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Constructions and situations: a constructivist reading of Hegel's System

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Abstract: Constructions and situations: a constructivist reading of Hegel's System

The object of this work is Hegel's Logic, which comprises the first third of his philosophical System that also includes the Philosophy of Nature and the Philosophy of Spirit. The work is divided into two parts, where the first part investigates Hegel's Logic in itself or without an explicit reference to rest of Hegel's System. It is argued in the first part that Hegel's Logic contains a methodology for constructing examples of basic ontological categories. The starting point on which this construction is based is a structure Hegel calls Nothing, which I argue to be identical with an empty situation, that is, a situation with no objects in it. Examples of further categories are constructed, firstly, by making previous structures objects of new situations. This rule makes it possible for Hegel to introduce examples of ontological structures that contain objects as constituents. Secondly, Hegel takes also the very constructions he uses as constituents of further structures: thus, he is able to exemplify ontological categories involving causal relations. The final result of Hegel's Logic should then be a model of Hegel's Logic itself, or at least of its basic methods.

The second part of the work focuses on the relation of Hegel's Logic to the other parts of Hegel's System. My interpretation tries to avoid, firstly, the extreme of taking Hegel's System as a grand metaphysical attempt to deduce what exists through abstract thinking, and secondly, the extreme of seeing Hegel's System as mere diluted Kantianism or a second-order investigation of theories concerning objects instead of actual objects. I suggest a third manner of reading Hegel's System, based on extending the constructivism of Hegel's Logic to the whole of his philosophical System. According to this interpretation, transitions between parts of Hegel's System should not be understood as proofs of any sort, but as constructions of one structure or its model from another structure. Hence, these transitions involve at least, and especially within the Philosophy of Nature, modelling of one type of object or phenomenon through characteristics of an object or phenomenon of another type, and in the best case, and especially within the Philosophy of Spirit, transformations of an object or phenomenon of one type into an object or phenomenon of another type. Thus, the transitions and descriptions within Hegel's System concern actual objects and not mere theories, but they still involve no fallacious deductions.

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Foreword

Although I, like Hegel, have always felt that long prefaces are often tedious and usually unnecessary and although I prefer starting from the issue itself, I have, again like Hegel, found it necessary to begin my work, not with one, but with several introductions.

While the preface that follows is dedicated to introducing the problematic of the work, this foreword presents a short account of the history of this work: it explains why I felt the need to develop my thesis in the direction it eventually took.

When I first had to consider a suitable topic for my PhD thesis, I had just finished my master's thesis on Hegel's Logic. Although I had already begun to find the positions of that work inadequate and hoped some day to make a proper study of the essence of the Logic, I also felt that I needed a change of direction. Thus, I proceeded to suggest Hegel's Philosophy of Nature and particularly the relationship of space and time as the object of my next study. I had then still a somewhat hazy idea of what I wanted to show: I had been perplexed by Hegel's supposed transitions from space to time and from time to space and wanted to find out what these transitions were about.

But the Logic refused to be kept waiting, and I found myself irresistibly pulled again to its abstract investigations. There were at least two things inciting me to return to the Logic. Firstly, the study of the Philosophy of Nature itself forced me to the study of the Logic. I had wanted to understand how Hegel could "identify" space and time, and I quickly found out that this so-called identification depended on a similar identification of certain abstract structures in the Logic. Thus, I became even more convinced of the dependence of Hegel's *Realphilosophie* on his Logic.

Secondly, I conceived of a new manner of interpreting the Logic itself, which I desired to test by a thorough investigation. This new conception did not suddenly appear in my head, but grew there in bits and pieces. First, I had the insight that the Hegelian Logic was not a unified theory, but consisted of distinct parts, which were not even several theories of the world, but models of different possible situations. Then, I noticed that the transitions from one part of the Logic to another were not strict deductions and not even looser arguments, but constructions:¹ they showed how to create a model of a new structure, when a model of one structure was given.

It became somewhat difficult to combine my original problematic with my new interpretation of the Logic. I had had a hazy idea that the transitions from space to time and back were attempts of some sort of metaphysical proof of the interconnectedness of space and time: how exactly this proof was supposed to work I had hoped to discover as

my investigation proceeded further. Unfortunately, the new interpretation of the Logic appeared to be truly incapable of sustaining any such metaphysical proof. Indeed, I became more and more convinced that all the Hegelian *Realphilosophie* was based on a faulty premise that worked from the construction of models in the Logic by analogy to a cosmological “creation” of the original structures: that is, on an unjustified assumption that world must actualise those structures that we are able to model. My focus thus changed: I tried to conclude my work with a disproof of Hegel’s metaphysical attempts and a separation of the Logic as an independent and self-contained study.

The final alteration of my work was occasioned by a chance occurrence that had forced me to describe how Hegel had criticised Kant. Earlier, I had been very sceptical of the so-called non-metaphysical interpretations of Hegel’s philosophy that I felt to misrepresent what was inherently Hegelian by replacing it with modified Kantianism. When I had to reinterpret Hegel’s criticism of Kant in light of my new understanding of Hegel’s Logic, I noticed that the difference between Kant’s and Hegel’s philosophy did not lie in their attitude towards metaphysics: both were actually against metaphysics – or indeed any theoretical study – of things beyond possible experience, but at the same time approved metaphysics as a study of the most general structures of what can be experienced. The true difference between the two philosophers was that while Kant was an argumentative philosopher of the traditional sort, Hegel endorsed different, constructivist manner of doing philosophy.

There are people who want to skip the dull investigation of details necessary in a properly systematic study of issues and apprehend the supposed results of a work in a single paragraph or even a sentence. Although I have tried to provide summaries after every major development, I shall do a favour for those for whom even reading such summaries is too much work and provide them with a short explanation of what I consider to be the main import of my study for the academic investigation of Hegel’s philosophy: I expect that these people will pay my favour back in kind and judge the whole work on the basis of my short description. The main result of my work, as I see it, is the idea that Hegel’s philosophy as a whole – not just a part of it, like the Logic – shouldn’t be read as a series of argumentations, but as a series of possible constructions. Let me explain this in more detail. An argumentative approach to Hegel’s philosophy would see the different stages of Hegel’s philosophy as theories and transitions from one stage to another as proofs or arguments for the statement that the latter theory is in some manner better than the previous theory. Such proofs and arguments would not change anything in the subject matter that the theories discuss, but at most they would

alter our opinions. According to a constructivist approach, on the other hand, these stages would be general structures of situations and objects instantiated by some actual situations and objects – or at least modelled by situations and objects – and the transitions would be constructions of new situations and objects instantiating or modelling some new general structure. Although such a construction could be a mere discovery of objects that exist independently of the construction or a mere reinterpretation of the original objects, it might also involve a concrete modification of the original objects or even a manufacture of new objects that didn't exist before the construction. In other words, Hegel's philosophy as a whole, according to the constructivist approach, is not ultimately theoretical in nature – although it might contain portions that could be described theoretical – but should be characterised as practical: it presents methods or recipes for changing things.

For Hegel, philosophy has at least two separate tasks. Firstly, there is the task of finding universalities in the ocean of empirical particularities.² In this sense, philosophy is just the most general of sciences or the final synthetisation of all information into knowledge: it is at most formal organisation of the same material that sciences investigate. Secondly, there is the task of showing what ordinary science cannot understand, for instance, human freedom.³ In this sense, philosophy is an alternative to, critique of and even hostile to ordinary sciences: it deals with matters of more value to human life than the sciences. One might say that these two alternative manners of doing philosophy are still present in the modern world, although not very often in so good terms as in Hegel's philosophy. Because I am more of what Hegel would call a person of understanding instead of reason, this particular work falls perhaps more to the first category, and a reader preferring the philosophy of the second type will probably find much of it quite tedious. Such a reader may think that this tediousness shows a certain lack of skill and an underappreciation of the true values of philosophy: I cannot but hope that this critique is wrong and that this tediousness is just an effect of a concentration on a necessary, although unedifying side of Hegel's philosophy. In discussing the conclusions of my work, I have, among other things, tried to indicate some possible ways of applying my results to the second side of Hegel's philosophy also: hence, a reader who instantly knows he wouldn't appreciate the rest of this work can instantly skip to the end of it.

Although the main purpose of this study is not a genetic investigation of the opinions of Hegel, I must say something of the philosophical development of Hegel in order to delineate my study properly. Although I have not properly researched the

matter, I feel that the constructivist interpretation of Hegel would not fit in with certain ideas Hegel endorsed in his earlier writings. This discrepancy could undoubtedly be explained by a change in Hegel's manner of thinking:⁴ thus, I have consciously decided to limit myself to the later works of Hegel. I cannot say where the line should be exactly drawn – or indeed, whether Hegel's development towards constructivism wasn't a gradual affair – but I think that *Phänomenologie des Geistes* and works after that fall straightforwardly to Hegel's constructivist phase. Hence, I shall restrict myself mostly to Hegel's works from that period: I shall warn the reader whenever works from earlier periods of Hegel's life are quoted.

¹ If I had known earlier of Angelica Nuzzo's article "Dialectic as logic of transformative processes" (2006), I might have used the term "transformation" instead of construction. I am not sure how close our views actually are: similarities include the idea that Hegelian logic investigates changes or transformations (p. 94) and that it is at least not primarily an ontological theory (p. 99). A clear difference is our starting point: while Nuzzo's article starts from concrete historical changes, which Hegel's philosophy as a whole attempts to analyse, my idea have been born out of the more abstract transitions of Hegelian logic.

² G 21, § 7, p. 46, 12 – 24.

³ Ibid., § 8, p. 48, 2 – 8.

⁴ I thus concur with Kenneth Westphal when he says that "Hegel's early writings [including even *Glauben und Wissen*] provide only very incomplete guides to interpreting his mature philosophy" (2000, p. 296).

Preface

This work has seemingly at least three separate and independent themes. Firstly it investigates the form of Hegel's System and particularly the relationship of the so-called Logic and the *Realphilosophie*. Secondly, it is interested in relationship between Hegel's Logic and some modern ideas of logic. Thirdly, it studies Hegel's ideas of space and time. This apparent disparity of themes is on closer inspection non-existent, since the two latter questions are clearly subordinated to the first main question. I might rephrase it in Crocean terms: what is living and what is dead in Hegel's System, and furthermore, whether that what is living can be separated from the mere corpse?

The task of finding the living stuff in Hegelianism is not new, indeed, Croce who asked the question also tried to answer it. But in many cases this investigation is done haphazardly and arbitrarily: one merely looks at those ideas of Hegel one is interested and lets everything else rot. Such a method might bring interesting results, and in case of such a thinker as Hegel who has so many ideas, the results may be various. But the method is not faithful to the totality of Hegel's thought: it is like buying an expensive painting, because it has nice frames. Although one would agree that Hegel's System as a whole is dead meat, one should still have at least as much respect for the corpse as to scavenge such parts from it which the man alive would have found important enough for preservation. Thus, the method of this study shall be of investigating what are the most important parts of Hegel's System and whether they might stand the test of time.

Such a study faces the following objection: In Hegel's System everything hangs on everything else – it is a circle of circles, a living and interconnected whole, cutting of which would mean destroying it. Thus there is no way to separate living and dead parts, and you must either accept the whole System or deny it. I shall not attempt to decide beforehand whether this is correct – it is the main task of my work to do just that. Instead I shall note that there seem to be two separate parts in Hegel's System, the Logic¹ which studies something called categories or concepts and the *Realphilosophie* which studies the world – or the more concrete aspects of the world, if we take categories also as structures of the world, albeit more abstract ones. Now, there are several ways in which these two could relate to each other. Provisionally we may indicate three of them: we shall perhaps discover later, if there should be other possibilities which would perhaps be more in line with Hegel's ideas.

1) The *Realphilosophie* might demand the Logic, that is, the objects of the

Realphilosophie could be studied only by means of the concepts of the Logic: the Logic would give structures by which concrete objects would be structured.

2) The Logic might demand the *Realphilosophie*, that is, the concepts of the Logic could be found only via the objects of the *Realphilosophie*: we would need objects with structures before we could talk of those structures and there could be no other structures, but those found in concrete objects. The *Realphilosophie* would then be not just a condition, but also a ground for the Logic: the concepts of the Logic wouldn't exist without concrete objects or they would be mere abstractions from the real structures.

3) The Logic could ground the *Realphilosophie*, that is, the abstract structures of the Logic might explain why there are objects structured according to the more concrete structures of the *Realphilosophie*. This would be a more ontological relationship than the previous ones: it would mean not only that there are certain objects of the *Realphilosophie*, if there are structures of the Logic – this would hold even if the structures of the Logic were abstractions from the structures of the *Realphilosophie* – but also that these objects exist *because of* the structures of the Logic.

Of these possible relationships 1) does not entail either 2) and 3), but is compatible with both of them: 1) is a more of a methodological relationship which does not determine the ontological status of the Logic and the *Realphilosophie*. Similarly 2) does not entail 1): that the structures of the Logic depend on structures of the *Realphilosophie* doesn't determine whether the *Realphilosophie* could be studied without the structures of the Logic. On the other hand, 3) seems to entail 1) – if structures of the Logic ground structures of the *Realphilosophie*, then the abstract structures of the Logic are essential in understanding objects of the *Realphilosophie* – and 2) and 3) are incompatible – both the Logic and the *Realphilosophie* could not have the ontological priority.

Thus, there are five possible options: a) none of 1), 2) and 3) holds – the Logic and the *Realphilosophie* are completely separate works – b) only 1) holds – objects of the *Realphilosophie* must be categorised by concepts of the Logic, but otherwise the objects and the concepts are independent of one another – c) only 2) holds – concepts are abstractions of objects, but objects cannot be completely structured with the concepts – d) both 1) and 2) hold – the concepts are abstractions of the objects and objects must be categorised by the concepts – or e) both 1) and 3) hold – concepts somehow determine what sort of objects there are.

We may approach these five options from two directions. Firstly, we may ask

which of them Hegel believed himself to be upholding. Secondly, we may ask which of them seem most believable. If the answers to the first and second question contradict one another – that is, if Hegel’s overall opinion seems incredible to us – we have as a third question how we could make Hegel’s position more believable with minimal changes. The fourth obvious question is whether we have missed some other possible relationship between the Logic and the *Realphilosophie* that Hegel might have endorsed. Before turning to the problem of how to study these questions, I shall say few words on where the idea of the circularity of Hegel’s philosophy fits in the space of the possibilities a)-e). The circle of science could be cut into two movements, one from the *Realphilosophie* to the Logic, the other from the Logic to the *Realphilosophie*. Now, the movement from the *Realphilosophie* to the Logic would be best described as a sort of an abstraction: the *Realphilosophie* describes concrete structures from which we can distil the more abstract structures of the Logic. Such a movement presupposes that this distillation is complete, that is, that the abstract structures of the Logic apply to all concrete structures of the *Realphilosophie*. Thus, this direction of the circle implies the condition 1). The movement to the other direction is trickier. Within the provisional set of possibilities, it is meant either as a proof based on an ontological incompleteness of the Logic – the structures of the Logic are meaningless or even non-existent without the more concrete objects of the *Realphilosophie* – or then as describing how the structures of the Logic ontologically determine the concrete structures of the *Realphilosophie*. In the first case the idea of philosophy as a circle would coincide with the option d), in the latter case it would coincide with the option e).

A complete study of the question which of the 1), 2), 3) and other possible relationships Hegel is committed to would need a full investigation of both Hegel’s Logic and his *Realphilosophie*. Because this is obviously too great a task for a single study, especially in the case of the *Realphilosophie*, with its vast diversity of subject matter, I shall concentrate on one example taken from the *Realphilosophie*. Even from this one example we can investigate the statement 3), because if this example cannot be ontologically grounded by the Logic, then the whole *Realphilosophie* cannot be grounded by the Logic, and the other option gives at least some justification for the statement that the *Realphilosophie* is grounded by the Logic: this investigation might also suggest another possible relationship between the Logic and the *Realphilosophie* that should be considered. I have chosen the example that I shall study – the nature of space and time in Hegel’s System – in such a manner that there should be little need for studying rest of the *Realphilosophie*: as close to the beginning of the *Realphilosophie* as

possible.

The previous reflections show deeper connections between the three themes of my work. As I mentioned before, the first question of the relationship between the Logic and the *Realphilosophie* is the main theme, whereas the two other questions are subordinate to it. The third question of Hegel's ideas of space and time I have already related to the primary question. This leaves only the second question of the nature of the Logic as a logic in a modern sense. It is closely connected with the question of independency of the Logic from the *Realphilosophie*, that is, the question whether the proposition 2) holds and should hold in Hegel's philosophy: if the Logic can be presented in a formal fashion, it seems probable that the Logic does not depend on the concrete parts of Hegel's System.

Before starting the actual investigation of Hegel's philosophy, I feel compelled to clarify two central concepts of my work: situation and construction. Here I must ask the forgiveness of the reader for two reasons. Firstly, all analysis of concepts must stop somewhere, or else we will never have the chance to use these concepts. Thus, I am forced to clarify my central notions more with concrete examples of situations and constructions and with analogies and illustrations than by giving a strict definition of them. Secondly, a complete clarification of these terms requires exposing some of my theses beforehand, before argumentation backing up these theses has been given. The reader may treat these theses then as hypotheses that shall be argued for more substantially in the work itself.

A situation, as I use the term, might be described roughly as something where there might be objects. The word "where" suggests something spatial, and indeed, spatial positions are perhaps the easiest example of situations: there is a cow in the barn, thus, the barn is in this sense a situation, London is in Britain, and so Britain is also a situation. It takes not a great leap of thought to extend the realm of situations from spatial positions to temporal moments: Charlemagne lived in Middle Ages, and thus Middle Ages is one sort of situation.

While the leap from spatial to temporal situations was not difficult, the next step might feel more awkward. In addition to spatial and temporal situations, I also use the term "situation" to cover states of objects: in autumn leafs are in a state of redness, thus, redness is a type of situation. From fleeting states of objects I then extend the term to cover also more essential qualities of objects. For instance, fragility is not a state of glass, because glass is always fragile: still, if we classify things to fragile and non-fragile things, we might say that glass falls in the position of fragility – thus, we might

say that fragility is as well a sort of situation. Spatial and temporal situations and qualities are relatively simple situations, but I assume that more complex structures could also be called situations: for example, the Earth is in the Solar System and so the Solar System should be a situation, although it is a highly complex system of bodies and their qualities and relations.

I have thus far spoken only of situations with concrete physical objects, like cows, leaves and glass. The final extension of the concept of situation follows then when we extend the concept of object from concrete objects to cover everything that could be spoken of, that is, everything which could be taken as a subject term of some statement or from which something is predicated. Thus, we could speak of a pack of wolves that is in a state of having twelve members: here the pack would be an object, while the state of “twelveness” would be a situation. In addition to sets of physical objects, we could also speak of abstractions like number two and hence they could be taken as objects in the extensive sense I have used the word: thus, because number two is in the system of whole numbers, this system could be taken as a situation. Indeed, situations themselves can be spoken and could thus be taken as objects: hence, qualities like “being a spatial situation” could also be taken as situations.

I have thus far spoken only of situations with objects, although I actually said that situations and only something where there *could* be objects. Thus, an empty space between two objects or beyond any object would still be a situation. The possibility of empty situations is crucial for Hegel’s philosophy, as we shall see.

My concept of situation is particularly related to Hegel’s concept of *Sein*. The part of the Logic dedicated to the investigation of *Sein*, particularly, is filled with study of different types of situations and especially classifications of different situations: there are, for instance, qualitative classifications, like different colours, and quantitative classifications, like whole numbers. Indeed, the important point for Hegel appears to be that all situations could be thus classified or represented as a sort of “space” of situations. This is the reason why I have chosen the concept of situation, although a number of other possible candidates exist. I might also have spoken of contexts or environments of objects. I might have spoken even of possible worlds, because these situations are truly like small worlds for the objects.

The comparison with the notion of possible worlds might suggest that situations would be closed from one another like Leibnizian monads. This would be taking the analogy too far, as the investigation of my examples clearly shows. Situations are not meant to be closed realities, but more like snapshots of reality: partial views of what

there is and thus connectible to one another. The cow is in the barn, but beyond the barn there is the field and other possible places where the cow could also be; the leaf is in state of redness in the autumn, but in summer it has been in state of greenness. Indeed, the whole idea of classifying situations depends on our ability to put different situations figuratively side by side one another. But we can say even more. Some situations are parts of other situations. Cow is in the barn, but the barn is a part of the whole farm. The Earth is in the Solar System, but the Solar System is a part of the Milky Way. This relation of “being a part” extends in a sense even to more abstract situations: number two is in the system of whole numbers, but this system is a mere part in the system of rational numbers. An interesting question then is then whether there could be an ultimate situation which would cover all other situations as its parts: this ultimate situation could then be called the World. One interesting result of my investigation is that Hegel was not convinced that such a “World” was a meaningful concept nor indeed that even spatial situations formed a spatial World: beyond any possible spatial whole there could be found yet another spatial situation.

Two important questions arise from my clarification of situations. Firstly, what makes it possible for us or indeed for any object to move from one situation to another? Secondly, how is it possible to present generalised statements that would apply to any situation, if there is no possibility of speaking of some World to which these statements would apply? The answer to both of these questions is same: constructions.

How do I get from one temporal situation, like today, to another, like tomorrow? By waiting for the time to go by. How do I get from one spatial situation, like the railway station, to another, like the university? By walking. Both of these are ways of getting from one situation to another, the first one quite passive and the second one more active. At least in the case of spatial situations the movement happened between situations that existed independently of the movement: we might say that I discovered the situation of university, when I walked there from the situation of station. In other cases the existence of some situation requires active manipulation of some object: for instance, in order to get a situation with a red ball, I must figuratively produce this situation by painting some ball with red colour. In some cases I might even have to produce some object from given components in order to produce a situation: this is the case when an architect designs and builds a house.

These two types of processes of discovering and producing situations I call by the common name “constructions”. The common characteristic of both sorts of processes and thus of all constructions is that they are the source for our knowledge of

the existence at least of some new situations and perhaps also of the existence of some new objects. The examples thus far have been of constructions carried out by persons. We might extend the area of constructions to cover analogical processes made by other objects: for example, a rolling of a stone from cliff to the valley moves it from one situation to another, and a strike of lightning changes the state of forest from non-burning to burning. The constructions thus far have been concrete physical changes, but mere changes of viewpoint should also be included. Furthermore, I shall extend the concept of construction to cover also movements from or to more abstract situations: thus, if I stop doing mathematics with mere whole numbers and take all the rational numbers into account, I have in a sense moved from one system of numbers to another. Note that in the case of such abstract situations it is rather difficult to say whether they have been produced or merely discovered by constructions.

My concept of construction of situations is essentially related, and indeed, might even be identified with Hegel's concept of *Setzen*: the subspecies of mere discovery of situations Hegel calls *Voraussetzen*. The constructions in a sense show the existence of other possible situations, when a single situation is given or actualised: thus, one might say that possible situations are connected by possible constructions. Yet, the constructions do not actually prove the existence of other situations. In some cases the constructions change objects and situations, and this is clearly no proof: when a leaf turns red, it does not prove itself to have been red, and when we paint a ball red, we have not proved that it has been red. Even in the case of mere discoveries, we cannot begin with a known method of discovery – like walking from one place to another – and start to discover new situations, because learning this method already requires that we have moved from one situation to another. In other words, the knowledge of constructions moving us from one situation to another must follow the experience of a movement from one situation to another.

The structure of the Logic reflects this necessary order of learning how to construct new situations. In the first book of the Logic Hegel begins by showing that it is possible to move from one type of situation to another: for instance, he shows that from a situation with one object we can move to a situation with many objects. In the later books we are then meant to notice that these movements are something that we readers can ourselves imitate and we thus acquire the necessary methods of construction for making these movements. Hegel's method in the Logic does not then resemble a continuous line of argumentation, but rather is more like the transfer of a skill from master to apprentice: The apprentice is first shown an application of this method, and is

expected to learn to exercise the method himself.

The possible constructions thus connect situations with one another. I mean this not so much as an explanation of this connection, but as a description: the only proof of the possibility of changing situations, if one can call it a proof, is to take one away from one's current situation to another. Situations are thus fleeting: that is, they are real – for example, the cow truly is in the barn – but temporary, limited to one region of space, one moment of time or generally to one context – the cow might not be in the barn tomorrow. Objects are more stable, because they can exist from one situation to another, and they are more stable thanks to their abilities to make constructions in the extended sense of the term, that is, because of their capacities to move from one situation to another. For instance, the cow is more enduring than the situation where it was in the barn, because the situation is gone once the cow is taken to the field, but the cow survives this transition. We might even say that an object having more capacities of constructing situations where it itself exists is also more real and true. Here the phrases “real” and “true” are used somewhat figuratively: a better way to put the same point would be to say that this object is more stable or more capable of surviving in different situations and contexts.

Hegel's famous statement that his philosophy has replaced the standpoint of substance and necessity with the standpoint of subject, concept and freedom is closely related to this idea of capacities of construction as the correct measure of the “truth” or worth of objects. The standpoint of substance which Hegel discusses is the final attempt to reduce everything to a single situation. When some construction has landed a person believing in the standpoint of substance to a new situation, he responds by insisting that these different situations have been mere states, aspects or modes of a more extensive situation or substance. As I noted earlier, Hegel does not accept the idea of such one situation, World or Substance encompassing all other situations, just as he does not accept any Space encompassing all spaces. At most there is a potentially infinite series of situations or substances, where a substance encompasses all its predecessors, but would then be encompassed by the next member of the series. Hegel's suggested change of viewpoint would then be a step towards a more individualistic world-view, where the singular objects would shape any powerless and hence somewhat “less real” substance through their capacities of manipulating their environments.

The second question of the possibility of general statements applying to all situations is interestingly related to these two standpoints. I shall illustrate the point through an analogy with mathematics. How does mathematician know that sum of the

angles in any triangle in Euclidean space will be of certain quantity? Clearly he cannot look into any universal space encompassing *all* possible triangles: the attempt to do this would be the application of the standpoint of substance to all triangular spatial situations. Instead, the mathematician has the capacity to prove this statement for *any* triangle in *any* situation: here the capacity to prove can be regarded as one sort of capacity of construction. Similarly, anyone having a real capacity for constructing something – say, the architect who knows how to build a house – does not need some universal situation encompassing *all* situations in order to be able to use his capacity, but just the ability to use his capacity in *any* proper situation – the architect knows how to build houses, because he can do it in any situation with proper materials. Here the word “any” indicates universal capacity, which applies to any case, while the word “all” refers to an imaginary situation, which would cover all cases.

The use of architect’s capacity of constructing houses is restricted to situations with proper material, and even the use of mathematician’s ability of constructing a proof concerning the angles of any triangle is restricted to Euclidean spatial situations. The almost inevitable question is what constructions could be used truly in *any* situation: this is the task of Hegel’s Logic, as we shall see. Physical constructions require always some specific materials, so these constructions cannot be truly universal: we are dealing here with mere changes of viewpoint. Indeed, we cannot assume anything of concrete objects there might be in this situation, because otherwise we would be restricting the possible fields of application of the constructions we try to discover.

The possibility to extend the concept of objects to more abstract entities offers a beginning. Whatever the situation at hand is and whatever is given to us, we or indeed any thinker can surely think of the possibility that nothing would exist. This thinker could then take this possibility as something that he would think of: he could say, for instance, that this possibility is a possible situation or that it has the quality of “being a possible situation”. This quality or situation of the original possibility could then be taken as a new object of thought: we could say, for instance, that the original possibility and its situation form a collection with the quality of “having two members”.

Clearly we could continue in this manner indefinitely, finding ever more situations with more and more members. But we could also continue in another direction. The thinker in question was at first thinking the possibility that nothing existed, then he moved to thinking this possibility together with its quality: a construction has occurred, although one involving a mere change of viewpoint. He

could then go on thinking of the construction: he could, for example, notice that it is a possible construction from certain situation to another. This opens up a whole new avenue of possible situations and possible constructions for him.

As I noted earlier, in the case of construction from or to abstract situations it is rather difficult to say whether the situations are created or merely discovered by the constructions. Thus, a philosopher might ask whether the possible situations form a sort of Platonic world of ideas or whether they are mere fictions of thought. For Hegel this would be a futile question with no meaningful answer: on what criterion one could decide the answer? What is important is the capacity to think of such insubstantial objects. Furthermore, any thinker should be able to reconstruct these steps. This demand sets certain limits to the constructions involved. For instance, I could decide at some point that I am done with these airy abstractions and start thinking of Pegasus. This change of viewpoint would be possible for me, but it wouldn't be possible for anyone who was not acquainted with horses, wings or Greek mythology: thus, such constructions couldn't be called truly universal, i.e. possible for any thinker.

Such insubstantial constructions neither produce nor discover anything in the concrete world: thus, they are not a tool for metaphysics in the sense of an investigation of the essence of the concrete world. Yet, these insubstantial constructions do serve us in discovering models or instances for certain basic ontological concepts. For instance, we saw that the possibility of nothing existing and a quality of this possibility formed a pair of objects: thus, we can now compare this model of pair with other pairs of objects, like two rabbits running around in the field. Analysing the model of pair in our thought would then reveal some characteristics of *any* pair of objects. Other ontological concepts we have been able to model in the preceding discussion have been the two basic concepts of this work, namely, situation and construction: the thinking began with one example of a situation and proceeded by constructing a new situation from it.

Our human capacities allow us to conceive of abstract models, and use these models as a tool for analysing the concrete world. Furthermore, we are also able in a sense to bring these models into reality. We can stop merely thinking of, for instance, the possibility that nothing would exist. We could invent a name for this possibility or we might borrow the German word *Nichts* for referring to this possibility. Then we could literally speak such sentences as “*Nichts* exists in the sense that we can think of it and we can speak of it”, thus puzzling our listeners. We might write the word *Nichts* to paper or to blackboard and thus create a concrete physical object referring to a certain insubstantial abstraction. We might perhaps even be able to formulate a mathematical

system in which such insubstantial abstractions are embodied. All of these possibilities are based on our general capacity to manipulate our environment so that its properties correspond to some general models

The three capacities of thinking abstract models, of exemplifying general structures of concrete objects through abstract models and of manipulating environment according to certain models are what define Hegelian *Geist*. *Geist* does not refer to the totality of all human beings, which is as nebulous idea as the sum of all situations, but to any entity having these capacities: the only examples of such entities we know of are human beings. Thus, when Hegel says, for instance, “*Geist* has these characteristics”, he is merely referring to characteristics that any human being should or at least might have: analogically, when a mathematician says “a triangle has these characteristics”, he is speaking of any triangle and not of any supertriangle containing all other triangles within itself. *Geist* is then an entity with certain capacities of construction, and indeed, capacities of the most powerful sort that enable one to understand and manipulate the environment around oneself in an uncomparably effective manner. Thus, Hegel can well conclude that *Geist* is the “truth” of everything, when we use the word “truth” in the same figurative manner as earlier.

The clarification of the two concepts have led us to some of the central themes of my work: thus, it is a good time to start the real study. I should finally say something of the form or structure of my work. I shall begin with the investigation of the Logic, its subject matter and method, and its possible independency from the *Realphilosophie*. This investigation forms the first part of my work. In the second part I then move from the study of the Logic towards the question whether the Logic grounds the *Realphilosophie* or whether the relationship of the Logic and the *Realphilosophie* should be of a different nature: as an example I shall consider the problem of introducing space and time in Hegel’s philosophy.

¹ I shall call Hegelian logic often simply the Logic, in order to separate it from any other kind of logic. Similarly I shall speak of the System when I explicitly refer to Hegel’s philosophical system. Finally, I shall capitalise important parts of the System, such as the Phenomenology of Spirit, the Philosophy of Nature and the Philosophy of Spirit.

A. Constructivist reading of Hegel's Logic

1. Some conceptual apparatus in the Logic

When one is confronted with the Logic for the first time, a certain feeling of chaos is bound to ensue. Although the book is neatly organised into triads consisting of triads, this semblance of order vanishes when one actually starts to read the text: the triads do not fit nicely into the textbook presentation of the Hegelian dialectic consisting of successive phases of thesis, antithesis and synthesis. But when one starts to investigate the Logic more closely, one is bound to notice some regularities – some patterns that come up now and then and even repeat themselves so that at times the observant reader may even be able to predict what should come next. Among these patterns are certain phrases and concepts that recur throughout the Logic.

Before we can even try to look for a general picture of the Logic and then truly appreciate what the Logic is all about, we must undeniably get acquainted with the meanings of these phrases and concepts. Now, a mere list of definitions would undoubtedly be tedious, and furthermore, it would make it quite difficult to discern the interrelations of the concepts defined: it would lack the context in which the concepts are introduced. Thus, I have decided to begin this study of the Logic with a study of one chapter in it – the chapter titled *Dasein*, occurring almost at the beginning of the Logic – because in this chapter most of the recurring concepts of the Logic are introduced. This investigation must, of course, be preliminary, because the full purpose of the Logic has not yet been discovered, but it will hopefully serve as a ladder to a place where we can finally view the Logic in its entirety.

a. Qualitative structures and their relation to Hegel's theory of judgement

The first task is to explain what Hegel means by the German word “Dasein”. First of all, it seems clear that *Dasein* and generally all forms of *Sein* in the Logic do not refer to any kind of statements¹ – Hegel does not identify *Sein* with *Satz*. Instead, *Sein* is at most something that can be referred to by a statement. Now, Hegel separates *Dasein* from mere being or *Sein* by saying that *Dasein* is determinate.² The characteristic of something being a determinate (*bestimmt*) shape of some structure occurs quite often in the Logic: for example, a quantum or determinate quantity differs from pure quantity only by the fact that a determinate quantity is limited by other quantities.³ Similarly, determinate being should be being limited by and thus comparable with other beings. Here we must take care not to let words mislead us. By “beings” Hegel does not mean

objects that are, which he calls by name “something” (*Etwas*), but the fact or state of being. *Dasein* is, Hegel says, “etymologically taken being in a certain *place*; but the spatial representation does not belong here”, that is, Hegel does not intend the word “place” to be interpreted spatially.⁴ Perhaps it would be best to speak of different situations: “There is *Dasein*” means that the world or whatever we are dealing with is structured so that there are different situations where things could be. Another way to say the same thing might be that there are different possible states of affairs that could obtain.

Hegel also calls the characteristics of these different situations qualities.⁵ The word “quality” is a bit misleading, as Hegel has not yet separated quantitative structures from qualitative ones: He is dealing with properties that are common to both the qualitative and quantitative structures. Hegel does try to clear out the confusion by using the word “determinateness” (*Bestimmtheit*) as a name for a genus whose species are quality and quantity.⁶ By determinateness Hegel means just what we have called a situation: it is a certain place in some structure, be it qualitative or quantitative. A Hegelian quality in itself, without any comparison with other qualities, would be merely a pure or mere state of being. That is, qualities divide the world into separate and independent portions that might be called worlds of their own: colours, for instance, divide the world into a blue world where everything is blue, a red world where everything is red etc.⁷ Thus, one might also identify qualities or situations with states of affairs or propositions “everything is qualified this way”. Each of these worlds or situations is isolated and doesn’t have any effect on other situations – at least in this part of Hegel’s Logic. They are also exclusive and do not share any part. This exclusiveness is not only a characteristic of a single qualitative structure such as a colour series where each colour excludes the possibility of there being other colours in the same place. Instead, Hegel seems to regard this exclusiveness as characterizing relations between any kinds of qualities.⁸

Besides these qualities or situations we have also the objects that are in these situations or have these qualities, “somethings” (*Etwas*) as Hegel calls them.⁹ Thus, the entirety of *Dasein* consists of different objects classified in a certain structure according to the situations that they are in or the qualities that they display. The study of these kind of abstract structures, especially the relationship between the object and its quality – or the judgement (*Urteil*), as it was called – and the way that certain judgements ground or explain certain others – the syllogism (*Schluss*) – has traditionally been the subject matter of formal logic. It is therefore helpful to look upon Hegel’s ideas

concerning the formal logic of his time, found under the two chapters of Hegel's Logic titled "The Judgement" and "The Syllogism".

Before approaching Hegel's own view of judgements or predication, we should, for the sake of comparison, look upon the two views of predication that have been most widely held during the whole history of logic, the Aristotelian and Fregean views. The Aristotelian scheme of predication talks of two concepts – the subject and the predicate – that are held together by the copula which expresses the relation between these concepts. The subject could be universal or particular, the predicate could be positive or negative and the relation affirmative or negative. The main examples of judgements on this account are thus of the form "All As are Bs" – for example, "All humans are mortal" – or in the traditional symbolism, "A a B": all the concepts in the judgements are class concepts. On the other hand, such judgements as "Socrates is a man", where the subject term is an individual, are interpreted as "All Socrates are men", that is, the judgement is taken as concerning a class that contains only Socrates instead of Socrates himself. According to the Aristotelian account of judgements there is no intrinsic difference between the subject and the predicate and thus we can change the places of subject and predicate to make another judgement: "All mortals are men" and "All men are Socrates" are as good examples of judgements as the rest, although of course false judgements.¹⁰

Turning to the later view of judgements, the Fregean one, we see at once a noticeable difference in how the two views handle relationship between the subject and the predicate. The Fregean view has as its primary example judgements of the kind "Socrates is a man". This kind of judgement is dividable into two parts of which the first part, "Socrates" is – in a sense – complete. The remaining part "is a man" is, on the other hand, incomplete and requires some term to become a sentence: the predicate is a function, while the subject is an argument for that function. There is thus, in the Fregean view, an essential difference between the subject "Socrates" and the predicate "is a man", and it is therefore incomprehensible to speak of switching their places. The judgements that were the primary example in Aristotelian view are regarded as constructions from the basic judgements: the judgement "All humans are mortal" is interpreted as saying something like "For all things (if it is human, then it is mortal)".¹¹

Hegel was, of course, raised in the tradition of Aristotelian logic which is best seen in his theory of syllogism where he speaks, for instance, of the possibility of changing the place of the subject and the predicate,¹² which we found to be a peculiarity of Aristotelian logic. Despite this, there is some foreshadowing of the Fregean

separation of the subject and the predicate: although the predicate is not an incomplete concept, it is for Hegel a concept of a different kind than the subject. The subject expresses an individual (*Einzelne*) or some thing, whereas the predicate expresses a universal (*Allgemeinheit*) or some quality that the thing has. Thus, Hegel's main example of judgement – “The rose is red” – is of the form of the basic Fregean judgement.¹³

What separates Hegel's view of judgement from both the Aristotelian and the Fregean views, is the way Hegel handles the copula or the relationship between the subject and predicate. In Aristotelian view we are investigating the relationship between two classes of things, in Fregean one we are dealing with an individual and the predicates it satisfies. Now, Hegel states that the relationship of concepts in judgement is a form of transition (*Übergehen*), or more precisely, it is the truth or exemplary case of all forms of transition:

This signification of the judgement is to be taken as its *objective* meaning, and at the same time as the *truth* of the earlier forms of the transition. In the sphere of being, the object *becomes and alters itself*, the finite *perishes* in the infinite; in the sphere of existence, the object *issues from its ground* into appearance and *falls to the ground*, the accident *manifests the wealth* of substance as well as its *power*; in being, there is *transition* into an other, in essence, reflection into an other by which the *necessary* relation is revealed. This movement of transition and reflection has now passed over into the *original partition* of the *concept* which, while bringing back the individual to the *in itself-being* of its universality, equally determines the universal as something *actual*.¹⁴

Hegel uses the word “transition” quite a lot in his Logic without ever completely explaining what he means by it. Although Hegel uses it together with words such as becoming and change, it seems that it cannot, in the realm of the Logic, mean some temporal transition; after all, time becomes issue only after leaving the Logic, in the Philosophy of Nature. Still, there is a distinct impression that the terms of Hegelian transition are in some way different, that we are in a different situation before and after the transition: the subject and the predicate are different phases in the judgement.

To get a clearer view of this difference of situations between the subject and the predicate, it is helpful to study some peculiarities in Hegel's idea of syllogism. Consider the following passage:

The *therefore* appears as the conclusion that has taken place in the *subject*, a conclusion deduced from *subjective* insight into the relationship between the two *immediate* premises. As subjective reflection enunciates the two relations of the middle term to the extremes as particular and indeed immediate *judgements or propositions*, the conclusion as the *mediated* relation is also, of course, a particular *proposition*, and the *consequently or therefore* is the expression of the fact that it is the mediated one. But this *therefore* is not to be regarded as an external determination in

this proposition, as if it had its ground and seat only in subjective reflection; on the contrary, it is grounded in the nature of the extremes themselves whose *relation* again is expressed as a *mere judgement* or *proposition* only for the purpose of, and by means of, abstractive reflection, but whose *true relation* is posited as the middle term. That *therefore I is U* is a *judgement*, is a merely subjective circumstance; the very meaning of the syllogism is that this is not merely a *judgement*, that is, not a relation effected by the *mere copula* or the empty is, but one effected by the determinate middle term which is pregnant with content.¹⁵

Hegel uses most of his energy to speak against the idea that syllogism is a mere subjective movement from premises to conclusions. Yet, he also indicates that the syllogism is something more than a mere judgement. The implication is that it shares at least some properties with judgement. As the judgement is for Hegel a transition, so is also the syllogism, but unlike the judgement, it is a mediating transition, that is, a transition that goes through some third situation.¹⁶ This is in itself rather strange way of dealing with syllogisms, but even more strange is what Hegel counts as them. Hegel takes as an example a wall that has been painted with yellow and blue paint and is therefore green. Now, he says that we can make a transition from the predicate “painted with blue” to the predicate “blue-coloured” and that this transition forms a syllogism, although its conclusion “wall is blue” is false.¹⁷ This kind of deduction does not follow the traditional form of the prime example of Aristotelian syllogisms – “All As are Bs, all Bs are Cs, therefore all As are Cs” – as all objects painted with blue are certainly not coloured blue; this much even Hegel is willing to admit.¹⁸ The syllogism Hegel is here referring to seems to go more like this: the wall is painted with blue, and if we abstract from all the other properties that the wall might have, we must conclude that it is blue.

The peculiarities in Hegel’s examples of syllogisms are explained only if the transition that according to him obtains between the subject and the predicate of the judgement is some kind of abstractional relation: the predicate is or expresses a situation that could be abstracted from the situation that is or is expressed by the subject. This would perhaps explain why Hegel calls judgement “the original partition of the concept”: in judgement we abstract one side or aspects of the subject term and present it as independent of all its other aspects. We have already seen that this is a good description of predicates: predicates of judgements are for Hegel qualities, that is, what we have called the characteristics of situations with objects. Every quality is a world of its own that excludes every other quality from it: the quality or situation of redness is mere redness, abstracted from every other possible property. More problematic is whether there is some situation that corresponds to the subject of the judgement, the state of the thing when it is considered without a relation to any quality. A likely

candidate for this role is the state that Hegel calls being in itself (*Ansichsein*) as compared to being for other (*Sein-für-Anderes*): state or situation of mere identity that is abstracted from all the qualities by which a thing could be compared with other things.¹⁹

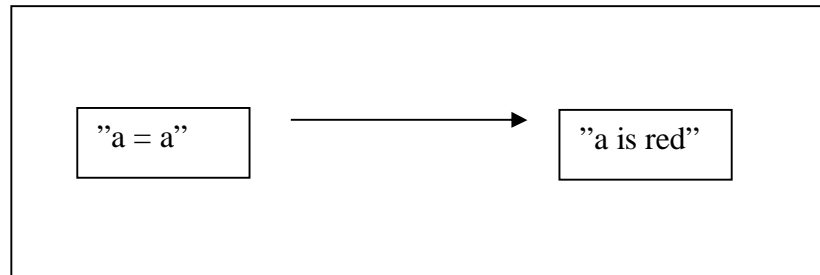


Figure 1

If we recollect everything we have learned about Hegel’s theory of judgements, we might represent an example of Hegelian judgement in the manner of Figure 1: there is a certain situation represented by the box in the left, the being-in-itself of the thing or the states of affairs in which it is self-identical, and from this situation it is possible to move to another situation, to the state of affairs in which the thing is red. This way of representing Hegelian judgement suggests that it is natural to interpret Hegel’s theory of judgements in terms of modern modal logic. What we have represented by the small boxes, that is, the subject and the predicate, are two possible situations or possible states of affairs – possible worlds, as they are usually called, although in this case rather small worlds. The arrow connecting these situations, which represents the copula of the judgement, corresponds to the so-called accessibility relation – the relation that one situation is possible in the viewpoint of another situation: in the Hegelian view the relationship is also abstractive, i.e., the predicate situation says not just “a is red”, but that “a is exclusively red”. Thus, the large box representing the judgement itself is also a situation or states of affairs, but a more complex one, consisting of states of affairs: “This thing might be seen as (exclusively or merely) red”. Of course, this is not to say that Hegel’s theory of judgements is some kind of “modal algebra” – a proof theory of some modal logic – but only that it describes structures that could be also modelled in a model theory of modal logic. In other words, Hegelian judgements combine different contexts.

Before we go further, we must deal with a possible misunderstanding. By judgement is usually meant something mental, something made by conscious beings, thus something depending on them. In light of this, it might be strange to be reading of

judgements as equated with states of affairs, which are usually thought of as something objective or independent of consciousness. This variation in usual meaning is explained by the manner in which Hegel uses the word “judgement”. It is obvious that Hegel regards what he calls judgements primarily as something objective, as the following quotation indicates: “Through this significance of *attachment*, the *subjective* meaning of judgement and the indifferent, outer subsistence of subject and predicate are sublated again: this action *is* good; the *copula* indicates that the predicate belongs to the *being* of the subject and is not merely externally combined with it.”²⁰ Hegel thus obviously takes judgements more as states of affairs than as someone’s thoughts or statements concerning these states of affairs. Furthermore, Hegel is not equating judgements just with true states of affairs or facts, as he explicitly uses examples like “now it is day”,²¹ which clearly could be false– or incorrect (*Unrichtig*), as Hegel prefers to say. Thus, judgements are, for Hegel, a certain class of possible states of affairs, and his theory of judgement does not deal with the epistemic question of how the knowing subject can make true judgements, but with the ontological question of in what situations certain kinds of states of affairs obtain and if there are states of affairs that obtain in every situation.²²

As Hegel understands by judgement a certain kind of state of affairs, similarly he must understand by transition a possibility of transition:²³ a judgement is a state of affairs in which it is possible to abstract certain property of certain thing, and when a conscious being is judging, he actualizes the possibility of this transition by making this abstraction. Note that although an actual judgement is apparently a transition of a mental sort and perhaps even a transition that happens in speech, this does not mean that by transitions Hegel would always refer to something linguistic.²⁴ Instead, the judgemental transition is a mere example of transitions, where the class of transitions cover all cases of one situation being replaced by another: for example, a case of a ball being here now, but in a moment there.

If we now study more closely the relation between the subject and the predicate – the transition or possibility of transition – we at once notice that it is not transitive, that is, from the predicate situation we can make new transitions that were not possible from the subject situation: this is exemplified by the Hegel’s wall that was painted with blue and yellow. We have already seen the reason for this intransitivity, namely, the abstractive characteristic of the transition between the subject and the predicate. The validity of syllogisms – that is, the possibility that we could make correct deductions by moving from subject situation to some predicate situation through another predicate

situation – would undoubtedly require that the relation in question would be transitive.

Until now we have investigated only the case where we have only one judgement to make. An interesting question is raised by the possibility that a thing might and usually does have more properties than one, like the salt that is both white and cubical in Hegel's *Phenomenology*. In the logic of our times there is no problem. We just combine the two propositions in case with a logical operator that is meant to convey the meaning of the word "and": "(a is white) and (a is cubical)". In Hegel's theory of judgement we don't have the luxury to do that, as the subject and both of the predicates have their own possible situations. The properties would have to be in some sense exclusive and in other sense radiate from the one thing, as Hegel says in his *Phenomenology*.²⁵ This would give us something like Figure 2, which represents a state of affairs where we could make two abstractions out of the same thing.

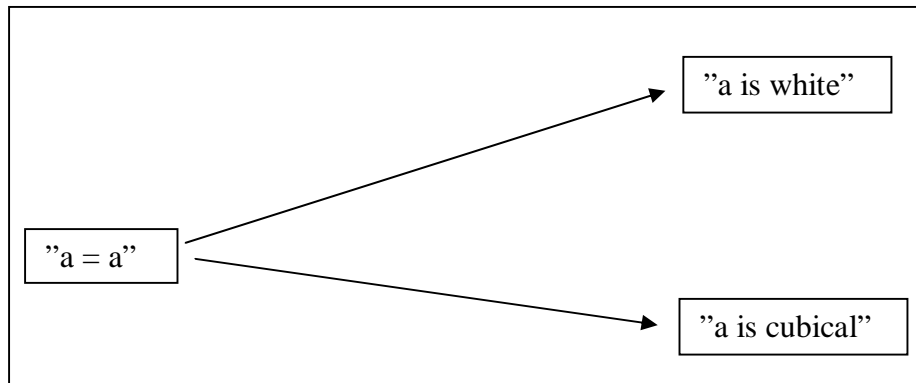


Figure 2

The cumbersomeness of Hegelian account of judgements is striking: we must have different situations or contexts for the subject and all the predicates that it has, whereas both in Aristotelian and Fregean logics we manage the predication without the introduction of different contexts. It is therefore probable to assume that Hegel has had some reasons for wanting to identify judgements with a form of transition. The first reason would be Hegel's desire to separate his view of making judgements from the one current in his days. In the Aristotelian tradition, making judgements was seen as a combination of two concepts, the subject and the predicate. Now, as we have seen, Hegel inverts this picture of how judgements are made: we are not combining a subject with a predicate, but moving to a more abstract situation which is, in a sense, "cut" from the whole. Making judgements is separating and dividing, as Hegel is fond of saying, reading "*Urteil*" as "*Ur-teilung*".²⁶

The second reason is Hegel's upholding of the so-called unity of differences or contradictories. As is easily seen, if every predicate of certain subject forms its own

situation or context that is independent of others, it is possible that a subject has contradictory predicates, that is, predicates that a subject, in the normal sense of predication, cannot have at the same time. This view does not entail any logical contradiction in the modern sense as the contradictory predicates are not “mixed” in the same situation.²⁷ We are merely saying something like “This thing can be seen as B (making one kind of abstraction) and not-B (making another kind of abstraction)”; the result could be used as counterargument against those who maintain the incompatibility of Hegel’s Logic and formal logic of every kind.

Before we can accept the interpretation of Hegelian unity of differences as two separately possible, but mutually incompatible situations or senses in which we can see one thing, we must face the objection that Hegel himself would have denied it. Indeed, we see Hegel declaring that he does not accept dismissing the contradictory predicates of one thing as merely two different points of view, for instance, that a rose would be red in my point of view and not red according to someone else’s point of view – Hegel even tries to show that such a differentiation of viewpoints does not solve any contradictions, but reproduces them in another form:

In the self-alienated reflection, therefore, likeness and unlikeness appear as mutually unrelated, and in relating them to *one and the same* thing, it separates them by the introduction of ‘*in so far*’, of *sides and respects*. The diverse, which are one and the same, to which both likeness and unlikeness are related, are therefore, *from one side* like one another, but *from another side* are unlike, and *in so far* as they are like, they are not unlike. *Likeness* is related only to itself, and similarly *unlikeness* is only unlikeness.

