanding institutional reality as constructed by means of declarations. In order to get an impression of what a declaration entails, one can think of the straight-forward example of a marriage: I declare you to be "husband" and "wife" is both declaring something to be the case (to be "husband" and "wife") and making something the case; a marriage. Another example, closer to the topic of money, is the creation of the Eurozone. By means of declaring it to be the case that "as from the 1st of January 2002, the Euro counts as the official currency in the Eurozone; comprising the sovereign states Germany, France...etc.[37]" Both the declaration is stated and new entities come into existence: the Euro, the Eurozone and many other institutional facts. Typically, such declarations provide *desire independent reasons for action*. They make us use Euros even if one might strongly desire to stick to our old currencies and they make us stick to the moral and legal obligations of a marriage while one might want to defect from those from time to time.

[36] Typically, these type of speech acts have a "null" direction of fit; they already presuppose the existence of a state of affairs

[37] This is an extremely simplified version of the actual declaration, which in cases like a creation of a currency area has the typical form of a *treaty* or similar legal documents.

Searle captures the productive power of declarations by giving an account of their capacity to impose functions on objects or people. He argues that this capacity is a decisive feature of human society and a feature that is only possible in virtue of our use of language. By means of a declaration we can for example attribute a function to the human heart, stating: "the function of the heart is to pump blood through the body". Such a function, however, is a non-agentive function while the heart performs it regardless of people's intentions. The other type of functions, agentive functions, can be attributed to objects that can perform their functions only by means of people's intentions and in virtue of their physical constitutions. Such objects are for example bicycles: they perform their function only when people ride them and these people are able to do so in virtue of the physical constitution of the bicycle. The most fascinating category of objects or facts to which a function is attributed is the category of objects or facts with a **status function**: a function that depends for its execution on people's intentions but is independent of the physical constitution of its object. Money seems to be a perfect example of such an object while its functions cannot be directly derived from its physical constitution. When I want to exchange money for an object, the pure physical qualities of the monetary "object" I'm exchanging do not cause the behavioural response of the seller being such that he or she takes the money and hands over the object. Rather, objects with a status function are the result of the recognition of collective rule governed behaviour that Searle refers to as "collective intentionality".

Collective intentionality in the context of an object or a person with a status function is the collective **recognition** of the status of the object or person. To illustrate this: a very typical example of collective intentionality is a line of people waiting to acquire a certain service, where the function of the line is "person 1 in line having the status 'being the first to be served, person 2 in line having the status 'being the first to be served after person 1 has been served', and so on". In most of the cases, there is no physical quality of "the line" that puts the obligation on the people standing in line to adhere to the rule governed behaviour implied by the status function of the line. How do such rules arise? In order to answer to this question, Searle makes a distinction between regulative rules and constitutive rules. **Regulative rules** have the typical structure of "do *x*", where the rule itself adds a regulation to an already existing activity. For example, when the rule is "eat with knife and fork", the rule is regulative while it regulates the way of eating though eating itself would be perfectly possible without the rule being there. **Constitutive rules** have a different structure, while they constitute the very behaviour that they regulate (Searle, 2011 p.10). Games are great instances of the implication of constitutive rules, while for example the rules of a game of chess are logically necessary for the game itself to be a game of chess. Hence, by declaring that "such and such position counts as check mate in the game of chess", a constitutive rule is been made effective that not only regulates "check mate" but also makes possible the very existence of "check mate". Searle asserts that such constitutive rules have a logical structure "*x* counts as *y* in context *c*". In this structure, *x* is to be understood as a definite description of a certain object, person or state of affairs. The *y* is to be considered as the productive part of the constitutive rule while it brings into existence a status function, which might imply the creation of something new. The *c* refers to the framework or context in which the rule applies, since for example the

rule of check mate typically applies within the confounds of the game of chess and not in other institutional settings like the game of football.

Hence, we have established that constitutive status function declarations of the form "*x* counts as *y* in context *c*" are the speech acts that allow us to create and maintain the institutional facts that constitute our social reality. Searle discusses more complex structures as well, where "declarations specify the conditions under which certain institutional facts will be created" (e.g. a law about the constitution of corporations). Such declarations have the explicit form "for any *x* that satisfies condition *p, x* has status function *f* in context *c*." In the case of a corporation, but also in the case of fiat money, the new entity is created out of "thin air": there is no pre-existing object that is endowed with a status function. Rather, the declaration itself, or the performance of the written speech acts (for example, signing a contract for a limited liability corporation), *counts* as the creation of the entity (the corporation in this case).

What is important to note here is that a status function does not amount merely to an extension of the definite description of an object (e.g. "this handcrafted piece of jewellery consisting of gold and diamonds which one can place on ones head (x) counts as the crown of the king (y) in the Holy Roman Empire") but bears so-called **deontic power**. The status function that is attributed implies a certain power relation between people and the object. The main rationale of the assignment of status function and hence the establishment of deontic powers is that it gives us desire-independent reasons for action (Searle, 2011 p.127). When a declaration baptizes a status function implying a constitutive rule e.g. "my signed application for French classes" counts as status function "having access to obligatory French classes on Monday, Tuesday and Thursday between 18 p.m. and 20 p.m." in the context of "Language courses at the Sorbonne in Paris in the academic year 2013-2014" such status function carries with it a set of desire-independent reasons for action for different people affected by the signed application. Though the initial reason for signing the application probably has been "learning French" (a desire-dependent reason[38]), my attendance at the obligatory classes at the exact hours has desire-independent reasons that are fixed by the institutional fact of the application. The presence of deontic powers becomes even clearer when considering the actions as paying taxes or putting down "the king" piece once one has been beaten at chess. One might have the desire to never pay taxes again or to not lose in a game of chess but still do so because the institutional reality bears the deontic powers that make you pay your taxes and lose games of chess.

In order to shortly recapitulate this part: declarations are speech acts with a double direction of fit, which provides them with the ability to create constitutive rules – rules that regulate and at the same time constitute their own existence. Declarations can therefore create and maintain institutional facts by conferring status function on them with the logical form "x counts as y in context c". Such institutional facts are established by collective recognition through collective intentionality, which endows them with deontic power. This deontic power provides

[38] Though the careful reader might rightfully object that this is not quite the case, since the desire for "learning French" is as well placed within an institutional structure. More genuine desires would in that case be "desire to eat" or other primary biologically driven desires.

desire-independent reasons for action for the agents that interact with the institutional facts. This structure seems to apply to money while it is established by means of declarations that create constitutive rules that create the status function "x (e.g. € 1,- coin) counts as y (€ 1,-) in the context of the Eurozone".

1.4 <<The value of Searle's theory concerning the theory of money>>

Thus far, in paragraphs 1.1 till 1.3, I've presented the arguments that have led us to the support of our initial claim, being: money is an **institutional fact**, hence a **system** of *constitutive* **status function declarations** with the logical form **X counts as Y in the context C.** At this point, I will reflect on the information that is gained from this claim as leading towards an answer to the main question of this chapter "what is money?" How does Searle's theory add to the discussion? As Searle already mentions when reflecting on the value of his theory for the social sciences: his theory of the construction of social reality differs from most accounts of social theory while it doesn't take the existence of language for granted as pre-given. He seems to be touching upon a valid point in the case of money as his theory shows that the institution of money pre-supposes the institution of language. When we consider for example the use of cowrie shells, it seems unlikely that they would have been used as "money" without the declarations in language or at least some form of symbolism (Searle, 2011 p.95) that would give them the status of money.[39] Without the possibility of two subjects engaging in the collective *representation* of cowrie shells existing *as* money or a derivative of money and not merely *as* cowrie shells, no possibility seems to present itself in which cowrie shells could still be considered as money. Henceforth, in order to know what money is we ought to analyse its formal structure as based on linguistic, logical propositions.

The most important insight we can gain from Searle's theory is that *by changing the formal constitution of money, we change the meaning of money and its consequent structure of power relations.* Searle makes sense of such a statement by showing the intimate relation between our language and the institutional structures we create by means of language. The relation between money and power-relations might sound like an admittance of the famous identity statement *money is power* but it is not quite so. Rather, it implies that the formal structure of money constitutes the structure of power-relations and only certain types of those relations; the total class of "power" being greater than the total class of "money"[40]. Foremost, it shows us that the structure of constitutive rules bearing deontic power entails certain consequences with regards to the structure and consequently the **meaning**

[39] It must be noted here that many economists (notable Carl Menger) regard the emergence of money as unconsciously evolved (Horwitz, 1994 p.224). However, this need not be in disagreement with Searle's account of constitution of institutional facts while constitutive status function declarations might add up to the emergence of money without them being initially stated *in order to* intentionally create the status function "money".

[40] Implying that one can have power without money but no money without power. Consider for example the monopoly of violence of a sovereign government as one of its powers. The declarations from which this power originates don't find their origin in the existence of money.

of money. Since money is a system of constitutive status function declarations, its meaning can change whenever a declaration is changed, added or removed. While such structural changes imply changes in deontic powers and power relations between people and objects, understanding those changes would imply understanding the structural changes in power relations between people. In order to understand the connection between the structural changes of money and the consequent changes in power-relations between people Searle's theory can guide us towards answers for the following questions: What declarations have structural impact on the system of money? What institutions are authorized to make such structural changes? What is the role of the technological context of money in the structural changes of the system of money? How does the consequent change in the structure of money restructure the power-relations between people and institutions? I will use these questions in chapter 3 in order to understand the role of digital technology in opening possibilities for these structural changes and its consequent impact on power-relations.

Moreover, Searle's theory provides insight in understanding the development of money and the apparent ambivalence of its meaning. Concerning pre-coinage forms of money like cattle and grain it is difficult to designate such objects as institutional facts proper. Rather, they seem to partly belong to the category of objects with *causal* agentive functions while their physical constitution appears to contribute to their function as money. The least that can be said here is that in these cases of money there seems to be a certain ambivalence as to their meaning *as* objects with causal agentive functions or *as* institutional facts proper. This ambivalence seems to be reflected by discussions about the necessity for monetary objects to be grounded in some *intrinsic* value (e.g. the gold standard). A clear distinction seems to arise with the use of coinage, where the symbolism is an intrinsic part of the object. There are not many instances of objects with status function that exemplify its principle as clearly as coinage while the status function seems to be literally "imprinted" in the object; typically representing a figure of great authority (a king, emperor, president). A coin performs its function not by means of its physical constitution but by means of the status function that it has received by means of a standing declaration in the process of minting (the minting of the coin constitutes the standing declaration e.g. "this golden object with the picture of the emperor counts as money in the Holy Roman Empire").

However, even with coinage certain ambivalence seems to be pertained since throughout the history of money a relation between the pure status function and its object has been influencing its development. The debate is often framed as a friction between "good money" (money with a high *intrinsic* value) and "bad money" (money with a relatively lower *intrinsic* value); captured by Gresham's "Law" stating: "bad money tends to drive out good money" (Davies, 2002 p.205). Yet, we would have to seriously challenge the idea of "intrinsic value" in Searle's theory since it rather seems that there is an opposition between status functions instead of an opposition between status function and intrinsic value of an object. Consider the case of Gresham's Law with respect to two different cases of status function: "golden coin counts as money in Holy Roman Empire" and "gold counts as money in Holy Roman Empire". Since the second attribution of status function seems to be as valid as the first, the ambivalence between the object and its status function appears to arise from the opposition between different status functions rather than the object

"gold" as opposed to the status function "money". I will return to this discussion in § 4 when elaborating on Simmel's contributions to the theory.

Taken together, Searle's theory seems to give us the following insights regarding the theory of money: (1) we can understand the money according to its linguistic, logical structure; (2) these structural features of money constitute the meaning of money and its consequent power-relations; (3) the ambivalences in the meaning of money can be explained by analysing their social structure.

§ 2 Searle's phenomenological shadow: missing links in his account of money

The purpose of this section is to critically scrutinize the theory of John Searle in order to find the points at which we would need to amend the theory as leading towards an understanding of money. Though Searle's theory appears to be of great value for our analysis of social reality, it doesn't seem to provide a full answer to the question "*what* is money?" And "*how* to know about money?" In other words, his theory does not seem to be sufficiently able to construct a framework for a coherent theorization of money. The reasons I have identified as leading towards this insufficiency are the problematic notion of "value" in the social construction of money and the missing explanatory account of recognition – as in answering the question "why is money recognized as an institutional fact?" Though Searle's theory provides a great way of understanding the structure of social reality, it seems to be insufficiently taking into account its normative dimensions with regards to the theorization of money.

Searle's theorization of money confronts us with a number of difficulties. Firstly, his account of money seems to entail a defence of the commodity theory of money, which I argue is incompatible with Searle's theory. This incompatibility guides us to the place of "value" in Searle's account of function and a problematization of the statement that we impose the function of "value" on money. Secondly, the notion of *direction of fit* is problematic with regards to the theorization of institutional facts; treating it as a characteristic of speech acts though lacking in explanation in comparison to the other features of speech acts (propositional content and conditions of satisfaction[41]). Direction of fit seems to be mentioned as an attribute that speech acts and intentional states "have", as captured by any illocutionary force indicator like "belief" or "desire" and the corresponding mind-to-world and world-to-mind directions of fit. Such taxonomies, though important for the speech act theory itself, do not seem to contribute to the understanding of what a direction of fit is or how it comes about. These problems seem to boil down to the basis of Searle's theory, where he tries to reconcile realism and physicalist monism with an irreducible account of first-person normativity (Heidemann, 1999 p.251). Finally, Searle leaves the aspect of recognition unexplained, though an explanation of *why* money is collectively recognized seems indispensable for the theorization of money.

[41] Notably explaining propositional contents along the lines of his philosophy of language and consequent theories of descriptions and proper names; and explaining conditions of satisfaction alongside the correspondence theory of truth (meaning that the conditions of satisfaction are found by means of dis-quotation: "snow is white" having the condition of satisfaction *snow is white*).

These theoretical difficulties find their effect in Searle's exemplifying account of money that does not seem to be providing an adequate account of money. It seems that especially the phenomenon of money fails to be analysed according to Searle's theory, which provides some insights into the peculiar and ambivalent nature of the institution of money.

2.1 <<Searle's incomplete account of money>>

In "the Construction of Social Reality" Searle explicitly uses money as an illustrative example of an institutional fact that can be analysed with his theory. He argues that the institution of money evolved according to three *kinds* of money: commodity money, contract money and fiat money. However, especially his account of "commodity money" that directly appeals to the commodity theory of money seems to be problematic. He argues that: "commodity money such as gold or silver" (and for that part cowrie shells) "is a form of *barter* because the *form* that the money takes is regarded as itself valuable"[42]. Moreover, he argues that we "impose the function of 'value' on the substance gold *because* we desire to possess that kind of substance" (Searle, 1995 p.42). For Searle, this counts as well for e.g. golden coins, since he argues that their value as coins is just fully derived from their value as gold. This account seems to be incomplete for a number of reasons.

Initially, a problem surfaces in Searle's defence of the commodity theory of money that can only be rendered plausible with regards to his philosophical basis in external realism in which eventually all institutional facts are based on brute facts such as natural objects that are turned into commodities. However, even within this framework of external realism, Searle's theory does not seem to be compatible with the commodity theory of money as it is present in theories of e.g. Ricardo or Smith while he does not allow for any intrinsic value of objects in nature. "Value" only arises through the assignment of function and is not to be found in the brute facts themselves. Thus, the idea that money derives its value from commodities seems incompatible with Searle's theory while its value is *assigned* by means of the assignment of function, which happens independently of the commodities for which money might be exchanged.

Following from this discussion, we can observe that at the heart of the matter stands Searle's concept of "function", which seems difficult to be reconciled with the assignment of value to money since the very concept of value is *presupposed* in the concept of function. In his discussion of "function" Searle states that "the discovery of a natural function "(indeed any function) "can take place only within a set of **prior** *assignments of value*" (Searle, 1995 p.15). While we can state that: "the function of the heart is to pump blood" or "the function of a pen is to write on paper" it seems incorrect to state: "the function of gold is to be valuable", which is nevertheless an essential aspect of the function of an object or entity counting as money according to Searle. In cases where the assignment of function involves "pumping blood" or "writing on paper", the value assignment is entailed in the assignment of the function: the heart happens to cause blood to be pumped

[42] This account of commodity money as a form of barter seems to be incorrect. Barter explicitly concerns the subjective exchange of goods between two people while commodity money presents itself as a form of *money* which means that it can be exchanged without the direct subjective interest of the parties involved. However, this is a minor point that does not need to be elaborated upon here.

through the body and we *value* this because we favour the survival of ourselves as organisms and the pen has the causal power of "writing on paper" which we value because writing on paper enables us to do such and such in a teleological series. However, if gold – or certain "properties" of gold - happens to have the causal power of "being valuable" then "valuing gold because it gives us value" seems to lead us in a vicious circularity that forces us to reject the argument. The problem seems to reach deeper because Searle mentions a causal relation between *value* and *desire.* According to his account, "the desire to possess gold" stands in a causal relation to the assignment of the function 'value' to an object. However, this seems to be incorrect since desire and value stand in a constitutive rather than in a causal relation to each other. Whenever we desire an object, we constitute value of the object and whenever we say we value an object, we desire the object. It does not seem to be possible that whenever there is an isolated *desire* for an object, this desire *causes* us to value the object.

According to the preceding investigation of the problems, money is an institutional fact that has a peculiar status in the taxonomy of institutional facts. While for arguably almost all other examples of institutional facts like governments, armies and bookstores Searle's theory seems to hold, his account of money seems to be incomplete. This seems to be the case while moneys appears to concern the status *function* of *function* itself; understood as a causal process with an entailment of value (or purpose, teleology). Imposing function implies an act of valuation, but money has the status function that directly entails value already; it seems to represent an abstract measure of the value of the objects with which it can be exchanged. I will return to this feature of money in § 4, since Simmel explicitly mentions it in his theory. For now, I will conclude that Searle's analysis of money seems incomplete and that it points at two important aspects for the reinterpretation of his theory, being: (1) that value is a problematic notion in Searle's theory and (2) that money itself is the institutional fact that denies a thorough analysis because of its relation to value.

2.2 <<A CRITIQUE OF SEARLE'S NOTION OF DIRECTION OF FIT>>

The problematic notion of value gets illuminated when considering one of the central concepts in the theory of speech acts underlying the institutional fact of money. In Searle's theory, *direction of fit* is the concept that allows him to analyse different illocutionary force indicators under a single principle. All intentional states as well as speech acts have a certain direction of fit and the relation between the mind and the world determines the specific type of the direction (mind-to-world, world-to-mind, null direction of fit or both directions of fit). When Searle tries to metaphorically characterize speech acts of the type of assertives (beliefs – statements and descriptions) he states that: "I think of these speech acts as hovering over the world and pointing down at it, as fitting or failing to fit the world" (Searle, 2011 p.11). Although speech acts of the type of directives (desires – commands and requests) have a different direction of fit, the same formal principle and metaphorical characterization might be argued to apply. When we strip an assertive or a directive of their directions of fit, their conditions of satisfaction may be exactly the same.

An exemplary case, considering both an assertive and a directive, might show the difficulty of the direction of fit of a directive with respect to the assignment of function. Suppose that I have a belief that it rains and that because

of that I assert, "I believe that it is raining". In such a case, the conditions of satisfaction would be *affirmed* if it were the case that it is raining. A *negation* of the conditions of satisfaction of the intentional state would be that it is the case that it is not raining. Suppose, however, the case of a directive that I *wished* it to be raining because rain would be beneficial for the growth of the crops on my field (hence: I assigned a function/value to the rain[43]). In case the rain would be too heavy, the conditions of satisfaction of the intentional state might not have been met though the actual state of affairs would in fact reflect the content of the proposition. For the assertion, it seems to be clear that the direction of fit, or rather the responsibility of fitting, is (word/) mind-to-world. For the directive, however, the world-to-mind (/world) direction of fit is ambiguous. This is the case because the function that is implied in the desire includes its *value*, which means that a wish like (1)"I wish it to rain" actually implies (2)"I wish it to rain *in order* for my crops to grow[44]". Searle's reply might be that the assignment of function is actually part of the propositional content, that the intentional state has the conditions of satisfaction as given in (2). However, this would lead us to accept intentional states about for example institutional facts with infinite regress of assignments of (status) functions as part of the propositional content.

I would argue that the difficulty here lies in the necessary assignment of *value* in case of a directive and consequently in the necessary assignment of *function.* Whenever we desire, wish or order, a function is implied in the speech act. Consider the difference between "it rains" and "I wish it to rain". In the case of the assertive, a negation would imply that it is not the case to be raining (e.g. it actually being sunny). In the case of the directive however, a negation could imply that it is not the case to be raining *or* that it is not the case that I wish it to be raining while it actually rains. Any instance of failure of the conditions of satisfaction to be met in case of a directive seems have two sets of negations: one of the propositional content of the intentional state and another of the illocutionary force of the intentional state. For this reason, I would argue that the problem of value lies at the basis of Searle's theory of intentionality and directly affects the notion of *direction of fit.*

2.3 <<A critique of Searle's notion of recognition>>

Another problem that we are confronted with when interpreting Searle's theory concerns the notion of "recognition". When we state that constitutive status function declarations constitute money, we do not yet have an answer to the question how these declarations come about in the first place. It seems that it would be insufficient for me to state: "I hereby declare that a piece of orange paper with

[43] As a speculative side note: this peculiarity seems to reflect Heidegger's distinctions between "ready at hand" and "present at hand" (Inwood, 1997 p.18). The conditions of satisfaction of "I wish to hammer this nail into the wall" in the case of using a hammer are satisfied if it turns out that the nail is hammered into the wall. However, if the hammer breaks down, the implied function of the hammer itself is so-to-say revealed by presenting different conditions of satisfaction and becomes part of the conditions of satisfaction.

