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Abstract

Der Diskurs über das Verhältnis zwischen Wissenschaft und Gesellschaft ist im Allgemeinen durch die Schwierigkeit gekennzeichnet, die auf dem objektiven Beobachter beruhenden Werte der Wissenschaft mit dem subjektiven-relativen Charakter der gesellschaftlichen Werte in Einklang zu bringen. Oft scheint es einen unauflösbaren Zwiespalt zwischen sozialer Verantwortung und der Erfüllung gesellschaftlicher Anforderungen sowie zwischen der Erhaltung wissenschaftlicher Freiheit und Objektivität zu geben. Alfred Sohn-Rethel, ein Mitglied der Frankfurter Schule, verfolgt einen einzigartigen Ansatz zu diesem Thema, indem er nach den historischen und sozialen Ursprüngen der geistigen und damit auch der wissenschaftlichen Arbeit sucht. In dieser Masterarbeit werde ich seine Philosophie darstellen und kritisch beleuchten. Nach einer Einführung in das Thema stelle ich im ersten Kapitel Sohn-Rethels Methodik vor, die auf der kritischen Philosophie von Marx basiert. Im zweiten Kapitel stelle ich das zentrale Element von Sohn-Rethels Werk vor, nämlich die Suche nach den geschichtlichen und gesellschaftlichen Wurzeln der Begriffe des abstrakten Denkens und der geistigen Arbeit. Im letzten Kapitel erfolgt eine kritische Analyse von Sohn-Rethels Schriften. Dabei stütze ich mich auf die Schriften eines anderen marxistischen Philosophen, nämlich György Lukács. Das Hauptmotiv meiner Argumentation ist, dass Sohn-Rethel zwar versucht, eine adäquate Historizität des abstrakten Begriffsdenkens und der geistigen Arbeit zu etablieren, dabei aber selbst in bestimmten Bereichen von seiner historisch-materialistischen Methodik abweicht und vergisst, grundlegende Begriffe in einen ausreichend tiefen historischen Kontext und Differenzierung zu stellen. Meine Arbeit wird mit einem Konklusion des Themas enden.

Schlagwörter: Wissenschaftsphilosophie / Wissenschaftsgeschichte / Erkenntnistheorie / Alfred Sohn-Rethel / Formbestimmtheit / Realabstraktion/ György Lukács/ Klassenbewußtsein / Marxismus

Abstract

The discourse on the relationship between science and geography is generally characterised by the difficulty of reconciling the values of science based on the objective observer with the subjective-relative character of social values. There often seems to be an irresolvable dichotomy between social responsibility and the fulfilment of societal demands and between preserving scientific freedom and objectivity. Alfred Sohn-Rethel, a member of the Frankfurt School, takes a unique approach to this issue by searching for the historical and social origins of intellectual and, thus, scientific labour. In this Master's thesis, I will present and critically examine his philosophy. After introducing the topic, in the first chapter, I present Sohn-Rethel's methodology based on Marx's critical philosophy. In the second chapter, I present the central element of Sohn-Rethel's work, namely the search for the historical and social roots of the concepts of abstract thought and intellectual labour. In the last chapter, there is a critical analysis of Sohn-Rethel's writings. In doing so, I draw on the writings of another Marxist philosopher, György Lukács. The main motive of my argument is that while Sohn-Rethel attempts to establish an adequate historicity of abstract conceptual thought and intellectual labour, he deviates from his historical materialist methodology in certain areas and forgets to place fundamental concepts in a sufficiently deep historical context and differentiation. My work will end with a conclusion on the topic.

Keywords: Philosophy of Science / History of Science / Epistemology / Alfred Sohn-Rethel / Definiteness of Form / Real Abstraction/ György Lukács/ Class Consciousness / Marxism

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1 Introduction

How I finally arrived at the subject of my work, and what it is ultimately about, is a surprise to me. I still don't understand many of the details of how this happened; a series of coincidences, seemingly unconnected events, and decisions led me to this point. However, two such unconnected yet strangely intertwined events and experiences must be highlighted. The first is that as a physics student, as we moved closer and closer to the contemporary state of science in my studies, I came to the realisation that the *phýsis*, that is, growth, change, and life, is increasingly taken out of science, and what remains is the pure *logos*. In the formalisms of Hermitian matrices, eigenvalues, 3N-dimensional Hilbert spaces, and quantum fields, everything that seems alive and tangible is being emptied out and reduced to pure geometry, while there is not even a single unanimous answer to such a seemingly simple question as what matter actually is. More precisely, the answer would be quite unanimous: matter is a mere form. It only remains to decide what form it takes: the geometry of strings, loops, or quantum entanglements.

The other key event happened to me as a third-year university student in the summer of 2015. Under the window of my rented room in Budapest, Keleti pályaudvar, a crowd of refugees lived on the street for weeks as political hostages, waiting to travel on to Germany. It was then that I started to read newspapers in earnest. I still can't remember how I came across Gáspár Miklós Tamás' article: "A menekültválság jelentése" (The meaning of refugee crisis), but I would like to highlight two passages of it:

> "One of the central elements of the ideology of the existing systems has always been to conceal the *reality and importance of social class* in capitalist conditions. In the past, the political community, whose role was to bridge and override class differences, was envisioned in the political nation, and unity essentially meant loyalty to the king, legitimate state institutions, the military, and the state church. Today, however, a nation is not a collection of loyal subjects and citizens, but the ethnic, racial, and cultural-linguistic majority of a country."'

* * *

> "Since the change of 1989, rightly interpreted as the final chapter of the Enlightenment, it is simply impossible to attempt a moral critique of politics because such a critique would be seen in our anti-philosophical, romantic-reactionary culture as an unforgivable Kantian or Marxist misstep. Demonstrating raw self-interest is sufficient to explain the evil law introduced by the Hungarian state (criminalisation of immigration) and the consequent state of emergency (Notstand, état d'urgence)."[1] [1]

As a decent 23-year-old physics student, I naturally understood nothing of the above: capitalist conditions, class differences, Kantian or Marxist missteps, romantic-reactionary culture, the final chapter of the Enlightenment, etc. These sentences and phrases bore no resemblance to the social description as I perceived it in my own superficial and immediate form. This lack of knowledge, my social and political ignorance up to that point, annoyed me to no end and made me want to understand what it was all about.

Without going into further details of my life's journey, these are the two core experiences that have led me to the point where (still not sure whether fortunately or unfortunately) I made a Marxist "misstep" and now write about the philosophy and history of science. Initially, my thesis was going to start by examining the relationship between science and moral, ethical, and social values. However, I found the writings dealing with this topic unsatisfactory. I kept running into endless divisions and categorisations, where it seemed impossible to break out of the conceptualism of the context-dependent ethical and moral judgments and the universal, but in fact increasingly elusive, concept of objectivity. It seemed to me that these two planes of social relations - the distanced observer and the ethical actor - cannot be reconciled in any meaningful way. The root of the problem lies in the fact that the concepts of the universal, generally valid, scientific method are outside the economic and political processes taking place in society. I think that the problem must be somewhat rephrased. While there are countless

[1] Own translations; emphasis in original

aspects and analyses of the moral, ethical, and scientific criteria that should determine whether or not a new pesticide is a carcinogen, there is little or no discussion of how and why such problems arise for science and society from the socioeconomic processes in the first place. The question of how scientific work as labour is embedded in the dynamics of economic necessities and where, as a result of this embeddedness, its responsibility in the social division of labour begins and ends fundamentally eludes the discourse of the philosophy of science.

While researching how to tackle this subject, I came across the name of Alfred Sohn-Rethel, a lesser-known figure of the Frankfurt School, whose major work's title, *Intellectual and Manual Labour: A Critique of Epistemology*, was quite suggestive. In his book and subsequent writings, Sohn-Rethel argues that the specificity of intellectual labour must be traced back to its very forms of conceptual thinking. To understand the role of intellectual labour in society, where intellectual labour is understood to be primarily philosophy and the sciences, it is necessary to examine its conceptual forms of abstractions. Sohn-Rethel's analysis, thus, begins with the origins of epistemology, with what it traditionally says about cognition and its formal characteristics. We must go to the roots of abstractions if we want to shed light on why the universalistic notions of science and epistemology seem irreconcilable with the contingent nature of social relations. This will also outline how the scientist, as a participant in the social collective labour, relates to socioeconomic processes.

We must, therefore, go back to the question where Hegel, somewhat misleadingly, begins his *Phenomenology of Spirit*: "It is a natural assumption that in philosophy before we start to deal with its proper subject matter, viz. the actual cognition of what truly is, one must first of all come to an understanding about cognition, which is regarded either as the instrument to get hold of the Absolute or as the medium through which one discovers it." Of course, no one thought of the problem of knowing in this form until Descartes. Sohn-Rethel, however, goes even further, all the way to Parmenides. He argues that with Parmenides, a particular form of conceptualism and abstraction emerged, which has accompanied European epistemology to

the present day. Whether we speak of the Organon, Scholasticism, the ego cogito, the a priori concepts and categories of pure reason, etc., they all aim to explain the determinate forms of knowledge and intellect. What these various examples have in common is that they derive the forms of cognition from man's intellectual faculties, or, to put it differently, they consider cognition as a purely intellectual activity independent of physical labour. It follows that abstract concepts are taken as a priori (i.e., given in advance), for they are either determined by nature or by God for the intellect or are found in human thought as such.

Sohn-Rethel, on the other hand, faithful to his Marxist leanings, sought to provide an adequate historical materialist explanation of epistemology. Therefore, 'critical theory of knowledge' is meant here, first and foremost, as a Marxist philosophy that rejects any apriorism, universalism, and time-independent nature of abstractions. However, for Marxist philosophy, the theory of knowledge and, within it, the exact natural sciences constitute a serious blind spot. Both Engels and Lenin tried to deliver an adequate dialectical materialist explanation of scientific knowledge, but they did it only with moderate success. This is a huge problem, according to Sohn-Rethel, because the consequence is that there is tension at the centre of the Marxist tradition. Historical materialism has yet to be consistent, because the position of natural science within Marxism is very specific. It belongs neither to the social basis nor to the ideological superstructure. On the one hand, historical materialism tries to investigate along the lines of historical, social, and time-dependent dialectical thinking, but on the other hand, it tacitly accepts the time-independent, universalistic, and mathematised, abstract normative forms of natural sciences. The dialectical, time-bound concept of truth is, thus, regularly opposed to the truth of the timeless observer.[4, p. 195] As long as this tension is not resolved, our thinking is not Marxist enough. The consequences of which are supported by our terrible historical experiences. If there is no historical materialist explanation of the epistemology known today, then no socialism is possible, only an overly bureaucratic,

hyper-rationalised technocracy.[2]

As we can see, Sohn-Rethel's philosophical inquiries are motivated by political and social issues. This may immediately raise concerns for some readers, especially since my discussion below focuses on the formal characteristics of scientific knowledge. It should be made clear at the outset, however, that the aim is not to relativize scientific knowledge, simply because it is deeply rooted in empiricism and its success is undeniable. Any point of view that regards science as a mere ideology is to be condemned since such and similar ideas (besides the abusive political power) led to Lysenko's affair[5, p. 220-228]. As Sohn-Rethel writes: "Unlike some other socialist analysts of science, I do *not*[3] wish to weaken the distinction between science and ideology and to interpret science as an ideology... I do not place science and the conceptual powers of cognition on a level with ideology. Science has objective validity; it accomplishes tasks of social necessity, although it does this with false consciousness. Mathematics is not ideological, even though it is a phenomenon of consciousness... This division between science and ideology must not be blurred or put in doubt."[6, p. 691-692]

1.1 Real abstraction and commodity exchange

Having said all this, however, for Sohn-Rethel, human consciousness and its thoughts cannot be detached from social reality. The inner relations of a society, and indeed the conditions under which a society can function, significantly influence human thinking. This fact is expressed in Marx's claim that consciousness is determined by social existence[7, p. 12]. For Sohn-Rethel, this is the essence of historical materialism: to examine human thought in relation to its social existence. It is in this spirit that abstractions, which are entirely specific to human consciousness, must be scrutinised. The source of abstract thinking must be sought in the inner life of society, and it is not enough to say that the human consciousness is simply capable of it. The latter approach is what Sohn-Rethel calls 'thought-abstraction' (Denk-

[2] [4, p. 199]

[3] Emphasis in original

abstraktion), which derives abstractions from the capacity of the individual human mind. A typical example is Kant's transcendental categories, according to which abstract concepts of cognition are given as such (i.e., a priori) in human consciousness. Sohn-Rethel contrasts this with the concept of 'real abstraction' (Realabstraktion) borrowed from Georg Simmel[8, p. 269]. This notion implies that abstractions are not a priori given but can be derived from social relations and actions, that is, from social existence. These social actions are abstract in the sense that they do not refer to anything natural or physical but have a purely social meaning. Such examples are the concept of value and money. Price, and its associated payment, cannot be derived from any natural process but are purely social creations. Thus, the main philosophical argument of Sohn-Rethel is that there is a close connection between the formal characteristics of the historically given social existence and the formal aspects of the conceptual abstractions of human consciousness. Before an abstraction enters the consciousness, this abstraction is already working in the social nexus.

To make this connection more explicit and to be able to have a grasp of the formal characteristics of a society, Sohn-Rethel introduces the concept of 'social synthesis' (gesellschafliche Synthesis). The social synthesis is what conveys the 'context of existence of people' (Daseinszusammenhang der Menschen) in different historical periods as a livable social whole. It is a specific function based on the social division of labour. It expresses the social context in which the social interdependence of people changes through the connections of the division of labour. The relationship between the different labours and the social relations and institutions mediating between them results in a specific social formation. This form, then, becomes the most characteristic feature of a society. What is of primary importance for the synthesis is not what the individuals think but how they act. This is because all activities must be, at least on a minimal level, related to each other to be part of society. These connections refer to a unity and provide social coherence for a community. It makes it possible to speak of society at all. The interdependence of labour activities, and their orientation towards a certain degree of unity, is the social synthesis itself, which, consciously or

unconsciously, a society must have.

> "With the help of this concept, I can formulate the basic insight that the socially necessary thought structures of an epoch are in the closest formal connection with the forms of social synthesis of this epoch. Fundamental changes in social synthesis occur when there is a change in the nature of the actions whose relation to each other sustains the human context of existence..."[4]

To put this in relation to philosophy and history of science: while for cognition, the problems are provided by the concrete empirical material, the forms of cognition of the natural sciences do not derive from empiricism but from abstract social action, which permeates the whole of the social nexus and functions as a synthesising power.

Such a purely abstract social action is the production and exchange of commodities. In *Capital*, Marx writes that in the exchange of commodities, their physical properties only matter to the extent that they are usable. However, it is precisely the abstraction of the usability of the commodities that makes the exchange possible at all. During the exchange, a form abstraction takes place, which abstracts from the actual physical nature of the desired object. This is called the 'commodity form'. It makes it possible that completely different and incommensurable objects are being equated. The equivalence of qualitatively non-equivalent things in the exchange process manifests itself in the 'value-form' (Wertform) of commodities. Another aspect of this abstraction is that it reduces commodities to their common denominator, namely that they are products of labour. However, the nature of human labour is hidden and only appears as the 'amount of value' (Wertgröße) or cost. The social roots of abstractions are, therefore, that the act of exchange is not carried out according to the utility of the object (i.e., its actual qualitative physical nature), nor according to the labour process of its production, but according to the nature of the abstract commodity form. Abstractions, therefore, do not stem from the things, nor from the

[4] Own translation; [4, p. 198]

relationship between man and things, but from a purely social relationship, the relationship of abstract goods, during the act of exchange.[10, p. 65-66]

Sohn-Rethel, thus, tries to derive the formal characteristics of abstract thought from this specific social relation, namely, from the commodity exchange:

> "All my analyses here and elsewhere are aimed exclusively at explaining the elements of scientific theorising... [These elements], that is, the cognitive concepts of the intellect and mathematics, do not arise out of production, not out of the processes of [material] metabolism between man and nature, not even by way of reflection or representation of their respective conditions. On the contrary, they arise solely out of the process of exchange and circulation, on which, on the basis of commodity production, the context of social labour or, in my form of expression, social synthesis is built."[5][9, p. 731]

However, commodity exchange can only be a dominant form of social life if certain production conditions are met. It is necessary to break up social labour into private labour. As Marx writes, the means of use become commodities only if they are the products of independent private labour.[12] In this case, social relations are not expressed by the common goods produced by common labour, that is, not by direct cooperation, but by the exchange of goods produced by individual work. 'Socialisation' (Vergesellschaftung) and labour are separated, and the exchange of material goods mediates human relations. Therefore, commodity exchange becomes a form of social synthesis. Amid these social relations, intellect and intellectual labour appear entirely separate from manual work and production and begin to "think" in the specific forms of exchange.