But by this separation of one from the other they merely sublimate themselves. The very thing that was supposed to hold off contradiction and dissolution from them, namely, that something is like something else *in one respect, but is unlike it in another* – this holding apart of likeness and unlikeness is their destruction. For both are determinations of difference; they are relations to one another, the one being what the other is not; like is not unlike and unlike is not like; and both essentially have this relation and have no meaning apart from it; as determinations of difference, each is what it is as *distinct* from its other. But through this mutual indifference, likeness is only self-referred, and unlikeness similarly is self-referred and a reflective determination on its own; each, therefore, is like itself; the difference has vanished, since they cannot have any determinateness over against one another; in other words, each therefore is only likeness.²⁸

On closer examination we see that Hegel is speaking of something completely different. He is arguing against the idea that these different or contradictory situations would be only the work of what Hegel calls external reflection, that is, that the different point of views or manners to view things would be caused only by some difference in person investigating the things and making the judgements: instead, the different viewpoints

are necessarily related to one another. What Hegel then is upholding, is that there exists, in some cases,²⁹ an ontological indeterminacy as to how a thing should be described. One example of this is the relationship of wholes and parts: “What is considered as one thing can equally be made into or considered as several things; the separation or union of them is *external*. A book is a thing and each of its leaves is also a thing, and so too is each bit of its pages, and so on to infinity”.³⁰ Generally every material thing could be seen either as an independent object or merely as a combination of smaller things. We shall see later that a similar kind of indeterminacy is shown by an example from Hegel’s view of numbers: there is no natural unit, but we could choose any quantity as the unit of our number system.

There is one particularly important example of Hegel’s principle of unity of contradictories and the one Hegel himself gives, namely, the relationship between identity and difference: “In this correct judgement, however, it is immediately implied that *truth is complete only in the unity of identity with difference*, and hence consists only in this unity”.³¹ Some things could be identical or different according to different viewpoints or levels of abstraction: for example, if there were two stones that were similar in every way except that they were at different places, they could be viewed as the same stone if we abstracted from their different positions.³² The example of relationship between identity and difference is not just generally interesting, but it is also applicable to the situation Hegel calls judgement: in Hegelian judgement we have one thing which can be seen as exemplifying different qualities or predicates, in general, one thing in different situations. Now, we can view the situation in the way just mentioned or we could think of every occurrence of the thing in one situation as an independent object: thus, what we usually call a thing would actually be just a collection of what nowadays are called tropes and what for Hegel go by the name “matters” – individualized properties. To the relationship of identity and difference is also related Hegel’s separation of the abstract and the concrete identity: concrete identity means for Hegel at least³³ the identity of thing over different situations: one object can appear in many contexts without losing its identity. Hegel calls the concrete identity also by the already familiar epithet “identity of identity and difference”: after all, one thing in different situations might be interpreted either as one thing or as many different things. On the other hand, abstract identity equals what Hegel also calls being-in-itself – identity within a situation or a context, or the thing abstracted from its diverse properties.³⁴

b. Change and quantity of things

Let us pause for a while to consider what we have discovered so far. We have seen that what Hegel calls *Dasein* consists of some things or objects that are classified in a certain structure. The classification is not of the usual kind where every object is limited to a certain place in the structuring, place which Hegel calls a quality. Instead, the classification is contextual: an object has its own “world” or situation and by classifying or making a judgement we, in a sense, move it to another situation, to the quality we say it has. This movement is abstractive, so that according to the new situation the thing has only this quality. There might be different situations to which we might make the abstractive movement, as the thing might have different qualities: the choice of the abstraction depends on the circumstances and conditions. Because these qualities or situations are independent and do not overlap, the object might even have contradictory qualities, that is, by different abstractions we might arrive to qualities that were impossible to unite in the same situation.

So far we have studied only an object with one combination of predicates, but as experience tells us, one and the same thing may have different qualities, for example, the piece of sugar that was cubical at one moment may have been cut into a spherical shape. Also, it is natural to think that there are certain qualities that the thing of a certain sort must have in every possible situation, if it is to be the same thing, for instance, the spherical object must taste sweet or otherwise we will not believe that it is still sugar. The quality that has not been changed might be called essential or intrinsic for the type of object, and it might be thought that it explains why we can speak of one and the same object having different qualities at different times.

Hegel considers the same problem of changing (*Veränderung*) and lands into a similar solution. What we have called the essential quality for a type of thing Hegel calls its determination (*Bestimmung*), the other qualities that might be different Hegel calls by name “*Beschaffenheit*” (sometimes translated as constitution): we might term them intrinsic and extrinsic characteristics.³⁵ Now, the change of a thing concerns only its *Beschaffenheit* or extrinsic characteristics, whereas the determinations or intrinsic characteristics of the thing cannot change while it remains a thing of this type: “In so far as something changes, the change falls in its constitution (*Beschaffenheit*); it is that in the something which becomes an other. The something itself preserves itself in the change which affects only this unstable surface of its otherness, not its determination”.³⁶ An example of Hegelian change is represented in Figure 3, where sweetness is the determination of the object and the shape belongs into its *Bechaffenheit*: the smaller

arrows represent the relationships of judgement and the bold arrow represents the change.

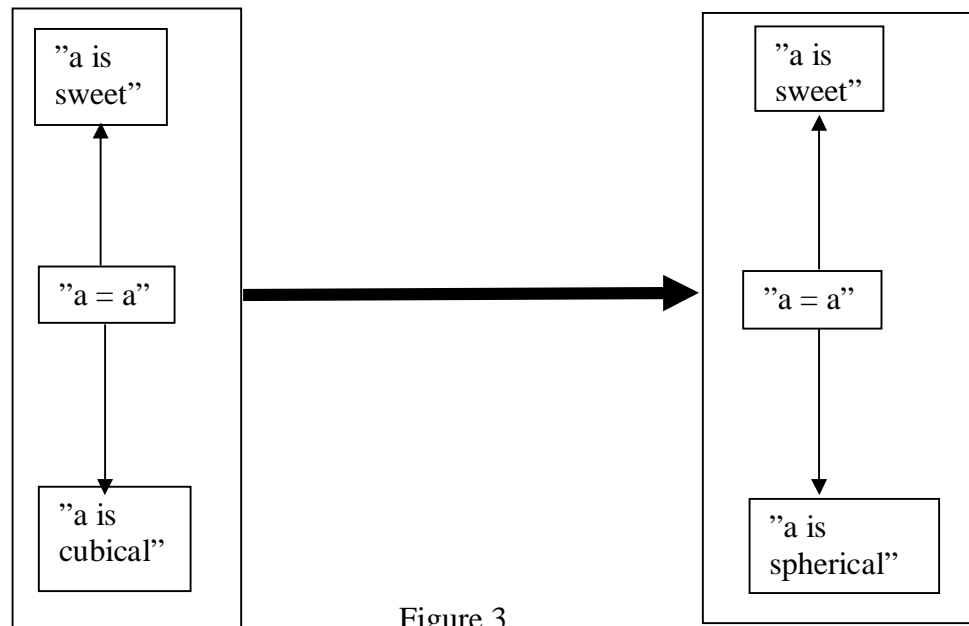


Figure 3

Note that the choice of the determination or the intrinsic characteristic it at least in some case arbitrary: the determination and the constitution are “*sides* for an external reflection”,³⁷ so the choice of the determination depends more on the one reflecting than on the thing reflected. We may wonder what would have happened if instead of the sweetness the cubic shape would have been chosen as the determination of the thing. Then it wouldn’t have been a question of mere change of unessential quality, but the whole thing would have vanished and into its place there would have emerged another thing that would have a spherical shape as its determination.

We have interpreted Hegel’s change (*Veränderung*) as a usual kind of change that happens in time. Indeed, this is undoubtedly the primary application to which Hegel has wanted to draw attention, but within Hegel’s Logic we have abstracted from such things as time, thus the change must not refer merely to the relation between difference of things in different places of time: similarly, in the case of judgements we had to deny that Hegel means actual making of judgements, and instead, we held that he speaks about situations or states of affairs where it is possible to make judgements, i.e., to abstract qualities from things. The change that Hegel speaks is another kind of what Hegel calls transition. That is, as we have remarked, there are two different possible situations that are somehow related to each other. Indeed, the general meaning that Hegel intends transition from one situation to another to have could be stated in modal terms: “Given this situation, there is another possible situation where...”, that is, as an

accessibility or alternativeness relation. Furthermore, this relation is interpreted as containing the capacity to manipulate – either in thought or in reality – one end of the relation and land on to the other end. We could say that each transition in Hegel’s Logic actually denotes a possibility of making a transition.

Returning from the general form of transition to the particular kind of it, that is, to the change, or possibility of change, we at once notice its particular nature: the possible situations or states of affairs between which the relationship of change holds have a same thing from which we could abstract different qualities in these different situations. Contrasting the change with what we called the destruction of a thing and emergence of a new thing, we see that in the second case the things or objects in the situations are not identical, but different objects: in the case of change, on the other hand, there is the same object in different possible situations. Thus, by speaking of changes and destructions of things, Hegel is not describing actual events, but rather saying “This thing can exist in these kinds of situations, but not in certain other kinds, where there exists some other thing instead of it”. As we noted, the answer to the question as to which situations a thing could exist within might be in some cases arbitrary or dependent on which characteristics we choose to regard as essential.

The statement describing which situations certain thing can exist in and which situations it can’t refers undoubtedly to a situation or states of affairs of its own. The determination of such state of affairs or situation Hegel calls limit (*Grenze*) of something: “There is a *single* determinateness of both, which on the one hand is identical with the being-within-self of the somethings as negation of the negation, and on the other hand, since these negations are opposed to one another as other somethings, conjoins and equally disjoins them through their own nature, each negating the other: this determinateness *is limit*.”³⁸ Confusingly, Hegel also calls the limit of an object also its “quality”.³⁹ Hegel is here using quality not to refer to every characteristic of a situation that can be abstracted from the thing, but as a special kind of situation; we already noted that Hegel has tried to separate these meanings by using the word “determinateness” for the more general sense of quality. The main characteristic of the quality in the more particular sense or the limit is that every object can have only one limit: were it to have any other limit, it would be another thing.⁴⁰

Only one limit for every object, but does the reverse also hold, i.e., is there only one object for every limit? More generally we might ask how Hegel handles the situation where there is more than one object sharing the same quality (understood in the more general sense, as any situation that can be abstracted from the object). Firstly,

it seems that Hegel would have taken every different object to have its own subject situation or being-in-itself: after all, Hegel says that when there are many objects any one of them excludes all the others from its place.⁴¹ Secondly, the quality which the objects share is the same. Furthermore, even the object that is in this situation – the object as it is seen in the making of judgement – is the same, for instance, all blue objects are identical if we investigate only their colour.⁴² Here we have a prime example of the so-called identity of identity and difference: in one situation two things seem different, in the other they are identical. The idea of identity of objects that share the same predicate is also behind Hegel’s principle of objective universality (*Objektive Allgemeinheit*), which Hegel describes in following way: “The result is in truth *objective universality*. The subject has thus stripped off the formal determination of the judgement of reflection which passed from *this through some to allness*; instead of *all men* we have now to say *man*”.⁴³ An objective universal is therefore a genus that is not just a common property of some class of things, but literally an object, that is, the object that the things in the class are when they are investigated in the situation where they are identical. In other words, *any* object of a proper sort could be taken as such an objective universality, if viewed from a viewpoint where only the kind of the object matters.⁴⁴ Figure 4 gives a representation of a situation where multiple things share a common quality.⁴⁵

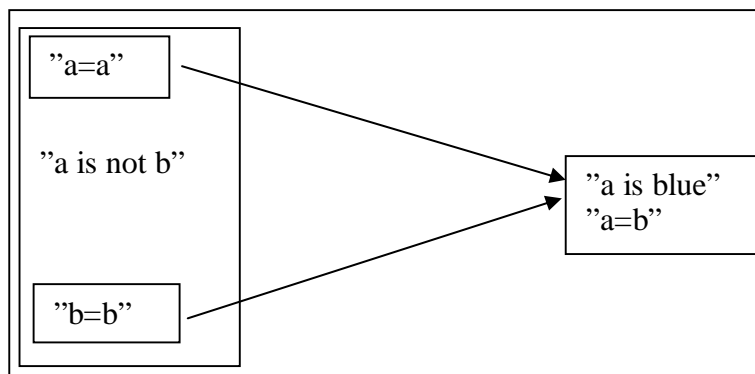


Figure 4

Related to the problem of many things sharing one quality is the problem of quantification: How is Hegel able to speak of all things of some class having a certain quality? Hegel solves the problem in the following way: “Universality, as it appears in the subject of the universal judgement, is the external universality of reflection, *allness*; *all* means *all individuals*, and in it the *individual* remains unchanged. This universality is, therefore, only a *taking together* of independently existing individuals; it is the

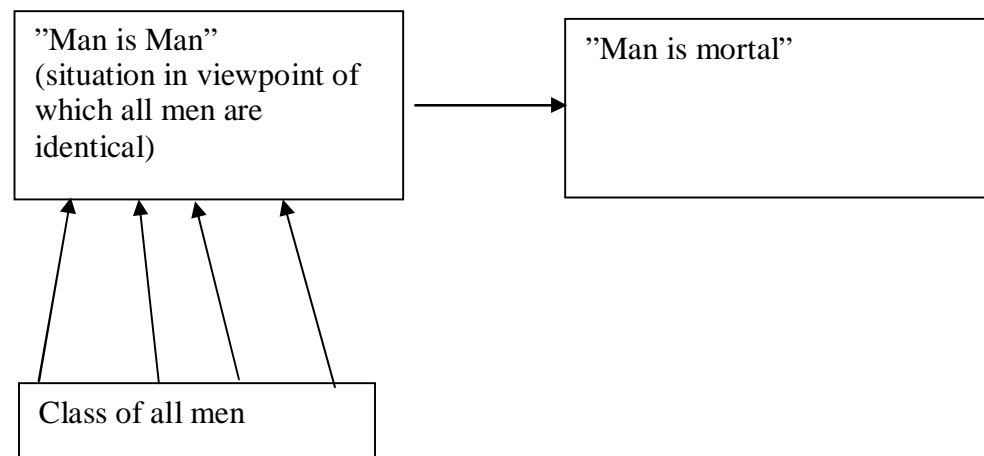
community of a property which only belongs to them in *comparison*.”⁴⁶ Quantification is hence a mere listing of all the instances of certain class. Figure 4 could be taken also as representing this kind of situation: the big box on the left represents the class which contains objects a and b – note that classes or sets of things would have to be identified with certain situations – and the box on the right represents the quality that is common to the objects of this class. From a viewpoint of a modern reader, such a view is not very satisfactory way to deal with quantification, because the class of listed individuals must always be of some determinate size. Indeed, we shall see later that, according to Hegel, every situation can contain only finite number of objects at a time, and thus the class in question can only be of finite size.

Hegel’s apparently careless treatment of quantification is perhaps explained by his favouring stronger, categorical judgements over universal judgements. Hegel’s description of the transition from universal to categorical judgements is worth quoting:

In so far, therefore, as this identity again sunders itself into a judgement it is the *inner nature* through which subject and predicate are related to one another — a relation of *necessity* in which these terms of the judgement are only unessential differences. *What belongs to all the individuals of a genus belongs to the genus by its nature*, is an immediate consequence and the expression of what we have seen, that the subject, for example *all men*, strips off its form determination, and *man* is to take its place. This intrinsic and explicit connection constitutes the basis of a new judgement, *the judgement of necessity*.⁴⁷

Instead of saying “every man is mortal” – that is, “every object having a determination man has the determination of mortal” – we should say “Man is mortal” – that is, “the objective universal Man has the characteristic of mortality”, or in simpler terms, “any man is mortal”. If every situation with objects is not just finite, but potentially infinite, that is, if there is always a situation with more objects – if every class might have one more object – the categorical judgement couldn’t be reduced to universal judgement: remember that quantification is for Hegel always restricted to finite class of entities. This impossibility resembles the problem of induction, where with only certain finite class of instances we cannot make valid deduction to all possible cases.⁴⁸ But Hegel has another solution for representing cases like this: he can take the object of the situation in which any object of this class – or more precisely, any object that might be part of this class – is identical with others of the same class. If this object is transferable to the situation with the predicate in question then the judgement “necessarily, an arbitrary object of this class has this quality” would hold: even if the amount of objects in the class were to be enlarged, any new object could be seen in the predicate situation (example of this in Figure 5).⁴⁹

Although the solution is ingenious, it seems to be applicable only to cases where the object of the class forms what Hegel calls an objective universal. In other cases where the object does not necessarily belong to the class in question, the predicate might not belong to the objects of the class although we could move to it with a judgemental abstraction from the object abstracted from the class: witness, for instance, the example of the wall that was painted both blue and yellow. Yet, we must remember that the choice of the necessary or essential determinations of a thing might be fluid. Thus, if we thought that an essential characteristic of the wall was its yellow colour, then painting it with blue colour would not just change it, but completely destroy it and replace it with a new, green object.



Picture 5

c. Reality and ideality

We have now sufficient information from which to determine what Hegel is studying in the chapter entitled “*Dasein*”. There are different objects, classified into different situations. There is one particular kind of situation – quality, in the stricter sense Hegel uses – such that for every object there is just one of them: it is the situation that presents all the possible characteristics the object might have or it shows the limits inside of which the object exists. Furthermore, because quantity is not yet of concern in this phase of Hegel’s Logic, for every quality there is just one object that has this quality: if the qualities in question were, for instance, colours, there would be one red object, one blue object etc. Thus, we have different objects separated by their characteristics: every object is different from the rest or an “other” compared to them. Thus, Hegel uses the phrase “otherness” or “other-being” (*Anderssein*) to describe a structure where there are irreducible differences between objects, i.e., where there is no possibility to say that the

objects are in some essential sense identical.⁵⁰

Two important concepts also introduced in the chapter *Dasein* are reality and ideality. Hegel first uses the term reality as a synonym of quality. Actually he apparently takes reality to be a subspecies of quality, but at once shows this classification to be faulty:

Quality, distinguished as *being*, is *reality*; as burdened with a denial it *is negation* in general, likewise a quality but one which counts as a deficiency, and which further on is determined as limit, limitation.

Both are determinate being, but in *reality* as quality with the accent on *being*, the fact is concealed that it contains determinateness and therefore also negation. Consequently, reality is given the value only of something positive from which negation, limitation and deficiency are excluded. Negation taken as mere deficiency would be equivalent to nothing; but it is a *determinate* being, a quality, only determined with a non-being.⁵¹

In determinate being its determinateness has been distinguished as quality; in quality as determinately present, there *is* distinction — of reality and negation. Now although these distinctions are present in determinate being, they are no less equally void and sublated. Reality itself contains negation, is determinate being, not indeterminate, abstract being. Similarly, negation is determinate being, not the supposedly abstract nothing but posited here as it is in itself, as affirmatively present, belonging to the sphere of determinate being.⁵²

The difference between reality and the other species of quality, the negation, is only one of point of view: if we call a certain situation reality, we must by comparison call the rest of the situations negations. What is negation compared to some other quality, is reality when regarded in itself. A situation can thus be called real according to Hegel if it is different compared to some other situations and it is taken as the designated reference point in the set of those situations. If we forget that a real situation should be the reference point, then situations are real compared to other situations if they differentiate objects: “red and blue are real qualities” means that red objects are different than blue objects. Thus, we see that the reality of qualities corresponds to the otherness of objects.

We may, by the way, note how metaphorical Hegel’s use of the word ‘negation’ is: any two situations that are alternative to one another in the sense that they cannot hold at one time are negations to one another. Thus, because it cannot rain at the same time as sun is shining, the situation in which it is raining is in a Hegelian sense negation of a situation where the sun is shining. Here the two situations are not even the only alternatives that there might be, because, for example, it could be cloudy without any rain. When Trendelenburg then asks from Hegel, whether the negations Hegel uses should be “logical” or “real”, where by logical negation is meant differences either

between concepts like black and not-black or between statements like “it is raining” and “it is not raining” and by real negations differences between any two things that cannot exist at the same context,⁵³ the answer is clear: Hegelian negations are real. Whether Trendelenburg is then right to conclude that Hegel fails to do what he apparently sets out to do – that is, to develop content through something called “pure thinking” – is a question we shall have to investigate in the next chapter.

If we now turn our attention to ideality, we see that the term first appears when Hegel is making a transition from the chapter “*Dasein*” to the next concerning being-for-itself (*Fürsichsein*):

The negation is thus determined as ideality; ideal being is the finite as it is in the true infinite — as a determination, a content, which is distinct but is not an *independent, self-subsistent* being, but only a *moment*.⁵⁴

Ideality can be called the *quality* of infinity; but it is essentially the process of *becoming*, and hence a transition — like that of becoming in determinate being — which is now to be indicated. As a sublation of finitude, that is, of finitude as such, and equally of the infinity which is merely its opposite, merely negative, this return into self is *self-relation, being*. As this being contains negation it is *determinate*, but as this negation further is essentially negation of the negation, the self-related negation, it is that determinate being which is called *being-for-itself*.⁵⁵

Let us, for now, ignore the difficult question what Hegel means by making a transition from one chapter to another. We have to only note that the essential difference between these chapters is that whereas there are objects with different qualities in the former, there is only one object at sight when the latter chapter begins:

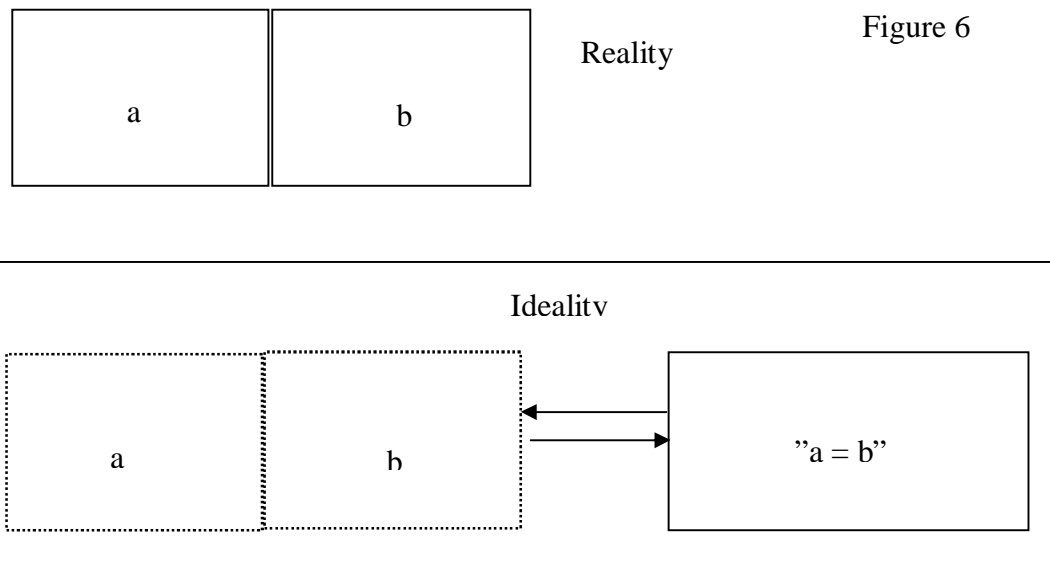
Being-for-itself is *first*, immediately something that is for itself — the One.⁵⁶

True, Hegel admits that the differences of *Dasein* remain in some manner and there might be thought to be differently qualified objects:

[D]eterminate being is at the same time also a moment of being-for-self; for this latter, of course, also contains being charged with negation.⁵⁷

Yet, this point of view is only one moment of Being-for-itself – or it is only a point of view – and actually there is only object. Thus, when we say that certain qualities or situations are ideal in Hegelian sense, we mean that we might take the objects in them to be different, but in reality there is only one object in different possible situations: another way would be to say that these objects are only aspects of one whole.⁵⁸ The difference between reality and ideality is represented in the Figure 6: the dotted line in the ideal situation indicates that the point of view that objects *a* and *b* are different is not as real as the point of view of their identity. Note that the ideality of two objects means actually that they are concretely identical in the Hegelian sense, that is, that they are one and the same object in two different situations or “possible worlds” – this is the so

called transworld identity in contrast with the common identity within a possible world.



Now, the concepts of reality and ideality appear to be rather fluid in the Logic, that is, from time to time Hegel appears to make a change from a situation where differences are real to a situation where they are ideal and again from this sort situation to a situation of the earlier sort. How is this possible? It is obvious that from the ideal situation it is quite easy to get to the real situation: after all, the real situation is one constituent of the ideal situation. In ideal situation we have objects that are different in some sense or point of view, but in another, more essential sense these objects are identical. If we concentrate only on the point of view according to which we are dealing with different objects, we arrive to a situation or context in which there are real differences: we abstract from their identity and concentrate only on their difference. Thus, if we were thinking of one thing in different possible situations or at different points of time, we might easily start to think that there were actually two different entities. Hegel himself notes this inclusion of a real situation or *Dasein* in an ideal situation or *Fürsichsein*, naming the real situation in the ideal situation as being-for-one (*Für-eines-Sein*):

Thus the determinateness which in determinate being as such is an other, and a being-for-other, is bent back into the infinite unity of being-for-itself, and the moment of determinate being is present in being-for-itself as a *being-for-one*.⁵⁹

To be 'for itself' and to be 'for one' are therefore not different meanings of ideality, but are essential, inseparable moments of it.⁶⁰

The meaning of the latter quote seems to be that the two viewpoints – one describing the difference of the object, the other their identity – are only viewpoints of the same

situation: that apparently different entities are truly only different aspects of one entity in different situations or contexts.

The transition from reality to ideality is considerably tougher. If we only had to show that objects that are different can be seen as identical, our task would be easy: we would only have to abstract from the real situation until there would be no difference left. When all the different properties of things are taken away, we finally arrive to the situation Hegel calls being-in-itself or the abstract identity and that is one situation according to which every object coincides. But we also have to show that the situation in which the objects are identical is more essential or more truth-like than the situation in which they are different: one might say that by abstracting from qualitative differences between objects we are begging the question, as these differences really are there, no matter how much we abstract.

The method Hegel uses to prove that reality can be changed to ideality is subtler than the one using mere abstraction. Hegel's main objective in trying in various cases to prove the ideality is to show some possible construction with which to change the objects in question to one another, or more precisely, to change the situation with the first object to the situation with the second and vice versa. Hegel seems to be arguing in this way: You say that this object with this quality differs from that object with that quality; but here is an object with this quality, and I can show you some operations by which the object of this quality vanishes and the object with that quality comes into its place; now, isn't it possible to assume that there was actually only one object that changed its qualities instead of two different objects? If the answer is yes, then – according to a context where objects with same qualities couldn't be differentiated – Hegel has shown that the difference in question can be justifiably interpreted as only ideal.

Some remarks on Hegel's apparent argument are in place. Hegel's core idea is to show that qualities or predicates, that were, in Hegel's time, normally used to classify things, are better interpreted as possible characteristics of one object: for instance, there is no red object and blue object, but one object that might be red or blue. This interpretation requires, of course, quite a deal of abstraction – abstraction, for instance, from spatial and temporal differences between objects and from all the qualities that are not in question. It also requires that Hegel should demonstrate for every possible qualitative structure how to change one quality to another. That is what Hegel is partly doing, for instance, in his *Philosophy of Nature* – showing how one natural quality or one kind of matter could be changed to another. I shall now concentrate on a more

abstract example of this kind of change, one that also includes Hegel's attempt to give a general construction for ideality of all qualitative structures: his example of finitude and infinitude.

We should first become acquainted with what Hegel means by the terms finitude and infinitude. Starting with finitude, Hegel introduces the term shortly after talking of limits or qualities in a stronger sense. Hegel explicates finitude occasionally with temporal terms:

The finite not only changes, like something in general, but it *ceases to be*; and its ceasing to be is not merely a possibility, so that it could be without ceasing to be, but the being as such of finite things is to have the germ of decease as their being-within-self: the hour of their birth is the hour of their death.⁶¹

If we took these descriptions seriously, finitude of a thing would then mean its mortality or non-eternity – its habit of decaying and even dying or ceasing to be. Yet, it seems clear that at least the reference to birth and death is only a helpful simile. It could well be that Hegel has chosen these temporal terms merely to indicate the most concrete examples of relations which were applicable also in non-temporal cases. Indeed, Hegel speaks of finitude also in more abstract terms:

Through its quality, *something* is determined as opposed to an *other*, as *changeable* and *finite*.⁶²

[T]he *limit* of something [...] is [...] the immanent determination of the something itself, which is thus the *finite*.⁶³

Something with its immanent limit, posited as the contradiction of itself, through which it is directed and forced beyond itself, is the *finite*.⁶⁴

The finitude of a thing is here connected with a relationship to another thing or limitation. Such relationships do occur in temporal cases, for instance, in a limit between day and night where day changes into night. Yet, spatial relations are clearly also a possible example, and as the word “quality” implies, relations between differently qualified things, for example, blues and reds. Indeed, word “change”, which Hegel uses to characterise finitude, is sometimes used of such non-temporal relations: we say that one country changes here to another or that a yellow of the left-side of a cloth changes slowly into orange of the right-side. Two things make an object in such a relation finite. Firstly, the relation between the things must be immanent or intrinsic to them. If the relationship between the things were merely external, then we could just ignore it. Secondly, it has to be clearly a relation between two different, non-identified things. It is not just a case of simple change, but of ceasing to be: one object is replaced by another, when the qualities have changed – temporally on non-temporally. We could thus define the Hegelian notion of finitude in the following way: a thing is finite if it is

intrinsically related to a thing which differs from it. Hence, finitude is closely connected with reality: two situations display real difference, if and only if the objects in these situations are finite.

Moving on to infinitude, we face the possibility of equating it with two different types of situation. An infinite object is “affirmative as a negation of finite”,⁶⁵ or simply, it is not a finite object, but does this mean that from the point of view of this object there are only ideal differences or that there are no differences, that is, not even a possibility to see the object as finite? Hegel himself notices the difference between these two types, calling the first true infinitude and the second abstract or bad infinitude.⁶⁶ In his transition, Hegel is interested in showing that abstract infinities and finite objects can be changed into one another: by doing so, he shows that both of them can be seen as true infinities, as a true infinitude has finitude and abstract infinitude as its constituents (see the representation of ideality in Figure 6).

Let us proceed with the transition from finitude to infinitude. What is in question here are the Finite (*Endliche*) and Infinite (*Unendliche*): Hegel is not just talking about some finite object, but of the object that every finite object is, when we abstract from all the other properties of it – remember the view of predication Hegel has. What is important, regarding the argument, is that the object we are dealing with must have finitude as its only determination, that is, it is an object that can exist only in the situations in which it would be finite – in situations with real differences. Thus, there must be another object in another situation – with some other quality – that cannot be identified with the first object.

Hegel continues with separating two further situations, the situation of limitation (*Schranke*) and situation of ought-to (*Sollen*). The names are unfamiliar, but Hegel’s descriptions are here quite clear: “something’s own limit thus posited by it as a negative which is at the same time essential, is not merely limit as such, but *limitation*.”⁶⁷ A limit is a limitation, when the difference between the limited things is essential, that is, when the limited things are also finite – this is described in Figure 7 with the lower pair of boxes containing two distinct objects, *a* and *b*. Notice that we cannot directly change two different kinds of objects to another – the situation may change so that there is *b* and no longer *a*, but then no change in the Hegelian sense has occurred, because the object in different situations is not the same, but one object (*a*) has vanished and another (*b*) has taken its place.

The phrase “ought-to” is introduced in following terms:

But what is posited as negated is not limitation alone; the negation is two-edged, since what is

posited by it as negated is the *limit*, and this is in general what is common to both something and other, and is also a determinateness of the *in-itself* of the determination as such. This *in-itself*, therefore, as the negative relation to its limit (which is also distinguished from it), to itself as limitation, is the *ought*.⁶⁸

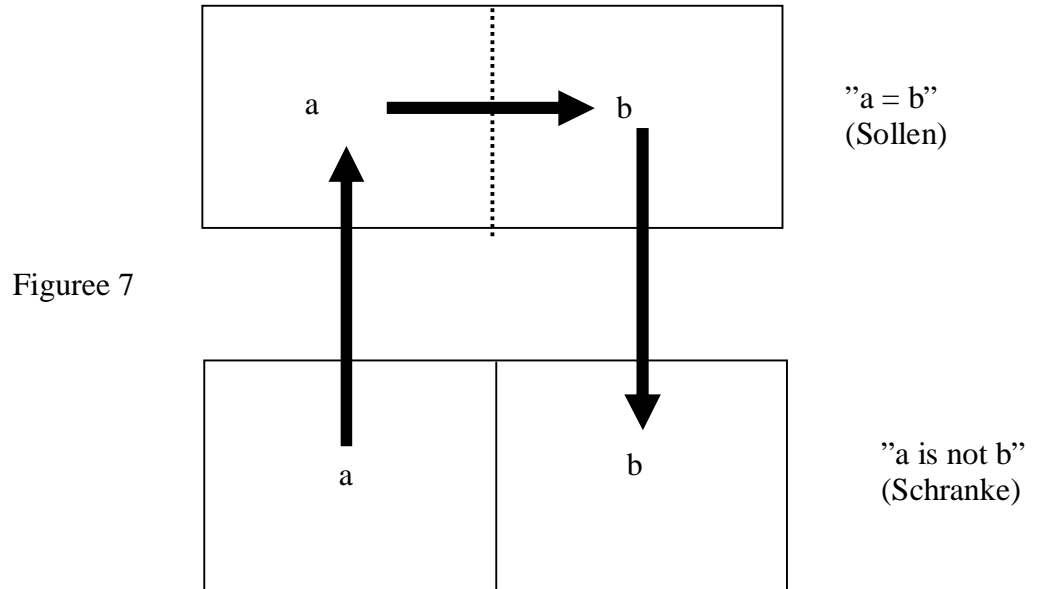
The essential difference is not the only viewpoint we can assume in regarding the *a* and *b*. We can also abstract from the fact that one is intrinsically different from other. The result of the abstraction is the familiar being-in-itself, that is, a situation that is abstracted from the situation where the different objects are different. In this abstract situation the objects are regarded as identical – as the very same object; thus, according to this situation, it ought to be possible to change *a* into *b*. Why does Hegel then describe this viewpoint by the peculiar term “ought-to”? Suppose that we had organised *a* and *b* according to some criterion, which *b* fulfilled and *a* did not. According to the viewpoint of limitation, it is impossible for *a* to fulfil this criterion, because it differs essentially from *b*. On the other hand, according to the viewpoint of ought-to, *a* would be identical with *b* and thus would fulfil the required criterion: *a* ought to be as *b* is, we could say. It should be noticed that by showing that there is a situation or context where the different objects are same, we still haven’t showed that the objects really are identical. After all, this situation or context is yet only an abstraction from the situation with a real difference, and abstract situations were already deemed to be inadequate proofs for this identification: otherwise we could, in the context of the Hegelian Logic, just declare that everything is identical, as there is always a level of abstraction in which two entities coincide.

Hegel continues his discussion of finitude by noting a certain connection between the contexts of limitation and ought-to:

The ought as such contains limitation, and limitation contains the ought. Their relation to each other is the finite itself which contains them both in its being-within-self. These moments of its determination are qualitatively opposed; limitation is determined as the negative of the ought and the ought likewise as the negative of limitation. The finite is thus inwardly self-contradictory; it sublates itself, ceases to be.⁶⁹

How should we understand this connection? Presume that we have two different objects, *a* and *b*, such that *a* cannot be *b* – in other words *a* is limited by *b*. Despite this limitation, we can still think of *a* as similar to *b*: we can say that *a* ought to be *b*. Let us then make an abstraction to the ought, i.e. the situation or context where the *a* and *b* are identical: let us look at only those properties of *a* and *b* in which they coincide. In that context of what ought to be we can easily replace *a* with *b*: after all, the two should be indiscernible. But now this context of ought is also connected with the context of

limitation: we can again introduce a difference between *a* and *b*. When we then change back into a situation with the real difference, we see that we are now faced with *b* instead of *a*. (see Figure 7)



What on earth have we proven by this? Definitely not that we can change *a* into *b* without losing the identity of *a*, that is, according to that situation or point of view where they are different. There is a chain of changes that do not affect the identity of things: *a* in situation “limitation” to *a* in situation “ought-to”, *a* in “ought-to” into *b* in “ought-to” and *b* in “ought-to” into *b* in “limitation”. Still, the identity of object has not remained, and the *a* in “limitation” is not the same object as *b* in “limitation”. This is actually no logical contradiction, as the identity in question is what Hegel calls concrete identity which, as we saw in Hegel’s example of syllogism, is not a transitive relation: object *a* in some situation might be identified with an object *b* in another situation and this again with object *c* in a third situation, but *a* might not be identified with *c*. This non-transitivity is actually a condition for Hegelian doctrine of identity of identity and difference to hold – for things to be identical in one situation or context and different in another.

Indeed, Hegel is explicitly not going through a change of one object to another, but a vanishing of one object – the finite object does not change, but vanishes. We have shown that we can come into a situation where the original, finite object does not exist. But as the object in question is known to be finite – that is, an object which doesn’t exist in some situation, this part of Hegel’s argument is unnecessary, that is, if this movement has been meant as an argument. We could try to convince someone who doesn’t believe

a thing to be finite – who believes that it ought to exist in every situation – that by some change in situation we could destroy the object, but we don't need to do the convincing if he already believes that it might be destroyed.⁷⁰

Let us get back to Hegel's transition. We have seen that a finite object – even such an object that has finitude as its only essential characteristic – doesn't exist in some situation. Now, if the object in that second situation were infinite, we would have done our duty and shown that we can come into a situation where there is an infinite instead of finite object. Let us then assume that we have come into a situation with a finite object:

But its result, the negative as such, is (α) its very *determination*; for it is the negative of the negative. Thus, in ceasing to be, the finite has not ceased to be; it has become in the first instance only *another* finite which, however, is equally a ceasing-to-be as transition into another finite, and so on to *infinity*.⁷¹

If a vanishing of one finite thing produces just another finite thing, we seem not to have progressed. But then we notice that the original object hasn't really vanished:

But (β) closer consideration of this result shows that the finite in its ceasing-to-be, in this negation of itself has attained its being-in-itself, is *united with itself*.⁷²

The only essential characteristic of the seemingly vanished object was its finitude and this is still a characteristic of the new object: the two things in consideration – one of which does not fulfil a criterion that the other does – are similar in being finite. Now, when we look at the two things in a context where the criterion of identification is the distinction of finitude and infinitude, the things look identical: the result of the so-called ceasing to be is actually the same object that apparently ceased to be. From this result Hegel quickly concludes that we have found infinitude:

This *identity with itself*, the negation of negation, is affirmative being and thus the other of the finite, of the finite which is supposed to have the first negation for its determinateness; this other is the *infinite*.⁷³

We began from the presupposition that an object *a* was finite and thus differed from another possible object *b*: it failed to satisfy some criterion that *b* also did. Now, if we could change matters in such a way that *b* actually was identified with *a*, then we couldn't speak of *a* and *b* as different objects and *a* shouldn't be called finite: it could satisfy the same criteria as *b* does. Thus, we would have been able to change a situation with a finite object into a situation with an infinite object.

As an argument, Hegel's transition seems particularly poor, because he distorts the original context of discussion by changing its identity criteria: things that were differentiated before have now been identified. If we had an object which was

essentially finite *and* red, then there could be a situation where it wouldn't exist, although there would be no infinite object – a situation with a finite and blue object, perhaps. Hegel's argument apparently works only if we abstract enough – into a situation where everything that matters is finitude of an object – but this abstracting shouldn't be accepted as a proper argument. But Hegel has nowhere said he has been making an argument. Indeed, he is clearly against the idea when he speaks of the so-called cosmological proof of God's existence. Hegel identifies the transition from finite to infinite at least as one version or species of this apparent proof.⁷⁴ It is only an apparent or so-called proof or deduction in Hegel's opinion.⁷⁵ Hegel's explanation of why it shouldn't be called proof is enlightening:

The connection of the beginning to the conclusion to which it leads is here represented only in an *affirmative* fashion as a deduction from *one thing which is and continues to be to another thing which similarly also is*. But the great error is to cognise the nature of thought in this form of understanding alone. To think the empirical world rather means to essentially recast its empirical form, and transmute it into a universal; at the same time thought directs a *negative* action upon that basis: when the perceived matter is determined universality, it does *not continue* in its first empirical shape.⁷⁶

In a proof or argument, the person who is proving or arguing should not change the context investigated. In the transition from finitude to infinitude, such a change happens: things that were seen as different have now been interpreted as identical. Note that the new interpretation is still not meant as a mere fancy.⁷⁷ There truly is a context in which the criterion of identification indicates the identity of the two things. The transition does not create this new context, but only moves to it from the current context. Hegel has thus been aiming to show that we can interpret finities as infinite – apparently different objects as aspects of one object. Of course, nothing seems to speak against the possibility that the differences are quite real and the interpretation somehow inadequate.

Let us turn to the argument from infinitude to finitude. Here we have two options: either the infinite object can be changed into a finite object or it can't. In the first case, there wouldn't be any problem. In the second case, there would be a situation in which the object in question wouldn't exist – a situation with real differences – and therefore the object could actually be seen as finite:

This contradiction occurs, because the finite remains as a presence opposed to the infinite, so there are *two* determinatenesses; *there are* two worlds, one infinite and one finite, and in their connection the infinite is only the *limit* of the finite and is thus only a determinate infinite, an *infinite which is itself finite*.⁷⁸

The basic idea behind Hegel's conclusion is quite simple. Let us take an object,

satisfying some criterion X of infinitude. Supposedly we can also find an object that does not satisfy the same criterion X. Now, take as a new criterion of infinitude “not satisfying criterion X”. The original infinite object fails to fulfill this criterion and is accordingly finite in some sense. This is again a sort of non-deductive or context-changing transition, involving this time a change of criterion. One might suggest that there could be a third option: there might not be any situations with real differences, thus making it possible that there could be an infinite object which can’t be changed into finitude – in this case, there would be only one object in only one situation. But Hegel presumably thinks that he has earlier shown that we can always construct a situation of *Dasein* – a situation with many objects and real differences – thus making this option invalid.

What has Hegel gained by this construction? He has shown that objects that are infinite can be changed into finite objects and that finite objects can be changed into infinite objects: change, of course, means here only the possibility of interpreting things anew and not any real change. Hegel has thus not shown, in a general way, that all differences are ideal – that everything finite is actually infinite – but only that every difference can be seen as ideal, in a sufficient level of abstraction. And if Hegel is successful in showing that, in particular cases, object of one quality can always be changed into an object of another quality, he has a convincing argument for the possibility that this particular sort of difference is ideal.⁷⁹ But what does it mean to say that everything is ideal? Hegel calls this the principle of idealism,⁸⁰ but he is not speaking – at least in this context – of idealism as something connected with mental or spiritual: even materialism is one kind of idealism in Hegel’s sense.⁸¹ Idealism is represented by a statement that everything finite is ideal. If we remember that finite meant an object differing from another object and thus in one sense ending somewhere or being non-existent in some context, while an object was called ideal if it was merely an aspect of a larger whole, we get the following definition of idealism: all objects that are in some sense or context different are in another sense or context actually mere aspects of one object. Thus, it is quite clear that what Hegel calls idealism is actually a form of monism: all apparently different objects are actually not different or they are merely different aspects of the same whole.

It is yet unclear how strong Hegel’s monism is supposed to be. At first sight Hegel seems to entertain the strongest monism possible, where there literally exists only one object: after all, all differences should be merely apparent. But such an interpretation forgets the essential contextualism of Hegel’s statements: although the

identity of all things is true in some sense, the existence of many different and dissimilar objects is still true in another sense – Hegel is no Parmenides. One should note how Hegel says that there is essentially no difference between realism and idealism, that is, if they are understood properly.⁸² Neither realist (that is, pluralist in the Hegelian sense of real) nor idealist (monist) would deny that there must be differences in some sense – even if idealist would insist that all differences are mere appearances, she would have to accept the difference between appearance and actuality – but both would also have to admit that there is something similar in all of these different objects – otherwise the realist would not be a philosopher, that is, one seeking to give a unified account of what exists.

The nature of Hegelian monism or idealism is further revealed by his examples of what counts as idealism in different philosophies. Water, matter and atoms⁸³ – or better, atomicity, being an atom – are not single objects, but sorts of objects; even water of Thales is supposed to signify the general nature of all natural objects. In other words, that what is supposed to be identical in different objects is their general structure or all objects agree in being of similar nature: we could call this structural monism. Still, even this is not the whole truth. There are different levels in which objects could agree with each other. All objects – or actually all objects in a sufficiently general context – agree merely in some quite abstract fashion with each other, but particular groups of objects agree even more are even more similarly structured. Thus, Hegelian idealism is not a monism of one stuff, such as abstract materialism, but admits a plurality of different structures, provided that all of them are unified by something: later we shall see that this unifying thing is supposed to be a method by which these structures can be reconstructed.

d. Constructivism in the Hegelian Logic and the principle of plenitude

There is an interesting characteristic in Hegel's transition from finitude to infinitude yet to be investigated properly: Hegel's insistence that the transition shouldn't happen via an abstract situation, that is, by abstracting from the concrete surroundings of the finite object. Hegel generalizes this demand by saying that we shouldn't just investigate what holds in itself (*an sich*), but more importantly, what is set or posited (*gesetzt*): Hegel holds this difference to be one of the most important things that separate his Logic from all the other logical and metaphysical investigations.

The two are always to be clearly distinguished from each other; only that which is *posited* in a Notion belongs in the dialectical development of that Notion to its content; whereas the

determinateness that is not yet posited in the Notion itself belongs to our reflection, whether it concerns the nature of the Notion itself or is an external comparison. To draw attention to a determinateness of the latter kind can only serve to elucidate or indicate in advance the course which will be exhibited in the development itself. That the whole, the unity of being and nothing, is in the one-sided determinateness of being is an external reflection; but in the negation, in *something* and *other* and so on, it will come to be *posited*.⁸⁴

In the different spheres of determination and especially in the progress of the exposition, or more precisely in the progress of the Notion towards the exposition of itself, it is of capital importance always clearly to distinguish what is still *in itself* and what is *posited*, the determinations as they are in the Notion, and as they are as posited, or as being-for-other. This is a distinction which belongs only to the dialectical development and which is unknown to metaphysical philosophising, which also includes the critical philosophy; the definitions of metaphysics, like its presuppositions, distinctions and conclusions, seek to assert and produce only what comes under the category of *being*, and that, too, of *being-in-itself*.⁸⁵

Hegel's high opinion of positing is reminiscent of the mathematical constructivism, which holds propositions to be true only if we could know a direct proof to it and particularly says that (mathematical) objects truly exist if and only if we have some way of finding or constructing them.⁸⁶ Hegel's constructivism is a bit milder: he is willing to say that states of affairs might hold without anyone to know them,⁸⁷ but he admits that we can't accept their truth or even possibility before finding or constructing a situation where they hold: we might thus say that Hegel is a methodological constructivist.

The Hegelian type of constructivism – if we are allowed to use this term – is connected to his account of different viewpoints: we can't say that certain object has a certain characteristic in a certain situation, if we can prove it only in some external viewpoint, that is, not in the situation in question. For instance, if there were two equally possible, but mutually exclusive ways to structure a certain object or state of affairs without any indication of which is truer, we could be tempted to interpret the whole situation as a unity of contradictories in Hegelian sense; but, Hegel says, we have not yet enough evidence for this, as the whole antinomy might only be a result of our external viewpoint; indeed, Hegel insists that in case like this we should first construct one structure from the other – that is, to show how one can be changed to another – and only after that make the conclusion.

Let us illuminate the idea of Hegel's constructivism with an example of a construction of Hegel's, namely, the one concerning transition from the Many to the One: given many objects we are required to interpret these objects as one object. Hegel gives actually two proofs of the possibility to move from situation with many objects to situation with only one object. We should already suspect why: the first proof works

only in an external viewpoint, abstracting from the peculiarities of the situation in hand. The first proof uses two distinct arguments beginning with:

Now in the first place that which should enable the Ones to maintain their diversity in opposition to their being negated is their *being*, in fact, their being-in-itself as opposed to their relation-to-other; this being-in-itself is that they are *Ones*. *But this is what they all are*; they are in their being in-itself the *same* instead of this latter being the fixed point of their diversity.⁸⁸

As Hegel says a bit later, this argument tries to show that Ones can be identified according to their being: their only static property is their oneness, which is shared by all Ones. The second argument then tries to show a similar conclusion with regard to the Ones according to their positing (*Setzen*). Here the word positing refers to the fact that all the Ones are supposed to be active in the sense that they cause something to happen: they exclude other objects. Yet, even this does not help to differentiate between the Ones, because this is a common dynamic property of all Ones:

Secondly, their determinate being and their relation to one another, that is, their *positing of themselves as Ones*, is the reciprocal negating of themselves; but this likewise is *one and the same* determination of them all, through which then they rather posit themselves as identical; similarly, because they are in themselves the same, their ideality, instead of being posited through others, is *their own*, and they therefore repel it just as little.⁸⁹

As there is nothing to distinguish in the Ones, we could as well take them as aspects or versions of one object that merely exists in different situations, Hegel's first proof concludes.

In the first proof Hegel has abstracted from the difference of the objects and concentrated only on their similarities: no wonder it is easy to conclude that they could all be taken as the same object. If it were just us, as external observers, who would say that a group of apparently independent unities consists actually of mere aspects of one unity, then the unities themselves might still be independent and differ from one another: for instance, a group of rocks does not melt into one piece just by the command of our theorising. In his second proof, Hegel tries to show a way to construct the One – a situation with only one object – according to a standpoint of any individual object. Thus, we need to look at how the unities themselves manage to stay independent in their state of being related to one another. Now what makes the objects different? That they exclude one another, Hegel responds:

This mutual repulsion is the posited *determinate being* of the many Ones; it is not their being-for-self, for according to this they would be differentiated as many only in a third, but it is their own differentiating which preserves them. – They negate one another reciprocally, posit one another as being only *for-One*. But at the same time they equally *negate this being only for-One*; they *repel* this their *ideality* and *are*. – Thus the moments which in ideality are absolutely united

are separated. The One is, in its being-for-self, also for-One, but this One for which it is its own self; its differentiation of itself is immediately sublated. But in plurality the differentiated One has a being; the being-for-One as determined in exclusion is, consequently, a being-for-other. Each is thus repelled by an other, is sublated and made into that which is not *for itself* but *for-One*, and that another One.⁹⁰

When an object excludes or repels another, as Hegel says, it in some sense idealises this other object: the other is then relegated into a level of mere aspect of the first object. This is a clear reference to Leibniz's monadology, where from the viewpoint of every monad the whole external world is a mere representation for it. It might be natural to think of this repulsion in such a way that it is a potential in every object that would be actualised by an external spectator: an object is an independent One, because we can take it as a centre point of our attention and then relegate all other objects to a role of mere background.