[44] This could just be the beginning of a teleological series: "I wish it to rain in order for my crops to grow, in order to have food for the coming weeks, in order not to have to go to the supermarket to buy non-biological food, *ad infinitum*"

my signature counts as money in the context of the Eurozone" in order to create a new institutional fact. Searle admits this and therefore introduces the concept of **collective intentionality** as a necessary condition for the emergence of institutional facts. However, according to his account an institutional fact comes about if a status function declaration gets **recognized**. If we then ask the question what it means that we recognize a status function declaration the answer remains more-or-less absent. He states that a "collective recognition operator marks the continued existence and maintenance of the status function: *we collectively recognize or accept (S has power (S does A))*" (Searle, 2011 p.103). Such a logical account of recognition is neat, but remains purely descriptive. When being asked *why* institutional facts are being recognized Searle admits that "beyond vague remarks", pointing at utilitarian reasons such as institutions being generally beneficial because they enhance our powers, "there is no general answer to the question of why people accept" [recognize] "institutions" (Searle, 2011 p.107). Within his framework of reasoning, Searle indeed seems to be not in need of accounting for the reasons for recognition of institutional facts – but notably regarding this seems erroneous.

While Searle explicitly states that an understanding of social reality requires an understanding of language, one might ask the question whether Searle himself does not take another feature of social reality for granted: which is recognition of social facts[45]. Though without language it seems very plausible that we would not recognize standing declarations it seems *as* plausible that without recognition of for example the rules of language a language itself seems quite impossible as well. This leaves us with a problem. Either we would have to accept the incidentally nature of recognition of institutions and take it as a basic, yet unexplained condition of social reality *or* we would have to try to find an account of recognition that goes beyond vague utilitarian reasons.

With regards to institutional facts like presidents or university classes, the "why" of the recognition – in line with Searle's argument – might not necessarily be part of the philosophical analysis. We can state that we collectively recognize the institutional fact "Ms Jones counts as philosophy teacher in the context of philosophy classes" without explaining why we recognize this status function. Such an account of recognition might boil down to a complex historical and sociological account of the educational system. However, the recognition of money as an institutional fact seems to be an intrinsic part of the theorization of money while the "why" of recognition points at the metaphysical basis of money (just as the "why" of the recognition of language does). This can be derived from the established theories of money, while the "why" of recognition lies either in the intrinsic value of natural objects or in the essential role of an authority. I would argue that any theory of money would remain incomplete without an account of the recognition of money *as* an institutional fact, not the least because the recognition of money does not intuitively appear to be an incidental fact but rather as a phenomenon like language that explicates a basic feature of our human civilization.

[45] In his distinction between linguistic institutional facts and non-linguistic institutional facts, Searle presents "conventions of language" as a requirement for its creation (Searle, 2011 p.113). Conventions, however, require their recognition in order to come about.

2.4 <<The missing links, their place in philosophy and their place in Simmel's theory>>

If my critique of Searle's theory as stated above holds, it seems that we are confronted with explanatory gaps in the theorization of money based on his social construction of reality that need to be dealt with. I argue that a manifestation of this problem can be traced back to the debate about Searle's relation with phenomenology that surrounds his work. This debate focuses on the commonalities and divergences between Searle's notion of intentionality and the one found in phenomenology – notably in Husserl's work. For his part, as a way of distancing himself from the philosophical tradition of phenomenology, Searle argues that: "just as there needs to be no immediate phenomenological reality to intentionality, so there need be no phenomenological reality to intentional representations" (Searle, 2011 p.30). In other words, according to Searle intentional representations need not be actual or immediate in order to be real. Searle contends that the main difference between his theory and the phenomenologists' theory is to be found in their methods, while methods like Husserl's are "introspective and transcendental" though his own is "resolutely naturalistic" (Searle, 2005 p.322). However, as commentators like Mcintyre argues, Searle's account can be seen "as an extended defence of an 'internalist' approach to intentionality much like Husserl's" (Mcintyre, 1983 p.472). Moreover, when scrutinizing Searle's account of external realism as the fundament of his naturalist position we can find an account of external realism as a "background presupposition" that affects his entire account of intentional states. Stating external realism not as a thesis but as an intrinsic feature of the background of intentional states Searle seems to hinge more in the direction of an "introspective and transcendental" argument than he himself seems to be willing to admit (transcendental in the sense that it precedes all empirical experience). The problematic position of Searle's theory in-between a phenomenologist account of intentionality and one grounded in external realism cannot be resolved but nonetheless affects the connection between his account of "brute facts" and all other facts (Heidemann, 1999 p.257).

An elaborate discussion of this issue falls outside of the scope of this paper, but what might be sufficient to assert at this point is that the origin of the problems identified in Searle's theory can be traced back to the metaphysical basis of his arguments, which find their origins in the problematic position of his theory in-between external realism and phenomenology. While his accounts of speech acts, intentional states and institutional reality seem to be logically consistent, the problems as presented by the "later" Wittgenstein that Searle argued to have solved seem to stay lingering in the background. For if a speech act in the form of a directive has indeed the necessary entailment of value as part of its conditions of satisfaction as I argued in section 2.2, it would be difficult to escape the "private language argument"[46] in the construction of social reality. This seems to be a difficulty since the assignment of value as part of a directive is not present in the propositional contents and might therefore cause different conditions of satisfaction for different speakers; in which case they do have their own "private languages".

[46] For each assignment of value as part of a directive is not present in the propositional contents and might therefore cause different conditions of satisfaction for different speakers; in which case they do have their own "private languages".

Basically, Searle's theory is in need of a notion of normativity (Heidemann, 1999 p.260), a notion of value, in order to be sufficiently capable of creating the basis of a theory of money. Such a step can only be made possible by denying the strict separation between Searle's theory and phenomenology, while the latter *does* take normativity into account[47].

The basic two problems that I have identified in this respect are the insufficient explanation of "value" and "recognition" in Searle's theory, aspects that are nonetheless indispensible for understanding the phenomenon of money. In order to address these problems, I will turn to the theory of Georg Simmel. Simmel constructs a theory of money that builds on a theory of value and finds its intersubjective basis in a theory of *exchange*: dealing with both value and the recognition of value in exchange. While Simmel bases his theory on a dialectical structure of Hegelian origin, the reciprocal relationship between object and subject as well as between subjects in a situation of exchange provides a basis for the incorporation of the concept of recognition in his theory. Nevertheless, Simmel allegedly has some important shortcomings while Ingham argues that: "two fundamental questions remain unanswered" (in Simmel's work):"first, what are the origins of the *concept* of money as value? [...] Second, how is the abstract value of modern, dematerialized money established and maintained (Ingham, 2004 p.66)?" It seems that Searle's account of money has given us insights into these two questions while it both discusses money as an institutional fact that originates from human language and the way in which language establishes and maintains it. Thus, a theorization of money that incorporates both Searle's and Simmel's approaches can be expected to be a coherent basis serving as a theoretical basis for a critique of digital money. In the next sections, I will elaborate on the theory of Simmel, showing his systematic account to move from a value theory that is grounded in metaphysics to a theory of exchange of monetary value.

§ 3 Simmel's metaphysics and value theory

The purpose of this section is to give an overview of Georg Simmel's metaphysics and value theory and to analyse their contribution to the understanding of money. Simmel has against his will often been classified as a classical sociologist[48]. However, he considered himself primarily a philosopher, while he "acknowledged that the sociological problem constellation transcends itself in the direction of philosophical reflection" (Vandenberghe, 1999 p.64). Simmel constructed his philosophy of money in the context of a philosophical system with a neo-Kantian character that borrows ideas from some of the important critics of the Kantian philosophical tradition;

[47] For a more elaborate argument of the shortcomings of Searle's theory, I would like to refer to the essay of Carsten Heidemann, which systematically scrutinizes the problematic features of the social construction of reality, being the problem of external realism, of the notions of consciousness and normativity and the consequent ambivalence of what might count as institutional facts (Heidemann, 1999).

[48] In the Philosophy of Money, Simmel refers not only to the philosophical ideas of his theory of value and money but also extensively to historical and empirical phenomena like the use of cowry shells as money in different cultures(Simmel, 1900 p.153).

notably Schopenhauer, Nietzsche and Hegel. His theoretical system is offered to the reader as a synthesis of these thinkers and provides a worldview from the point of 20th century modern thinking. Simmel's view on modernity comprises a radical shift from pre-modern substance ontology to a relationist worldview (Simmel, 1900 p.66). His relationist philosophy is grounded on Spinoza's idea of monism, but framed within the limits of Kantian epistemology and Hegelian dialectics. This theoretical construction, in which every phenomenon is understood in relational terms, is essential to his analysis of money and its role in economic life.

In order to reconstruct Simmel's thesis in his Philosophy of Money, I will start by providing an overview of his metaphysics and value theory. Simmel's philosophical position can be classified as what Heidegger calls the "compromise" between the rejection of any supra-historical objectivism and Cartesian Platonism, while he argues that Simmel "acknowledges a minimum of absolute values, but they are embodied in the historical context only in a relative form" (Inwood, 1997 p.99). Apart from the question of whether this particular interpretation of Simmel is justifiable, the constant search for reconciling a relationist worldview with the absolute Cartesian subject-object distinction is visible throughout Simmel's work. This search for reconciliation makes his philosophy very dense and sometimes seemingly inconsistent while he jumps from metaphysical arguments to philosophy of science to historical examples of money use. Perhaps even more puzzling is that he is mentioned by academics both as a modern thinker as well as "an unsung pioneer of the sociology of postmodernity" as accredited by Zygmunt Bauman (Blackshaw, 2005 p.8). At least at face value, Simmel seems difficult to be captured into a single category; drifting between sociology and philosophy, modernity and postmodernity. Regarding "the Philosophy of Money" I have reconstructed Simmel's thesis by re-configuring its structure in respect to its original one[49]; starting with Simmel's metaphysics, continuing to his relationism and truth theory and arriving at his dialectics and theory of value.

3.1 <<Monism and relationism: Simmel's view on Spinoza and his rejection of substance ontology>>

Before going into the question of what money is, Simmel tries to ground the related category of *value*. While he argues that money is to be considered as an expression and embodiment of value, understanding value is the first step in understanding money. For Simmel, value is *not* to be understood as a property of an object that is inherent to it in isolation, but as a relation between a subject and an object. Hence, he constructs a relationist philosophy that serves as the basis of his analysis of value and money.

Simmel can be seen as a philosopher of the great compromise; rigorously trying to find syntheses out of thoughts of different thinkers rather than setting them aside in order to create counter theories. His greatest adversary in this endeavour seems to be language: the conception of words and the paradoxes they evoke. Not infrequently he defends a metaphysical claim, which he immediately puts into conceptual brackets by defending it against what he sees as its wrong

[49] In the Philosophy of Money, Simmel starts with the construction of his value theory and only later turns towards his views on monism and relationism.

conception[50]. The starting point of his metaphysical worldview that lingers in the background of his philosophy and which he argues invokes a paradox - is his view on monism, especially Spinoza's monist philosophy. He claims that "relativism is closer than one is inclined to think to its extreme opposite – Spinoza's philosophy – with its all-embracing Substantia sive Deus" (Simmel, 1900 p.125). Where Spinoza theorized "thought" and "extension" as two infinite attributes of the very same substance, God or nature, Simmel considered different other causally insulated categories; notably the categories of individual and society as sharing the exact same content (Breiger, 2011 p.258). This monist basis of Simmel's theory very well relates to John Searle's first assumptions in asserting that there is only *one* world, a difficulty that we discussed in the previous chapter[51].

According to Simmel, human cognition and emotion ultimately strive towards what he calls the "totality of life", a unity, which reflects Spinoza's idea of the world as one "substance". However, for this striving, or desire to exist, a second principle is necessary for cognition and emotion to be fruitful. Monism, for Simmel, is therefore the unattainable unity that brings forth dualism and pluralism(Simmel, 1900 p.117). This striving for unity and the necessity of plurality is what makes Simmel relate this paradox to the history of thought – framing it as a continuous movement "from multiplicity to unity and from unity to multiplicity"(Simmel, 1900 p.117). For this reason, he eventually rejects monism in the sense that it would ever become an attainable, absolute knowledge. He states that all second-order absolutes, all categories that are impossible to reduce to the absolute substance, "are so completely merged in that single absolute that one might say: all the contents of the world view have become relativities in a monism such as Spinoza's"(Simmel, 1900 p.126). From this, he concludes that we can discard this absolute substance while all its relative contents are its manifestations. Knowledge itself only originates from the *interdependence* of phenomena, from the relative position of one thing in respect to another.

In line with his views on modernity and its metaphysical foundations, he firmly rejects any idea of substance ontology that does not imply Spinoza's monist idea of an absolute, all-encompassing substance. He criticizes any "originalist" theory by asserting that in the movement of history we cannot but conclude that the mind and its contents are a product of the word in the same way in which the world is a product of the mind (Gangas, 2004 p.26). This puts him in a radical position with respect to Cartesian dualism while he does not accept the idea of res cogitans as an absolute, irreducible substance that stands in opposition to res extensa. Nonetheless, he accepts the irreducible conceptual dyad of subjects and objects and concludes on the basis of Kant's final critique that "reality, objective substance, exceeds representation, explodes the limits of the mind and must be perpetually reconstituted" (Cassano, 2005 p.574). According to Simmel, our epistemology depends on the existence of a conceptual bridge between subject and object, a third

[50] For example on page 125, where Simmel vigorously defends his conception of relativism against relativism "as a degradation of the value, reliability and significance of things" (Simmel, 1900 p.125)

[51] In his "Construction of Social Reality" Searle starts his argument by stating his one-world axiom: "we live in exactly one world, not two or three or seventeen" (Searle, 1995 p.xi)

metaphysical category. This third category *is* value, which enables the mind to grasp content *as if* independent of itself. Before investigating value as a metaphysical category we will first need to place it within Simmel's relationist epistemology, which is heavily relying on his interpretations of Kant and Hegel.

By drafting such a metaphysical picture, Simmel fundamentally criticizes the theories of money that are in their principles based on the commodity theory of money and consequently a substance ontology of "inherent" value. Simmel rejects substance ontology and the commodity theory of money, placing money in a metaphysical universe in which it has no stable, permanent being but is perpetually reconstituted in the context of its relations with all that is alien to money itself.

3.2 <<A relationist epistemology: Simmel's interpretation of Kant and his theory of truth>>

In line with his metaphysics, Simmel constructs a philosophy of science that incorporates his relationist epistemology. He builds his argument by attacking the substance ontology that has guided human epistemology before modernity: providing a critique of the mythological search for a "thunderer behind the thunder"(Simmel, 1900 p.108), a search for a definite essence behind a phenomenon. Though he criticizes the acknowledgement of the existence of the "thunderer", he considers its postulation as necessary. Through stating that, "an absolute is sought between the mere relationships between objects", he acknowledges the need of an absolute as motivator of human cognition. Humans inquire into the relationships between objects and the seemingly ever-changing flux of matter *in order to* discern definite essences and fixed points that provide stability and a feeling of independence. Motivated by this conception of an absolute, humans have for example considered light and heat as substances that have their own irreducibly stability; which was a first step in discovering their essentially relative characters.

However, modernity and modern science have fundamentally changed the idea of substance ontology according to Simmel. Instead of searching for essences and phenomena in themselves, science has turned to dealing with motions and relations: with phenomena as they are (or rather become) in relation to each other in an absolute mutuality. Modern science, Simmel asserts, transforms phenomena into their motions and relations by which it deprives them of any specific qualities. However, knowledge of these relations is only possible through the conception of certain axioms and a fixed point, an absolute truth. This *idea* of the absolute truth is what guides the process of cognition, though it can never be attained itself, it can never be *known* itself.

Simmel relates his relationist worldview to Kant's categories of the understanding, which he characterizes by quoting Kant's famous assertion "the conditions of experience are at the same time the conditions of the objects of experience – by which he [Kant] meant that the process that we call experience and the representations that form its contents and objects are subject to the same laws of the understanding"(Simmel, 1900 p.94). The laws of understanding give us the ability to point at some absolute truth in the realm of human reason where the absolute is postulated, without ever giving us the ability to gain absolute knowledge about this idea itself. Unlike one might expect this unknowable absolute does not lead to any radical scepticism: a position with which relativism is not to be confused according to Simmel. He argues that theories that assume an absolute, as well as

theories that assume radical scepticism are eventually self-refuting. Relativism requires an absolute but only in the sense that we need to postulate elements that stand outside the mere relation of the elements we scrutinize, which accordingly are "absolutes" as the basis of all empiricism. However, the contents of these absolutes as supreme authorities over our knowledge are not fixed but in a constant flux.

For this reason of the unattainability of the absolute the construction of human knowledge, or rather progress of human knowledge, has the character of infinity. The contents of knowledge are constructed with the character of "good" infinity of the circle[52], in which each separated part of content of the totality of knowledge is both a beginning and an end and mutually conditioned by all other parts. How then, one might ask, can we inquire into the truth of any knowledge claim? According to Simmel, relativity is "the mode in which representations become *truth*, just as it is the mode in which objects of demand become *value*"(Simmel, 1900 p.123). In this sense, the totality of knowledge is not in any way true, just as the totality of matter is not heavy. Instead, "truth is valid, not in spite of its relativity but precisely on account of it"(Simmel, 1900 p.123). Truth is essentially relative and has no function and existence outside of its relativity.

To conclude, Simmel's epistemology is based on a notion of truth as essentially relative. A knowledge claim can only be considered true when a relation of its content with contents outside of itself can be established. For instance, we can only consider the truth of the redness of a certain object by contrasting it with the non-redness of other objects. It is the relation that establishes the knowledge claim; though it still points at an absolute that in-itself cannot be known. Because of this relational epistemology, we can know money only by means of regarding its relational structure. When placing this in line with Searle's theory as applied to money, we could argue that the question of *what* money is therefore depends on the relations between its constitutive status function declarations. These status function declarations relate in mutual dependence to each other (though not *absolute*[53]) and the change of one of these elements changes the structure and the meaning of the whole. For instance, the advent of a new type of financial derivatives might mutually constitute the meaning of the totality of money.

3.3 <<Value and its dialectical movement: Simmel's interpretation of Hegel's phenomenology>>

The relative nature of truth implies a *becoming,* a movement rather than a stable, eternal and unchanging essence as the contents of knowledge. All phenomena in the totality of reality are in constant movement in absolute mutuality to each other and become *intelligible* only because of that relative movement. This is where the idea of

[52] The idea of infinity that was both present in the works of Spinoza and Hegel, pertaining to the "uniqueness of incomparability of a substance. Since it cannot be defined by anything else, it is infinite in the sense of absolute exclusion of anything finitude from it" (Shmueli, 1970 p.177).

[53] For if we would accept the absolute mutual dependence of status function declarations, they are in some sense belonging to a closed system of "money" in which money is eventually a non-changing, permanent system. This however, seems a wrong conception of money while its system can change; even up to the point where it seizes to exist.

dialectics enters Simmel's theory, which strongly relates to Hegel's dialectical model: a three-fold movement that implies [1] a thesis or concreteness, [2] an anti-thesis as its negation or abstraction and [3] a synthesis as a resolve of the anti-thesis in a new concreteness. Simmel almost literally adopts this Hegelian idea of dialectics when he states:

> *"[1] At first, the object exists only in our relationship to it and is completely absorbed in this relationship; it becomes something external and opposed to us only in the degree that it escapes from this connection [2]. Even the desire for objects, which recognizes their autonomy while seeking to overcome it, develops only when want and satisfaction do not coincide. The possibility of enjoyment [3] must be separated, as an image of the future, from our present condition in order for us to desire things that now stand at a distance from us."* (Simmel, 1900 p.74)

From the viewpoint of modernity as grounded in relational movements rather than in foundational essences, value (of objects) is never established by the direct immediate enjoyment of the object whereas "human enjoyment of an object is a completely undivided act"(Simmel, 1900 p.68). Whenever we enjoy an object without any resistance, the distance between the self and the object vanishes and annuls our awareness of both the object and the self. Nonetheless, the source of the human will for an object lies in the synthesis of the moment at which a desire and an object meet. Hence a movement can be distinguished in which at first the subject and object are separated. The obstacles, or distance between the subject and the object revoke a desire to overcome the distance, which constitutes the second movement of awareness of both the object and the self. At the same time, the mental representation of this divide points at the synthesis of merging the object and the desire. This moment finds it concrete manifestation when the distance has been overcome and the desire is resolved into enjoyment.

Remarkably, though our volition points at the synthesis of overcoming the distance between object and desire (mental object of desire), the desire itself is considered an "impulse of an impersonal, general nature that wants to release itself towards the object no matter how"(Simmel, 1900 p.68). Value, therefore, has the character of a psychological fact according to Simmel (Gangas, 2004 p.22) and provides the mind with the possibility to grasp contents *as if* they were independent of the mind. Value as an essentially relative category represents a third moment that goes beyond both the object and the subject and enables the subject to posit objective content *as if* independent from the self instead of as part of an undivided presence. This moment shows the essential possibility for human life for immanent transcendence, our ability to transcend the immediate, undivided present and posit something external to ourselves and recognize it as such. Simmel asserts that the positing of a relationship demands this recognition and that "this demand exists only within ourselves as subjects; but in accepting it we sense that we are *not* merely satisfying a claim imposed by ourselves upon ourselves, or merely acknowledging a quality of the object" (Simmel, 1900 p.70/71).