> "Whether or not intellectual labour occurs, of what kind and with what concepts of knowledge, depends on the historically given conditions of physical production activity, that is, on the state

[5] Own translation

> of development of the productive forces and the forms of labour processes determined by them, as well as on the social relations of production. We, therefore, do not speak of 'intellect' in the sense of a brain faculty specifically implanted in the human being... Rather, we understand 'intellect' as a phenomenon of a conceptual mode of thinking and cognition that is linked to a particular socioeconomic formation..."[6]

Intellect, in this sense, is, therefore, a social phenomenon. And the forms of its thought depend on the conditions of production of a given historical period. Sohn-Rethel's multifaceted work focuses primarily on exploring this relationship. He attempts to derive certain formal features of the abstract intellect from social existence. Since he identifies exchange with the function of social synthesis, he analyses the formal properties of this social action. He shows that certain formal properties of classical physics and epistemology are related to the abstraction of exchange, which in turn has two main consequences. The first is that pure intellect thinks along the lines of the commodity form or, to put it differently, the pure intellect is reified. The second is that, since the intellect derives its abstractions not from labour but from exchange, the intellect becomes autonomous from the activity of physical work. It is precisely from this relation that intellect derives, in Kant's words, its 'pure' character[7].

The biggest problem with this separation is that its form remains hidden from consciousness. This is also manifested in the fact that the conceptual apparatus of science and epistemology is completely blind to its socio-historical embeddedness[8]. While the concepts and forms of cognition are historical formations, the form of thought is characterised by time-independent and universal cognition. Sohn-Rethel argues that any mode of cognition that is blind to its social existence, that is, to where its forms of cognition come from, and, thus, to the role of its cognition in society, results in the truth

[6] Own translation; [9, p. 721]
[7] [9, p. 723]
[8] [4, p. 285A]

of its knowledge "being less than a half".[9] The solution to this problem requires the unity of head and hand, that is, of intellectual and manual labour. This is achieved when socialisation no longer takes place through the exchange of commodities. The social synthesis must be based on cooperative production.[10]

1.2 Critical exchange with Lukács

Certain problems, however, arise concerning Sohn-Rethel's work. One of them is the question of when commodity exchange can be considered the most decisive element of society. In short, when does commodity exchange become the function of social synthesis? In his writings, Sohn-Rethel refers to both ancient Greek and capitalist societies as commodity-producing societies[11]. One could conclude from this that the concept of commodity means the same thing in both societies. However, this is highly problematic from the perspective of historical materialism since it assumes that the commodity form is independent of the mode of production. And indeed, according to Sohn-Rethel, the value-form and the commodity-form are created only and exclusively by the abstraction of exchange[12]. But this makes all exchanges at all times equivalent and overlooks the significance that in a capitalist society, labour itself becomes the object of exchange.

To explicate this problem, I draw on the work of another Marxist critic of traditional epistemology, György Lukács. For Lukács, distinguishing capitalist society from earlier social organisations is paramount. For there is a critical qualitative change, namely, that only capitalist society experiences the commodity-structure "as the universal forms of existence".[13] This is due to the commodification of labour, that is, the birth of the proletariat. Hence, for Lukács, a technical change will not solve the problem of breaking out of the reified forms of traditional epistemology. It is not enough to change the

[9] Own translation; [4, p. 285A]
[10] [4, p. 409-410]
[11] [3, p. 322B]
[12] [9, p. 744]
[13] [13, p. 111]

logic or, if you like, the 'reason' of the social system. The problem is not primarily that the function of social synthesis is exchange, which must be replaced by production, nor that head and hand are separated and that we need to unify them. Of course, these features of social existence need to be addressed. For Lukács, however, the possibility of a new social existence can only come about through the birth of a new subjectivity. And this is none other than the class consciousness of the proletariat. Class consciousness is the recognition that man himself has become a commodity[14]. For Lukács, this should, in principle, lead to the unmasking of social existence. The social structures and relations, which until then seemed to be external necessities, must mean for the new subject the realisation that he himself shapes his relations. This aspect of social consciousness in Sohn-Rethel's work is somewhat incomplete.

It is perhaps worth mentioning here, at the end of this introduction, that both the Frankfurt School and Lukács's major work, *History and Class Consciousness*, are celebrating their centenaries this year. Their significance and impact on European thought and Marxist philosophy are invaluable. But it is also important to bear in mind their differences. Lukács' work was partly written in the euphoria of the October Revolution, while the Frankfurt School, including Sohn-Rethel, was already characterised by disillusionment with the realities of the Soviet Union. Even this brief introduction highlights the critical difference. For Lukács, the class consciousness of the proletariat was to bring about a kind of messianic redemption[30]. In Sohn-Rethel, the history-forming force of the class struggle is barely discernible and focuses primarily on a critique of the autonomous, that is, Kant's pure reason. As Lukas Meisner writes in his commemoration of the centenary of the Frankfurt School, for the members of the school, "it was not class struggle [anymore] but 'reason' that determined the course of the world."[15] Beyond their differences and shifts in emphasis, in this work, I would also like to show how they complement each other and how their re-examination remains valuable and relevant for the philosophy of science.

[14] [13, p. 168]

1.3 Structure of the thesis

There are probably shorter introductions. However, given the subject's complexity, a slightly more detailed introduction was necessary at the beginning. I hope this will make navigating the next few chapters easier for the reader.

In the next second chapter, I will describe the Marxist methodology in Sohn-Rethel's interpretation. Here I will focus on the definition of concepts that will be important in the following discussions, such as the definiteness of form, real abstraction, false consciousness, etc. In addition, I will illustrate, using examples, the basic context of how social existence can influence the formation of our concepts.

The third chapter focuses on Sohn-Rethel's central work. We will see the methodological approach introduced in the previous chapter in action. Here I will include a detailed analysis of the real abstraction of exchange, the definition of the concept of 'second nature', and the process of the emergence of the autonomous intellect.

The final chapter compares Sohn-Rethel and Lukács. First, I will highlight the similarities between them. Lukács' analysis of Kantian epistemology is perfectly complementary to Sohn-Rethel's. However, as we shall see, there are also significant differences. These will serve as a starting point for discussing the more serious differences between the two.

I will conclude with a summary of the thesis.

2 The dialectical method

In this first chapter, I will review Sohn-Rethel's interpretation of historical materialism. This is important for several reasons: on the one hand, it provides an overview of the methodological stance of Sohn-Rethel's philosophical investigations, and on the other, it unravels the concepts that serve as the pillars of his work. For this, I will introduce and read two parallel texts supplementing each other. The first one is *Materialism and its Advocacy*[16] written in 1947, and the second one is *Der historische Materialismus als methodologisches Postulat*[15] (Historical Materialism as Methodological Postulate), which is an Appendix in his main book *Intellectual and Manual Labour* (*Geistige und körperliche Arbeit*)[4] published in 1970.

In the first section, after a brief introduction to the history of philosophy, I will place Marxism on the philosophical palette and highlight the roots of its radical innovation. To do this, I will use an account of the so-called 'methodological postulate' and a definition of the definiteness of form. After the theoretical introduction, I will describe Marx's object lesson in the second section. In this way and through an example of my own, I will illustrate the postulate presented earlier in concrete action. In the third section, I will discuss false consciousness, a phenomenon that can be discovered by applying the Marxist method. Finally, in the fourth section, historical materialism's concept of truth will be contrasted with the traditional understanding of truth.

2.1 The methodological postulate and real abstraction

With historical materialism, a radically new philosophy was born in the mid-19th century. Until then, European thought had been divided along two main lines: between (German) idealism and traditional materialism. It is

[15] It should be mentioned that a version of this text was added to the 1978 English edition of *Intellectual and Manual Labour* as Chapter 4, Historical Materialism as Methodological Postulate. However, this text is a rather abbreviated and heavily altered version, so I use the original German appendix as a basis, which is a much better supplement to the first article.

characteristic of both schools of thought that cognition is imagined along the lines of universally valid, abstract concepts (e.g. being, mind, etc.). The main difference between them is where they find the origin of these concepts. Idealism derives them either from the human mind (which is active and creative, as opposed to passive materialism) or from a transcendent absolute objectivity beyond human thought. Traditional materialism, on the other hand, locates the source of concepts in the objective material world. Hegel was the first to bring innovation to this dualist philosophy. Namely, he considered concepts as historical formations. In this way, concepts lost their time-independent nature. But he did this by assuming that history was an external force independent of man's will. The concepts, thus, remained idealistic in the sense of being given independently of human action. And although they may evolve historically, they have universal validity because history is an absolute transcendental force.

This is the Hegelian idea that, according to Marx, must be turned on its head. History should not be considered an external force (driven by the Spirit) but human history. It is the story of social development - how we have organised ourselves, reproduced our societies, and created social relations. Most of the time, however, these are not conscious actions. Once born into society, one is socialised according to the historically existing social order, the structures of which seem self-evident and natural. We take part in social relations almost automatically, without thinking about our actions. Thus, human thinking is heavily determined by the conditions of socialisation. Marx sums up this radically new view in what Sohn-Rethel calls 'the methodological postulate' of historical materialism:

> "It is not the consciousness of men, which determines their being but, on the contrary, their social existence which determines their consciousness.[7, p. 12]"

In this way, Marx simultaneously denounces both the Idealist idea that concepts derive either from the individual mind or something transcendent and the traditional materialist idea that they derive from the material world.

The forms of cognition are the results of historical and social relations, that is, concrete human actions.

However, this idea of Marx should not be interpreted as a dogmatic postulate, says Sohn-Rethel. In the first half of the above-quoted sentence, Marx uses abstract idealistic concepts such as 'consciousness' and 'being'. However, the use of these concepts should be understood only as irony. In the second half of the sentence, the Idealistic notions are getting liquidated by the appearance of the term 'social existence'. Emphasising the word 'social' annuls any pure abstraction in the manner of Idealistic philosophy. 'Existence' or 'being' as such cannot be imagined anymore, only embedded in the actual history of human society. This also applies to consciousness. If we understand consciousness as what is determined by the historical modes of social existence, it simply becomes "a name covering various specific ideas and forms of thinking which men have developed during the course of their history.[16]" Thus, 'consciousness' and 'being' cease to exist as universal abstract concepts, and they gain a concrete historical meaning.

Sohn-Rethel warns, however, that from this also follows that the postulate has no inherent truth from which, by pure deduction, new knowledge can be found or created[17]. The truth of historical materialism doesn't follow from the certainty of an apriori of reason, that is, from mere thinking. It requires object lessons and case studies to prove its point, hence it is a *methodological* postulate. In order to prove the truth of the postulate, any given knowledge (its formal features and its conceptual apparatus) at any historical point must be subjected to critical examination.

The starting point of this examination is to look at the 'definiteness of form' (Formbestimmtheit) of things. It indicates the form in which things appear to us in the web of social nexus. As mentioned earlier, the specificity of historical materialism is that it regards concepts (i.e., the forms of cognition) as social products. Therefore, our concepts of things reflect the social order by which we create our own existence. Consequently, our concepts have a formal specificity, the definiteness of form, which corresponds to the formal

[16] [16, p. 23]
[17] [16, p. 23-24]

nature of social relations. For example, when we think of space, most of us imagine a space with x, y, and z coordinates in the traditional container-like manner. This is due to the fact that the mechanistic worldview that gave rise to the idea of Cartesian space is still dominant in our everyday lives. Even though physics has surpassed this conception of space, we still reproduce our societies through the same logic of automatic mechanisms. But we are not aware of this. The definiteness of form, and mostly the nature of our own social existence as well, remains unconscious and hidden. Hence the feeling that the meaning of concepts is naturally given and universal. Thus, Sohn-Rethel states that "[t]he fully formed concept of the thing contains its definiteness of form, but in timeless manner; concealing its own origin."[18]

This, again, reinforces the distinction between Idealism and Marxism. From an Idealist perspective, there is no difference between the concept and the definiteness of form of a thing. In fact, an Idealist would deny that there is such a difference. However, as Sohn-Rethel suggests, Marx saw the definiteness of form as the carrier of social formations[19].

The question of the definiteness of form becomes particularly exciting in the context of abstract concepts. Consider how the meanings of abstract concepts such as Nature, virtue, God(s), etc., have changed in different societies throughout history. However, first, we need to explore the process of abstraction that creates these concepts. "A formation of consciousness from social existence presupposes a process of abstraction that is part of social existence."[20] This process is what Sohn-Rethel calls *'real abstraction'*. Using the term 'real', he indicates that abstractions are not merely thought-abstractions of the independent human mind. What is getting abstracted are actual, real, material, but most importantly, social interactions and processes. Thus, the forms of abstract concepts are not eternal universals but reflections of specific social relations.

These social relations can be very diverse. However, what is most decisive for the functioning of a society are the material conditions, the ways in

[18] Own translation; [4, p. 32]
[19] [4, p. 32]
[20] Own translation; [4, p. 214]

which we are able to create (i.e., produce) our very existence. Therefore, the relations of production in society and the development of the means of production are the most essential determinants of social existence. This is, "because they constitute the mediator through which natural necessity exerts its effects on human relations, indifferent to what humans know about it or what sort of concepts they possess."[21] Therefore, if we want to determine the definiteness of form of the concepts, we must first of all understand the relations of production of a given society.

The main argument here is that the building blocks of sociability and social existence are interpersonal human actions (i.e., relations of production), whose temporal processes give rise to real abstractions. This provides the definiteness of form of things from which we derive the concepts of human consciousness. The definiteness of form, therefore, contains the history of the actual social actions, the sources of abstractions. However, for our consciousness, these (real) abstractions and their forms are presented as timeless truths that are naturally given, hiding their real origin.

Nevertheless, Sohn-Rethel emphasises that this so far is nothing more than a hypothesis that has to be proven by empirical research. Otherwise, it would be only an a priori doctrine of an Idealistic epistemology. This is, however, a *methodological* postulate, meaning that:

> "[i]t cannot be justified out of or in itself, that is, by virtue of the concepts which serve to formulate it; and attempting to justify them conceptually is sheer folly since the point of view to be justified denies such conceptual prerogatives. Marxian materialism, then, (...) is not at all a doctrine that explicates the basis of all things, but altogether just a methodological postulate, namely a premise that commands a certain way of looking at things." [22]

Therefore, we need object lessons and case studies to prove our postulate and to avoid the accusations of being an Idealist. In fact, our postulate is not a mere presupposition at all but the result of research carried out by Marx

[21] Own translation; [4, p. 33]
[22] Own translation; [4, p. 33]

himself. Sohn-Rethel, therefore, continues by demonstrating the application of the postulate through the object lesson of Marx. After the theoretical introduction, it will be quite helpful to see the actual methodology.

2.2 Marx's Object Lesson

For a long time, Marx studied the history of classical political economics - the theses and claims of the discipline itself and its systemic thought patterns in general. As the first step, he did not examine the social reality of the time but rather the claims of contemporary economics (primarily by Adam Smith and David Ricardo) about social reality. The subject of his investigation was thoughts and ways of thinking, ergo human consciousness and not things. Marx believed that one must first analyse the concepts considered to be fundamental, such as profit, value, capital, etc., to gain a glimpse of reality[23]. Therefore, a critique of the given historical consciousness must be carried out to understand the true nature of social relations.