In the idea of repulsion or exclusion as idealisation we have already the required proof that any object in a multiplicity allows the construction of oneness. From the standpoint of every object we can use the repulsion and thus in effect idealise all other objects thus arriving to a situation with only one true object.

They are — this is presupposed in this inter-relatedness — and they *are* only in so far as they reciprocally negate one another and at the same time hold themselves aloof from this their ideality, their negatedness, that is, negate this reciprocal negating. But they are only in so far as they negate; consequently, since this their negating is negated, their being is negated. It is true that since they are, they would not be negated by this negating, which for them is only something external; this negating by the other rebounds off them and touches only their surface. And yet it is only through this negating of the others that the Ones return into themselves: they are only as this mediation, and this their return is their self-preservation and their being-for-self. Since their negating is ineffectual because of the resistance offered by the Ones either as simply affirmative or as negating, they do not return into themselves, do not preserve themselves, and so are not.⁹¹

The independency of the unities is based on the fact that any one of them can be taken as the reference point, while others are relegated into mere aspects of the standpoint of this unity. The problem here is that we can turn this possibility around: we can relegate any unity into the background, when we take some other unity as a reference point. The question of what to take as independent is completely arbitrary, when there is nothing further to separate the different unities. Of course, if we already discern the existence of different entities, it is natural to assume that the relegating into the background or taking as a mere aspect does not concern the existence of the object, because it is already supposed to exist independently. But if the independent existence of the objects is still not certain, we have no reason to suppose that they really aren't just aspects of one

unity: it may be that when we seemingly take one object or unity as a reference point, we merely take some aspect of the whole as a reference point. Thus, the unities themselves cannot really resist if we interpret them as mere aspects: the idealisation of differences is possible.

The main thing to learn from the previous example is that Hegel intends that construction or positing of a new situation should use only the building blocks of the previous situation: not only the objects of the previous situation, but also only the transitions which are possible in it, that is, the situation can be manipulated only in the way the situation itself allows – for instance, in the previous example we were allowed to use the idealisation implicit in the repelling nature of the Ones. Actually, Hegel does not strictly insist on using only the transitions of the previous situation – there are, as will be seen in next chapter, certain transitions or basic constructions that Hegel needs in order to start his Logic and which he continues to use throughout it. Still, Hegel's endeavour is not just to show that some situations or types of situations are possible, but also how to build them from one another: the Logic does not give merely all the possible ways to structure world, but also rules by which one can manipulate these structures.

A natural consequence of Hegel's constructivist method would be the endorsement of the meaninglessness of actual infinities. Hegel is willing to admit only the existence of those situations that can be constructed from situations known to exist. As we will see in next chapter, the basic constructions Hegel uses add always no more than a finite number of objects into situation and the situation that Hegel begins with does not have infinite number of objects, and it is easy to see that in this manner the constructions will always produce only situations with finite number of objects. Later we shall see on independent grounds that Hegel truly does take the idea of actual infinities to be meaningless.⁹²

Another consequence of Hegel's constructivism is his attitude towards possibilities. Hegel can accept something as possible only when this possibility is constructed, that is, already shown to be actualized in some situation. This explains why Hegel insists on speaking of transitions and changes when it would be more natural to speak of possible transitions and changes: we can accept a possible transition as possible only when we have shown that such a transition can occur. With possibilities we face a problem: Hegel uses a constructivist method – he says we can admit or *know* the possibility of only those situations we have constructed – but does he make the stronger, ontological commitment that only those possibilities *exist*, without reference to

knowing, that we have constructed or will construct? In other words, does Hegel hold on to the principle of plenitude, that every possibility must be actualized at some time? And if he does, how does he argue for it?

Full treatments of alethic modalities in Hegel's philosophy have already been made,⁹³ so I shall not try to present another one, but only to emphasise the crucial points in Hegel's account, namely, the arguments guiding the reader from one section to another. Note that I speak only of alethic modalities: I believe that Hegel actually uses modalities throughout his philosophy, for example, in a form of temporal moments and differences of viewpoints. Indeed, Hegel always speaks as if we are in some context instead of in some world in general. Yet, it is particularly the alethic modalities or possible worlds or situations which concern the question of the principle of plenitude. A temporal moment and a viewpoint of a person may already be said to be actualised in the concrete world: either in the world in itself or in the world as it is seen by a conscious being. It is the possibility of a "merely possible world" – that is, a world that is alethically possible, but not actual in any part, phase or facet of the concrete space-time world – which is denied by the principle of the plenitude, so it is the alethic modalities we must investigate.

Looking at what Hegel has to say about modalities, we get the impression that Hegel endorses the principle of plenitude: he compares two different views on possibilities, formal and real, where the real possibility is such that it must have been, be or become actual, and states that the view of real possibilities is truer than the view of formal ones.⁹⁴ But when we study Hegel's apparent demonstration of the truth of real possibilities, things get more complicated. Hegel begins with the following definition of a formal possibility: it is "a *determination of self-identity* or being-in-itself in general".⁹⁵ We must remember here two points. Firstly, Hegel's account of judgement suggested that a sentence "A is B" should be understood as meaning that an object that could be seen as A could be also seen – in another context or viewpoint – as B. Furthermore, Hegel was fond of taking such concepts as the universal B as referring to a real entity, an objective universal or a universal object, with which all the particular object falling under that universal could be identified – identification meaning here what Hegel called concrete identity, which wouldn't imply that all particulars of that universal would be identical with one another. Secondly, the being-in-itself referred to the most abstract situation or aspect of an object there is: an aspect of the object merely existing without any properties. Thus, Hegel's definition says, whatever could be identified with Possible – the universal object for all possible objects – is such that it at least exists: of

course, existence does not here refer to an actual existence, so we might better speak of subsistence.

What is important is that there is no real defining determination for possibility. All things are equally possible, and in that sense, similar, or identical according to the context where a mere possibility counts as the criterion of identification:

According to the first, the merely positive side, therefore, possibility is the mere form determination of *identity-with-self* or the form of essentiality. As such it is the relationless, indeterminate receptacle for everything whatever. In the sense of this formal possibility *everything is possible that is not self-contradictory*; hence the realm of possibility is a boundless multiplicity.⁹⁶

This possibility of everything means, of course, that everything is possible according to some states of affairs, for instance, the situation as it is now – remember that Hegel views things always in terms of some specific context. Now, in that particular context some things are not just possible, but also actual: for instance, I could be running down the road, but actually I am engaged with writing. Hegel himself notes that a possibility is a lack compared to what is actual: “it has therefore the second determination of being *only* a possible and the *ought-to-be* of the totality of form”.⁹⁷ Suppose then, Hegel continues, that we have in this particular context a possibility that has not been actualised or a mere possibility; then, its negation should also be possible: “Because, therefore, it is only a possible content, *another* and its opposite is equally *possible*. A is A; equally, $-A$ is $-A$ ”.⁹⁸ Indeed, the negation would be actualised and thus also a possibility. Now, as possibilities, the first possibility and its negation would be identical and thus couldn’t be separated, when they are both taken as possibilities. And because the first possibility would always be a mere possibility, it couldn’t at all be separated from its negation: “the possible A contains also the possible not-A”.⁹⁹ What is needed to separate the possibility from its negation is some context in which it would be actual instead of its negation: thus, in order to be a possibility, it must be actualised in some context:

But this relation, in which the one possible also contains its other, is the contradiction that sublates itself. Now, according to its determination it is the reflected, and as we have seen, the self-sublating reflected; it is therefore also the immediate and thus becomes *actuality*.¹⁰⁰

The argument has two possible interpretations. Firstly, it may genuinely be about possibilities in general. Then the argument would say that in order for any possibility to truly differ from its negation, it must be embodied in some possible context. It doesn’t take long to see that in this form Hegel’s apparent argument is actually trivial: if something is possible, then it must be actual in some possible situation. Furthermore, it

is clearly not sufficient for proving the principle of plenitude, because there is no guarantee that these possible contexts themselves are actualised: the principle requires that the possibilities should be actualized in some actual situations – somewhere in space and time – and not in some possible situation. Secondly, Hegel may be talking only of such possibilities that we are capable of recognising as possibilities. Then the argument would go something like this: in order for us to be able to differentiate one possibility from a contrary possibility, we need to have experienced this possibility ourselves. Here the result would be good – a possibility should have been experienced by us, hence, it should have been actualised – but because the argument concerns only possibilities that we can see as such, it is still no proof for a principle of plenitude, which speaks of all possibilities whatsoever: although all possibilities we know to be possible must be actualised at some time and place, this doesn't mean every possibility must be.

What Hegel has perhaps proven is that in every context out of two contradictory and equally contingent possibilities one is actualised, while the other could be actualised – I shall for now ignore the question how this “could” should be interpreted. Now it is not a question of possibility in a general, but of a possibility relative to some actual states of affairs – this is what Hegel calls a real possibility:

This actuality which constitutes the possibility of something is therefore not *its own possibility*, but the in-itself of *another* actual; it is itself the actuality which ought to be sublated, possibility as possibility only. – This actuality which constitutes the possibility of something is therefore not *its own possibility*, but the in-itself of *another* actual; it is itself the actuality which ought to be sublated, possibility as possibility only.¹⁰¹

The actual state of affairs is then a condition for the actualisation of a mere possibility – the contrary state of affairs. It might seem a bit awkward to call a state of affairs the condition of its negation, but the idea is quite simple: one could hardly move to a state of affairs, if the state of affairs was already actualised instead of its negation. Hegel notes that usually conditions require some ground in order to produce what they condition – in fact, even to make them into conditions of the conditioned.¹⁰² In this case, on the other hand, the conditioned is already something potential in the conditions.¹⁰³ Thus, we know that what is now actual will in some context be merely possible and what is now merely possible will be in the same context actual:

1) Actuality is formal, or is an existence which appeared as self-subsistent and immediate, and through its sublating becomes reflected being, the moment of an other, and thus becomes possessed of an *in-itself*. 2) This existence was also determined as *possibility* or as an *in-itself*, but of an other. Therefore, when real possibility sublates itself, this in-itself is also sublated and passes over into actuality.¹⁰⁴

This argument can also be interpreted in two ways. Firstly, it may speak of all sorts of possible contexts: it moves from the fact that this particular context actualises some potentiality to the fact that some possible context must actualise the contrary possibility that is not actualised in this context. Hegel would be then merely repeating the tautology that possible states of affairs are actualized in some possible situations. Secondly, the argument might concern possibilities for us: then it would say that if we happen now to be at one particular context with some possibility, which we would know to be contingent, we would have to be able to either construct or at least remember another context in which the other possibility would be actualised. Hegel would be stating that there is a way to manipulate the world so that we can actualise something we know to be possible – as we must have somehow already constructed the possibility in order to know that it is possible, and from this Hegel’s conclusion readily follows. Both arguments merely add the requirement of a beginning state, which seems to introduce nothing radically new that could help to establish the principle of plenitude.

The final section of Hegel’s chapter on modalities requires only a quick glance. The section considers absolute necessity, which has nothing to do with necessity understood as truth in all possible worlds. Instead, it is “the *absolute conversion* of its actuality into its possibility and of its possibility into actuality”,¹⁰⁵ that is, the already familiar change of a possibility into an actuality in some context, only this time it is made explicit that at the same time some actuality must become mere possibility. If we interpret this novelty as concerning all possibilities whatsoever, it is almost trivial;¹⁰⁶ if it should concern only such possibilities that we could be aware of, then it merely says that we can nullify any actual state of affairs so long as we know how to.

Although Hegel’s argument is not a proper justification of the principle of plenitude, he seems to have presupposed the principle: this is obvious from how Hegel disregards any merely formal possibilities. The Hegelian theory of modalities would thus return to the idea of Aristotle that everything possible must someday become actual. If Hegel has restricted his argumentation to the viewpoint of human knowledge, his assumption of the principle of plenitude wouldn’t be so fatal. In that case, we might interpret Hegel’s explicit theory of modalities and more generally all the modal aspects of his Logic as a form of situational semantics in the style of Barwise and Perry:¹⁰⁷ indeed, that is the reason why I have expressly spoken of situations instead of possible worlds in connection with Hegel. But Hegel’s apparent insistence on the ontological validity of the principle of plenitude – that there really are only such possibilities as we are aware of – makes his position more problematic.

For now, it seems that Hegel has conflated the two ways to understand his argument for principle of plenitude, resulting in something like this: every possible situation must be such that it can be constructed by a finite conscious being and thus known by it; but everything can be constructed only if it is already constructed or will be constructed in the future; thus, it will be constructed and actualised. This argument already presupposes the principle of plenitude and is therefore not convincing: if Hegel is truly trying to use this argument, he has already unconsciously accepted the principle he set out to prove. Furthermore, the argument presupposes that even stronger principle that everything that is must become known at one time or another, i.e., that the world is destined to have someone to know it – and for this Hegel would have to endorse the idea that the nature is somehow teleologically bound to produce conscious beings. Thus, at least provisionally we must accept that Hegel could have not grounded the principle of plenitude in any interesting sense, although he would have wanted to. Later we will see that Hegel's unconscious acceptance of the principle of plenitude affects also his view of relationship between the Logic and the *Realphilosophie*, which might lead us to change our provisional attitude: we might have to conclude that in his account of modalities Hegel is not trying to prove the principle of plenitude, but is doing something else.

Until now we have spoken as if Hegel would have endorsed the principle of plenitude in the extreme form that every possibility, no matter what it is like, must at some point become actual. This is not quite Hegel's position. What Hegel appears to be committed to is more like a principle of plenitude concerning universals or types: objects and situations of every possible type must be actualised somewhere, at some time or we must be able to abstract them from some existing object or situation, but we cannot say if there will be only one token of some type or more. Thus, if we had found one instance of certain type of situation, we wouldn't anymore have to prove it to be possible in every separate case, if we wanted to say that all of them are possible: for instance, Hegel can say that quantities are always dividable into smaller quantities and still hold that they might not ever be actually divided, because he has already shown it to be possible in one arbitrary case.

Connected with quantities is Hegel's view of contingency. As other scholars have noticed, Hegel states that there necessarily is some contingency in the world.¹⁰⁸ This contingency derives firstly from the fact that we can't know a priori in which possible situation we are: we can perhaps explain why a certain situation has some place relative to other situations – we can, for instance, say that if there was a situation where

a rock was falling, there is now a situation with a rock in the ground – but we cannot explain why this situation obtains now without any reference to other situations.¹⁰⁹ A somewhat cynical person might say that this is no true contingency: although no situation is necessitated by itself, it is still necessitated by its relation to other situations. Still, there is some point to taking such contingency seriously, namely, in view of our feelings and intuitions: although one could convince us that we must be now in such a situation, because a moment ago we were in another kind of situation, we might nonetheless feel it mysterious that we are now living this moment and not the moment before.

A second and more interesting reason for contingency in Hegelianism is the indeterminacy of quantities of the world: in the Hegelian setting, we can state only the necessity of types of objects, but not the necessity of amounts of objects, and therefore, whenever quantities come into play – as they inevitably do, when we start to speak of spatial and temporal properties of objects – the amount of things we can't explain increases dramatically. One good example of this is Hegel's species of parrots, whose number we cannot a priori determine.¹¹⁰ Another example can be found in Hegel's theory of justice: there is no way to decide just the right quantity of punishment for a certain crime.¹¹¹ Indeed, as Hegel begins his *Realphilosophie* or philosophy of natural and spiritual worlds with the introduction of space and time, it seems that only Hegel's Logic might be completely pure of any contingency.

Although it is therefore generally agreed that Hegel accepted some contingency in the world, it is fair to ask, as F. Beiser recently has,¹¹² whether Hegel's acceptance of contingency is merely a poor excuse for leaving something unexplained and even an idea that contradicts basic dogmas of Hegel's absolute idealism. If we leave aside the first kind of contingency which might not even be accepted as true contingency, Beiser's question might be paraphrased in following way: if Hegel accepts the principle of plenitude, can he limit it to the qualitative aspects of possibilities? I think that he in fact must limit it, if he is to remain true to his constructivist and more particularly finitist ideas.

Remember that Hegel cannot accept existence of any infinite collections. We shall later see that he is also committed to the idea that every quantitative limit can be exceeded: matter could always be divided one more time, there could always be objects beyond any spatial and temporal limits etc. If Hegel stipulated that all such quantitative possibilities had to be actualised, then he would have to allow the existence of infinite collections. One might suggest that Hegel could accept that at one moment of time there

might be only a finite number of objects, but during the whole course of time all of the infinite possibilities would be actualised. But this suggestion fails because Hegel would then be committed to the infinitude of time, which would again contradict his finitism: in other words, we can speak only of finite stretches of time, but never of any whole infinite time. Thus, it seems that Hegel's presupposition of finitism leads him to endorse the contingency of the world. Whether then Hegel's finitism is coherent with his supposed absolute idealism is another question.

In addition to indifference of quantity, there is another modification Hegel allows for the principle of plenitude. He seems to hold that situations abstracted from some actual situation – situations with less objects, less structures etc. than in some part of world – are possibilities, although they may not be concretely exemplified anywhere: indeed, he identifies empty, non-actualised possibilities with abstractions.¹¹³ These abstract possibilities are needed in the Logic itself, as every situation in it is not a determinate spatiotemporal situation, although every actual situation might be such. Even here there must be some situation from which the abstraction is made, that is, some actual situation of which some content is taken away.

Summary:

Hegelian *Dasein* is a framework of differently qualified situations, possibly with some objects in them. Hegelian judgement is a modal relation between an object as it is in itself and some aspect of the object: "this object could be seen as...". The transition from the object to its characteristic in an act of judgement is abstractive: we ignore other properties the object might have. Because of the modal interpretation of the judgements, Hegel can accept pairs of equally correct judgements that appear contradictory, because this apparent contradictoriness means just that object can be interpreted in contradictory manners. In some cases Hegel supposes that such contradictory alternatives are also equally adequate descriptions of the object.

By reality, in contrast to ideality, Hegel refers to the possibility that qualitative differences actually differentiate distinct objects: by ideality, on the other hand, Hegel refers to the possibility that such qualitative differences show merely aspects of one object. Hegel supposes that ideal differences can be interpreted as real: one can interpret aspects of an object as distinct objects. Similarly, he suggests that real differences can be interpreted as ideal: one can suppose distinct objects are merely aspects or modes of an underlying unity. These interpretations or transitions can be applied to concrete

phenomena: thus, spatial points can be interpreted as mere copies of one point, and the flow of time can be interpreted as consisting of distinct moments of time.

None of these interpretations or transitions – or indeed, any transition in Hegel’s Logic – is an argument in the proper sense: they merely offer interpretative possibilities, but do not commit one to any particular interpretation. Hegel insists that we have to posit a possibility of an interpretation, before we can commit ourselves to it: this positing means constructing an actual structure corresponding to the general possibility. He also appears to say that every true possibility must at some time be constructed: whether this is a correct interpretation of Hegel’s meaning will be revealed later.

¹ Something like this is suggested by Stekeler-Weithofer 1992, p. 25. The assumption that the Logic would from the outset start with the study of statements and would in fact be nothing but a study of statements and theories is a malady that hinders Stekeler-Weithofer’s in many ways excellent investigation of the Logic. Thus, Stekeler-Weithofer concludes with quite slim evidence that the Logic is all about correctinc the failures of actual language-use and conventional manner of judging (1992, p. 26) and that its objects or categories are forms of expression (p. 62): quite unexpected characterisation of a book that should correspond to pre-Kantian ontology.

² G 21, p. 96, 3 and p. 98, 4 – 6. This is how the usual translation of *Dasein*, determinate being, is explained.

³ Ibid., p. 192, 1 – 2

⁴ Ibid., p. 97, 9 – 10.

⁵ Ibid., p. 96, 3 and p. 98, 19 – 20.

⁶ Ibid., p. 98, 20 – 21.

⁷ Hegel seems to have this idea in his mind when he in his lectures on history of philosophy throws against Kant’s statement that space cannot be a concept because of its unity the statement that blue is also such a unity. (Gph 3, p. 563.) All blue-coloured objects are contained in their own world or situation of blueness. This world is, of course, divisible in space and in fact divided by many objects of other colours, but these facts do not concern us in the Logic where we abstract from such things as space.

⁸ Witness for example problem that Hegel raises concerning thing and its many properties in his Phenomenology (G 9, p. 76, especially lines 31 – 32: “*In so far* as it is white, it is not cubical, and *in so far* as it is cubical and also white, it is not tart”). Properties of salt are, for Hegel, exclusive – it is only white, only cubical etc. – yet thing has all of them. The way in which Hegel deals with this problem is investigated later.

⁹ G 21, p. 103, 10 – 11. Hegel differentiates situations and objects in the situations also by calling former with names such as “*Sein*”, “*Leben*” etc. and latter with names like “*Seiende*”, “*Lebendige*” etc.

¹⁰ Although this view of predication might not have been one that Aristotle himself held (for further discussion on that, see Bäck, 2000), I shall still call it Aristotelian as it was traditionally attached to his writings.

¹¹ Russell 1903, p. 18 – 19, 20 – 21.

¹² G12, p. 103, 34 – p. 104, 2.

¹³ Ibid., p. 55, 31 – 35; p. 60, 24 – 25; 29 – 30 and 34 – 36. Hegel’s idea of separating subject from predicate is probably derived from Kant, who separated singular judgements from universal judgements.

¹⁴ Ibid., p. 57, 6 – 15.

¹⁵ Ibid., p. 94, 18 – 32.

¹⁶ The mediating element of syllogisms does not exhaust what Hegel has in mind when he speaks of them, as he also demands that the mediating situation should ontologically ground the possibility to move from the subject of the conclusion to its predicate. As this element doesn’t concern us now, I shall leave it uninvestigated.

¹⁷ Ibid., p. 96, 26 – 30.

¹⁸ Hegel admits that a syllogism that uses allness this way in the mediating term has always true consequences, but he denies it to be a good syllogism because it does not satisfy the other condition of being true syllogism, i.e., that the mediating term grounds ontologically the conclusion. Although completeness of certain class of objects does ground epistemically the fact that one of the members of

- this class has a certain property, it doesn't do this ontologically: fact "this A is B" is already supposed in the judgement "All As are Bs". (Ibid., p. 111, 33 – p. 112, 36)
- ¹⁹ G21, p. 106, 27 – 30; p. 107, 1 – 3 and 4 – 10. The phrase "being in itself" is an obvious reference to Kantian thing in itself although Hegel might have misinterpreted Kant's intentions here: Kant's thing in itself represents the possibility of things having completely different nature than they have according to our experience. Hegel's being in itself is, on the other hand, mere abstraction from any property: following Stekeler-Weithofer (1992, p. 127), a red object which would not be compared with objects of other colours would be in itself just abstractly coloured.
- "Being for other" is perhaps more difficult to understand. This phrase refers to a state of the affairs where differently qualified objects or situations are being compared: for instance, qualities red and blue would be, in Hegelian *Dasein*, independent situations corresponding to states of affairs "everything is red" and "everything is blue" and compared in a situation corresponding the state of affairs "there are red and blue objects related to one another". Something similar is suggested by Stekeler-Weithofer (1992, p. 126), when he states that Hegelian *Sein-für-anderes* refers to propositions of the form Q(x,y).
- ²⁰ G 12, p. 55, 24 – 28.
- ²¹ Ibid., p. 64, 28.
- ²² The latter part of the ontological question – necessity of the states of affairs or judgements – is the prevalent one. Thus Hegel uses the word "*Richtigkeit*" (correctness) in a way that the word "truth" would be expected to be used – that is, from a correspondence between a thought and its object – whereas he reserves "*Wahrheit*" (truth) for those judgements that we would normally call necessary truths. (Ibid., 65, 2 – 8)
- The necessity of truth is also the major concern in Hegel's Phenomenology, which deals with more epistemological questions. Witness for example the beginning of the Phenomenology in the chapter on sense-certainty. Hegel is not so concerned to show that we can make correct (i.e. in normal sense, true) statements according to the evidence of our senses, but he demonstrates that by senses we cannot get to the necessary truths as data given by our senses changes with the transition from one situation to another. (G 9, p. 64, 29 – 37)
- ²³ The reason why Hegel so easily equates changes with possibilities of change is dealt below.
- ²⁴ This linguistics understanding of transitions is suggested by Stekeler-Weithofer 1992, p. 104, when he says that Hegel's "transition to other" should be understood as a speech against possible counter-speech.
- ²⁵ G 9, p. 73, 18 – 26.
- ²⁶ G 12, p. 55, 8 – 10.
- ²⁷ I was formerly under the impression that all modern Hegel-scholars admitted that Hegelian contradictions are not any sort of logical contradiction. To my astonishment, the quite recent De Laurentiis 2005 (p. 181, note 23) suggested a connection between Hegel's Logic and G. Priest's so-called paraconsistent logic – a formal system in which sentences can be valued both true and false at the same time and can thus be logically contradictory. Although Priest's system may be interesting in itself, I find that it has very little in common with Hegel's Logic. In the next section we see that there is a lot more to the Logic than just the "contradictions". For instance, the Logic is about constructing and relating situations, while the kind of logic Priest's paraconsistent logic represents is supposed to be a mere analysis of one situation. Even as a tool for analysing Hegelian contradictions Priest's system is far from satisfactory: it is all about sentences, while the main point in Hegelian contradictions is that it involves an object appearing in different guises.
- ²⁸ G 11, p. 269, 1 – 21.
- ²⁹ It is obvious that Hegel does not intend the doctrine of the unity of differences to be interpreted in the extremely relativistic sense that every possible, but incompatible way to express certain situation is as good as the others: in some cases there are reasons upon which to decide the correct way of looking things. One of these is, in the Hegelian system, the question whether living things should be seen as mechanical or teleological: although mechanical view is possible way to view living things, it is obviously, for Hegel, inferior to the teleological or organic one. Indeed, as the examples above show, radical ontological indeterminacy in Hegel is restricted to such questions where even the most dedicated realist could accept that it might be acceptable.
- Even in cases where one of the contradictories is somehow more essential or truer way to look things, Hegel does not usually dismiss the other one as a mere delusion. Instead, he often sees it as a correct way to look things in a restricted sense, in certain situations. Also, Hegel views the more essential one of the contradictories as ontologically grounding why things have the other predicate in those situations.
- ³⁰ G 11, p. 333, 6 – 10.
- ³¹ Ibid., p. 262, 34 – p. 263,2.
- ³² Stekeler-Weithofer also notes (1992, p. 247) that Hegel denies that there are any fixed similarities: the

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- realm of objects could always be divided in another manner and thus all similarities are valid only within some context.
- ³³ Concrete identity appears to contain in Hegel's eyes the characteristic that the identical thing should contain in itself a natural explanation for appearing in these situations or contexts. We might have a case where a thing would appear in different situations or contexts only according to some external observer without there being any necessary connection between the thing itself and these contexts, for instance, we might view a tree differently from different perspectives, although the tree itself would have no necessary connection with these perspectives. In such a case we could separate the thing as a substrate from its contingent manifestations in different contexts – the thing would still be abstractly identical according to its own viewpoint. In a true case of a concrete identity the different situations in which the thing appears would have to be visitable according to the viewpoint of the thing itself: in effect, these manifestations would have to be natural for this thing. Because these different viewpoints connected to different things merely complicate the matter without changing the basic fact of abstract identity being identity within a situation and concrete identity being identity across different situations, I have chose to ignore this detail for now.
- ³⁴ G 11, p. 261, 4 – 12 and 21 – 24; p. 263, 11 – 16 and 33 – 35.
- ³⁵ G 21, p. 110, 29 – p. 111, 1; p. 111, 17 – 23.
- ³⁶ Ibid., p. 111, 29 – p. 112, 2.
- ³⁷ Ibid., p. 118, 26 – 27.
- ³⁸ Ibid., p. 113, 25 – 28.
- ³⁹ Ibid., p. 114, 9 – 11.
- ⁴⁰ Sometimes Hegel seems to be speaking of limit more as a relation between any two objects, although the general account of limit would seem to refer to a limit between an object and all its surroundings. The first sense can be explained as an application of the second one: if we look at a context where we have abstracted from all else but two objects, then the surrounding world of one object includes only the other object.
- ⁴¹ Ibid., p. 158, 15 – 17.
- ⁴² Blue objects are not just parts of one, blue world (see note 7), but they also form in a sense or according to a context only one object, i.e., are inseparable when we regard only their blueness.
- ⁴³ G 12, p. 76, 19 – 23.
- ⁴⁴ In practice Hegel often appears to favour the simplest objects of their kind as paradigmatic examples of the corresponding objective universal: thus, triangle is for Hegel the paradigmatic figure because it is the simplest figure (V 8, p. 82, 316–325).
- ⁴⁵ Difference between an objective universal and an ordinary predicate – or between abstract and concrete universal – seems to be that objective universal is necessarily, in every possible situation, predicable of the thing belonging to its class, whereas a contingently blue object, for example, might have another colour in other situations.
- ⁴⁶ Ibid., p. 74, 20 – 24.
- ⁴⁷ Ibid., p. 77, 8 – 17.
- ⁴⁸ Ibid., p. 114, 20 – 32; see also p. 74, 24 – p. 75, 15.
- ⁴⁹ Ibid., p. 76, 19 – 23; p. 77, 11 – 17. This solution undoubtedly only considers the problem of expressing such a necessary connection between two classes and not the further epistemic problem of how we might prove or justify the existence of such a connection. We shall return to this question later, but the crux of Hegel's solution to this problem of justification appears to be that we must somehow know that we have an infallible method for showing that the connection exists for any particular instance of the class.
- ⁵⁰ Note that the concept of *Anderssein* is here always applied only to some restricted context, i.e. what is an *Anderssein* according to some context might actually involve an identity according to another context.
- ⁵¹ G 21, p. 98, 28 – p. 99, 6.
- ⁵² Ibid., p. 102, 21 – 26.
- ⁵³ Trendelenburg 1862, p. 56.
- ⁵⁴ G 21., p. 137, 4 – 6.
- ⁵⁵ Ibid., p. 137, 16 – 24.
- ⁵⁶ Ibid., p. 144, 17.
- ⁵⁷ Ibid., p. 146, 7 – 11.
- ⁵⁸ There is thus something more to be said of *Fürsichsein* than Stekeler-Weithofer's suggestion (1992, p. 136) that it refers to propositions of the form "xRy & x=y". In Stekeler-Weithofer's notion the x and y seem to be merely two names for the same thing, while in the Hegelian *Fürsichsein* there still is in some context a true difference between the aspects of the unity, although according to a more extensive context the difference is merely aspectual (for example, the same person at different moments of his life would be a good example of *Fürsichsein*).

- Stekeler-Weithofer's idea of what Hegel meant by ideality is somewhat strange: he states (ibid.) that since Plato ideality has connoted pragmatic interest of differentiation. Although this suggestion is rather misleading when it comes to interpreting the Hegelian term "ideality", it points out one crucial element of the Logic: which differences are real and which ideal – that is, how things are differentiated – might in some cases depend on the context of discussion.
- ⁵⁹ G 21, p. 146, 11 – 13
- ⁶⁰ Ibid., p. 147, 10 – 11.
- ⁶¹ Ibid., p. 116, 27 – 30.
- ⁶² Ibid., p. 96, 2 – 3.
- ⁶³ Ibid., p. 104, 26 – 28.
- ⁶⁴ Ibid., p. 116, 10 – 11.
- ⁶⁵ Ibid., p. 124, 25.
- ⁶⁶ Ibid., p. 124, 26 – 29. In fact, there is more to this differentiation than the mere question of whether the infinitude in question involves any finitude or difference. Hegel describes true infinitude in some places as a process (G 21, p. 136, 6 – 8) or a method (G 12, p. 75, 3 – 15). The latter term in particular suggests that Hegelian true infinite is not so much a viewpoint of a unity that exists in many different situations, but a method or force by which one could construct from "abstract infinitude" or mere unity "finites" or multiple embodiments of this unity. As Hegel leaves this idea undeveloped in the actual transition from *Dasein* to *Fürsichsein*, I shall leave it untouched for now.
- ⁶⁷ G 21, p. 119, 7 – 9.
- ⁶⁸ Ibid., p. 119, 9 – 14.
- ⁶⁹ Ibid., p. 123, 21 – 25.
- ⁷⁰ There is a possible interpretation that makes this part of Hegel's argument seem a bit less superfluous. Someone might believe that the object in question is finite – that it were possible for it not to exist – but that there is actually no situation where it doesn't exist. Now, as we will see later on, Hegel takes a possibility to be proven only if it is proven to be actualized in some situation. Thus, we might ask the person in question to prove the possibility of object's non-existence, and if he did it, he would also have shown an actual situation where it doesn't exist.
- ⁷¹ Ibid., p. 123, 26 – 30.
- ⁷² Ibid., p. 123, 30 – 32.
- ⁷³ Ibid., p. 124, 2–5.
- ⁷⁴ G 20, § 50 A, p. 87, 14–15.
- ⁷⁵ Ibid., § 50 A, p. 87, 23–24.
- ⁷⁶ Ibid., § 50 A, p. 87, 27 – p. 88, 4.
- ⁷⁷ G 21, p. 125, 14–15.
- ⁷⁸ Ibid., p. 127, 9 – 13.
- ⁷⁹ Later in his Logic – in the part entitled "Essence" – Hegel tries to show in another way that ideal situations are more essential than the corresponding real ones: ideal situations ground the real situations, that is, they explain why we seem to have real qualitative differences and why the objects can be seen in certain situation, i.e., as having certain qualities. Even here Hegel's argument depends on the assumption that we have shown how we can change one seemingly real situation to another: the different possible situations and states of affairs that obtain in them are explained by a "deeper" situation that shows how all the situations in the "surface" can be constructed from one another.
- ⁸⁰ Ibid., p. 142, 15. Actually Hegel states that everything finite is ideal, but this is easily seen to reduce to the form "every difference is ideal".
- ⁸¹ Ibid., p. 142, 24 – 30.
- ⁸² Ibid., p. 142, 21–22.
- ⁸³ Ibid., p. 142, 24–27.
- ⁸⁴ Ibid., p. 97, 19 – 28
- ⁸⁵ Ibid., p. 110, 4 – 12.
- ⁸⁶ It might well be that this resemblance is not accidental, but shows a common ancestry. Brouwer, the father of constructivist or intuitionist mathematics, was influenced by Kant's ideas of arithmetic, stating that we construct the numbers with help of our intuition of time (Dummett 1977, 32). Hegel, on the other hand, seems to have received his constructivism through Fichte, as some of the main characteristics of Hegel's constructivism appear also in Fichte's *Wissenschaftlehre*: for instance, the separation of different viewpoints (in Fichte these are usually stated in the form what is for the Ego and what is to some external observer, look e.g. Fichte 2, p. 303, 11 – 13.) and denial of actual infinities (see, for instance, Fichte 3, p. 317 – 318). It is notable how Hegel has transformed Fichte's ideas by reducing the reference to consciousness: where Fichte attaches viewpoints to conscious observers, Hegel attaches them to objects or situations in general. I have studied the genesis of Hegel's constructivism more closely in Jauhiainen 2007.
- ⁸⁷ Witness for example Hegel's Philosophy of Nature where he states that nature is independent of our

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- theoretical activities (V 16, p. 3, 25 – p.4, 34).
- ⁸⁸ G 21, p. 159, 17 – 22.
- ⁸⁹ Ibid., p. 159, 22 – 27.
- ⁹⁰ Ibid., p. 158, 22 – p. 159, 10.
- ⁹¹ Ibid., p. 160, 1 – 14.
- ⁹² Hegel-scholars should note that by actual infinities I mean here only quantitative infinities. True, Hegel speaks of something called true infinitude, but a passage in Hegel's investigation of universal judgements within the Logic (G 12, p- 74, 28 – 75, 19) reveals that this concept has actually nothing to do with actual quantitative infinities. In that passage Hegel discusses the problem of proving a certain theorem for *all* polynomials of indeterminate length: this is impossible according to Hegel, because the proof would require an investigation of an infinitely long pantonomial, which as a quantitative infinity is of course a meaningless concept for Hegel. Then Hegel points out that the method for proving this theorem for *any* arbitrary polynomial is already potentially given in the proof of the theorem for binomial: while the previous nonsensical problem tried to tackle with all polynomials at once, Hegel's solution is to show that we can tackle with any individual polynomial that we happen to come across. It is this method based on certain regularity which Hegel then calls true infinity: here the phrase "infinity" refers more to the perfectness and infallibility of the method instead of any actual quantitative infinity involved in the use of method.
- ⁹³ Notable examples are Burbidge 1980 and Manninen 1988.
- ⁹⁴ G 11, p. 381, 15 – 21 and p. 388, 9 – 15.
- ⁹⁵ G 11, p. 382, 2 – 3.
- ⁹⁶ Ibid., 12 – 16.
- ⁹⁷ Ibid., 32 – 33.
- ⁹⁸ Ibid., p. 383, 5 – 7.
- ⁹⁹ Ibid., 13 – 14.
- ¹⁰⁰ Ibid., 15 – 18.
- ¹⁰¹ Ibid., p. 386, 31 – 37.
- ¹⁰² Ibid., p. 387, 17 – 20.
- ¹⁰³ Ibid., 20 – 22.
- ¹⁰⁴ Ibid., 25 – 30.
- ¹⁰⁵ Ibid., p. 391, 23 – 25.
- ¹⁰⁶ Hegel's account of modalities is not totally trivial, as it seems to show that essentially possible situations form a structure that is nowadays usually called by designation S5: every possible situation is "accessible" from every other situation, that is, in every situation we can recognize any other possible situation as possible, or all possibilities are necessary possibilities. It should be noted that this ontological structure of possibilities is revealed – that is, known – only at the end of the construction: in the beginning of the construction, we are only aware of a few of the possibilities.
- ¹⁰⁷ See Barwise and Perry 1983, especially p. 3 – 5, where the situational semantics is said to appropriate the main ideas of possible world semantics, but to speak instead of such abstract world of actual situations.
- ¹⁰⁸ For instance, in Heinrich 1958/59.
- ¹⁰⁹ This is why Hegel states at the beginning of his investigation of modality, that an actual situation is always contingent, but in the end of it he states it to be necessary: in the beginning he has studied the situation merely in itself, in the end he has compared its position to all the other possible situations.
- ¹¹⁰ G 12, p. 218, 15 – 22.
- ¹¹¹ PR, § 214.
- ¹¹² Beiser 2005, p. 76 – 79.
- ¹¹³ V 10 p. 159, 795 – p. 160, 807.

2. *Outlines of the Logic*

a. **The form of the Hegelian Logic, and the question of its formalisation**

In the previous chapter we investigated some basic concepts developed in the Logic, like *Dasein*, judgement, identity, reality and ideality. Interestingly we ended up using some terminology from modern modal logic in clarifying certain Hegelian phrases. Furthermore, we noticed already at the beginning of the previous chapter that the Logic was displayed many recurring patterns. With these regularities in mind, it becomes natural to ask if the Hegelian Logic could be on the whole represented in a methodical form, and perhaps even in a formal or symbolical way.

The question of formalisation of the Hegelian Logic has been raised before. A positive answer has been more common in the past, usually coming from philosophers of Marxist tendencies. But as they looked at Hegel from Marxist eyes, none of them supplied a system that was truly faithful with Hegel's ideas. Usually, they concentrated only on the form of thesis-antithesis-synthesis falsely supposed to characterise the Hegelian Logic, and therefore nothing interesting has come from their efforts. The failure of these attempts has resulted in at least scepticism or in many cases in a total distrust of any attempt to formalise Hegel. Not only has this idea been dominant among people not acquainted with Hegel – who could forget the attitude of Popper, for instance? – but Hegel-scholars too seem nowadays to have given up on even attempting such formalisation. It has become common to say that Hegel's Logic has some element that resists formalisation, that it doesn't investigate same things as formal logic, but some other subject matter etc. Because in many cases these statements of Hegel-scholars are connected with an unwarranted identification of formal logic with mere logical syntaxes and even only with logical algebras¹ – these truly do not capture the spirit of the Hegelian Logic, but this was not the question – their conclusions seem unjustified.

Admittedly, unbelievers in the formalisation of Hegel have a strong argument in the words of the master himself. It is well known how Hegel dismisses the mathematical methods as insufficient to handle philosophy and how Hegel scorns Leibniz's youthful idea of universal symbolism and, in general, all the attempts to represent logical relationships with pictorial methods. But before making hasty judgements I propose that we should look more closely at what Hegel is criticising here. What Hegel is dissatisfied with in Leibniz's idea is firstly that pictorial symbols work on a different level than

thoughts, that is, they are images which belong to fantasising imagination, a capacity between sensing and thinking.

To take numbers and geometrical figures – as the circle, triangle etc., have often been taken – as mere *symbols* (the circle, for example, as a symbol of eternity, the triangle, of the trinity), is on the one hand quite harmless; but, on the other hand, it is foolish to think that in this way more is expressed than can be *grasped* and *expressed* by *thought*. If a deep *meaning* should be *implicit* in such symbols or in those richer products of *fantasy* in the mythology of peoples and in poetry generally – and the unfantastic geometric shapes are undoubtedly quite meager in comparison with mythology – it is properly for thought alone to make explicit for consciousness the wisdom that is only implicit *in* them; and not only in symbols but in nature and in spirit. In symbols the truth is *dimmed* and *veiled* by the sensuous element; only in the form of thought is it fully revealed to consciousness: the *meaning* is only the thought itself.²

Hegel's idea is that the sensuous appearance of images confuses the thought causes unwanted associations. Instead, Hegel demands that thinking should use signs instead of symbols.

The sign is any immediate intuition, representing a totally different content from what it in its own account has; it is the *pyramid* into which a foreign soul has been conveyed, and where it is conserved. The *sign* is different from the *symbol*. The symbol is an intuition whose *own* determination according to its essence and concept is more or less identical with the content that it expresses as a symbol; whereas in the sign as such the natural content of the intuition has nothing to do with what it signifies. Intelligence shows therefore a freer choice and more authority in the use of intuitions, when it uses *signs* instead of symbols.³

Signs are thus separated from symbols by having no necessary meaning, but by being only arbitrarily connected with a meaning. Words of any well-developed language are a good example of such signs, Hegel says.⁴ Yet, thinking is not just playing with intrinsically meaningless signs, but needs a given reference for each sign.⁵ In this, there is nothing that excludes formalism in itself – supposing we don't use too pictorial signs – and indeed, it even might be seen as encouraging for one.

Hegel has also a second and more pressing problem with mathematical symbolism.

Connected with this was a pet idea of Leibniz, embraced by him in his youth, and in spite of its immaturity and shallowness not relinquished by him even in later life, the idea of a *universal characteristic* of concepts – a written language in which each concept would be represented as a relation proceeding from others or in its relation to others – as though in rational combination, which is essentially dialectical, a content still retained the same determinations that it possesses when fixed in isolation.⁶

Any written symbols are bound to be rigid – a symbol has always the same properties and thus it can refer to a thing that has constant properties – but as we saw in the previous chapter, in Hegelian philosophy we are speaking of things having different

properties in different situations or contexts – we can speak contextually or modally. Connected with this is Hegel’s disdain for mathematical deduction which can only show how properties of things stay as they are, being capable only of describing abstract identities, that is, identities of things studied in only one situation or in one viewpoint – for example, in geometry, we sometimes study only the magnitudes of figures and not their shape.⁷ In general, Hegel says, mathematics and especially arithmetic works by an analytic method – “ $5 + 7 = 12$ ” is an analytic truth, Hegel maintains against Kant.⁸ But does Hegel mean by analysis same thing as Kant?

Firstly, Hegel explicitly breaks away from the traditional explanation of analysis compared to synthesis:

We sometimes find the difference between analytic and synthetic cognition stated in the form that one proceeds from the known to the unknown, the other from the unknown to the known. But if this distinction is closely examined, it will be difficult to discover in it a definite thought, much less a concept. It may be said that cognition begins in general with ignorance, for one does not learn to know something with which one is already acquainted. Conversely, it also begins with the known; this is a tautological proposition; that with which it begins, which therefore it actually cognises, is consequently something known; what is not as yet known and is to be known only later is still an unknown. So far, then, it must be said that cognition, once it has begun, always proceeds from the known to the unknown.⁹

Hegel insists that knowledge must at first start from a state of ignorance, but after the first start it always has something known as its basis. One may not agree with Hegel’s opinion, but at least it shows that he is not dealing with analysis in the traditional sense as a movement from something known to something unknown. Although he does not explicitly state it, Hegel’s analysis and synthesis seem at first sight to have also no connection with Kant’s division of judgements to analytic and synthetic: Hegel is speaking of methodology and not of judgements. But in a closer look an interesting connection reveals itself: Kant calls – or at least he is commonly said to call – analytic such a judgement where the predicate is contained in the subject, that is, where the predicate can already be deduced from the subject; now, for Hegel judgements were seen to be a species of transitions, possible constructions of one possible situation from another, we might say. What if Hegel meant by analytic method a (possible) construction whereby one could “build” from one situation another one – a model from another model – where the new situation would somehow be already contained in the original?

This supposition gains credibility from Hegel’s own words:

The distinguishing feature of analytic cognition is already determined in the fact that as the first premise of the whole syllogism, analytic cognition does not as yet contain mediation, but is the immediate communication of the concept which does not as yet contain otherness and in which the activity expresses its negativity. [...] The determination, therefore, brought about by this relation, is the form of simple *identity*, of *abstract universality*. Accordingly, analytic cognition has in general this identity for its principle, and transition into an other or the connection of differentents is excluded from it and its activity.¹⁰

The analytic method thus deals with immediate connections and investigates abstract identity. We saw in the last chapter that what Hegel means by abstract identity could be interpreted as identity within one context, or in modal terms, within a possible situation – an intraworld identity, as it is sometimes called. Thus, an analytic method would be such that it would depend only on identities of objects within some context or possible situation: where we would look only at this moment, at this state of affairs, without comparing it with other possibilities. True, there might be some ways to construct other possibilities, even by using mere analysis. We have already seen how Hegel admits that we can construct situations and contexts that are in some sense simpler than the situation or context we are dealing with, that is, we can abstract from some objects or properties of the state of the affair in question and focus only on the ones we haven't abstracted: in this way we can divide some situation into its constituent parts. We can also, Hegel says, use those transitions that are implicit in the situation itself, as long as these transitions are accepted as given: for example, if it is an effect of something, then there must be a situation that has caused it etc.¹¹ Even if we admit these links with other possibilities, we could characterise Hegel's analytic method as completely non-modal: a logic, if we may use the term, that does not deal with other possibilities, but looks things only within one situation.¹²

As a counterpart to the analytic method, one should expect that Hegel would mean by synthesis a method that investigates relations of different situations, contexts or models, that is, a modal method. Indeed, we find Hegel speaking of synthetic method as a study of differences contra abstract identity:

Analytic cognition is the first premise of the whole syllogism — the *immediate* relation of the concept to the object; *identity*, therefore, is the determination which it recognises as its own, and analytic cognition is merely the *apprehension* of what *is*. Synthetic cognition aims at the *comprehension* of what *is*, that is, at grasping the multiplicity of determinations in their unity. It is therefore the second premise of the syllogism in which the *diverse* as such is related.¹³

The idea of differences in one unity or concrete identity we have earlier connected with difference of situations and identity of object across various situations. If the analytic method was used by arithmetic, where does Hegel think the synthetic method is used?

Interestingly enough, Hegel mentions as example the Euclidian geometry structured by Aristotelian syllogistic logic.¹⁴ In this connection one should remember that a judgement was for Hegel a presentation of a connection between two situations – how a predicate was accessible from its subject – and syllogism similarly a connection between three situations. Thus, Hegel is consistent in saying that the study of syllogisms involves investigation of different situations. But a more obvious example of the synthetic method in the Hegelian sense is, of course, Hegel's own Logic,¹⁵ which is interested in discovering whether we can make transitions from certain kinds of concepts to other concepts – in other words, it investigates whether certain kinds of situations are constructible from other situations. Here we see at last what Hegel was criticising in the attempts to formalise logic: not the formalisation itself, but merely the way that the formalisation might restrict our viewpoint merely to one situation, to one context, which would make logic truly abstract. Hegel is advocating a transition from a study of one model to a study of relationships amongs models or a model theory, if we might speak in such anachronistic terms.

It is a fair challenge to ask someone stating an interpretation of an author to explain what the author has meant by some of his main concepts – or what traditionally has been seen as his main concepts. This demand is more imminent with such a controversial interpretation as now stated. I have already dealt in the previous chapter with the question of the unity of differences or contradictories, which I stated to mean cases where one object occurred in two possible situations with different or even contradictory predicates. Let us proceed to investigate other terms filled with an air of Hegelianism, namely the negation of negation and the sublation (*Aufhebung*).

Starting with sublation, we immediately find a hint of its meaning in the remark concerning sublation: before Hegel even makes the famous statement that in sublating we both preserve and cancel what is sublated, he identifies that which is sublated with something ideal.¹⁶ Now, we are familiar with what Hegel means by ideal from the previous chapter: objects are ideally different when they are merely one and the same object in different situations or different aspects of a certain object. Thus, a sublation would be any construction by which we become aware of the ideality of two different descriptions of some object or by which we interpret some descriptions as referring to the same object or to different aspects of the same object. The sublating cancels those descriptions by showing that they are not the whole truth, but description of merely one aspect or part of the whole: it cancels their independence or their claim to be the only situation there is. At the same time it preserves them by admitting that they are correct

descriptions of that part or aspect of the whole: their content remains valid within a certain viewpoint. Note that sublation is actually not an independent method distinctive to the Logic, as is usually misconceived, but merely something that happens from time to time in the course of the Logic. The idea of sublation merely suggests that we should integrate newly discovered situations into the framework of already known situations, but it does not by itself tell where these new situations emerge.

In the case of interpreting the negation of negation or the second negation, I shall concentrate on two relevant parts in Hegel's Logic. Firstly, there is the passage where Hegel introduces the term "something" (*Etwas*) after a discussion of qualities and the introduction of the term negation. Here we find Hegel stating that the something is the first negation of the negation and continuing at once by contrasting *Dasein* (a situation) with *Daseiende* (an object that is in some situation) and generally a quality with an object having that quality and insisting that the latter are more important.

Something is the *first negation of negation*, as simple self-relation in the form of being.

Determinate being, life, thought, and so on, essentially determine themselves to become *a determinate being, a living creature, a thinker* (ego) and so on. This determination is of supreme importance if we are not to remain at the stage of determinate being, life, thought, and so on — also the Godhead (instead of God) — as generalities.¹⁷

The second relevant passage occurs in Hegel's theory of judgement, in the development of the first three forms of argument (the so-called judgements of *Dasein*: the positive, the negative and the infinite judgement). Hegel implies that a negative judgement is a first negation of a positive judgement, whereas an infinite judgement is implied to be a corresponding second negation.