Hence, we can conclude that according to Simmel, value is related to what he calls the dialectical movement of life. It implies the awareness of a distance between a subject and an object, which is recognized by the subject that tries to overcome it by positing a point where the distance is overcome and the desired

object is enjoyed. This recognition is vital to any relation, both between subjects and objects, and between subjects resulting in inter-subjectivity. The logical category by which Simmel captures the dialectical movement of value is the category of reciprocity[54], which will guide us to our further inquiry into value as a third category.

3.4 <<Value as a third term: the impossibility of logical reconciliation of value with perceptual reality>>

At this point, I will turn to the question of how value is to be understood according to Simmel. First of all, he argues that value is in a sense the counterpart of being – considered in the Kantian conception of phenomenological existence of an object. Just as an object does not gain any new quality when its existence is established, it does not gain any when it is deemed valuable (Simmel, 1900 p.62/63). On the contrary, an object is valued exclusively because of the qualities it already has. The natural order of *being*, our perceptual reality, depends for its ordering on the laws of nature that transform differences into universal equalities. As an opposite category, the order of value completely eliminates this equality and has the essential character of difference rather than uniformity. Value establishes differences between objects of higher and lower value rather than equality between them. Simmel asserts that the relation between the fundamental categories of being and value is not reverse[55], but rather completely accidental. The experience of the existence of an object has no single logical relation to the experience of the value of an object. This leads to his conclusion that "the series of natural phenomena could be described in their entirety without mentioning the value of things, and our scale of valuation remains meaningful whether or not any of its objects appear frequently or at all in reality" (Simmel, 1900 p.62).

We might assign positive value to an object, be indifferent about it and assign negative value to it. In any case, the value of an object is not a quality or property of the object, like "red" or "round". Rather, it is a judgement upon an object that remains within the judging subject as a psychological fact. The experience of value is something for Simmel that is as indubitable as the experience of being; it is as much an integral category of the totality of our experience, or Spinoza's absolute substance, as being (in that sense, we don't have a choice to experience value and cannot doubt its experience). It comprises the very same contents of reality apprehended from completely different points of view that both belong to the totality of life. In other words, when we accept the existence of value it must have its place within the totality of life and not outside of it. Though the question of what value is, just as the question of what being is, is unanswerable according to Simmel (Simmel, 1900 p.64), it can be rationalized because it comprises the same content of reality as being does. It is as though our mind

[54] Reciprocal, like French: réciproque, derives from Latin: reciprocus, going backwards and forwards (like the sea), hence alternating, working both ways (Partridge, 2006).

[55] A reverse relationship would imply the "diabolical" situation of the existence of valuable objects being annulled – in which increasing value would imply non-being of objects (Simmel, 1900 p.62).

perceives the same contents of the world through two totally different languages, the language of being and of value.

The next step for Simmel is considering the place of value in the contents of reality. He states that just as we assert the truth of a proposition as independent of our representations[56], we consider objects to be valuable irrespective of the existence of an assigner of value. This makes him consider value as a "third term" and even as a "metaphysical category"[57] that stands beyond the duality of subject and object. Though value is realized within the subject and refers to an object external to the subject, it can be traced back neither exclusively to the subject nor to the object to which it refers. Value constitutes the bridge between the Cartesian subject and object that enables the subject to experience the value of things as something independent to the self.

Whenever we assign value to something, we value precisely *that* object or *that* content of our valuation. This differs from purely subjective experiences like being in fear, being in anger, being happy; which do not need contents to be experienced. The contents of our valuation are therefore posited as independent from the self, which incites the demand or desire to overcome this externality. However, this content is nonetheless independent from the being or existence of an object, with which value stands in a totally accidental relation. We might value an object after it ceases to exist and an object might remain valuable without the existence of a valuator.

In order to shortly recapitulate: Simmel's theory provides us with a way in which we can give the idea of *value* a rightful place in the theory of money. This idea of value depends on a metaphysical account of a universe of mutual relational dependence and a rejection of substance ontology. The value of money is not to be located in any inherent value of a substance (as is the case in the commodity theory of money) but on the relational, dialectical movement between the subject and the object to which value is assigned. However, up until this point value remains purely subjective, bound to the individual and his or her relation to the world. In order to understand money, Simmel needs to move beyond the subject and find a theory of money that is based on the intersubjective exchange of economic value.

§ 4 From value theory to theory of money

The purpose of this section is to elucidate the theoretical construction of Simmel's work leading from his value theory to a theory of money. Simmel uses his metaphysics and value theory as the basis of his theory of money. In discussing his theory of money, he confronts other theories of money of utility and scarcity. He structures his argument by moving from the theory of value towards the necessary conditions of economic value and the reality of money as a phenomenon in between its ideal and historical-empirical context. In the preface of "the Philosophy of

[56] An interesting parallel with Searle's assertion that the truth of the existence of observer-independent facts is independent from our representations of those facts (Searle, 1995).

[57] Some ambivalence arises here when we consider Simmel's use of the term "metaphysics". It seems to be the case that he precisely means that metaphysical categories stand beyond the duality of subject and objects and that both being and value don't belong to either subject or object but stand beyond them.

Money", Simmel explicitly argues that his work is not to be considered as part of economic science but rather lying on "either side of it" (Simmel, 1900 p.54). This implies that his work both considers the rationalization of the essence of money, constituting the analytical part of the book, and the effects of money on the working of the lives of the individual and society.

Economic science, according to Simmel, is to be placed in between these sides of money theory while it strips the theorizing of money both from its metaphysical foundations and its societal impacts, creating an isolated positive science. Ironically, it is as though economists have embraced Simmel's advice while his work has been largely ignored in contemporary monetary economics (Laidler & Rowe, 2013 p.97). However, amongst his contemporaries Simmel was influenced by economists like Carl Menger and Simmel on his turn considerably influenced economists of the Austrian school.

I will reconstruct Simmel's move from value theory to theory of money by firstly illustrating his opposition towards other monetary theories. Secondly, I will consider the category of "exchange" as the reification of value and its relation to the necessary conditions of exchange of economic value. Thirdly, I will illuminate Simmel's analysis of money as function and as substance. Finally, I will discuss the normative aspect of money with regards to its impact on society.

4.1 << What Value is not; against theories of utility, scarcity and labour power>>

In order show the theoretical position of Simmel in the formulation of his theory of money, I will contrast his argument with other presumptions about the coming about of (economic) value. Explicitly, he attacks the idea that economic value is brought about by (absolute) utility and (relative) scarcity, in which supply of objects would correspond with scarcity and their demand with utility. Quite to the opposite, he argues that "no 'utility' and no 'scarcity', however great, would bring about economic transactions"(Simmel, 1900 p.97). He seems to point here at the problem of neglect of subjective desire incited by the value of objects that grounds the ideas of utility and scarcity. Utility, and therefore demand, is no objective and absolute grounds for economic value as an essentially relative category. An isolated demand for an object as an undivided act does not have this relative nature; it does not constitute the demand for an object vis-à-vis another demand. Moreover, scarcity is not to be considered as a natural quality of the external world (an object *is* not scarce) but depends on the economic value of objects. Objects that are 'scarce' in the objective sense of the word might not at all be valuable, just as objects that are in isolated absolute 'demand' might not be valuable.

Next to explicating why we should ground the theory of money neither on utility nor on scarcity, Simmel criticizes the theories of money of Hume, by reference to the works of Adam Smith and Marx's labour theory of money. Regarding the first, he attacks the idea that money is a neutral tool and that it has no impact on a society's wealth (Simmel, 1900 p.187). Extrapolating this idea leads to conclusions like Proudhon's who argued in favour of abolishing the state and money altogether and in favour of organizing the exchangeability without any money or authority. These Humean ideas strip money as an expression of economic value of all its material features and makes it a totally transcendental, mind dependent phenomenon. As for Marx's theory, Simmel argues that "the idea that

the essential feature of value is the socially necessary labour time objectified in it ... does not answer the question of how labour power itself became a value" (Simmel, 1900 p.101). Labour power as such is not a value, but can become a value only through the possibility of its exchange.

The most important critique that Simmel raises against other theories of money is that they try to transcend value while value itself is a given that cannot be transcended. Value does not result from scarcity, but leads to scarcity; just as value does not result from labour power but leads to labour power. From these considerations, Simmel extracts the importance of the relative essence of (economic) value, which leads to his formulation of an overriding category that captures the essence of value as metaphysical category that stands beyond the duality of subject and object: the category of *exchange.* He strikingly illustrates that the existence of utility, scarcity labour power do not lead to exchange transactions by giving examples of ascetic renunciation, fighting and robbery in which those conditions are present but that do not result in economic value or economic life (Simmel, 1900 p.102). Exchange, he argues, *is* a form of life.

4.2 <<Exchange of economic value as establishing distances and overcoming them by sacrifice>>

In contrast with the theories of value that are rejected, Simmel constructs a theory of value that explicates the necessary conditions for the dialectical movement of the exchange of economic value: distance, sacrifice and judgement. In his dialectical model, sacrifice is the first moment, distance its negation and judgement its synthesis. The category of value can best be understood by illustrating instances of value where it most remotely distances the subject from the immediate enjoyment of the object. For this purpose, Simmel considers the realm of aesthetic value of which its objects' enjoyment stands in total opposition to sensual enjoyment. In the case of sensual enjoyment, the object is sublimated to the subject but in the case of aesthetic enjoyment the subject is sublimated to the aesthetic object and surrenders to it. The enjoyment of aesthetic objects, in contrast with utility objects, comes about by increasing distance from the original contents that gave rise to them, which nonetheless very well themselves might have been utilitarian contents[58]. When taken to its extreme, aesthetic beauty is therefore totally distanced from its original contents, which makes the subject indifferent of its material existence as long as its (ideal) form is given. This provides objects of aesthetic beauty a unique, individual existence that replaces their mere subjective enjoyment with a feeling of their independent value[59] (Simmel, 1900 p.78). **Distance** as the distance between

[58] As an example of this separation between the original, possibly utilitarian content from the aesthetic content might be an abstract painting of an apple. Though the content of an apple, as something useful for consumption, might have been the origin of the painting, it loses its utilitarian relevance when being transferred to an image object of aesthetic value.

[59] The universal character of artistic beauty in aesthetic objects and music has been a subject of investigation in philosophy, anthropology and (evolutionary biology). Amongst others, the non-utilitarian enjoyment of a work of art is considered one of its universal characteristics (Dutton, 2002 p.7).

the desire of a subject and the enjoyment of the object is an essential element of value, and as such a necessary condition for value to arise.

This distance, for Simmel, is not to be understood as merely a spatial distance towards an object but rather any external resistance that is been met by our desire in acquiring it. Desire has a reciprocal character: it tries to overcome the distance towards the object but needs a sacrifice to do so; value is acquired by giving value away. The "objective conditions obstacles" that distance implies demand for a 'price' (Simmel, 1900 p.80). The object is valued by the subject through revealing itself as having a certain independence and demanding its conditions of acquisition. This interaction between subject and object is designated as "exchange" which is interaction in its purest and most basic form. The defining aspect of exchange lies in its reciprocal character; implying that something that is possessed is exchanged for something that is not possessed.

In line with Hegelian thinking, Simmel considers exchange between one man and nature and between several men as having the same formal structure. In nature, a man as an isolated economy exchanges his labour and hardship to acquire the objects of value from his natural surroundings. Exchange on the individual level is defined by Simmel as "the causally connected double event in which one subject now possesses something he did not have before and has given away something he did possess before" (Simmel, 1900 p.87). The exchange between individuals has the exact same structure, while exchange essentially belongs to the subjective weighing of gain and sacrifice. Instead of focusing on the gain that the individual experiences by acquiring an object of value in exchange, Simmel focuses on sacrifice. He states that sacrifice is the inner condition to value as such, instead of something that ought not to be[60]. Hence, **sacrifice** is one of the other necessary conditions for the existence of economic value.

Through the conception of sacrifice Simmel introduces the notion of *possibility* in exchange of value because through each act of exchange, any other possibility of being is negated. When sacrificing labour, two different sets of possibilities are actually sacrificed: non-labour and any other form of labour (Labour A for Labour B, C, ...n & non-Labour). In line with Kant's account of the conditions and possibility of experience, Simmel states that "the possibility of the economy is at the same time the possibility of the objects of the economy" (Simmel, 1900 p.95). Any economy is established as a process between two individuals that possess objects of value (both substances and potentials – e.g. labour power) who enter in a relationship of sacrificing these objects to each other, which raises these objects into the category of economic value. However, the question arises how the individual can negate the totality of possibilities by means of sacrificing value. Simply put: why do we wilfully engage in the sacrifice of value in order to exchange economic value?

The answer to this question is revealed by the historical context of modernity and its influence on the development of money. Just as critical enlightenment had revealed the relations between phenomena as their essences, it

[60] By giving the argument that sacrifice is the inner condition to value, Simmel strongly reacts against hedonism while the non-pleasure that sacrifice represents is a necessary aspect of value and not something that ought not to be, as hedonism asserts by striving to increase pleasure unconditionally over pain.

had created the possibility of individual freedom: an essential revelation in the understanding *and* application of exchange of economic value. Simmel tries to show the importance of this shift in understanding the human being by regarding the relation between value as a metaphysical category and *price* as its practical epigone. Though in principle, price and value are identical, their equivalence "is only valid under specific historical and technical conditions" (Simmel, 1900 p.100). He recalls the pre-modern economical practices that give rise to exchange as "simply a subjective action between two persons" which does not allow for an objective and just equivalence between price and value (Simmel, 1900 p.103). The instability of the purely subjective practice of barter was overcome in pre-modern societies by means of regulations of exchange that allowed no freedom for the individual (like exchange regulations between king and peasants in feudal times). Such forms of a-priori determination are "mechanical and external" (decided upon by forces external to the exchanging individual). Going beyond this a-priori determination, modernity made possible "exchange carried on by *free* and *independent* individuals that presupposes a **judgement** by objective standards" (Simmel, 1900 p.104). Next to distance and sacrifice, judgement seems to be necessary condition for the exchange of economic value. Simmel argues that our perception of phenomena "presupposes judgements about the world, which are by necessity judgements of *evaluation*" (Gangas, 2004 p.20).

By means of this analysis, we arrive at the necessary conditions for dialectical movement that is designated as exchange of economic value to arise. From the undivided whole of perception, value incites the desire for an object [1] and the movement of this desire originates from the inner condition of value, which is sacrifice. This sacrifice does not manifest itself immediately (as a concrete loss), but is a condition of the movement of desire. Simply put, desire could not be manifested in a movement without sacrifice. Hence, sacrifice is the necessary condition of the first moment of exchange of economic value. Distance [2] is the necessary condition for the second moment, while it negates the undivided whole by means of confronting the subject with something external; standing between the desire and the enjoyment of the object. Finally, a judgement [3] is necessary as the synthesis and third moment of the movement from sacrifice, negated by distance and resolved in the subject by the judgement of valuation.

Notably, this dialectical movement as a relational movement is *not* abstract (relationism stands in opposition to abstraction), but is placed within a historical, social context. The possibility for exchange of economic value is therefore dependent on its historical and institutional framework: it would be impossible to develop such an interaction between two individuals in the context of an uncivilized "state of nature"[61]. The dialectical movement of history contributes to the dialectical

[61] The concept "state of nature" is not to be conceived of in the context of a social contract theory in which it can be defined as a "pre-contractual" society. Rather, it is a pre-linguistic (probably therefore, hypothetical) situation. In line with Searle's account of social reality, institutions cannot arise without the use of language. Taking the exchange of economic value as presupposing an institutional structure, the use of language is to be considered a prerequisite.

movement between individuals and within the individual[62]. One of the greatest conceptual changes of modernity that contributes to the development of the movement of exchange of economic value is the conception of the individual as a free, autonomous being. This conceptualization of the free human being and the development of money stand in a reciprocal relationship: the free individual stands at the basis of money and money frees or emancipates the individual.

At this point, we have gained an overview of Simmel's theory of exchange of economic value. Money, as an abstract expression and embodiment of exchange of economic value is thus placed in the context of the dialectical structure of such exchange, which arises out of the necessary conditions of sacrifice, distance and judgement. In the next sections, we will consider the relation between value and money according to Simmel who states that: "the value of things, interpreted as their economic interaction" [exchange of economic value], "has its *purest expression* and *embodiment* in **money**" (Simmel, 1900 p.127).

4.3 << Money as a phenomenon between substance and value>>

Hence, we have arrived at the transition from value theory to money theory. I have considered the dialectical movement of exchange of economic value and its necessary conditions of sacrifice, distance and judgement. Money, Simmel explains, is an expression *and* an embodiment of this value. Just as value with respect to being, money seems to stand in opposition to the actual objects that we value: the totality of money in an abstract sense stands in contrast to the totality of objects that can be bought with it. Simmel first considers money as "abstract value" or rather as the representation of abstract value (Simmel, 1900 p.127). "Abstract" in its predicative use is to be understood as designating a phenomenon gaining its significance only outside of its own being: money is significant because of what it represents (value) outside of itself, just as a word (in language) is significant because of what it represents outside of itself. The relationship that exists as an exchange of economic value is abstracted from the actual objects that are being exchanged to a symbol that signifies what the objects have in common: their exchangeability. Hence, money does not result from objective states of affairs like the scarcity of objects or their utility but from the degree to which the economic value of objects can be exchanged (without the possibility of exchange, no money would exist).

However, though money as pure abstraction is separated from the material objects of value as a Platonian idea, it bears a double role: outside and within the series of *concrete* values; the actual values of the objects of value (Simmel, 1900 p.129). When considered as a movement within the scale of values from concrete to abstract, money tends to separate itself from the absolute individual value that is connected to a unique object (as is the case with aesthetic value) and moves towards its ideal of absolute exchangeability. At this point, we both encounter the philosophical significance of money as discussed in the introduction, as well as its

[62] At this point, we ought to recall Simmel's conviction that the dialectical movement between individuals is nothing more in its essence than the dialectical movement that belongs to the subject – between subject and object.

connection to Searle's social ontology[63], which I will elaborate on in the next chapter. Money represents an abstract of a relationship between people, though it seems nonetheless to be something concrete, something tangible; just as language consists not only of abstract expressions but also of that which expresses: the medium of body, paper or electronics. Simmel refers to the human ability to endow particular objects with the power of representation of a mere relation, thereby moving it from concreteness to abstractness, as "one of the great accomplishments of the mind" (Simmel, 1900 p.137). A question that arises from this situation is whether money could reach the ideal it represents of absolute exchangeability.

Within Simmel's framework of relationism, the *absolute* has its place in the epistemological relation between subject and object. However, this absolute is always postulated as an unattainable point outside of the relativity of phenomena; a reflection of Spinoza's substance that has no place within our knowledge about the world. In order to conciliate money with this relationist worldview, Simmel needs to consider the possibility of money as a pure or absolute representation of exchange of economic value. Would it be possible that money has no substantial value itself? We have to be careful here not to confuse his designation of money as a substance with the idea of substance ontology. When Simmel argues about the value of money as a substance, he refers to *substance* in the sense of concrete phenomena; consisting of the phenomena that are subject to his relationism in contrast to pure abstraction. Because money is the *embodiment* of the pure function of representation of exchange of economic value, or a "reification of exchange among people" (Simmel, 1900 p.188), it has a dual nature: as a concrete and valued substance and as something "that owes its significance to the complete dissolution of substance into motion and function". In other words, when we say that we value money we both refer to the value we assign to the substance of money (to *that* concrete phenomenon) and to the function it represents: absolute exchangeability.

As a representation of value we can consider money as an abstract phenomenon with no intrinsic value itself (as in the Humean conception of money in which there is no connection between substance and the value it embodies) and therefore as a mere symbol. In order to understand the position of Simmel in this matter, we need to understand the main aim of his philosophical project as the basis of a historical and sociological worldview, which coincides with the Hegelian one: "to confirm universality and to deny its abstractness".

Hence, Simmel argues explicitly against money understood as a mere symbol. First of all, he provides the argument that money only possesses its value (its ability to express value) because of the possibility of exchange: "if there is nothing to exchange, money has no value" (Simmel, 1900 p.166). Where there is no mutual relationship between subjects, money has no role to play; no meaning. Therefore, money is not a mere symbol while it needs such a relationship between subjects to have value. The second objection Simmel raises is a moral one, while he argues that though money could be used as a mere symbol no human power could provide a sufficient guarantee against misuse in such a situation. In such a case

[63] In accordance with Searle's institutional facts (or rather vice versa), Simmel argues that money represents a basic fact of mental life that finds its place in reality as substantial entity; an substantial representation of a "relationship between men" (Simmel, 1900 p.137)

there would be no limitations to the money supply[64], which could lead to individual speculation and other damaging economic practices.

In order to shortly recapitulate Simmel's theory of money: Simmel argues that money is the purest expression and embodiment of exchange of economic value. The exchange of economic value gets reified as a dialectical movement with the necessary conditions of sacrifice, distance and judgement. As an expression and an embodiment of this movement, the value of money lies between its substance and its pure abstraction as a mere symbol, moving from its substantial to its symbolic instantiation. However, neither money as a substance nor money as a mere symbol rightfully reflects the nature of money since money is concrete and yet based on the universality of exchange of economic value.