The analysis of historically given ideas and their concepts must be done on their own merits, however. Marx did precisely this; he took the Smith-Ricardian concept of value as it was presented and analysed it within the framework of contemporary economics[24]. In doing so, he discovered that the actual reality to which the concept of value refers is none other than commodity. He found that the concept of value, thought to be timeless, is a marker of the commodity's historical change[25]. This, then, reflects the social relations of the given historical epoch. For the nature of the commodity and its role in society are determined by the relations of production. Thus, by examining the concept of value, Marx discovered the social relations underlying the concept. With the help of this discovery, the socio-historical mode of consciousness can be established. Proceeding along this critical line, we see the methodological postulate in action: it starts from the standard set of concepts to be criticised, establishes the conditions of social existence and

[23] [16, p. 26]
[24] [16, p. 26]
[25] [4, p. 37]

infers the forms of thinking. Sohn-Rethel summarises the idea as follows:

> "Social existence is what *determines* a specific consciousness, a specific concept. But this determination of a concept must be understood as a precise definiteness of form, and firstly as what explains the *form* of the concept (Seinserklärung der *Form* des Begriffes), so the [methodological postulate] can only serve as a guideline to social knowledge as the form-genetic explanation of the phenomena of consciousness."[26]

What Sohn-Rethel is saying is that the concepts' content is essentially ignored. The methodological postulate of Marxism is not suited to tell, for example, what a commodity is in the physical sense. What the postulate can be used for is to examine the form in which we think about the commodity. This depends on the role of the commodity in society, which in turn is based on the relations of social existence. This is a crucial point, and that is why I illustrate it with another, perhaps more straightforward example. If we consider a society in which the Sun is a deity, we are not interested in the concept of the Sun as a specific physical, celestial body. What is of interest for the definiteness of form is not the relation of the concept to the object it refers to (in our case, the Sun). What Marx's postulate allows us to do is to reveal, through a critical examination of society, that the Sun appears in consciousness in the form of a deity. In this way, we can learn about social relations and how this concept reflects these relations in their form. Understanding the definiteness of form is, in fact, an investigation of how consciousness is shaped by social existence.

The object of our study is, therefore, first and foremost, human consciousness as determined by social existence. Within this, what is most compelling is the understanding of our own consciousness and our social existence. In the above passage, it may seem that any Marxist analysis is unnecessary since, without it, the difference between the Sun as a celestial body and a deity is evident. To outside observers, this is certainly the case. But let

[26] Own translation; emphasis in original; [4, p. 37]

us imagine that we ourselves are members of that society. We could not imagine the Sun without its divinity. And what would we say if someone said that the idea of the Sun as a deity is, in fact, a mask for our social relations? We probably wouldn't believe it. This is the state of false consciousness, a consciousness that does not know the reality of its own social existence. The methodological postulate serves precisely to make us aware of this reality. For this reason, the Marxian method can be seen as a form of self-knowledge, a way of overcoming our false consciousness. The problem of false consciousness, which we discover in practice as a direct result of our methodological postulate, is further discussed in the following section.

2.3 Necessarily False Consciousness

Since consciousness is determined by social existence, different forms of social existence can create different consciousness. Of course, we cannot speak of strict determinism, since not everyone thinks the same about everything in a given society. If this were the case, then our investigation would also become impossible. However, at every age, every society has those thought bases that everyone takes as natural, a given, or seemingly self-evident. Separating these thoughts from contingent and idiosyncratic thoughts requires great care and thorough analysis. This is what Marx did when he studied the political economics of his time.

As Sohn-Rethel writes, Marx originally wanted to find the natural laws of capitalist production in their purity[27]. Those internal 'natural' (naturwüchsiges) causalities that shape both bourgeois society and the ideas of people living in this system. These internal causal forces make people believe that they are already living in a humane society and that human life would be impossible without the causal forces of this society. This is, of course, false consciousness, which is none other than the consciousness for which its own social reality is veiled[28]. For false consciousness, things and their concepts appear seemingly natural and ahistorical (as I mentioned earlier in the ex-

[27] [4, p. 39]
[28] [4, p. 38]

ample about the Sun). For the members of the Sun-worshipping society, the concept of the Sun always appears in the form of a deity. This is, because the definiteness of form of the Sun is obscured, meaning that the social relations which determine this form are hidden from the consciousness. But, as Sohn-Rethel writes:

> "It is false consciousness in its genuine, false but unadulterated form. It is the best human part, the only pledge of hope there is that human beings will be able to create a humane society if the causalities of the unchangeable permit it or... make it necessary to bring about a humane society under the threat of our own self-destruction. The concept of truth depends on these false but unadulterated ideas..."[29]

False consciousness is, thus, not necessary to the extent that it is imposed on us externally, and it would be impossible to break out of it. Necessity means, first and foremost, that our societies have specific causal relations and that the formation of consciousness is primarily influenced by these social causal relations. But with the correct methodology, these relationships can be identified and overcome. After all, we are the ones with potentially necessarily false consciousness. It is we, our societies, who create it, but it is also we who can recognise it and get rid of it.

The most important thing to note about necessarily false consciousness is that it is not a 'faulty' consciousness. It is not that it is logically inconsistent, something that could be fixed and the problem would go away[30]. Necessarily false consciousness is, again, false in relation to social reality because it conceals the real nature of social existence. The overall Marxist approach to historical reality, according to Sohn-Rethel, can be summed up by answering one question: "What must the existential reality of society be like to necessitate such and such a form of consciousness?"[31] And he gives us the following four points: Necessary false consciousness is necessary...

[29] Own translation; [4, p. 39]
[30] [16, p. 27]
[31] [16, p. 27]

- in its logical consistency and systematic stringency;
- because it is caused by history and determined by historical development;
- because of the combination of the first two. What is historically necessary is also necessarily false by its genesis. The separation of the first two points is very sound, even for the Idealistic philosophies; this third point is fundamentally new and needs to be proven by Marxism[32]. Hence, it follows from this third point that the critique of consciousness leads to the critique of social existence. And the critique of social existence leads us to the recognition of real abstractions and the specific formal characteristics of consciousness. Through this continuous back-and-forth interaction, the critical standards of the method itself are constituted: consciousness serves as the standard for the critique of existence, and existence is the standard for the critique of consciousness. In this reciprocal, dialectical critique, the unity of consciousness and social existence is established. This provides the basis for the methodological postulate that effectively critiques the given.
- in its pragmatism. The ruling class must maintain its rule, but only as long as this is historically necessary. If the forces of production develop to such a degree that they eliminate the raison d'être of false consciousness, then social change must occur. Nevertheless, Sohn-Rethel admits that this fourth point must be reconsidered since it has only been a false prophecy so far. [33][4, p. 42]

Two crucial things can be found here. First and foremost, the fully unfolded picture of the methodological and philosophical nature of historical

[32] [4, p. 41]

[33] On this point, Sohn-Rethel does not explicitly explain what he means. Presumably, he is referring to the economic determinist direction of Marxism in the late 19th and early 20th centuries. According to this version of Marxism, we should already be living in a communist society since the development of the forces of production has already surpassed capitalism's mode of production.

materialism is the following: although it seems from the methodological postulate that social existence has some priority over consciousness, when applied in practice, we start from consciousness. Through its critical analysis, we learn about its actual social conditions, from which we can get a more accurate understanding of consciousness. This, however, does not contradict the postulate but proves that, for Marxism, consciousness is not detached from material existence, nor is it a hypostatisation of a conceptual consciousness in an Idealistic manner. Consciousness is embedded into the material conditions of actual history. Since we are part of social reality, our starting point can only be consciousness as we find it. This is because, at first, the true nature of social existence is also hidden from us. The back-and-forth movement between consciousness and social reality ultimately constitutes the dialectical methodological nature of the postulate.

Secondly, Sohn-Rethel notes in the fourth point that it is no longer evident what happens when false consciousness is no longer necessary. Historical experience shows that it does not necessarily lead to the social change that Marxists generally want to achieve. However, he does not give any explanation as to when and by whom it is possible to expose false consciousness and its conceptual definiteness of form. I will discuss this shortcoming of Sohn-Rethel in the fourth chapter. For the moment, let us contend with the fact that the methodological postulate provides an approach to exploring the formal features of consciousness and the real abstractions behind them. In so doing, he also indicates the main direction of the philosophical-scientific investigation of Marxism.

2.4 Truth Conceptions

According to Sohn-Rethel, Marxism has no task at all to deal with objects and their reality[34]. What Marx critically contrasts with the different forms of human consciousness is not an objective reality in the traditional sense, or matter, or the world as such regardless of any consciousness, but a historical reality with its social existence. Historical materialism examines the tempo-

[34] [16, p. 29]

rality of concepts about things as historical products. In this way, it is not the task of historical materialism to argue about the world's existence since the object of its investigation is primarily human consciousness. It analyses the thought structures along which we try to think about the existence of the world in general.

It follows that the concept of truth has a very different form and meaning for historical materialism than for the Idealist version. In Idealism, says Sohn-Rethel, truth is timeless and eternal. It is a cognitive ideal concerned with the relationship between the object and the concept that denotes the object. In contrast, the Marxist materialist concept of truth is rooted in our actual, time-bound social existence[35]. Thus, it expresses an existential truth, meaning that it refers to the relation between consciousness and the socio-historical reality in which it exists.

> "The qualification of that existential reality as *social* derives from the fact that one will always find, as a truth of existence, necessarily determined forms of consciousness to be genetically conditioned by the social orders of existence, not by individual existence. The individual never commands the conditions of his own existence."[36]

The time-bound dialectical logic of historical materialism is, therefore, visibly opposed to the timeless logic of the natural sciences. However, since the time-independent nature of the natural sciences can only be achieved by abstracting from time-dependent existence and in no other way, the root of this abstractness must be sought in socio-historical processes. "There is a time-bound cause for timeless logic."[37]

It is important to stress that for Sohn-Rethel, historical materialism does not primarily claim to provide more accurate or authentic knowledge of the phenomena studied by the sciences. After all, the notion of truth and the objects of inquiry from the two points of view are not even on the same plane.

[35] [16, p. 30]
[36] Emphasis in original; [16, p. 31]
[37] [16, p. 31]

The role of historical materialism is that it examines the sciences and their associated epistemologies (which, for Sohn-Rethel, primarily means Kantian epistemology and natural sciences) as historical phenomena with the methodology described above: "It is for the historical materialist to account for the rise of science in history..."[38] From this point of view, it can be understood that the purely abstract concepts of the pure sciences are not a priori concepts immediately given as such or merely mental abstractions but rather the products of the abstract social conditions of a specific historical era. The formal properties of cognition must be sought in the formal properties of social relations and processes, which influence and shape the forms of consciousness through real abstractions.

Interestingly, Sohn-Rethel does not explicitly write about how the methodological research he proposes and describes would affect the sciences. However, I think it is important to keep in mind that critical inquiry is not an attack on the sciences. In my view, by carrying out historical materialist investigations, the sciences can gain two essential aspects of self-knowledge. First, they can realise that their methodologies and certain formal structures of thought are not natural necessities of consciousness or nature itself but historical and social products. In this way, new, now conscious forms of cognition can emerge. Secondly, the sciences can recognise their role in social synthesis: the separation of intellectual labour from physical labour and its role in class conflict. This would ultimately eliminate the blindness of the sciences and intellectual labour to their own existential reality.

However, I did get a little ahead of myself. For now, we have laid out the methodological foundations used by Sohn-Rethel, indicating what can and cannot be investigated in the methodology described above. In the next chapter, I will present Sohn-Rethel's analysis, in which he finds the social roots of Kant's a priori notion of pure understanding and the possibility of pure (i.e., Newtonian) science in the formal properties of exchange and commodity form.

[38] [16, p. 29]

3 Commodity form and thought form

In the previous chapter, we argued that historical materialism has no inherent, purely conceptual truth since the underlying postulate serves only as a methodological principle. Therefore, it needs examples, case studies, and object lessons with which it can empirically prove its value. The example I used in the previous chapter of the concept of the Sun was a simple, illustrative tool. Any analysis becomes significantly more complicated when we consider actual epistemological concepts. That is the case if we turn to the real subject of Sohn-Rethel's work: the study of Kant's a priori categories of pure understanding. Using the methodological postulate, Sohn-Rethel tries to prove that Kant's epistemological categories are, in fact, obscuring social relations.

However, it is not only Kant's categories that are at stake but also the new science created by Galileo and Newton. As Sohn-Rethel claims, Newtonian mechanics was essential for Kant since it provided the basis for one of his central questions: how pure natural science is possible?[39] The new experimental, mathematical, and scientific methods provided the basis for the categories of quantity, quality, relation, and modality. As is well known, Kant derived these categories from the purely intellectual synthesising capacity of apperception. Not from perception or from its sensible materiality. As Kant writes, the "pure concepts of synthesis that the understanding contains in itself a priori, and on account of which it is only a pure understanding; for by these concepts alone can it understand something in the manifold of intuition, i.e., think an object for it."[23, A80/B106] This means that although experience is sensuous, its form is determined by the forms of the categories of pure understanding. The intellect determines the forms of cognition, which are given in advance. In other words, they have no origin and cannot be derived from anywhere; they exist in the intellect as such. "Since Kant conceives the concept of experience in such a way that it already includes form, the categories of understanding are, according to him, indispensable elements of the formation of experience in terms of their function.

[39] [10, p. 51]

However, in terms of their origin, they are independent of experience and are pure mental forms of everything sensible."[40] What holds these concepts together is what Kant calls the 'synthetic unity of apperception'. However, this synthetic unity is a mere presupposition designed to give Kant's system some coherence. Kant does not provide any explanation of its origin apart from the fact that it exists by virtue of its own transcendental spontaneity, which means that nothing can be known about its origin.

Any kind of apriorism or givenness of abstract concepts is incompatible with the position of historical materialism. For Sohn-Rethel, the root of all abstraction is real abstraction, that is, the result of a social action determining the forms of consciousness. Therefore, it is necessary to examine the definiteness of form of Kant's categories to find out what social relations they cover. According to Sohn-Rethel, the Kantian idea that the categories of cognition can only and exclusively be derived from the intellect also originates from a specific social relation, namely, from the separation of intellectual and manual labour. Not only are the two types of labour separated, but since all empirical experiences presuppose the forms dictated by pure understanding, physicality (i.e., manual labour) is completely subordinated to the intellect. This is a "de facto class rule of the intellectual worker over the manual labourers."[41] However, more is needed to explain where the categories stem from. Unless, of course, we accept their a priori nature. But if we do not do so, there must be a process of abstraction in the underlying social relations that corresponds in its formal properties to the formal determinations of the concepts of understanding. What follows now is the determination of a specific process of real abstraction that gives the definiteness of form of the a priori categories of pure understanding.

In the first section, I discuss the historical context described by Sohn-Rethel, in which the gradual separation of head and hand (i.e. intellectual and manual labour) began. I will also present his argument for why it can be excluded that abstraction arises from work processes. The second section will examine one of Sohn-Rethel's most important examples, the Galilean

[40] Own translation; [10, p. 52]
[41] Own translation; [10, p. 52]

concept of inertia. This example is used to illustrate that abstract concepts are indeed devoid of an empirical basis. This is followed by the third section, where the analysis of the formal determinants of commodity exchange, a central element of Sohn-Rethel's work, is presented. From this analysis, formal properties emerge that bear a strong resemblance both to Galileo's notion of inertia and to Kantian categories. The final section will examine how the forms of social action analysed above can enter and shape human consciousness.