Starting from this positive form of the negative judgement, this negation of it appears again as only a first negation. But it is not so. On the contrary, the negative judgement is already in and for itself the second negation or the negation of the negation, and what it is in and for itself must be posited.¹⁸

Looking more closely what Hegel means by these different types of judgement, we see that a negative judgement is for Hegel a judgement that negates, in a sense, only a part of a positive judgement: "A rose is not red" still implies that the rose in question is coloured.¹⁹ An infinite judgement, on the other hand, negates the whole judgement, and, interestingly, a main part of them Hegel states to be the identical judgements like "A rose is a rose".²⁰

Both passages point in the same direction. By negations (that is, by first negations) Hegel seems to mean transitions between two situations of the same type (two qualities, as Hegel expresses it). By making a first negation we become aware of

other possibilities: in other circumstances or from another point of view rose might not be red, but, for instance, white. By a second negation, then, Hegel means a transition to a situation where we have abstracted from all these situations or possibilities and look at merely their common object (Hegel's *Fürsichsein*): we know that the possibilities shown by transition of the type of first negation are not essential to the object itself, because the object could instantiate anyone of them. Indeed, the so-called second negation bears an obvious resemblance to the construction of making real differences into merely ideal ones, that is, interpreting apparently different objects as mere aspects of one object. Let us compare this second negation with sublation. In both, we move from descriptions of parts or aspects to a description of the whole while at the same time admitting the validity of the partial description for the part it describes. The difference between sublation and the second negation seems to be that in the second negation we need some common substrate for the different possibilities – an object existing in all the possible situations – whereas the sublation is a wider term covering also the cases where the different descriptions or situations might not have any objects in them.²¹

Like sublation, the negation of negation is as yet no indication of the true method for finding different aspects of some common object or situation, but merely suggests that we should integrate such aspects into an integrated whole. Thus we cannot from the mere idea of a negation of negation decide that Hegel is committed to following some external schema like “affirmation – negation – negation of negation”. Furthermore, we must note the obvious fact that the terms “first” and “second” are merely figurative in the sense that a Hegelian second negation might follow a series of many “first” negations: that is, we might first discover more than two related possibilities, before noting that they are mere aspects of the same object or issue. Hence, a negation of negation could just as well be the fourth, fifth or sixth term in a series.

b. Categories as the content of Hegel's Logic – metaphysical and empiricist interpretations

So far we have discussed the form that Hegel's Logic should have and suggested it might have something to do with modalities, that is, of different possible situations and contexts and their relations with each other. We haven't yet touched the question of what Hegel's Logic is about or what its content is. This is obviously a crucial question in deciding whether Hegel's Logic could be formalised: after all, Hegel's Logic has sometimes been described as a logic of content, that is, a logic where content matters

and for that reason it has been thought to be clearly separate from any formal logic.

Hegel himself seems to give a quite straightforward answer to the question: at many places he says that the Logic is about the Concept (*Begriff*) or concepts, or the Idea,²² in other places he rather uses the words thought²³ and thought-determination²⁴ and sometimes even the term category.²⁵ I shall assume that all these different terms are meant to convey the same idea or at least that the differences that these terms might have do not concern us here. The first thing that the terms bring to mind is the traditional idea of logic as a science of thinking. Especially the word category suggests some connection with Kant, and indeed, we see Hegel connecting at least part of his Logic with the transcendental logic of Kant.²⁶ Thus, it would seem probable that Hegel is trying to describe in his Logic the general preconditions of experience or the ultimate ways that a subject structures his world, like Kant had tried to do in his Critique of Pure Reason.

On a closer examination, however, the idea that Hegel is engaged in the same project as Kant's transcendental logic becomes a bit doubtful. Hegel is not prone to thank Kant for turning the attention of philosophy from the objective world to the way that subject conceives it: he seems to be more of the opinion that it has led to the gross misunderstanding that things couldn't be known as they really are, in themselves.²⁷ In addition, Hegel himself warns the reader that the words which refer to the content of his Logic – i.e. concept, thought etc. – do not describe something merely subjective. Rather, he stresses that these terms refer to the way that objects themselves are structured.²⁸ This suggests that Hegel is engaged in ontology in his Logic. Indeed, after stating the connection with the transcendental logic of Kant, he suggests a similar connection with the metaphysics and ontology of the former times: the sciences that deal with *ens*, that is, being in general.²⁹ There are thus at least two possible ways to understand the Logic: either as a transcendental philosophy or as an ontology. In order to facilitate the comparison of the Logic with ontology on the one hand and Kant's transcendental logic on the other, I shall investigate the relationships that Hegel had to his spiritual predecessors, that is, to the earlier philosophies and metaphysics. As a guide to Hegel's conceptions concerning previous philosophers I shall use Hegel's own introduction to the so-called smaller Logic in the Encyclopaedia.

The object Hegel studies in the Logic can for now be called categories: they are supposed to be very general ways or schemas for how things might be structured. The categories present one with a twofold problem, firstly, in what way we become aware of such structural schemas, and secondly, whether these schemas can be applied in

interpreting the objects around us, and indeed, whether we can find anything to apply them to. But before such questions were raised, the categories had been applied uncritically and objects had been assumed to be conceptually structured.

The first attitude is the *unfettered* method which has no doubts and no consciousness of the opposition of thought in itself and against itself. It entertains a *belief* that *reflection* is the means of *cognising* the *truth*, and of bringing the objects before the consciousness as they really are. And in this belief it advances straight upon its objects, reproduces the content of sense and intuition from itself as content of thought and is satisfied in such content as truth. Philosophy in its earliest stages, all the sciences, and even the daily action and movement of consciousness, live in this faith.³⁰

It is this uncritical or metaphysical use of categories we shall have to study first.

The first attitude to categories, or the metaphysics, as Hegel calls it, covers quite a lot of viewpoints: sciences and common life should share this attitude. Hegel even suggests that the philosophers of antiquity, such as Plato and Aristotle, endorsed it.³¹ But the main target Hegel had in mind was undoubtedly the Wolffian school of philosophy, which ruled the realm of German philosophy before Kant took over: “One of the clearest instances of it, and one lying nearest to ourselves, may be found in the *past metaphysic* as it subsisted among us previous to the philosophy of Kant”.³² This identification is even more evident, when we see Hegel dividing the metaphysics to four parts – ontology,³³ psychology,³⁴ cosmology³⁵ and theology³⁶ – a partition identical with the one Wolff himself used.

Metaphysics means then, for Hegel, an application of certain structuring schemas to certain objects. These objects themselves – for instance, the soul and the supposed totality of the world – are not something which metaphysics itself needs to discover or construct, but instead something already given to it, received via the senses or through other forms of experience, such as tradition:

Their objects were no doubt totalities which in and for themselves belong to reason, that is, to the in itself *concrete* universality of thought. But these totalities — God, the soul, the world — were taken by the metaphysician from the *representation*, as *ready given subjects*, to form the basis for an application of the determinations of the understanding. Accordingly representation was the only *criterion* for settling whether or not the predicates were suitable and sufficient.³⁷

These experiences are then analysed into abstractions – in fact, Hegel calls the method that is used in metaphysics “the abstract understanding”.³⁸ We already know that by “analysis” Hegel means a method which can merely investigate one context and perhaps cut it to its constituents: indeed, at one point Hegel speaks as if analysis meant almost literally cutting the experienced object or situation to pieces, comparing it with chemist’s method of analysing a piece of matter into smaller pieces of matter.³⁹ The

result of metaphysical analysis is, of course, not smaller pieces of soul or world, but mental abstractions from experiences: certain properties of, for instance, my self-experience, separated from all the other properties.

After hacking the experience to pieces, the metaphysical investigator begins to apply his bag of categories to the abstractions. Usually the categories came in pairs, like “infinite or finite”, “simple or complex” and “mechanical or teleological”, which were thought not to apply to same objects.⁴⁰ It is now a mere matter of seeing which categories fit in with the analysed experiences: whether we can divide our self-experience or whether it is an undivided unity; whether the events of the world happen according to some necessary causal laws or whether they have some purpose. After the decision is made, we have gained knowledge of the nature of the thing in question.

Hegel points out that this metaphysical way to handle categories is inadequate. When we abstract and divide objects into their constituents we miss out one of the more important aspects of them, namely, the way the constituents of an object are unified:

Predicates of this kind have for itself only a *limited* content, and they show themselves as inadequate in comparison with the *fullness of representation* (of God, spirit or nature) and can never fill that fullness. Besides, though the fact of their being all predicates of one subject supplies them with a certain connection, their content keeps them apart: and consequently each is brought in as *external in relation to the others*.⁴¹

Analysis tells us, for instance, that the soul is simple, but it doesn't tell us how the simplicity of the soul is connected with its other properties. Indeed, there is a wealth of information hidden in our experiences, but analysis can discover only a miniscule proportion of that information. In some sense analysis even distorts the experience, as it pays attention to isolated details which in the context of the whole object might have a completely different meaning.⁴² The distortion of the analysed thing may even lead us to apply two opposite categories to the same object, if we concentrate in one analysis to some properties, and in a second analysis to different properties. For instance, if I thought that I am in every moment the same person, I might conclude that my self is undivided; but if I thought that I have many different sides and capabilities in my personality, I might conclude that my self can be divided. I shall return to this possibility of antinomical analyses later.

Another fault of metaphysics can be seen in its uncritical acceptance of the categorical framework without any investigation of where the categories come from: the metaphysician has merely stumbled on some abstract schemas by which to model the world and decided to use them. Because the metaphysician is not aware of the genesis of his categories, he is also not justified in applying them to his thoughts and

experiences: after all, the concepts we use to structure our experiences might somehow distort them, as was mentioned before. One answer to the question of the genesis of categories was offered by the British Empiricism, the second attitude concerning categories.

British Empiricism was a school of thought which Hegel was prone to misunderstand, especially as he saw no essential difference in, say, Lockean realism and Berkeleyan idealism. The empiricism in Hegel's account does not differ in its methods very radically from the metaphysics of Wolffian school. Both begin with some given experiences and use abstracting analysis to find out what structuring schemas apply to them.⁴³ But there are at least two differences between metaphysics and empiricism. Firstly, the empiricists restricted the experience accepted as starting point of analysis to that given to the individual in perceptions, whereas the metaphysicians might also have accepted common opinions.⁴⁴ Secondly and more importantly, empiricists also wanted to know where the structural schemas they used, the categories, came from. Because they accepted only the perceptions as a source of knowledge, empiricists had to decide that the categories were also analysed out of perceptions: "This, however, it does with the reservation that these general principles (such as force) are to have no further meaning or validity of their own beyond that taken from the perception, and that no connection shall be deemed legitimate except what can be shown to exist in appearance."⁴⁵ One found by analysis an instance of, for example, a situation with one object, and thus one had discovered the category of oneness.

Hegel applauded empiricism, because it demanded that the knowledge must be of the actual world and not of any fictions, and because it encouraged people to find out about facts on their own instead of just trusting opinions of others.

In empiricism lies the great principle that whatever is true must be in the actuality and present to perception. This principle is opposed to that '*ought to be*' on the strength of which reflection bloats itself and sets the actuality and present contemptuously against the *beyond* which is assumed to have place and presence only in the subjective understanding. No less than empiricism, philosophy (§ 6) recognises only what *is*; it has nothing to do with what merely *ought to be* and what is thus *not present*. – On the subjective side, too, it is right to notice the valuable principle of *freedom* involved in empiricism: that man should see for *himself* and know that *he is present* in everything that he much accept in his knowledge.⁴⁶

Besides these good points, Hegel was unsatisfied with empiricist philosophy. Because the empiricists used only analysis to study their sensations, they faced the same problem as the metaphysicians: analysis gives information only of certain aspects of objects and situations and not of the whole. In addition, empiricists faced another problem, because

they saw categories merely as abstractions from given experiences. If the structuring schemas we use are discovered only from particular perceptions, then it becomes questionable whether we can apply these schemas to other perceptions and more generally to all possible perceptions and experiences.

Empiria no doubt offers many, perhaps innumerable, cases of similar perceptions: but, after all, no multitude, however great, can be the same thing as *universality*. Similarly, empiria affords perceptions of changes *succeeding each other* and of objects *lying side by side*; but it presents no *necessary* connection. If perception, therefore, is to maintain its claim to be the sole basis of what is held for truth, universality and necessity appear something *illegitimate*: they become a subjective accident, a mere custom, the content of which might be otherwise constituted than it is.⁴⁷

The metaphysician's problem of how to connect different aspects of one experience to each other is connected with the problem of how to connect different experiences to each other, when we have no guarantee that the structures used in one are the same as used in the other. Thus, the possibility of finding general invariances from nature becomes obsolete, and Hegel views the empiricist school as necessarily ending with the scepticism of Humean kind, which denies any real and substantial knowledge of universal facts:⁴⁸ in addition to some trivialities, analysis cannot reveal anything that would concern all possible objects and situations.

c. The Kantian interpretation of categories

What Hegel found worthy in the metaphysical and empiricist attitude to categories was, firstly, the general assumption that categories should be ontological structures of things, and secondly, the assumption that these things should be something that we can actually experience, instead of belonging to a realm beyond our reaches. Together these assumptions give a criterion of meaningfulness to categories. Categories must be such structures that could be instantiated or that could have a reference, otherwise they would merely be meaningless words. What Hegel found still lacking in both metaphysics and empiricism was the use of mere analysis which left unaccounted how the differently categorised structures were related. This aspect of the content of the Hegelian Logic agrees quite well with the idea of its modal form, that is, a method of investigating different possible situations and their interrelations. Different possible situations exemplify different categories or ontological structures and Hegel is interested to show how a situation characterised by a certain category is related to a situation characterised by another category.

As a third attitude towards categories Hegel investigates Kantian philosophy.

Hegel interprets Kant's critical philosophy as occupied with the above mentioned question of how the abstractions given by an analysis of experience could be united to give a complete experience – how the seemingly diverse and even opposite aspects are connected in various ways to a whole. Indeed we might say that this is behind Kant's task of finding out whether there can be synthetic judgements *a priori*, that is, judgements that connect diverse conceptions and are not derivable from experience.⁴⁹ Now, Kant presupposed that such a connecting of experiences without any given material must happen – otherwise we wouldn't be able to accept the necessity of mathematics, which in Kant's opinion is filled with such synthetic statements – so he merely had to explain how this could be done.⁵⁰ Although Kant thus admits that the human mind must have some other way to find knowledge besides analysing experiences – that is, connecting or synthesising experiences – he is quick to add that even this method of connection needs something to work with, which in human case cannot be given anywhere except in our senses.⁵¹

Kant's account of categories is related to his idea of the human capability of synthesising aspects of experiences. As Kant is mainly concerned with finding connections between different objects and parts of an object, he means by categories not generally all the ways things might be structured, but particularly the way they might be connected with each other: they express the ways that we could relate different objects and situations and resemble the ways that we relate different concepts in our judgements. It is one of Kant's main theses that there couldn't even be unified experience before the experiencing subject has synthesised the material given to it by sensations. Thus, at least some of the content of metaphysician's bag of categories is not reducible to experience, namely, the categories that Kant has identified as basic ways of connecting things. Kant is therefore driven to suggest that these basic categories are in some sense intrinsic capacities of human subject, that is, the subject must have within himself some structuring schemas which he uses as guide lines in synthesising.⁵²

Although Hegel shares Kant's concern to show the possibility of consciousness synthesising experiences besides analysing them, he is very critical of Kant's solution. First of all, Kant's categories are still in need of given content, because the structures in themselves, without any objects to which they can be applied, are mere empty abstractions, giving no substantial information.

[O]n the other hand these concepts as unities of merely our consciousness are conditioned by the given material, for itself empty and they can be applied and used only within the experience. The other constituent of experience, the determinations of feeling and perception, are as well only subjective.⁵³

Furthermore, Kant accepts the categories as given, that is, as something the human subject merely finds ready-made in his head: Kant does not try to justify why the subject must have these ways to synthesise things or even generally any way of synthesising.

Kant, it is well known, did not put himself to much trouble in *discovering* the categories. *I*, the unity of self-consciousness, is quite abstract and completely indeterminate: how can we then get at the *determinations* of the *I*, the categories? Fortunately, the common logic offers to us as empirically readymade *diverse kinds of judgement*. Now, to judge is the same as to *think* of a determinate object. Hence the various enumerated modes of judgement provide us with the several *determinations of thought*.⁵⁴

Because of this failure to justify the categories, Kant cannot argue that every subject has the same capabilities of connecting things – other subjects might have different collection of categories more suitable to structuring experience. On the whole, Kant has not, in Hegel's opinion, succeeded in overcoming difficulties implicit in the metaphysical and empiricist attitudes. The main source of knowledge is still the moulding of given content of experiences, which cannot supply truly universal knowledge. True, Kant admits a way to work with experiences – synthesis – but this is still close to the Humean idea of connecting aspects of experience merely habitually, out of an unexplained instinct.

Kant's solution to the problem of synthesising experiences was a disappointment for Hegel, but there was something in critical philosophy that seemed in Hegel's eyes to make progress from the standpoint of metaphysics and empiricism. This positive side of Kantianism was the idea of antinomies. Remember that Hegel already in his discussion of metaphysicians that by different abstractions one could get different kinds of structures for one object. Hegel is thus bound to approve when Kant stumbles on the discovery that such antinomies are necessary, that is, even if you held on to one kind of abstraction, it could be shown that completely opposite kind of structuring is possible.⁵⁵ Now, Kant and Hegel see the antinomies in a completely different light. Kant takes them as showing an error of some kind: of course we must be doing something wrong if we can't decide whether a thing is, for instance, limited or not, because common sense says that one of these abstractions must be the right one. Hegel, on the other hand, views the antinomies as an asset that provides us with a means to knowledge other than mere abstraction.

Hegel's enthusiasm for antinomies requires some further explanation. It is perhaps natural to avoid antinomies, because they seem to be connected with contradictions: indeed, Hegel himself equates Kant's antinomies with contradictions.⁵⁶

But as we have seen, what Hegel means by contradictions, is not the same thing as what modern logicians mean by them. When Hegel then says that there really are contradictions in the world, he means nothing more mysterious than that there are occasions where thing has one property in a situation or context and a contrary property in another and this difference of properties does not depend on our way of looking at things – temporal changes are obvious examples.

Hegel's appreciation of antinomies is even more understandable when we see their connection with what Kant called the synthesising of experiences.⁵⁷ In an antinomy we see one and the same object from two different points of view, that is, occurring in two different structures. But this is what Kant was also trying to do – to connect the structures separated by abstraction, for example, by showing that one thing has all the properties we have found or that one and the same object exists at different times. The necessity of Kantian antinomies is especially favoured by Hegel, because it shows that the synthesis is not contingent, that is, the structures we find by it are no accident of our nature: given one kind of structure, we are justified in assuming the possibility of another kind of structure. Thus, if the human mind is bound to face antinomies, it just means that it is bound to reach over the limits made by abstraction, when it is trying to find connections between different types of situations. As we shall see later, it is the rules stating which structures we are allowed to construct from given structures that Hegel is most interested to discover in his Logic.

d. Is immediate information our only connection to objects?

The fourth and final attitude towards categories that Hegel mentions rejects the whole idea of knowledge arising from applying categories. Idea behind the rejection is twofold. Firstly, we have seen that all the previous attitudes admitted that there already had to be some given element in our knowledge, that is, something immediately certain and trustworthy, like sensations or some other form of intuitive experience. Secondly, at least in the case of analysis the human meddling with this given content resulted only in abstractions, i.e. with structures exhibiting mere aspects of the object in question, instead of the whole object. Thus, it might seem natural to forego the attempt to structure the given content conceptually and merely accept what is given to us.⁵⁸ Hegel identifies this view of immediate source of information particularly with the ideas of his contemporary Jacobi, but similar conceptions were entertained by others also, for instance, by Hegel's friend Schelling in his idea of intellectual intuition. We have seen

that the immediate information has been an integral element of all the previous attitudes: one must have some material to which categories can be applied.

Hegel launches two criticisms against immediate knowledge or information.⁵⁹ Firstly, he is sceptical as to whether there really is such thing as immediately given knowledge.⁶⁰ Hegel's main point here is that many forms of knowledge understood to be immediate actually presuppose some effort of obtaining that knowledge, either by upbringing or by own experience. This is not a completely satisfying criticism, because it seems that there could have been at least one such state or situation at which every individual – and the human race generally – started to be aware of things and which we couldn't yet have meddled with. Even Hegel himself hints of an absolute beginning of knowledge gathering and at some places indicates that information given by the senses provide an individual with such an absolute beginning.⁶¹

It is the second criticism which is more interesting. Hegel reminds us that different people have had different conceptions of what is immediately certain, depending on, for instance, their culture and personal experience.⁶² Even an individual may have to change his or her mind in this matter. This is especially true in case of sensory information which is different depending on the time and place where one is situated.⁶³ The problem is that such immediate information has no other justification except its immediateness: it is assumed to be merely given. Thus, when one opposes a statement based on it to another statement based on different immediate information, there is no way to decide which statement is more correct: it is a case where one assertion is simply pitted against another.⁶⁴ Even an immediately given situation is, then, only one aspect of the whole, that is, only a part of the whole truth, which should be synthesised with other truths – an immediate piece of information is abstract in the same manner as the metaphysician's analysis is.⁶⁵

The possibility of categories cannot be based on mere immediate information, because such information changes from one perceiver or context to another: if we tried to exemplify a category through some example based on some given information, we couldn't be sure that everyone would be acquainted with the information required for understanding this example. Still, it seems that Hegel cannot abandon immediate information completely. Indeed, all the structures, all the types of situations we are aware of are situations with some given objects. If Hegel wanted to state something substantial about possible situations in general or if he wanted to introduce some type of structure supposed to be actually possible, he would already have to be acquainted with some real situations filled with some real objects: remember that a possibility that

couldn't be actualised wouldn't be a true possibility for Hegel. Thus, his Logic would seem to be conditioned by something empirical, something given perhaps by the senses, perhaps by some form of intellectual intuition, which would be in conflict with his commitment to beginning the Logic purely, without any suppositions. In modified words of Kant, we could say that every structure, every type of situation is empty without given objects.

Hegel has an intriguing solution to this problem, although its importance has not been sufficiently appreciated. One of the places Hegel expresses it explicitly, occurs at the end of the Logic when he is dealing with the method and general form of the Logic. While speaking of dialectics, Hegel states that it does not deal with objects of cognition nor with a cognising subject, but with the thought-determinations or categories.

First of all as regards the above-mentioned *form* in which dialectic is usually presented, it is to be observed that according to that form the dialectic and its result affect the *subject matter* under consideration or else subjective *cognition*, and declare either the latter or the subject matter to be null and void, while on the other hand the *determinations* exhibited in the subject matter as in a *third* receive no attention and are presupposed as valid on their own account. It is an infinite merit of the Kantian philosophy to have drawn attention to this uncritical procedure and by so doing to have given the impetus to the restoration of logic and dialectic in the sense of the examination of the *determinations of thought in and for themselves*. The subject matter kept apart from thinking and the concept, is a representation or even a name; it is in the determinations of thought and the concept that it is what it is. Therefore these determinations are in fact the sole thing that matters; they are the true subject matter and content of reason, and anything else that one understands by subject matter and content in distinction from them has value only through them and in them. It must not therefore be considered the fault of a subject matter or of cognition that these determinations, through their constitution and an external connection, show themselves dialectical.⁶⁶

The Hegelian Logic should then not be transcendental philosophy in the sense of studying categories as belonging to cognition nor should it be any special metaphysics of some particular subject matter, but a study of categories themselves. Likewise, at the beginning of the Logic, Hegel states that logic, which is usually understood as contentless because it deals only with empty forms, has content, namely, those forms.

But in the first place, it is quite inept to say that logic abstracts from all *content*, that it teaches only the rules of thinking without any reference to what is thought or without being able to consider its nature. For as thinking and the rules of thinking are supposed to be the subject matter of logic, these directly constitute its peculiar content; in them, logic has that second constituent, a matter, about the nature of which it is concerned.⁶⁷

Both passages reveal the same answer: the forms or categories themselves – situations of certain type or with certain structure – can be taken as the content of cognition, that

is, as objects in some situations. Hegel's answer to Kant would therefore be: we don't need any given objects apart from situations, because the situations themselves can work as objects. Thus, Hegel's Logic would be ontology without any requirement of reference to objects in the actual world: it would show the most general possible structures using structures themselves as examples or instances of other structures. Undoubtedly we would still have to explain how these categories could then be applied to other objects, but this need not worry us in the Logic.

There are two objections to deal with. Firstly, Hegel's answer does not seem sufficient. We needed objects, because there seems to be no actual situations without any objects, and Hegel suggested that situations themselves can work as objects. But this seems a fallacious circle: we would already have to have some situations before being able to use situations as objects of new situations. True, we might multiply the number of situations and types of them by this method, but we wouldn't get any situations, if there were not some other type of objects available to us beforehand. This is a serious problem, but I shall postpone answering to it a later time, when we are dealing with the beginning of Hegel's Logic.

The second objection questions whether the answer given to the problem really is Hegel's own: after all, the connection between the passages I quoted and the problem itself might seem a bit slight. The best answer to this objection would be to show that Hegel himself uses the principle that possible situations or states of affairs can work as objects: that when objects are needed to fill some structures, the structures themselves can be used as the required objects. I shall limit my investigation to the first book of Hegel's Logic. Beginning from the first section (concerning quality), in the first chapter (*Sein*) we find one instance of this principle,⁶⁸ in the second chapter (*Dasein*) also one example⁶⁹ and in the third chapter (*Fürsichsein*) two such examples.⁷⁰ In the second section (concerning quantity) there seems to be one⁷¹ and in the third section (concerning measure) the whole first chapter plus the beginning of the second can be seen as a complex working-out of this principle.⁷²

I shall present one of these examples in more detail, namely the second one in the chapter *Fürsichsein*, because it shows Hegel's use of the principle quite nicely: here Hegel shows how from One – a state of one existing object – it is possible to construct or “repel” Many – a state with many possible objects. Hegel begins his account with One, that is, with one object and aims to derive Many – many objects – from it.

In its own self the one simply *is*; its being is neither a determinate being, nor a determinateness as a relation to an other, nor is it a constitution; what it is, in fact, is the accomplished negation of

this circle of categories. Consequently, the one is not capable of becoming an other: it is *unalterable*.⁷³

We start with an object that is not related to other objects. It may perhaps be in contact with other objects in another context – like this rock stands beside other rocks and a tree – but we are abstracting from its surroundings and studying it as a mere unitary object. Because of the singleness of our viewpoint, the object in question cannot be determined by relating it to other objects: we have explicitly abstracted from all such relations to other things. Because the object cannot now have any context dependent properties – it cannot be red in this situation and green in another – it cannot be said to change, even in the Hegelian sense of change. In all situations in which we face the object it is merely a unified, existent object and nothing else.

Hegel continues by noticing that although it is not compared with anything, the object still has some quality – some kind of situation in which it is – which Hegel calls void or emptiness, no doubt trying to connect his presentation with ancient atomism. Furthermore, Hegel obviously wants to suggest an analogy between the relation of the object and its situation and a material thing and a void in which it exists: like a piece of matter exists in some spatial place, similarly an object in general still exists in some logical or ontological place or situation.

In this simple immediacy the mediation of determinate being and of ideality itself, and with it all difference and manifoldness, has vanished. There is *nothing* in it; this *nothing*, the abstraction of self-relation, is here distinguished from the being-within-self itself; it is a *posited* nothing because this being-within-self no longer has the simple character of something but, as a mediation, has a concrete determination; but as abstract, though it is identical with the one, it is distinct from its determination. This nothing, then, posited as *in the one*, is the nothing as the *void*. The void is thus the *quality* of the one in its immediacy.⁷⁴

Hegel also separates the situation from the object or the unity: an object is not its situation or what it differs from the fact that it is. This seems obvious enough, yet Hegel says in addition that a mere something or *Daseinde* couldn't be so separated from its situation or *Dasein*. Hegel seems to suggest that a merely finite object is still so connected with its situation that we cannot yet conceive how to separate an object from its state of quality: for example, a red object cannot be separated from the fact that it is red. Here, on the other hand, we start out with an object that can be seen as independent of all contexts. Thus, it now makes more sense to say that the object is not glued to the one situation in which it happens to exist: although the object now exists in a state of emptiness or has no characteristic, it could also be introduced into a context where it has a characteristic. As one of the possible situations in which the object could exist, we

might say that the state of emptiness is one possible quality for the object in question.

The crucial paragraph is the following:

The one and the void constitute the first stage of the determinate being of being-for-self. Each of these moments has negation for its determination and is at the same time posited as a determinate being. According to the former determination the one and the void are the *relation* of negation to negation as of an other to its other: the one is negation in the determination of being, and the void is negation in the determination of non-being. But the one is essentially self-relation only as related *negation*, that is, it is itself that which the void outside it is supposed to be. Each, however, is also *posited* as an affirmative *determinate being*, one as a being-for-self as such, the other an unspecified determinate being in general, and each is related to the other as to *another determinate being*. The being-for-self of the one, is, however, essentially the ideality of determinate being and of other: it relates itself not to an other but only *to itself*. But since being-for-self is fixed as a one, as *affirmatively* for itself, as *immediately* present, its *negative* relation *to itself* is at the same time a relation to an *affirmative* being; and since the relation is just as much negative, that to which it relates itself remains determined as a *determinate being* and an *other*; as essentially self-relation, the other is not indeterminate negation as the void, but is likewise a *one*. The one is consequently a *becoming of many ones*.⁷⁵

The complexity of this paragraph and the number of levels Hegel is describing easily hides the rather simple argument in it. We start with the result of the previous sections: an object called One and related to its situation (sentence 1 of the quote). The object and the situation are thus alternatives to one another or they form a structure of determinate objects related to one another: they are a connection of negative to negative or an other to another other (sentences 2–3). Undoubtedly, the object called One is supposed to be the more essential or the more actual, because it is taken as the reference point, while its situation is in this sense merely the background in which the object exists. Yet, we can just as well take the situation as the reference point and then the object falls into the background: the object is as void of structure as the situation and thus it seems arbitrary to take any of them as a reference point (sentence 4).

In one sense then both can be taken as a mere background; yet, in another sense both can also be taken as the reference point. The object should be independent of its situation or context and thus deserving of the epithet of the reference point, while the situation can be taken as the reference point, because any possible determinate situation (*Dasein*) could be taken as the reference point (sentence 5). As independent object, the One once again seems to have some priority over the situation: all seemingly different objects could be interpreted as mere aspects of it (sentence 6). Yet, we have now fixed the object in a certain context: it is to be taken as a mere unitary object. That to which the object is related is then something permanently other to it, in the context of this

fixing: the situation in which the unified object exists is another object. Now the key move of the argument appears. The situation – the other of the object – is also in some sense independent of the object: the “emptiness” is a general quality for any arbitrary unitary object (sentence 7). Because of its independency this “empty place” or this situation could itself be also taken as an object. Here we then have many objects (sentence 8). To make a long story short, an object and its situation can be differentiated and in this sense they are many objects: when one object is given, it is possible to find or construct many objects.⁷⁶ In this derivation, Hegel has explicitly used the situation of some object as an object itself.

The idea of situations as objects seems also likely to be what is at least partially behind the concept of the “overreaching universal”, that is, the universal which comprehends itself and its opposite, the particular. The universal, the form or structure of something, that is, the situation, can be seen also as particular, as an individual object, as the content of some structure.⁷⁷ That the universal comprehends the particular means thus nothing more than it may play both roles, it can be seen as a situation and as an object in some other situation. The application of this idea in the Hegelian System does not stop within the Logic, but seems to recur in a different, yet related form in other parts of Hegel’s System, for instance, at the beginning of the Phenomenology. Here Hegel does not deal with mere situations, but consciousness of temporally ordered situations: our awareness of something being the case now. In this case we find a familiar argument. We are aware of something being case now, for example, of a tree standing in front of us. But when we become aware of this current situation being the current situation (when we point to it as what is happening now), this awareness of currentness happens in a new situation, that is, the situation with tree as its object differs from situation having that situation as its object. Thus, we see that we have moved into another situation, time has passed.⁷⁸ If we remove the references to the consciousness and time, we see that this argument is actually the same as the derivation of Many out of One – situation with an object is itself a new object.

If Hegel’s solution to the Kantian problem satisfies the problem of finding situations or structures without any objects in them, it will have a tremendous effect on the possibilities for the Logic: we would need only possible situations to find examples of categories in the Logic, and thus we would have minimised the need for any content distinct from those that could be accessed by any thinker. This sort of enterprise would not be formal logic in the sense that it would deal only with formal properties (inferences etc.) of some fixed language. Instead, it would investigate a realm of

abstract objects that any intelligence should be able to discover: thus, it could instantiate general ontological structures through those objects in such a manner that anyone could follow. Still, the abstract nature of these objects would indeed make it very easy to give some symbolic representation for the Logic. Hegel's Logic would be related to formal logic in a somewhat similar way to how a piece of mathematics is – for instance, set theory – which also deals with a particular type of abstraction. Indeed, set theory differs from mere formal logic, because set theory has a specific, albeit very general content, whereas formal logic deals with the structure of arguments without taking their content into consideration. Yet, there are some further differences between the Logic and set theory as we shall see.

e. Hegel's Logic as a method for constructing types of situations

There is still one aspect of the Logic that we must weave into our account of it, namely, its constructivism. We saw in the previous chapter how Hegel thought that the constructivism of his System – the fact that it studied how things can be posited or constructed – was the distinctive characteristic of it: Hegel is interested not only to see what kinds of structures there are, but also to investigate methods of finding or building them. Thus, we must not interpret the Logic merely as a study of different possible models of reality and their connections, but also as a method of discovering them. Here seems to be the area where the so-called necessity of the Logic comes into play: the negativity that Hegel calls the soul of the dialectics, which connects one category or concept with the next one.⁷⁹ This necessity is just the constructability of the structures, that is, the fact that the new structures are to be constructed only from the available building blocks, from the structures that have already been constructed.

How does Hegel then find some constructions by which to build or find the possible situations? In the example of the previous section we saw how Hegel used some constructions already available in order to find plurality within a unity, but this cannot be the final answer: it is difficult to start building without any material and impossible to start it without the means of building. It seems thus that the Logic must have some presupposition with which to begin – not a fact of natural becoming, as Trendelenburg thought, but something more abstract, some set of possible constructions. That is, we should have some capability of changing situations or at least interpreting them anew, in order to create or find situations that exemplify the basic ontological categories. We must admit that this is not yet a pure beginning, yet it is as

close to a pure beginning as seems possible. The problem is how the constructions are supposed to work. In the previous section we saw that any mere immediate starting point wouldn't satisfy Hegel as a basis of exemplifying categories, because different persons start with different given information. Similarly, if different individuals had different means of construction – for instance, if their means of constructions depended essentially on the information they had – they might end up with a completely different set of basic ontological structures: a person who had experienced only unitary objects wouldn't know what multiplicity means. Thus, Hegel needs to establish some context of discussion where the role of the given would have been reduced in such a manner that different individuals could exemplify categories or generally universals without any risk of non-understanding.

I shall once again make a short detour to the history of philosophy in order to see how the predecessors of Hegel tackled the problem. I shall start with Kant who explicitly spoke of constructions, although he understood construction as something that could be given only to mathematical concepts, but not to categories. Kant explains the idea that mathematics can construct its concepts by telling that in construction we express a concept in *intuition* (*Anschauung*), although not in an empirical, but pure intuition.⁸⁰ An intuition, according to Kant, consists of two constituents: sensation, which connects an intuition to some object, and the form of intuition, which is provided by the human subject. A pure intuition is an intuition without the sensory constituent: thus, it cannot tell us whether anything exists. Yet, a pure intuition has some connection with possible existence: for instance, if a geometrician thinks of a triangle, he can always draw it or at least imagine it to be drawn – the situations we experience are always spatial and indeed in space of a certain kind, and thus, we can always give an example of a triangle.⁸¹ We might say that the a priori intuition provides us with a real possibility of geometrical figures: we have the ability to give an individual instance of all geometrical concepts and we could even construct a triangle in front of us without ever seeing one.

For categories, on the other hand, Kant admits no such possibility. Metaphysical categories and concepts are also part of the constitution of the human mind, but unlike mathematical intuitions they do not justify existence statements, that is, they only regulate the experience, but do not create it. Thus, although we have the capacity to use the structure of causality in our heads, we cannot say without any experience whether there are any situations corresponding to it, only that if we experience anything as existing, then it must be causally explainable. A metaphysician using mere categories

can only look at whether his concepts or structuring schemas truly characterise certain objects, the existence of which he must learn of in another way. The most we can do according to Kant is to apply our categories to pure intuitions, especially to the pure intuition of time, which thus provides for our categories a schema, that is, a sort of blueprint of how to apply the categories to concrete experiences. For instance, we could explain causality by saying that it consists of a regular temporal succession of intuitions.

Kant's solution wouldn't satisfy Hegel. The possibility of finding examples for categories depends on pure intuitions, which then are just something given to us. Admittedly, pure intuitions should be something given to us by our own constitution, but they still are a given: we cannot be sure whether all subjects would have similar pure intuitions. As we cannot give any definite instructions as to how one could reproduce our pure intuitions, we do not have any sure method of explaining our categories to other subjects.

Although in his later years Hegel could not have accepted construction as Kant understood the concept, as a certain beginning of science, Schelling – and perhaps also Hegel, when he still identified his position with Schelling's – used the terminology of construction, and indeed, identified it as the method for philosophy.⁸² Indeed, the philosophy of Schelling and the early Hegel was based on the idea of an intellectual intuition: a mystical capability, perhaps somehow related to intuition of artists, by which one could recognise the absolute identity lying behind the phenomena: thus, the intuition that was with Kant only the tool of a geometrician had expanded and become also the tool of philosophers.⁸³ The reference to art is perhaps puzzling, but actually quite understandable. The problem of finding examples for categories in intuitions was that intuitions varied not just from one subject, but generally from one context to another. An artist, on the other hand, is supposed to freely create his objects: if I paint something I should in some measure know beforehand what pictures will come out of my brush. Intuitions created by an artist thus appear in a controlled manner, and this controllability helps us to find the intuitions required for exemplifying the categories.

It seems then that intellectual intuition was needed not just for apprehending the true or essential view of reality, but also for getting a view of something, that is, it served as a ground for existence statements. It is also understandable why Hegel abandoned this solution. As we have seen, the mature Hegel had become unconvinced of our supposed capacity to give an immediate grounding for philosophy in general and for categories in particular: one cannot start philosophy with a pistol shot.⁸⁴ We could still not be sure that everyone has the required intellectual intuition – indeed, the faculty

for intellectual intuiting seems like some oracular capability that only chosen few have, while others must merely believe what intellectual intuiters tell them.

An interesting variation on the theme of how to instantiate categories can be found in Fichte's early *Wissenschaftslehre*. Fichte asks how we could become aware of what such basic categories like reality mean. Reality is ascribed to all objects to which we can apply the basic law of identity or $A = A$, that is, to all objects that have been posited.⁸⁵ Now, Fichte notes that there is at least one thing that we can give as exemplifying category of reality: the Ego or the person making identity judgements must at the same time accept or posit its own existence.⁸⁶ Interesting in this connection is the concept of positing, which refers to the way that the Ego becomes aware of something existing. We have earlier seen how Hegel uses the word "positing" (*Setzen*) as referring to what could also be called constructing. Indeed, even Kant had used word positing in the sense of accepting existence of something. For instance, Kant states of the ontological proof of God's existence how it merely shows that if one posits God – accepts his existence – then one must, to avoid contradiction, posit also his necessary existence:⁸⁷ thus, if one has no way to show God's existence – to intuit him or to construct his existence – then the ontological proof loses its significance.

For Fichte, then, nothing is – or at least the subject cannot accept it to exist – if it hasn't been posited, and a thing has only those properties – or the subject can accept only those properties – that can be seen when the thing is posited.⁸⁸ Note the reservations I have added to Fichte's literal doctrine. Fichte seems to speak as if there is nothing else than what is posited, that is, nothing but what has been shown to exist. But this shows merely Fichte's insistence on transcendental philosophy, and his refusal to accept anything transcendent, that is, anything going beyond limits of possible experience.⁸⁹ If we said that we knew there was something beyond our experience, beyond what we see to exist, we would be breaking the limits of our experience: thus, what there is, *from our point of view*,⁹⁰ is only that which we have seen to exist. True, we have to suppose something beyond experience to explain what we experience – Fichte himself supposes a pure action of I and an independent non-I or check (*Anstoss*) as such an explanation – but one can only believe in their existence, and belief belongs more to the subject's practical reason.⁹¹ Note also that Fichte's positing is not limited to existence statements, but covers also admitting the truth of all kinds of statements.⁹²

The natural question is how the positing should work in context of Fichte's philosophy, that is, in what medium does the generation of existence assumptions work. At certain places Fichte speaks as if the reality of things were guaranteed by intuition,⁹³

but the intuition of Fichte seems a wider capacity than intuition of Kant: for instance, Fichte speaks of intuiting of thought of a thing,⁹⁴ mental capacities of subject⁹⁵ etc., whereas intuition for Kant is clearly only of sensory information or of pure spatial and temporal shapes and structures. Indeed, at times Fichte speaks as if positing consisted in finding something in our representations (*Vorstellungen*),⁹⁶ where “representation” is a name for any conscious state of a subject. Thus, Fichte’s positing is not limited to intuition, but generally all kinds of conscious mental states can tell of the existence of something, at least of conceivable possibilities and of the subject itself. Fichte is endorsing a kind of mental constructivism: we can accept the existence of only such objects which we can imagine in some way – even in imagining a state of emptiness without any objects I have some hazy image floating in my mind.⁹⁷

Of the two words he might have chosen – construction and positing – Hegel had in his mature logic settled on the latter. As the term construction was so integrated with a reliance on intuitions, it was only natural that Hegel chose another term, positing, which in Fichte was already connected with a constructivism of more general kind than Kantian or Schellingian intuitionism. In Hegel’s mature writings, the term construction was then used only in connection with a lower form of knowledge, still requiring the aid of some given information.

Instead of inner life and the self-movement of its existence such a simple determination of intuition – which here means sensuous knowledge – is pronounced and this external and empty application of a formula is called *construction*.⁹⁸

Although Hegel uses Fichte’s terminology of positing, he does not share Fichte’s idea that the constructing or positing of existence should happen in imagination or in representations, because these are still too dependent on the senses, getting their primary content from the information given by our intuition.⁹⁹ True, in imagining the subject has apparently conquered its material as completely as is possible, because in imagining it is able to produce new representations at will. Still, even these seemingly independent representations are ultimately based on intuitions: we couldn’t imagine a centaur if we hadn’t intuited a horse and a human being. Thus, we still couldn’t be sure that all other subjects shared our capability of imagining the content of a certain category: we can’t literally share our imaginations with other persons. Furthermore, the imagined representations need not have any contact with what is intuited. Hence, while the power over representations has grown in imagination, their certainty has been diminished.

Here Hegel’s constructivism faces a problem: if the constructions of his Logic

are not meant to be done in intuition, like the drawing of a triangle, or in mental representations, like Fichte's blurry image of emptiness, how can they be effected? If Hegel's problem is to find a medium for expressing his constructions, as far away as possible from the contingency of sensuous and other immediate information, it would seem reasonable that Hegel should try some formal method to do this. At first sight Hegel seems to dislike the idea of all kinds of formalisms: indeed, it has become customary among Hegel-scholars to dismiss the idea of formalising Hegel. But one must remember that in Hegel's time the attempts to express logic in formal or mathematical fashion were still quite clumsy, more of a matter of trying to draw diagrams in which logical relationships between sentences could be instantly seen. As we saw earlier, Hegel's main concern with such representations is that they are too pictorial, that is, not formal enough.

When we look at Hegel's own idea of how the constructions of the Logic or pure thinking happen, we see how close Hegel actually is with using explicit formalism. Hegel says that "*language is the work of thinking*"¹⁰⁰, or more precisely, "[i]t is names in which we *think*"¹⁰¹.¹⁰² Hegel's lectures on subjective spirit are even more explicit:

We think essentially in words, names, because thinking is knowledge; this content is present to me who thinks or it has a nature of an object, something outer in relation to myself. Of any other content I now know nothing, and this manner of externality that the content has according to me is that content has a name.¹⁰³

Hegel goes on to mention the opinion of Mesmer that true thinking happens not with words and a similar opinion of Herder that the philosophy as a mere combination of words would not reach its proper subject matter.¹⁰⁴ Hegel's answer to Mesmer and Herder is to once again emphasise the role of language in thinking:

Names are condition of thinking itself, thinking should be consciousness and it should thus have some object in itself. Content that we have in names is what we call meaning (we don't use pictures for it).¹⁰⁵

The superiority of names in thinking comes from the fact that although they are something that can be intuited, they are not symbols in the sense that they would represent or picture the object or idea they name, but instead they are in themselves meaningless signs:

A *sign* is any immediate intuition that represents completely different content than one that it has for itself: – it is a *pyramid* in which foreign soul is displaced and contained. *Sign* differs from *symbol* – an intuition, which as a symbol expresses a content that is more or less its *own* determination according to its essence and concept. With sign as such the proper content of the intuition and the content of that which it signifies do not correspond. As *signifying*, intelligence does show more freedom in its choices and commands than as symbolising.¹⁰⁶

Generating signs does not then depend on whether one has suitable immediate information to express one's concepts. Note how all of this resembles David Hilbert's formalism: both Hegel and Hilbert are basing a study of abstract structures on the investigation of signs.¹⁰⁷ The value of signs is for both that they are not merely subjective things like mental concepts, but concrete, publicly graspable things. It is here where Hegel is epistemologically nearest to the idea that truth is essentially connected with community and convention: we can use signs as a basis of our philosophy, because as signs they must be understood by everyone in our community.

Manipulating signs Hegel takes to be a purely mechanical task, without any meaning like reciting a composition by rote.¹⁰⁸ This playing with signs becomes thinking only when the names are interpreted or when a meaning is given to them, that is, when we assign references to them:

That which is, as a *name*, requires *other* or *meaning* of a representing intelligence, in order to be a fact, true objectivity.¹⁰⁹

Note how Hegel approaches the modern idea of separating syntax and semantics – language consists of a meaningless production of signs and an interpretation given to those signs. If the objects of thought in a wider sense are signs with certain reference, then the objects of thought in a narrower sense or the categories – what I earlier called general types of structures – are signs referring to a set of signs with a given interpretation – what we would nowadays call models. Now, Hegel is careful to point out that we neither could nor should assign only one reference to each sign. We couldn't do that, because the signs or names are in themselves meaningless and it is possible to change their references:

When the name has lost its liveliness and has become a lifeless sign, then the arbitrariness arises. In reflection one searches for an understandable connection between a word and a meaning.

Name is – represented sign that has no connection with a representation, e.g. the name "Schmidt".¹¹⁰

[A]n individual name is meaningless in the sense that it doesn't express anything universal and for the same reason it appears as something merely posited and arbitrary, like proper names can be arbitrarily assumed, given or even changed.¹¹¹

Furthermore, we shouldn't do that, because one of Hegel's primary concerns is to find connections between different situations and structures, that is, to show how one thing can be characterised in different ways in different contexts. A fixed set of references might hinder us from describing new kinds of structures:

At any rate a comprehensive and *readymade* hieroglyphic language is unthinkable. Sensible objects no doubt admit of permanent signs; but for signs of spiritual matters the progress of thought and the continual logical development lead to altered views of their internal relations and

thus also of their nature; in this way a new hieroglyphic denotation would have arisen. Even in the case of sense-objects it happens that their signs in vocal language or their names are frequently changed, as, for example, in chemistry and mineralogy. It has been forgotten what names properly are, viz. in itself *meaningless externalities*, which only get significance as *signs*, and instead of names proper, people ask for terms expressing a sort of definition, which is frequently changed arbitrarily and fortuitously. Thus, the denomination, i.e. the composite formed of signs of their generic characters or other supposed characteristic properties, is altered in accordance with the differences of view with regard to the genus or other supposed specific property.¹¹²

Thinking is thus characterised by a group of formal signs and many different possible interpretations for that group. Somewhat anachronistically we may say that Hegel is committed to the idea that language is like a calculus that can be interpreted differently in different situations, instead of being a universal medium.¹¹³

There is yet more. Remember the constructivism of Hegel's ideas: the group of signs and their interpretations or models is constructed, and furthermore, we can always construct new signs and new models from the old ones. Now, it seems that Hegel's linguistic constructivism is not enough to free him from relying on intuitions. Remember that Hegel criticised how his predecessors had to suppose something given which is separate from the linguistic constructions – the immediate intuitions – and which thus could vary from one person to another. But isn't Hegel heading towards the same problem with his idea that words or names must have some reference? Surely the references – the model given to our language – must be determined by something given, perhaps by intuitions. Hegel has a cunning answer:

As mechanical memory, intelligence is both that external objectivity and the *meaning*. In this way intelligence is *posited* as an *existence* of this identity, i.e. it is *for itself* active as such an identity which as reason it is *in itself*. Memory is in this manner the transition into the activity of *thought*, which no longer has a *meaning*, i.e. its objectivity is no longer severed from the subjective, and its inwardness is within itself *being*.¹¹⁴

The curious remark that words should have no meaning in thinking obviously means that they have no extralinguistic reference – language needs no model outside itself. Hegel's idea is not so remarkable nowadays, but must have perplexed his temporaries: words or signs, their characteristics and relations to one another may serve as references of other words, that is, a model for a language can be built from the language itself. In the pure Logic of Hegelian fashion, the references of the signs in the models that are constructed are meant to be the signs and models that have already been constructed. Hegel's Logic resembles thus truly a formal enterprise, consisting of a syntactic – sign-manipulatory – and semantic side – the different references attached to signs; its

logicalness, as Hegel understands it, comes from the fact that its signs do not refer to objects occurring in the context of any arbitrary given information, but merely to the signs themselves that we know how to produce. Note that this is only an ideal of how the Logic should have been written, which the actual book, *Wissenschaft der Logik*, may or may not fulfil.

At first, the area of the Logic as described by Hegel seems to be quite limited: it consists only of meaningless signs and their relationships. Yet, it is of a more general importance. We can build models of certain general concepts or categories by using the signs as exemplary objects. Such models provide us then with a method by which to discover similar structures: in this manner these models play a similar role to the intuitions and representations of Hegel's predecessors. Yet, unlike representations, the rules for building such models – or concepts as Hegel calls them – provide us also with at least one certain exemplary structure in which the universal form of it is exemplified: thus, concepts with such models are always meaningful. These models thus give us access to an ontology both certain and informative: ontology that describes at least something, but that can at the same time be applied to many different situations.