§ 5 Conclusion: Theorizing digital money

The purpose of this section is to recapitulate the core of the theories of Searle and Simmel and to merge them into a theorization of digital money that both inherits the structural account of its social construction as articulated by Searle and its normative basis in exchange of economic value as theorized by Simmel. The central claim is that digital money is the **abstract expression and embodiment** of **exchange of economic value** that is socially constructed by means of **constitutive status function declarations**, which depend for their possibility of **recognition** on the necessary conditions of **sacrifice, distance** and **judgement**. The *form* of money adheres to Searle's social construction of reality in the sense that it is endowed with meaning through constitutive status function declarations with the form x counts as y in context c. Any formal change in this system of status function declarations constitutes and therefore affects the meaning of the totality of the system, just as a new rule of chess affects the whole game of chess. The *meaning* of the expression and embodiment of money eventually boils down to the reification of exchange of economic value. Money, as the socially constructed system that expresses and embodies this exchange relation, is only recognized as such because of the necessary conditions of sacrifice, distance and judgement in the exchange of economic value. In order for money to be used *as* money, the parties that interact with it need to be able to allow for sacrifice in order to incite the inner condition of value that leads towards the desire to overcome the distance between the subject and the valued object. This creates the possibility of judgement about the reciprocal relationship between the parties that are involved in the exchange.

The basis of the theorization of digital money in this thesis lies in the claim that money is a system of phenomena and practices that originates from human intentionality: that it depends for its existence on any collective of present or past observers. Consequently, it finds its origins in human beliefs and desires, which acquire their inter-subjective or collective recognition through human language. Linguistic or social reality is created by means of speech acts: linguistic acts that have an illocutionary force (belief/desire) with a direction of fit relating the state of affairs to a propositional content with conditions of satisfaction. Declarations, being speech acts with a double direction of fit, are able to create constitutive rules that

[64] We need to take into account here the meaning of "symbol" as implying an abstraction in its own right (as a Platonian idea) that is not conditioned by anything outside of itself.

constitute institutional facts, which depend for their meaning on the formal structure of x counts as y in the context c. These institutional facts bear deontic power, which implies that they confer desire-independent reasons for action on the agents that interact with them. The institutional fact of money functions as an abstract expression and embodiment of the exchange of economic value. Value conceptually implies a movement between the subject and an object of desire by which the distance towards the object is overcome and resolved into enjoyment. Exchange of economic value is the inter-subjective or collective reification of this movement, comprising the necessary conditions of sacrifice as the inner condition for value, distance towards the object of value and judgement to overcome the distance.

In an ideal, simple monetary economy, such a conceptualization of money is quite simple to understand. One could argue that cowrie shells are an expression and embodiment of exchange of economic value of the concrete sets of objects cattle and wood. The social construction of (the use of) cowrie shells is baptized by means of a set of linguistic, constitutive status function declarations of the form x (cowrie shell) counts as y (expression and embodiment of *exchange* of economic value of cattle and wood) in context c (village). However, such declarations are only recognized if the exchange implied by them adheres to the necessary conditions of sacrifice, distance and judgement. Parties that are involved in an exchange with cowrie shells implicitly decide (judge) to sacrifice in order to overcome the distance towards the object they value. In order to see the importance of the latter point we might envisage why such a construction would be impossible in a situation of an absolute tyranny in an isolated village. The lord of the village would not allow for any exchange that implies a sacrifice from his side since he does not allow for any distance between himself and the fulfilment of his desires. Hence, no social construction of such an exchange relation would be allowed and the very use of money would defy the lord's absolute economic hegemony.

However, reality and particularly the contemporary reality of complex digital monetary systems refuses to be subjected such a simple conceptualization. First of all, it seems to be incomprehensible or even impossible to spell out all the constitutive status function declaration that make up the totality of the global monetary system; not for the least because of the ambivalent positions of some forms of money like Bitcoins and derivatives. Secondly, only abstract, hypothetical situations can account for a contradiction of this conceptualization of money because an absence of its structure means an absence of money altogether. Without the possibility of economic exchange with the necessary conditions of sacrifice, distance and judgement one ends up in a money-less society by definition; ranging from an absolute totalitarian state to an anarchic society where the economy consists of robbery and gift exchange. In other words, we need to consider both the meaning of money as corresponding to its constitution (as given in this chapter) and as corresponding to its use as a technology, bringing in the element of normativity.

For these reasons, we can say that our theorization is incomplete and therefore inadequate for answering the main question of this thesis. Next to constructing a theoretical framework for analysing digital money, we are in need of an *evaluative* framework for scrutinizing its impacts as technology on the power-relations between people and institutions. In other words, we need to consider the politics of digital money, as a normative account of its moral and political impacts.

In the next chapter, I will devise such a politics of digital money according to the theorization of digital money as laid down in this chapter and its evaluation as a technology according to the critical theory of technology of Andrew Feenberg.

Chapter 3

A Critique of digital money

The aim of this chapter is to construct a philosophical **critique** of digital money; using the theory I constructed in chapter 2 and expanding it by means of a normative account of digital money. Already in section 3.2 of chapter 1, I discussed why we ought to be concerned with the implications of digitalization of money. The core of the matter is that the implementation of digital technology is not a neutral technological development that upholds a ceteris paribus, but one that has moral and political impact on the people and institutions that establish and maintain it. Once we accept this argument, scrutinizing the digitalization of money becomes a matter of great interest for it penetrates all institutional relations between people. In other words, we are not only interested in the theorization of money but as well in its impact on power-relations between people and institutions.

While some types of execution of power seem obvious and materially present like the use of force by conventional armies and police forces, some types are so much embedded into our everyday lives and social contexts of action that they don't appear to us as executions of power at all. They're experienced as part of the way in which the social world works, as basic *facts* of social reality. Only when these structures disintegrate and show their inconsistencies, the implicit execution of power can be laid bare. Such disturbances surface through events like the financial crisis, the flash crash and by more gradual developments like the increasing inequality between the private return on capital and the rate of economic growth of income and output as discussed in one of the most discussed books of the moment (summer 2014) in economics by Thomas Piketty (Piketty, 2014 p.571). Our investigation is concerned with laying bare the implicit power relations that are constituted and augmented by the digitalization of money.

Such an inquiry needs to be conducted along two different lines: (1) describing these power-relations and (2) subjecting them to a normative critique. To be sure, the second does not necessarily follow from the first while power-relations cannot be normatively assessed exclusively by means of their description. Even totalitarian or tyrannical structures of power-relations do not incite the necessity of condemnation; they cannot be merely described or analysed as right or wrong. Hence, any critique of digital money that can be articulated carries with it a set of moral and political principles that ground its validity. At the same time, I argue that no account of digitalization of money would suffice without a normative basis while the theory of money is normative in its core. As an expression and embodiment of *exchange* of economic *value,* any form of money is grounded in the normativity of social relations between people and institutions.

Thus far, we are capable of describing power-relations according to the theorization of digital money in the previous chapter. Although Simmel's theory has given us a way to describe the power-relations *for the individual* that are established through money, it does not provide an account of how money can constitute power-relations *between* individuals and institutions. In order to make this step towards a comprehensive account of the power-relations established by the constitution of digital money, I will turn towards the incorporation of a critical theory of technology; the critical theory of technology of Andrew Feenberg. Thus, while

Searle's and Simmel's theories especially theorize the meaning and the use of money for the *individual* (even, in Searle's terms *as* an institution *for* the individual), we will be able to extend this account to the power-relations between *people* and *institutions* through Feenberg's theory.

Feenberg's synthesis of the phenomenological inclined theory of technology of Marcuse and the more analytically inclined theory of Habermas tackles a philosophical concern similar to the one I addressed when merging the theories of Searle and Simmel. That is, how can we provide a rational, structured critique of technology while at the same time denouncing its neutrality? In order to have a more thorough analysis of the power-relations that are implied in the moments of functionalization and realization of digital money as a technology, I will discuss digital money in the light of the notions of power as provided by Searle and Foucault (whose notion of power-relations is incorporated in Feenberg's theory). After putting the theoretical framework in place, I will discuss digital money according to the moments of functionalization and realization as provided by Feenberg's theory and expand this analysis by discussing the power relations that are implied in these moments. Finally, I will articulate a general conclusion, pointing at the central problem of agency in the constitution of digital money. Based on this conclusion, I will discuss several ways in which we might cope with this problem.

§ 1 The constitution and augmentation of digital money

The purpose of this section is to scrutinize digital money according to its theorization as articulated in the previous chapter. I will do so by connecting the empirical and conceptual dimensions of digital money with my theoretical framework that is aimed at explaining them. This challenge brings us from the theory back to the monetary reality of Bitcoins, derivative trades, algorithmic trading and short selling. Without yet proceeding to the questions of morality and political power, I will initiate the inquiry by analysing the practices and phenomena of digital money according to their constitutive or augmentative nature. Such an investigation will lead to the descriptive bases of the power-relations that are implied in the digitalization of money.

The dimensions of constitution and augmentations can be analysed by subjecting them to the framework of the linguistic construction of social reality. Since they are based on constitutive status function declarations that endow their elements with deontic powers, an analysis of their structure would be rendered possible by means of tracing back the origins of these declarations. For example, we will look into the declarations as laid down in the propositional structures of the Bitcoin protocol or monetary laws. Moreover, we would need to discuss the differences between the constitutive and augmentative dimensions of digital money while only its constitutive dimension seems to rely in its totality of constitutive status function declarations. The difference between these dimensions might hint towards the role of materiality in the digitalization of money.

After scrutinizing the structural aspects of digital money, I will turn to their grounding in the possibility of exchange of economic value according to the necessary conditions of sacrifice, distance and judgement. How do the structural changes that arise from the constitution and augmentation of digital money influence these conditions? In order to structure the discussion, I will link the

empirical characteristics of the paradigmatic examples of digital money that I employ in this thesis with their place in the structure of digital money.

1.1 <<The constitution of digital money>>

In Chapter 1, I have discussed two paradigmatic examples of the phenomena and practices of digital money that illustrate its constitutive dimension: Bitcoins and algorithmic trading. The way in which I use the term *constitutive* in this context is similar to the way Searle uses it to explicate the idea of constitutive rules. That is, just as a constitutive rule both regulates and establishes its own existence, digital money both regulates and establishes the existence of Bitcoins and algorithmic trading: it provides these phenomena and practices with the possibility of their existence and their structures. However, there is a difference between the phenomenon of Bitcoin and the practice of algorithmic trading in the sense that a Bitcoin is counted *as* digital money while algorithmic trading as a practice is not counted as money but rather made possible in the context of its infrastructure. I will start by discussing instances of digital money counted *as* money, like Bitcoins and state-issued currencies like Euros in their digital form.

At face value, we might conceive a difference between Bitcoins and digital instantiations of state currencies while the first are exclusively baptized by status function declarations that *are* or make up the Bitcoin protocol while state (and interstate) laws seem to baptize the latter. With a Bitcoin, both its existence and regulations find their origins in its protocol: including its limits (e.g. maximum quantity) and its creation. With state issued currencies, the existence and regulations of money find their origins in legal declarations though it is important to note here that the creation of new digital money is delegated to banks to a large extent, which gives such third parties the ability to *create* new digital money by means of declarations. In a similar fashion a miner of Bitcoins has the ability to create new digital money by means of the execution of the declaration in the form of the Bitcoin protocol.

How does such a structure arise? An example of a status function declaration by means of which it is constructed is the code [p] in the Bitcoin protocol that determines the maximum quantity of Bitcoins. In Searlean terms, we could conceptualize such a string of code as *code [p] counts as maximum quantity of Bitcoins in the context of the Bitcoin protocol.* This might sound as a trivial statement but it lays bare a paradox in the social construction of digital money like Bitcoins that is often overlooked or neglected by its users. At face value, one might claim that the universe of Bitcoins contains a limited quantity of Bitcoins *because* the quantity of Bitcoins is restricted by its protocol. However, Searle's theory reminds us of the incorrectness of such a claim. While the socially constructed code of Bitcoin receives its meaning exclusively through its status function, the status function "maximum quantity of Bitcoins" is prior to its code [p]. When unfolding the teleological chain of the status function, we are confronted again with the problem of value: the normative dimension of the intentional determination of the quantity of Bitcoins.

In the case of state *issued* currencies like Euros, digital money is commonly *created* by non-state institutions (notably banks), which are allowed to do so by means of legal protocols (note the difference here between *issuing* and *creation*). Through legal declarations, it is made the case that any legal entity that satisfies certain legal conditions obtains the legal status function of "bank" (including

internet enterprises like Google) and is therefore able to perform the function of creating digital money by means of declarations (Searle, 2011 p.99). The creation of the money is structured along the lines of a constitutive declaration of the form *digital record counts as "euro" in the context of the legal framework c.* In such a framework, the explanatory power of the state theory of money becomes clear, since the creation of money is directly chained to a legal framework that is itself created by an authority like the state. However, at the same time we are faced with a challenge when considering state issued money together with Bitcoins, for the latter seem to depend on a very different form of "authority" than the former. While the legal frameworks that determine the creation of state issued currencies depend on the authority of a state or supranational institution like the EU, the quantity protocol of Bitcoins seems to gain its authority exclusively from its technological structure. What is clear, however, is that in both cases the status function declarations that give meaning to money are constitutive ones. Eventually, the legal protocols that establish the possibility of the creation of digital money in the case of state issued money are internalized into the automated protocols of the banks that create the money just as the quantity of Bitcoins is internalized in its protocol. This has as its consequence that whenever one of the status function declarations is baptized or changed, the meaning of the totality of digital money changes with it.

Passing from the cases of digital money *as* money to the more ambivalent case of algorithmic trading, we can discern a dependency. That is, though algorithmic trading would not be possible without the existence of digital money, digital money would very well be possible without the practice of algorithmic trading. Since digital money in the context of algorithmic trading is deployed as the measure of value or unit of account, it endows traded assets with their meaning. Any instance of algorithmic trade is consequently necessarily mediated by digital money as part of its constitutive status function declarations. For example, an algorithmic trade of asset x with value $\in y$ for asset p with value $\in q$ is conducted according to a fixed protocol in which $\in y$ is part of the status function of asset x but depends for its own status function on the system of constitutive status function declarations that create and maintain digital instantiations of the Euro or any other currency.

The added functionality of algorithmic trading when considered together with other types of trading is one that includes *mobility* and *automation.* Algorithmic trading implies the execution of programmed trades that are conducted without the interference of an actual *trader* (being, a person who trades) and that allow trades to take place in matters of milliseconds. As such, it depends both on the constitution of digital money from which its contents (assets) derive their meaning as well as on its infrastructure while the infrastructural characteristics determine both the mobility and the degree of sophistication of the automation of the trades. That is why investment funds that are involved in algorithmic trading strongly compete on exactly these aspects: mobility, by being as close as possible in space and time to the source of the trades and automation, by obtaining the most sophisticated technological means to conduct the algorithmic trades.

Concluding, I argue that the constitutive aspect of digital money is to be found in its construction of systems of status function declarations that are created by means of propositional declarations like state laws, currency protocols or trading protocols that can be internalized into digital technology. Such internalizations, or

inscriptions of declarations into digital technology have the effects of increased mobility and automation, compressing the limits of space and time by making them independent of human action and dependent in return on the sophistication of digital technology and delegating structural limits as well as judgements about transactions to digital money and its infrastructure.

1.2 <<The augmentation of digital money>>

Next to the constitutive aspect of digital money, we are to discuss its augmentative one. Augmentation is not to be understood as the constitution of *new* phenomena and practices[65] but rather as the strengthening of the status function of phenomena and practices that already exist. An analogy of such a technological augmentation is the practice of e-mailing. Though sending a text message to somebody in the form of a letter or a fax was already possible before the introduction of e-mail, e-mail strengthened the importance of text messaging and its pervasive use in inter-personal and professional communication to a great extent. Examples of phenomena and practices of digital money that I discussed in chapter 1 in the context of augmentation are derivatives and short selling; both of which existed before the introduction of ICTs but which have nonetheless been strongly augmented by it.

Though augmentation does not require the necessity of the existence of digital money for the possibility of phenomena and practices like it is the case with derivatives and short selling, they are nevertheless dependent on it in a strong sense in their digital form. That is, their meaning would significantly change without it - just as for example, the meaning of an electronic bike, derived from its function, would significantly change when it would run out of power. Hence, we can tentatively conclude that derivatives and short selling obtain a great share of their meaning, derived from their status functions, from the extent to which they are augmented by digital money and its infrastructure.

In the case of derivatives, this dependency is significant while a great share of global derivative trades are conducted through the use of digital technologies and digital money. Moreover, derivatives can be counted *as* money in their universe of usage and as such represent a substantial additional global money supply. How do derivatives gain the status of being counted as money and how do their structures take shape? Basically, they are contractual entities instead of genuine assets[66] and as such they are systems of constitutive status function declarations. Just as with the Bitcoin protocol, the formal structure of a derivative determines its status function. As such, it can be conceptualized as *contractual agreements x,y,z..n count as derivative in the context of the derivatives market.* While these structures commensurate varying forms of assets, including state issued currencies, they are a form of money in the sense that they are the abstract expression and embodiment of

[65] "New" is to be interpreted here as essentially made possible by digital technology and it that sense as being a part of the paradigmatic, novel world of digital technologies.

[66] Though one might object to this assertion by asking what a "genuine asset" really refers to; whether the ownership of e.g. a raw material is not as well a contractual entity that is established by the institution of private property. Such an objection is valid, and as a contractual agreement a genuine asset would only differ from a derivative here while only the first contains an actual object of value as part of its contractual structure (e.g. the raw material).

exchange of economic values, constructed by means of constitutive status function declarations. It is argued that derivatives therefore are "money behind the scenes", ensuring that money gets subjected to competitive forces (Bryan & Rafferty, 2007 p.153). As opposed to state issued currencies where state laws eventually determine the creation of the digital money or to Bitcoins where the protocol determines the creation of Bitcoins, the creation of derivatives is determined by the contractual agreements between market participants: investment companies or private traders.

Short selling as a practice brings together different aspects of the uses of digital money, while it can apply to conventional money (state issued currencies), can be conducted through algorithmic trading and can be applied to derivatives trades. What makes short selling a noteworthy example of a practice when considered in the context of digital money is its dependency on the time-intervals between trades and thus on the infrastructural elements of digital money. Moreover, as discussed in chapter 1, short selling is a technique that can give its wielder considerable financial power while it enables actors on the financial market to alter market situation. As such, short selling can mostly be regarded as a trading technique that has gained in potency through the use of digital technologies and digital money. The infrastructure of digital money enables short sellers to *automatize* trades (notably through algorithmic trading), *to increase their speed* and to increase their *volumes*.

Concluding, I argue that the augmentation of phenomena and practices by means of digital money concerns the strengthening of their status functions, which has consequences for both the meaning and the use of money. One of those consequences is the magnification (increase in volumes) of transactions through financial instruments like derivatives that can be counted as money; increasing the share of such forms of digital money. Another type of consequences concerns the uses of digital money, while it allows for the automation, increasing speed and increase in volumes of transactions.

1.3 <<Digital monetary exchange as sacrifice, distance and judgement>>

At this point, we have acquired a clear conception of the way in which we can understand phenomena and practices of digital money as systems of constitutive status function declarations. In order to know how this conception of digital money relates to exchange of economic value as its recognized abstract expression and embodiment, we will need to address the relation between the constitution and augmentation of digital money and the dialectical movement of sacrifice, distance and judgement implied in economic exchange. As discussed in chapter 2, the recognition of digital money depends on these three moments and establishes power relations between people and institutions. At this point, the question is not whether the moments of sacrifice, distance and judgement are either present or absent in the case of digital money as necessary conditions of exchange of economic value for they are presupposed in its concept. Without these necessary conditions, no expression or embodiment of exchange of economic value could be conceptualized and vice versa. Instead, Simmel's conception of exchange of economic value shows us the change in proportionality between its necessary conditions. I will discuss each moment of the dialectical movement according to the previous analysis of constitution and augmentation of and by digital money.

The exchange of economic value entails the necessary condition of **sacrifice** as the inner condition of value. Any action of valuation involves the possibility of sacrifice that is posited by the subject as the condition through which the distance to an object can be overcome. As expression and embodiment of economic value, money necessarily incites the possibility of sacrifice. That is, whenever an object is exchanged by means of a monetary transaction, the possibility of sacrifice is incited within the parties involved in the exchange. The question at this point is how digital money impacts this necessary condition of sacrifice. In the basis, this question is a relational one: not inquiring into the presence or the absence of the condition but the proportionality between the conditions of the parties involved, which expresses a power relation between them. In the previous analysis of digital money as a system of status function declarations, we established the claim that digital money constitutes and augments the automation, mobility and volumes of its phenomena and practices. The automation of these phenomena and practices affects the condition of sacrifice by increasing the detachment between the condition of sacrifice and the desire to overcome the distance to an object. By means of delegating the representation of the condition of sacrifice as expressed and embodied in money to automatic, digital protocols, the subject experiences a detachment between the condition of sacrifice as the inner condition to value and the desire to overcome a distance towards the object that is to be acquired. In the practical context of financial transactions, this impact of digital money becomes clear through the way in which subjects relate to the financial transactions they are involved in. Through automation of transactions, like the automation of monthly payments for a contractual service, the condition of sacrifice is detached from the immediacy of the transaction and the incitement of a desire to overcome the distance towards an object. This translates amongst others into the apparent ease with which people enter into a financial transaction through electronic payments by credit cards because of the detachment of the condition of sacrifice, which in many cases leads to considerable private debts. The augmentation of digital money leads to a detachment of the condition of sacrifice in the case of great volumes of transactions of monetary entities like derivatives where substantial gains and losses can occur in matters of microseconds. Though the condition of sacrifice does not disappear, it is abstracted and detached from the actual transactions by means of digital technologies. As such, the condition of sacrifice is abstracted into technical terms, often being referred to as *risk* or *transaction costs*. Hence, digital money seems to alter the condition of sacrifice at both the micro and the macro level as the limits of the totality of economical actors, both detaching the condition of sacrifice from the desire to overcome the distance to an object and abstracting it from its subjective relation to the valued object.