3.1 Bypassing manual labour

One of Sohn-Rethel's central claims is that the abstract formal properties of epistemology and the natural sciences cannot be derived from production processes since this would mean that they depend on the direct experience and knowledge of manual labour. It is also true, however, that historians of science, regardless of their political and philosophical beliefs, are unanimous in asserting that the emergence and development of the natural sciences and capitalism are linked. Indeed, modern industrial capitalist production would be inconceivable without the technological innovations provided by the sciences. However, natural sciences' conceptual forms and methods long predate the 18th and 19th-century industrial revolutions. Drawing on the work of Leonardo Olschki[17], Sohn-Rethel dates this development to the Renaissance, when there was increasing cooperation between artisans and mathematicians, mainly for large-scale construction projects (such as regulating rivers, transporting heavy loads, constructing advanced fortifications, etc.). As he writes:

> "The application of theoretical concepts (or better, the search for them) and mathematical thinking to practical tasks begins at those points where, in the course of general economic development, the tasks take on a size or qualitative nature that fundamentally exceeds the possibilities of the traditional manual method of labour... The interest of this development for us lies in

> the fact that it manifests the end of the unity of head and hand in crafting, the dawn of the separation of the two. [42]

This historical argument from Sohn-Rethel is a fusion of various Marxist works on the history of science. It includes Zilsel's theory[18], which emphasises the cooperation of craftsmen and the academic, still scholastic mathematicians as an important precondition for modern science. It also draws on the works of Boris Hessen and Henryk Grossman[19], which describe the great construction projects of the age, the problems of transportation and the ballistics of the new cannon-based warfare as catalysts for Galileo's and Newton's mechanical worldview. In these processes, Sohn-Rethel discovers an intellect seeking independence from manuality. This intellect does not search for answers to specific crafting problems in their concreteness but seeks to grasp all phenomena and processes through the form of universal nature. He argues that although the various machines and structures were necessary stimulants to the natural sciences, their role in the production was marginal until the industrial revolution of the 18th century[43]. By the time the industrial revolution arrived, the conceptual forms of the natural sciences were already given, and all the new machinery specifically designed for production was treated with the formalism of time-independent universals.

> "Only by detouring via the general (and in itself disinterested) knowledge of nature does modern natural science serve the construction of special capitalist production apparatuses... According to its inner presuppositions, scientific knowledge of nature is independent of its purposes of application. Furthermore, the characteristic postulate of conceptual-logical immanence, which has dominated modern epistemology from the beginning until today, seems to grow directly out of the necessities of the scientific method itself."[44]

[42] [10, p. 54]
[43] [10, p. 54]
[44] Own translation; [10, p. 55]

The formal properties of quantifying science cannot be derived from physical labour. These conceptual categories appear, according to Sohn-Rethel, when social production goes beyond the logic of concrete manual production. It follows that the formal characteristics (i.e., definiteness of form) of the abstract concepts of natural science, which allow the application of mathematics to the description of natural phenomena, are not to be found in the labour processes, that is, in production.

3.2 Inertial motion

To illustrate the above statements, Sohn-Rethel gives the example of Galileo's concept of inertial motion. The principle of inertia is one of the first modern scientific abstractions that allowed the mathematical description of natural phenomena. Examining the concept of inertia, which seems completely self-evident and natural, we will discover that it lacks any empirical basis. Formally, therefore, it is a purely intellectual abstraction. Sohn-Rethel's analysis draws on the work of Alexandre Koyré[45], in the hope that the similarities in Koyré's anti-Marxist, idealist position will only strengthen his own Marxist approach[46].

Koyré notes that modern physics is inseparable from astronomy, or as he puts it, "modern physics has its 'prologue' and its 'epilogue' in the skies"[47]. According to the cosmology originating with the Greeks and prevailing even in Scholasticism, the world can be divided into two qualitatively and hierarchically distinct parts. The two spheres are also governed by different laws: the translunar sphere is characterised by uniform, precise geometric motion, while the sublunar sphere is characterised by inertia that induces a state of rest. Thus, motion and rest represent two different ontological orders. In comparison, the new science generalises and opens up the closed cosmology into an infinite universe. The principle of this unifying physics will be Galileo's concept of inertial motion.

[45] Alexandre Koyré: Études Galiléennes 1940, Newtonian Studies 1965, Études d'histoire de la pensée scientifique 1966

[46] [9, p. 733]

[47] [20, p. 333]

Out of curiosity, I decided to pick up the first volume of Feynman's justly famous *Lectures on Physics* to see how he defines the principle of inertia. His definition is as follows: "If something is moving, with nothing touching it and completely undisturbed, it will go on forever, coasting at a uniform speed in a straight line." [21, p. 129.] What is much more interesting for discussing our current topic, however, is Feynman's comment in brackets immediately after the definition: "Why does it keep on coasting? We do not know, but that is the way it is."[48] And exactly this is the point. This characterisation of the motion of bodies cannot be derived from any experience or observation. Koyré writes that "nobody has ever encountered an inertial motion for the simple reason that such a motion is utterly and absolutely impossible."[49] This motion presupposes an absolutely empty, unobservable space. What has happened here is that Galileo transformed real physical space into geometric space and described motion as a translation in this purely geometric space. Consequently, the body is completely indifferent to whether it is moving or at rest. Motion or rest is not a physical quality of the body but a mathematical geometric operation or state that does not change the body itself. (Later, this appears in Newton's modification, according to which "the only way to change the motion of a body is to use force."[50]) The body moving by itself is thus inconceivable and can only be described relative to other bodies. As Koyré writes:

> "We are equally well accustomed to the mathematical approach to nature, so well that we are not aware of the boldness of Galileo's statement that 'the book of nature is written in geometrical characters', any more than we are conscious of the paradoxical daring of his decision to treat mechanics as mathematics, that is, to substitute for the real, experienced world a world of geometry made real, and to explain the real by the impossible."[51]

And:

[48] [21, p. 129.]
[49] [20, p. 336]
[50] [21, p. 129.]
[51] [20, p. 336]

> "[I]t is thought, pure unadulterated thought, and not experience or sense-perception ...that gives the basis for the new science of Galileo Galilei." [52]

Sohn-Rethel sums it all up by stating that this new conceptualisation of nature banishes the working hand from perceptible reality. In terms of the form of scientific thinking, it is purely intellectual labour. The new scientist uses his hands only to produce or modify the conditions for observing the isolated phenomena. But the observer is now a purely 'intellectual subject' (Denksubjekt). In the course of the experiment, the scientist splits into two; into active understanding and passive receptivity, "and only in this coupling of 'spontaneity of understanding' and 'receptivity of the senses', to speak with Kant, does he fulfil the classical bourgeois ideal of the scientist."[53]

What is fascinating and peculiar about the new concepts of nature is that they derive from a process of abstraction that does not arise from either perceptible nature or pure thinking, that is, neither from the object of cognition nor from the individual subject. All this is a purely social abstraction.

3.3 Commodity exchange

Marx was the first to discover the abstraction that lurks beneath the exchange of commodities. He noticed that the logic of exchange requires an abstract equality that makes qualitatively different and incommensurable things exchangeable. It is necessary, therefore, to abstract from the physical and material properties of things during the exchange. The commodity is the abstract form in which things are not represented according to their different physical qualities (i.e., according to their usability) but as equivalent exchangeable things[54]. Exchange also requires a quantity in which the exchangeability of commodities is made possible. This quantity is a purely social value (i.e., exchange value), which is again abstracted from the materiality of the commodities. For example, shoes and bread are very different in

[52] [20, p. 346]
[53] [9, p. 738]
[54] [10, p. 65]

their physical nature and use. Yet, a hundred pieces of bread and two shoes can express the same exchange value. The magnitude of this social value, according to Marx, is determined by labour[55]. The reason for this is that the abstraction of exchange reduces commodities to their common denominator, human labour. So what determines how much bread is equivalent to a shoe is the labour required to produce them. As Marx writes:

> "Men do not, therefore, bring the products of their labour into relation with each other as values because they see these objects merely as the material integuments of homogeneous human labour. The reverse is true: by equating their different products to each other in exchange as values, they equate their different kinds of labour as human labour. They do this without being aware of it."[56]

According to Sohn-Rethel, the abstracting power of the equivalence inherent in exchange does not, therefore, derive from labour, much less from the consciousness of the commodity owners. The exchange abstraction is of social origin, which lies in the exchange relation itself, not in the nature of the commodity, neither as a means of use nor as a product of labour, nor in the relation between man and commodity, be it production or consumption. The exchange abstraction stems from a specific social relation, "in the relation of things to one another, but not as natural objects in physical processes, but as commodities in the pure social relation of exchange."[57] This explanation of abstractness is quite different from the language of traditional epistemology. In them, either things influence consciousness or consciousness imposes limits on things (i.e., the thing-in-itself is unknowable). That is why the traditional object-subject or matter-consciousness dichotomy of epistemology does not apply here since we are dealing with a concrete social relation as the source of abstraction. Therefore, abstract thought is the result of a real, objective, historical process[58]; namely, it is the result of the real abstraction

[55] [7, p. 22]
[56] [22, p. 166-167]
[57] Own translation; [10, p. 66]
[58] [10, p. 66]

of commodity exchange.

However, to draw implicit and explicit conclusions about epistemology from the formal analysis of the commodity exchange, Marx's work needs to be supplemented. By separating the form and the 'amount of the value' (Wertgröße), Marx discovered a historical process of abstraction, with which he was the first in the history of philosophy to provide a consistent materialist explanation of forms (compared to Idealism, which states that the forms are created by the inner capacity of thought in itself). But, since he primarily focused on its implications for political economics, he did not examine its processes and functionality in sufficient detail, and, thus, all the form elements inherent in them.[59] According to Sohn-Rethel, Marx's commodity analysis can be expanded without any further problems, which, if done, reveals the formal properties of Kantian epistemology.[60]

Before we go any further, one thing needs to be mentioned. This concerns the abstract nature of labour. As I mentioned above, the value of a commodity is determined by the labour required to produce it. However, the different kinds of labour must also be made equivalent. The earlier illustrative example of how much bread is equivalent to a shoe also expresses the fact that completely different types of labour are also made equivalent. Marx says, "[t]he labour which is equally embodied in all of [the commodities] must be uniform, homogeneous, simple labour."[61] This entails a similar abstraction as in the case of commodities. "Labor creating exchange value is, therefore, abstract general labour."[62] However, Sohn-Rethel makes an important distinction here:

> "The commodity value (Warenwert) has the abstracting (abstrahierende) exchange relation as its form and the abstracted (abstraktifizierte) labour as its substance. In this abstract definite relation (Relationsbestimmtheit) of the *value-form* (Wertform), labour as *value-substance* (Wertsubstanz) becomes the purely

[59] [10, p. 67]
[60] [4, p. 201]
[61] [7, p. 22]
[62] [7, p. 23]

quantitative determinant of the *amount of the value*."[63]

Unpacking this sentence, it turns out that, for Sohn-Rethel, labour is abstract only insofar as its products are exchanged in the form of abstract commodities. To this end, labour determines the amount of value. But the real abstraction occurs in the exchange, through the commodity form. In short, only the exchange has the power of abstraction. The labour, so to speak, only endures the abstraction of the exchange. That is why in Sohn-Rethel's analyses, abstract human labour does not even appear as a problem, claiming that the abstraction of labour is a purely economic issue.[64] From the point of view of epistemology, only the abstraction of exchange is relevant. I will discuss the implications of this in the next chapter.

3.3.1 Separation of use and exchange

As mentioned above, the abstract nature of the exchange consists, first of all, of the fact that it makes qualitatively completely different things equivalent. It achieves this by abstracting the goods from their physical, material nature, that is, from the properties that make a thing useful and usable. Therefore, physicality as use-value disappears in the act of exchange, or rather, is excluded from the social act of exchange. Sohn-Rethel writes that use value and exchange-value are antithetical because they cannot be mixed and are strictly separated in time.[65] As long as the owner of the commodity does not receive the sum corresponding to the commodity's exchange value, the actual, effective use of the commodity cannot occur. The only change that can happen is a social one, namely, a change in ownership. As long as the commodity's price is fixed, physical and material - in short, "natural" change - is excluded and forbidden.

The commodities can, of course, be tried out, but this demonstration is only intended to confirm the customer's decision to purchase and is not an actual, practical use. The object intended for exchange remains essentially

[63] Own translation; emphasis in original; [4, p. 219]
[64] [4, p. 219]
[65] [10, p. 68]

a commodity until the act of exchange (i.e., purchase) takes place. The actual use of commodities is only allowed in the private sphere of the owner; therefore, their use in the market (or store) is a mere illusion.

> "[T]he act of exchange is itself a physical action which physically deals with physical objects. The commodities are moved bodily from one owner to another in time and space, even though time and space also assume a peculiar abstractness in the context of this action. Still, the movement of the commodities in the market is of no less reality than the act of use, which it rules out. It is precisely because their reality is on par that both kinds of activity, exchange and use, are mutually exclusive in time and space. Thus, the physical reality of the commodities is affirmed as well as negated; in fact, it is affirmed as negated."[66]

So, even if the commodities are present in their entire physical reality on the market, their use for their intended purpose, that is, their use by their physical nature, is strictly prohibited until the act of exchange takes place. The commodity is there, but before the exchange, it is only present in the abstract social form of the commodity. This is what Sohn-Rethel means by the negative affirmation. Negative affirmation creates a separation between thought and action. In the individual's consciousness, the commodity appears as a physical object, a means of use. However, the abstract commodity form is dominant regarding the essence of the social act of exchange. A further consequence of this separation is that individualised private consciousness is not actually created in the private sphere through use but in the public sphere of market exchange.

> "It is not, then, the consciousness of the exchangers (Tauschenden) that is abstract. Only their action is."[67]

Here is where Sohn-Rethel's understanding of abstraction is most clearly revealed. The act of exchange is an actual physical process, an exchange of

[66] [11, p. 603]
[67] Own translation; [4, p. 221]

real material things in real space and time, but not according to the empirical experience of physical reality, but according to social demands and rules abstracted from them. In the exchange, society and nature get separated. This separation creates a new, so-called 'second nature' (zweite Natur). It is a purely social nature in which the empirical properties of physical objects are no longer decisive but the abstract social properties and relations of goods.

This is why Sohn-Rethel considers "pure abstraction in its genetic original form as a property of social being."[68] Pure thought is, therefore, possible but only through the 'socialisation of thought' (Vergesellschaftung des Denkens), rooted in the real abstraction of the exchange relation. Pure reason is, therefore, a social product. "The exchange abstraction is not thought, but it has the form of thought."[69] It does not create things but abstracts them into pure form for thought. Therefore, the exchange is not accidentally but necessarily abstract; otherwise, it would not be possible at all. However, it is very difficult to notice since the exchange expresses a negative action, a 'non-happening' (Nichtgeschehen), specifically the ban of use, all this without ousting its possibility from the actor's consciousness. In this way, thought is not directly influenced by the exchange abstraction but only post-festum. We only see its result, that is, the commodities as things but already in a specific form. As Marx writes: "The mediating movement disappears in its own result and leaves no traces behind."[70]

However, for second nature to become the dominant form of consciousness, it must become the synthesising function of society. Exchange abstraction can only become the 'vehicle of socialisation' (der Träger der Vergesellschaftung) in commodity-producing societies. The question for Sohn-Rethel, then, is how social synthesis is possible according to the forms of commodity exchange.[71] This requires a further analysis of exchange abstraction.

[68] Own translation; [4, p. 222]
[69] Own translation; [4, p. 265A]
[70] [12, p. 107]
[71] [4, p. 223]

3.3.2 Exchange abstraction

At first glance, it may seem that we are in immediate contradiction. On the one hand, we assume that the commodity exchange has a socialising capacity. On the other hand, commodities are private properties separated from society. However, the relationships between the owners are constituted and established according to the principles of private property. This does not have to be a conscious act. As Marx writes, "[t]hings are in themselves external to man, and therefore alienable. In order that this alienation (Veräußerung) may be reciprocal, it is only necessary for men to agree tacitly to treat each other as the private owners of those alienable things and, precisely for that reason, as persons who are independent of each other." [72] It is not just things that become alienated. By tacitly acknowledging the private ownership of commodities, the owners also reciprocally isolate themselves from each other. Commodity exchange is what establishes a relationship between private individuals, thus alienating them. Therefore, socialisation takes place, formally speaking, in the exchange of commodities between private owners. It is precisely for this reason, according to Sohn-Rethel, that the formalisms of commodity abstraction and social synthesis must be sought in the exchange relation[73].