The transitions between different parts of the Logic do not then describe any inferences – not even transcendental – but rather constructions: they proceed from an example of one category and try either to provide an example of another category or even show that the example of the first category could be reinterpreted as an example of another category. Such a transition is not an inference, because the transition changes the context, which a proper inference should admittedly not do. Hegel notes this characteristic of his transitions when he discusses the so-called ontological proof of God's existence:

The connection of the beginning to the conclusion to which it leads is here represented only in an *affirmative* fashion as a deduction from *one thing* which *is* and *continues to be* to *another thing* which similarly *also is*. But the great error is to cognise the nature of thought in this form of understanding alone. To think the empirical world rather means to essentially recast its empirical form, and transmute it into a universal; at the same time thought directs a *negative* action upon that basis: when the perceived matter is determined universality, it does *not continue* in its first empirical shape.¹¹⁵

Undoubtedly, after we have made the transition or construction, we could reinterpret it as an argument against a position where the first category was taken to be ultimate, while the possibility of objects structured by second category were ignored or even denied: yet, this reinterpretation would not be the primary task of the Logic.

Furthermore, these constructions are essentially dependent on language or they are

expressed in signs, that is, objects that 1) can be manipulated and in some sense even created by us, 2) can be used as references for other objects and 3) can be apprehended by any person in a relevant linguistic community.

The next problem is to determine what constructions Hegel actually uses, and the way to do that is to investigate the transitions by which he moves from one structure to another. Let me give a simple example. Sometimes Hegel says that we have found a transition,¹¹⁶ a term which we have above connected with an accessibility relation between two possible situations. A condition for the construction of this transition is simple: we have found that given one structure it is possible to construct the other structure, that is, a transition can be introduced if such a construction has been shown to be possible. In terms of signs, if we can get from a to b by using some construction, then it is acceptable to say there is a possible way to get from a to b, that is, refer to this possibility with a new sign. This may seem a rather self-evident construction, but it serves as a guide post in showing how to find other, more substantial constructions Hegel uses.

The first of the basic constructions we are already familiar with: it is the only construction of new possibilities that Hegel includes under analysis. It is this which Hegel calls the moment of understanding in logical movement¹¹⁷ – understanding, the great force of mind to keep things in their abstractions¹¹⁸ – the grasping of abstractions or analysing of a thing into its constituents. Hegel is not as biased against this abstraction as he is often claimed to be: abstraction is a necessary step and it is not abstraction's fault if no other steps are used after it.¹¹⁹ It is easy to see what this abstraction amounts to in the modal framework: abstraction is the construction by which it is possible to find simpler possible structures than we are aware of. We see some situation and from that situation we can deduce that there might be not so many objects, not so many colours etc. and continuing to do this we could finally find a reduced possibility with only one property, like blueness. We may even ignore what actual intuitions the word "blue" refers to. How is this done? Not with our imagination – we do not try to "see" what it would look like if there were only blueness in the world – but with our understanding, with words or generally with signs we use to refer to blueness: we talk merely of blueness and of such things that are implied by this mere blueness, like being coloured. More precisely, we use the word "blue" and concentrate on what usually can be implied when we say something like "x is blue". In this case we are left with an abstract framework which we know by experience to have some reference in the concrete world, although merely on basis of this framework we cannot indicate what

this reference is. As we shall see, it is by abstraction that Hegel tries to find a presuppositionless beginning for his Logic: he tries to see if there is some type of possible situation that would be contained in every situation, that is, that could be constructed via abstraction, no matter what the world is actually like.

It may be said that analytic abstraction does not bring out any new possibilities, rather only those that are contained in possibilities of which we are already aware. Furthermore, analysis reveals at most a finite number of new possible situations and objects. But as we remember from Hegel's account of quantities, there should always be more objects to be found, indeed, a potential infinity of them. We have seen above one way that Hegel achieves this multiplication: he shows that a situation of some object is itself an object. Here we have, then, the second basic construction Hegel needs to start his Logic: if we are aware of some possible situation or group of such situations, we can become aware of a possibility where these situations or structures are interpreted as objects themselves. Because all constructions of the Logic should use signs of a language, this construction obviously presupposes the capability of adding more and more signs to describe these new objects. In effect, we are adding new signs that refer to some properties of objects already known to us and then we relate to these signs as new objects or at least as marks for some unknown objects. The Hegelian Logic does then presuppose something very substantial, although at the same time quite natural, that is, the capability of creating or producing objects that can be used as signs. This capability is, of course, involved in the presupposition that the subject investigating the Logic is a language-user.

We have seen how Hegel needs at least one construction by which to analyse situations into their constituents – abstraction – and a construction by which he can find new situations and new objects – the objectification of situations. Besides these, Hegel needs some construction by which to connect objects in different situations, that is, a construction which identifies seemingly different objects as mere aspects of one object or as the same object in different situations – after all, it is these unities of differences Hegel is so fond of. We met such a construction in the previous chapter, namely, the transition by which Hegel tried to make real differences seem merely ideal: in this transition, we reinterpreted some situation with apparently different objects in such a manner that the identification criteria were changed and the two objects were identified. The transition had two steps, first of which was to show that objects in question could replace each other, that is, a situation with one of the objects could be changed into or replaced by a situation with the other object: in effect, we should first show that for both

of the objects the other one seems like a real possibility. The second step in this idealisation consists in finding some point of view where the two objects might be seen as identical, that is, some property or structure which is common to both of the objects, like finitude was in the transition from finitude to infinitude. After this, Hegel thinks, we can maintain that it is at least possible to view the objects in question as aspects of one object: similarity is identity from a certain point of view.¹²⁰

At least these three constructions, then, Hegel needs to start up his Logic. Notice that the constructions should be not understood as “mental” in the sense that they would have to use some mental images or representations, for instance, we don’t have to imagine in abstraction what it would be like if there were not that object in this situation etc. These constructions are “thought”, “logical”, that is, they use some unimaginative signs – words, for Hegel – as referring to objects. Thus, it is not farfetched to think that we could give some formal or symbolical representation of them: if we represented structures of possible situations and objects with some formalism, we could state the constructions as rules stating what new structures we would be entitled to introduce, for instance, objectifying situations would give us a rule that given a possible situation it is possible to introduce a new situation with the old situation as object etc.¹²¹ Of course, this symbolical representation wouldn’t be a formal logic in the sense of a formalism for possible inferences in some language: instead, it would be a formal model for certain ways of changing or modifying the references of some language. It is not yet clear, whether the three given constructions are all that one requires in the whole Logic and an investigation of that would be an arduous task. Instead, I shall give only one detailed example of how these constructions – or in the case in question, two of them – really work in the Logic, namely, the first chapter of the Logic, concerning Being. At the same time, we gain a better understanding of in what sense Hegel’s Logic starts from “nothing”, with only minimal presuppositions.

f. The beginning of Hegel’s Logic

Hegel didn’t begin his Logic haphazardly. Instead, in the final version of the Logic he spends quite a lot of pages pondering the difficulty of beginning. As he notes, there seems to be two possible ways to begin, but neither of them seems suitable:

What philosophy begins with must be either *mediated or immediate*, and it is easy to show that it can be neither the one nor the other; thus either way of beginning is refuted.¹²²

What is the first category of science, that is, from which species of objects science should begin? Clearly the beginning Hegel is looking for is not a pure form of

affirmation¹²³ or anything linguistic, but at most something that we can linguistically refer to. There are two criteria by which to determine the starting point of philosophy. Firstly, the beginning should be independent of any presupposition: otherwise, it wouldn't be a beginning. Thus, the first type of objects could not be something to which we have come from another type: it should not be something we have constructed or deduced from something else. This rules out all the beginnings Hegel calls mediated. This implies that the type of objects we start with should be something simply given to us: we find around us the objects which we begin to study. The problem here is the second criterion that the beginning should be public and such that everyone should be able to start from it. Since the experience of every person begins with a different set of objects, there may be no single set of objects that is immediately available to everyone.

I shall state one possible way to solve the dilemma of beginning: one that I think Hegel himself believes in. The beginning or the first object should be potentially mediate in the sense that anyone could become conscious of its existence, whatever is immediately given to her. Still, it should be immediate in the sense that one needs no knowledge of any particular object in order to become aware of the first object: indeed, it should be an object that anyone could find, even in the ideal case that were given to her. Indeed, we see that Hegel admits to the Logic having, in some sense, a previous science as its presupposition:

It is *mediated* because pure knowing is the ultimate, absolute truth of *consciousness*. In the introduction it was remarked that the phenomenology of spirit is the science of consciousness, the exposition of it, and that consciousness has for its result the *concept* of science, i.e. pure knowing. Logic, then, has for its presupposition the science of manifested spirit, which contains and demonstrates the necessity, and so the truth, of the standpoint occupied by pure knowing and of its mediation. In this science of manifested spirit the beginning is made from empirical, *sensuous* consciousness and this is *immediate* knowledge in the strict sense of the word; in that work there is discussed the significance of this immediate knowledge.¹²⁴

Logical cognition or pure knowing is mediate in the sense that a human subject does not usually start in the state of pure knowing. At first, a person lives by his senses, which provide him with the most immediate information he has. But the discrepancy of this immediate information both with the immediate information of other persons and with the immediate information received by the same person at different time move him forward to find some more certain starting point.

Hegel calls the final starting point that the consciousness finds in its journey towards certainty by several names. Firstly he names it simple immediacy,¹²⁵ but then quickly settles for the word “pure being” of which he remarks that it should be without

any further determination or content.¹²⁶ The beginning of the Logic should be an object that anyone could abstract from his present cognitions: in other words, it is an object we could come to know by mere abstraction no matter what is immediately given to us. Another way to put it would be to say that the first object is such that it could be found without any given information. This requirement is one reason why Hegel emphasises the emptiness of pure being: if pure being were to have some positive content, one would need to know at least that content before one could come to know pure being, which could not then be called simply immediate.

The Logic begins then with being (*Sein*), or more accurately, with pure being. What does this mean? Note firstly that all of these Hegelian concepts like being, something, quantity etc. refer not to general characteristics of certain objects – which would have to be called beingness, somethingness etc. – but to an indeterminate instance of an object characterised in that way – for example, an object which could be called being, but of which we know nothing else, that is, any being: similarly, when we talk of triangle in a geometrical proof we mean any triangle, whether it be equilateral, isosceles or scalene. Furthermore, we have two clues to work with. Firstly, Hegel states that all of the categories in his Logic might be interpreted as states of affairs like “everything falls under this category”, for instance, quality refers to states of affairs where “everything has a quality”.¹²⁷ This suggests that being would refer to those states of affairs or possible situations where everything is, that is, to any possible situation. Secondly, remember how we saw in the previous chapter how Hegel separates being (*Sein* or *Dasein*) from something that is (*Seiende* or *Daseiende*) or separates being from an object: this does not mean that being is not a proper object, it is merely separated in certain contexts from other or mere objects. An object that is should be separated from the fact that it is: both are objects, but objects of different rank. Furthermore, being could be determined by some further qualities, that is, it could be a fact that the object or objects in question exist in some determinate way. The Hegelian concept of being refers thus to facts within certain contexts or states of being, such as a cat being on the mat or revolutionaries being at the Bastille. Earlier, we called these states of being situations.

Pure being should therefore be the most abstract and simplest situation or state of being there is: a situation from which everything else has been taken away, except for the fact that we have here a situation. It thus seems that the pure state of being is a unique object: otherwise it wouldn't be *the* most abstract situation. But with Hegel matters are usually not as simple as they seem. If we remember the possibility of

idealization, we see that Hegel would be prone to say that there is in a sense but one being, one triangle and one blue: every triangle is the same triangle, when we look merely at their being triangles, that is, as mere triangles they can be identified. True, we do also separate different triangles or different blue objects, but then we already look at things from another context, where other properties than being triangle or blue are taken into account. Similarly, there is in a sense only one pure being, but it could well be instantiated in different contexts.

Hegel describes the indeterminacy of pure being further:

In its indeterminate immediacy it is equal only to itself, and it is also not unequal relatively to an other, it has neither diversity within itself nor any diversity with a reference outwards. It would not be held fast in its purity if it contained any determination or content which could be distinguished in it or by which it could be distinguished from an other.¹²⁸

We can discern here two separate and independent characterisations of pure being. Firstly, the pure being should not be different from any other state of being. It is common for us to separate and compare different situations: for example, the cat was on the mat just a moment ago, but it is now already playing on the field. If we want to truly find the most abstract situation, we should set aside all of these other situations: we have to imagine that there were no other situations. We could do this with all situations, for instance, I could forget that I had planned to write this section before actually writing it. Secondly, we have to discard any inner difference in the pure state of being. The pure situation should not have any complexity. Objects in it should have no further properties, but being objects, for otherwise they could be separated from other sorts of objects. Indeed, it should have no multitude of objects, because a multitude implies the objects being different. But even a situation with one undetermined object is not yet enough, because the main difference remains: we could still separate the object that is from the state of it being or the situation where it is. Thus, we can leave literally nothing to the pure situation: there can be nothing to intuit or think in it, but the fact that there is nothing to intuit or think in it. A pure state of being and thus the first object of the Logic can be nothing else, but an empty situation or a situation with no objects. Hegel describes this empty situation by the word “nothing” (*Nichts*): it is a possible situation without any objects, a possibility that there might be nothing. “Being, the indeterminate immediate, is in fact *nothing*, and neither more nor less than *nothing*.”¹²⁹

We begin the Logic, then, by taking some situation as our object and abstracting from it all the relations it might have to other situations – we have so far used two kinds of constructions: objectification and abstraction. Hegel has in a sense provided us with a method of discovering pure being or nothingness. Notice that his method cannot

properly be called a deduction in the ordinary sense, but it is more of a construction. We do not stay within one situation and find some implicit, yet still true properties of it, but we create or find a completely new situation from a given one: we abstract, that is, we figuratively close our eyes or take our attention away from some aspects of the situation before us.

Hegel has thus suggested the empty situation as the first object, but does it fulfil his criteria for the beginning? Anyone who has some information of objects should be able to become aware of what an empty situation is. This is possible as long as we suppose that the person in question has an ability to abstract from situations he cognises. Suppose we are looking at a particular situation where a man is running down the hill. First we should abstract from the fact that there is a hill and concentrate on the man running; then we should forget that the man is even running; finally we should forget that there is even such an object as a man, and thus we have arrived at an empty situation. Problem is that there seems to be still something left after we have abstracted from these things, for instance, the sun is still shining, bird singing etc. But these things were not part of the original situation or context, that is, they were part of a wider situation where a man was running down the hill while sun was shining and birds were singing. If we are aware of some situations or contexts with a finite number of constituents – and it seems reasonable that we are – then we can one by one discard those constituents and think of what emptiness would be like – in that particular context. An empty situation can thus be abstracted from all situations, but we should be able to find it also with no given information. This seems even more obvious. If nothing is given to us, then there truly is nothing for us or we are aware of a situation where there is nothing. Thus, an empty situation fulfils Hegel's criteria of beginning. It serves as an answer to the Kantian problem of whether there can be possible structures without objects: indeed, an empty situation or model has no objects.

At the next stage Hegel begins with the result of this first transition, that is, with a situation where there is nothing. Actually, he begins with pure nothing.¹³⁰ Nothingness is, of course, pure already in the sense of having nothing to differentiate within it: it has no content or determination. The word “pure” must then add the requirement that there is nothing to differentiate outside this nothingness either: that there are no other situations to which we could compare the empty situation. We thus begin anew with a possibility that there would have never been anything, not even as a possibility.

Hegel does not continue immediately with the situation of there being truly nothing, but asks first whether we ever experience empty situations. He has argued that

we can abstract such situations from all regular situations, but that does not yet tell us, whether they exist outside our philosophical speculation. Hegel gives only a hint of an answer:

In so far as intuiting or thinking can be mentioned here, it counts as a distinction whether something or *nothing* is intuited or thought. To intuit or think nothing has, therefore, a meaning; both are distinguished and thus nothing *is* (exists) in our intuiting or thinking; or rather it is empty intuition and thought itself, and the same empty intuition or thought as pure being.¹³¹

We do say that it makes a difference if we, for instance, see a glass with nothing in it or a glass filled with water. A simple objection would be that the first case would not be a true empty situation, because, firstly, the glass would in all probability be filled with air, and secondly, the glass itself would be an object. But this would be taking the question into another, wider context. There is nothing in the glass, if I am thirsty, and there is nothing in the drawer, if I am looking for my socks: these are all empty situations according to some context. There seems then to be empty situations in our common experience, if we just accept that our viewpoint is always limited to some context. There is even a whole group of them – the situation in my drawer differs from the situation in the glass – which supports the idea that we can say there are different instances of nothingness.

The meaning of Hegel's excursion was to show that we can take empty situations as objects: they are something we can see and think, as we can see that there is nothing in the glass. This is an important step that Hegel even emphasises by underlining the word "is" and explaining that he means now existing: an empty situation is an object, in some sense of the word. But if an empty situation is an object, then it makes sense to speak also of the existence of non-empty situations: the fact that an empty situation exists is a situation with an object. Undoubtedly, this is not a situation we could literally sense – we cannot touch empty situations for they are not material objects. Yet it is truly a situation, even if only in some abstract level of discussion. If nothing else, we can at least signify the empty situation with a word – we could call it "nothing" – and thus make a reference to it.

We may quickly deal with Feuerbachian criticism of Hegel's notion of *Nichts*. Feuerbach suggests that Hegel has no right to take *Nichts* as real, because words like "nothing" express merely the lack of existence, just like "darkness" refers to a lack of light, but is no independent entity.¹³² Feuerbach confuses here two senses of reality. Feuerbach bases his criticism on the old notion that coldness is nothing real but lack of heat, darkness is nothing real but lack of light, evil is nothing real but lack of good and non-existence is nothing real but lack of existence. In this sense of reality we look at

how much some sort of objects exist in a particular situation: in a state of darkness there is no light, in a state of coldness there is no warmth and generally in a state of nothingness there are no real objects. Thus, all these states or situations are less real, i.e. they have less objects. All this might be true, says Hegel, but there is another sense of reality we are interested in here: one in which we concentrate not on the amount of objects within situation, but on the situation itself as an object. Although darkness is lack of light, it is still as real state or situation as lightness: a dark situation clearly affects our state of vision, as much as light situation. Similarly a state or situation of coldness is as real as state of warmth: anyone who has had frostbites can vouch for this. And finally, if there were nothing in the world, this would certainly be a real state of the world and as real as the current state in which there does exist something. The state of nothingness is then at least a possibility, which is often actualised on a smaller scale or in some restricted contexts: if I am trying to find my socks from my cupboard, I often find truly nothing in there.

Because we have given an example of a non-empty situation, we can differentiate the concept of situations in general or being from the concept of an empty situation or nothing. Even if there were nothing we were aware of – that is, nothing in the material world – we could still become aware of some abstractions, for instance, of the fact that there is nothing in our concrete world. After the differentiation of being and nothing, the rest of this transition is straightforward. The empty situation is then just another situation. Indeed, it is the most abstract situation possible and thus coincides with what Hegel has called pure being. The empty situation is the situation that can be found in every context. In such a context where we have abstracted from everything, the whole order of different possible situations collapses into this one situation: in the abstract beginning, there is nothing else, but the empty situation.

The identification of pure being and nothing is not as important as the separation of being in general from nothing. The separation could be stated as a method: take empty being as an object, and there you have a new different situation. Here is an explicit example of Hegel applying the construction of objectifying situations: the possibility that there are no objects can itself be seen as an object in another possible situation. One might naturally complain that this is not a deduction: we look beyond the empty context or situation and move on to a wider context with new objects. This complaint is valid, but it fails to make a point, because the Logic is not about deducing things within one context or situation, but about constructing situations and objects as examples of categories. In this transition we have found a new context – one where we

have an empty situation as an object – which differs from the original context with no objects. Still, this change of contexts is not arbitrary: the only thing we have added to the original context is the original context itself, understood as an object.

The next transition in Hegel's investigations may seem difficult, but is actually quite trivial. Hegel begins by reminding the reader that pure being and pure nothing are same.¹³³ It is imperative to examine the exact wording of Hegel's account. *Pure* states of being and nothingness are identified: this is obvious, because the empty situation is the most abstract situation. We could try to separate them, but this would be merely a nominal difference, like the difference between an equiangular triangle and a triangle with three equal sides. The only difference in the latter case arises from the fact that angles are different from sides: similarly, in the former case, the seeming difference is caused by the difference between situations in general and empty situations in particular. We may separate equiangular and equilateral triangles, if we look at them from properly abstract contexts, that is, if we investigate only the angles of one and sides of the other triangle. Similarly: a pure being is differentiated from a pure nothing, if we look at the pure being merely as an indeterminate state of being and forget that we have abstracted everything from it. When a wider and more informative context is supposed, both the triangles and the situations merge together.

In the next sentence, Hegel begins to talk of being and nothing and not just of pure being and nothing: this sentence is about all situations and their relations to empty situations.

What is the truth is neither being nor nothing, but that being — does not pass over but has passed over — into nothing, and nothing into being.¹³⁴

Being passes over or makes a transition to nothing: this refers to the fact that every situation can be replaced by an empty situation, if we abstract everything from it. Furthermore, nothing should pass over into being. This sentence has at least two meanings. Firstly, every empty situation is, of course, already a situation, but secondly, it can also be replaced by a non-empty situation, if we take the empty situation itself as an object of a new situation. We become aware of these methods just by noticing that after certain operations the original situation – let us say, a non-empty one – has been replaced by another – in this case, an empty one. We do not even see that this replacement happens: indeed, it makes no sense to say that we are witnessing this transition. Generally, we do not see when the transitions (*übergehen*) of Hegel's Logic happen, we just merely notice that one situation or context has been replaced by another situation or context, or that there is something here now, which wasn't there before: an

important point, which Hegel mentions only here. Hegel's Logic is thus not a continuous change, but it consists of separate stages connected only retrospectively into a discrete order.

Hegel continues by noting that we can both identify and differentiate between being and nothing:

But it is equally true that they are not undistinguished from each other, that, on the contrary, they are not the same, that they are absolutely distinct, and yet that they are unseparated and inseparable and that each immediately *vanishes in its opposite*.¹³⁵

We can identify being and nothing, if they have been differentiated, and separate them, if they have been identified: that is, we can always find a context in which they cannot be differentiated and another where they can be. Situations in general and empty situations differ undoubtedly: there are also non-empty situations, such as the fact of cat lying on a mat. But when we abstract from all objects – that is, when we are trying to find the context of immediate beginning – the two concepts must coincide, because all non-empty situations or possibilities of something existing vanish one by one – at the beginning of the Logic, there is only one possible sort of situation. But we only need one object in order to once again separate the two concepts: a suitable object that anyone could become aware of is some empty situation.

Hegel has shown that given being, a situation, it is possible to construct nothing, an empty situation, by abstracting enough; and that given nothing it is possible to construct being or a possible situation by making the nothingness itself an object. Thus, he can obviously state that it is always possible to find a transition between some situation and an empty situation, that is, it is possible to get from here to there and back: this is the first, trivial construction we noticed in Hegel's Logic. We have been in one situation, and have ended up in a different one: this abstract state of having experienced change is what Hegel calls becoming¹³⁶ (*Werden*).¹³⁷ Hegel's use of the term "becoming" raises the question whether Hegel brought temporal notions into the Logic: even my explanation suggests that becoming is a state of something else having been, that is, a state involving temporal terms. But these temporal terms are merely for the sake of easing the presentation. If we wanted, we could state the idea of becoming merely with such non-temporal concepts like order: even in common day language we say of a strip with colours ranging from red to blue that on the strip red becomes purple. According to a situation or context, another context is, as it were, before or behind it: the two states are ordered, although not necessarily in a temporal fashion. The order in the case of the Logic is determined, firstly, by a relation of possible construction, and

secondly, by their relative abstractness. That is, one state is after another, if it can be constructed or found from that state and if it is less abstract: non-empty situations can be constructed from empty situations and vice versa, but because non-empty situations are less abstract, they follow empty situations.

Hegel continues by analysing the situation of becoming, noting first that the becoming is not a unity which has been abstracted from being and nothing.¹³⁸ This suggests that some kind of unity for being and nothing – for situations in general and empty situations in particular – could be found by abstracting. In fact, both being and nothing are such abstract unities in a sense. We could abstract a common structure shared by all situations, whether empty or non-empty – this would be the structure of situations in general or being, as Hegel calls it. Then again, we could find a situation so abstract that it would be part of both non-empty and empty situations – this would in fact be an empty situation or nothing. But Hegel's becoming is not a unity in that sense, but a structure where the two different situations or states are related to one another. Such a structure necessarily involves the two states of being and nothingness or they are related within the structure of becoming. Hegelian becoming is thus a modal structure according to which we have been, for example, in a non-empty situation and we are now facing an empty situation or according to which an empty situation is a possibility differing from the non-empty situation. Similarly, if Peter has become a husband, this becoming involves the two states of Peter not being a husband and Peter being a husband. The two states are in the context of becoming, only if they are situations that we can differentiate from one another: if they were not different according to some context, there would have been no becoming involved in moving from one situation to another.

In another sense, the states of being and nothing are not in a state of becoming: they are not independent or they are mere moments integrated within the structure of becoming.¹³⁹ Before we had constructed, say, a non-empty situation from an empty situation, the empty situation seemed to be the only possible option how the world before us could be: we could have had no idea of there possibly existing something. Then the empty situation or nothing was still independent of other possible situations. After the construction it is revealed that the state of nothingness was not the whole truth, but merely one possibility among many others: the state of nothingness is only a small component in a larger framework of possibilities. Similarly, when one first experiences time, one notices that the moment one was living was actually not everything there could be, because the moment was merely the first in a long chain of

possible moments connected with one another.

Hegel notes then that any one of the two moments of becoming could be taken as immediate:

Becoming is in this way in a double determination. In one of them, nothing is immediate, that is, the determination starts from nothing which relates itself to being, or in other words changes into it; in the other, being is immediate, that is, the determination starts from being which changes into nothing: the former is *generation* and the latter is *corruption*.¹⁴⁰

A state of becoming – or having become – is neutral as to what situation holds at the moment and what situation is merely possible: we could be in a state of being as well as in a state of nothing. Yet, we can differentiate between the two situations, that is, we can, for instance, actually have an empty situation in our sights and recognise that it is not a non-empty situation. In terms of modal logic, we can take either of the two situations related in the structure of becoming as the designated situation: it is the actual compared to a merely possible situation. Thus, we find two new modal structures, when we determine the structure of becoming more closely. Firstly, the non-empty situation could be the designated or actual state: there is something now, but there might not be anything. Secondly, the designated state could be the empty situation; there is nothing now, but there might be something. In pictorial terms, we are lowering ourselves from the neutral vantage point where we saw both a state of being and a state of nothing, and we place ourselves into the position of the other state: yet, we are not forgetting the existence of the other state, but we look at it from the state we chose.

It is easy to note that if being and nothing are related in such a manner that one can construct an instance of being or a situation from an instance of nothing or an empty situation and vice versa, then we can also relate structures of generation and corruption in a similar manner. Hegel proves this relationship by presenting an account of what happened in the first two sections of the same chapter, categorising them under the new structures of generation and corruption.¹⁴¹ We began from an arbitrary situation, which in hindsight was also a state of corruption, because we had the possibility to abstract everything from it. Then we moved on to an empty situation, which we can now see to have been a state of generation also, because it contained a possibility of taking the situation itself as an object. All of this simply recounts elementary facts about a structure with two related possibilities. Note that in order to form a true circle in which we have two related states, we must abstract from the temporal aspect of our construction: we construct models out of structures or situations in a linear fashion and thus the becoming in a temporal sense always has a certain irreversible direction, whereas it makes sense to speak of relatedness or accessibility between two situations or

contexts as going from either context to the other.

Hegel briefly mentions that generation and corruption paralyse one another.¹⁴² Hegel is not referring to anything like an equilibrium born of a battle between two forces: nothing so elaborate is at play here. To get at Hegel's true meaning let us look at what would happen if we had only one possibility, let us say, the possibility of corruption in our grasp. In such a context, we could construct new situations, provided we had non-empty situations at our disposal. Examples of empty situations could be found easily, but non-empty situations could not be constructed without something given: we could say that the general class of empty situations – Hegelian nothing – would have the upper hand in being more certain than the general class of non-empty situations. Because we have two methods corresponding to the structures of generation and corruption, none of the two classes is more certain than the other and there is no reason why the situation at hand should be described more in the terms of one than the other.

The final step in this chapter is the movement on to *Dasein*, a structure where there are more than one possibility related to each other. But this result has already been reached. We have found two such possibilities that are accessible from one another, that is, such that given one it is possible to construct the other. Hegel himself makes the transition in a more complex manner:

Becoming is the vanishing of being in nothing and of nothing in being and the vanishing of being and nothing generally; but at the same time it rests on the distinction between them. It is therefore inherently self-contradictory, because the determinations it unites within itself are opposed to each other; but such a union destroys itself.¹⁴³

By becoming Hegel is obviously referring to the preceding process whereby we have either started from some situation and replaced it with an empty situation or started from an empty situation replaced it with a non-empty situation. Furthermore, within this process we have taken situations of two types, which were thought of as independent – that is, which were seen as the only possible situation – and we have then connected them with a situation of the other type: we have shown that neither of the types is the only possibility. After the two situations have been connected, there is nothing to connect anymore – there is no opportunity to repeat this process, unless some further changes are made. We could compare this result with a game of chess: if at some stage I move my queen, say, to the square e4, I cannot play the same move in the next round, because the queen is already in the square where that move would take it. A certain use of a method makes an identical use of that method impossible: a change that we would make has already been made. Thus, the possibility of becoming has vanished after we

have connected the two situations, because we don't have the opportunity to use the method anymore.

After this excursion into the fate of becoming or the process of transition, Hegel quickly comments on what sort of result has been established:

It is the unity of being and nothing which has settled into a stable simplicity. But this stable simplicity is being, yet no longer as a determination on its own but as a determination of the whole.

Becoming, as this transition into the unity of being and nothing, a unity which is in the form of being or has the form of the one-sided *immediate* unity of these moments, is *determinate being*.¹⁴⁴

The state resulting from the transition is a unity of being and nothing, because it is the context or structure in which the two situations are related. Furthermore, it is this unity in another sense also: the resulting state itself is in one sense being and in another sense nothing. It is being, because it is a context or a situation: now, at this particular moment in the Logic, we have two differing, but related situations as our objects. Yet, although the resulting state is a state, it is not the only state there possibly could be: the first state from which the construction began – the state with mere empty situation – is also a possible situation. Thus, when compared to the beginning state of the Logic, the resulting state is a state where something does not hold and in that sense a state of nothingness. As Hegel says, the resulting state is not completely unrelated or independent, but a part of a wider whole – it is not the only possibility. Thus, Hegel can say that the state resulting from the constructions so far is *Dasein*: it is one of many possibilities.

It has been a complex task to follow the movements Hegel presents in the beginning of his Logic, and the reader might well have lost the thread of discussion. Let us then quickly summarise the passage of the first chapter of the Logic. 1) We begin with any situation we know and one by one abstract everything out of it: the result is an empty situation, a possibility that nothing exists. 2) After this we notice that the possible empty situation can be discussed, referred to with a word etc. In short, it can be taken as an object, albeit an abstract one. Still, the situation “empty situation exists” is an example of a possible non-empty situation. 3) Looking back at the previous constructions, we see that we have been able to change a situation, or more precisely, to move our attention to a different situation. First, we have moved to investigate a more abstract situation, then to investigate a situation with newly discovered objects. 4) In fact, we notice that we can repeat these two constructions in a circle, as it were, first finding an object and then abstracting from it. Indeed, we have related two situations as

possibilities of one another: we become aware of a complex possibility. 5) Finally, we note that this new complex structure differs from the first arbitrary situation from which we began: both the result and the beginning of the preceding process are only possibilities among many possibilities. Clearly, the first two steps are the most important, while the three last ones merely analyse the process that has occurred in the first steps.

The analysis of the first chapter of the Logic has shown that the interpretation of the Logic as a constructivist study of possible situations works and that the first few steps of the Logic can be completed by using the two constructions of abstraction and objectification of situations together with the construction of relating situations as possibilities. Also, we have discovered what should be the exemplary objects of the Logic: possible situations which are either empty – possibilities that there would exist nothing – or such situations that have some previously constructed situations as their objects. Such abstract or virtual objects form in a sense a realm of their own, separate from the world of concrete objects: at least, we can refer to them as differing from concrete objects. Yet, they are perhaps meant to be spoken of only as placeholders for more concrete entities: their role is only to serve as objects that anyone could know of. Finally, we have been able to determine the essential steps in the first chapter of the Logic: a) the previously mentioned fixing of empty situation as the first object and b) the construction of a new possibility from the first one, namely, the possible situation with one object that is the empty possibility.

The previous paragraphs investigated the beginning of the Logic, which since Trendelenburg's famous critique has been suspect for being a mere trickery, where Hegel silently introduces concrete content to a supposedly pure beginning. I feel obliged to answer this critique in few words. Generally it can be said that Trendelenburgian criticism of Hegel is a perfect example of the rather shallow, but sadly so common form of criticism, where one first creates a caricature of what the criticised philosopher has attempted and then ridicules the philosopher by noting that this caricature must fail. Such criticism tells more of the lack of understanding in part of the critic than of the worth of the criticised philosophy.

We may begin by noting that Trendelenburg uses in his criticism almost exclusively the summarised version of the Logic in Hegel's *Encyclopaedia*: this resembles a person who would criticise a scientific theory merely on the basis of a short abstract, which states the theory, but does not give the proper justification for it. Furthermore, out of blue Trendelenburg just states that the basic idea of Hegel's

philosophy is that pure thinking develops the moments of being from its own necessity.¹⁴⁵ It is quite easy to make such statements when no indication of where the thought has been lifted from is given. In addition, one would at least have supposed that Trendelenburg would have first investigated what Hegel meant by words such as “thinking” or “necessity”. Instead, he decides to work with his own understanding of these words: a crucial mistake of interpretation.

Trendelenburg then suggests that if the beginning of the Logic is to be pure, it should begin from mere thinking without any help of images or intuitions.¹⁴⁶ If Trendelenburg had read *Wissenschaft der Logik* instead of a mere summary of it, he might have noticed that Hegel actually goes to great lengths to show that one might have an intuition of a structure of a type he calls *Nichts*, that is, of an empty situation: we can in any context intuit situations with nothing, when we compare these situations with situations that have something in them. I may find out that while in this bottle there is water, there is nothing in that bottle; or I may try to discover some fair criticism of Hegel in Trendelenburg’s *Logische Untersuchungen* only to find out that there is none in there – both of them would thus serve as exemplary empty situations.

Trendelenburg is thus clearly setting up a problematic that Hegel is not even considering at the beginning of the Logic. The true question that Hegel tried to solve was to find out how we could find some type of structure that we knew any thinker could think of, no matter what he had intuited and even in the quite unlikely case that he would not have intuited anything. Hegel then provides us with instructions as to how such a structure or an empty situation could be found by anyone. He is not interested in the psychological problem of what the thinkers in question are aware of when they think of this empty situation. Perhaps they are imagining the empty bottle or Trendelenburg’s book or perhaps they are of the sort that do not need to imagine anything when they are thinking of something – this is all irrelevant. What does matter is that they have fathomed the general structure of any empty situation and could then go on analysing what characteristics any empty situation would have (being a situation, having no objects etc.). Similarly, it is irrelevant if a boy who is learning arithmetic imagines two apples when he does sums with number two or if a mathematician imagines an empty shoebox when he is doing some research on empty set. The boy and the mathematician have failed only if they use some characteristics inherent in the image, but not included in the structure they are thinking of: for instance, when boy imagines combining two apples with two hungry men and from that concludes that $2 + 2$ equals 2. Similarly, one might notice that both the empty bottle and Trendelenburg’s

book are in some sense full of air, but one should not conclude from this that all empty situations are full of air.

Trendelenburg appears to suppose that the beginning of the Logic should be the concept of being – at least he speaks of Hegel’s account using concepts.¹⁴⁷ Earlier in his book Trendelenburg has explained that by concepts he means combinations of characteristic marks (*Merkmale*):¹⁴⁸ a very traditional account of concepts, in which these characteristic marks are supposedly qualities determining to what objects the concept refers to. Now, this concept of being Trendelenburg supposes to be a complete abstraction,¹⁴⁹ that is, a complete absence of all characteristic marks and qualities. Then he rhetorically asks what there is to think in such a lack of all qualities.¹⁵⁰

It is clear that Trendelenburg has here misunderstood what the beginning of the Logic – pure being, *Nichts* or empty situation – actually is. The empty situation is not an object with an absence of characteristics, but a situation with absence of objects in it. In fact, an empty situation clearly has some characteristics: it is, for instance, empty and a situation. It is uncharacterised only in the sense that at this stage of the Logic there are as yet no instances of other characteristics with which to compare it: it is, for instance, empty, but there is as yet no situation with objects, and so we cannot yet notice that there is anything peculiar or characteristic in its emptiness. Similarly, if our whole world were red, we would not be aware that redness was any special characteristic. Hegel does not then face the problem of how to find characteristics or qualities when none are given, but the easier task of how to discover instances of different characteristic, when an instance with certain characteristic is given.

We have already remarked earlier that Trendelenburg criticises Hegel for confusing “logical” with “real” negation: that is, confusing the difference between sentence and its denial with the difference between two facts that cannot hold at the same context. We may once again note that Trendelenburg’s point is correct, but we must also point out that this criticism is rather meagre: Trendelenburg is like a school teacher criticising a boy who has done his calculations correctly, but fails to use correct terminology in explaining his procedure, or even worse, like a Frenchman who dismisses a scientific article, because it is written in Spanish. Hegel uses the word “negation” for cases of alternative facts or situations that could not hold at the same time – so what? This is a mere quibble over terminology, nothing more.

It appears that the point of Trendelenburg’s criticism is that “pure thinking” should have only the capacity for producing logical negations.¹⁵¹ For Trendelenburg thinking would then be a mere computational machine that had the capacity to produce

a negation of a sentence or characteristic when such a sentence or characteristic was given to it. Undoubtedly, if no input or characteristic is then fed to this machine, no output occurs. This is all quite trivial, but fails to touch Hegel's philosophy in any manner. We might thus well leave Trendelenburg in front of his thinking machine to wait a sign of action springing from nowhere, but we have still a few points to clarify.

Now as to Trendelenburg's idea that thinking is not equipped with any capacity for producing "real negations", we may at first quickly note that Hegel does not actually use word "negation" at the beginning of the Logic. In fact Hegel introduces his notion of negation – that of alternative situations – only after he has shown that any thinker can find an example of alternative situations. Thus, he does not actually use any notion of negation to start up his Logic, but only at a later time in describing certain elements of that beginning.

The true driving force that starts up the Logic is the capacity of any thinker to take any situation he is aware of as an object of a new thought. Here it is irrelevant what psychological or generally empirical factors make it possible for thinkers to achieve this feat. The person who imagines an empty bottle or shoebox, when he is thinking of an empty situation, can then without any problem note that this empty situation is a situation and at the same time an object of his thought. Even the fictional thinker who is given nothing to think about can then think about the obvious fact that there is nothing to think about;¹⁵² he can call this fact an empty situation or anything at all; and finally he can note that this empty situation is an object of his thought. Undoubtedly, we cannot say a priori how the fictional thinker has managed to do this – this is a problem for empirical psychology, if it ever comes across such thinkers. Still, we can say that this thinker must be able to do it – if he is to be a thinker at all, that is. A person who cannot be aware of a situation and then be able to think of this situation as a possible object of thought is as yet no proper thinker. The objection that there would not be any thinkers, if there were not anything to think about in the first place, is also irrelevant: Hegel is merely claiming that *if* there were thinkers in such completely empty context, *then* they would be able to go through this series of thoughts.

We may once again note that the transition from an empty situation to a situation with the empty situation as an object is no deduction, but a construction: a change, as it were, from one context to another. This is no objection against Hegel's account, because he is not deducing that something would have to necessarily exist in all contexts. Instead, he is merely showing how a thinker could figuratively move from a context with no objects to a context with some object: and he is also showing that this

move or construction could be made by *any* thinker.

I shall finally consider Trendelenburg's suggestion that the introduction of the concept of becoming is somehow suspect. Trendelenburg's criticism is based on two points. Firstly, he wonders how one can differentiate between being and nothing, as the notion of becoming appears to demand, when they have shown to be indistinguishable in the beginning.¹⁵³ Secondly, he suggests that the concept of becoming already demands an intuition of a concrete becoming or movement.¹⁵⁴

As to Trendelenburg's first point, it is clear that at the proposed beginning of the Logic, when the thinker should be thinking only of a situation with no objects, he has not yet any basis on which to differentiate between non-being of objects and being of objects. Still, once the second situation has been introduced with the first situation as its object, such a basis is introduced at the same time: the thinker can note that a situation with no objects differs from any situation with an object. True, Hegel downplays this difference and emphasises the indistinguishability of the two notions at the very beginning. There are probably at least two reasons for his procedure. Firstly, he was undoubtedly quite sure that it was the indistinguishability statement that would be more difficult to understand by his readers, while the difference between being and non-being would be accepted already at the basis of common sense. Secondly, Hegel wants still to analyse some characteristics of the beginning and of the process of thinking by which the second situation was constructed. The actual relation of the two situations and the following differentiation of being and non-being are then issues of the next chapter on *Dasein*: indeed, the relation of an empty and a non-empty situation already is an instance of a classification of differently qualified situations.

Trendelenburg's second point combines the two mistakes he has already fallen into: firstly, he criticises Hegel for using the word *Werden* in a manner differing from what Trendelenburg himself understands by *Werden* (apparently concrete intuitable changes), and secondly, he confuses the psychological and empirical question of how or through what psychological means a particular thinker thinks some structure with the structural question of what structures any thinker could think. It is true that the word "becoming" may have been a rather bad choice on Hegel's part. Yet, it is rather understandable in a sense, because Hegel's intended audience consists obviously of thinkers who think in temporal sequences. Still, the notion that Hegel wanted to express with the figurative term "becoming" must be something that could be understood by any thinker, even by one who thought without the aid of time.

Trendelenburg apparently thinks that Hegel would want his readers to think of

an intuition of some sort of continuous passage or motion from one place to next as an illustration of his notion of *Werden*. This is not actually true: Hegel notes especially that it is not any continuous transition, but a case of “transition having happened” that is noted after the construction of a new situation from an empty situation.¹⁵⁵ Even this is a figurative expression meant expressly for temporal thinkers, but it already demonstrates well what Hegel is aiming for: he is trying to point out that the two situations occurring in the construction have been, as it were, one before the other, or more precisely, in some order. Now an order need not be temporal, although temporal sequences might be the psychological means by which people usually think of orders: for instance, in order of size, two comes before three, although the numbers two and three have no intrinsic temporal relation to one another. Similarly, we might say that an empty situation comes before a situation with the empty situation as its object in an order of complexity: the empty situation has fewer objects in it than the other situation. If any thinker can think of some empty situation and the corresponding situation “filled” with the original empty situation, then any thinker must also be able to notice this difference of order in them – or otherwise he is no proper thinker.

Put briefly, Trendelenburg’s criticism fails to touch the central points of the beginning of Hegel’s *Logic*. The main faults of Trendelenburg’s account have been 1) the misinterpretation of Hegel’s purposes, 2) the irrelevant concentration on terminological quibbles and 3) a confusion of empirical psychology with a structural question. The strangest thing in the whole Trendelenburgian criticism is how it has been able to appear for many philosophers as a serious hit on the armour of Hegel’s *Logic*: this tells more of the lack of understanding of Hegelian philosophy prevailing among philosophers than of the worth of Hegel’s ideas.

Summary:

Hegel’s *Logic* is meant to be more than mere analysis of situations: it should describe also relations between different possible situations. Furthermore, it is an ontological investigation of the most general structures of possible situations and objects. The problem is how such an investigation is possible without any reliance on some given material, such as sensation: at least the proof of the meaningfulness of these structures would appear to demand such immediate information. Hegel’s suggestion is that we could perhaps use the general structures or categories themselves as one possible field of application of the categories: thus, we could justify the meaningfulness of the

categories without any reliance on something other than the categories themselves.

Hegel's Logic is also a constructivist study. Its medium is a particular language and its signs, and in order to rid even the final link to senses and intuition, the references of this language are to be taken merely from the words of this language and their characteristics: although linguistic signs are undoubtedly intuitable objects, they are such that we can ourselves manufacture. The aim of the Logic is to show how one can construct examples of more complex structures from given examples of simpler structures. The first structure from which the Logic begins is an empty situation, because it can be abstracted from any structure.

¹ Let me take just one example of all the writings against the idea of formalising Hegel's or generally dialectical logic, namely, E. E. Harris's *Formal, Transcendental and Dialectical Thinking*, a book supposed to show that dialectical logic describes the nature of the reality better than formal logic. Harris begins his account of formal logic by stating that many people maintain that formal logic is not determined by any metaphysical doctrines, but investigates merely principles governing inferences – a statement which Harris sees as contradictory because inferences are operations of thought and deal with its connections with reality, thus implying some metaphysical theory (p. 24 – 25). I must note that Mr. Harris has expressed the task of formal logicians in a quite narrow way which could barely be seen as characterising proof theory. A researcher of, say, a model theory is not so interested in patterns of proof, but more generally of different kinds of models a sentence or theory in some logical language could have.

Harris continues with a discussion of Frege, the fundamental principles of whom, Harris thinks, no modern logician has ever seriously denied (p. 25) – an ambiguous statement as it does not say what Harris means by fundamental principles of Frege and one which would not be shared by a proponent of intuitionism. Harris goes on to show that Frege's idea of logic consists in mere theory of extensions of concepts, which consist of units with no essential relations between themselves, and that Frege has thus reduced logic into dealing with numbers (p. 25 – 30) – an obvious misunderstanding, as Harris is clearly describing Frege's logistic project of reducing arithmetic into logic.

As a result Harris states his thesis that formal logic, following Frege, is nothing else but a calculus, by which Harris understands manipulation of units according to "three fundamental algebraic laws", that is, commutative, associative and distributive laws, to which, according to Harris, "[l]ogicians have been particularly careful to ensure that their manipulation of the symbols which they employ should conform" (p. 30 – 33) – a misinterpretation of so enormous nature that it hardly seems in need of correction. Harris concludes: "[I]ndeed, apart from this presupposition [that the procedures of logic correspond with the algebraic laws] formalisation (in the sense of symbolisation) is impossible. Symbols, if they are to be useful, and if they are to be manipulated algebraically, must represent identical and unchanging terms or entities. [...] The presuppositions of formal logic which we have uncovered are not fortuitous nor are they contingently made. They are essential to it, and without them formalisation is not feasible" (p. 33). I have two remarks to make. (i) Mr. Harris must have in mind the algebraic representations of classical propositional calculus, where conjunction and disjunction do indeed conform to the above-mentioned laws. But firstly, all algebraic representations of some formal logic do not follow these laws, and secondly, there are some formal logics (that is, logics using symbols) not capable of such an algebraic representation. Thus these laws and generally the algebraic representations can not be seen as essential properties of a formal logic. (ii) Mr. Harris has a tendency to view only the syntactical part of formal logic – that is why he deems its major property to be the manipulation of symbols – leaving its semantics unnoticed. Thus, he does not notice that the symbols of a formal language may have different interpretations in different models, which makes it possible to view terms as changing, for instance, in some modal logic that describes relations between many models.

It is already obvious that Mr. Harris understands by formal logic only the classical propositional calculus and it becomes even more obvious in the following section where he discusses implication – a relation he deems to be the fundamental in formal logic (p. 34), no doubt because of the false assumption of importance of rules of inference in every part of formal logic. A major part of this section Harris uses to describe implication of CPC and the way the antecedent need not have any essential relation to consequent (p. 34 – 40) – Harris either has not heard or does not care of such

formal logics as relevance logic. Of modal logic Harris merely says that “[i]t is concerned only with formal transformations of expressions for modal statements” and concludes that “[i]n fact [...] its presupposition is that no proposition is either necessary or impossible except analytically” (p. 41) – a gross misunderstanding which shows ignorance of the wealth of different modal logics.

As Harris has identified formal logic with a classical propositional calculus, understood as an algebra concerning valid inferences and manipulation of symbols, he has no difficulty in denying that Hegel’s Logic could ever be formalised or “set out as an algebraical calculus” (p. 154); at the same place he explains why even the best of the attempts of this formalisation have failed: “no effective algorithm emerges from the attempted symbolisation”. Mr. Harris can rest assured that the author is not intending to formalise the Logic in that manner, i.e., I am not trying to algebraise the Logic or find some algorithmic way to produce its contents.

² G 21, p. 206, 25 – p. 207, 6

³ G 20, § 458, p. 452, 6 – 14.

⁴ Ibid., § 459, p. 453, 4 – 15.

⁵ Ibid., § 464, p. 462, 19 – 20.

⁶ G 12, p. 109, 31 – 37.

⁷ Ibid., p. 104, 37 – p. 105, 14.

⁸ G 21, p. 198, 21 – p. 199, 13.

⁹ G 12, p. 202, 22 – 33.

¹⁰ Ibid., p. 202, 34 – p. 203, 1 and p. 203, 6 – 10.

¹¹ Ibid., p. 204, 21 – 33.

¹² I have found the words “unmodal” and modal convenient in describing certain characteristics of Hegel’s Logic. Yet, I am not suggesting that Hegel would have been interested of providing us with any modal logic in the sense of a formal language for modal deductions. Someone might feel the word “modality” to be quite inappropriate and perhaps even confusing, when used in the manner I do. One could insist that I am entitled merely to say that in Hegelian analysis the references of the words are fixed while in Hegelian synthesis they are allowed to vary: in other words, that Hegelian analysis studies only one model, while synthesis studies plurality of models and their relationships. I can defend my usage by referring to a far more reliable logical authority than I am, namely, Jaakko Hintikka, who has explicitly connected the possibility of modal logic with the possibility of varying the references of the words (See e.g. Hintikka 1997, p. 29 – 30).

¹³ Ibid., p. 209, 3 – 10.

¹⁴ Ibid., p. 226, 1 – 2.

¹⁵ That Hegel sees his method as synthetic is stated in G 12, p. 248, 39 – 249, 1. We shall return later to the question why he sees his method also as analytic.

¹⁶ G 21, p. 94, 12.

¹⁷ Ibid., p. 103, 12 – 16.

¹⁸ G 12, p. 68, 32 – 33.

¹⁹ Ibid., p. 68, 1 – 6.

²⁰ Ibid., p. 69, 19 – 21 and p. 70, 15 – 25.

²¹ This is why Hegel admits that becoming – sublation of being and nothing – is already a sublation, although he explicitly states the something to be the first negation of the negation.

²² G 20, § 19, p. 61, 5.

²³ G 21, p. 33, 28 – 30

²⁴ Ibid., p. 48, 20 – 21

²⁵ G 9, p. 134, 24 – 25 and G 21, p. 66, 19 – 24.

²⁶ G 21, p. 46, 16 – p. 47, 3.

²⁷ G 20, § 46 A, p. 82, 9 – 19; G 21 p. 48, 6 – 12.

²⁸ G 20 § 24, p. 67, 15 – 21.

²⁹ G 21, p. 48, 22 – p. 49, 2.