While the condition of sacrifice is detached from the desire to overcome the distance towards an object of value, **distance** as necessary condition of economic exchange can be considerably diminished by means of digital money. As such, the objects of exchange are conceptually moved from the extreme of aesthetic enjoyment where the distance is the greatest to the extreme of direct, utilitarian enjoyment. As Simmel argues, such diminishing of distance is inherent to money but it can nonetheless be considerably augmented by means of digital technologies. While the infrastructure of digital money compresses space and time as the limits of exchange, it expands the distance from a purely subjective universe of possibilities

to one that is increasingly technologically mediated. It is at this point that money as the purest example of a tool finds its reification, mediating the limits of economic exchange. As such, digital money enables transactions to occur in matters of seconds, or microseconds while exchanging objects over vast distances. At the individual level, such transactions are mostly limited to actual objects or services of economical value (though digital products offer an interesting challenge to this view [67]) while at the institutional level it is expanded to other digitalized representations of objects or services, as is the case with derivatives. In the latter case, the distance is not only diminished but abstracted as well, detaching the exchange from the actual objects or services of value.

Judgement in the dialectical movement of exchange of economic value is the synthesis that constitutes the act of valuation; as such it results from the weighing of desire incited by the possibility of sacrifice against the distance towards the object of value that it negates. The judgement, as the synthesising moment in the exchange of economic value, finds its epigone in the concept of *price*. As Simmel points out, this condition of judgment in economic exchange needs to be put in a historical context in order to be rightly understood. In pre-modern societies, prices were established through fixed exchange relations that were based on external and "mechanical" determinations (gods, kings and emperors), while in the context of modernity free individuals determined the prices in economic exchange. Though Simmel's view seems to be overtly positive for modernity, presenting it as one isolated side of a dichotomy, the postulation of two extremes of *external* and *free* determinations of judgements as limits of a continuum seems to contribute to a useful conceptualization of the condition of judgement. Digital money transforms the condition of judgement through the possibilities of automation, mobility and increasing volumes of its phenomena and practices. Automation contributes to an abstraction of judgement by being delegated to digital technology. Digital money allows for protocols that judge transactions in a rather mechanical way, moving judgement away from the free individual. When algorithmic trades are conducted, the judgement is abstracted to the preconditions that are inscribed into the protocol, which removes it from the actual exchange of economic value. On the other hand, the increased mobility of digital money increases the potency of judgements while it allows for them to be made within extended limits of space and time, judging transactions in a very short timespan over vast distances.

To conclude, digital money as a system of constitutive status function declarations has an impact on the necessary conditions of economic exchange by changing their proportionate or rather relational elements in its dialectical movement. It allows for sacrifice to be detached from the desire in order to overcome the distance to the object of value, while it diminishes the distance to the object itself as well as the limits of the judgement. At the same time, digital money allows for an abstraction of the conditions of economic exchange by delegating these to digital technologies. We need to note here that these implications of digital

[67] Digital products and services like software, Internet services and movies are subjected to the same limits of exchange as the digital money by means of which they are exchanged. Though a discussion of such products and services lies outside of the scope of this paper, their relation with digital money is an interesting point of further inquiry.

money belong to its scope of *possibilities* rather than to *necessities*. That is, though digital money gives rise to the possibility of these transformations it does not cause these transformations by necessity. I will return to this crucial point in the next section when discussion the critical theory of digital money.

1.4 <<On the meaning of digital monetary (ex)-change>>

At this point, we have unfolded the argument to such an extent that we might formulate an answer to the first part of the main question of this thesis: "How does the digitalization of money change the meaning of money?" First, we need to recall that the meaning of digital money is derived from its system of status function declarations, being recognized as the expression and embodiment of exchange of economic value. The meaning of digital money is therefore both to be found in what digital money *is* as well in what it *does*; both in its linguistic, propositional construction as in the movement it represents as exchange of economic value. In order to analyse the meaning of digital money, we have uncovered its propositional instantiations as reified in status function declarations like Bitcoin protocols, bank regulations and trade algorithms. Moreover, we have assessed the proportionality between the elements of the movement it represents, which we designated as sacrifice, distance and judgement. We can conclude that the digitalization of money has changed the meaning of money by (1) changing its system of status function declarations through digital technologies that constitute and augment its phenomena and practices, (2) thus constituting and augmenting the possibilities of automation, mobility and magnification (increase in volumes) of these phenomena and practices which creates the possibility of (3) a detachment of sacrifice, a diminishing of distance and judgement and a general abstraction of these moments in the dialectical movement of exchange of economic value.

This conclusion has led us to an understanding of the impact of the digitalization of money on its meaning. However, it by no means allows us to formulate a critique of the use of digital money while there is no direct way of normatively assessing the changes in the use of money by merely pointing at the structural and phenomenological characteristics. Henceforth, the next step in formulating a critique of digital money will be the incorporation of a normative theory of technology that allows for an inquiry into the moral and political impacts of the changes in the meaning of money. For this purpose, I will evaluate our current findings by means of the critical theory of technology of Andrew Feenberg. Feenberg's theory is particularly suitable for formulating a normative critique while it offers an alternative to accounts of technology that support an idea of technological determinism, as well as a synthesis of the analytically inclined theory of Jürgen Habermas and the phenomenological one of Herbert Marcuse. In that sense, Feenberg approaches the analytic and the phenomenological approaches to technology as standing in their own right, analogous with my attempt to accomplish a synthesis with respect to Searle and Simmel. By rejecting technological determinism, Feenberg does not only offer a normative critique of technology but moreover a room for moral and political manoeuvre; rendering his critique a potent change-maker instead of an overly technocratic or pessimist account of technology as a force determining all social change.

§ 2 A CRITICAL THEORY OF DIGITAL MONEY

The purpose of this section is to construct a critical theory of digital money that is based on Feenberg's critical theory of technology. This enterprise leads us back to the considerations of the first chapter: to the claim that digital money is essentially a technological phenomenon that is not merely a neutral given element in the economy. Since we have managed to inquire into the changes in the meaning of money through its digitalization, we reached the point at which we are able to put these claims at the basis of a normative critique. If digital money is a non-neutral, mediating, technological phenomenon, then we need to ask: how do the changes in its meaning translate into moral and political implications? Feenberg offers a theory that allows for an answer to this question.

Feenberg constructs a critical theory of technology in his book "Questioning Technology" with the aim of making possible a "radical democratic politics of technology" (Feenberg, 1999 p.99). The aim of his work seems to be two-fold: laying bare the problematic nature of "essentialist" theories of technology *and* offering a way out of essentialism that allows for democratic change of technology. Feenberg argues that technology will and should be a central part of political agendas while it affects society at all levels of its constitution. Our moral and political decisions are reciprocally constituted by technologies: while technology affects our decisions, our decisions are capable of changing technologies. Although Feenberg dismisses grim conceptions of technology as an all-pervasive force and thus leaves room for constructive interpretations of technology, he acknowledges the importance of a critical stance. In our modern life world, technology is a considerable force and needs to be critically scrutinized in order not to become dominant in places where or in ways it should not.

By using Feenberg's theory I will dismiss any conceptualization of digital money from the standpoint of technological determinism, as fully determining the social relations that are affected by it. I will approach it as a force that affects the moral and political dimensions of our life world that is nonetheless susceptible to democratic change. In order to formulate the critical theory of digital money, I will firstly present the anti-essentialist or rather anti-determinist critique of digital money. Secondly, I will discuss a critical theory of digital money along the lines of Feenberg's synthesis of Habermas and Marcuse. Thirdly, I will make explicit the power-relations that are implied in the moments of functionalization and realization of digital money as a technology by means of the notions of power-relations as they can be found in the theories of Searle and Foucault. I will discuss Foucault at this point while his notion of power-relations is part of Feenberg's theory though not explicitly present in his two-level theory of technology.

2.1 <<A NON-DETERMINIST CRITIQUE OF DIGITAL MONEY>>

In "Questioning Technology", Feenberg criticizes the dominant theories in the philosophy of technology as well as the technocratic conceptions of technology that argue for a total pervasive use of technology in our life worlds for the sake of efficiency. He argues that in the intellectual debates about technology two sides oppose each other that conceptualize technology as a determinist force. On the one hand, technocratic theories view technology as an extension of human biology: not just altering the natural ends of our biological constitution but merely shortening them (Feenberg, 1999 p.2). On the other hand, the "romanticist" or substantivist

theories of technology conceptualize it as a pervasive cultural force that bears a cultural determination with it, forming "a culture of universal control" (Feenberg, 1999 p.3). Though both sides seemingly oppose each other as extremes of a spectrum, they nonetheless agree on one crucial thing: the determinist force of technology. While technocrats neutralize technology as an intrinsic extension of human nature, substantivists neutralize human nature as totally oppressed by technology.

To understand the opposition between the two sides of the debate as identified by Feenberg, I will shortly mention their historical roots and contemporary manifestation. We can trace instantiations of theoretical debates about technology back to at least the industrial revolution, when the opposing positions became significantly present in intellectual discourses. The industrialist Andrew Ure can be seen as the proponent of the determinist view, while in his work technology as reified in the mechanical manufacture of his age originating from the physic-mechanical science, "bestowed -...- a blessing on society" (Ure, 1835 p.2). In line with the mechanical worldview of the 19th century, he conceptualized technology as a vast automaton that emerged from our knowledge about the mechanical natural world, consisting of many components that all are "subordinated to a self-regulating, moving force" (Ure, 1835 p.13). Moving from a mechanical to an evolutionary worldview, a notable contemporary proponent of such technocratic view of technology is Ray Kurzweil who argues that "technology picks right us with the exponentially quickening pace of evolution" (Kurzweil, 1999 p.22). According to Kurzweil, our technological progress is an inevitable result of the evolution of the human species and transgresses into a technological evolution that will lead us to the point of "singularity" at which computer intelligence surpasses human intelligence. Both Ure and Kurzweil conceptualize technology as a phenomenon that is determined by underlying fundamental forces that belongs to the nature of all things: the laws of classical mechanics in the case of Ure and the laws of evolutionary biology in the case of Kurzweil.

The opposing side of the debate presents a much more negative view of technology, viewing it rather as a curse than as a blessing or as "the supreme danger" as Heidegger put it (Heidegger, 1977 p.26). 19th century romanticists like Thomas Carlyle argue that machinery is an all-encompassing phenomena that even replaced metaphysics and therefore makes us forget the "soul politics"; that "happiness depends on our minds" instead of on technological progress (Carlyle, 1829 p.4). A contemporary proponent of this view might be a critical thinker like Evgeny Morozov who argues that "technologies actively shape our notion of the self; they even define how and what we think about it"(Morozov, 2013 p.234). In philosophy of technology, the works of Heidegger, Ellul and to a lesser extent Foucault and Marcuse reflect these views. Feenberg identifies a problem at both sides of the debate about technology while they seem to condemn the conceptualization of technology to a passive intellectual sphere; either calling for a kind of laissez-faire of technology as a natural force that will better our lives or a bitter acceptance of the inevitable, hoping for a spiritual salvation out of the misery.

Regarding the critique of digital money, we face a similar challenge. When we accept the impacts of digital money as originating from a fundamental force, as a Ricardian "veil" in the economy (in that sense also shortening, instead of altering,

our economic ends), we neutralize it as an intrinsic extension of the economic sphere. Such a conception of digital money, as it is found in most of contemporary works in economics, defies any critique on the grounds of its premises. On the other hand, we would face similar problems when viewing digital money as a part of the technological life world that totally determines our social relations. Both conceptions of digital money would condemn us to passive acceptance of its determinist role in human society. In line with Feenberg's attempt to break out of this dichotomy, we will need to formulate a critique of digital money that is anti-determinist in its basis. Just as technology as a categorical designation, digital money cannot be claimed to have an essence in the sense that it might have a determinist influence on the economy or is itself determined by the economy. By challenging both types of conception of digital money, it is demystified as a force that is immune to public interference and is brought back to the sphere of public debate and decision-making[68].

In order to formulate his critique of technology, Feenberg incorporates the works of two prominent members of the Frankfurt School: Marcuse - who represents a phenomenological conception of technology that is highly influenced by Heidegger, and Habermas - who theorizes technology in the framework of his analytic theory of communicative action. Critical theories as theirs allow for the possibility of conceptualizing technology as a human-controlled, value laden phenomenon that is therefore susceptible to public choices for alternative technologies (Feenberg, 1999 p.9). Feenberg's synthesizing approach is similar to the one I took in devising the theory of money in this thesis while it incorporates both an analytic and a phenomenological account of technology. Along the same lines as Feenberg argues that the analytic, sterile account of Habermas fails in accounting for the normativity of technology I argue that Searle's account does so with regards to the normative basis of social reality. A phenomenological approach, both with regards to technology in the broader sense and to digital money, is indispensible when formulating a normative critique of the phenomenon of digital money as a technology. Henceforth, I will discuss Feenberg's critical theory of technology formulated as a critical theory of digital money.

2.2 <<A CRITICAL THEORY OF DIGITAL MONEY>>

As a starting point for his critical theory of technology, Feenberg discusses Habermas's conception of technology. Habermas differentiates between the basic logical structures of technology that form the trans-historical essence of technology, and the historical imbalances that arise from the different realizations of technology as "work" (purposive-rational action) and "interaction" (communication in pursuit of common understanding) (Feenberg, 1999 p.156). The essence of technology, according to Habermas, is to be found in its reification of work, as a non-social, objectivating relation to *nature*. He assigns a "proper" sphere to technology and science in which they have an objectifying, instrumental role where they *ought* to have it. As such, technology offers ways of increasing human freedom in its proper sphere as well as possibilities for the emergence of problematic societal pathologies

[68] As Feenberg argues: "If one can loosen up the public vision of technology, introduce contingency into it, technical elites will have to be more responsive to a democratically informed public will. These theories thus have a demystificatory aspect which is sometimes viewed as anti-technological" (Feenberg, 1999 p.8)

when going outside of this proper sphere. In order to argue thus, Habermas differentiates "objectivating" from "norm-confirmative" attitudes, which can arguably be compared with Searle's distinction between basic facts and institutional facts. Roughly said, objectivating attitudes are incited by technologies that are based on brute facts, while norm-confirmative attitudes are incited by technologies that are based on institutional facts.

Habermas argues that the pathologies of modernity (echoing the concerns of the essentialist critiques of technology) result from the obstacles that the capitalist system forms in rationalizing norm-confirmative relations. When technical rationality is applied to aspects of the human life-world that belong to the realm of norm-confirmative attitudes, pathologies can arise, instrumentalizing spheres of human interaction that ought to be susceptible to deliberative democratic change. However, in order to conceptualize such a strong dichotomy of *technology proper* and *problematic technology*, Habermas needs to differentiate between principle and application. The *principle*, as a technical principle in its abstract form, is neutral and establishes an objectivating relation with reality. The *application*, however, is the reified form of technology and as such capable of infiltrating the realm of norm-confirmative attitudes. Though clearly formulated and supported by strong arguments, Habermas's conception of technology is problematic while, as Don Ihde argues, technology only bears meaning in a use-context and as such cannot be given meaning without having an application. It does not exist in its purely abstracted form as a principle, but only as principle *in application.* In other words: what technology *means* cannot be derived from its neutral essence alone but additionally from taking into account what technology *does.*

Marcuse acknowledges this problem and asserts that "instrumentality and normativity coexist in all real-world instances of science and technology" (Feenberg, 1999 p.163). Hence, he categorically denies the conceptualization of neutral technologies and the strict dichotomy proposed by Habermas. The idea of a proper, sterile place for technology and science is denied, though the distinction between objective research and other forms of intellectual activity is kept intact. This distinction will remain in need of justification, leaving no room for definite separation, but its mere postulate or denial presupposes the conceptual need of a separation. As Simmel argues in his relationist framework, the postulate of an absolute is necessary for the intellectualization of the relation. In line with Marcuse's thought, the analytic framework of Habermas is argued to omit an important relation, namely the relation of the so-called "built environment", which is the appropriate realm of technology. The built environment, or the actuality of technology, has an instrumental as well as a normative aspect. Hence, "technology is neither purely natural nor purely social" (Feenberg, 1999 p.165).

In order to cope with Marcuse's critique on Habermas's conception of technology, Feenberg incorporates the idea of built environment in Habermas's theory of communicative action. In the original theory, Habermas argues that communicative action is restricted by legal or otherwise formally specified limits within the sphere of "media", of mediating institutionalized forces like money and bureaucratic, institutional power. These are the spheres where aspects of the human life world are susceptible to instrumentalization and consequently spheres where societal pathologies can arise. Feenberg argues for the inclusion of technology (being built environment) as a third medium in the theory of communicative action. He

argues that just as money and power, technology can be conceptualized as a restriction of communicative action by technologically specified limits, hence as a medium. In order to devise a critical theory that incorporates Habermas's analytical framework as well as Marcuse's critique, Feenberg proposes a two-level critique: at one level claiming that "media have general characteristics which qualify their application" and at a second level claiming that the form of these media "are biased and embody specific evaluative choices" (Feenberg, 1999 p.174).

Although Feenberg, in line with Habermas, conceptualizes money as a separate medium next to administrative power and technology, I differ from his view by arguing that money is essentially technological. Notably, in doing so, I do not argue for an essence of technology but for the essential inability to fundamentally differentiate money (as based on the nominal claim of "utility") and technology (as based on the nominal claim of "productivity"). Digital money, as the reification of the "purest example of a tool" as designated by Simmel and as being a technology through-and-through is not to be separated as a medium from technology as the analytic category by which it is conceptualized in Habermas's theory. The problematic nature of this separation is visible in Feenberg's work while he modestly defends Habermas's claim that money is backed up by gold[69] by downplaying it to the claim that "of course he is right that monetary value must refer to a credible *object* such as national wealth" (Feenberg, 1999 p.170). Mainly, it appears to be the case that Habermas and Feenberg both adhere to the Marxian tradition in which the theory of money ultimately boils down to a commodity theory of money. Against such a claim, I would argue that the categorical separation between administrative power, money and technology obscures their essential interrelatedness and therefore I deny the fundamental difference between their so-called "nominal claims"[70].

What Feenberg's theory shows us thus far is that digital money, taken as a technology, cannot be regarded as a medium that is neutral but one through which instrumental rationalization is applied to aspects of our life world. Its process of instrumentalization is capable of diminishing the possibility of democratic change in an area where it ought to be present. While digital money, as part of our built environment, concerns a domain that is value-laden and therefore morally significant, it ought to be subjected to processes of public decision making, to a politics of technology. However, the moments of functionalization and realization as presented by Feenberg do not directly lead us to the analysis of the power-relations that are established by digital money. In order to make this step towards an understanding of these power-relations I will incorporate the formal notion of power as established by Searle (as positive and negative powers) and the relational notion of power-relations as established by Foucault. Foucault's notion of power-relations is incorporated in Feenberg's theory though not explicitly made present in his two-level theory of technology. An expansion of Feenberg's theory by means of a

[69] A claim that probably originates from the neo-Marxist roots of the Frankfurter School, boiling down to an adherence to the commodity theory of money in which money is supposed to be based on an intrinsic value.

[70] By doing so, refuse to accept a fundamental distinction between the nominal claims of "to buy or not to buy" or "to obey or not to obey" as separately conceptualized by Feenberg (Feenberg, 1999 p.170).

discussion of power-relations will illuminate the political and moral impacts of digital money.

2.3 <<Digital money & power>>

We have established that the constitution and augmentation of digital money impacts the relation between the technical objects and subjects. In his elaboration on the role of technical design on the incorporation of social values, Feenberg states: "the cultural horizon of technology"- ... -"constitutes a second hermeneutic dimension. It is one of the foundations of modern forms of social hegemony. As I will use the term, hegemony is *domination* so deeply rooted in social life that it seems natural to those it dominates" (Feenberg, 1999 p.87). Considered in the context of the constitution of digital money, such a technological hegemony seems indeed to have been instantiated. On the level of its every-day use, its phenomena and practices are appropriated as quasi-natural, as objects and processes of economical necessity. This reification of digital money as a technological "hegemony" has consequences for the power-relations between people and institutions. Feenberg connects the effects of the realization of a technology to the conceptualizations of what Marcuse calls "technological rationalization" and what Foucault calls "regimes of truth"; both being indications of the establishment of power-relations. By discussing digital money as a technology, we arrive eventually at the question of power. What is power, how is it exercised and how is it mediated by technology?