The most basic formal element and logic of this relationship is mutual exclusion: what is mine is not yours and vice versa. What this logic entails is that interest also becomes private. All the ideas and needs expressed about the possessed thing, be it feelings or thoughts, are polarised according to the possessor. This mutual exclusion of private property and private interest is what Sohn-Rethel calls 'practical solipsism' (praktischer Solipsismus)[74]. The contents of the properties become solipsistically incomparable realities for the exchange partners. This solipsism is the expression of the interests of the opposing exchange partners. The reciprocal nature of this relation gives rise to the formal specificity that all interest-driven property exclusions in

[72] [22, p. 182]
[73] [4, p. 235]
[74] [4, p. 234]

the exchange are counteracted by an identical exclusion. The relationship between members of society is best characterised by this reciprocal dynamics of exchange, which is the movement of commodities between well-differentiated property relations.

It is a pure movement, that is, a purely social movement of abstract substances (commodities), which cannot change in the course of the movement and between which only quantitative distinctions are possible[75]. They are also indifferent towards movement since the property relations and their motion within them are not determined by the commodities themselves. Whether they are moving or at rest depends on external forces (i.e., property relations). All this happens in an abstract space and time, as use and exchange are strictly separated. The new abstract space has only a social meaning. It designates the space where an object can only be present in the form of a commodity and is subject only to the laws of commodity exchange. The same applies to time. Abstract time denotes the social time when the object is a commodity, meaning it cannot be used.[76] In the exchange of commodities, only and exclusively the second nature, that is, the social sphere of property relations and the movement therein, is represented.

The solipsistic realities, however, must be unified by something to which the exchange relation itself can be reduced. But this unifying form cannot be derived from physicality either, least of all from the physical determinations of commodities and their physical 'presence' (Dasein). This unit, which synthesises "civilised" societies, is itself a commodity, the most universal of all. It is money[77]. Money becomes the form of exchangeability and equivalence of commodities in which solipsistic realities (i.e., private interests) are synthesised. It expresses a universal quantity and value that means the same for all actors involved in the exchange. Of course, money itself is a social abstraction; it is universal, immutable, and can only have meaning for those who live in a money-using society. It expresses a concept of quantity and value with no empirical basis, only social meaning, for it is based on an action (and

[75] [10, p. 72]
[76] [10, p. 72]
[77] [4, p. 234]

not on thought!) that does not follow from the natural metabolic processes between man and nature. The exchange of private commodities excludes everything that is not human. Hence "[t]he abstracted unity of the world circulates as money between people, enabling their unconscious connection to a society."[78] Money is the carrier of exchange's real abstraction.

In money, a pure abstract quantity resulting from the abstraction of the exchange is expressed. Since, in exchange, an equivalence is established between the commodities, their quantity must be expressed in an abstract quantity, independent of such empirical quantities as weight, number of pieces, volume, etc. The equality of exchange eliminates these quantities associated with use and replaces them with a pure quantity. Like the equality of commodities, this is an abstraction of a relational nature, which is also linked to the action of exchange. If there is too much of one good or too little of another, or if ideal equality is not established, the exchange does not occur. It is in this abstraction that Sohn-Rethel finds the definiteness of form of mathematics[79]. This abstract quantity expresses the most fundamental mathematical relations such as $>, <, =$ in their purest, most universal form. "It is this absolute quantity of a relational nature, detached from quality in general, which underlies pure mathematical thinking as a definiteness of form."[80]

The next abstraction to be expressed in money is, of course, the concept of value. Although the fundamental postulate of exchange is the equivalence of qualitatively different commodities, the abstract idea of value helps to express and equate the qualitative differences. Of course, this does not happen according to the physical nature of the commodities. As mentioned earlier, the magnitude of value is determined by labour, namely, by the time required to produce the commodities. Thus, the equivalence of commodities is based on the comparison of human labour in labour time. This is the reason for the critical distinction that there is equivalence, not equality, between goods in

[78] Own translation; [4, p. 240]
[79] [4, p. 242]
[80] [4, p. 242]

an exchange[81]. The crucial consequence is that the value is also a mere social abstraction expressing the relational character of a concrete social action in a reified form. As Sohn-Rethelt writes:

> "[T]his apparent essence [of the value of the commodity] is nothing more and nothing else than a socially necessary relation growing out of the actions of human beings. In this act, the social relation of human beings is *reified* (verdinglicht), as it is shifted to the relation between commodities."[82]

Here we return, again, to Sohn-Rethel's departure from Marx, or as he sees his work, Marx's "Sohn-Rethelian" supplement, but now more explicitly. Unlike the standard Marxian interpretation, he finds the specific form of the commodity in the exchange process and not in the labour process. As mentioned earlier, for Sohn-Rethel, labour gives only the amount of value, not the form of value. As he argues, the amount of value is indeed given by labour, but only insofar as it takes on the abstract social quality of value-creating abstraction of exchange. The form of value for him is derived from the real abstraction of exchange, "which alone gives commodity exchange its social-synthetic efficacy, that is, which enables the private exchange of the individual products of labour to assert the coherence of social labour in the first place."[83] In short, the relation of exchange gives the value-form of the commodity, while labour gives the amount of the value of the commodity.

The obvious reason for this divergence is to explain Kant's epistemology. It is from this divergence that one of Sohn-Rethel's most "heretical" sentences derives:

> "The value form serves as the condition for the possibility of determining the amount of the value of the commodities. For only through the value form and its abstracting effect does the labour, reified in commodities, become commensurable and comparable

[81] [4, p. 242]
[82] Own translation; emphasis in original; [4, p. 243]
[83] Own translation; [9, p. 742]

in size. Without the real qua exchange abstraction, there is no equivalence of exchange."[84]

The language of the first sentence of the quote is almost entirely Kantian. We could even rephrase it as the necessary condition of the possibility of the amount of value is the value-form of exchange. This is not surprising, of course, insofar as Sohn-Rethel makes it clear from the outset that the formal specificity of the abstract concepts of Kantian epistemology and natural sciences derive from the purely social act of exchange and not from labour. This has to be the case; otherwise, intellectual labour would not be able to gain independence from and control over manual labour. Therefore, in Sohn-Rethel's philosophy, the purely social forms of private commodity exchange (i.e., second nature) are the necessary conditions for the forms of appropriated abstract human labour. According to him, this is the underlying purely social relation from where Kant's thought originates. "Understood in this way, the Kantian question belongs side by side with Marx's investigation of how production is possible as the valorisation process of capital, namely production according to laws not of production but of exchange, and exchange with the content not of exchange but of the appropriation of surplus product."[85] Experience (i.e., manual labour) has to be conditioned by the a priori categories of intellect, that is, the categories of exchange.

The extent to which this addition or modification of Marxian theory is appropriate and whether it raises problems will be discussed in chapter four. Even with all of this, we can see that Sohn-Rethel, by analysing the exchange process, came across a series of abstract social actions that strongly resemble Kant's categories and the basic abstract formalism of pure science. However, how and when this abstract social action enters one's consciousness and becomes thought remains to be answered.

[84] Own translation; [9, p. 743]
[85] Own translation; [4, p. 202]

3.4 Real abstraction and thought abstraction

As we have seen so far, the analysis of the private exchange of commodities reveals a purely social and formal abstract plane of relations, whose reality is embedded in, but at the same time abstracted from actual physical reality, that is, from first nature. The very substance of this socially constituted second nature is money through which "the specifically human in us gains its first objectified (gegenständliche), separate, objectively real (objektiv-reale) manifestation in history, set apart from animal nature."[86] It is the necessary result of a form of socialisation divorced from the natural character of all human activity. These activities or 'modes of operations' (Betätigungsweisen) - be it production, consumption, reproduction, etc. - are strictly relegated to the private sphere, whereas the only social form of connection is the act of exchange. The consciousness of the exchangers "is private and blind to the social-synthetic character of their act,"[87] because both the exchange process and the excluded physical processes have the same degree of reality.

Sohn-Rethel gives the term 'second nature' two meanings. Firstly, the so-far discussed character of social reality (i.e., socialisation through commodity exchange) and, secondly, the corresponding mode of cognition (i.e., cognition according to the formal characteristics of commodity exchange). As he argues, the definiteness of form of second nature is uniform, however:

> "[i]t is precisely its two-sidedness and the interconnectedness of both sides in the unity of this definiteness of form that is here for us to discuss thematically. We want to scrutinise their interconnectedness in how the ideal manifests from the real. Indeed, the ideal is understood according to its form as derivable, or, using Kantian language, as transcendentally deducible."[88]

There must, therefore, be a link, a form, that allows us to derive the formal properties of epistemology from the real abstraction of commodity

[86] Own translation; [9, p. 744]
[87] Own translation; [9, p. 744]
[88] Own translation; [9, p. 745]

exchange (i.e., social reality). This way, we can ultimately provide a historical materialist explanation of idealism.

This mediating form between the real and the ideal abstraction is, for Sohn-Rethel, none other than money. With the advent of coinage, what has hitherto been tacit and blind, that is, the unconscious action of private owners, enters from the purely social plane into concrete physical reality. With the emergence of the coin, a concrete physical matter is endowed with purely socially abstract qualities devoid of any empiricism. The material of money, being itself a commodity, cannot change physically as long as it functions as money, or, to put it differently, as long as it circulates in the second nature of social exchange relations. This presupposes a material which cannot be found in nature. This is why "it should be called a mere, non-empirical concept."[89] But, of course, this purely non-empirical concept does have a reality, a general reality, which applies "ipso facto for all those involved in the social circulation of this money, a reality of the highest conceivable degree of objectivity."[90] Nevertheless, there is nothing in the perceptual world that is an adequate representation of this general objectivity. All the materials with which people try to form money are only approximate equivalents of its true, purely abstract nature. This is not surprising since, during the exchange, the value does not necessarily manifest itself physically in its full purity. As Sohn-Rethel writes:

> "[T]his formal nature or formal *value-objectivity* (Wertgegenständlichkeit) of commodities, as Marx emphasises, never finds its own representation in the world of commodities since it can only ever be reflected in the use-value of the other commodity with which it is to be equated in exchange. This fully satisfies the requirements of commodity exchange as a field of practical human action since it goes without saying that there can be no object of factual action that is not made of real natural material... For this immaterial, precisely non-empirical material, from which coined money

[89] Own translation; [9, p. 747]
[90] Own translation; [9, p. 747]

should be virtually made, there can only be a genuine representation outside or beyond the entire field of natural materials and perceptual empiricism (Wahrnehmungsempirie), in other words: only in the form of the non-empirical or *pure* concept."[91]

Money and the value it represents is, therefore, the perfect abstraction without any empirical basis. Consequently, no material can express its essence. The only thing that can truly represent money and value is the pure concept.

This also applies to each of the elements of real abstraction, that is, to the abstract formal determinations of the exchange relation outlined earlier. It is precisely this kind of conceptuality that is the basis of intellectual labour, which manifests itself most explicitly in the subject-object problem[92]. This traditional problem of epistemology is precisely about the fact that the knowledge of the subject is only a representation of the object to be known. It is only a representation because the sharp separation of subject and object removes the element of mediation. As a private observing consciousness, the subject can only relate to the world outside its consciousness through the senses. But the senses are deceptive, and we must doubt them. This doubt is expressed in Descartes' purely intellectual ego cogito[93] [24, p. 8]. For Sohn-Rethel, the notion of the subject as a private consciousness with its own solipsistic experience, which regards everything outside itself as an object, can only arise from the exchange of private commodities. The problem of the subject and the object "arises in the course of the transformation of the original spontaneous relation of exchangers within the exchange abstraction into the relation of the individual commodity owner to money, to his money, which he spends, or to the money of others, from whom he takes it."[94] The

[91] Own translation; emphasis in original; [9, p. 747-748]

[92] [9, p. 750]

[93] In his book, *The Search for Truth by Natural Light*, published after Descartes' death, a rephrased version of his famous sentence appears: "dubito, ergo sum, vel, quod idem est, cogito, ergo sum." ("I doubt, therefore I am — or what is the same — I think, therefore I am.") Source of the quote: https://www.wikiwand.com/en/Cogito,_ergo_sum

[94] Own translation; [9, p. 751]

subject-object relation expresses the owner's reified relation towards the commodities mediated by money. Thus, in the social-synthetic formal function of money, man recognises himself as an observing subject and the world as an object. The abstractions of this new relation and identification can only be recognised through the reified forms of money. Sohn-Rethel concludes, therefore, "that man's conceptual or theoretical capacity for cognition - and, thus, the divorce of an intellectual task from the physical and manual necessities of production - comes about as an outgrowth of the process of reification."[95]

Although Sohn-Rethel does not say this explicitly, the reified intellect does not see its own mediation, the social action that constitutes itself. "The exchange abstraction is not thinking but takes the *form* of thinking."[96] Kant recognised these formal determinations and made them pure categories of reason. However, since, in the exchange, the physical connection with the world (or first nature) ceases, he could not see where the forms came from. Thus, the categories became the pre-given properties of pure understanding and, consequently, the mediators of the relation between subject and object (i.e., man and the world). Moreover, precisely because of their "pre-given nature", they appear as external and natural forces over which we have no control but are already posited. That socialisation occurs through the commodity exchange remains hidden, and its non-empirical real abstraction is consolidated into natural forms of the intellect.

In fact, these are the normative postulates necessary for the creation of exchange and serving social stability. To give a few examples: the use of the goods must wait until the exchange; the goods cannot undergo a physical change during the exchange; the alienation and acquisition of things between private owners is a condition of interchangeability; etc. None of these express any factuality; these are only social norms. They become factual laws only if an exchange takes place. "This is exactly how abstract nature is related to phenomenal nature in the concepts of pure understanding: they are epistemological concepts for the necessity that is included in the actuality of every

[95] Own translation; [9, p. 752]

[96] Own translation; emphasis in original; [4, p. 265A]

natural event as a condition of its own possibility."[97] This means that the a priori categories are necessary for cognition insofar as this form of cognition is desired, and the possibility of this "is included in the actuality of every natural event"[98]. The eternal laws of abstract nature are, therefore, social norms; the universalism of epistemology reflects the postulates of purely social real abstraction in consciousness. The resulting intellectuality is a reflection of the social abstraction of money, which is completely blind to its own social genesis. According to Sohn-Rethel, the abstraction of money and exchange explains the phenomenon of purely intellectual thinking - the separation of head and hand[99].

From this also follows that the head, thus made autonomous, is, in fact, only capable of thinking according to the forms of social synthesis. "It is the property of thinking in a fully socialised (vollvergesellschaftet) form."[100] This means that the same form of thinking applies to all individuals in commodity-producing societies since it results from the formal abstraction of money. "Thinking in this form has, moreover,... the intellectual *pro cura* [power of attorney] of society. It thinks *for* society in the literal sense."[101] This is thinking in a purely social form, which is, thus, also purely intellectual and inextricably separated from the acting hand. "It would not be wrong to say that it is society, its synthesis, which thinks in the functions of the mere intellect. Social synthesis blindly establishes itself as the *pure* or mere intellectual subject of thought..."[102] The subject of social thought is no longer concerned with practical action but separates from it and contemplates according to the necessities of social synthesis. Turning its back on its social origins, it observes nature as an object world, equipped with the logic of universalism and timelessness. And although the abstract intellect, according to Sohn-Rethel, "provides objectively valid knowledge, it does so

[97] Own translation; [4, p. 271A]
[98] Own translation; [4, p. 271A]
[99] [4, p. 272A]
[100] Own translation; [4, p. 281A]
[101] Own translation; emphasis in original; [4, p. 281A]
[102] Own translation; emphasis in original; [4, p. 282A]

with a false consciousness."[103] The separation of the autonomous intellect from its own genesis accounts for all the dichotomies of modern philosophy (including the philosophy of science).

The obvious solution for this issue for Sohn-Rethel is the unification of head and hand. What this means for him and what problems may arise based on his analysis so far will be the next chapter's topic.