³⁰ G 20, § 26, p. 69, 23 – p. 70, 3.

³¹ V 10, p. 25, 748 – 751.

³² G 20, § 27, p. 70, 10 – 12; V 10 p. 25, 732 – 733.

³³ G 20., § 33, p. 72, 23 – 24.

³⁴ Ibid., § 34, p. 73, 16 – 17.

³⁵ Ibid., § 35, p. 73, 23.

³⁶ Ibid., § 36, p. 74, 2.

³⁷ G 20, § 30, p. 71, 20 – 25.

³⁸ Actually Hegel labels metaphysics a mere philosophy of the understanding (G 20, § 27, p. 74, 14 – 15), but later he equates understanding with abstraction (§80).

³⁹ Enz § 38 Z.

⁴⁰ G 20, § 32.

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- ⁴¹ Ibid., § 29, p. 71, 11 – 13.
- ⁴² G 20, § 31 p. 72, 13 – 16; V 10, p. 30, 907 – 909.
- ⁴³ G 20, § 38, p. 75, 14 – 17; V 10, p. 34, 17 – 20.
- ⁴⁴ G 20, § 38, p. 75, 17 – 20.
- ⁴⁵ Ibid., § 38, p. 75, 21 – 24.
- ⁴⁶ Ibid., § 38 A, p. 76, 4 – 14.
- ⁴⁷ Ibid., § 39, p. 77, 2 – 10.
- ⁴⁸ Ibid., § 39 A, p. 77, 15 – 20.
- ⁴⁹ Ibid., § 40, p. 78, 17 – 18; KRV B, p. 19.
- ⁵⁰ G 20, § 40, p. 78, 7 – 14; KRV B, p. 14 – 17; V 10, p. 38, 157 – 159.
- ⁵¹ G 20, § 40, p. 78, 4 – 5; KRV B, p. 146 – 148 and 298 – 299.
- ⁵² G 20, § 40, p. 78, 14 – 15; KRV B, 165 – 167; V 10, p. 38, 160 – p. 39, 180 and p. 41, 274 – 275.
- ⁵³ G 20, § 43, p. 80, 20 – 24.
- ⁵⁴ Ibid., § 42 A, p. 79, 28 – p. 80, 6.
- ⁵⁵ Ibid., § 48, p. 84, 13 – 17; V 10, p. 5, 550 – 554.
- ⁵⁶ G 20, § 48, p. 84, 18 and § 48 A, p. 85, 8; V 10, p. 50, 558 – 560.
- ⁵⁷ Hegel notes this affinity when he says that Kant's synthesis corresponds with what he calls unity of opposites (G 20, § 40, p. 78, 17 – 19).
- ⁵⁸ G 20, § 62, p. 100, 14 – 24; V 10, p. 70, 228 – 232.
- ⁵⁹ Hegel undoubtedly speaks of *Wissen*, which usually should be translated as knowledge: yet, the immediate *Wissen* cannot yet be categorised or analysed, thus I have decided to use the term "information", which can refer to a more unrefined state of knowledge.
- ⁶⁰ G 20, § 66, p. 107, 16 – p. 108, 3 and § 67, p. 108, 13 – 23.
- ⁶¹ G 12, p. 202, 22 – 33; G 21, p. 55, 2 – 5.
- ⁶² G 20, § 72, 6 – 11.
- ⁶³ G 9, p. 64, 29 – 37 and p. 65, 24 – 30.
- ⁶⁴ G 20, § 71, p. 111, 6 – 14 and § 71 A, p. 111, 28 – p. 113, 4.
- ⁶⁵ Ibid., § 74, p. 114, 21 – 27.
- ⁶⁶ G 12, p. 243, 33 – p. 244, 11.
- ⁶⁷ G 21, p. 28, 9 – 14.
- ⁶⁸ "[S]o ist (existirt) Nichts" (G 21, p. 69, 15 – 16). We shall return to this example below.
- ⁶⁹ "[D]as Dasein ist *Daseiendes, Etwas*" (G 21, p. 103, 11).
- ⁷⁰ "[D]as Fürsichsein ist so, *Fürsichseiendes* und [...] *das Eins*" (G 21, p. 151, 3 – 5). The second example (transition of One to Many, G 21, p. 152, 20 – 27 and p. 155, 5 – 22) is dealt in more detail below.
- ⁷¹ "Mit dieser Identität tritt das *qualitative Etwas* ein; [...] diese negative Identität ist also *Etwas*" (G 21, p. 213, 15 – 18). In the same paragraph Hegel notes that a quantitative structure need not have any concrete object to quantify: for instance, a length of five metres need not be a length of any material object or collection of such objects, but merely a space between two points. Yet, even if we would have merely such objectless quantities to talk of, we could still construct examples of objects, that is, we could take the quantities themselves as objects. Thus, we could also have examples of quantities that describe some objects.
- ⁷² G 21, p. 329 – 354. One problem in interpreting the part dealing with measure has been its apparently unnecessary complexity: Hegel tries to show that in measure – in situation where objects are divided both according to a qualitative and according to a quantitative structure – the change of the quantities is connected with changes of qualities – but as we can already see this in the beginning of the section on measure, why does Hegel need to construct a string of ever more complex measures in the first chapter of it before stating the obvious? Seeing the first chapter of measure as an attempt to make objects out of measures answers the question: in the beginning of the section, we have only measures – situations or states of affairs according to which there are some functional dependencies between different situations – but not yet any objects to be measured. The complex construction of new kinds of measures in the first chapter is required in order to find such measures that can easily be arranged in quantitative and qualitative series (as is seen in the end of the first division of the second chapter when Hegel states that the measures can be so arranged). At the beginning of the second chapter Hegel then announces that these measures are themselves objects (p. 346, 16 – 18).
- ⁷³ G 21, p. 152, 10 – 13.
- ⁷⁴ Ibid., p. 152, 20 – 27.
- ⁷⁵ Ibid., p. 155, 6 – 22.
- ⁷⁶ We shall return below to the consequences this deduction has on Hegel's view of mathematics.
- ⁷⁷ G 12, p. 35, 10 – 11.
- ⁷⁸ G 9, p. 67, 33 – 39.
- ⁷⁹ G 21, p. 40, 23 – 25.

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- ⁸⁰ KRV B, p. 741-
- ⁸¹ Ibid., p. 744 – 745.
- ⁸² See “Über die Construction” in G 4, p. 277 – 293, especially p. 283, 10 – 14. Note that it is not entirely certain whether this article was a work of Schelling or of Hegel or of both.
- ⁸³ Of Schelling’s ideas of mathematical and philosophical construction, see Schelling 4, p.170 – 178. The connection of Schelling’s and the early Hegel’s ideas with constructivism is noted also in Düsing 1976, 145 – 147.
- ⁸⁴ G 9, p. 24, 10 – 12.
- ⁸⁵ Fichte 2, p. 261, 18 – 23.
- ⁸⁶ Ibid., p. 257, 110 – 28.
- ⁸⁷ Ibid., p. 625 – 626.
- ⁸⁸ Fichte 2, p. 261, 15 – 16 and 21 – 23.
- ⁸⁹ Ibid., p. 279, 35 – 280, 1.
- ⁹⁰ Fichte speaks sometimes as if different subjects may have different point of views, for instance in *ibid.*, p. 303, 11 – 13.
- ⁹¹ Ibid., p. 429, 25.
- ⁹² For instance, Fichte speaks of positing of statement “if A is, then A is” (*ibid.*, p. 259, 21 – p. 260, 6).
- ⁹³ Ibid., p. 368, 19 – 20.
- ⁹⁴ Ibid., p. 30, 7 – 8.
- ⁹⁵ Ibid., p. 380, 30 – 31 and p. 382, 13.
- ⁹⁶ Ibid., p. 260, 8 – 10.
- ⁹⁷ Ibid., p. 382, 17 – 21.
- ⁹⁸ G 9, p. 37, 4 – 7; see also G 12, p. 224, 34 – p. 225, 2.
- ⁹⁹ G 20, § 456, p. 450, 12 – 15.
- ¹⁰⁰ G 20, § 20, p. 64, 27.
- ¹⁰¹ Ibid., § 462, p. 460, 7 – 10.
- ¹⁰² In a recent article John Burbidge (2009, p. 35) suggested that in Hegel’s view thinking could be freed from language: “[i]f we can use words without thinking, we can also think without words”. Firstly, Burbidge’s supposed deduction is clearly faulty: similarly, we can use eggs without making an omelette, but we can’t make omelette without using eggs. Secondly, as Hegel’s own words clearly state, thinking always uses some language in his opinion. Thinking is merely not in a necessary connection with any particular language: we can use many languages and even a language constructed by ourselves for thinking.
- ¹⁰³ V 13, p. 218, 14 – 19.
- ¹⁰⁴ Ibid., p. 218, 22 – p. 219, 32.
- ¹⁰⁵ Ibid., p. 219, 32–36.
- ¹⁰⁶ G 20, § 458, p. 452, 6 – 14; see also V 13, p. 209, 702 – 720.
- ¹⁰⁷ See for instance Hilbert 1931, p. 202
- ¹⁰⁸ G 20, § 463, p. 461, 4 – 18.
- ¹⁰⁹ Ibid., § 464, p. 462, 18 – 20
- ¹¹⁰ V 13, p. 217, 983 – 987.
- ¹¹¹ G 21, p. 105, 19 – 22.
- ¹¹² G 20, § 459, p. 455, 17 – p. 456, 3.
- ¹¹³ The idea of the two traditions of modern philosophy of language – the language as universal medium or as re-interpretable calculus – is best described in Jaakko Hintikka’s *Lingua universalis vs. calculus ratiocinator* (1997). Of the connection between the idea of language as calculus and the possibility of different models for language (the model-theoretic viewpoint) see Hintikka 1997, p. 105 – 106.
- ¹¹⁴ G 20, § 464, p. 462, 20 – 27
- ¹¹⁵ Ibid., § 50 A, p. 87, 27 – p. 88, 4.
- ¹¹⁶ One good example occurs when Hegel introduces the category of Becoming (G 21, p. 69, 24 – 26).
- ¹¹⁷ G 20, § 80, p. 118, 25 – 27.
- ¹¹⁸ G 9, p. 27, 18 – 20; G 12, p. 41, 29 – 32.
- ¹¹⁹ G 12, p. 42, 15 – 22.
- ¹²⁰ I am not the first one to notice this third type of transition in Hegel’s writings. For example Brandom 2002 discusses a possible interpretation of Hegel’s Phenomenology where one example of such transition occurs, but doesn’t take it very seriously (p. 190: “...it would illegitimately infer identity from mere similarity”). Of course, Brandom doesn’t understand that Hegel is not inferring within some situation or context, but changing or reinterpreting the context into a new context: thus, he concludes that there must be something wrong in the interpretation, at least if we want to make sense of Hegel.
- ¹²¹ Notice that the basic objects of Hegel’s Logic correspond to objects of such level in modern logic that can be still further analysed to “smaller” objects: the categories correspond with models or even only

with types of models. Thus, if we tried to express the Logic with the means of modern symbolism, we would have to add under the categories another layer, which Hegel has left uninvestigated.

Many of the confusions surrounding the relationship between the Hegelian Logic and the modern formal logic derive from unawareness concerning this difference of level of investigation. When Hegel speaks of concepts, negations, judgments etc., he is not speaking of the same thing as a modern logician does when he uses similar words: Hegel's Logic works on a level above the usual propositional and predicate languages, that is, on the level of model theory.

¹²² G 21, p. 53, 5 – 8.

¹²³ As Stekeler-Weithofer (1992, p. 107) suggests.

¹²⁴ G 21, p. 54, 29 – p. 55, 5.

¹²⁵ Ibid., p. 55, 25 – 26.

¹²⁶ Ibid., 55, 28 – p. 56, 2.

¹²⁷ G 11, p. 259, 1 – 6.

¹²⁸ G 21, p. 68, 19 – p. 69, 3.

¹²⁹ Ibid., p. 69, 7 – 8.

¹³⁰ Ibid., p. 69, 11.

¹³¹ Ibid., p. 69, 13 – 17.

¹³² Feuerbach 1982, p. 55 – 57.

¹³³ G 21, p. 69, 24.

¹³⁴ Ibid., p. 69, 24 – 26.

¹³⁵ Ibid., p. 69, 26 – 29.

¹³⁶ Stekeler-Weithofer (1992, p. 114) suggests, on the other hand, that it is the possibility to change the truth values of propositions that Hegel refers to with the word *Werden*. If we speak of referents instead of propositions, Stekeler-Weithofer's view comes close to mine: *Werden* is a structure of the possibility to move from one situation to another, where the two situations make different propositions true. Still, Stekeler-Weithofer misses the important element that an actual instance of *Werden* must be constructed, before the category is introduced.

¹³⁷ G 21, p. 69, 29 – p. 70, 2.

¹³⁸ Ibid., p. 92, 21.

¹³⁹ Ibid., p. 92, 24 – 26.

¹⁴⁰ Ibid., p. 93, 7 – 10.

¹⁴¹ Ibid., p. 93, 11 – 17.

¹⁴² Ibid., p. 93, 11 – 12.

¹⁴³ Ibid., p. 93, 26 – p. 94, 2.

¹⁴⁴ Ibid., p. 94, 5 – 10.

¹⁴⁵ Trendelenburg 1862, p. 36.

¹⁴⁶ Ibid., p. 37.

¹⁴⁷ Ibid.

¹⁴⁸ Ibid., p. 20.

¹⁴⁹ Ibid., p. 38.

¹⁵⁰ Ibid., p. 39.

¹⁵¹ Ibid., p. 56.

¹⁵² Note that this thinker need not at first even recognise that in this situation there is nothing to think about. Instead, he should merely be able to be hazily aware of the situation and to name it and then to take this name as a new object referring to the original situation. He could then notice the difference between the new and the original situation and retrospectively recognise that the original situation had nothing to think about.

¹⁵³ Ibid., p. 39.

¹⁵⁴ Ibid., p. 38.

¹⁵⁵ G 21, p. 69, 24 – 26.

3. Summary of Hegel's Logic: (i) From being to measure

I have characterised the Hegelian Logic as a constructive study of types of possible situations: what kind of structures can be discovered supposing first only the possibility that nothing might exist? This possibility or empty situation and all possible situations which we can construct from it serve as primary instantiations for all categories of the Logic, because they are the kind of objects that anyone should be capable of finding. Of course, in practice Hegel speaks after the beginning only of instances of one category in general that are to be used as a material for constructing examples for further categories. We could thus in following Hegel's transitions just think of any object that we know to be an instance of the first category, although, as we have seen, from time to time Hegel likes to remind us that if nothing else, at least situations can be used as objects. This interpretation of the Logic would undoubtedly be completely grounded only with a full or near-to-full investigation of the transitions in Hegel's Logic. For now, this task must be left for another book, and I shall merely compare my interpretation with some of the more central parts of the Logic. In this chapter I shall particularly concentrate on the section on quantity: thus, we investigate the interesting question as to what sort of mathematics could be based on the Hegelian Logic.

a. Construction of quantities

In the previous section we saw that the first chapter, on being, uses only three basic constructions – the abstraction, the objectification of possibilities and relating of possibilities. The result of the beginning was that we discovered an example of a structure of many related possible situations or *Dasein*. The second chapter of the Logic, then, we have seen to be a description of possible situations and their mutual relationships and especially of qualities which characterise these different types of possibilities: for example, redness, greenness, etc. are seen as possible characteristics of one object. The task of this chapter is to show how we could come to see the many situations that we found as mere aspects of a more extensive structure. Hegel concentrates especially on situations with objects and his strategy is to show that we can always think of the apparently different objects as versions of one object: thus, the situations “object x is characterised by this quality” and “object y is characterised that quality” could be seen as different aspects of one object. Here we saw Hegel introducing the third construction, the idealisation of differences: related, apparently

different objects could be seen as aspects of one object, instantiated in many situations, if they had some common characteristics. We may take this idealisation as the third major step of the Logic in the following series: 1) there are possible situations (at least empty situations), 2) if there is one situation, then there are many situations (namely, the first situation and the situation it is in) and 3) if there are many situations, then they can be seen as partial situations within one situation.

These three steps are then paralleled by similar steps in the third chapter of the Logic, “*Fürsichsein*”, only this time with objects instead of situations. I shall quickly enumerate these steps before studying them more closely. 1) The chapter begins with constructing an example of the One, that is, a situation with some object: this is done by taking some situation as an object. 2) Then we assume that we have an example of the One and proceed to construct an example of Many, that is, we begin with a situation with one object and try to find a situation with many objects: we simply notice that the situation with the first object can be taken as a new object. 3) Finally, the chapter ends by showing that the many Ones can be seen as aspects of one One: this is a simple case of idealisation mentioned earlier.

Hegel uses the words repulsion and attraction to describe respectively construction of many objects from one object and construction of one object from many objects. The words repulsion and attraction may remind one of forces pulling objects apart and putting them back together. Indeed, this is the way Kant had used these words in his work, as the primary forces out of which he constructed matter: repulsion or impenetrability was the force which prevented one material substance being in place of another and thus spread them into larger areas than just one point; attraction was the force which kept parts of material objects together and so prevented their fragmentation.¹ Hegel himself even uses these words in his Philosophy of Nature when describing matter.² But we must not let these physical connotations deceive us. In the Logic, Hegel is not using these words to describe any forces affecting matter, but at a more abstract level,³ although he may have wanted to hint at a similarity with some phenomena of nature.

Let us proceed to investigate Hegel's account of repulsion and attraction as it will give us a more secure foundation upon which to understand his view of quantity. Hegel begins with the One and develops out of it emptiness and from these the Many.⁴ We have studied this construction quite thoroughly in the previous chapter, thus we need not return to it anymore. Here it is sufficient to notice that Hegel states this movement or change from the One to the Many or the fact that “the One repels itself

from itself” to be an example of repulsion.⁵ So, when there is first a situation with one something and then we construct – find or produce – a situation with many somethings, such change is to be called repulsion. Hegel gives no indication if this change is meant to be real or just a change of viewpoint (there *seems* to be one something, etc.); another unanswered and even unposed question is whether this construction is natural, i.e. one occurring by itself, or artificial, i.e. one effected by us (a production of many things out of the One). This silence is comprehensible, because the Logic does not concern itself with these kinds of questions but investigates and constructs examples of properties common to these diverse possibilities.

For two reasons, it is not quite correct to speak of change or becoming when discussing repulsion. Firstly, the One does not vanish in repulsion, but remains as one of the Many: “*One* becomes [...] only *One*”.⁶ Therefore repulsion does not destroy the original one thing, but just adds something new to it. Secondly, the Many are not something different compared to the One: “repulsion [...] is the One’s own coming forth from itself, but to such outside One as are themselves only Ones”.⁷ That is, the added things are similar to the original One. When we put together these two properties of repulsion we see that it might very well be called multiplication of things; we copy a thing – or it copies itself – and out of this copying become many things.

This account of repulsion still needs correcting. The Ones that come out of it are not just similar to the original One, but they have all the same properties: at least we should abstract from all the characteristics that might separate the objects from one another. But if there is nothing to separate them, any one of them might be taken as the original One that was repelled. Hegel expresses this also by saying that the One does not set or posit (*setzt*) many Pnes but supposes or posits beforehand (*voraussetzt*) them: they are “*posited* by the repulsion of the One from itself” and they are posited “*beforehand*, posited as *not* posited”; “the fact of their being posited is sublated, they are *beings* in relation with one another”.⁸ The One that is multiplied appears not as the cause of the existence of multiplied Ones, they exist independently of it. In one sense repulsion has not changed anything essentially, i.e. it has not created anything out of thin air: it has just brought us to new situation where we can see that there are more things than the One we originally were acquainted with. Given one thing, it might be seen as one of many things.

Gradually Hegel has brought us from the first meaning of repulsion to the second meaning of repulsion that he also calls exclusion (*ausschliessen*): this change of meaning involves obviously yet another construction where we reinterpret the relation

of the objects. Whereas the first repulsion, movement from the One to the Many, could be described as multiplication, copying of something, the second repulsion might be described as the state of being something multiple: existence of different, but in every way similar things. Every One is different from others, they exclude each other. But as these separate Ones have no differing qualities, they also have no essential relation to each other; the state of affairs in which there happens to be many Ones falls outside of Ones, that is, it is just an external relation.⁹ Hegel calls this external relation between Ones a relative repulsion,¹⁰ and we easily get the feeling that this repulsion would be a mere relative abstraction out of external relations between these objects. We might think these Ones, for instance, as locations. Then every one of these locations would be a world of its own, closed and with no connection to other locations, except on point of view of something that can move from one location to another.

Now, out of this state of affairs of there being many locations, Hegel goes on to develop attraction, which, corresponding to repulsion, he understands as change from the Many to the One or as “positing in a single One of many Ones”.¹¹ As was the case with repulsion, we have investigated some properties of the introduction of attraction earlier. In any case, it is easy to see where the example of attraction or of the oneness is found. The locations are just the same, that is, they have all the same properties: unity, exclusion of other locations, being a world of its own, etc. Their “being-in-itself is that they are *Ones*. But *this* they *all are*; they are *same* in their being-in-itself, instead of having a fixed point of difference in it”.¹² One might object that there were supposed to be many locations, which should be different, although similar. This objection would be right, if this state of affairs of there being many locations concerned locations themselves. But it doesn't: it was only an external relation. If we abstract from this external property of Ones there is nothing to keep them apart anymore.¹³ The essence of attraction is just this, that any one of the Ones or locations can replace any other and take its place without any change in the nature of these Ones or in their relations to each other. In other words, these many locations might be interpreted as mere versions or copies of one location because of their complete similarity.

As we now have discovered what Hegel means by repulsion and attraction – change from the One to the Many and change from the Many to the One – we can study the rest of Hegel's account of these changes in a more cursory fashion. Hegel starts by showing that attraction and repulsion demand each other. Attraction wouldn't be attraction, going from many locations to one location, without there being first the many locations to start with; therefore, attraction needs repulsion as existence of many

different locations.¹⁴ Similarly, repulsion as a structure concerning these many different and still completely similar locations has already united them and so includes in itself attraction.¹⁵ Attraction and repulsion are thus always found together and an instance of one can be constructed from an instance of other. In a characteristic fashion, Hegel now argues also that repulsion and attraction as non-independent changes might also be seen as independent changes: both include the other change and so might be taken as the whole state of affairs consisting of repulsion and attraction.¹⁶

To summarise: we can construct many objects from one object at least by interpreting the situation or state of affair “this object exists” as a new object – this is an instance of repulsion or a production of new objects – and we can interpret many objects as merely dependent versions of one object by abstracting from their qualitative differences – this construction is an instance of attraction or an amalgamation of many objects into one. We may quickly note that these instances of repulsion and attraction are mere applications of the constructions I have called objectification and idealisation. Hegel proceeds then to investigate the whole unity of repulsion and attraction or the structure in which we can discover or produce constantly new objects and repeatedly interpret them as mere un-independent aspects. Hegel calls this structure quantity or pure quantity, and in the next section we shall see whether it truly corresponds with what is usually meant by quantity.

b. Quantity as a unity of repulsion and attraction

Before beginning the investigation of quantity, it is appropriate to express the place this concept occupies in Hegel's Logic. The section on quantity follows the division on quality, which contains the chapters on being, *Dasein* and *Fürsichsein*, all of which we have already dealt with. Whereas quality means for Hegel determinateness or characteristic of something, quantity is a sublated determinateness;¹⁷ it is a limit that, on the other hand, does not limit.¹⁸ The meaning of this somewhat obscure definition will be explained later.

The division concerning quantity starts with a chapter investigating pure quantity. Firstly, Hegel points to the preceding chapter concerning being-for-itself (*Fürsichsein*) by saying that “quantity is the sublated being-for-itself”.¹⁹ Then he continues by indicating that repulsion and attraction also appear in quantity, although with different names: “Attraction is in this way as the moment of *continuity* in quantity. [...] The magnitude has thus immediately in the continuity the moment of *discreteness*

– repulsion, as now a mere moment in quantity”.²⁰

Attraction in quantity Hegel names continuity: it is not continuity in any geometrical sense, but corresponding to the example of attraction in the chapter on *Fürsichsein*, it means that every part or every location in quantity is completely similar with every other; every part of quantity can change place with every other part of quantity without causing the whole to be different in any way.²¹ Because of repulsion, quantity is also discrete in the Hegelian sense that there are many parts in it, or more exactly, one can always find more parts of it.²² Quantity has both of these properties, and so we can always add more locations to the quantity, make it always seemingly bigger, but these new parts just repeat the existent parts or are qualitatively just the same as the old ones. Thus, when we investigate these new parts, they are just as much pure quantities which can be repelled, that is, for which can be found more parts, and so on. This account of quantity needs some explaining.

It may seem odd when earlier it was said that Hegel means by repulsion and attraction various changes – change from the One to the Many and change from the Many to the One – and now, in quantity, they are described as possibilities or abilities to change – repulsion in quantity, discreteness, means that we *can* find new parts, i.e. *can* move from situation of one thing to situation of many things; attraction in quantity, continuity, means that we *can* change every part with every other part, that is, *can* see many things as completely similar. This seeming incoherence is merely an instance of the Hegelian conception of possibility: one must first find an instance of change before one knows there is a possibility of change.

Until now, I have spoken of repulsion as adding more parts or locations to the original, as multiplication of one thing. But instead of adding Hegel often uses dividing as example of repulsion.²³ This might seem rather awkward as adding and dividing are very different operations: in adding something to a thing it remains as it was, whereas in dividing the thing either vanishes completely or is reduced in size. Also, adding increases the sum of the sizes of things, but dividing increases only the amount of things. Finally, the parts of the dividend do not seem to be completely similar to the original thing before division, but smaller: the whole is greater than its parts. These differences might be put aside by in light of the fact described earlier that in his *Logic* Hegel investigates issues which might not follow rules governing the sensible world. Concerning the case before us, however, it is possible to give a deeper explanation: Hegel’s view of quantity is such that these differences of addition and division can be reconciled.

Quantity is for Hegel something that can be divided, something that contains parts; but these parts of a quantity are similar to each other and also to their whole; parts of a quantity are quantities themselves; they contain parts which are quantities, and so on. If someone were to object that a part cannot be similar to a whole, because the whole consists of, for example, two parts, Hegel might answer that the part also consists of two parts. In this kind of division, the whole has not been diminished – it is just the same size as it was before dividing. Also, the multiplication of quantity does not enlarge it; it consists of same amount of parts as it consisted before. In other words, Hegelian quantity, or pure quantity, contains infinitely many parts.

The attribution of infinity to Hegelian quantity carries with it a question as to what kind of infinity, or how large an infinity it is. In the past, it was just assumed that one infinity is as good as any other, and that was the end of discussion, but after Cantor's investigations of set theory the idea that there are multiple kinds of infinity has become widely accepted. The smallest infinity is usually called countable infinity, on account that its parts can be counted, that is, represented as a series where every part corresponds to some number in series 0, 1, 2, ... But it can be proved that there are infinities whose parts can not be represented in this manner. It is thus easy to reach the conclusion that there are, besides countable infinity, so-called uncountable infinities, the most commonly used of which is the continuum, the infinity of the real numbers.

An opinion might be expressed that Hegel's idea of quantity calls for a continuum – apparently with no other ground than that Hegel speaks of quantity as continuous and he must mean by it the same thing as nowadays is meant. In light of what we have discovered, this argument seems erroneous and unjustified. Hegel means by continuity neither a continuum infinity nor any geometrical property of continuous space, but complete similarity of parts – things are continuous in Hegelian sense if they can replace each other's place without any significant change.

If we look at Hegel's own account and are not distracted by the familiar sound of the words he uses, we see that Hegel's quantity cannot be anything else but countable infinity. I shall illustrate this first by taking a spatial example. If we think of an infinite line as a Hegelian quantity, we see that we can divide it: it consists of, say, two parts. These parts are again quantities, i.e. they consist of parts and so on. This means that between every two division points there are always more division points to be found; this is all that we can assume on the basis of the Hegelian view of quantity. Series in which it is possible to find more points between any two points were called compact by Russell and Whitehead.²⁴ Now, compact infinities might not form a continuum and they

might be just countable in size – a continuum needs to have even more points than it is possible to reach by iterated division. As there is no indication of the line being anything else than this endless possibility of division, we must conclude that it is just a compact series, i.e. countable.

Another, more direct argument can be given if we think of repulsion of quantity as adding and not dividing. Let us represent the original quantity as number 1. Now there are repelled from it, that is, added to it some number of other quantities, say, quantities 2 and 3. These quantities can also be repelled in same way, which gives to quantity 2 the quantities 4 and 5 and to quantity 3 the quantities 6 and 7. Continuing in the same way, it is easy to see that every new quantity or part of original quantity can be enumerated. On account of this, it is justified to draw the conclusion that Hegel's quantity is countable infinity.

This result may seem odd if one remembers how I earlier stated that Hegel does not particularly like quantitative infinities. Indeed, we must qualify the statement that Hegel's quantity is infinity of any kind: it is infinity, if we allow potential infinities. In dealing with the problem of the divisibility of matter – one kind of pure quantity – Hegel praises Aristotle's idea that an infinite amount of points do not exist in the continuous quantity actually, but only potentially.²⁵ In a process of repulsion or division we never reach the point where we could see those infinite division points; in every phase there exists only a finite number of them. Therefore it is wrong to speak of quantity consisting of an infinite number of parts; it always consists of finite number of parts. But we can always divide even more, there is no limit we couldn't surpass, thus we can always find a state of division where it consists of a larger number of parts than it used to.

Now we are in a position to understand Hegel's definition of quantity as a limit that does not limit or a sublated (*aufgehoben*) determinateness. Quantity is always divided in a determinate, limited manner – it consists of, for example, two parts; this determinateness is sublated, which means in Hegelian lingo, firstly, that it is preserved in some way. But it also means, from another point of view, that determinateness is negated: we can divide quantity again without destroying it – it could equally be said to consist of four parts. In short: in every situation, quantity is a finite quantity (two parts, three parts etc.); and for every division of quantity it is possible to create a situation where it is divided further.

To Bayle's question how infinite divisibility could be a possibility without infinitely small parts being at the same time an actuality, Hegel responds by saying that

divisibility itself, that is, the state of affairs in which we have divided the quantity, is only a possibility regarding the quantity.²⁶ We *can* divide the quantity, but it might not *actually* be divided. It might be true that we must first divide some quantity before we can say that quantities are divisible; but as the parts of quantity are quantities themselves, we know that we can continue this process without actually performing the division infinite times.

With the aid of potential infinity Hegel also solves the Kantian antinomy concerning divisibility of matter: there is no problem because the question itself is misguided. Quantities are infinitely divisible and always divided in a finite way, and there is nothing contradictory in this. Remarkable is especially the criticism Hegel launches against Kant's proof of the thesis "Matter is not infinitely divisible". According to Hegel, Kant assumes that if material substances can be divided into parts, the combination of these parts is something contingent, that is, parts are the really existing things and whole substance is just a construction out of them.²⁷ Kant's assumption entails Bayle's thought that infinite divisibility means existence of infinitely small parts. The correct view in Hegel's opinion would of course be that the parts are in the whole only as possibilities before division.²⁸

Because Hegelian quantity is only a potential infinity we must make some modification to the earlier statement that in it wholes are similar to the parts. It is not true in the way that parts consist of the same number of things than whole, because this would mean that wholes and parts would be actual infinities. But it is true in the sense that we can always find a situation where the part has same number of parts that the whole quantity has in the current situation. Take, for example, a quantity x divided into two parts, x_1 and x_2 . Then we can divide part x_1 also into two parts, x_{11} and x_{12} , thus making it to have the same number of parts that x had before.

Infinite divisibility of quantities must understandably have an effect on what we can accept as quantities, or pure quantities. Hegel lists some examples of them, for example, space and time. A notable example is also matter: Hegel does not believe in atoms, but insists that pieces of matter are always divisible to more pieces of matter.²⁹ What would be Hegel's opinion of, let us say, pack of wolves? Parts of the pack are not packs of wolves, but individual wolves which consist of limbs, heads, etc., but not of wolves. Therefore, pack of wolves wouldn't be a quantity for Hegel, at least not in the strict sense of the word.³⁰ Note how different all of this is from modern way of understanding mathematics. In set theory we build a model of a number system by equating the empty set with the number zero, the set having the empty set or the number

zero as the only member with number one, and generally the set having as its members just the numbers up to n with $n + 1$. Hegel hints at a construction of a similar series where an “emptiness” or the place or situation of an object can be taken repeatedly as a new object. Yet, this series of objects does not yet by itself model the whole number system, but merely one quantity, in which it is possible to find more and more parts.

There seems to be one important example of quantity that Hegel does not explicitly name – perhaps because examples like space, time and matter are meant to be empirical instances of quantity, whereas the example I am speaking is not. Rational numbers can indubitably be interpreted as Hegelian quantities when their characteristics are investigated. A rational number – for instance, one – is dividable into parts – let us say, two halves. Now, these halves are also rational numbers, therefore they are also dividable into two quarters, and so on. Thus, rational numbers are continuous and discrete in Hegelian sense, that is, they are quantities. But rational numbers do not just share some properties with other quantities, they may also be thought as the archetypal quantities: Hegel deals with numbers in the Logic, whereas other quantities are investigated in parts that apply his Logic. Indeed, every other quantity, like space or time, might be represented with the aid of rational numbers and number series. So it is to Hegel's account of numbers or quanta that we now must turn our attention.

c. Numbers and their dual aspect

The next phase in Hegel's Logic is the separation of continuous and discrete quantities. Earlier we saw that quantities on the whole can be called continuous and discrete – discreteness was the possibility of dividing a quantity, continuity was the possibility of seeing the parts of divided quantity as similar to the whole quantity. Now, it is quite natural to assume that in every situation one of these possibilities should be actualized. When we spoke of quantity earlier, the quantity was usually taken as a unity which could be multiplied or divided; the continuity of quantity was its defining feature and thus it might have been called a continuous quantity.

“Quantity is a unity of these moments – of continuity and discreteness –but it is at first a unity in a *form* of one of them – of *continuity*”.³¹ If we instead concentrated on a situation where we have a divided or multiplied quantity – for example, the number five – we might call it a discrete quantity.³² “A discrete quantity is [the quantity] as not continuous, as broken.”³³ Yet, even a discrete quantity must be a unity and

continuous in some sense. The unifying fact of discrete quantities is the indiscernibility of their parts: for instance, five is explicitly a set of many units, but it might be taken as unity itself, because every part of it is similar to any other part and to the whole.³⁴

As quantities, the continuous and discrete quantities retain the possibilities that were called continuity and discreteness, or attraction and repulsion. Thus, it is quite easy for Hegel to show that continuous quantities are in a certain situation discrete and vice versa: we have a possibility to view them as such if we divide the whole or unify the parts. We might thus say that continuity and discreteness are actually interpretations of the same quantity. To avoid confusion, it is vital to remember that Hegel uses the words continuity and discreteness in an idiosyncratic sense. Hegelian continuity is not the same things as the continuity we speak of. When modern mathematicians speak of continuity they mean either 1) a characteristic of a continuum or an infinite set of the cardinality of the real numbers or 2) a continuity of functions described by the delta-epsilon formula and satisfiable only when the functions are applied to some continuum. For Hegel, on the other hand, continuity means the similarity or identity of certain objects or aspects, the collection of which never reaches actual infinity, as we have seen: the fact that every one of the units of the collection could replace any other. Further difference is offered by the fact that continuity in modern mathematics is supposed to be an exclusive characteristic of certain sets or functions, while for Hegel continuity characterises a certain aspect of all quantities. Of the meaning of discreteness for Hegel, it should be noticed that a discrete quantity must, of course, be still a quantity in a Hegelian sense: the parts of it must be similar to each other and to the whole. This entails the infinite divisibility of discrete quantity, because the parts must be such that they can also be divided like their whole. It also excludes such classes as pack of five wolves to be taken as a discrete quantity: it isn't a quantity in the strict sense at all.

The divisibility of a discrete quantity reveals another interesting point. When we speak of five, it is, in Hegel's scheme, not perfectly clear which number or quantity we mean. Five means five units, but these units are also quantities: they might also be divided and then the original five would be some different number, for example, ten. We will have occasion to study this behaviour of numbers later on, but it plays also a significant role in the next step of Hegel's Logic, the limiting or determining of quantity. "The discrete magnitude as such should not immediately be limited [that is, determined]; but as distinguished from continuous it is as a presence

and something [that is, a determinate object], determinateness of which is the one and as in a presence also first negation and limit.”³⁵ Discrete quantity is determined only in comparison to some continuous quantity or unity: five is five only in comparison to certain unity.³⁶

It is just this comparing of quantities that is needed to make them determinate quantities or quanta,³⁷ whereas before we had to deal with pure quantities. Space is, in Hegel’s opinion, an example of a pure quantity. But what does he mean by space here: the whole of space, whatever that is, or just some part of it? The answer is, whatever space one chooses is pure quantity, as long as we do not compare it with other spaces. Every quantity is in itself a pure quantity: it has all the characteristics of a quantity, like the infinite divisibility. But when the same quantity is compared to another quantity of same kind – comparing a quantity of space with a quantity of time wouldn’t help – we can determine both quantities: one as, for example, a double of the other, other as a half of the one. We have discovered that quantities themselves are relative: the size of a number is determined only in comparison with other quantities. As Hegel points out, this relative determination of quantities is not limited to discrete quantities:³⁸ even continuous quantities acquire their determination from comparison with other quantities. Continuous quantities are not unities in every situation, but they can be seen as doubles, triples etc. when they are divided into corresponding number of parts.

How can then a quantity be transformed into a quantum, that is, when we are given a quantity, how can we find another quantity with which to compare this original quantity? The answer appears to be rather simple. Quantities themselves are indefinitely divisible. Furthermore, the parts of any quantity are further quantities. Thus, by dividing a quantity we construct examples of quantities with which to compare the original quantity.

Hegel proceeds to enumerate the main characteristics of quanta or numbers,³⁹ and there is not much new in his account. We once again meet in new guises the attraction and repulsion, or continuity and discreteness. Every quantum is made by copying or multiplying some unit, which represents the side of continuity in numbers. The possibility of multiplying the unit – to make many out of one – is of course the aspect of discreteness in numbers. Besides these two, there is also the new concept of a quantum that it is limited in some way. The multiplying of a unit stops after some number of times, and this makes the discreteness of a number or many units a certain amount (*Anzahl*).⁴⁰ It should be noted that in the *Logic* we are not speaking of

empirical quantities and quanta – in our experience there are different kinds of quanta, for example, quanta of weight and quanta of time, but here we must abstract from these differences. It might happen that we are, in following Hegel, inevitably drawn to the conclusion that there might be different kinds of quantities, but for now we are only concerned with one kind of quantity, which we could call “number” in a strict sense.

We must note again the relativity of Hegelian quanta or numbers.⁴¹ A number is not determined by just the amount it has, but we must also tell its unit, which is also a quantum – by the sign “5” we mean five ones, where one is meant to be a certain number: five twos, on the other hand, would be a completely different number, which we signify by the sign “10”. Furthermore, there are many different ways to express any given number: 5 is five ones, but also ten halves, quarter of a twenty etc. We might say that every number is potentially every other number, as the choosing of the unit number seems to be completely arbitrary.⁴²

We may in passing consider Hegel’s idea of counting, which Hegel himself develops only in a remark and not in the main text of his Logic. Hegel’s account is far from complete: he explicitly investigates only the counting with positive whole numbers, i.e. cases where the only quanta we are dealing with are multiples of some particular quantum which is taken as the unity. Hegel leaves uninvestigated even such elementary calculations as addition and multiplication of fractions. One might get feeling that, although Hegel in other places counts fractions as numbers, albeit different than whole numbers,⁴³ he has here taken the word in a smaller sense, to mean only the whole numbers. A possible explanation might be that speaking of fractions, or quanta that are related to other quanta as fractions, would bring out some characteristics of numbers that Hegel doesn’t want to investigate at the moment, but a bit later: at this stage we are aware only of whole numbers, but later we see that we could include also fractions to the class of numbers.⁴⁴ Widening the application of this term would also necessitate a change in other terms: instead of amount we should perhaps speak of size, because we wouldn’t count as numbers just multiples of certain unit, but anything that has a quantitative relation with a unit.

The basic form of counting is, according to Hegel, numbering or making of numbers. Some quantum is taken as a unity and then it is multiplied in an arbitrary manner: amounts of the unit we thus get are new numbers.⁴⁵ Which quantum is taken as unity is also arbitrary and therefore we can abstract out of it: a number system as such is just an abstraction of quantitative relations.⁴⁶ The signification of numbers

also involves a great deal of arbitrariness: we usually take some amount of units, nowadays usually ten, as a kind of second unit, or radix. Having reached this second unit in our counting we start a new line of numbering: when we get to ten, we add a new number place to the left of the old one and add a unit to former always when the latter reaches ten. There is no reason why we should in our choice of second unit prefer some amount over others, and different amounts give out different systems of numbering.⁴⁷

Other forms of counting Hegel divides into a positive kind that connects and a negative kind that separates,⁴⁸ and former of these Hegel investigates in a more detailed fashion.⁴⁹ The first instance of the positive kind is adding, which is, for Hegel, a mere continuation of numbering: we have come in our copying of units to a certain number, for instance, to five, but there is always the possibility to add some more units, for example seven new units – the side of repulsion or discreteness in every quantity – thus getting to twelve units.⁵⁰ In multiplication we construct out of two numbers a new number that has the one number as a unit and the other as an amount.⁵¹ Finally, in the squaring we construct a new number out of a number which is taken both as the unit and the amount of new number; larger potencies are, in Hegel's opinion, mere repetitions of squaring.⁵²

Whole of elementary arithmetic seems to be for Hegel just a collection of arbitrary connections and separations, often also a mere change from one arbitrary convention in naming the numbers to another. This relativity or dependence on arbitrary conventions seems to be at the bottom of Hegel's opinion that arithmetical sentences are analytic: $5 + 7$ and 12 are same thing under different names.⁵³ An interesting question would be where we get the units with which calculations are made, but this is not handled by arithmetic. How does arithmetic then fit in with Hegel's idea of analysis as an investigation of only one context? Arithmetic as we nowadays are used to handling it can indeed be represented in non-modal terms, formalising it in some second-order logic (or incompletely in first-order logic). But representing Hegel's idea of arithmetic in a non-modal language – or in terms of merely one context – seems somewhat problematic. Like the rest of the Logic, Hegel's mathematics is constructive: given some quantity or mathematical entity, all the other quantities must be constructed from that one quantity. Because of this constructivism Hegel insists that in any situation there can be only a finite number of objects: every construction adds only finite number of new objects to the situation. Now, these facts seem to contradict the analyticity of Hegelian arithmetic: in adding

or multiplying we either may have to sometimes construct a new situation with more objects or accept that there is some number we cannot exceed. The solution lies in the concepts of repulsion and attraction, the two constructions (or two sides of one construction) on which the Hegelian account of arithmetic is based. By repulsion, we can always add new objects to a situation; by attraction, we can interpret every object constructed by repulsion as only a copy of some previous object – the same object in different situation. Therefore, if we have to add some new objects – new objects which, by the way, must be copies of previous objects – we are only using the constructions implied in the original situation. Thus, Hegel is justified in saying that arithmetic, as he understands it, is analytic: the arithmetician doesn't pay attention to the problem of where his numbers are coming from, but merely accepts them as given.

Before proceeding further, we should ponder the question what could, based on Hegel's theory, be permissible as numbers or quanta. Hegel's description of number might hint at the solution that any quantities would suffice if they are compared to some other quantities: number is a quantity that is a certain amount of a certain unit, that is, it is some quantum compared to a certain other quantum. Choice of the unit quantum seems quite arbitrary – it is only used as a reference point for other quanta and needs just to be some quantity. But is there any restriction on the choice of amounts or sizes? One might answer that they must also be quantitative, i.e., numbers must have a quantitative relationship with the chosen unit quantity, but this is too vague for a satisfying solution. Positive whole numbers seem to fit in this category, and also fractions, because numbers as quantities must be infinitely divisible into other numbers. But do we allow negative or irrational numbers? And what about zero, is it a number? If we leave out the zero for now, we might give as a preliminary answer that we shouldn't, when following Hegel, discuss just one system of numbers – even when abstracting from differences of empirical quanta: different quantities form different kinds of number systems, and whereas the quantities in a number system have quantitative relationships, quantities of different number systems might not.⁵⁴ This peculiar sounding answer must be investigated later when discussing Hegel's transition from quantity to measure.

Following Hegel, we meet next the difference between extensive and intensive quanta. Hegel's explanation of these terms does not at first sound very enlightening. "Quantum thus with its limit, which is something manifold in itself, is an *extensive magnitude*. [...] Limit of the quantum, which as extensive had its

existent determinateness as a self-external amount, passes over into a *simple determinateness*. In this simple determinateness of limit it is *intensive magnitude*".⁵⁵ Nonetheless, this description gives at least some information: extensive quantum seems more like a collection of many things than intensive quantum. What kind of a collection extensive quantum is then? A collection of units would be an expected answer. Extensive quanta are what we have until now called numbers, or better, they are numbers in those characteristics we have considered so far: they are amounts of units or sizes compared to some units.⁵⁶ Intensive quanta, on the other hand, are not regarded as collections or as manifolds. Still, they are quanta in some sense, i.e. they are quantities that are determined only in relation to some unit quantity. Intensive quantities, or grades, are places in an ordered scale: we take some grade, the unit, as fixed and compare other grades with it.⁵⁷ Intensive quanta, like hundredth, are thus used in expressing order, while extensive quanta, like hundred, are not: when we speak of hundred units, we do not mean any of them to be the first or the last one.⁵⁸ If we limited the terms to whole numbers, we might say that by separating extensive and intensive quanta Hegel is trying to express the difference between cardinal and ordinal numbers.

After expressing the difference of extensive and intensive quanta, Hegel goes on to establish that they are in some sense identical. The word identity might seem a bit odd, and even Hegel's use of it in this case is somewhat ambiguous. Firstly, most of Hegel's examples of this identity are of such nature that a certain intensive quantum of one kind is connected to a certain extensive quantum of another kind: one can be constructed from the other. Whereas the intensive quantum may vary a lot (grade of warmth, pitch of sound, brightness of colour etc.), the extensive quantum is usually either a spatial quantum or some countable amount (height of liquid in thermometer, number of vibrations, farthest distance where colour is seen etc.).⁵⁹ Hegel is here speaking of the fact that we can make our measurements only via extensive quantities: we can't put things into a quantitative order if we can't express them as numerable collections or sizes of lines, areas or volumes.

Hegel also speaks of a stronger form of identity which is limited to numbers. While in the previous case things expressed by extensive and intensive quanta weren't same – the hundredth grade of warmth is not made of hundred grades, whereas the corresponding height of thermometer consists of one hundred smaller lines – in the case of numbers they are. The number hundred is the hundredth number, and hundredth number consists of hundred units;⁶⁰ or if we speak also of

fractions, the half is situated at the place “half” in the scale of rational numbers. Numbers have a dual aspect, as they express both sizes and places in an order, and may therefore be used both as cardinal and as ordinal numbers. There is only one number, but it fulfils two different tasks.

The duality of numbers seems to be even behind Hegel’s transition to the intensive quantum from the extensive quantum:

However, the determinateness of how large something is does not require it to be distinguished from another magnitude, as if both were necessary for determining the magnitude of the first; and this is because the determinateness of magnitude in general is a limit determinate for itself, indifferent and related simply to itself; and in number the limit is posited as included in the one that is for itself and it has *within itself* the externality, the relation to other. Further, this many of the limit itself is, like the many as such, not unequal within itself but continuous; each of the many is the same as the others; consequently, the many as a plural asunderness or discreteness does not constitute the determinateness as such. This many, therefore, spontaneously collapses into its continuity and becomes a simple oneness.⁶¹

Extensive quanta also form an ordering – hundred is the hundredth. As an ordinal, a number already contains within itself the relation to another number: it has within itself the relation to another quantity. Thus, we can abstract from the fact that it also consists of unities, that is, we can concentrate our attention to the place it occupies in the ordering – extensive quantum can be seen as intensive quantum. On the other hand, the transition to extensive quanta from intensive quanta relies more on the weaker form of identity:

[Intensive magnitude] is determined *by other* intensive quanta and is continuous with its otherness, so that its determinateness consists in this relation to its otherness. Now in the *first* place, in so far as it is a *simple* determinateness it is determinate *relatively* to other degrees; it excludes them from itself and has its determinateness in this exclusion. But, *secondly*, it is determinate in its own self; this it is in the amount as its own amount, not in the amount as excluded, nor in the amount of other degrees. The twentieth degree contains the twenty within itself; it is not only determined as distinguished from the nineteenth, twenty-first, and so on, but its determinateness is its *own* amount. But in so far as the amount is its own — and the determinateness is at the same time essentially an amount — the degree is an extensive quantum.⁶²

There are many intensive quanta and therefore to every grade in the scale there corresponds an extensive quantum expressing the amount of unit grades before it or its distance from zero compared to a unit grade. This distance is what makes the intensive quantum what it is or it is the own amount of the intensive quantum: in the case of numbers this distance is in fact the number itself.

d. Numbers as series

One of the main things that has become apparent in our preceding investigation is the relativity of numbers on the Hegelian account: every number is determined only by its relationship with the unit number that can be chosen arbitrarily – this relativity is what Hegel means when he often speaks of the indifference of quantitative limits. We already hinted that because of this relativity we could speak of numbers as taking place of every other number, and now Hegel himself starts to develop the same idea. Everyone surely admits that the quantity of anything might be bigger or smaller – that everything could change its size – but Hegel endorses a stronger opinion: “Not only *can* every quantitative determination be transcended – not only it *can* be changed – but it is *posited* that they *must* change”.⁶³ This rather astonishing idea is best understood if we ignore the temporal connotations of the word “change” and instead speak of differences of points of view: thus we would get the statement that in some point of view numbers might seem to be bigger or smaller than now. This is just the earlier point about the relativity of numbers: if we change the unit to a smaller one, all the numbers seem bigger compared to the chosen unit, and if we change the unit to bigger, they seem smaller.⁶⁴ Numbers are not stable determinations, but dependent on the choice of unit, or as Hegel says, they are not being, but becoming limits.⁶⁵ Every number might therefore be represented by a series of amounts of different units, for example, two would be, for example, 2, 4, 6... when the first unit would be number one and every unit would be half of its predecessor.

As the unit number may be as big or small as we want, the increase or decrease of numbers has no limit: if we take certain number as such and such amount of units, it may always be taken as bigger or smaller number of certain other units. This unlimited variability in size of numbers raises a question whether there might be infinitely large or infinitely small numbers. The answer to this question depends, of course, on what we mean by infinity here. Hegel’s description of one kind of infinity is important: “[A result into which a quantum changes] is not the other of *one* quantum, but of *the* quantum, the negative of the quantum as limited, thus its unlimitedness, *infinity*”.⁶⁶ Hegel is characterising infinite quantum as unlimited: infinitely large quantity wouldn’t be capable of exceeding just some given quantum, but every quantum and infinitely small quantity could be seen as smaller than any

amount. These kinds of infinite quantities obviously exist in Hegel's account of numbers: every number is both infinitely large and infinitely small when the terms are interpreted in this manner. If we change the unit in number system, we can make every number as small or as large as we like, compared to the given unity, thus we can change⁶⁷ every number to become as big or as small as we want and we can exceed every given upper bound of numbers.