The concept of power[71] has been subjected to a long and diverse discourse throughout the history of ideas, too long to be fully incorporated in this thesis. I will therefore limit the discussion of power to the works of Searle who provides an analytic understanding of the concept and the work of Foucault who provides an account of ways in which power is exercised rather than a theory *of* power. The question "what is power?" meets with considerable difficulties from the very start of an endeavour towards its answer. Foucault faces this difficulty by stating that the question has been mostly framed as "what legitimizes power?" and "what is the state as the hallmark of institutional power" (Foucault, 1982 p.778) in the history of ideas; without actually inquiring into the nature of power. Nevertheless, power – whatever *it* might be - seems to be fundamental to every relation between a subject and a technical object and to other (technologically mediated) subjects and as such prior to questions of their legitimation. Whenever physical, linguistic or technical actions are performed between subjects, a power-relation is instantiated. Such a power-relation can range from a police force countering a demonstrating crowd to the appropriation of traffic rules to the transaction of digital money. Paradoxically, the concept of *relation* seems to be entirely contained in the concept of *power* and vice versa. We cannot understand a situation of power that is not relational and we cannot understand a relation without assigning some kind of power to its elements. Such an idea of power seems to obscure its use, while it simply encompasses all relations between subjects and objects. For that reason, in line with Foucault and Feenberg, I argue that we can only be served by an idea of power that is historical and has no character of absolute determination. Such an idea of power, as we will see, can only be fruitful with the incorporation of the idea of *agency*; with the

[71] The etymological origins of the word "power" lie in the Latin word "posse", implying a possibility and a disposition of "being able to..." (Partridge, 2006)

preservation of an undetermined contingency in a power-relation that gives room to moral and political choice, for the possibility of alternatives.

Foucault, in considering the realization of power-relations, gives prior significance to the question of how power is *exercised* over the question of what it *is*. First of all, he contends that the exercise of power-relations is to be conceptually separated from relationships in (linguistic) communication and objective capacities of individuals, although they do not refer to separate domains but reciprocally constitute one-another. According to Foucault, what defines a power-relation (not power as some kind of object one can refer to) is that it is a "mode of action which does *not* act directly and immediately on others" (Foucault, 1982 p.789); as an action only acting on another action. A power-relation can exclusively be established when the subject over whom power is exercised is recognized as a person who acts and when it incites a field of "responses, reactions, results and possible interventions". As such, the establishment of power-relations is a structuring of possibilities of actions of recognized, free subjects. Here we find the importance of a notion of agency in conceptualizing power, while power-relations can only be the case within the context of free individuals that have agency (denying for example the existence of power-relations in the situation of a slave in chains). Power-relations can therefore only exist in interplay with freedom in which both concepts are mutually exclusive. Freedom disappears where power-relations are established and vice versa.

In apparent contrast with Foucault's conception of power, based on the question of *how* power-relations are exercised, Searle provides a concept of power that is based on the question of *what* it is in a formal manner, giving a definition of its formal structure. With regards to power, again, the two views that correspond to the analytical structure of social facts and their realization in a societal context do not seem to allow for isolated analyses. Power finds its reification both in its formal structure and in the way it is exercised and cannot be regarded as fundamentally belonging two one of these two essentialist conceptualizations. As for the way that power-relations are formally created, Searle argues that this happens through the formal relation "*we* recognize S has power (S does A)" (Searle, 2005b p.21). A creation of power-relations can happen by means of the establishment of a status function declarations, for example by saying: "person X has status function 'being president of the United States' in the context of winning the US presidential elections". Searle argues that the status function "being president of the United States" basically implies a set of powers in the form of rights (positive powers) and obligations (negative powers). By embracing this formal account of power, Searle adheres to a classical conception of power in the sense of designating an enabling function: having *power* is having a positive or negative *ability* (either right or duty) to perform an action.

Though Searle's account convincingly theorizes the formal structure of power-relations *as* they are reified in the status function declarations that make up digital money, it does not allow for an account of the power-relations that result from the realization of digital money in a societal context. Just as was the case regarding the difficulties encountered in § 2 of chapter 2, the problem lies in the lack of a normative account and the inability to explain the notion of *recognition.* The statement "we recognize that S has the power (S does A)" seems to remain an empty statement as long as we cannot account for the way in which this formal

relation is recognized. For example, though the status function "president of the United States" does indeed entail a collection of formal powers, the recognition of these powers is a necessary element of the social fact and is not contained within the contents of the status function declarations. In the hypothetical case of a civil war, the formal powers of the status function of a president will stay the same while the realization of these powers might be obliterated. Unlike Searle, Foucault does give an account of a notion of power that goes beyond its formal constitution; giving an account of how the formal structures that imply power-relations are made effective.

In order to see the way in which power-relations are established through digital money, we need to combine the insights of both the Searlean and the Foucaultian ideas of power. As is the case with any technology, the power-relation cannot be regarded as being immediately present in the engagement of one subject with another but mediated through a technology. Although not all power-relations necessarily have a formal structure, those that are technologically mediated seem to be faced with this characteristic. As Searle has shown, the status function declarations that make up our social world presuppose a language, a certain symbolic formality. However, power is not a-posteriori to language but constitutive, while language can only exist within a context of recognition of its semantics and syntax; of its grammar. Searle rightfully argues that language as such is not subjected to the similar structure as the status function declarations it constitutes, but it nonetheless requires *recognition* and hence a structure of power-relations. Transposing this idea to digital money, we can argue that power-relations are established by means of formal structures of status function declarations. At this formal level, the power-relations correspond to their propositional contents. This is the case for example in the way that the contractual contents of derivatives imply the power-relations that are established through them. As such, their contents imply a structure of *deontic powers,* of rights (positive powers) and obligations (negative powers) that are recognized by the parties that interact through these formal structures. Notably, these parties need not to be human, for they can themselves be systems of status function declarations engaging in the contractual engagements as algorithmic trades. In a similar fashion, the elements of the infrastructure of digital money carry with them deontic powers. For example, the infrastructure of a glass-fibre network creates a new structure of power-relations that is derived from its formal functional position: the limits on the mobility of digital money it introduces is based on its formal function, gaining meaning from the status function declarations that are instantiated through its use.

Through the creation and maintenance of formal power-relations as they are entailed in the system of status function declarations of digital money, we are able to analyse the realization of a structure of possible actions for subjects that are recognized as free individuals. Hence, what a power-relation formally *is* can be derived from its propositional structure and the *way* it is exercised is can be understood by looking at the structure of the possible actions of the free individuals that interact through it. The first part of its exposition corresponds to the functionalization of digital money, though the second part corresponds to its realization. Henceforth, I will first of all discuss digital money according to the two-level theory critical theory of technology of Feenberg. Secondly, I will make the power-relations of the moments of functionalization and realization of digital money

explicit by discussing them in the frameworks of power-relations of Searle (as positive and negative powers) and Foucault (as structures of possible actions of free individuals).

§ 3 The power-relations of digital money

The purpose of this section is to evaluate the power-relations that are established through the digitalization of money and their moral and political significance. In order to do so, I will need to discuss the deontic powers that are implied in the constitution of digital money as a system of constitutive status function declarations. Whenever the meaning of digital money is changed by means of the alteration of a status function declaration, its corresponding system of deontic powers is modified as well. These changes in power-relations correspond to the functionalization of digital money as the first level of instrumentalization. The way in which digital money is realized in its practical use-context contains a second reification of power-relations by means of the embedding of its technology in a societal setting, in a use-context.

Notably, the significance of deontic powers in the propositional structure of digital money only relates to the realm of its technological *possibilities* and therefore to the realm of moral and political *possibilities.* In other words, the functional and structural characteristics of digital money broaden the scope of possibilities of its power-relations to be realized, though they do not necessarily *cause* their real implications (just as architecture cannot be claimed to *cause* a building). For example, though the possibility of automatization that is implied in the structure of digital money *might* lead to a shift in its structures of power-relations it can only do so through its actual realization as a technology that is embedded in a use-context. Hence, in line with the two-level critique of Feenberg I will assess the actual moral and political impacts of digital money along similar lines, considering both its functional structure and its realization.

In order to do so, I will firstly discuss digital money within the framework of Feenberg's two-level theory of technology. In order to expand this interpretation with the aim of explicating the impact of digital money on power-relations, I will discuss it along the two aspects of its conceptualization: of the way it is exercised according to Foucault's theory as a structure of possible actions of free individuals and of its formal structure according to Searle. Searle's account of power-relations refers back to his idea of deontic power as discussed in chapter 2. With a framework in place that encompasses both aspects of power, I will evaluate the moral and political impacts of digital money according to its levels of reification as functionalization and realization. To conclude, I will discuss the politics of digital money by elucidating the central claims that follow from the analysis of its power-relations.

3.1 <<A two-level critical theory of digital money>>

Feenberg's criticism of determinist accounts of technology boils down to the evaluation of the problematic subjection of the practical question of what technology *does* to the hegemony of the hermeneutic question of what it *means* (Feenberg, 1999 p.202). He argues that thinkers like Heidegger and Habermas do so by assigning a specific, non-historical general essence to modern technology of *gestell* or technical *principles*. Feenberg attains that this conception of technology, which concerns its *functional constitution,* cannot be seen apart from its *realization* as

concrete phenomena and practices in a historical context. For this reason, he proposes a two-level theory in which the first level corresponds to the analytic critique of Habermas and the second one to the phenomenological critique of Marcuse; though without allowing a determinist interpretation of technology on either level. At each level, Feenberg identifies four distinct reifying moments. The primary level of instrumentalization is the level of *functionalization,* in which technology *decontextualizes, reduces, autonomizes* and *positions* the relation between technical subject and object. The secondary level of instrumentalization is the level of *realization,* in which technology *systemizes, mediates, incites vocation of the subject* and *incites initiative* in the relation between technical subject and object.

Henceforth, I will articulate a critique of digital money along the lines of Feenberg's account of functionalization and realization. First of all, I will consider digital money as the way in which it *functionally constitutes* the relations between its technical subjects and objects (note the similarity here between *functionalization* as conceptualized by Feenberg and *assignment of function* as employed by Searle). This refers to the extent to which digital money is inclined to enter into a process of differentiation between its functional being and its reification as an embodiment and expression of exchange of economic value. In the previous section, we identified the way in which this functionalization takes place: by inscription of status function declaration as constitutive rules into the phenomena and practices of digital money. By means of such inscriptions within a digital infrastructure, digital money is subjected to processes of mobilization, automation and magnification (increase in volumes). We can elucidate these processes as the reifying moments of functionalization.

The (1) **de-contextualization** through digital money is to be understood in a slightly different sense than the one Feenberg proposes. He conceptualizes it as a process of re-constitution of natural object *as* technical objects by which they are "de-worlded" (Feenberg, 1999 p.203). While the natural-artificial distinction is confronted with a difficulty in the case of digital money, being a technology through-and-through, its de-contextualization is rather to be understood as the isolation of its phenomena and practices from the actual objects of value in exchange. Digital money has the possibility of being de-worlded in the sense that it tends to create its separate realm, apart from the world of exchange of economic value. Derivatives form a suitable example of such de-contextualization while they create their own validity as money almost totally separated from the realm of exchange of economic value. As such, the role that objects of value play in the exchange of economic value is obliterated in the process of de-contextualization of digital money.

The process of de-contextualization goes along with the one of (2) **reduction**, in which the technology is "simplified, stripped of technically useless qualities" (Feenberg, 1999 p.203). With respect to digital money, this corresponds to the reduction of the qualities of its phenomena and practices in order to purify its qualities of mobility, automatization and magnification. Instrumentality-driven efforts are aimed at increasing the mobility of digital money and on automating it to an ever-increasing extent. As an example, algorithmic trades are best designed as their pure functional instantiations whenever they are limited by mobility constraints and when they can be conducted along automated processes. Taken to

its extreme, the reduction of digital money implies a thorough de-humanization; stripping the phenomena of money from qualities that would imply limitations by the humans that interact with them (both by enhancing its capacities and by obliterating the need for human interaction in its use).

This reduction of digital money to its primary qualities, or the move from substance to function as Simmel put it, goes along with its (3) **autonomization.** Through this moment, digital money gains an autonomous realm of action in its interrelation with the subject. Feenberg conceptualizes this by pointing at the possibility of apparent disappearance of a counter-reaction when a subject engages in a technologically mediated action. As an analogy, a hunter who performs an action that is mediated by a technical object, say his gun, receives only a faction of the counter-reaction that is implied by the technologically mediated action of shooting an animal (a slight pressure on his shoulder) (Feenberg, 1999 p.204). A similar process of autonomization is implied in the functionalization of digital money, inciting a distance between the subject that is engaged in the process and the counter-reaction prompted by the technologically mediated action of transactions of digital money. Though a financial transaction of digital money might have tremendous *real* consequences, the magnitude of the counter-reaction is increasingly absent at the side of the subject with respect to the extent that the functionalization of digital money is pressed to the extremes.

Lastly, the technical subject that is engaged with the technology needs to obey its rules; these rules (4) **position** the subject within the realm of its use. This implies that no subject can interact with a technology while disregarding the rules laid down in the technology, its lawful functional limitations. With regards to digital money this means that whenever a technical subject interacts with the phenomena and practices of digital money it needs to do so by means of subjecting himself to the rules that are reified in its status function declarations. Even the most vicious trader or investor cannot escape the formal rules to which he is subjected when operating on digitalized financial markets.

The second level of instrumentalization concerns the *realization* of the technology into its built environment, referring to the way "it is *integrated* in the natural, technical, and social environments that support its functioning" (Feenberg, 1999 p.205). This is the level at which Feenberg identifies room for technological change, for political interference in the process of instrumentalization. The first moment of this process of realization is (1) **systematization**, which refers to the necessity of combining the components of technologies into a system. Hence, for digital money the elements of its formal structures need to be combined together with its technological infrastructures in order to instantiate a system of digital money. Its skeletal structures of status function declarations are not effective by themselves but only as elements of the system in which they are embedded, including technological elements like glass fibre cables, satellite networks and trade regulations but also cultural elements like education and innovation.

The second moment in the realization of technologies is the moment of (2) **mediation** that in the framework of Feenberg has strong connotations with **design** through which ethical and aesthetic considerations are inscribed into the technology (Feenberg, 1999 p.206). This relates to the way in which technologies are integrated in their natural, technical and social environments in order to incite the greatest possible aesthetic and ethical recognition. In chapter 1, we discussed the typical

implementation of digital money in the consumer market, it being designed to be similar in its use as non-digital money. Apart from the way in which the consumer relates to digital money, other, often institutional technical subjects (like bankers, investors) interact through different designs with digital money; having diverging ethical and aesthetic preferences when dealing with the technologies. Functions that can be embedded in the design do not necessarily reflect the actual functional structure of the technology; creating the artificial appearance of trustworthiness, efficiency or perhaps familiarity.

In its realization, as a third moment, digital money does not stand in an autonomous relation with the technical subject but mediates it in a **vocational** manner. In other words, the use of digital money requires a re-constitution of the subject through vocation, through the mastering of the acts or crafts that are required to yield its functions. As such, vocation expresses a "reverse impact of tools on their users" (Feenberg, 1999 p.206). Regarding digital money, the vocational impact of the technology on its technical subject knows a great and increasing range of gradations. That is, though the mastering of the use of digital money and its infrastructure needs less of a vocation for the regular consumer it requires increased vocation for ones involved in its workings at its more abstract levels of use that call for the need of analytic understanding of its structure of status function declarations. The use of digital money and its infrastructure at a certain level of sophistication requires a thorough vocation that separates the technically skilful experts from the laymen. Digital money provides a paradoxical possibility regarding this vocational aspect of the technology while it seems to be aimed at reducing the vocation requirements for regular users by simplifying its use, yet increasing vocation requirements for experts because of its growing complexity at the level of architecture.

As a fourth moment, the realization of digital money creates the possibility of tactical **initiative** for individuals subjected to technical control. That is, the possibility of initiative resides within the restraints of its technological framework and gives the technical subject room of manoeuvre without giving up the technical hierarchy (Feenberg, 1999 p.207). With regards to digital money, the growing complexity of its system and de-regulation of its phenomena and practices fosters room for initiative – often in the form of financial innovations (new financial products) or even completely new ways of devising monetary phenomena like Bitcoins and Bitcoin exchange markets. As such, the positioning of the subject by means of the rules implied in the technology at the same time causes spaces outside of the dominant strategies to develop tactical initiatives.

Henceforth, after having discussed the moments of functionalization and realization of digital money as a technology, we need to make the power-relations implied in these moments explicit. Feenberg's theory does not directly offer such a possibility, but the earlier discussions of Searle's and Foucault's notions of power-relations do. I will use their conceptions of power-relations in order to scrutinize both the power-relations implied in the functionalization and in the realization of digital money.

3.2 <<The power-relations in moments of functionalization of digital money>>

I will firstly discuss the power-relations between technical subject and object as they are established in the reifying moments of functionalization of digital money - as a process towards its automation, mobility and magnification. According to the functional constitution of digital money, we can state that digital technology is applied *in order to* automate and magnify its phenomena and practices and increases their mobility. With regards to the empirical reality of digital money, these functional principles are found amongst others in the implementation of trading algorithms, glass fibre networks connected to trade markets and data bases with increasing capacities to handle an ever-greater number of transactions in an ever-shorter period of time. How does this functional character of digital money impact power-relations between people and institutions?

First of all, we need to acknowledge that the functional characteristics of digital money primarily impact the power-relations between people and institutions as far as their scope of *possibilities* is concerned, thereby denying their validity in isolation. This is the case while these formal structures of status function declarations have no *actual* effect as long as they are not realized, which can only be the case in a certain use-context (corresponding to the necessity of the second level of instrumentalization; its realization). Taking this into account, as soon as they are recognized, the structures of the phenomena and practices have the capacity to de-contextualize, reduce, automatize and position the technical objects and subjects in complexes of power-relations. Formally, these power-relations can be explicated as either rights (positive powers) or obligations (negative powers). For example, an algorithmic trading protocol contains the rights to conduct certain trades (positive powers), but only under certain conditions (negative powers). However, since these positive and negative powers are only reified whenever their system of status function declarations is recognized, they have consequences on the possible actions of *free individuals* that are affected by it. Thus, while the formal powers are delegated to the technology they can only hold as long as the people on whom they confer actual effects recognize them.

At this point, we touch upon the discrepancy between the functional structure of phenomena and practices of digital money and their impact on the realm of possible actions of free individuals. To understand this discrepancy we need to inquire into the question: to whom do the positive and negative powers implied in the formal structure of the technology apply? When an algorithmic trade protocol *contains* certain rights, we can correctly infer that *it* has the rights to conduct trades under certain conditions. However, these formal power-relations only become *real* whenever they impact the realm of possibilities of free individuals rather than merely the realm of possible actions of the technology itself. In other words, algorithmic trades can be conducted in the absolute absence of human beings but their positive and negative powers would in such a situation not refer to any actual power-relation. On the level of functionalization, the reified power-relations go beyond the formal structure of the technology and concern the reifying moments as identified by Feenberg. In order to see how the formal power indicators get transformed into actual power-relations, I will discuss them according to the paradigmatic phenomena and practices of digital money.

What phenomena and practices of digital money have in common is that they **position** technical subjects that interact through them, creating a realm of possible actions. An analogy to such a positioning is playing a game of chess, where the engagement with the game positions the playing subjects in a realm of possible moves of the pieces of the game. The corresponding positions comply with formal rules and therefore with Searle's notion of deontic powers. Whenever I conduct a transaction through the Internet banking system within which my bank account can be accessed, I am positioned according to a number of positive and negative powers. For example, I (as technical subject) have the positive power of transferring digital money to other technical subjects acting through bank accounts that are positioned within the limits of the network - but only under certain conditions. These conditions, or negative powers, are determined by the quantity of money represented by the digital records that are connected to my account and more importantly by negative powers of *security* conditions that I have to comply with. Interestingly, the formal security conditions (entering a password, authenticating transactions) reflect the Foucaultian instead of the Searlean notion of power-relations, providing the necessity of their reification as creating a realm of possible actions of free individuals. As such, security conditions as formal negative powers reify the power-relations between technical subjects by making sure that the actions are performed by these, recognized (authenticated) free individuals. Hence, the notion of *security* refers to the recognition of power-relations between the technical object and subject rather than to the formal structures through which they are positioned. As such, they create the *security* that the transactions are actually performed by recognized free individuals.

By means of the positioning of the technical subject through the functional structure of digital money, it gains an **autonomous** position with regards to the effects of his mediated actions. The positive and negative powers that are implied in the formal structures of digital money entail a distance between a transaction and its feedback for the subject. In this context, feedback is to be understood as the counter-reaction that is incited by the trans-action of digital money. For example, the positive, formal power of a subject in trading derivatives through digital means can boil down in a counter-reaction in the realm of exchange of economic value (e.g. fluctuations in prices of goods) that is totally detached from the action of the trade itself. As such, the technical subject "trader" stands in an autonomous position with regards to the counter-reactions in the realm of exchange of economic value that result from his financial trans-actions. The reifying moment of autonomization of the subject finds its origins in the magnification as a functional aspect of digital money. The more phenomena and practices are *magnified* with regards to their volume and potency, the more they are capable of making the technical subject autonomous from the counter-reactions of his transactions. With regards to power-relations as structuring possible actions of free individuals, autonomization provides an increasing range of possible actions within the technologically mediated sphere of digital money while decreasing this range of possible actions outside of it. As an illustration, this possible discrepancy finds its reification in the actions of consumers that find themselves in the sphere of possible actions of engaging in digital transfers without being confronted with the counter-reactions of these trans-actions. Plainly, creating invisible "debts" (as the counter-reaction from which they seemingly operate autonomously) by making use of the power of digital transfers. Notably, in

line with Foucault, these technical subjects need to be recognized in this structure of possible actions as free individuals. It is *they,* as free human beings, who indebt themselves within the realm of possible actions.