[103] Own translation; [4, p. 281A]

4 Class consciousness and the unity of head and hand

Let us turn to a critical examination of Sohn-Rethel. In the previous chapter, it was repeatedly mentioned that Sohn-Rethel departs from the standard direction of Marxism; namely, he treats the abstraction of human labour in a peculiar way. He regards labour as abstract only insofar as its products are ultimately commodities. It is not labour that is abstract, but its products. This is a significant departure from the standard Marxian orientation, where one of capitalism's most important features is that labour becomes a commodity and, thus, abstract. But for Sohn-Rethel, the problem of the commodification of labour does not arise in connection with the emergence of capitalism. We can notice that for him, commodity and labour are constant concepts across the ages. However, this goes against the spirit of historical materialism. To understand precisely how capitalist society differs from the previous ones (for example, from ancient Greek society), I refer to the works of György Lukács. Similarly to Sohn-Rethel, he also focuses on epistemology and reification, which can be understood from "the riddle of commodity-structure"[104]. However, two things can be noticed if the distinction between Lukács and Sohn-Rethel is expounded. One is that with the development of capitalism, Sohn-Rethel's analyses become less and less adequate. The other is that his proposal raises problems concerning the unity of head and hand.

I will begin the discussion a little further away as a starting point. In the first part, I present Lukács' critique of Kant's epistemology and complement it with the work of Sohn-Rethel. I do this for two main reasons. First, I want to show that the two works have much in common and complement each other. Secondly, we can learn some of Lukács' insights that will prove relevant later. Lukács' epistemological analyses continue in the second part, but the first contrast between him and Sohn-Rethel emerges. An explication of the difference between the two follows. In the third section, I will focus primarily on showing why, for Lukács, ancient Greek and modern capitalist societies

[104] [13, p. 83]

cannot be described as commodity-producing societies in the same way as Sohn-Rethel does. The fourth section is perhaps the most challenging part of the whole text. Here I am trying to highlight the problem that Sohn-Rethel uses a single commodity concept without distinguishing between the different commodity concepts of different periods. Therefore, in the last section, I argue that Sohn-Rethel makes a serious mistake in his analysis of modern capitalist production. It is precisely for this reason that the unity of head and hand, as Sohn-Rethel presents it, is not in itself sufficient to transcend the limits of reified consciousness. In any case, Sohn-Rethel's recommendations must be complemented by Lukács' notion of class consciousness.

4.1 The antinomies of autonomous intellect

Lukács states that "[m]odern critical philosophy springs from the reified structure of consciousness."[105] One of its most important distinguishing features from the philosophies of earlier ages is expressed most explicitly by Kant's notion of the 'Copernican turn'. Of course, this choice of words is somewhat misleading. For Copernicus switched from a man-centred geocentric worldview to a heliocentric one. Kant, in contrast, turned back to man as the centre of knowledge. Whereas in the earlier philosophies, human knowledge always had to conform to the object of cognition, the situation is reversed in the new Kantian epistemology. The object of cognition must, so to speak, adapt itself to the forms of cognition of the human intellect. "[M]odern philosophy... refuses to accept the world as something that has arisen (or, e.g., has been created by God) independently of the knowing subject, and prefers to conceive of it instead as its own product."[106] This idea does not originate with Kant, but it is clearly with him that it reaches its most radical form. With the Copernican turn, the forms of cognition are entirely the product of pure intellect. To the creation of this new autonomous knowledge, the "methods of mathematics and geometry (the means whereby the objects are constructed, created out of the formal presuppositions of objectivity in gen-

[105] [13, p. 110]
[106] [13, p. 111]

eral) and, later, the methods of mathematical physics"[107] are constitutive. The cognition limited to these formal methods is what Lukács calls 'modern' or 'bourgeois rationalism'. "The question[, however,] why and with what justification human reason should elect to regard just these systems as constitutive of its own essence ...never arises."[108]

It may seem that we immediately run into a contradiction with Sohn-Rethel. How is it possible that the autonomous intellect, separated from the hand, itself creates the conditions of cognition? However, the contradiction is only apparent. If we consider what Sohn-Rethel says, namely that "[m]anual labour creates the things of which theoretical reason considers only the *appearance*"[109], then we can see that the autonomous intellect is quite limited. The Copernican turn's condition-creating subject is only a narrow subjectivity because it is limited to the cognition of appearances. For Lukács, this limitation is embodied in the Kantian notion of the *thing-in-itself*. For Kant, this concept denotes the objective presence of things independently of cognition. As such, anything in itself is unknowable, and therefore the essence of all things transcends human cognition. According to Lukács, the thing-in-itself, thus, "represent[s] a limit, a barrier, to the abstract, formal, rationalistic, 'human' faculty of cognition."[110] However, Lukács does not explain how this new subjectivity, its forms of cognition, and the notion of the thing-in-itself are connected to the commodity-structure. To make this connection clear, we must turn back to Sohn-Rethel.

Recall that Sohn-Rethel discovered the origin of abstract concepts in the purely social action of commodity exchange. He points out that exchange can only occur if equivalence is somehow established between qualitatively different objects. This is only possible if we abstract from the physical nature of the objects and consider them in terms of the socially created principle of equivalence. This social abstraction of things was second nature, where objects are not viewed according to physical nature but by social character.

[107] [13, p. 112]
[108] [13, p. 112]
[109] Own translation; emphasis in original; [4, p. 207]
[110] [13, p. 114]

Therefore, for an object to be exchangeable, it must *appear* according to the abstract social forms of the second nature. These abstractions are embodied in the social form of commodity, in which both the active use and the labour that produced the object are "forgotten". As we have seen in the previous chapter, the private owner, as the subject of exchange, perceives the actual nature and origin of the object in negation. The object is present in its actual physical form, but in terms of the act of exchange, it appears in its purely social formation as a commodity. Now we can connect the basic notions of Kant's Copernican turn with the commodity-structure. The subject who creates the conditions of cognition is the subject of exchange. It is active and creates forms of cognition insofar as it participates in the exchange and represents the object in the appearance of the abstract commodity form. Constitutive of this social act, the commodity's usability and physical nature are excluded; hence we get the notion of the thing-in-itself.

> "Social synthesis through commodity exchange excludes any practical contact with nature since the social synthesis of private commodity owners is based solely on their decision in their negotiations and contracting for commodity exchange."[111]

Cognition of an object is possible only if the object conforms to or appears according to the formal laws of second nature.

This, however, creates a contradiction for modern rationalism. If we accept as rational knowledge only that which appears and can be described according to the forms of the second nature, then the materiality of the first nature becomes irrational. This is expressed in the form-content problem of modern philosophy. The problem is how to relate the forms of cognition we have created to their content. To put it differently, the question is how to reduce irrationality to rational elements. For Lukács, this problem "can be seen at its crudest in the question of relating sensuous content to the rational form."[112] This is because, in this case, "the existence and the mode

[111] Own translation; [3, p. 321B]
[112] [13, p. 116]

of being of sensuous contents remain absolutely irreducible."[113] Why this is so, Kant himself explains. With Kant, we call something an object if it can be sensed in space and time. But nothing can be known about an object and its existence beyond the senses. "Meanwhile, we can call the merely intelligible cause of appearances in general the transcendental object..." However, this transcendental object "is given in itself prior to all experience."[114] Here, then, we return to the problem of the thing-in-itself. We cannot acquire knowledge of the entire existence of an object, but only as much as the forms of perception allow. But for Lukács, the concept of the transcendental object poses an even more serious problem. A problem that could potentially jeopardise the whole Copernican turn:

> "[A]re the empirical facts to be taken as 'given' or can this 'given-ness' be dissolved further into rational forms, i.e. can it be conceived as the product of 'our' reason?"[115]

As Lukács summarises, Kant realised that pure reason could not solve this problem and give a consistent definition of an object. To solve this problem, Kant introduced an idea of spontaneity, namely the concept of 'possible experience'. Contingency, thus, enters the Kantian system, a leap that cannot be deduced from the formal rationalistic system. To better understand the problem and to arrive at the first confrontation between Sohn-Rethel and Lukács, we need to understand and characterise the system itself.

4.2 Totalizing system

The peculiarity of modern epistemology, according to Lukács, does not lie in the Copernican turn per se but in the fact that it regards modern rationalism and its methods (mathematics, geometry, mathematical physics, etc.) as the only form of human cognition. Only these methods are considered

[113] [13, p. 116]
[114] [23, A494/B522]
[115] Emphasis in original; [13, p. 116]

legitimate, by means of which it is possible to acquire "the knowledge of the world as a totality".[116] The question of why this is so is not even a problem for philosophy. It seems to be tacitly accepted by all. However, this "appears naive and dogmatic even in the most 'critical' philosophers, of formal, mathematical, rational knowledge both with knowledge in general and also with 'our' knowledge."[117] Of course, it should also be added that rationalism has existed in different times and forms before. The root of all rationalism, according to Lukács, is that it is, first and foremost, a unified formal system. This system attempts to capture that part of a phenomenon that can be controlled by reason and ordered (predicted, calculated) according to the forms of the system. To this extent, the subjectivity of the Copernican turn is not a fundamentally new idea. However, identifying the formal system with cognition in general and its extension to the whole world has never been done before. As Lukács states:

> "What is novel about modern rationalism is its increasingly insistent claim that it has discovered the *principle* which connects up all phenomena which in nature and society are found to confront mankind. Compared with this, every previous type of rationalism is no more than a *partial system*."[118]

However, turning formal systematisation into *the* principle is only possible with difficulty. As long as the formal, rationalistic system remains a partial system, the emergence of irrationality does not pose any problem. The two aspects can be said to be independent of each other. However, the moment the formal system is taken to be the universal method, any irrationality is a potential threat to the whole system.

Here we return back to the problem of the thing-in-itself. If the transcendental object is something that is given, that is, something that precedes the forms of experience determined by the intellect, then it is necessarily

[116] [13, p. 112]
[117] [13, p. 112]
[118] Emphasis in original; [13, p. 113]

irrational. It is simply outside the rational forms of reason, and this is unacceptable for a system that seeks to capture the totality of knowledge. All connections must be necessary within a rational system, "i.e. as visible in or 'created' by the forms themselves, or at least by the principle according to which forms are constructed."[119] After all, this allows each aspect of the system to be calculable and predictable (i.e., knowable) according to the principle of systematisation. It follows that "any 'facticity' [or] a 'content', which in principle cannot be deduced from the principle of form and which, therefore, has to be accepted as actuality"[120], is irreconcilable with the system. Actuality implies contingency, which would destroy the idea of a subject determining the conditions of cognition.

How to reconcile this issue is not self-evident. In fact, it seems insoluble. For either we deny the existence of irrationality, or irrationality is assumed to penetrate the form, that is, the system's structure. In the first case, we would end up with dogmatism simply because existence would only be possible according to the defined rationalistic forms. There would be nothing outside of them.[121] In the second case, if we allow contingency to be part of the structure, the system itself would diminish. The connections between the subsystems would cease to be necessary (i.e., logically related), and instead of a rational system, it would simply be "a register, an account, as well ordered as possible, of facts".[122]

According to Lukács, this is an essential point for the later development of modern philosophy. It is at this time that philosophies appear that either explicitly or implicitly abandon the problem of form and content. They brand all ontological questions as fictitious metaphysics and focus on understanding isolated phenomena. This specialisation allows for the continued undisturbed use of the formal rationalistic system. Indeed, the system can even be modified according to the areas of specialisation. But in doing so, they give up the opportunity "to achieve a unified mastery of the whole realm

[119] [13, p. 117]
[120] [13, p. 117]
[121] [13, p. 118]
[122] [13, p. 118]

of the knowable. (Indeed any such attempt is dismissed as 'unscientific')."[123] Lukács points out that the specialised sciences themselves grow out of the insoluble problem of form and content. In fact, they owe their exactness to this. As he says:

> "Their underlying material base is permitted to dwell inviolate and undisturbed in its irrationality ('non-createdness', 'given-ness') so that it becomes possible to operate with unproblematic, rational categories in the resulting methodically purified world. These categories are then applied not to the real material substratum (even that of the particular science) but to an 'intelligible' subject matter."[124]

The formal system, thus, becomes both a means and an end in itself. It simply disregards the underlying irrationality. Meaningful (i.e., rational) questions and answers will be those that meet the formal requirements of the system.

We find many similarities if we compare this analysis of Lukács with Sohn-Rethel's writings. There is nothing surprising in the fact that the autonomous intellect finds itself at a dead end following its own formal determinations. The form-content problem is inherent to the abstraction of exchange. This is because second nature abstracts from precisely those qualitative properties that could imbue the commodity with actual physical content. Remember, the possibility of any physical change during the exchange is absolutely excluded. Thus, the form and value of a commodity are stabilised by the fact that it remains unchanged throughout. Contingency and actuality, therefore, have no place in second nature. The commodity is a mere form for the act of exchange. Its physicality is negatively affirmed, so it effectively has no content (i.e., usability), only value. While value, which is embodied in money, is the perfect calculable abstract form with no actual physical content at all.

Sohn-Rethel also argues that purely intellectual thinking is thinking according to social synthesis. Since commodity exchange synthesises the whole

[123] [13, p. 120]
[124] Emphasis in original; [13, p. 120]

of society, it also represents the totality of it. Therefore, "this form is identical to the thinking of all individuals in commodity-producing societies."[125] Consequently, thinking in terms of social synthesis tries to describe everything as a total system according to its own forms. It is differently formulated but still in line whit Lukács' analysis. The first confrontation between Sohn-Rethel and Lukács arises from the fact that Sohn-Rethel is not very specific about the differences between the different historical eras. In the last quote, he uses the term 'commodity-producing society' to refer to ancient Greek and modern European capitalist societies. Lukács acknowledges that "reification did play a part in Greek society in its maturity."[126] However, he also notes that the philosophical problems of antiquity were of a different nature, being embedded in a different kind of society. Sohn-Rethel is also aware of the differences between the forms of philosophical and scientific thought but does not explain the qualitative differences. For him, commodity exchange is responsible for social synthesis since abstraction occurs only and exclusively in exchange. Therefore, he considers ancient Greek society as a commodity-producing society as well.

By this logic, however, Greek philosophy would have faced the same problem of a total rational system. But this was not the case. Nevertheless, Sohn-Rethel tries to draw parallels between the philosophical concepts of the two periods. One example is the parallel between the Greek concept of *nous* (intellect) and the ego cogito, or transcendental subject.[127] And although similarities between these concepts can indeed be discovered, the Greek *nous* never became a universal category as did the transcendental subject. Also, Sohn-Rethel gives no account of how the specialisation of sciences derives from the formal structure of second nature. According to Lukács, the explanation for the similarities between the two ages, but perhaps more importantly the differences, "lie in the fact that Greek philosophy was no stranger to certain aspects of reification, without having experienced them,

[125] [4, p. 281A]
[126] [13, p. 111]
[127] [4, p. 282A]

however, as universal forms of existence".[128] On this point, Sohn-Rethel and Lukács differ substantially.

4.3 Commodity as a universal category of society

The difference between the two philosophers is due to the fact that for Sohn-Rethel, there are no qualitative differences in reification. As we have seen in the previous chapter, for Sohn-Rethel, the appearance of money is the decisive factor in the context of reification. For it is in money that the essence of the abstract social act of commodity exchange is embodied. The purely abstract form of value becomes a physical object. It is money that makes possible the equivalence of commodities divorced from their physical nature. However, money not only expresses the abstract nature of commodities but also plays a mediating role. Through the mediation of money, the owner is linked to his private property, and money also mediates the relationship between the exchanging parties, that is, the members of society. This is why Sohn-Rethel refers to ancient Greek society already as a 'commodity society' (Warengesellschaft) since he dates the coinage of money to the trading of the Greek polises in the 6th century BC. Although he acknowledges that in antiquity, money was primarily limited to trade (i.e., circulation) and did not yet play a role in production[129], he considers this irrelevant to the abstract form of the commodity and value. For Sohn-Rethel, the concept of commodity value is the decisive factor. This is to remain consistent in one of his central claims; namely, that science only became involved in production processes later, during the 19th century. Thus, its abstract conceptual apparatus does not stem from capitalist production. Or, as he puts it:

> "Capital and natural science are potencies of second nature and, therefore, stand in a complementary relationship. Although capital did not create natural science and natural science does not arise in subsumption under capital but rather in full systematic independence, both arise from one and the same social root.