Hegel's answer might seem to be no more than a sophistical trick to avoid the real question. We do not want know if we can change the number system so that any given number will be larger or smaller than any other given number, one might object; instead we want to find out if there is some number that is in every situation larger or smaller than any number. In other words, we would want to know if there is a final largest or smallest number which can't be exceeded. Hegel's answer to this question would be negative. "If we take [the progress to infinity of every number] at first in its abstract determinations as we find them, *then in it there is a sublation of quantum, but also of its beyond, as a negation of this negation*".⁶⁸ Besides the fact that every finite quantity or number can be exceeded, we can also see that every exceeding of a number can also be exceeded, that is, everything that can be smaller or larger than any given quantity is still a quantity: in every situation the numbers are at some finite amount, although the situation can be changed so that the investigated number exceeds that amount.

The non-existence of infinitely large or small numbers in the second sense has some interesting consequences. First of all, the Hegelian number system has no final upper or lower limit. The non-existence of latter is especially revealing: Hegel cannot take zero as a number or else he would have to except a final lower limit.⁶⁹ This is confirmed by some of Hegel's statements concerning differential calculus: he expressly sets zero against ordinary quanta and considers it to be a problem that mathematicians of his time deal with infinitesimals that are quanta in some sense, but equal to zero in another.⁷⁰ It is not so much that Hegel denies that there could be situations where there is nothing, but he insists that then there is no sense in speaking of quantities or amounts of things.

Another consequence is the impossibility of there being an actually infinite amount of anything. We have seen that Hegel does not exclude the existence of possible infinities, but on the contrary, accepts them: there is no infinite set of things, but it is always possible that there would be a situation where there would be more things than there is now. We have seen examples of possible infinities, indeed every

number and quantity is one of them: a given quantity could always be divided into smaller and smaller pieces thus making the total number of parts larger than it was before. Similarly, time and space as empirical examples of quantities are potential infinities, which is, by the way, also how Hegel deals with Kantian antinomy concerning beginning of time and space: time and space are in every situation limited, i.e., there are only determinate spaces and times, but every limit of this kind can be exceeded.⁷¹ An interesting consequence of Hegel's solution is that there can be no universe or world as the collection of all spatiotemporal objects: there are only finite worlds or situations, but no World which comprises them all.⁷²

The refusal of infinite sets might arouse an objection: what about numbers? We have seen Hegel admit that for every number there can be found a number greater than it. Surely, the set of all numbers must therefore be infinite, might one say. When we look back at Hegel's account we find out that this need not be. Hegel started with just one quantity and by division or multiplication found another quantity which could be related to the original: this was the transition from pure quantity to quantum. Other numbers were constructed similarly by new calculations with quantities or numbers; it was even hinted that one kind of numbers, fractions, would appear later when the development of number system had reached them. All of this must be interpreted as what might be called a constructivist approach to mathematics: every number – or, as the Hegelian number system is relativistic, every relation between numbers – might be said to be made in the course of finding it. To every set of numbers can be added new numbers according to some way of producing them from old numbers, but in every situation both the set of original numbers and the set of numbers that can be added is always finite, thus ensuring that the sets of numbers remain always just potentially infinite.⁷³

The constructivism of Hegelian mathematics may cause some worries concerning the apriority of mathematical statements: does seven plus five equal twelve all the time or is the answer or existence of it dependent of the fact that someone calculates it? One possible answer to this question would be that every time we are in a situation in which we have a set of numbers including seven and five and are aware of the operation of adding we can construct a set which includes also the number twelve – indeed, the adding of seven to five could be said to be the way to discover this set – thus, in every situation where the expression $7 + 5$ would be meaningful we would be in a position to say it equals expression 12.⁷⁴ This would suffice to make statements concerning numbers dependent only on the numbers that

occur in them, but there would still remain a broader question concerning the apriority of numbers as such: do we need something empirical to start with in order to construct numbers? Clearly, the answer depends on how we understand the first, pure quantity that Hegel begins with: if it is just some empirical quantity, like a part of space or time, we must admit that mathematician following Hegel would need some experience of reality on which to build his number system. We have seen that the example of pure quantity in Hegel's Logic has been constructed through abstract constructions from equally abstract structures to which we refer by means of signs we are able produce at will. It is thus only this capacity to refer to abstract structures and their characteristics by signs that should be required in mathematics or at least arithmetic according to Hegel.

We have seen that Hegel has denied infinity in one sense – as infinite amount or size – but accepted it in another sense – as the property of numbers that anyone of them can be seen greater or smaller than any amount. More generally Hegel connects infinity of numbers with their relativity or, as Hegel calls it, their indifference:

Quantum has infinity – being determined for itself – no longer outside it but within itself. The infinite, which in the infinite progress has only the empty meaning of a non-being – of an unattained but sought beyond – is in fact nothing but *quality*. Quantum as an indifferent limit goes out beyond itself to infinity; in doing so it seeks nothing else than to be determined for itself, the qualitative moment, which, however, is thus only something that ought to be. Its indifference to limit, and hence its lack of an independent determinateness of its own and its going away from itself, is that which makes quantum a quantum; its going away from itself is to be negated and quantum is to find in the infinite its absolute determinateness.⁷⁵

Although this passage mostly repeats what has gone before, it deserves some explanation because of its density. Every number can take the place of any other number in such manner that the relations between them don't change – i.e., if we change our unit from the number one, the number two is still twice the former unit – and therefore it may be taken to be as large a number as needed. Because of this relativity, no infinite number in the sense of the largest number or smallest number exists: therefore such an infinity is only sought for. But infinity should not be understood as such a never-to-be-reached beyond, but as a feature within numbers. Now, this determining feature of numbers or quanta is their previously mentioned relativity: a quantum is a quantum because it can change places with any other quantum. The novelty here is that Hegel calls the relativity also the quality of numbers. This must be understood not just in the obvious sense that it is the property of numbers. Instead, Hegel is trying to state that the numbers that are in this way

replaceable with each other are of the same kind, or, that these numbers form a qualitatively separable number system. Every number, as we have seen, is actually a series of numbers or amounts compared to different unit numbers. Now, number series in the same number system retain the same quantitative relations towards each other in different places of series: two (ones) has the same relation to three (ones) as four (halves) to six (halves). This idea of kinds or qualities of number systems might seem odd, but it also raises an idea of existence of many different kinds of number series that change in different rates or directions, if such expression is allowed. This possibility and with it the idea of qualities of number series Hegel develops in his account of quantitative relationships or proportions (*Verhältnis*).

Firstly, we must investigate the nature of these relationships closer. As has been remarked earlier, Hegelian numbers are not just single numbers, but number series, that is, series of amounts compared to certain unit numbers. Thus, although Hegel seems to speak as though these relationships obtained between single numbers, he actually means that they are relationships between number series or sets of numbers, which nowadays would be called mappings or functions.⁷⁶ Now, it is not at first sight clear whether Hegel means these mappings to be real relationships between existing sets of numbers or rather processes that create one number series out of another. In light of Hegel's constructivist view of mathematics it must at least be admitted that even if they are relationships there must be a corresponding process which might be used to construct one number out of the other, and furthermore, that this number must be first found out by some process of this kind, although it may not be the same process that corresponds to this relationship.

When we move on to Hegel's actual account of quantitative relationships, we first come across what is called a direct proportion, that is, a state of affairs in which one number has to another the same relationship as one whole number has to another: $y = ax$, where a is some rational number. An interesting point here is Hegel's statement that numbers in direct proportion are, in a sense, just one number.⁷⁷ By this Hegel evidently means that they are, as it was earlier said, numbers of the same kind or the same number system: we can see two numbers of same kind as being different sizes when compared to different number systems, but their quantitative relationship towards each other – how much one is compared to another – is stable.⁷⁸ Although Hegel here speaks only of relationships between two numbers, the principle applies easily to whole number systems and is in fact another statement of relativity inside a number system: changing the unit changes the sizes of numbers, but even in this

change the numbers retain their places in relation to all the other numbers.

Hegel continues by investigating the relationship of the unit number with the number system. The choice of the unit number was arbitrary: now, if we decided to change our unit number to be half of the previous unit, all the numbers in number system would increase in amounts, for instance, two (compared to one) would become four (compared to a half). Therefore, if we thought of the unit number also as a number series, then the unit series would, so to speak, flow in another direction than any number series in the original number system, increasing when the other decreases and decreasing when the other increases.⁷⁹ Number series of these kinds are said to be in inverse proportion to each other, and obviously, they are not numbers of the same kind: two and four are different multiples of one and a half.⁸⁰

Numbers in inverse proportion are also related to a third quantity that is their product: $xy = a$. It is interesting how Hegel treats the product of inversely proportional numbers: he says it is a limit that its factors can never reach or the beyond which they can only seek, but never find – in other words, it is infinite compared to them.⁸¹ Earlier we saw that infinity in quantities meant for Hegel only their relativity or the fact that anyone of them could be seen as bigger than any given quantity when compared to a suitable unit and that he explicitly denied that there could be so called infinite quantities. Now Hegel is trying to state a different, though related, meaning of infinity as applied to quantities or numbers. The product of numbers in inverse proportion is, of course, a quantity that is part of some number system. It should also be infinite compared to its factors, and part of Hegel's meaning in here is that it is of a different quality than them. The product might be seen as a construct from numbers of what might be called lower level or dimension of numbers (the unit and the amount), whereas the factors cannot – at least not from numbers of same dimension. Also, factors form number series which are inversely proportional to each other, while the product does not – at least not in relation to any of the factors. Thus the factors could never reach their product, that is, they can, of course, reach the corresponding number in their own system, but the product is a number of higher level or dimension.

Hegel moves on to deal with relationships between powers of numbers: he seems to say that we only need to look upon one factor of the product and its relationship to the whole and that we therefore may restrict our investigations to the situation where the factors are equal. As was pointed out, Hegel thinks that the product of numbers is of a higher quality or dimension than its factors. Now he

concludes that “the *exponent* of this ratio [between different powers] is no longer an immediate quantum as it is in the direct ratio and also in the inverse ratio. In the ratio of powers it is of a wholly *qualitative* nature, this *simple* determinateness that the amount is the unit itself, that the quantum in its otherness is *identical* with itself.”⁸² The exponent or the principle of the relationship between powers of different dimension should be for the first time an example of different kinds of number series, that is, number series with qualitative differences: thus, it should express a process by which we can construct more number systems out of one number system.⁸³ Hegel’s statement that powers form qualitatively different number systems needs still some justification. Important thing to remember is that Hegel means by numbers actually number series: thus, we are concerned with, for example, relationship of series 1, 2, 3... to 1, 4, 9... Now, it is obvious that the second series has some gaps in it. As Hegelian mathematics is constructivist, we might create or find a new version of this series, which would have all the numbers we have added to the first series. But then we would discover that in the first series there wouldn’t be corresponding numbers for all the numbers in the second series, for instance, square root of 2 would be missing. We might add these new numbers to the first series, but this would lead to adding of these numbers to the second series and finally to discovery of new numbers, namely the square roots of previous square roots.⁸⁴ The second series could never have all the same numbers as first series because we could always find some new numbers that are missing in the second series. This different rate of growth might well be the reason why Hegel gives exponential relationships as an example of a relationship between different number systems or different kinds of numbers.⁸⁵

We might accept Hegel’s argument that powers give *one* example of qualitatively different number systems. But Hegel also turns this result into a stronger statement that is not justified by the foregoing construction: he seems to think that powers are the *only* or at least the *primary* example of different kinds of numbers. This statement has at least two consequences in Hegel’s account. Firstly, he denies that relationships studied before exponential relationships could by itself represent true relationship between different qualities of numbers: especially direct proportion is for Hegel a mere formal relationship, that is, relationship within one number system or one quality of numbers.⁸⁶ This is obviously an inadequate view, even in Hegel’s own opinion: he admits specific gravity or density – a direct relation between two different kinds of quantities, that is, mass and volume of thing – to be part of essential nature of material objects.⁸⁷ The most we could accept is that when dealing

with mere quantities direct proportion would be a sign of number series of same kind: that is, if we didn't know by some other means that numbers in direct proportion were of different quality we wouldn't be justified to draw the conclusion that they were of different quality.

Another consequence of Hegel's statement is his insistence that every relationship between numbers that displays some sign of obtaining between different kinds or dimensions is actually a relationship between powers: a good example is differential calculus, the essence of which Hegel thinks to be showing relations between different levels of exponential functions.⁸⁸ Hegel is here undoubtedly trying to express the fact that the number series given by the differentiated function is of different kind than the original one – it is the series of the growth rates of the original series – but this insight is clouded by Hegel's clinging to exponential relationships.

As we now have reached the end of Hegel's account of quantities, it is appropriate to give a short summary of this chapter. We started by studying pure quantity, that is, quantity as it is when not compared with other quantities. We found that Hegelian quantity is infinitely divisible – it is always divisible into smaller parts that are themselves similar quantities – without literally consisting of infinite number of parts – parts are only potential before the division and thus there is never a situation with an infinite number of parts. Out of this one quantity Hegel constructed other quantities by division or multiplication of it; thus we arrived at quanta or numbers, quantities that are compared to other quantities of same kind. Hegel showed that numbers were able to play two roles, signifying both an amount or size and a location in an ordering. Like quantities, the system of numbers was for Hegel also just potentially infinite – in every situation it had a finite number of members, although we could always add a new number to it by similar processes that created the numbers from the first quantity. It was also relativistic in the sense that every number could take the place of any other number without any change in relationships between numbers – numbers represented sizes compared to a chosen unit quantity and a change of this unit changed also the sizes of numbers. Thus we found that Hegelian numbers were more like number series than single numbers. Finally Hegel showed a process – the exponential function – by which we could create new number systems of different kinds out of the original one: systems whose number series progressed at a different rate when compared with the exponential function.

Hegel's way of doing mathematics may seem very set-theoretic – both in Hegelian mathematics and modern set theory numbers are constructed out of abstract

objects – but there are some revealing differences. Firstly, there is the almost trivial difference that Hegel does not take the empty set or situation (nothingness) as quantitative – the first whole number for Hegel is one, not zero. Secondly, Hegel’s mathematics is at least methodologically constructivist – we can never speak of a whole number system, but only of a part that we have discovered – and thus, he need not accept infinite quantities. Thirdly, Hegelian mathematics is meant to be applied more to masses than to collections: there are no final units, because we can picture all units to be divided further.

e. A few words on measures

We saw how Hegel found new kinds of quantities via certain mathematical operations and thus a situation with many kinds of quantitative systems. In this new situation there are some relationships that correspond to the previous operations – functions that map the elements of one number system to another. It is these mappings – or possibly the constructions of one number system from another that correspond to these mappings – that Hegel calls measures.⁸⁹ Natural science is of course filled with examples of one kind of quantity being in a certain relationship with other quantities, for instance the relationship of time, velocity and distance in movement, and Hegel is prone to inject them into his account. This might lead reader to the conclusion that Hegel has here overstepped the limits that he has set to his Logic and that the whole chapter on measure is a mere misstep on Hegel’s part. But Hegel himself suggests that even in the field of mathematics there are certain cases where the chapter on measure could be applied,⁹⁰ and according to all that has been said before, it is likely that the field of mappings – objects that, like numbers, are not dependent on anything empirical, although applicable to empirical situations – would have to form the subject area of this division.⁹¹ I shall not venture to examine the section in any more detail, but merely note that like the section on quantity, this section poses no problem for the constructivist view of the Logic. It is the second book, concerning essence, and the term introduced in it, reflection, that we have to study further.

Summary:

Quantities in the Hegelian sense are discrete or can always be repelled – that is, divided into smaller parts – and they are continuous or their parts can always be

attracted – that is, the parts of quantities are further quantities. Quantities are thus potentially infinite or infinitely divisible. An example or model of quantity can be constructed, if we just have the ability to construct indefinitely many new objects: Hegel supposes that we can do this by taking any object and always naming the place or situation containing this object and thus regarding the situation as a new object.

The simplest examples of quantities are numbers, which are constructed by copying some unit quantity: the unit is also a quantity and thus divisible to further quantities. Hegel points out that numbers have a dual aspect: they can be used both as extensive magnitudes – representing size – and as intensive magnitude – representing order. Furthermore, Hegel says, all extensive magnitudes are in some sense intensive magnitudes, while all intensive magnitudes can be represented by appropriate extensive magnitudes.

The numerical value of quantities is determined only by the arbitrary choice of the unit quantity: thus, Hegel concludes, any quantity could have as large or small value as possible and be in this peculiar sense infinite. On the other hand, no actually infinite or absolutely largest or smallest quantity exists for Hegel: hence, Hegel cannot accept the existence of any World or spatiotemporal totality encompassing all spaces and times. The true infinity of quantities is that they can be mapped to one another. Some mappings happen within the same qualitatively differentiated number system – as a mapping of lines to lines is – but Hegel notes also the existence of mappings between different number systems – for example, mappings of lines to planes or lines to times. Hegel calls such mapping also measures.

¹ MAN, 2. Hauptstück (p. 496 – 535). See especially Erklärung 2 (p. 498 – 499), Lehrsatz 2 (p. 499 – 500), Lehrsatz 5 (p. 508 – 510) and Lehrsatz 6 (p. 510 – 511).

² G 20, § 262. p. 254, 5 – 9.

³ Hegel himself admits this (G 21, p. 166, 21 – 30).

⁴ G 21, p. 152, 10 – p. 155, 22.

⁵ Ibid., p. 156, 1 – 2.

⁶ Ibid., p. 155, 23 – 24.

⁷ Ibid., p. 156, 3 – 4.

⁸ Ibid., p. 156, 17 – 19.

⁹ Ibid., p. 158, 10 – 17.

¹⁰ Ibid., p. 158, 17 – 18.

¹¹ Ibid., p. 160, 22.

¹² Ibid., p. 159, 20 – 22.

¹³ Ibid., p. 160, 8 – 14.

¹⁴ Ibid., p. 162, 24 – 30.

¹⁵ Ibid., p. 163, 12 – 22.

¹⁶ Ibid., p. 164, 7 – 22.

¹⁷ Ibid., p. 66, 13 – 14.

¹⁸ Ibid., p. 173, 6.

¹⁹ Ibid., p. 176, 5.

²⁰ Ibid., p. 176, 11 – 12; p. 177, 1 – 2.

²¹ Ibid., p. 176, 11 – 21.

²² Ibid., p. 177, 1 – 7.

²³ For example, G 21, p. 161, 26: “Repulsion is a self-division of one to many”.

²⁴ See, for example, Whitehead and Russell 1927, p. 179.

²⁵ G 21, p. 188, 11 – 21.

²⁶ Ibid., p. 188, 21 – 29.

²⁷ Ibid., p. 183, 7 – 25.

²⁸ As De Laurentiis 1995 seems to paint a completely different picture of Hegel’s relation to the divisibility of space, time and matter, I must make a few remarks on that article. De Laurentiis tries to prove that Hegel wanted to reveal a hidden presupposition in Zeno’s paradoxes of motion, namely, the presupposition that states of affairs expressed in self-contradictory propositions do not exist (p. 255). Unfortunately De Laurentiis gives almost no explanations as to how this self-contradictoriness should be interpreted, although in one place he admits that it should not be understood as a logical contradiction (p. 272). As I have already stated, Hegel’s contradictions should be understood as mere clashes between aspects of one object or situation: they are of the form “this is so in one context, but it is something else in another context”. If De Laurentiis understands Hegel’s contradictions in a somewhat similar manner, there is actually not so much difference between our results: infinite divisibility of space, time and matter together with impossibility of ever actually dividing them infinitely many times means that there are many equally possible ways to speak of space, time and matter, that is, according to different possible divisions of them.

Yet, De Laurentiis is obviously wrong when he insists that Hegel would have spoken with Zeno against Aristotle. In his short discussion of Zenonian paradoxes in *Wissenschaft der Logik* (G 21, p. 187–188), Hegel differentiates between four roles. The crudest opinions are those of Diogenes who is representative of the sensuous representations and tries to prove motion possible by walking silently (G 21, p. 188, 3 – 6 and 31 – 32). True, we sense motion as a unified phenomenon – this was there, but now it is here – and according to such a sensation the non-existence of motion would be an absurdity. But no phenomenon seems problematic before it has been analysed, and Diogenes’ solution is actually a mere denial of any problem and thus a step backwards. The understanding then analyses or conceptualises motion and Zeno the dialectician plays the role of opposition against the understanding. Who then is supposed to be the representative of the understanding? Hegel does congratulate Aristotle as having great understanding (G 21, p. 188, 29 – 30), but this remark seems not so much to characterise Aristotle’s ideas as to point out that Aristotle is *also* a man of good understanding: Hegel refers here to the discovery of the syllogism by Aristotle. The understanding takes too seriously such meaningless words as “infinite collection of parts” (G 21, p. 188, 32 – p. 189, 1): it is thus Bayle with his insistence that actuality of parts must follow of their possibility who is the true man of understanding – and because of this, he cannot get out of the Zenonian problems. But it is Aristotle who has the truly speculative notion of space, time and motion (G 21, p. 11 – 13) and who thus was able to truly solve Zeno’s problems. The great invention of Aristotle is that infinite divisibility implies only a potential infinity, but not an actual infinity (G 21, p. 188, 13 – 17 and 27 – 29): a spatial line, a passage of time or a stretch of motion does not consist of parts, if it hasn’t yet been (actually or conceptually) divided.

Thus, when Zeno wants to move in one of his arguments from premise “every stretch of motion can be divided to two parts” to the conclusion “thus every stretch of motion consists of infinite journeys”, he makes a number of errors. Firstly, even the move from “every stretch of motion is divisible to further parts” to “every stretch of motion is divided or consists of parts” is not an argument, but a construction: the first sentence is like a recipe for baking a cake and the second sentence shows the final result of applying that recipe. Secondly, Zeno makes the far worse mistake of thinking that if this construction could be repeated indefinitely, it could also actually be iterated infinitely many times: this would be as ridiculous as thinking that a recipe for baking cakes would allow us to bake infinitely many cakes. When combined, Zeno’s two mistakes lead from the infinite divisibility to the supposition of actual infinity, as if a recipe was a guarantee for the *existence* of infinitely many cakes: or perhaps more properly, the mistakes are presupposed as true by the understanding and Zeno’s arguments can be directed against these false presuppositions.

Stekeler-Weithofer, on the other hand, appears to understand Hegel’s position on the antinomy of divisibility correctly: he explicitly says that a line allows finer and finer divisions, but can always be actually divided only into a finite number of parts and thus can never be identified with the set of all its possible division points, whatever meaning to this latter expression is given.

²⁹ G 21, p. 179, 1 – 6; p. 177, 28 – p. 178, 4.

³⁰ Stekeler-Weithofer appears to understand this when he says (1992, p. 154) that for Hegel quantities are not primarily sets of discrete elements, but continuous extensions. The word “continuous” must just be interpreted as undivided, but divisible: an actual or imagined division would make the quantity into a combination of several continuous extensions.

³¹ G 21, p. 177, 8 – 11. See also p. 189, 12 – 14.

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- ³² Ibid., p. 190, 3 – 6.
- ³³ Ibid., 8 – 9.
- ³⁴ Ibid., p. 190, 10 – 15 and p. 191, 1 – 2.
- ³⁵ Ibid., p. 191, 18 – 20.
- ³⁶ Stekeler-Weithofer notes also this relativity of numbers (1992, p. 158): it is an arbitrary decision what is to be taken as the unit quantity.
- ³⁷ G 21, p. 192, 1 – 2.
- ³⁸ Ibid., p. 192, 4 – 7 and p. 193, 16 – 17.
- ³⁹ Hegel, at least in certain points, seems to use the terms quantum and number as synonyms, for instance, in *ibid.*, p. 194, 9.
- ⁴⁰ Ibid., p. 194, 2 – 7 and 19 – 24.
- ⁴¹ This relativity seems to be noted by Hegel when he tells us that differentiation of numbers is not qualitative, but depends on a mere comparison (*ibid.*, p. 195, 17 – 19). Presumably Hegel is here speaking of comparing the sizes of numbers.
- ⁴² The reader should keep in mind that Hegel's quantities are infinitely divisible. Because of this, we can always divide numbers to smaller numbers without ever reaching final or natural units.
- ⁴³ Ibid., p. 242, 5 – 7.
- ⁴⁴ Hegel himself says something that points at this direction (*ibid.*, p. 202, 20 – 27).
- ⁴⁵ Ibid., p. 197, 33 – 35. Pinkard 1981, p. 460 – 461 suggests also that Hegel is constructing numbers through multiplication of units. The mistake in Pinkard's account lies in the presupposition that Hegel is or at least should be dealing with sets: Pinkard does not notice that the choice of units is arbitrary and that units themselves are divisible to further units.
- ⁴⁶ When dealing with mere whole numbers we might also ignore the fact that Hegelian quantities are infinitely divisible into other quantities of same kind. Thus we may justify Hegel's claim that numbering is based on counting of such things as fingers (*ibid.*, p. 197, 35 – p. 198, 3).
- ⁴⁷ Ibid., p. 198, 4 – 8.
- ⁴⁸ Ibid., p. 197, 26 – 32.
- ⁴⁹ As to the negative kinds of counting, Hegel is satisfied to simply enumerate them: subtraction, division and taking roots. It is notable that determination of quantities in relation to other quantities seems to have made it possible to distinguish between copying unit and dividing it.
- ⁵⁰ Ibid., p. 198, 9 – 14.
- ⁵¹ Ibid., p. 201, 4 – 7. Hegel does not note that we usually want to express the new number with the same unit that the old ones were, that is, a sufficient answer to a problem " $2 * 3$ " is not "two threes", but "six ones".
- ⁵² Ibid., p. 201, 25 – 31 and p. 201, 34 – p. 202, 1.
- ⁵³ Ibid., p. 199, 6 – 11.
- ⁵⁴ One example of different kinds of number systems would seem to be positive and negative numbers: in itself they are mere number systems, but compared to each other they are what Hegel calls opposites (G11, p. 276, 7 – 12 and p. 278, 2 – 8).
- ⁵⁵ G 21, p. 208, 16 – 17 and p. 210, 8 – 10.
- ⁵⁶ Ibid., p. 209, 14 – 17.
- ⁵⁷ Ibid., p. 210, 16 – 23.
- ⁵⁸ Ibid., p. 195, 5 – 12.
- ⁵⁹ Ibid., p. 215, 27 – 30, p. 216, 4 – 8.
- ⁶⁰ Ibid., p. 215, 2 – 9.
- ⁶¹ Ibid., p. 209, 18 – 210, 2.
- ⁶² Ibid., p. 212, 21 – p. 213, 6.
- ⁶³ Ibid., p. 217, 16 – 18.
- ⁶⁴ This point of Hegel's is perfectly understood by Stekeler-Weithofer (1992, p. 182 – 183) when he equates the quantitative progress of the same numbers with the constant refinement of the division of the scale of numbers.
- ⁶⁵ G 21, p. 217, 19 – 20.
- ⁶⁶ Ibid., p. 218, 19 – 21.
- ⁶⁷ This word might not seem appropriate for what happens, since no real change occurs, but rather a mere change of viewpoints. Nonetheless, I shall continue to use this term as Hegel uses it.
- ⁶⁸ Ibid., p. 234, 3 – 6.
- ⁶⁹ Negative numbers do not belong to this part of Hegel's account.
- ⁷⁰ For instance, *ibid.*, p. 251, 9 – 16, p. 258, 15 – 20 and p. 266, 26 – 29.
- ⁷¹ Ibid., p. 232, 12 – 16.
- ⁷² Thus, when Frederick Beiser says (2008, p. 6) that the "Hegelian absolute was always meant to be the universe as whole", he is clearly mistaken, because Hegel would not have admitted the existence of any universe as whole: indeed, the idea of world as one thing or "all" is for Hegel a mere

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- representation that floats in the indeterminate horizon (G 20, § 573 A, p. 562, 10 – 11).
- ⁷³ Because of relativistic nature of Hegelian mathematics, the order in which numbers are constructed is irrelevant, that is, every number could come in place of any other number. Even the status of first quantity is arbitrary, for we could start the construction from any quantity that was given to us.
- ⁷⁴ In Hegel's Logic we should perhaps abstract from such things as human experience. If we did this, we could speak only of possible situations or sets of numbers, and our answer would change to the following: from a situation or set which included the numbers seven and five it would be possible to reach, by a certain process employing addition, another situation, which included also the number twelve. What is important is not that we actually carry out the calculation, but that is possible to do so when the proper requirements are met.
- ⁷⁵ Ibid., p. 235, 14 – 22.
- ⁷⁶ To be precise, Hegel only deals with a rather small subset of mappings, namely, those constructible from addition, multiplication, potentiation and their corresponding inverse operations.
- ⁷⁷ Ibid., p. 313, 1 – 2.
- ⁷⁸ Ibid., p. 312, 17 – 25.
- ⁷⁹ Ibid., p. 314, 13 – 21 and p. 315, 20 – 23.
- ⁸⁰ Ibid., p. 313, 22 – 30, p. 314, 24 – 30.
- ⁸¹ Ibid., p. 316, 10 – 17.
- ⁸² G 21, p. 318, 20 – 23.
- ⁸³ Hegel seems to have forgotten that earlier he gave inverse proportions of numbers as example of qualitiveness in quantitative relationships: these numbers flowed in opposite directions and weren't part of the same number system. Hegel tries to justify his forgetfulness by saying that this relationship is still represented by a number, that is, the product of inversely proportional numbers (Ibid., p. 319, 20 – 23).
- ⁸⁴ Notice how all of this depends heavily on the constructivism of Hegel's mathematical ideas. If we could speak of all numbers, the relationship of squaring would be just another mapping within the number system which included all the square roots, their sums etc.
- ⁸⁵ Stekeler-Weithofer (1992, p. 187) takes the empirical road and simply notes that exponential relationships describe such qualitative relations like the relation of lengths to areas or of velocities to accelerations.
- ⁸⁶ Ibid., p. 278, 7 – 11 and 15 – 18.
- ⁸⁷ Ibid., p. 347, 1 – 10.
- ⁸⁸ Ibid., p. 249, 24 – p. 250, 8 and p. 283, 12 – 20.
- ⁸⁹ Ibid., p. 320, 30 – 32, p. 327, 1 – 10 and p. 329, 1 – 12.
- ⁹⁰ Ibid., p. 366, 15 – 22.
- ⁹¹ Some of the things that Hegel describes in this division might seem difficult to apply in a field of mappings. Let me give an example how these difficulties could be explained. In beginning of the second chapter of division on measure Hegel speaks of measures that are direct relations of a quantity of one kind with another. Hegel describes how these measures could be connected to each other, thus producing new measures. Hegel goes on to explain how these new measures do not connect the sum of two quantities of first kind to a sum of those quantities to which the old measures connected the two quantities. (Ibid., p. 347, 3 – 24).
- It is obvious from Hegel's account that he is here alluding to the fact that a mixture of two substances with different densities does not always have the volume that is the sum of the volumes of these substances. Aside from this chemical application there is also a more mathematical way to interpret Hegel's account. Let the two measures in question be two mappings of direct proportion, say $f(x) = 2x$ and $g(x) = 3x$. Let the new measure that is produced from the old ones be the mapping $f \circ g$, that is, $6x$. Now, $(f \circ g)(3 + 4) = 42$ which is greater than $f(3) + g(4) = 18$.

4. Summary of Hegel's Logic: (ii) From essence to idea

a. Essence and reflection

Before we approach the study of essence, we should look at some places within the study of being that foreshadow the concept of essence. Firstly, at the beginning of the section on measure, Hegel states that “within the measure we already have the idea of *essence*, namely, to be self-identical in the immediacy of its being determined, so that the immediacy is thus reduced by this self-identity to something mediated, which equally is mediated only through this externality, but is a mediation *with itself* — that is, reflection, the determinations of which *are*, but in this being are nothing more than moments of their negative unity”.¹ Now, I suggested earlier that Hegel’s measures corresponded to what nowadays would be called mappings or functions, or more precisely, to quantitative relationships between different sorts or species of objects: thus, speed as a quantitative relation between travelled space and time of the journey would be a good example of measure.² We may thus suppose that by essence and reflection Hegel understands something similar – something where different objects and situations are related. Indeed, the short explanation of reflection seems to verify this interpretation: reflection occurs where something apparently independent can be taken as a part or aspect of a larger whole. Interestingly, Hegel also thinks measure is not yet fully essence or reflection: “measure is only *in itself* or in its concept essence; this *concept* of measure is not yet posited. Measure, still as such, is itself the *being* [*seiende*] unity of quality and quantity”.³ Measure is being, that is, it is merely a single situation or states of affairs, although one that expresses some relationship between other situations or types of situations. A structure of essence can be discerned from a measure, but a measure has not yet been explicitly constructed as essence.

Secondly, we must study what happens when this potential structure of essence is discovered within measure, that is, what is going on when Hegel moves from the first book of the Logic called Being to the second called Essence. The transition happens in the third chapter of the division of measure where we see Hegel investigating what he calls not only absolute indifference, but also measureless, substrate, matter, ‘*Sache*’.⁴ These words become clearer when we look at what Hegel says of their relation to measure:

In the series of self-subsistent measure relations the one-sided members of the series are immediately qualitative somethings (specific gravities or chemical substances, bases, alkalis, or

acids for example), and then their neutralisations (by which must also be understood here the compounds of substances of different specific gravity) are self-subsistent and even exclusive measure relations, self-determined and mutually indifferent totalities of determinate being. Now such relations are determined only as nodal points of one and the same substrate. Consequently, the measures and the self-subsistent things posited with them are reduced to *states*. The alteration is only change of a *state*, and *that what makes the transition* is posited as remaining the *same* in the process.⁵

At this point of the discussion we should have a system of different measures. Hegel is here, as in the whole division of measure, a little bit lost as to what should serve as a concrete example of measure, so he has made some references to chemical matters and their densities, which at least are known to be quantitative relations between different qualities: I have suggested that any suitable functions could be used as examples. In any case, measures serve here merely as examples of objects in general. The following step is actually quite familiar. The measures can be changed to one another or they form a unified scale of measures: in other words, they indicate possible positions within a certain context. Because they are thus in some sense similar, they can be taken as states of one substrate or the absolute indifference. This step is an example of the construction I have called idealisation: if related objects are in some sense similar, they can be taken as aspects or modifications of an underlying object.

In the book on being we have learned that it is possible to construct more and more complex structures, but that these new structures can then be interpreted as mere modifications of one object. We have here two different ways to characterise things: one where there is only one object, the matter, which occurs in different states, in different situations – this point of view we already know as ideality of things – and the other where these states really are different objects – the reality of things. Notice that we have no way to decide which interpretation is the correct one: it is equally possible to speak of different kinds of matter as modifications of one underlying matter or as qualitatively different entities. Indeed, this equal status of the two interpretations seems to be the reason why the absolute indifference is the final step that belongs to the phase of being, but does not yet belong to the phase of essence:

In other words, it is *external reflection* which stays at conceiving the specifics *in themselves* or in the absolute as *one and the same*, thinking of their difference only indifferently, not as a difference in itself. The further step which requires to be made here is to grasp that this reflection is not merely an *external reflection of thinking*, subjective consciousness, but that it is the very determination of the differences of this unity to sublimate themselves, with the result that their unity proves to be absolute negativity, its indifference to be just as much indifferent *to itself*, to its own indifference, as it is indifferent to otherness.⁶

The two points of view are as yet unrelated – although we might be convinced of the truth of ideality, we wouldn't have any argument for its superiority nor any explanation why we could still see the different states of one object as independent objects: at most, we might say that the ideal view of things is more essential according to some point of view. The viewpoint of ideality or unity of objects might still be just a fancy, while the objects were actually independent of one another.

The important point should undoubtedly be how the phase of essence differs from this indifference, but Hegel's explanations do little to clarify this point: the identification of different objects should not happen through some external agent, but through the objects themselves, or it should be something implicit within the objects themselves. Thankfully Hegel states the difference of essence and indifference also in other terms:

They [that is, the apparently different objects] are no longer simply *being*, as in the entire sphere of being, but are now merely as posited: they have determination and significance only by being *related* to their unity, each consequently being related to its other and with negation – they are marked by their relativity.⁷

Remember that positing means for Hegel what we have called constructing. In the phase of being we at most related different situations and objects as possibilities: now we also note that one possibility can be constructed from the other. So, in the phase of essence we explicitly look upon the different situations as constructed – in the phase of measure we already investigated situations and objects related to each other, but there we thought of the relationship as a given state of affairs, not as a construction. There seems to be a new construction at work, although it could also be taken as a modification or strengthening of one already familiar. Earlier we noticed the construction that let us relate different situations and objects as possibilities, provided we could show that one situation could be constructed from the other. Here, in similar circumstances we are entitled to introduce a stronger relation that Hegel calls being posited and what we could call a relation of constructability: if we have constructed situation A from situation B, then we can suppose that A can be constructed from B or that there is a possible construction from B to A. The difference from the earlier construction is that while relatedness is obviously a symmetrical property – if A is related to B, then B is related to A – constructability obviously might fail to be – if we can construct A from B, we don't know if there is a similar construction backwards.

The concept of essence introduces something novel. Earlier in the Logic we could note that we had constructed or discovered new situations and we were allowed to use these new situations as examples of further ontological structures: thus, we could

discover what, for instance, being an object in general meant. Now we are also allowed to note that there are possible constructions from one situation to another: while before we just used constructions, now we can take them as theme and material for further constructions.⁸ This interpretation will of course be confirmed by a further study of the phase of essence and especially its first chapters, to which task I shall now proceed. We may be quick with the first few moments, as they seem merely introductory. Hegel begins the book from a state where we have just constructed an essence from being: Hegel obviously refers to the end of the previous book where a group of indifferent possibilities or situations were shown to be related as “being posited by one another”, that is, being constructible from one another. As Hegel points out, at first we may have just seemed to create another possibility or a further interpretation of some given realm of objects and situations. We happen to take the new interpretation as the essential one, while the first interpretation is unessential. This difference of essential and unessential is a variation on a familiar theme of the two species of becoming: when we had related two possible situations, we could take either of them as the reference point or the actual, designated situation, while the other seemed like a mere possibility or background in comparison. As we noted there, the choice of a reference point is arbitrary and in a group of related possibilities one could take anyone of them as the “actual situation”. Thus, we could actually take either of the two interpretations as essential, depending on our point of view:

Accordingly, in so far as *essential* and *unessential* are distinguished in *Dasein*, this distinction is an external position, a separation of one part of *Dasein* from another that does not affect *Dasein* itself, a division which has its origin in a *third*. It is left undetermined what is essential and what is unessential. It originates in some external standpoint and consideration and the same content can therefore be regarded now as essential and again as unessential.⁹

Although in some sense essence and indifference are merely two equally possible interpretations, the concept of essence developed at the end of the previous book has some claim to being the more essential interpretation:

But essence is the absolute negativity of being; it is being itself, but not determined only as an *other*, but being that has sublated itself both as immediate being and also as immediate negation, as negation that is infected with otherness. Thus being, or determinate being, has not preserved itself as an other of the essence, and the immediate that is still distinguished from essence is not merely an unessential determinate being but the immediate that is *in and for itself* a nullity; it is only a *non-essence, seeming* [Schein].¹⁰

But it does not have to be shown that seeming, in so far as it is distinct from essence, sublates itself and withdraws into essence; for being in its totality has withdrawn into essence; seeming is in itself a nullity; all that has to be shown is that the determinations which distinguish it from

essence are determinations of essence itself, and further, that this *determinateness of essence* which seeming is, is sublated in essence itself.¹¹

All being has withdrawn into essence, that is, the interpretation we have judged to be more essential or even the essence should contain everything – all determinations – that the original interpretation does. Hegel presents us thus with a criterion for distinguishing essence or perhaps even truth from what merely seems to be: if A contains all information that B does and even more, and furthermore, A can be constructed or discovered from B, then we can say that A is the essence or truth of B. Becoming, for instance, was the truth of being and nothing:¹² that is, the becoming is a structure containing both the possible situations called being and nothing *and* also the fact that they are possibilities related to each other. Note that Hegel's criterion has very little to do with what is usually understood by truth: one wouldn't be called a liar if one failed to tell all that he knew about some affair – the person would merely not have told the *whole* truth.

After these preliminaries we approach the true novelty in the book on essence. Essence or the new interpretation should not just be more informative than being or the first interpretation, but the being or what seems to be should be the way that essence seems to be or shows itself: how it shines, as the German word *Schein* literally indicates.¹³ This apparently difficult statement can be understood quite easily, when one remembers how the concept of essence was introduced. Essence was simply the interpretation according to which apparently unrelated possibilities can be constructed or discovered from one another. How then would one proceed to show that this interpretation is indeed valid? Clearly by constructing or discovering this realm of possibilities: possibility can be proved only by showing that it can be actualised. Now, it is this “self-movement of essence” – concrete “showing of essence” or constructing of the possibilities from one another in order to show their interconnectedness – that Hegel calls reflection.¹⁴

In some interpretations of Hegel's theory of reflection in the first chapter of the book on essence, Hegel is thought to be speaking of reflections as mental or subjective acts: for instance, pure reflection would mean the self-constituting character of subject that posited itself, similarly to how Fichte's I posits itself.¹⁵ This interpretation would make Hegel's Logic, at least from this point onwards, a sort of transcendental logic of Kantian variety, which would fulfil Kant's promise that categories of understanding could be derived from the unity of apperception. The interpretation I have put forward is of a more abstract nature. Reflection should be a construction – or perhaps, a method of

possible constructions: nowhere is said what sort of entity – if any – should be behind these constructions, although in practice it is usually we human beings who are doing them, in the Logic through some linguistic signs.

I shall begin testing my interpretation by investigating the three species or modes of reflection Hegel introduces. First we meet what Hegel calls pure, positing or absolute reflection. It may well be that Hegel has in mind a particular construction as a primary example of pure reflections: the movement from nothing to nothing,¹⁶ that is, a construction that begins from no presuppositions and introduces this “nothingness” as an object. Yet, this construction should serve only as an example of a wider range of constructions. Hegel characterises pure reflection as beginning from nothing.¹⁷ Thus, this should refer to all constructions that add something to the situation that was not there: for instance, that introduce new objects. Such constructions or positions are positing in a stricter sense: they are existence-constructions. Note that Hegel leaves it explicitly ambiguous whether pure reflection actually makes what it posits or whether it just discovers something previously existing: the positing of the pure reflection is as well presupposing or positing as not posited.

Reflection, as sublating the negative, is a sublating of *its other*, of immediacy. Since, therefore, it is immediacy as a returning movement, as a coincidence of the negative with itself, it is equally a negative of the negative as negative. Thus it is a *presupposing*.¹⁸

Reflection therefore finds *before itself* an immediate which it transcends and from which it is the return. But this return is only the presupposing of what reflection finds before itself. What is thus found only *comes to be* through being *left behind*; its immediacy is sublated immediacy.¹⁹

It is for us meaningless to ask whether the object existed in the same sense even before it was posited or before its existence was constructed: we cannot even say that it was a possibility before we happened to find it. Yet, whether it was made or discovered, after its existence has been constructed, it exists independently of any construction: the most we could do is to abstract or draw our attention from it momentarily.

If pure reflection was supposed to begin from nothing and could thus be identified with an existence-construction, what Hegel calls external reflection should begin with something given:

External reflection therefore *presupposes* a being, *first*, not in the sense that its immediacy is only positedness or a moment, but, on the contrary, that this immediacy is self-relation and the determinateness is only a moment. Its relationship to its presupposition is such that the latter is the negative of reflection, but so that this negative as negative is sublated. – Reflection in its positing, immediately sublates its positing and thus has an *immediate presupposition*. It therefore *finds* this before it as something from which it starts, and from which it is first the return-into-self, the negating of this its negative. But the fact that what is thus presupposed is a negative or is

posited does not concern it; this determinateness belongs only to the positing reflection, but in the presupposing the positedness is present only as sublated. The determinations posited by the external reflection in the immediate are to that extent external to the latter.²⁰

External reflection should not construct the existence of some object or situation – this is supposed to exist before or independently of the reflection. Instead, it should use some given object or situation to determine a result, in the same way that an argument is needed to gain a result from some mathematical function. Here, the result should apparently be a new interpretation of the given – say, a determination of some possible characteristic of a given – although this interpretation could be seen as external to the given: the interpretative construction might reveal only one facet of the given object. Interestingly, it is the transition from finitude to infinity that Hegel gives as a concrete example of external reflection.²¹ I have called this transition the construction of idealisation, and it should be obvious by now that it is truly a construction instead of an argument: it interprets anew some finite realm consisting of different objects and it interprets this realm as infinite, as consisting of one object in many different contexts.

Even the study of the first two species of reflection seems to confirm the idea of interpreting reflections of Hegel as constructions of one possible situation from another. The question arises whether the constructions should be understood as some actual constructions or merely as possible: whether the constructions must be carried out in order for them to count as constructions. In light of Hegel's remarks on pure reflections, or what I called an existence-construction, we at least couldn't speak of these constructions before we had used them. Here lies the true meaning of the transition from measure to essence: measures, as mappings or functions, already are possible constructions, that is, they are situations or states of affairs according to which given one possibility it is possible to find another one, by means of some quantitative operation. When coming into the phase of essence, we "actualise" these possibilities, that is, we become aware that we really can construct things according to them (i.e. if we cannot literally produce, say, time from journey we can at least calculate the time taken from the length of the journey and the given velocity).

The most interesting species of reflection is the third, which we still haven't investigated: the so-called determining reflection. Hegel says on a few occasions that it should be in some sense a unity of the pure and external reflection:²² unity means here obviously that it shares some characteristics of both species of reflection. The role of external reflection in this "unity" seems clear: both external and determining reflection presuppose a given object, that is, they are both interpretative constructions. The role of

pure reflection is more difficult to discern, but it seems to concern the character of the result of determining reflection, which Hegel calls the determination of reflection:

Now since the determination of reflection is as much a reflected relation within itself as it is positedness, this fact immediately throws more light on its nature. For as positedness, it is negation as such, a non-being over against an other, namely, *over against* absolute reflection-into-self, or over against essence. But as self-relation it is reflected into itself.²³

Let us remind ourselves that something – for instance, a situation – was called essence in comparison to something else because it contained more information than that other thing. Now, just because determining reflection is an interpretative construction – because it shows only a facet of some given situation or object – it must differ from “the essence” of that given: there are some facets of the given which have not been revealed by the construction. Yet, this reflection is also in another sense also essential: it shows some true facet of the given, instead of a mere external interpretation. Determining reflection means thus correctly interpretative construction, where the correctness or “non-externality” of the construction is meant to be shared with a pure reflection.

Now, the way Hegel contrasts the results of determining reflection with qualities is quite revealing:

Here the determination persists not through *being* but through its equality with itself. Because being, which supports quality, is not equal to the negation, quality is unequal within itself and hence a transitory moment vanishing in the other. The determination of reflection, on the other hand, is positedness as negation, negation which has negatedness as its ground; it is therefore not unequal within itself, and hence is *essential*, not transitory determinateness.²⁴

Quality we know to refer to a characteristic of some situation (being) or object within that situation: it is transitory in the sense that when the situation changes, the characteristic must also change. Now, the determination of reflection should be grounded on negatedness, which is also identified with the fact that the determination has been posited or constructed: because of this ground, the determination of reflection should not be as transitory or context-sensitive as a mere quality would be. This description becomes interesting, when it is related to the central problem of the Logic. The problem the Logic tries to solve is how to explain some primary ontological characteristics and structures to a person who is still not aware of them. A reference to experience is not helpful, because of the context-dependency of experienced characteristics: one person could have experienced differently qualified objects than the other. In other words, if we want to show someone examples of mere qualitative ontological structures, we may have to change the situation we are currently in very drastically or interpret that situation in some very awkward manner. Determinations of

reflection, on the other hand, should be such characteristics that we can find from any object given to us, through some natural interpretative constructions, or as Hegel calls them, determining reflections. At times Hegel even seems to identify these determinations with the corresponding reflections or constructions: that is, when he is speaking of identity, he often means an operation of producing identities.

I shall try to be brief with the investigation of the determinations of reflection Hegel enumerates: I shall merely point out that they describe such structures that can be understood on the basis of the interpretation thus far. Remember that the determinations of reflection should be such structures of which one could find any object to be an instance (or operations by which these structures could be constructed): indeed, Hegel points out that they are such determinations that could be shown to characterise any object in some sense.²⁵ The first of these determinations should be the concrete form of identity that Hegel equates with what he called essence.²⁶ We have earlier noted that by concrete identity of object Hegel means that one object can occur in many different contexts and situations and have thus many facets or aspects: in modal terms we could speak of so-called transworld identity. The equation of this identity – or actually the operation of constructing such identity – with essence is easy to understand. An account of an essence of some object compared to an inadequate account of the same object is supposed to be an account of more such aspects of an object, of more of the various ways that the object is characterised in different situations and contexts. An example of such an identity is then any case of one object having different characteristics in different situations. Instances of such structures should have been provided plenty in the Logic thus far, but if one wants some concrete examples, the possibility of assigning different units for a number system is one.

Hegel then notes that identity also contains difference.²⁷ We could interpret the different aspects of one object as true differences: for example, different moments of my life could be interpreted as individual objects of which my “lifeline” would consist of. We have thus two possible interpretative constructions: by one we identify aspects of one object, by the other we separate aspects of one object into apparently independent entities. The two constructions, one of identity and one of difference, can then be used as examples for further determinations of reflection. “Identity *falls apart* within itself into diversity because, as absolute difference, it posits itself as its own negative within itself, and these its moments, namely, itself and the negative of itself, are reflections-into-self, are self-identical”.²⁸ Construction of identification differs from construction of differentiation, thus, we have an example of diversity. Furthermore,

because the constructions work in opposite directions – when objects are identified, they cannot at the same time be differentiated and vice versa – they form an example of opposition.²⁹ Because the two constructions can be applied in interpreting the same situation – we can divide a situation into separate objects in many ways – they can be used to present an example of a contradiction in the Hegelian sense: different divisions of a situation present incompatible, yet at least possible viewpoints on this situation.³⁰

The final determination of reflection and especially the way it is introduced are important. Remember how the transition to the book of essence was introduced: we were shown that seemingly independent objects and situations were not just possibilities relative to one another, but could be constructed from one another, thus making it possible to take these constructions as a new theme or object of investigation. Now Hegel goes through a somewhat similar transition. He begins with a structure exemplifying the latest determination of reflection, that is, the contradiction: he begins with the possibility of interpreting the same situation in two opposed manners (positive and negative). Then follows the interesting part:

The excluding reflection of the self-subsistent opposition converts this into a negative, into something posited; it thereby reduces its primarily self-subsistent *determinations*, the positive and negative, to the status of mere determinations; and the positedness, being thus made into a positedness, has simply returned into its unity with itself; it is *simple essence*, but essence as *ground*.³¹

Once again, seemingly independent situations and things have been revealed to be posited. That is, we have seen that one situation could be replaced by another incompatible with the previous, while the same construction could be made also in opposite direction. At the same time Hegel tells us that we have thus returned these possible constructions or operations to their ground: the ground is then the general possibility of using either interpretative construction. Now, as the later reference to Leibniz's principle of sufficient reason shows,³² the ground refers in Hegel to some principle that explains or even causes some situation. The example is thus important in showing how Hegel conceived causal and explanatory relations to be introduced. We conceive that we have "posited" something, that is, that we have activated some possible constructions. In the Logic this need not mean anything more radical than naming something or interpreting it in a new fashion. Even such minor changes are still changes, and furthermore, changes that we have instigated. Thus, it is the experience of one's own causal abilities that underlies the possibility of understanding and explaining to others what explanatory and causal relations are.