As we have discussed, the positioning of the technical subject that engages with a technology can be automated by means of digital technology. Such automation implies that certain positioned actions can be de-humanized, delegated to the technology. Moreover, these positioned actions can be subjected to systems that increase their mobility and magnify their instantiations. Positioned actions like financial transactions and trades of assets or derivatives allow for the **de-contextualization** of digital money. This moment of de-contextualization implies at the formal, propositional level of digital money an impact on the positive and negative powers it instantiates. For example, a contractual agreement in the form of a derivative can provide the positive power of having access to the gains from the exchange of an asset, but *only* indirectly, decontextualized from the actual asset (it is a positive right over the indirect possibility of such a gain). Within the structure of possible actions, the moment of de-contextualization allows for a diminishing role of free individuals in the interaction with digital money. The technical subject can delegate an increasing scope of actions that formerly belonged to the contextualized realm of exchange of economic value to the de-contextualized realm of digital money. However, the move from contextualized to de-contextualized actions only concerns a gradation while in the extreme case of a digital monetary system without human interference any notion of free individuals loses its meaning.

The phenomena and practices of digital money are **reduced** in order to allow for their automation, magnification and increased mobility. This refers to the increased abstraction of the system of status function declarations that entail the positive and negative powers of digital money. Thus, the more the formal structure of digital money approaches its abstract ideal that is explicated in its primary qualities – being the qualities that are necessary in support of its pre-supposed function as money – the more its secondary (unnecessary) qualities get lost. An illustration of such a reduction is found in the effort of digital currencies like Bitcoin to reduce the functionality of digital money to a protocol that contains only its necessary qualities (like a maximum quantity of Bitcoins). Such a reduction decreases both the possibility of formal (positive and negative) powers and of the realm of possible actions of free individuals. Reduction aims at the simplification of the phenomena and practices of digital money to such an extent that the smallest number of positive and negative powers is possible as well as a smallest scope of possible actions of free individuals.

3.3 <<The power-relations in moments of realization of digital money>>

Next to the possible impacts on power-relations that are implied in the moments of functionalization of digital money, we have to consider the power-relations in the moments of *realization* of digital money. The way in which digital money is realized in a technical system, the way it is designed, the way in which it shapes technical knowledge and the way it offers possibilities of initiative gives rise to power-relations that cannot be derived from its functional character. First of all, the **systemization** of digital money refers to the increasing scope and complexity of the global digital monetary *system* in which all components that enable its formal

system of status function declarations are combined and made effective. Components that are brought together in this systemization range from energy networks and satellite communication to integrated financial markets. These systemizations stand in apparent contrast with the functional reduction of digital money since the complete system grows in scope and complexity while the functional character of digital money gets reduced. The moments of realization of digital money do not impact its positive and negative powers while these are exclusively entailed in the system of status function declarations. However, they do impact the structuring of the possibilities of actions of free individuals. Systemization restricts the possibilities of actions to the realm of its components, rendering actions outside of the system ineffective. For example, because the components of digital money only allow for action in the context of an energy-network, free individuals get excluded from the realm of possible actions whenever they are disconnected from the energy network. Hence, in order to establish power-relations through digital money, inclusion of components of the system is required that do not themselves belong to the meaning of digital money.

Moreover, the design of digital money **mediates** the technical subject and object. This mediation, though not itself part of the functional meaning of digital money, establishes power-relations that imply different realms of possibilities of actions of free individuals, depending on the role of the technical subject. For example, technical subjects in the role of consumer are faced with a structure of possibilities of actions that is much more limited in relation to the one within which bankers interact. While the design of phenomena and practices of digital money is structured in a way in which the actions are conceived *as if* they concern non-digital (familiar) forms of money, the design through which bankers interact forms their conception of digital money in a completely different way. Hence, the design of digital money mediates the power-relations of technical subjects according to the role that they have in the system of the digital money. Notably, it only follows after the functional structure of digital money, shaping it along the lines of ethical and aesthetic considerations.

The realization of digital money entails a moment of **vocation** by initiating a structure of possible actions that require a skill or vocation to be mastered. Interacting through digital money does not rely on any innate set of capacities but requires appropriation through vocation of the technical subject. "We", as technical subjects, need to get to know the way in which we can execute transactions and trades through digital money. When acting through the technology, the technical subject is transformed by integrating its specialized vocation in his more general "way of life". Vocation, as it is implied in the realization of digital money, impacts the power-relations between technical subjects and objects in two ways. Firstly, it creates diverging structures of possibilities of actions of free individuals according to the level of their skills. This finds its translation in the differences between the structure of possibilities of actions for people who require little skill to interact with the technology (e.g. consumers) and people who require considerable skill to interact with it (e.g. derivative traders). Secondly, it creates a general vocational culture in which all technical subjects share a certain conception of the required skills for interacting with digital money.

Lastly, a room of tactical **initiative** is provided to the technical subjects through the interaction with digital money. This room for initiative stands in

opposition to the positioning of the subject that is implied by the functionalization of digital money[72]. While the functionalization of digital money confers strategies of technical control on the subject, the subject has tactical room of manoeuvre to circumvent these strategies. In order to see how the moment of initiative impacts the power-relations between technical object and subject, we need to consider the differences between technical subjects in this respect. The structure of possible actions leaves barely any room for initiative whenever the technical subject is interacting with the "surface level" of the technology (as is the case with e.g. consumer actions). Conversely, an extended structure of possible actions arises when the technical subject is capable of interacting with the levels of functionalization of the technology. Thus, the possibility of initiative increases whenever a technical subject is capable of tactically moving within the limits of automation, mobility and magnification of digital money.

3.4 <<The politics of digital money>>

In the previous discussion we have gained insights into the ways in which the constitution of digital money impacts the power-relations between the technical subjects and objects. As I have argued, these power-relations are made *possible* through the functionalization of digital money. At the level of functionalization, they are expressed both in formal terms of positive and negative powers (rights and obligations) and in relational terms of structures of possible actions of free individuals. However, they are made *actual* through the realization of digital money and as such they can only be explicated in relational terms. The "politics" of digital money are to be found throughout these moments of its functionalization and realization. In other words, any decision regarding the constitution of digital money - ranging from the formal structure of a derivative contract, to the formal limitations of digital currencies, to the design of internet banking interfaces, to the regulations of data facilities for algorithmic trades – has a moral and political impact that can be interpreted along the lines of the functionalization and realization of the technology. In order to move from the broad analysis of the power-relations established through digital money to a politics of digital money we need to focus on the basic claims that can be distilled from the previous analysis.

The fundamental claim that can be derived from the analysis is that the constitution of digital money bears political and moral significance and that any claim of neutrality on the part of its construction ought to be denied. However, such a claim does not yet incorporate the specific consequences of the typical movement of digital money that Simmel designated as its move from substance to function and that Feenberg designated as functionalization of technology in general. This tendency is a historical one leading technology into a specific direction that can be scrutinized. Before going into the discussion of the central concern of this tendency, namely the problem of agency, we might recall some actual differences between power-relations as they are reified in the system of digital money. These differences arise between individuals but more specifically between individuals and institutions. Firstly, the moment of systemization moves power (understood as the structure of

[72] Feenberg borrows the idea of tactical initiative as opposed to strategic control from the work of de Certeau who differentiates between strategic actions of institutions (e.g. laying down road systems) and the ability of individuals to tactically divert from these strategies (e.g. taking shortcuts) (Feenberg, 1999 p.114)

possible actions) from individuals to institutions, for example from the citizen to the state through the digitalization of the tax system. Digital money enhances the shift in this power-relation by for example automating tax procedures. Secondly, the mediating role of design of digital money creates a shift in the power-relations between those who engage with it through a design that provides little access to the system and those who engage through a design that provides relatively more access. For example, a regular consumer will engage with digital money through a design that provides him with little power over the system while a central banker will engage with it through a design that provides him with relatively great power. Thirdly, the vocational moment creates a discrepancy between those who have greater skill in their interaction with the status function declarations that make up the system of digital money and those who have little skill in doing so. For example, the skilled derivative trader has more power in this regard than the consumer who acts through funds that invest on his behalf. Fourthly, the tactical manoeuvre that allows for initiative within the general strategies laid down in the structure of digital money differs between those with more instrumental abilities in their interaction with digital money and those with less instrumental abilities. For example, a short seller with superior infrastructural instruments and volumes of capital will have a greater power than a short seller who acts on with very limited instrumental capacities.

By means of this exposition, it has become convincingly clear that the digitalization of money creates discrepancies in power-relations between people and institutions. However, at face value this need not be a problematic claim. One could argue that those people or institutions possessing greater skill, greater instrumental capacity, and greater responsibility to maintain the system supporting digital money maintain a rightful position of superior power with regards to those standing in opposite positions to those ideals. In order to inquire into why this tendency might be problematic, we need to return to the earlier theoretical discussion about the dependency of digital money on exchange of economic value. We have established the claim that it depends for its realization on its reification as abstract expression and embodiment of exchange of economic value. Consequently, without this link digital money would be meaningless *as* money and turn into an abstract system, in which symbols are transferred that possess no reference to actual exchange of economic value. In other words, in reifying the absolute of this ideal whereto the digitalization of money moves, *money* would be rendered non-existing. It is therefore not the presence of money as the expression and embodiment of exchange of economic value, but its absence that appears to be the ground for concerns.

Hence, the more digital money is constituted in order to increase its automation, its mobility and its magnitude to move towards its functional ideal, the more it might become absent *as* money and be turned into an abstraction that *appears* as the social hegemony it renders possible as a technology. Through this move, the digitalization of money increasingly moves power (as a structure of possible actions) from consumers to bankers, from layman to economists, and from actors with little instrumental capacities to those with great instrumental capacities. More importantly, the functions of digital money can increasingly be delegated to the technology; rendering for example algorithmic trading systems effective as actors in the system of digital money. Because of these developments, it is rendered

possible that for example digital trades in derivatives are increasingly detached from the realm of exchange of economic value. Nonetheless, digital money as an abstract expression and embodiment of exchange of economic value is dependent on the assumption of interaction between free individuals if it is to represent power-relations between people and institutions. Precisely here is where the problem arises, since we might ask: how is the central assumption of interaction between free individuals that underpins the exchange of economic values preserved in the constitution of digital money? In the next paragraph, I will address this question and several ways through which we might cope with it in the reality of digital money.

§ 4 Digital monetary exchange as basically human: restoring agency

The purpose of this section is to explicate the problem of agency in the constitution of digital money and possible ways in which we might cope with this problem. We have established the claims that the digitalization of money (1) can create a discrepancy in power-relations between people and institutions and (2) that this discrepancy leads to the problem of sustaining the interaction of free individuals through the system of digital money; in other words, the problem of sustaining *agency*. I might need to state at this point, that the current critique does not address the desirability of digital money (or money in general) as such but rather the way in which it is constituted. The political questions that might arise from this critique are therefore not such as: "ought we to digitalize money or not?" Rather, questions might arise like "what aspects of digital money ought to be automatized?", "what ought to be the limits of the mobility of digital money?" or "to what extent should we limit the magnification of the phenomena and practices of digital money?"

These questions keep us from categorically condemning digital money as such and invite us to open up a sphere of possible democratic interference in the ways in which digital money is constituted. This attitude presupposes that digital money can both enhance and decrease human agency and consequently both enhance and diminish democratic structures. The method that I constructed in this thesis is capable of laying bare the discrepancies in power-relations that are rendered possible by digital money. As such, this critique of digital money is to be regarded primarily as a treatise aimed at showing *that* the constitution of digital money has moral and political impacts and *how* we can scrutinize these impacts. In this last paragraph, however, I intend to make one further step by discussing the problem of agency and possible ways in which to address this problem. It is at this point that I have to be clear about leaving the exclusively philosophical discussion and entering into a more concrete political discussion.

In order to structure this last section, I will firstly discuss digital money as it provides possibilities for the emancipation of free individuals as well as for the bonding of individuals in the social hegemony it might reify as a technology. Secondly, I will discuss the relevance of the notion of agency in its relation to the exchange of economic value and the way in which the digitalization of money makes it problematic. Finally, I will elaborate on possible ways in which we might instantiate a politics of digital money that copes with the problem of agency.

4.1 <<Digital money between freedom and bondage>>

Since digital money in a use-context entails the existence of power-relations as structures of possible actions and since these presuppose the interaction between free individuals, we can argue that its constitution has an impact on individual *freedom*. As such, digital money provides humans with both the possibility of emancipation and the possibility of bondage. On the one hand, we might state that money has an emancipatory and democratizing effect. Simmel exposes that "the importance of money as a means, independent of all specific ends, results in the fact that money becomes the centre of interest and the proper domain of individuals and classes who, because of their social position, are excluded from many kinds of personal and specific goals" (Simmel, 1900 p.238). In line with this argument, he points at the emancipatory impact of money for marginalized groups in society like slaves in the Roman era and Jews in medieval Europe. Money provided them with the possibility of being emancipated from their societal unrecognized position while their role as free individuals is presupposed in monetary exchange. Whenever a monetary transaction is conducted, the interaction between free individuals is presupposed and thus it empowers those who are included in the monetary exchange.

However, digital money implies both the possibilities of emancipation *and bondage*. In its move from substance to function, its automation, mobility and magnification lead to structures of power-relations that themselves give rise to the disempowerment of individuals. Because of these processes, digital money enables new discrepancies of power-relations between the skilled and the unskilled, the institutional and non-institutional actors and between the instrumentally enhanced and instrumentally impoverished. In its digitalized form, money moves towards an ideal of absolute automation, mobility and magnification: pushing these processes to their extremes. This move might in several ways lead towards greater efficiency and market stability, but at the same time navigate its phenomena and practices into a specific relation with the exchange of economic value. As we discussed in the first section of this chapter, this tendency leads to a detachment of sacrifice, a diminishing of distance and judgement and a general abstraction of these moments. That this tendency can incite a disempowerment of individuals can be tentatively related to certain social pathologies like growing individual debts due to a lower threshold for conducting transactions. People are inclined to conduct financial transactions that lead them into problematic debts while the phenomenological presence of their interaction with digital money detaches the moment of sacrifice, diminishes the distance towards the object of value and allows for immediate judgement. This character of digital money is not only instantiated by its formal, functional structure but moreover in its realization. Consider for example the impact of technological design on the problematic tendency of personal debts. By detaching the condition of sacrifice, persuasive technologies make it more likely for consumers to be indebted in order to buy something. This might lead to social pathologies of great numbers of people suffering from their debts.

Similar social pathologies can be encountered with on the side of those people and institutions interacting with digital money that are in a position of relatively great power. The capacities of the digital instruments that are used often surpass human abilities, both with regards to sensible and cognitive faculties. Pushed to the extremes, algorithmic trades are conducted much faster, in much

greater volumes and with much faster decision processes than any direct human trade could be conducted. Moreover, the exchange of economic value gets abstracted in the actions of human agents, which detaches them as technical subjects from the actual objects of value. As such, the conduct of economic activity through digital money leads to an abstraction of the activity from the actual objects of economic activity. Thus, trades might appear to become mere tactical moves that are determined within the confines of a mathematical model that doesn't seem to relate to the exchange of economic value. The responsibility that lies enclosed in the exchange of economic value in which free individuals recognize each other might get detached from the interaction through digital money.

As supported by the reasons given above, it seems to be the case that the constitution of digital money enables certain pathologies regarding technical subjects with relatively lesser power and those with greater power. We can tentatively state that the entire range of technical subjects can be affected by the digitalization of money, which enables problematic complexes of power-relations. These problematic tendencies refer to the basic problem of technocracy as discussed by the Frankfurter Schule: "the survival of agency in our increasingly technocratic universe" (Feenberg, 1999 p.101). Hence, we are to scrutinize the ways in which the constitution of digital money might reduce human agency.

4.2 <<Digital money and the problem of agency>>

The problem of agency is rooted in the way digital money is realized as a technology while it enables the creation of structures of power-relations that have a non-democratic impact on its use. This non-democratic impact finds its reification in two different ways: (1) in the restriction of processes of democratic governance by means of the constitution of digital money and (2) in the circumvention of democracy by means of the constitution of digital money. The first way of non-democratic impacts concerns democracy in a narrow sense, as a way of governance that concerns the dealings of the state as the institution where democracy is exercised. The second way complements the first one, by designating an area of "social hegemony" where democracy is absent by appearing as a structure of objective necessity. The first kind of non-democratic tendencies finds its reification in the diminishing of state power by means of the constitution of money, creating a "phantom state" that is subjected to the power-relations that are implied in the constitution of digital money (Thrift & Leyshon, 1994 p.323). When dealing with this non-democratic impact of digital money, its structures dictate the dealings of the *state* as the hallmark of democratic power whereby democracy itself is increasingly made obsolete.

However, especially technological changes have shifted the focus to the second way in which non-democratic impact finds its reification by showing that democracy might extent beyond the concept of the state. Particularly ICT technologies, that both enable and restrict deliberations between people, reveal realms where democracy applies that do not necessarily belong to the state. As such, general technologies like "the Internet" can be called democratic, but only in an ambivalent way (Stahl, 2012 p.437). Just as can be claimed about a state, technologies like the Internet can be claimed to be either democratic or non-democratic but never to an absolute extent. Along similar lines, we can claim that digital money, as a technology, contains this ambivalence: its constitution can either have a democratic or a non-democratic impact, though never to an absolute extent.

This supports Feenberg's idea that technology can lead to social pathologies, but that it at the same time will always be susceptible to democratic change. A conception of democracy as Feenberg's, however, forces us to go beyond the narrow idea of democracy in which the state is designated as hallmark of its exercise. Technology as such, as a system of procedures in a body of governance, can impact democracy.

In order to see how this might be claimed to be the case with money, we need to consider the emancipatory impact of money in its use-context. Consider a case in which a father gives his son money that he might freely spend. In a narrow sense, this money emancipates the son from the institution of the family as a determination of his agency. However, in its use-context, this money does not lead to some kind of autarkic exercise of power while the power-relations that are enabled by the ownership of money only function within a structure of recognized free individuals. The agency that the son gains by owning the money can only be considered in its reciprocal relation with the agency of other free individuals recognized in the use-context of this money. Money, therefore, does not lead to absolute self-governance but to a gain or loss of agency in the context of mutual recognition of free individuals. Considered along these lines, money can be claimed to be a democratic tool, as a technology that enables democratic structures to emerge. It is unfortunate that, in contrast with the relation between democracy, the state and the rule of law, the relation between democracy and money as a technology is very poorly reflected upon in academic deliberations. Whether money might be claimed a necessary element of any democratic system is an issue that lies outside the scope of this thesis, but considering money as a democratizing technology seems to be sufficiently supported. I argue that the digitalization of money can have both a democratic impact on free individuals interacting within its use-context and a non-democratic impact.

The discussion of power-relations in § 3 of this chapter has enabled us to explicate ways in which the digitalization of money impacts power-relations between people and institutions. How then, do structures of power-relations restrict the agency of human beings in the use of digital money by which they have a non-democratic impact? We have explicated the shifts in these structures as between the skilled and the unskilled, the institutional and non-institutional and the instrumentally empowered and disempowered. To these three shifts we need to add a fourth one that has implicitly been present in the entire discussion, being the shift from human to non-human. With regards to the aspect of **skill**, agency seems to be restricted while the structures of power-relations between free individuals do not rely on the ability to gain skills by choice, but by vocational designation. The ability to gain the skills to raise the individual level of agency through the use of digital money is not one that can be separated from vocation – not every presupposed free individual can gain this agency. Only through designated steps, certain educational and vocational strategies, the skills to enhance agency can be acquired. This seems to be a non-democratic impact of digital money while it designates power-relations over the public concern of digital money according to individual strategies with regards to vocation and skills.

Secondly, agency increasingly shifts from **non-institutional** to **institutional** actors. Importantly, institutional actors, though they might have legal presence, cannot directly act upon the realm of exchange of economic value

through the use of digital money. A bank, for example, as an institution, cannot *value* anything; only the individuals acting through the institution are able to do so. As such, individuals gain agency through an institution and they consequently get excluded from agency outside of institutions. This implies a non-democratic impact of digital money when institutions allow for agency in the constitution of digital money though not offering ways of democratic governance. When such structures arise, the recognized free individuals that are implied in the system of digital money are denied agency with regarding to the constitution of the very medium they conduct their transaction through.

Thirdly, **instrumental** abilities strongly influence the structures of power-relations between people and institutions. This is where the actual impact of digital technologies applied to money becomes explicitly present, while struggles for power in the realm of digital money have emerged that are actualized in the construction of faster data facilities with greater capacities on superior geographical locations. In a sense, *geo*-politics seems to be realized quite evidently in these cases while monetary power and geographical location are intrinsically linked. Agency is gained by means of greater instrumental abilities and consequently diminished in the absence of instrumental abilities. This shift in power-relations has non-democratic impacts to the extent that the instrumental abilities of free individuals implied in the system of digital money are separated from spheres of democratic deliberation.

Lastly, the digitalization of money enables a shift in power-relations from human to **non-human** "actors" in the system of digital money. This shift entails an overall transition that is implied in the digitalization of money, by which it impacts the other three shifts as well. Structures and actions that belong to the meaning and use of digital money are delegated to technologies, whereby human agency is abstracted from these structures and actions. A derivative trade that is automatically conducted through a trade algorithm appears to be totally abstracted from human agency though its meaning is still derived from the exchange of economic value that does depend on human agency. The shift from human to non-human actors has an impact on skills, institutional actions and instrumental abilities. It transfers skills that are tied to the use of digital money to technologies, it creates institutions that act without humans acting through them and it contains instrumental abilities as a technology. Overall, this shift declines human agency and is non-democratic to the extent that it is excluded from democratic deliberation.