[128] [13, p. 111]
[129] [3, p. 322B]

> Specifically, they arise from the real abstraction of the commodity form, which abstracts from the nature of the commodity material. That is, from an abstract process where the commodity form becomes a form of socialisation independently from manual labour and transfers or reverses to the functions of property, money, and capital."[130]

Capitalist production and science developed in parallel but independently of each other. In many respects, this statement may be true. However, if abstraction and reification come about only and exclusively through exchange, it also follows that Greek philosophical thought has been reified in the same way as modern European thought.

In contrast, Lukács argues that commodity fetishism is a specific problem of modern capitalism. Of course, he acknowledges that even in very primitive societies "commodity exchange and the corresponding subjective and objective commodity relations existed"[131]. However, the crucial question regarding reification is that "how far is commodity exchange, together with its structural consequences, able to influence the *total* outer and inner life of society."[132] It is not enough for the commodity exchange to be merely present in society to become its determining factor. It can be limited to a sub-area without immediately becoming an influential element of society. "The distinction between a society where this form is dominant, permeating every expression of life, and a society where it only makes an episodic appearance is essentially one of quality."[133] This is why, by the logic of Lukács, ancient Greek society cannot be called a 'commodity society'. As noted above, Sohn-Rethel himself states that the structure of commodity exchange was limited to circulation and that production remained completely independent. Money can have an abstracting power, but its mere existence does not mean that commodity exchange becomes the main function of social synthesis.

[130] Own translation; [9, p. 796]
[131] [13, p. 84]
[132] Emphasis in original; [13, p. 84]
[133] [13, p. 84]

A crucial element in Sohn-Rethel's analysis is that in the exchange process, the use-value is excluded, and the exchange-value becomes the only relevant element. In doing so, he implies that the commodity becomes a commodity only and exclusively because of the exchange. Recalling the previous chapter, I called the following quote from Sohn-Rethel "heretical":

> "The value-form serves as the condition to the possibility of determining the amount of the value of the commodities. For it is only through the value-form and its abstracting effect that the labour reified in commodities becomes commensurable and comparable in size. Without the real qua exchange abstraction, there is no equivalence of exchange."[134]

He claims that exchange creates the form of the commodity and, consequently, the form of value. If we assume this statement is true, then both the concepts of commodity and value are fixed forms independent of time and historical epochs. The commodity, and its value, always, in all societies, denote the same thing. And Sohn-Rethel is aware of this. As he writes, the specific abstraction of commodity exchange is "contained in commodity traffic as such, regardless of its degree of development, economic background, historical point in time, etc."[135] Not very faithful to the method of historical materialism, Sohn-Rethel, thus, universalises both the exchange of commodities and the concept of the commodity itself. For him, every commodity is always and at all times a commodity in the same sense, irrespective of the conditions of production. However, this is not the case.

The nature and essence of commodities can change through the course of history. To see this, it is enough to consider how Marx characterises the appearance of surplus-value specific to capitalist production:

> "The product of capitalist production is neither a mere product (a use-value), nor just a commodity, i.e. a product with an exchange value, but a product specific to itself, namely surplus-value. Its

[134] Own translation; [9, p. 743]
[135] Own translation; [4, p. 258A]

> product is commodities that possess more exchange-value, i.e. represent more labour than was invested for their production in the shape of money or commodities."[136]

Surplus-value is the result of exploited wage labour. It appears when the commodity structure permeates so deeply throughout society that labour itself becomes a commodity. The product of wage labour is already a commodity (i.e., abstract) before it reaches the market. Therefore, the commodities produced in capitalist societies cannot be treated in the same way as in earlier historical epochs.

The same applies to labour. Anselm Jappe comes to the same conclusion but from the opposite direction. He argues that Sohn-Rethel universalises the concept of labour. He creates a kind of "ontological vision" of it, "as something identical to productive activity, something that has existed always and everywhere. In reality, in pre-modern societies, there is no separation between what we call 'labour' and other activities such as ritual or play or community life."[26, 11] As Jappe writes, the different activities were qualitatively differentiated according to their own specific characteristics, "instead of them all being reduced to one aspect: the time expended as 'labour'."[137] The abstract human labour (that Sohn-Rethel consistently neglects), and labour in general, is a feature of capitalism.

The appearance of capitalism is the point of historical development where, according to Lukács, "the reification produced by commodity relation assume decisive importance for both the objective and subjective evolution of society."[138] Or, to put it differently, the commodity itself becomes the universal category of society. This point, however, needs further elaboration, as it is a very important difference for future discussions.

[136] [22, p. 1001]
[137] [26, 11]
[138] [13, p. 86]

4.4 The contemplative intellect

To better understand the difference between Lukács and Sohn-Rethel, it is essential to clarify when and how, for Lukács, the reified structure of social relations enters human consciousness. For him, what characterises the reified consciousness is its 'contemplative attitude' or behaviour[139]. This attitude is to be understood, first and foremost, as a kind of passivity, perhaps best expressed in the image of the scientific observer. The contemplative intellect observes and organises everything according to the predetermined formal requirements of the rational system. Therefore, it cannot be really regarded as an active agent. It suffers, as it were, the formal requirements of the system, which, due to their a priori nature, are beyond its influence. This lack of control results in a contemplative stance, which becomes the sole mode of cognition within the system's frame alone.

At first glance, this seems to be a simple shift of emphasis between Lukács and Sohn-Rethel. This attitude of the reified intellect can also be inferred from Sohn-Rethel's work. According to his formulation, the connection with the first nature is maintained by concrete and active physical labour. In comparison, the independent intellect can only produce knowledge according to the abstract forms of second nature. The contemplative stance stems from false consciousness for two reasons. Firstly, because the autonomous intellectual labour is unaware that it is detached from actual physical contact with the first nature; secondly, it is also unaware of the socio-historical roots of its existence and, thus, of its formal determinations (i.e., the forms of second nature). Therefore, the forms appear to be necessary, obscuring the fact that they are, in fact, social products. The difference between Sohn-Rethel and Lukács is in the identification of the cause of contemplative thinking.

They both say that it is caused by commodity-form. But here, it becomes clear that they interpret the commodity form differently. For Sohn-Rethel, the social relation of commodity exchange is always the same. It sets equivalence between qualitatively different objects, which are compared in their abstract form of commodity. Exchange also gives the form of value according

[139] [13, p. 100]

to which the commodities are exchanged. A contemplative attitude enters the consciousness when money appears, for money is the thing in which the process of real abstraction of commodity exchange takes a physical form. Thus, the consequent usage of money results in the abstractions of this social act becoming natural to consciousness but unconsciously. However, this raises the same problem as discussed in the previous section. Since Sohn-Rethel derives the commodity form only and exclusively from the exchange process, he fails to adequately nuance the differences in commodity concepts between the different periods of historical and social development.

As Marx writes, the commodity form in capitalist production "reflects the social characteristics of men's own labour as objective characteristics of the products of labour themselves, as the socio-natural properties of these things. Hence it also reflects the social relation between objects, a relation which exists apart from and outside the producers."[140] This means that the capitalist concept of commodity form also reflects the form of manual labour. That is, labour in the form of the historically specific wage-labour becomes itself a commodity. Therefore, abstraction no longer occurs merely in the exchange of the products of labour but also in production. This is constitutive of the capitalist notion of the commodity. As Lukács writes: "[T]he commodity form facilitates the equal exchange of qualitatively different objects [and] it can only exist if that formal equality is, in fact, recognized..."[141] This perfectly aligns with Sohn-Rethel's analysis. However, Lukács also says (and, unfortunately, this sentence is not included in the English translation) that "the principle of their formal equality can only be based on their essence as products of abstract (i.e., formally equal) human labour."[142] [25, p. 261] And this is the key sentence. Because it leads to the conclusion that the commodity form under capitalism is qualitatively different from those of previous ages. In the capitalist era, it is no longer only the equivalence of use-values that creates an abstract commodity form but also the equivalence of living human labour. This is, then, what manifests itself in surplus-value.

[140] [22, p. 164-165]
[141] [13, p. 87]
[142] Own translation

To truly understand the essence of the commodity form in a capitalist society, it is not enough to consider abstractions in exchange. We also need to consider production. With the commodification of labour, commodity-structure also becomes a subjective reality. This results that the "formal equality of human labour in the abstract is not only the common factor to which the various commodities are reduced; it also becomes the real principle governing the actual production of commodities."[143] In short, what is decisive for the commodity form in capitalism is not the formal equivalence of use-values but of human labour.

This is the key moment for Lukács in the reification process of consciousness. In wage labour, man comes into contact with his own labour power and activity as an objective form organised according to the rules of the commodity-structure. This makes the labour process objective and outside the labourer, resulting in a loss of self-determination. The labour process confronts man as an automatism controlled by an external system with predetermined laws over which he has no active control[144].

This again leads to the contrast between Sohn-Rethel and Lukács, that a society cannot be called a 'commodity society' simply because it uses money and trades goods. The commodity form becomes a function of social synthesis when labour itself becomes a commodity. It is then that man completely loses control over production. As the labour process becomes more and more rationalised by second nature, man's "activity becomes less and less active and more and more contemplative."[145]

Let us stop here to summarise the last two rather difficult sections. What needs to be emphasised is that Sohn-Rethel makes a sharp distinction between exchange and production. For him, commodity exchange is what exclusively delivers the forms of commodity-structure. In this way, he posits exchange and its forms as independent of historical and social conditions while accepting that production is historically variable. However, as we have seen above, changes in production can lead to changes in the form of the

[143] [13, p. 87]
[144] [13, p. 89]
[145] [13, p. 89]

commodity and hence in the exchange. When labour becomes a commodity and production is based on this commodified labour (i.e., wage labour), the commodity itself changes. In addition to use-value and exchange-value, surplus-value appears. This new commodity form, which already contains surplus-value, is based on the equivalence of (commodified) abstract human labour. This, in turn, changes the nature of exchange too. Exchange is no longer simply an exchange of use-values between private owners in the abstract form of exchange-value, as Sohn-Rethel describes it. The essence of exchange becomes the appropriation of surplus value, in other words, the accumulation of capital. We cannot separate exchange and production by their function as sharply as Sohn-Rethel does. They are dialectically related and influence each other.

It is, indeed, strange that for Sohn-Rethel, the commodification of labour does not appear to be a problem. In rudimentary exchange, it was enough to abstract from the physical nature of the means of use to form the basis of a real abstraction. In comparison, nothing meaningful changes about abstractions when concrete human work becomes abstract. This is not very consistent with the notion of real abstraction. This results in Sohn-Rethel overlooking the changing functions of production, commodity, and exchange. Consequently, his analysis becomes less and less applicable as we move forward in the development of capitalism. Regarding the criticism of Kant's work, there are only shifts in emphasis between Sohn-Rethel and Lukács. While Sohn-Rethel connects the origin of a priori concepts and the commodity-structure more convincingly and clearly than Lukács, he fails to adequately discuss the Kantian subject's experience of second nature as a total system. He also misses the importance of the contemplative attitude as the indicator of radical changes in production processes. While his work helps describe the formal features of early science and philosophy and explores the origins of their concepts, it is no longer suitable for understanding the development of modern science.

I do not mean to say that Lukács' work is better in every aspect because

this is far from true[146]. But in many respects, it delivers a better explanation of the development of modern science; for example, the trend mentioned above towards specialisation and a turn away from ontology. Recall that this can be traced back to the insoluble problem of form and content. The actual and irrational (i.e., content) threatens the existence of the formal rationalistic total system. Therefore, sciences create intelligible "content" according to their own rational forms and methods to make any problem comprehensible. But this is only suitable for polishing and clarifying the formalism and its method.

> "[T]he more intricate a modern science becomes, and the better it understands itself methodologically, the more resolutely it will turn its back on the ontological problems of its own sphere of influence and eliminate them from the realm where it has achieved some insight. The more highly developed it becomes and the more scientific, the more it will become a formally closed system of partial laws. It will then find that the world lying beyond its confines, and, in particular, the material base which it is its task to understand, *its own concrete underlying reality lies*, methodologically and in principle, *beyond its grasp*."[147]

I can only speculate how much Lukács was aware of the changes in physics while writing this text in 1922-23. It is not entirely impossible since Lukács wrote and edited *History and Class Consciousness* in Vienna, while Erwin Schrödinger did his research also in Vienna. Knowing the diversity of Viennese café life at the time, Lukács may have heard about the pressing issues surrounding the classical physical worldview and quantum theory. However, it is a fact that at that time, it was far from clear that the most dominant interpretation and attitude of quantum theory would be precisely what the above sentences describe. Or, as David Mermin succinctly summed it up: "Shut up and calculate!"[27] After János Neumann published his infamous work in 1932, *Mathematical Foundations of Quantum Mechanics*, quantum

[146] The critique of Lukács' work cannot be part of this thesis.
[147] Emphasis in original; [13, p. 104]

theory became mostly an axiomatised formal mathematical inquiry.[148] The totalisation of capitalism and, thus, of the commodity-structure is interesting for science not only from the point of view of how its concepts formally reflect the social order. The dominance of contemplativeness also raises serious questions of attitude and motivation.

Let us now turn to the question of how to break out of the state of reified consciousness and consequently out of reified forms of social existence.

4.5 Unity of head and hand

As a first step, it is perhaps most important to establish the framing of the problem. For Sohn-Rethel, the most important issue is the separation of intellectual and manual labour. This framing also provides a rather obvious solution: the separation must be eliminated. This means that, in some form, a joint, united social labour is needed. As he says, it is precisely by becoming a social being, that is, by cooperating and working together, that man has been freed from the constraints of nature.[149] Socialisation was established through labour. But this ceased with the advent of commodity production. "Commodity production begins where the collective labour of communal modes of production ends."[150] As he writes, the development of the forces of production reached a stage in the Iron Age where labour gradually began to be individualised. This meant that society was held together by the exchange of goods rather than collective labour. "Labour and socialisation become two distinct, opposing human activities, necessarily separated in time and space. Henceforth, sociality is alienated from labour as mere manual labour and is separated from its polar opposite, the intellectual potencies of the abstract mind (Verstand)."[151] Common production must, therefore,

[148] I should note that there has been some change in the last 5-10 years. Some physicists - and it is still a minority - have started to work on ontological questions again. This is mainly due to the stagnation of quantum computing, which is much needed, especially by the informational and military industries.

[149] Own translation; [4, p. 274A]

[150] Own translation; [4, p. 275A]

[151] Own translation; [4, p. 275A]

once again be at the heart of society. Or, to use Sohn-Rethel's expression, social synthesis must be achieved not through the exchange of the products of separate labour but through joint labour. Socialisation by labour and not by exchange is required.

From this perspective, Sohn-Rethel begins to examine the capitalist mode of production, especially its later innovations at the turn of the 19th century. He calls this new stage of capitalism 'monopoly capitalism'.[152] The importance of this new stage lies in the fact that it was at this time that the organisation of labour was actually put on a scientific basis. It was F.W. Taylor who introduced the scientific management of the production processes[153]. In a steel mill, Taylor observed that a machinist makes not only one product but all other products as well. However, Taylor found that production could be increased many times over. The only problem was that he did not have the specialised skills that would have allowed him to complete each job in the shortest possible time. Therefore, he began to investigate the work processes to learn, at least at the level of the workers, the metal cutting techniques. This ultimately led to the so-called 'time-and-motion study', resulting in a workflow where the "whole system rests upon an accurate and scientific study of unit times, which is by far the most important element in scientific management." [28, p. 58] In the new rationalised system, "the workman is told minutely just what he is to do and how he is to do it."[29, §118] The key to maintaining a steady workflow is measuring the time it takes to complete a task. "The aim is to find the most rational form of each work function, leaving a wide range of possibilities as to how the form of a work function is considered 'rational'."[154] For Taylor, this rationality is the maximum output with minimum time investment: the acquisition of the highest possible degree of surplus labour for capitalists. And it does this by bringing separate machine and human workflows into perfect time synchronisation. The synchronisation presents itself as the necessary law binding the parts together. "The aim of this time-measurement is to set every work process in motion in such a

[152] [4, p. 380]
[153] [11, p. 611]
[154] Own translation; [4, p. 400]

way that there is a 'unity of measure' (Maßeinheit) between human function and machine function... The 'total social worker' metaphorically invoked by Marx has here become a mathematically calculable structure."[155]

It is precisely this rationalised system that Lukács has in mind when he talks about the objectification of labour:

> "On the one hand, the process of labour is progressively broken down into abstract, rational, specialised operations so that the worker loses contact with the finished product and his work is reduced to the mechanical repetition of a specialised set of actions. On the other hand, the period of time necessary for work to be accomplished (which forms the basis of rational calculation) is converted, as mechanisation and rationalisation are intensified, from a merely empirical average figure to an objectively calculable work-stint that confronts the worker as a fixed and established reality."[156]

The principle of the labour process is that the whole of the workflow is objectively calculable. This results in the worker being "reduced to an isolated particle and fed into an alien system"[157] that he has to confront every day as a reality. As we saw in the previous section, the only way to cope with this alien system is through a contemplative attitude, which directly stems from the commodity structure. This manifests itself in the form-content dichotomy. Labour not structured according to the system is irrational and must, therefore, be put into a rational form. This is the only way to make the system predictable. In labour, however, irrationality is always lurking, no matter how we break it down into its elements, and, thus, no matter how specialised we make it.

It is vital, however, that Lukács links these phenomena to the structure of the commodity and its formal elements. This is what makes capitalism a qualitatively different society, where the products of production represent

[155] Own translation; [4, p. 401]
[156] [13, p. 88]
[157] [13, p. 90]

a specific commodity form, which is a truly universal social category. "The finished article... turns into the objective synthesis of rationalised special systems whose unity is determined by pure calculation... The unity of a product as a *commodity* no longer coincides with its unity as a use-value."[158] It is, therefore, a different type of commodity from the one described by Sohn-Rethel. It is a new commodity whose form is no longer given by the abstraction of use-value but by the abstraction of living human labour, broken down according to the elements of a rational system.

It is extremely important to re-emphasise that Sohn-Rethel, on the contrary, has a quite different claim; namely, that the logic of the Taylor system is not related to the market's logic. He argues that the consequence of the Taylor system is that it can only adapt a little or not at all to the market's needs. This is because the precise synchronisation of the isolated labour processes provides little flexibility to increase or slow down production in response to market needs.

> "If there are certain sections which perform their set task in a shorter time than the sections preceding or those following them, then these slower links hold up the total process, and the capital invested in the entire plant is prevented from working at its potential optimal efficiency and profitability. The principle of maximising profits impels the reorganisation of the plant until it satisfies the rule of proportionate timing."[14, p. 169]

For Sohn-Rethel, the 'time economy' (Zeitökonomie) or plant economy of the modern labour process is not derived from the market economy but is rooted in the needs of the labour process.[159] The market constraints must, therefore, be dismantled. It only restricts production, the regulating principle of which is no longer supply and demand but the 'time-economic optimum' (zeitökonomisches Optimum). Hence we get the new stage of monopoly capitalism, which manipulates the market. This results that "[t]he market economy, which has fallen irremediably prey to manipulation, no longer provides

[158] Emphasis in original; [13, p. 88-89]
[159] [4, p. 384]

reproduction, and the labour economy, which is in the process of formation, that is, the economy of the fully socialised labour process, does not yet provide reproduction."[160] One could interpret Sohn-Rethel's words as saying that only the market needs to be removed to unite the head and hand. Modern capitalist production is no longer seen by Sohn-Rethel as being based on individualised labour but, on the contrary, on fully socialised labour.

The above-mentioned 'unity of measurement' (Maßeinheit), in which work based on scientific management is expressed, already unites intellectual and manual labour. Indeed, for Sohn-Rethel, it expresses a fully socialised form of labour. "[The] unit of measurement between human and machine function in the production process is now also what defines itself, as it were, as the principle of the full socialisation (Vollvergesellschaftung) of labour."[161] After all, mechanisms and machines are the result of intellectual labour. And if we recall from the end of the previous chapter that autonomous intellect is a fully socialised form of thinking, then the socialisation of labour and thinking has reached the same level. That is why "[t]he aforementioned operative unity of measurement... postulates the possibility of the social unity of manual and intellectual labour."[162] What must be done, according to Sohn-Rethel, is that the market, which has already been pushed into the background, must be eliminated. The purpose of production must be freely chosen and not determined by the remaining influence of commodity exchange. In a certain sense, the unity of head and hand has already been achieved; the problem is that market-based appropriation still dominates production.

There are several problems with this argument. The most important of these, once again, is that Sohn-Rethel does not provide a proper contextualisation of the notions of market, exchange, and commodity. As we have seen earlier, under capitalism, the form of the commodity changes, and so does the function of the market. The commodity is no longer abstract because we abstract from its physical nature. It is no longer the equivalence of exchange that is decisive but the equivalence of labour. It creates a new, qualitatively

[160] Own translation; [4, p. 44]
[161] Own translation; [4, p. 401]
[162] Own translation; [4, p. 401]

different level of abstraction. The result is that, in addition to the exchange-value, the surplus-value also appears in the commodity form. The primary role of the market will therefore be the valorisation of surplus-value. The new labour process is reorganised precisely along the lines of the market's changing function. Since surplus-value is determined by unpaid abstract human labour, the time-economic optimum is not a principle independent of market logic. The essence of the Taylor system is to produce as much surplus-value as possible to be valorised in the market. And, once again, since the value is determined by abstract human labour measured in time, it is logical that the labour process is organised according to time optimisation. In other words, the labour process is organised based on the surplus-value valorised in the market. The structure and logic of production are intertwined with the market and not independent from it. The Taylor system is, therefore, not a fundamentally new invention or organisational principle. On the contrary, it is the elevation of the same process of mechanisation and rationalisation to the next level that has already been and is still crucial in technology. Whether we consider the mills, the power looms, or the steam engine, the Taylor system is an extension of these technologies to human labour. The unity of measurement can be seen as the unity of the head and the hand, but the hand that participates in this unity is the abstract human hand integrated into the total rational system. It is tied to technologies in such a way as to maximise the appropriation of the surplus-value in the market.

Therefore, the simple elimination of market logic is not only insufficient, but if the form of production is to be retained in the form of the unity of measurement, it is likely not possible at all. Something more is required.

4.6 Class consciousness

It is true that Sohn-Rethel adds that, in addition to the elimination of market logic, a new consciousness of the workers is also needed. "They must transform themselves from capitalist helots into socialist human beings and grow up into the role of the subject of the new social synthesis through self-

education and gradual development."[163] He does not, however, elaborate on what exactly this means and how it could come about. In this regard, he only points to the Mao-led Chinese cultural war as an example to follow[164], which, to put it mildly, has not aged well. But even apart from that, it seems as if this is ultimately the key moment for reified consciousness. As discussed above, Sohn-Rethel sees the synchronised activity of the machine and the worker, according to time optimisation, as a unity of head and hand. However, as I argued above, this unity is insufficient to overcome the commodity-structure. It also requires the class consciousness of the proletariat. But Sohn-Rethel cannot answer how and why this consciousness can come into being because it arises from a problem he has not yet addressed. It is the problem of wage-labour; namely, that labour itself has become a commodity in capitalist production.

According to Lukács, this is the most significant aspect of capitalist society regarding historical and social development. The importance of the proletariat arises precisely because its role in society expresses the essence of the present historical and social structure. Of course, the proletariat is also subject to the reification process, which results in the fact that "the objective reality of social existence is *in its immediacy* 'the same' for both proletariat and bourgeoisie."[165] However, precisely because of their different positions in society, the immediate relations of society reach the consciousness in a different form. The proletariat encounters alienating social relations in its daily work. The rationalised machine confronts it with its helplessness. For the proletariat, it is a basic experience that "[n]either objectively nor in his relation to his work does man appear as the authentic master of the process; on the contrary, he is a mechanical part incorporated into a mechanical system."[166]

The contemplative attitude reflects the fact that man is not in control of his own social relations, which he himself has created. These relations, which

[163] [4, p. 416]
[164] [4, p. 416]
[165] Emphasis in original [13, p. 150]
[166] [13, p. 89]

take the form of the commodity-structure, are presented as immediate natural laws. The solution, then, is not a unification of something separate but a matter of recognition, knowledge, and, even more, action. What is needed is the birth of a consciousness that recognises the historical and, therefore, human nature of its own relations - a consciousness which, through its capacity for action, breaks through the resignation of contemplative passivity.

> "[However], all the worker can only become conscious of his existence in society when he becomes aware of himself as a commodity. As we have seen, his immediate existence integrates him as a pure, naked object into the production process. Once this immediacy turns out to be the consequence of a multiplicity of [social] mediations, once it becomes evident how much it presupposes, then the fetishistic forms of the commodity system begin to dissolve: in the commodity the worker recognises himself and his own relations with capital. Inasmuch as he is incapable in practice of raising himself above the role of object his consciousness is *the self-consciousness of the commodity*; or in other words it is the self-knowledge, the self-revelation of the capitalist society founded upon the production and exchange of commodities. "[167]

What is at issue here is that in capitalism, the abstraction of the commodity has reached human labour. This, in turn, has also made it possible for man to recognise the commodity in himself. Then, according to Lukács, the reality of the whole of social existence becomes recognisable. Second nature, which until then had seemed an external constraint, is revealed. It becomes possible to recognise that social existence is regulated and created by ourselves, not by blind forces.

All the abstractions and dichotomies, according to Lukács, be it the insolubility of form and content, the dichotomy of subject-object and ultimately the separation of head and hand, cease to exist when the proletariat recognises the objective nature of society. The existing social order has not been

[167] Emphasis in original; [13, p. 168]

created by chance but is a historical and human product. It is history and, therefore, the history of man which offers the possibility of self-determination. Passive contemplation must be replaced by active action, which sees in history and society an opportunity. As Miklós Mesterházy puts it, "[t]o this non-contemplative consciousness, man appears as the same subject-object of history, insofar as history appears to this consciousness as a repository of possibilities."[168]

To sum up, Lukács' work suggests that the unity of head and hand is only possible if the social order behind the contemplative attitude is exposed. And this is only possible if one realises oneself as a reified commodity. In Lukács' time, this was only possible for the proletariat in the traditional sense. As he writes:

> "[T]his structure can only be made fully conscious in the work-situation of the proletarian. For his work as he experiences it directly possesses the naked and abstract form of the commodity, while in other forms of work this is hidden behind the facade of 'mental labour', of 'responsibility', etc."[169]

The proletariat is not "burdened" with the apparent responsibility of intellectual labour. Thus, given its social position, it perceives the reified structures of society without distortion.

We cannot discuss how Lukács was right to regard the traditional proletariat as so distinguished and to make it the subject-object of history. Our historical experience shows that the relationship between the actual proletariat and the intellectual vanguard of the left is, at the very least, ambivalent. What is important for us now is that the cooperation of head and hand in production is insufficient to dismantle society's reified structures. What is needed is a recognition of social reality, which can help to break out of the passivity of the contemplative consciousness.

This brings us back to the main difference between Lukács and Sohn-Rethel; to the fact that, for Lukács, the commodity-structure under capital-

[168] Own translation; [30, p. 149]
[169] [13, p. 172]

ism is qualitatively different from its role in previous societies. While Sohn-Rethel speaks of a reified consciousness already in antiquity, for Lukács, it is a typically capitalist phenomenon: "the problems of [reified] consciousness aris[e] from wage-labour"[170]. For Lukács, it is not the appearance of money that will be decisive but the commodification of labour and the work done under such conditions. Wage-labour creates a contemplative consciousness, a form of thinking that passively contemplates the total system of secondary nature. The unity of head and hand is not enough since it can also be achieved in a contemplative, capitalist production. As Sohn-Rethel also notes, intellectual labour is already an integral part of the social production of commodities[171]. However, this kind of unity recreates precisely the epistemological problems described by Sohn-Rethel and Lukács. If we want to go beyond second nature (both epistemologically and socially), as Sohn-Rethel would have us do, we must first become aware of it to break out of it with a new consciousness.

[170] [13, p. 100]
[171] [4, p. 399]

5 Conclusion

I began the thesis by saying that I found the philosophical debate between scientific and moral, ethical, and social values unsatisfactory. The descriptive objectivity characteristic of scientific language and the normative nature of social, ethical, and moral values cannot be meaningfully reconciled. In this context, Sohn-Rethel's work aims to explore the social and historical roots of the purely descriptive-objective conceptualisation of science. He discovered these roots in the formal determinations of exchange, in, what he calls, second nature. As we have seen, Sohn-Rethel identified Kant's pure, a priori concepts of understanding, or Galileo's notion of inertia, as the relations of this social action. But the exchange of commodities, as a social action, must be based on normative rules. If there is no agreement on what constitutes a 'fair' exchange, the act itself cannot occur. This agreement must, therefore, be based on formal, social, and, above all, normative postulates. These social postulates appear to the false consciousness as the descriptive-objective laws of second nature. By false consciousness, we mean that the conceptual apparatus of cognition (and its users) are entirely blind to their own social origins. "It can only adequately relate to its object of knowledge when it has detached itself from all social considerations and existential motivations."[172] Formally, therefore, purely intellectual cognition is possible only and exclusively based on the laws of second nature and must be free from social, ethical, and moral values.

With Lukács, as we have seen, this appears in the framework of the form-content problem. The second nature, as a calculable and predictable total system, runs into a wall when it has to say something about the actuality of the object of its investigation. This is precisely why the sciences create the 'intelligible subject matter' mentioned above. In this way, actuality and irrationality are simply banished to the world of meaninglessness or metaphysics. Everything can only exist as the rational form of second nature can describe it. No matter how we try to reconcile the descriptive-objective 'is' with the 'ought' of ethics, we end up with precisely the same problem as in

[172] Own translation; [4, p. 278A]

the case of form and content: insolubility.

Both Sohn-Rethel and Lukács argue that in the social conditions underlying this formal thinking, the problems discussed here remain indeed insoluble. On the other hand, they have different views on the conditions for transcending these social relations. Sohn-Rethel focuses on the unity of intellectual and manual labour. However, as we have seen, this is not sufficient in itself since this unity has already been established in many respects. Lukács sees the solution in the class consciousness of the proletariat, which also poses problems. Today, the concept of the proletariat sounds somewhat anachronistic. Class differences and conflicts, which dominated socio-political life a hundred years ago, are less characteristic of social discourse and thinking (this is especially true for post-socialist countries), even though "[c]lass as an economic reality [still] exists and is as fundamental as ever"[31]. Nowadays, almost everyone, whether a food delivery cyclist or a scientist, lives on a wage and salary. Defining who counts as a member of the proletariat in our time is rather difficult. But that most labour, including scientific labour, now takes the form of a commodity (i.e., wage labour) is quite certain. Yet, we continue to speak of science's social 'responsibility' through the language of the narrow subjectivity of second nature: in the ethical language of the incompatibility of the contemplative-descriptive 'is' and active-normative 'ought' (i.e., form-content). Whether we are talking about the authorisation of pesticides or the challenges posed by AI (e.g. ChatGPT), the debates are always about the same thing: the abstract, formal, and, above all, objective 'is' of second nature is unable to come to terms with the 'ought' of contingent existence, not realising that its own formal constraints derive from the very same social being that poses the problems in the first place. Whether scientific labour will be able to develop class consciousness, that is, whether it will realise that it itself is a form and instrument of the total structure of commodity relations, is a question for the future.

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