The antecedent discussion has enabled us to explicate the non-democratic tendencies that can follow from the digitalization of money. As stated before, these tendencies *need* not be the case based on the mere existence of digital money but are implied in its tendency towards greater automation, mobility and magnification. Henceforth, in order to avoid losing human agency in the system of digital money to such an extent that it restricts democratic deliberations rather than support it, we seem to be in need of reforms of digital money such that these democratic drawbacks can be avoided as much as possible.

4.3 <<Restoring agency in the politics of digital money>>

As a final discussion in this thesis, I will turn towards possible ways in which human agency in the politics of digital money might be restored. Firstly, I will discuss some existing initiatives that are aimed at reforming the monetary system: digital currencies like Bitcoin, local currencies based on the Local Exchange Trading

System (LETS) and political initiatives like Positive Money in the UK. Each of these initiatives has a distinctive stance in the politics of digital money, either trying to disconnect digital money from politics, detach (local) money from the systems of digital money or trying to reform the existing monetary system. Secondly, I will reflect on solutions in the light of the previous discussion about the non-democratic impacts of the digitalization of money.

Digital, or crypto-currencies like Bitcoin have a specific position in the realm of digital money while they aim at increasing human agency by focussing on the abolishment of the discrepancy between institutional and non-institutional actors. The founder of Bitcoin, Nakamoto, argues that the current monetary system of agency through institutions "suffers from the inherent weaknesses of the trust based model" (Nakamoto, n.d. p.1). By trying to eradicate the human factor of trust, which is directly linked to institutional fraud, digital currencies aim at optimizing their function as a currency. In the context of human agency, the discrepancy between institutional and non-institutional actors seems to be effectively reduced. However, the problems of skill, instrumental capacity and non-human interference in the actions within the system of digital money don't seem to be addressed by digital currencies. This can be seen amongst others in the "arms-race" that has happened within the Bitcoin community, of competition for greater computational capacity in order to mine the most Bitcoins. Moreover, agency within the use-context of Bitcoin increases or decreases with the level of skill and vocation in its technological constitution. The shift from human to non-human actors seems to be sustained as well. We might therefore tentatively argue that digital currencies like Bitcoin do not address the entire problem of human agency, though they offer room for change.

Quite differently from Bitcoins, local currencies in Local Exchange Trade Systems (LETS) focus precisely on trust by reducing the scope of a currency to a local community (Good, 1998 p.2). A LETS can issue a local currency that is often tied to the national, legal currency, but is interest free. LETS currencies seem to be aimed at restoring human agency by focusing on the discrepancy between institutional and non-institutional actors and the skilled and unskilled by limiting the scope of the use of the currency to a designated area and population; rendering limits for the institutional power and the skill and vocation needed to gain agency in the local system. However, such currencies seem to only partial solutions to the problem of agency while they do not affect realms that go beyond local dealings in which this problem is most pressing. As such, they don't seem to offer solutions for the problem of agency in global, automatized elements of digital money.

A third kind of initiative includes civil society groups like Positive Money that promote structural reform of the monetary system rather than the introduction of new currencies to circumvent the system. They mostly focus on the discrepancy between instrumental capacities and the actual politics of digital money. Positive Money argues that the capacity of commercial banks to create money should be diminished and should be put into the hands of a democratically chosen and controlled institution (Dyson, Jackson, & Hodgson, 2014). Although such a solution does account for a democratic intervention in digital money as a technology, and therefore a restore of agency to a certain extent, it does not go beyond the creation of digital money in order to consider its use. Merely moving the ability for money

creation from the private sector to a democratic body will not yet solve problems of agency of for example algorithmic trades.

Especially in the recent years[73], we have seen a rise in initiatives that are aimed at monetary reform. A considerable number of digital currencies, LETSs and monetary advocacy groups have emerged. However, most of these initiatives do not seem to rely on a theorization of money but instead on focussing on specific problems concerning the status quo that they think need to be addressed. I would argue that, in order to capture these initiatives as possible drivers of social change, as well as the paradigmatic change of the digitalization of money the discipline of political economy needs to join the debate. As I have tried to show in this thesis, such an effort will need to take into account digital money *as* a technology, giving heed to the involvement of the philosophy of technology. This critique of digital money might hopefully serve as a point of reference in this debate, which will contain countless aspects that need to be covered. What can we gain from this critique that might add up to the initiatives aimed at monetary reform?

First of all, it seems to have become clear that next to circumventing the dominant systems of digital money, the crux of the problem of agency lies in the question of limiting the tendency of technological developments of digital money towards ever-greater automation, mobility and magnification. Just as many other technologies in our life-world, digital money needs to be subjected to limitations either by means of legal or technological constraints. Consider an analogy with traffic regulations, where speed limitations can be applied both by devising law and by technology in the form of speed bumps in the road or a limiter in the car's engine. Such forms of regulation need not entail direct democratic control of the phenomena and practices of digital money, while we do not need to condemn the functionalization of digital money in its totality. As soon as the constitution of digital money is in place, it belongs to the technical fields of economics and needs to be contested on the basis of the terms that apply within that discipline. The realm where democratic decision-making needs to be applied lies at the basis of the digital monetary system: the constitution of digital money. In the public sphere of democratic deliberation, these limitations of digital money might be contested from different sides and arguments for functionalization (on efficiency, cost-reduction) should stand on equal footing with arguments for the conservation of human agency.

Moreover, political economy seems to be in need of a re-evaluation of forms of digital money that abstract from the exchange of economic value. Digital money can turn trading practices like derivative trades, algorithmic trading and short selling into instruments that enable problematic tendencies with respect to human agency. The right attitude towards these abstractions does not seem to me to be one of condemnation, but rather one of re-evaluation of the role of these instruments. For example, it might be rightfully argued that derivative trades and short selling are subjected to technological innovations in order to stabilize and enhance the performance of financial markets within the existing paradigm. As such, derivative traders or short sellers might be "forensic accountants" that have a

[73] With recent years, I mostly refer to the period between 2007/2008 (when both the financial crisis started and the Bitcoin protocol was released) and 2014, the year of writing of this thesis.

function in the dealings of the market that has actual value. However, I argue that political economy is in need of raising questions such as "what ought to be the price of such services?" and "what trade-offs with regards to human agency should be allowed in enhancing these services?"

Finally, I argue that the realization of digital money needs to be politicized in order to address the concern of human agency. As we have discussed, design of the technologies of digital money impacts human agency as well as educational and vocational activities connected with its realization and the room for initiatives in the realm of digital money. With regards to design of digital money, it seems to be desirable that financial institutions, designers and philosophers work together in realizing responsible design with regards to the preservation of human agency. Moreover, educational programmes as well as vocational activities ought to become critical about the phenomena and practices of digital money. At the moment, for example, the commodity theory of money seems to remain dominant in the teaching of economics in high schools, which skews the understanding of money. Educational and vocational activities ought to reflect the different sides of the philosophical debate in order to offer guidance to students and professionals in their ethical stance on the use of digital money. Lastly, initiative in the realm of digital money ought to be embedded in a societal debate. Innovative practices and phenomena of digital money need to be considered in their future use-context and submitted to deliberations in the ethics of emerging technologies.

§ 5 Conclusion: the politics of digital money in critical discourse

The purpose of this section is to recapitulate the analysis of digital money according to its theorization in chapter 2 and the evaluation of the power-relations of digital money according to Feenberg's critical theory of technology. In addition, I will shortly recall the exposition of the problem of agency leading towards ways in which we might cope with the impacts of the digitalization of money. The purpose of this chapter has been to construct a framework that can lead towards a politics of digital money. This politics of digital money is not aimed at the condemnation of the digitalization of money but at its inclusion into a critical discourse. Already in the first chapter, we opened up the sphere of discussion leading to a critique of money. At this point, we have expanded this sphere of critical discourse by considering digital money as a technology.

The first step has been to analyse digital money according to its theorization in chapter 2. We have established the claim that the meaning of digital money is both to be found in what digital money *is* as well in what it *does*. According to Searle's construction of social reality, the meaning of digital money is to be found in its system of status function declarations through which deontic powers are created. Simmel's theory of money complements this conceptualization by exposing money as the abstract expression and embodiment of exchange of economic value. The digitalization of money leads towards a detachment of sacrifice, a diminishing of distance and judgement and a general abstraction of these moments in the dialectical movement of exchange of economic value.

Secondly, I have discussed the theory of Feenberg and its place in the philosophical deliberations about technology. Feenberg creates a middle ground between the analytic account of technology of Habermas and the phenomenological

account of Marcuse, aiming at opening up a sphere of democratic interference in the constitution of technologies, which he designates as enabling a politics of technology. This account of technology resists the determinism that is present in both technocratic and romanticist notions of technology. With regards to digital money, we can therefore argue that it can neither be regarded as a neutral, instrumental phenomenon or as a technology that totally determines our social relations. By synthesizing the theories of Habermas and Marcuse, Feenberg arrives at a two-level critical theory of technology that allows for the consideration of both the functionalization and the realization of digital money. In order make the power-relations that are implied in the moments of functionalization and realization explicit, I discussed the conceptualization of power according to Searle's notion of power-relations as implied in the status function declarations that make up digital money. In addition, I discussed it according to Foucault's notion of power-relations as structures of possible actions of free individuals that act through digital money.

Thirdly, I have evaluated digital money according to the power-relations that are made explicit by scrutinizing the moments of functionalization and realization of digital money. I have argued that the politics of digital money are to be found throughout these moments. The positioning, autonomization, de-contextualization and reduction, as moments of functionalization might restrict the power-relations of individuals and detach their actions through the use of digital money from the realm of exchange of economic value. The systemization, mediation, vocation and initiative, as moments of realization impact the power-relations between technical subjects by enabling the creation of discrepancies between groups: between the skilled and the unskilled, the institutional and non-institutional and the instrumentally empowered and disempowered.

Finally, I have discussed the over-arching problem of agency that results from the discrepancies in power-relations implied in the digitalization of money. I have argued that the digitalization of money as such need not be condemned, while money both emancipates and bounds people. Rather, the politics of digital money needs to focus on the way in which it is constituted in order to restore or retain agency. I have argued that the shifts in power-relations from the unskilled to the skilled, the non-institutional to the institutional, the instrumentally disempowered to the instrumentally empowered and the human to the non-human actors in the constitution of digital money can have non-democratic impacts and reduce human agency. In order to solve the problematic of human agency in the constitution of digital money, I argue that we need to limit the automation, mobilization and magnification through digital money by means of legal or technological interventions that result from democratic deliberations. Moreover, we need to discuss digital money in the dealings of political economy, especially regarding practices that lead digital money towards an abstraction from the exchange of economic value. Lastly, the realization of digital money needs to be politicized, through reforms of educational and vocational contexts of digital money, the design of technologies of digital money and the social embedding of the innovations of digital money.

Conclusion

In the first chapter of this thesis, I started off by considering the paradigmatic transition that seems to have occurred in the course of the digitalization of money. I discussed the problematic characteristics of the monetary system, concerning the possible moral and political impacts of the digitalization of money that thus far have largely been neglected by philosophical inquiries. After a philosophical journey, in which we reflected upon the history and ideas of money, the conceptualization of money according to the theories of Simmel and Searle and a critique of the digitalization of money according to Feenberg's philosophy of technology, it is time to evaluate our position. What information did we gain from this critique of digital money? And how can this information be translated into future academic endeavours or even practical and political points for a future agenda of monetary reform?

The question we eventually set out to answer was: *how does the digitalization of money change the meaning of money and its corresponding moral and political structure of power-relations?* This question has placed us in front of three challenges that were translated into the three chapters of this thesis. The first challenge was aimed at exposing the historical and technological context of the digitalization of money and the explanatory power of established theories of money in theorizing this transition. The second challenge, which was based on the theoretical shortcomings of the established theories, was the construction of a framework by which we could rightfully theorize the digitalization of money. In other words, this challenge has led us to construct a theoretical framework to be able to conceptualize the *meaning* of money. The third challenge has been to analyse and evaluate the digitalization of money by means of the theorization of digital money of chapter 2 and through a critical theory of technology by means of which we have exposed the power-relations present in the digitalization of money.

§ 1 The critique of digital money: a summary

We started the first chapter by considering the historical development of money and established the claim that two technological changes have been paradigmatic in this development: the transition from pre-coin to coinage money and from non-digital to digital money. The digitalization of money finds its empirical reification in phenomena and practices like digital currencies, algorithmic trading, derivative trades and short selling. These phenomena and practices can be *constituted* and *augmented* by digital technologies. I have argued that there is a lack of theorization of money, which finds its origins in the disappearance of the inquiry into money after the separation and fragmentation of the social sciences, as well as in the absence of discussions about money in the field of philosophy of technology. Unfortunately, the established theories of money don't offer a proper framework for theorizing digital money. Here, we touch upon the problematic nature of money of floating in between word and object: on whether its essence is to be found in the value of objects in a situation of barter or in the inter-subjective contractual agreements between people enforced by an authority. Moreover, money is not considered as a technology in the established theories and thus they offer no way of reflecting on the technological transition of the digitalization of money. By means of a theoretical problematization, I have reached the claim that we are in need of a

renewed interest in the theorization of digital money, one that takes into account its constitution as a technology.

In the second chapter, I constructed a framework for the theorization of digital money that relied on the works of Searle and Simmel; combining an analytic account of money as a socially constructed phenomenon with a relational account that considers the phenomenological basis of money as grounded in value. Searle's theory of social reality elucidates the social construction of money as a system of constitutive status function declarations that share a linguistic basis. As such, every instantiation of digital money finds its origin in human intentionality that gets reified in the form of declarations with an illocutionary force and a propositional content. These declarations entail status functions: functions that depend for their execution on people's intentions but are independent of the physical constitution of its object. As soon as constitutive declarations are collectively recognized (e.g. this physical coin counts as € 1,- in the context of the Eurzone), they are institutional fact that have certain deontic powers, or desire-independent reasons for action. This theorization made clear that the formal structures of money impact the meaning of money and its corresponding power-relations. However, I have encountered a number of shortcomings in Searle's theory in theorizing money. These boil down to an aspect that is missing *and* indispensible in Searle's theory, being a normative account of institutional facts by which we can explain the role of value in the construction of money and the reasons for it to be recognized as money. Therefore, I have turned to Simmel whose theory of money can to a large extent deal with these shortcomings. Simmel's theory is based on a relational metaphysics that is largely based on the works of Spinoza, Kant and Hegel. His theory of value is based on the dialectical movement of value, in which the subject overcomes the distance towards an object by desire that is incited by the image of future enjoyment of the object. Simmel's exchange theory is based on his theory of value, considering exchange as the dialectical movement of the possibility of sacrifice as the condition for desire to overcome a distance towards the object in exchange. Money, according to Simmel, is the abstract expression and embodiment of the exchange of economic value. As such, it tends to separate itself from the absolute individual value that is connected to a unique object and to move towards its ideal of absolute exchangeability. This historical tendency of money moving from substance to function finds its reification in the digitalization of money. We continued our endeavour by scrutinizing this transition and considering digital money as a technology, as the purest example of the tool. With the theoretical framework in place, we could therefore proceed to expose the power-relations in the constitution of digital money.

In the third chapter, I started by evaluating digital money according to its theorization in chapter 2. I assessed the impact of the digitalization of money on the constitution and augmentation of its phenomena and practices and on its relation to the exchange of economic value. I found that the digitalization of money changes the meaning of money through changes in its system of status function declarations whereby the automation, mobility and magnification of its phenomena and practices are enabled. Moreover, the digitalization of money contributes to a detachment of sacrifice, a diminishing of distance and judgement, and an overall abstraction of these moments in the exchange of economic value. In order to evaluate these changes, I turned to the critical theory of technology of Feenberg. Through scrutinizing the digitalization of money by means of this theory, I explicated the

power-relations that are present in the two levels of instrumentalization: of the functionalization and the realization of digital money. At the moment of functionalization, these power-relations can be expressed both formally, by exposing the positive and negative powers implied in the status function declarations that make up digital money, and as structures of possible actions of free individuals. At the moment of realization, power-relations are reified in a use context of digital money, creating the possibility of discrepancies of power-relations between individuals and institutions. I have established the claim that any change in the constitution of money, both on the level of functionalization and the level of realization, has moral and political impact - and cannot be considered neutral. Moreover, I have established the problem of possible diminishing of human agency as the general tendency that is captured by the historical move of digital money from substance to function. I argued that through the digitalization of money, agency is shifting from the unskilled to the skilled, from the non-institutional to the institutional, from the instrumentally weak to the instrumentally strong and, notably, from humans to non-humans. In order to challenge this tendency, I argue that a democratic sphere needs to be opened up in which limits to the automation, mobility and magnification of digital money can be discussed. Moreover, I argue that we need to move the inquiry into money back on the agenda of political economy and to politicize the realization of digital money by subjecting it to democratic deliberations.

§ 2 Beyond the critique: reflections and recommendations

As some final considerations, I would like to extend the work that has been done in this thesis to a hypothetical future by reflecting on its possible value for the fields of the theory of money, philosophy of technology and philosophy of society. Moreover, I will try to translate the philosophical complexities of this critique into concrete recommendations for actual people in actual situations in which they are practically confronted with the use of digital money.

First of all, our inquiry has brought some striking insights into the role of the theory of money. We might need to return to the initial observation that Simmel made at the start of his philosophy of money, namely that his inquiry into the nature of money is *not* to be seen as an *economic* inquiry. After finishing this critique, I strongly tend to agree with Simmel on this point while it seems to be the case that a theorization of money cannot succeed without a theory of value that in its basis falls outside of the doctrines of economics. And value, as Simmel points out, can be conceptualized as a third metaphysical category, as the conceptual bridge between subject and object that neither *belongs* to the subject nor to the object. For this reason, money is neither to be found at the side of the object, at the supposed existence of *intrinsic* value of objects in exchange nor at the side of the word, at the inter-subjective level of linguistic convention. Hence, neither established versions of the commodity theory of money nor versions of the state theory of money offer ways to construct a "final" theory of money.

I contend that we need to make a separation between the *theorization* of money and the construction of a *theory* of money. The theorization of money concerns an on-going deliberation about the middle ground between "word" and "object" that money occupies, as well as an on-going deliberation about the relation

between the formal structures of money and their phenomenological presence. A theory of money, on the other hand, concerns the creation of a dogmatic theory that claims to offer an exhaustive explanatory account of money. I argue that the only way in which we can approach money is by critical theorization and not by accepting a theory of money as dogmatic keystone in the social sciences.

Secondly, digital money is a phenomenon, perhaps the key phenomenon that shows the impossibility of both the analytic tradition and the phenomenological tradition to offer a proper, conclusive framework for its theorization. We have seen that analytic accounts of money, like the one proposed by Searle, eventually cannot function *as* theorizations of money while they lack a notion of normativity that is indispensible in a theorization of money. On the other hand, phenomenological theorizations of money fall short in theorizing the formal structures through which money functions. In some sense, analytic theories of money tend to surrender money to the formal science of economics while phenomenological theories don't even let it approach. None of these two stances is exclusively suitable for the theorization of digital money and that is why I argue that they need to be integrated in any inquiry into the nature of money. In "the Nature of Money", Ingham already offers a suggestive merger of the analytic and the phenomenological accounts of money by using both Searle and Simmel, though he does not offer an actual framework of reasoning.

Thirdly, I have tried to bring concerns in the philosophy of technology and the philosophy of society together by means of this critique. Before embarking on the endeavour towards the construction of this thesis, it struck me how little philosophy of technology is concerned with phenomena and practices in the realm of economics. Although words like "*digital* currency", "financial *instrument*" or "*algorithmic* trade" almost directly point at a connection between finance and technology, philosophy of technology has not yet incorporated these into the realm of its inquiries. Equally so, philosophy of society is very little concerned with the role of technology in relation to the phenomena and practices it examines. I have tried to show that digital money, as the purest example of the tool, deserves a place in both the philosophy of technology and the philosophy of society. Hopefully, this thesis can contribute to a stronger integration of these two fields of philosophy and through this contribution provide the positive social sciences with a reflective framework through which they can scrutinize the phenomena and practices that lie at the basis of their inquiries.

Finally, I would shortly like to point at some possible implications of this thesis for actual people in actual practical situations in which they are confronted with the use of digital money. Firstly, it might contribute to a certain level of general understanding that the constitution of digital money cannot evade moral and political implications. Neither a "money-free" economy, nor an economy that is solely based on digital currencies or LETSs should therefore be considered as a way out of the politics of digital money. Rather, the solution ought to be found in the politicization of issues concerning digital money that can be discussed in a democratic sphere. Secondly, a reflective attitude on the nature of money ought to be part of the educational system while a dogmatic attitude towards money can get very deeply engraved in people's thoughts. The discussion about digital money ought to be an open, public discussion rather than merely an intellectual endeavour. By prioritizing the critical theorization of money over the construction of a theory

of money, we offer a space of reflective thinking to children and students in their conception of money. Thirdly, politicians and policy makers ought to be concerned with the global systematic tendencies of the digitalization of money. Questions like "what might be the price of algorithmic derivative trades as market stabilizers?" or "what ought to be the limits of the automation, mobility and magnification of digital money?" ought to be questions that are subjected to a democratic discussion. Finally, my critique points at the necessity for a strong cooperation between financial "engineers", politicians, investors, bankers, economists and philosophers in the constitution of digital money.

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