I shall stop the investigation of the book on essence here, as the further

structures in it seem to be in my view mere variations of the structures presented earlier. Hegel seems especially interested in comparing the structures that have no explanatory-causal element – these structures could have been introduced already in the book on Being – with structures that have such causal-explanatory elements – structures which could be introduced only after the transition to the book on essence. Thus, Hegel compares the relationship of a whole and parts with the relationship of force and its expression³³ and the relationship of substance and accident with the relationship of cause and effect.³⁴

b. From concept to idea

The book on essence did add something new in the broader context of the Logic – constructions or operations as a new theme and a new relationship of one object or situation explaining or causing another. In some sense the addition still seems merely an extension of the previous state of the Logic, instead of a complete change of its essence. The question remains whether the third book, on concept, contains anything which cannot be understood on the basis of the framework of possible situations and constructions. We should first gain a clear view of what Hegel means by concepts. A tempting interpretation would be to think that Hegelian concept is actually a conscious subject who is now revealed as the investigator of the Logic.³⁵ After all, Hegel speaks of concept as the realm of freedom,³⁶ and how else can we understand freedom, but as a property of some subject? Besides this, Hegel seems explicitly to propose the I as an example or a model for the general structure of concept:

The concept, when it has developed into an *existence* that is itself free, is none other than the *I* or pure self-consciousness. True, I *have* concepts, that is to say, determinate concepts; but the *I* is the pure concept itself which, as concept, has come into *Dasein*.³⁷

Still, identifying Hegel's concept with a conscious subject would, in my view, be too hasty. A model for a concept is not a concept itself, that is, Hegel is just giving a more familiar example with which to compare concept. True, Hegel identifies concept and I, but this identification seems to be of the familiar idealising kind where the subject and the concept merely have similar structures, but are not the same thing. Indeed, Hegel himself admits that the Logic is not the place to study self-conscious subjects.³⁸

If Hegel's concept is not to be equated with the subject, how should we understand it? Let us first look quickly at the transition from the doctrine of essence to the doctrine of concept. We meet at the end of the doctrine of essence a structure of reciprocity: a causal-explanatory structure where at first one object has an effect on

another object and then this formerly passive object has an effect on the formerly active object. Now, Hegel suggests that we can interpret this sort of structure also as a case of one object having an effect on its own condition. Hegel presents two justifications for this change of viewpoint. Firstly, he uses the familiar construction of idealisation:

At first, reciprocity displays itself as a reciprocal causality of *presupposed, self-conditioned substances*; each is *both active and passive substance* in relation to the other. Since the two, then, are both passive and active, any distinction between them has already been sublated; the difference is only a completely transparent semblance; they are substances only inasmuch as they are the identity of the active and the passive.³⁹

On the basis of the structural similarity of the two objects we can interpret them as identical in some context. Yet, this is not all, for Hegel has also another construction to use:

But further, this 'being acted upon' does not originate in *another* causal substance, but simply from a causality which is conditioned by being acted upon, or is a *mediated* causality. Consequently, this initial *externality* which attaches to cause and constitutes the side of its passivity, is mediated *by itself*, is produced by its own activity, and is thus the *passivity posited by its own activity*.⁴⁰

The causal or explanatory chain that ends up with the object in a certain situation also begins from the same object, although, of course, in another situation. Thus, it would be natural to say that the whole causal chain is one of object having an effect on itself, although through an effect on another thing. Now it becomes obvious why Hegel speaks of freedom in this place: the object in question is, in a sense, freely determined, because the other object that apparently determines it is determined to this determination by the first object.

This structure of "self-causation" can be seen also in the explication of concept Hegel gives a few times at the beginning of the doctrine of concept: it is being-in-and-for-itself that is at the same time being as posited.⁴¹ The general claim of this explication is easy to understand: in a concept, the starting point and the result of the "positing" or construction should be identical with the result in some sense. As it often does in Hegel, the identity here could mean only identity in a context, that is, a similarity of some sort. Indeed, the sort of similarity Hegel is upholding here can be seen more clearly when we relate this account of concept with the account of the determinations of reflection. A determination of reflection was a characteristic that any object could be seen to have, by using some natural interpretative construction. Thus, in order to find an instance of a determination of reflection we still needed some object to be given by other means, for example, by some "pure" reflection or the construction/discovery of existence. In a concept, on the other hand, that what is posited

by the construction – the instance of some general characteristic – is similar to what the construction requires: that is, the only thing required to construct an example of Hegelian concept is the concept itself. We might say that the Hegelian concept is a universal structure – concept in the normal sense of the word – that comes with an infallible recipe or method for creating or discovering a model or an example for it in some new context. Hegelian concept could thus be said to come with an operation or construction for sustaining some structure from one context to another. In order to separate such operations from operations in the second book of the Logic, I shall call them strategies.

Hegel's clear fascination with the ontological proof of God's existence is explained when we understand the concept as containing such an infallible strategy of existence-construction. When we are dealing with the concept of something – and the concept is to be taken here in its Hegelian sense – then it means just that we can in some manner construct an example of this concept in any context: thus, if we have a Hegelian concept of God in our grasp, it is fairly simple to create or discover an example of God. Note that this transition from concept to existence of its example undoubtedly should not be called proof, but construction, because it might involve some change: we create or find an individual that wasn't there in the original situation. Mistaking Hegel's version of ontological "proof" with an ordinary proof would be like misinterpreting a recipe for a cake with a proof of the existence of a cake.⁴² Of course, Kant's criticism of the traditional ontological existence proof fails to hit the mark when it is targeted against Hegel's ontological existence proof, because Hegel is not proving at all, but constructing.

Even in Hegel's account of determining reflection there was already a sense of the Logic describing the task and structure of the Logic itself, and this feeling just increases when we arrive at the doctrine of concept: finding basic ontological structures that could be exemplified with any or even no given information was the primary task of the Logic. Indeed, we might say that the whole doctrine of concept is just more and more detailed description of the Logic itself. We may in a cursory manner go through the main points of this final part of the Logic, in order to verify this claim. Hegel begins by a series of transitions from universal concept to a singular or an individual, that "excludes the *universal* from it, but is also related to the universal, because the universal is its moment".⁴³ As we should know by now and as Hegel helpfully tells us few lines later,⁴⁴ this is an example of a structure Hegel calls judgement. Judgement is a modal relation between two possible situations or contexts: one of them introduces an

individual object and the other abstracts some general aspect of this individual. This complex transition from concept to judgement is then just an instance of using the concept as an infallible recipe for finding or discovering an example for it. Even Hegel admits as much, when he says that the judgement has been realisation of the concept.⁴⁵

We need not go in detail to the different forms of judgement Hegel presents, but just note that they are organised under titles that clearly remind us of the different phases of the Logic encountered thus far: there are judgements of *Dasein*, reflection, necessity and concept. It is thus probable that after showing how there are some structures for which we have a certain strategy of exemplifying Hegel launches into a new task of presenting how different structure types of the Logic can then be exemplified through such strategies. At first sight Hegel's theory of syllogisms is just a continuation of such a study, yet we may discern a further element in it. Hegel interprets the so-called middle term of syllogism as "the unity of the concept that has re-emerged from the *judgement* in which it was lost in the extremes".⁴⁶ The middle term is not just meant to be some third context or situation between the two extreme contexts or situations, but the method or strategy by which we get from one extreme to another.

The division of objectivity may seem rather difficult to explain within the terms of my interpretation. After all, this division contains apparently empirical concepts and structures which couldn't be constructed or exemplified through mere use of possible situations and constructions. Indeed, one could say that the Logic is full of empirical concepts which would make my interpretation of the Logic seem a bit farfetched. The Logic deals in some places with very concrete categories, and indeed, right at the beginning with qualities: how could such concrete content be found in mere empty abstractions and relations between them? The answer to this question must be that the concreteness of these categories is mere appearance, that they actually present quite abstract relationships that could be exemplified also by more abstract objects. For instance, Hegel speaks of transitions, but instead of temporal relationships he actually is speaking of relationships between any possible situations.

The example of qualities is also a good one, as the chapter on qualities or *Dasein* presents very abstract relationships between differently qualified objects and situations, but states almost nothing about the internal nature of qualities: by qualities the objects can be differentiated, but we cannot, in the Logic, say anything else of them.⁴⁷ Undoubtedly we must suppose that we see some qualities in our first abstract structures, the possible situations, before we can apply the categories of the second chapter to them. But these qualities need not be anything we might sense, like colours. Instead,

they only have to be such properties that separate the different situations, like emptiness and non-emptiness etc. True, Hegel does, in the second book of the Logic, introduce causal categories, which at first sight seem to concern only objects in space and time – it is inconceivable how a possible situation could cause another possible situation – but as we saw above, Hegel’s causal terms should be understood in terms of one object determining another: it is conceivable that one would speak of some possible construction or operation together with some possible situation (the presupposition) determining a new possible situation (which is the result when certain construction is applied to certain situation). Thus, we might say that the operation of squaring determines the number 4, when number 2 is given as a presupposition.

Although the first two books of the Logic might contain only abstract relationships, it seems, at first sight, that the third book from the second division forward investigates quite a lot of structures which must be discovered in experience: in division of objectivity there are mechanism, chemism, teleology, in division of the idea there are life and even knowing (*Erkennen*) and willing. We might point out that Hegel himself says, when investigating some of these structures, that he does not mean by them the things of nature or spirit that have the same name, but merely something with a similar structure.⁴⁸ Indeed, as our investigation would suggest, it makes a lot more sense if we take the final chapters of the Logic as descriptions of the Logic itself than as descriptions of certain structures of the real world. Structures of the Logic are used to exemplify various complex structures, although these structures get their names from more familiar, empirical structures. For instance, in the chapter on mechanism we take some arbitrary realm of apparently independent objects as our subject matter – a realm of Hegelian concepts is undoubtedly the primary example – and then note that these objects can be seen as somehow connected to one “central object”⁴⁹ – in the case of concepts, the concept of concept.

Let us examine the chapter on chemism in a more detail. The chapter is at most a very poor description of chemical relationships,⁵⁰ and the other applications Hegel gives for the chapter – meteorology, sexual relationship of animals, love and friendship⁵¹ – are even more metaphorically connected with the account in the Logic: for instance, friends are not really so intimately connected that we would need some third substance to separate them. On the other hand, as a description of possible situations and constructions the chapter is marvellous. The chapter introduces what Hegel calls three processes. The first process starts from two (opposite) objects which are then united with the help of a third element:

Now the middle term whereby these extremes are concluded into a unity is *first* the *in itself being* nature of both, the whole concept that holds both within itself. *Secondly*, however, since in their existence they stand confronting each other, their absolute unity is also a still formal element having *an existence distinct* from them — the element of *communication in* which they enter into external *community* with each other. Since the real difference belongs to the extremes, this middle term is only the abstract neutrality, the real possibility of those extremes; it is, as it were, the *theoretical element* of the concrete existence of chemical objects, of their process and its result.⁵²

The *product is neutral*, that is, a product in which the ingredients, which can no longer be called objects, have lost their tension and with it those properties which belonged to them as tensed, while the *capability* of their former self-subsistence and tension is preserved. For the negative unity of the neutral product proceeds from a *presupposed* difference; the *determinateness* of the chemical object is identical with its objectivity, it is original.⁵³

If we abstract from the chemical connotations Hegel's words carry, we notice a very familiar pattern. First, the different objects are supposed to have something in common: they share the same nature or essence. Secondly, in addition to this structural similarity, there is something distinct from both of the objects, which is also called real possibility of the "chemical" objects and which communicates between them: it is like a possible construction from one object to the other. After we have, as it were, put the two objects in to the formal element – that is, after we have actually constructed one from the other – they immediately become mere ingredients of a larger unity – that is, in this new state we can interpret the two objects are merely aspects of one object. Thus, we find here the familiar construction that we have called idealisation: take two objects with something in common, show that you can produce one from the other and then you can interpret both as being one object in different situations.

In the second process we should separate the product of the first process into its elements: "The more precise immediate relation of the *extreme of negative unity* to the object is that the latter is determined by it and thereby disrupted".⁵⁴ If the first process could be exemplified by the construction we have called idealisation, this process is obviously exemplified by the construction of abstraction or division of a situation or an object into its constituents. This constructive process requires two things:

The process does not spontaneously re-ignite itself, for it had the difference only for its *presupposition* and did not itself *posit* it. – This self-subsistent negativity outside the object, the existence of the *abstract* individuality whose being-for-self has its reality in the *indifferent object*, is now tensed within itself against its abstraction, and is an inward restless activity that turns outwards to consume. It relates itself *immediately* to the object whose quiescent neutrality is the real possibility of its opposition; that object is now the *middle term* of the previously merely formal neutrality, now inwardly concrete and determinate.⁵⁵

The first element is the possible construction itself, or as Hegel pictorially describes it, the restless activity of division. Notice how abstraction is described as external to the material of construction unlike the previous process. This is undoubtedly connected with the fact that abstracting should be described as analytic, while the idealisation is synthetic: while idealisation starts from a mere viewpoint and proceeds by finding other viewpoints, thus describing more aspects of reality, abstraction goes the other way, from a larger viewpoint or model to a smaller one. The other ingredient of the process is the result of the previous process, that is, some object that is currently interpreted as existing in many different situations or contexts. Hegel's description of the result of the abstraction is interesting:

The *other extreme* of the syllogism stands opposed to the external *self-subsistent extreme* of individuality; it is therefore the equally self-subsistent extreme of *universality*; hence the disruption suffered by the real neutrality of the middle term in this extreme is that it is split up into moments whose relationship is not that of difference, but of *indifference*. Accordingly these moments are the abstract indifferent *base* on the one side, and its *energising* principle on the other, which latter by its separation from the base attains likewise the form of indifferent objectivity.⁵⁶

Hegel takes as results of the analysis in the chapter on chemism not the original objects or situations – this would be a regress, instead of progress – but two new ones. The description of the two abstracted constituents may seem puzzling, but can be understood by comparing the to what became of a concrete application of abstraction to some case of “concrete identity” in the first stages of the doctrine of essence. There Hegel separated two interpretations of the same identity – one interpreted the situation as a regular, abstract identity, while the other interpreted it as a regular difference between independent objects. Thus, the abstraction of a state of affairs “there is one object in two different aspects” results in a separation of a states of affairs “there is one object” (the indifferent basis of the aspects) from a state of affairs “there are different objects” (the energising, that is, separating principle).

The first process of chemism was exemplified by the construction of idealising differences and the second process by the construction of separating complexes by an analysis. The third process should offer us a way back to the beginning of the chemism, that is, from an indifferent element to an element related to other elements. Hegel suggests in a half-hearted fashion that such processes are exemplified by certain chemical reactions where a substance spontaneously changes its constitution in order to react more fully with other substances.⁵⁷ Hegel's more precise descriptions reveal a better candidate for the role:

What happens here is that the object does not relate itself to another in accordance with an immediate, one-sided determinateness, but that in accordance with the inner totality of an original *relation it posits the presupposition* which it requires for a real relation and thereby gives itself a middle term through which it unites its concept with its reality; it is absolutely determined individuality, the concrete concept as principle of the *disjunction into extremes whose re-union* is the activity of *the same* negative principle, which thereby returns to its first determination, but returns *objectified*.⁵⁸

[The third process] is the self-realising concept, which posits for itself the presupposition by which the process of its realisation is conditioned — a syllogism that has the universal for its essence.⁵⁹

Interesting here is the comparison with the relation of a concept and its realisation: recall that by concept Hegel referred to a universal structure that carried with it an infallible recipe or strategy for exemplifying itself in any situation. Accordingly, here we need an infallible method for producing differences from a given, apparently independent object. Such a method is obviously provided by the construction of taking situations and constructions themselves as objects. All in all, we may conclude that even in the chapter on chemism, at first sight so far from mere abstractions, we can see that the true or at least exemplary content of it consists of possible situations and constructions.

One aim of the chapters on mechanism and chemism is then to exemplify certain complex structures of situations and processes by showing that they could be modelled within the framework of the Logic: for instance, constructions of the Logic exemplified certain processes Hegel has called chemical. Another task of these chapters is to show that objects within such structures don't have any force to resist the concept⁶⁰ or that the concept could emerge from such structures.⁶¹ In effect, Hegel wants to say that any structure governed by a certain kind of lawlike relations could be used as a material for producing examples of some general structures, provided of course that we have the capability of manipulating the structures in question. Thus, Hegel can once again point out an analogy, this time between the way that we try to exemplify certain universal structures in the Logic and the way that in a purposeful action we try to realise some goal. Now, Hegel differentiates between an external and internal or living purposefulness. The difference between the two is that while external purposefulness requires something to mediate between the goal and the circumstances, the internal or living purposefulness has its own manner of affecting reality:

If we consider one of the *premises*, the immediate relation of the subjective end to the object which thereby becomes the means, then the former cannot immediately relate itself to the latter; for the latter is no less immediate than the object of the other extreme, in which the end is to be

realised *through mediation*. Since they are thus posited as *diverse*, it is necessary to interpolate between this objectivity and the subjective end a means of their relation; but this means is likewise an object already determined by the end, and between that object's objectivity and the teleological determination a new means must be interpolated, and so on to infinity. Thus there is posited the *infinite progress of mediation*.⁶²

But, further, this soul *in its immediacy* is immediately external and possesses an objective being of its own—a reality that is subjugated to the end, the immediate *means*, in the first instance, objectivity as *predicate* of the subject; but further, objectivity is also the *middle term* of the syllogism; the corporeality of the soul is that whereby the soul unites itself with external objectivity. — The living being possesses corporeality in the first instance as reality that is immediately identical with the concept; thus it has this corporeality in general by *nature*.⁶³

The special nature of “the living purposefulness” corresponds, of course, to Hegel’s idea of concept, that is, to a general structure that comes with an infallible recipe or strategy of how to exemplify or instantiate it in any situation.

The structure of “life” investigated in the Logic is then just a general name for all infallible strategies of realising oneself in some sense: one particular example of this is the strategy for exemplifying certain general structures Hegel calls concepts. By cognition, thus, Hegel refers to a structure where this strategy is confronted with another object that could be called the world: nothing further is required of the world but being independent of the strategy. Now, there are two sorts of tasks that the strategy might need to fulfil. a) It may have to fill itself with the content of the object involved:⁶⁴ this is the so-called theoretical part of the cognition, where the strategy should be one of creating a model for the object in question. We are already familiar with the two sub-methods of this strategy. Firstly, there is the analytic method, which we characterised as non-modal: its task was to start from a situation and find its constituent situations. Secondly, there is the synthetic method, which is essentially modal: it starts from one situation or context and tries to connect it with other possible situations or contexts. b) The other possible task for the strategy to fulfil is that it should objectify some “purpose” or structure in the so-called objective world.⁶⁵ If in the previous strategy one tried to model the objects, we might say that in this sort of strategy one tries to make objects resemble some model.

If all the previous structures presented in the divisions of objectivity and idea are to describe the structure of the Logic partially, then we should expect that the final structure of the Logic, that of absolute idea, should contain at least an outline of a complete description of the Logic. Hegel emphasises that the only remaining content the structure of absolute idea could have is its own form:

The absolute idea itself has as its content only this that formal determination is its own

completed totality, pure concept. The *determinateness* of idea and the whole development of this determinateness has formed the object of logical science, the development of which has led to the appearance of absolute idea *for itself*; but for itself it has appeared in such form that the determinateness does not have the shape of *content*, but merely that of a *form* – that the idea thus is as merely *universal idea*. Now we must then still investigate not content as such, but the universal of its form – that is, the *method*.⁶⁶

The structure that is offered as the final subject matter of the Logic is then the very method of the Logic itself, or more accurately, the general strategy by which one should develop different ontological structures from any given information: as we shall see from the detailed description of the “method”, it is not as detailed as a true method would be, but only presents goals to be sought out. A general description of the absolute idea is that it should be both theoretical and practical,⁶⁷ that is, it should be a strategy that could be called either theoretical or practical depending on the viewpoint adopted. The theoretical part is easy to understand: method of the Logic is a strategy for gaining knowledge, because it reveals what sort of structures could be constructed from minimal presuppositions and thus what any thinker could know to be a possibility. Yet, as it involves construction of new structures – and indeed, in its linguistic form, it involves production of new signs – it can also be called practical in a sense.

Not surprisingly, the more detailed description of the method Hegel presents goes through phases that remind one of the some constructions we have given as the basic constructions Hegel uses. Hegel’s method begins with the simplest, most abstract and universal beginning:

Because it is a beginning, its content is something *immediate*, but such which has the meaning and the form of *abstract universality*. Whether it is a content of *being*, of *essence* or of *concept*, it is something *supposed*, *given* and *assertorical* as soon as it is *immediate*.⁶⁸

The beginning has thus no other determinateness for the method, but that of being simple and universal; this is the *determinateness* that makes it insufficient. Universality is the pure, simple concept, and the method as consciousness of it knows that the universality is only a moment and the concept is not yet determined in and for itself in it.⁶⁹

We have earlier dealt with the question of the beginning of the Logic and showed that the true beginning for Hegel should be a structure contained in every structure in the sense that it could be reached from every structure by abstraction: the structure that satisfied this condition we called empty situation.

This beginning should then contain like a seed something different than itself that the method brings forth from it:

Since however it is the objective immanent form, the immediate of the beginning must be *in its own self* deficient and endowed with the *urge* to carry itself further. But in the absolute method

the universal has the value not of a mere abstraction but of the objective universal, that is, the universal that is *in itself* the *concrete totality*, though that totality is not yet *posited*, is not yet *for itself*. Even the abstract universal as such, considered in its concept, that is in its truth, is not merely the *simple*, but as *abstract* is already *posited* as infected with a *negation*.⁷⁰

The concrete totality which makes the beginning contains as such within itself the beginning of the advance and development. As concrete, it is *differentiated within itself*; but by reason of its *first immediacy* the first differentiated determinations are in the first instance merely *diverse*. The immediate, however, as self-related universality, as subject, is also the *unity* of these diverse determinations. – This reflection is the first stage of the movement onwards — the emergence of *difference, judgement, the determining* in general.⁷¹

Thus, the first structure is not the only possible structure, but from it can be constructed many other structures, and while it may seem that these structures do not form a coherent whole, they at least share the common characteristic of being structures that one could construct from the beginning of the Logic. Note that Hegel does not provide us a detailed method of how to produce new structures from given ones, but merely sets a programmatic goal of finding such structures. Yet this goal is not unobtainable. We have seen many different ways that Hegel produces new structures, and one of the most important was that of objectifying given structures, like the beginning, and thus getting new situations and constructions: in one guise, Hegel called this construction repulsion – that is, producing or discovering new objects.

Finally, the method ends with what Hegel calls the second negation or negation of negation:

Now the negativity just considered constitutes the *turning point* of the movement of the concept. It is the *simple point of the negative relation* to self, the innermost source of all activity of all animate and spiritual self-movement, the dialectical soul that everything true possesses and through which alone it is true; for on this subjectivity alone rests the sublation of the opposition between the Notion and reality, and the unity that is truth. – The *second* negative, the negative of the negative, at which we have arrived, is this sublation of the contradiction, but just as little as the contradiction is it an *act of external reflection*, but rather the *innermost, most objective moment* of life and spirit through which a *subject, a person, a free being* is.⁷²

As we saw earlier, Hegel's second negation coincides with the construction that we have called idealisation, which interprets the differences in question anew as in fact identical and merely as a same thing in different situations. In summary, Hegel's description of the "method of the Logic" presents us with a general strategy for finding a system of basic ontological structures: (1) begin with an example of as abstract a structure as possible, (2) construct examples of new structures from the example of the first structure and (3) interpret all the structures as mere aspects of one whole. Note that this truly is more like a strategy than like a method: it provides us with goals, but not

with instructions as to how to achieve these goals.

Hegel describes his strategy of constructing ontological structures as being both synthetic and analytic,⁷³ which seems paradoxical, because Hegel has earlier defined analytic and synthetic methods as contradictories. The syntheticity of the Hegelian Logic is easy to understand, because it is all about “combining differences”, that is, it is a construction and relating of different possibilities. Now, by the analyticity of the Logic Hegel seems to mean that the constructions of the Logic are somehow natural or “contained” already in the starting point of the construction as potentialities. In an ordinary synthetic method, like in geometry, we have to make use of what could be called “external constructions”, for example, some assumptions on the nature of space that are not warranted by the figure investigated. In the Logic, on the contrary, the constructions used should at least in retrospect be implicit in the very beginning of the Logic.

c. The general character and ordering of the Logic

Let us summarise the structure of Hegel’s Logic. The Logic is a study of those types of possible structures and constructions that can be found without any assumptions or in any situation: the categories. It is not so much about analysis, but of a construction of those structures. Thus, the general strategic goal of the Logic is to find examples of these basic structures with as few assumptions as possible and with as natural constructions as possible. The toolbox of the Logic consists of basic constructions, which include at least those of abstracting from situations, making new objects from situations and constructions, and idealising differences.

I shall give a short description of what I conceive as the main goal of every individual chapter of the Logic, in order to better gain an overview of the whole area of the Logic. Many of these chapters we have dealt with in some detail, and the description of the goal of others may be seen as reasonable conjectures. The general schema of every chapter should be “given an example of some category/structure type, construct an example of another category/structure type”. I shall attempt to simplify the abstract nature of the descriptions by adding more concrete examples of how the construction is supposed to work.

1.1.1. Being: Given any arbitrary situation (Sein), relate it to another situation.

Examples: (a) If the situation in question is something concrete like “a glass full of water on a table”, we can construct examples of more abstract situations like “an

empty glass on a table”, “nothing on a table” and finally “nothing”. (b) If the situation in question is literally “nothing is given”, then we can think of a situation containing this first situation as an object.

1.1.2. Determinate being: Given any group of related situations (“Dasein), show that they can be interpreted as mere aspects of a more extensive or “infinite” situation.

Examples: (a) A sequence of arbitrarily changing sensations can be interpreted as one experience consisting of various states. (b) A person seen in a room and a person seen in a mirror can be interpreted as the same person viewed from different perspectives.

1.1.3. Being for itself: Given any (infinite) situation, construct an indefinite number of objects that can be interpreted as differing only numerically – a structure with a potential infinity of objects shall be called quantity.

Examples: Any situation can be taken as an object in another situation, which can then be interpreted again as an object in yet another situation etc.; similarly, my awareness of something could be made into an object of a new awareness etc. If we then abstract from the qualitative differences between these objects, we can view them as completely identical units or even as copies of one unit.

1.2.1. Quantity: Given an arbitrary quantity, relate it to other quantities.

Examples: (a) If quantity has been generated through some construction, for example, through producing units and collecting them into totalities, one can continue this production in order to create a larger quantity. (b) An indefinitely divisible piece of matter could be divided either actually or mentally and then compared with its parts.

1.2.2. Quantum: Given a group of quantities related like whole numbers to one another, construct examples of functions mapping one quantity to the place of another.

Examples: Suppose we have a quantity that has the value “three” in relation to one unit and suppose that we try to change it to have the value “nine”. Then we just need to change in place of the chosen unit another unit that is one third of the original unit: compared to this new unit, the quantity in question has the value “nine”.

1.2.3. Quantitative relationship: Given functions within a number system, construct examples of quantities that differ qualitatively from one another (“measures”).

Examples: Suppose we can construct examples of functions that multiply any quantity x with a certain quantity a in the number system ($f_a(x) = ax$). Construct then a function that applies to any quantity x the function f_x : in effect, this new function produces the square of the quantity ($f_x(x) = x^2$). A sequence of numbers changes at a different rate in comparison to a sequence of squares of the numbers in first sequence,

hence, we are entitled to interpret the numbers in the system of squares as qualitatively differing from the numbers of the original system.

1.3.1. Specific quantity: Given any measure, construct examples of functions that a) connect differently qualified number systems and b) can be quantitatively separated from other similar functions (that is, functions which are measures and which map measures to measures or “real measures”).

Examples: The simplest examples of measures are quantities that are supposed to have qualitative role, although they can be related also as numbers (i.e. quantities that characterise some particular type of situations or objects). Because these quantities still form a number system, we can apply the construction of the previous chapter to construct an example of a function that maps, for instance, the original numbers to their squares. We can then construct more such functions by changing the constant a in the formula $f(x) = ax^2$. These functions can then be related to one another like quantities.

1.3.2. Real measure: Given real measures, show that they can be interpreted as aspects or mere quantitatively different states of one underlying object or “matter”.

Examples: (a) The abstract functions introduced in the last example might be changed into one another through appropriate mathematical manipulations: thus, we could interpret them as mere modifications or instances of the abstract notion of function. (b) Other possible instances of real measures might be chemical substances characterised by a certain density: if it would then be possible to manipulate one substance physically in order to produce any other substance, we could suppose that these substances were mere modifications of one “matter”.

1.3.3. Becoming of essence: Given two states which can be constructed from one another and one of which contains qualitatively different objects, while in the other state all apparently different objects are taken as mere quantitatively different aspects of an underlying “matter”, construct an example of “an essence” for these states (that is, a construction governing the movement from one state to another).

Examples: (a) Physically the starting point could be a system where two qualitatively different types of objects could be turned into one another (for example, blues into reds and vice versa): we could then easily make changes between a situation where everything was characterised by one quality and a situation where several qualities were instantiated. In this case the physical construction of turning objects of one type into objects of another type and vice versa would be the required essence. (b) We might have a capacity to interpret situation either as a having one object (for instance, a chair) or a collection of different objects (say, wooden parts). Then the

capacity to reinterpret the thing before us would be the required essence.

2.1.1. Illusionary being: Given any essence for some situations and structures (or indeed, any construction whatsoever), construct examples of “determinations of reflection” (that is, of constructions that could be applied given anything, for instance, construction of identity, of difference etc.).

Examples: (a) Suppose we have a construction by which we can interpret an object in some arbitrary fashion, thus producing something that in a sense differs from the original object (a sort of Hegelian external reflection). We could still always regard this interpretation as a mere aspect of the original object, and this final move would then be a construction of identity. (b) Suppose we had a capacity i) to say “I” and ii) to recognise this “I” as referring to ourselves (a sort of Hegelian pure reflection that produces the spoken “I” and immediately connects it to some general structure). Here the construction i) could be seen as a construction of difference (because it creates something that differs from the speaker, namely, the word “I”), while the construction ii) could be interpreted as a construction of identity (because it interprets the word “I” as an aspect of myself).

2.1.2. Essentialities or determinations of reflection: Given constructions of identity and difference, construct an example of a construction which “grounds” or explains any state constructible by these two constructions.

Examples: Constructions of dividing and combining matter can be understood as aspects of one construction for moving from one state of division to another. This construction serves then as a mediating link from one state of division to another (that is, it can be used either to divide material unities or to combine parts).

2.1.3. Ground: Given an instance of a grounding relation, construct an example of a thing that has different properties in different contexts (“Ding”).

Examples: Suppose we can produce shoes from given materials (leather etc.). Then these shoes can be interpreted as dependent on the production (when we investigate why the shoes appeared), but they can also be seen as independent of the production (when we investigate what sustains these shoes at the moment).

2.2.1. Existence: Given an object that has different properties in different contexts, construct an example of appearance, that is, of a structure that exemplifies a law that one type of aspect can be infallibly constructed from another.

Examples: a) Suppose that a given object has, for example, a certain colour and a certain extension. Then, although this particular colour wouldn’t have any necessary connection with that particular extension or vice versa, the property of being coloured

would be necessarily related to the property of having extension. b) Suppose that we could interpret an object equally well as a unity having many aspects and as a mere collection of independent parts (that is, that the aspects of the former interpretation would correspond with the parts of the latter interpretation). Then the two interpretations could be infallibly constructed from one another.

2.2.2. Appearance: Given appearances and corresponding laws, show that the “world of laws” and the “world of appearance” can be seen as “essentially related”, i.e. that the content of the one world can be constructed from the content of the other world and can thus be interpreted as a mere modification of this other content.

Examples: Suppose the appearances in question are movements of a planet and the corresponding laws are the laws governing those movements. Then the laws could be constructed from the movements as an abstraction of the concrete trajectory. The trajectory, on the contrary, cannot be constructed from the laws as such, but if we add to them the construction for observing one particular position of a planet, then it can be.

2.2.3. Essential relationship: Given some essential relation (for instance, relation of whole to parts or of construction to its actualisations) construct an example of “actuality”, that is, of a structure that can be described both in terms of constructions and in terms of situations.

Examples: a) Suppose we have a construction that can be infallibly actualised in some collection of situations (for example, the collection of the planetary laws of the former example that can be exemplified in an actual trajectory of a planet). Then we can interpret the two sides as mere modifications of one structure, which then fulfils the characterisation of actuality. b) Suppose we have a construction that requires some starting point which can be actualised from the state resulting from the current construction (for instance, if the former construction is division of an object, the latter is then combination of objects). Then we can interpret the two constructions as parts of one construction, which can then be actualised infallibly. c) Suppose we have an essential relation, where both sides can be constructed from one another, but neither of the sides is itself either of these required constructions (for example, wholes can be divided into parts and parts combined into wholes, but neither wholes nor parts are constructions of combination or of division). Then we can bring our attention to the two constructions, which are related as in the case b).

2.3.1. Absolute: Given any issue of investigation (“absolute”), construct alternative modifications or characterisations of it.

Examples: a) A statue can be looked from different angles. b) In the world we

can emphasise either the natural or the human element.

2.3.2. Actuality: Given possibilities within a framework of possible situations, relate them with a relation of infallible constructability (“necessity”).

Examples: a) A point of space could be connected with another point through the relation of “possible trajectory of an object”. b) Types of chemical substances could be connected through relations of “producible from”.

2.3.3. Absolute relation: Given a framework of situations or objects related to one another as one being constructible from another, construct an example of an infallible, self-sustaining strategy.

Examples: If we know a framework of laws for some types of physical phenomena, we can use these laws in manipulating some phenomena. The state after the manipulation is a new context, but because the laws have remained same, the possibility of manipulation has still remained. Thus, we can interpret the two states as making the same strategy possible in different situations.

3.1.1. Concept: Given a model of a general structure (“universal”) and an infallible strategy for actualising this structure in a given context, construct an instance of that structure (“singular”) and relate it to the original model as its example (“judgement”).

Examples: a) Suppose we know how to make shoes. Then the shoes we make can be seen as examples of our method for producing shoes. b) Suppose the strategy in question merely maintains some set of abilities from one context to another (like our capacity to maintain our identity from one moment to another). Then it is possible to take the common element in different situations produced by this method as an instance of this strategy.

3.1.2. Judgement: Given a situation or an object related to a model of a certain characteristic of it, construct an instance of a general method for relating an object to some model or vice versa (“middle term” of “syllogism”).

Examples: a) Suppose we are given an object (for instance, a house) and a general evaluating structure that this object should correspond to, if it is to be a good specimen of its kind (a model of a good house). Then we can determine whether the object is good by comparing it to the model (for evaluating the house), or we can use the model as a blueprint for good objects (we can make good houses with proper instructions). Here the model then serves the role of a “mediating term”. b) Suppose we have an object that is related to a more general species (e.g. an animal to its kind). Then we can find an instance of a relation of the example (a) by constructing a whole

classification of subspecies of the more general species and determining one of these subspecies as the preferred or “best” instance of the more general species (a classification that shows which animals of a species are fit for some purpose and which are not). c) Suppose we have an object that has some essential property (for example, a berry that is poisonous). Then we can find an instance of a relation of the example (b) by experimenting to see whether other berries have the same property essentially and defining a species for these objects by using the property as a characteristic mark for recognising them. d) Suppose we have an object that has some characteristics (a berry that tastes bitter). Then by going through all states that this object could have (i.e. even those states where the berry does not taste bitter), we could determine at least the essential property that this object exists in these particular contexts with these particular characteristics.

3.1.3. Syllogism: Given an example of a method of constructing objects from model of a general structure and of relating an object to some general structure, construct multiple examples of independent objects, which can still be seen as mere aspects of a more extensive system.

Examples: a) Suppose we have a method for seeing an object as an instance of some species and for constructing infallibly some example of the species. Then we can use the method for constructing the required objects, which as members of a species can be interpreted as mere modifications of one another. b) Suppose we have a method for determining essential properties of individual objects and for constructing objects having these essential properties. Then we can use this method to determine a whole species, the instances of which share these essential properties and which could be instantiated by constructing an instance of the essential property. c) Suppose we have a method for recognising some characteristic that an object has and for finding an object with given characteristics. Then we also have a method for determining some essential property of the object and for constructing an instance for this essential property: just determine from one object which characteristics it has in several contexts and the required essential property is of the form “x has characteristic A in this context and B in that context” etc.

3.2.1. Mechanism: Given a system of independent objects, construct examples of necessary relationships between them.

Examples: a) In a solar system gravitation is an example of a relation connecting the planets to the sun. b) In any system of objects that can be regulated through some constructions these objects have a necessary relation to the capacity of regulating them.

3.2.2. Chemism: Given a system of related objects, show that it can be used as material for constructing examples of general models.

Examples: a) Chemical processes can be governed by external agents like human beings and even by sufficiently developed molecules that are capable of replicating themselves. b) A system of structures that we can analyse and combine with other structures can be regulated through those very methods.

3.2.3. Teleology: Given a general model and a process of instantiating it, show that they can be interpreted as aspects of the same “self-maintaining” process.

Examples: Contacts of an organism with its environment could be seen as mere self-development of that organism.

3.3.1. Life: Given one “self-maintaining” process, construct an example of another process that uses the first process as material (a model of cognition).

Examples: a) Genes can be seen as using individuals as a material for their own self-preservation. b) The processes of modelling a self-maintaining process and changing the process for making it conform to a given model use the first process as material.

3.3.2. Cognition: Given a model of cognition or concrete cognition, construct a model for the Logic.

Examples: Cognition contains processes for modelling some objects and for constructing (finding or producing) objects conforming to required structures. Cognition can thus use its constructing capacities for finding or producing models for general ontological structures.

3.3.3. Absolute idea: Show that in the Logic one can construct a realm of independent situations (a model of space or “nature”).

Examples: The methods of the Logic allow us to create a potentially infinite number of structures. If we then abstract from these concrete structures, we are left with a “space” consisting of a potentially infinite number of positions.

My short summary of the Logic may be contested, on the ground of being too ad hoc: at many places there seems to be no reason why the development of categories shouldn't have followed another route. Now, certain interpretations of Hegel's philosophy regard the order of the categories of the Logic as an important matter, not in the sense that the order given by Hegel is necessarily the correct one, but in the sense that there really should be one and only one correct order of categories, if Hegel's project is to be sensible. The question of the right order of categories is of utmost importance, in eyes of this school of Hegel-interpretation, also in relation to Hegel's

Realphilosophie, because the order of categories the Logic should determine the order of parts and the limits of the *Realphilosophie*: the order of realms of the world and of the sciences dealing with them, and such realms and sciences were discovered.⁷⁴

I have earlier spoken of a certain necessity in the order of the Logic: there is a one type of situation or model from which the Logic begins, the empty one or pure Being, and all the other categories must come after this beginning. Besides the uniqueness of the beginning, there certainly are some natural restrictions on which order the categories are found: if one type of model can be constructed only from some certain other type, then the first type must become after the second type. Beyond these restrictions, it seems difficult to find any reason why one category should be placed after another instead of before it. Indeed, it is plausible that one could follow many directions with the categories: one could construct from one previous category not just one, but many different categories. We could, of course, put these types of models into the same linear order in which we found them, but this would be quite contingent ordering. Thus, unless one can offer a plausible reason for ordering the categories linearly, the ideal way of presenting the Logic would be more like a tree, which would show all the different orderings categories could have.

What about the organisation of categories from the most abstract to the most concrete, isn't that the way the categories of the Logic should be ordered? But such an ordering isn't possible before one stated what he meant by the words "abstract" and "concrete". They cannot refer merely to a quantitative ordering, in which categories or models describing fewer objects would be put before the categories with more objects: Hegel is not very interested in quantitative matters and would deem such an ordering to be without any meaning. Furthermore, because the constructions of the Logic allow adding ever more objects to old ones – this is Hegel's idea of repulsion – it would make the Logic an infinite, never-ending project.

If the abstract-concrete –ordering is then to have any sense, it must be of a qualitative nature: the categories should be ordered by their qualities. This would also give a criterion for the completeness of the Logic: all necessary categories have been given when all the qualities categories can take on have been discovered. Now, there are at least three types of categorical differences introduced in the Logic:⁷⁵

- The difference between empty and non-empty structures: here the earlier type of structure is the empty one which is then objectified giving a non-empty structure.
- The difference between a structure with really different objects and a

structure where these differences have been idealised; here the earlier type of structure is the one with different objects.

- The difference between a situation and a construction (difference in the nature of objects) which induces the differences between non-causal and causal structures: here the earlier type of structure is the non-causal.

The three qualitative differences grant the Logic a sense of order, but still leave something uncertain. The most difficult question arises from the fact that nothing seems to determine in which order the new qualities should be introduced. Hegel starts from an empty structure, then introduces structures with different objects, then idealised structures, and only after a long detour the situations with constructions as objects (the reflections). But it seems as reasonable that the constructions, essences or causal structures could have been introduced much earlier: indeed, Hegel seems sometimes to equate category of Becoming with the essence of Being and Nothing.⁷⁶ Finally, if the ordering by qualitative differences was taken seriously, we would have to say that the Logic might have as well ended with introduction of Essence, if no new qualities were introduced after it.⁷⁷

It seems that we must then deny that categories of the Logic should be presented in a linear fashion, and with this denial the triadic scheme of thesis-antithesis-synthesis, sometimes combined with Hegel's Logic, falls apart. The idea of the Logic progressing in these three steps cannot be applied if the Logic does not follow a linear trajectory: thesis, antithesis and synthesis should follow one another in strictly one way, but with many different ways to construct categories this triadic generalisation becomes unnecessary.

Summary:

Further structures exemplified in the Logic include especially methods that can be used to construct new situations and objects. Thus, the very tools by which the Logic has been constructed are taken as a new subject matter. Although at first these methods seem to use situations and objects as materials and to construct further situations and objects, in another sense these methods can be interpreted as bringing forth merely new methods of construction: a move of a chess player causes not just an appearance of a new position, but of new possible moves. The final structures investigated in the Logic are then such strategies or methods for modifying the current methods of construction. The Logic ends with a model of its own method of construction.

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- ¹ G 21 p. 326, 9 – 14.
- ² Similarly Stekeler-Weithofer suggests (1992, p. 232) that Hegelian measures are rules that make it possible to reproduce and control things and events. It is this structure of rule-governed manipulability that in my opinion is what Hegel's structure of essence is all about.
- ³ G 21, p. 326, 17 – 20.
- ⁴ Ibid., p. 373, 5 – 6; p. 369, 18 – 20; p. 370, 20 – 21.
- ⁵ Ibid., p. 371, 14 – 23.
- ⁶ Ibid., p. 381, 23 – p. 382, 6.
- ⁷ Ibid., p. 382, 27 – 30.
- ⁸ It is here where my interpretation of the Logic deviates radically from Stekeler-Weithofer's interpretation, which remains committed to the false idea that statements or propositions are what the Logic is all about. Thus, he suggests (1992, p. 333) that Hegelian essence would be a statement of the form "earlier we saw this characterised by A, but it should be actually understood as characterised by B". In effect, Stekeler-Weithofer makes the section on essence into a study of abstract theories and their relation to concrete existence. Here Stekeler-Weithofer misses the point that Hegelian essences and reflections are not just theoretical statements, but practical capacities.
- ⁹ G 11, p. 245, 23 – 30.
- ¹⁰ Ibid., p. 245, 35 – p. 246, 5.
- ¹¹ Ibid., p. 247, 25 – 30.
- ¹² Ibid., p. 249, 4 – 6.
- ¹³ Ibid., p. 249, 1 – 3 and 15 – 18.
- ¹⁴ Ibid., p. 249, 18 and 24 – 26.
- ¹⁵ See, for instance, Düsing 1976 (p. 215 – 216) and Reisinger 1971 (p. 243 – 265).
- ¹⁶ G 11, p. 250, 3 – 4.
- ¹⁷ Ibid., p. 255, 21 – 22.
- ¹⁸ Ibid., p. 251, 19 – 22.
- ¹⁹ Ibid., p. 252, 2 – 5.
- ²⁰ Ibid., p. 253, 3 – 15.
- ²¹ Ibid., p. 253, 15 – 18.
- ²² Ibid., p. 255, 19 – 20 and p. 256, 14 – 15.
- ²³ Ibid., p. 257, 16 – 20.
- ²⁴ Ibid., p. 256, 26 – 32.
- ²⁵ Ibid., p. 258, 21 – 26.
- ²⁶ Ibid., p. 260, 24 – 25.
- ²⁷ Ibid., p. 262, 1 – 2.
- ²⁸ Ibid., p. 267, 9 – 11.
- ²⁹ Ibid., p. 272, 18 – 20.
- ³⁰ Ibid., p. 279, 17 – 23.
- ³¹ Ibid., p. 282, 2 – 7.
- ³² Ibid., p. 293.
- ³³ Ibid., p. 354 – p. 364.
- ³⁴ Ibid., p. 394 – p. 407.
- ³⁵ A recent example of such an interpretation is de Laurentiis 2005, which sees the doctrine of concept as "a clearly articulated theory of the logical structure of subjectivity" (p. 70). As I shall argue, this not so much wrong or inadequate, but insufficient view of the Logic or even of the Hegelian concept: there is much going on in the doctrine of the concept that does not concern the theory of subjectivity.
- ³⁶ G 11, p. 409, 36 – 37 and G 12, p. 15, 35.
- ³⁷ G 12, p. 17, 7 – 10.
- ³⁸ Ibid., p. 19, 38 – p. 20, 2.
- ³⁹ G 11, p. 407, 30 – 35.
- ⁴⁰ Ibid., p. 408, 6 – 11.
- ⁴¹ G 12, p. 12, 9 – 11; p. 29, 11 – 13 and p. 33, 13 – 16.
- ⁴² Then again, Hegel's version of ontological "proof" is not just an admission of an undeniable fact, as Stekeler-Weithofer suggests (1992, p. 392). Hegel's God is not the entirety of all facts or the world as potentially understandable by men, but a schema for all possible methods of construction.
- ⁴³ G 12, p. 52, 17 – 19.
- ⁴⁴ Ibid., p. 52, 24 – 26.
- ⁴⁵ Ibid., p. 53, 15.
- ⁴⁶ Ibid., p. 89, 16 – 18.
- ⁴⁷ G 21, p. 98, 19 – 22.
- ⁴⁸ Hegel says this in chapter on life (G 12, p. 180, 5 – 10, 24 – 26 and 36 – p. 181, 7) and in chapter on knowledge (p. 197, 3 – 7 and p. 198, 25 – 31).

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- ⁴⁹ G 12, p. 142.
- ⁵⁰ Ruschig 1997 – although its main object is the chapter on measure – has shown conclusively that Hegel’s schema in chapter on chemism fails to do justice to real chemical relationships (p. 199 – 204). The difference between Hegel’s logical idea of chemism and real chemistry might have been obvious to Hegel himself, as the description of chemical relationships in his Philosophy of Nature does not perfectly correspond with the description in the Logic.
- ⁵¹ G 12, p. 148, 28 – 149, 2.
- ⁵² Ibid., p. 149, 34 – p. 150, 7
- ⁵³ Ibid., p. 150, 21 – 27.
- ⁵⁴ Ibid., p. 151, 4 – 5.
- ⁵⁵ Ibid., p. 150, 34 – p. 151, 3.
- ⁵⁶ Ibid., p. 151, 13 – 20.
- ⁵⁷ Ibid., p. 152, 6 – 12.
- ⁵⁸ Ibid., p. 152, 12 – 20.
- ⁵⁹ Ibid., p. 152, 29 – 31.
- ⁶⁰ Ibid., p. 147, 2.
- ⁶¹ Ibid., p. 153, 14 – 17.
- ⁶² Ibid., p. 168, 16 – 25.
- ⁶³ Ibid., p. 183, 26 – 33.
- ⁶⁴ Ibid., p. 200, 3 – 4.
- ⁶⁵ Ibid., p. 231, 5 – 7.
- ⁶⁶ Ibid., p. 237, 17 – p. 237, 25.
- ⁶⁷ Ibid., p. 236, 3 – 4.
- ⁶⁸ Ibid., p. 239, 17 – 21.
- ⁶⁹ Ibid., p. 240, 20 – 24.
- ⁷⁰ Ibid., p. 240, 26 – 34
- ⁷¹ ; p. 241, 11 – 15 and p. 241, 24 – 32.
- ⁷² Ibid., p. 246, 23 – 29.
- ⁷³ Ibid., p. 242, 4 – 13.
- ⁷⁴ A good expression of such interpretation is Höhle 1987, e.g. in p. 60 – 61 and in p. 210 – 211.
- ⁷⁵ One might also add the difference between the One and the Many – the difference between a situation with only one object and situation with many objects – but firstly, this seems more of a quantitative difference, and secondly, the construction which gives the Many out of the One is very similar to the one that gives an object from an empty situation.
- ⁷⁶ Ibid., p. 249, 4 – 6.
- ⁷⁷ At first sight, the structure of Concept might be seen as a new structure, but on a closer examination there is not much new in it. Concept (*Begriff*) is introduced in the Logic just as a structure where the difference between the factors in a causal structure has been idealised: where the essence or cause is the same as what is posited or the effect. This self-causation is no new type of structure, but merely a combination of causal and idealised type of structures.

B. The relationship of the Logic and the *Realphilosophie*

5. General question: can Hegel's Logic justify ontological doctrines?

The first section of my work investigated what the Logic is about and suggested that it is a constructive study of what Hegel calls categories – essentially these categories are types of situations and constructions, which Hegel models and thus shows to be possible by means of certain basic constructions, starting from a model for an empty situation. I also quickly showed how some parts of the Logic rise out of the underlying set of possible constructions: for instance, quantities are modelled through constructions out of any arbitrary situation and these constructions are such that one can always find more objects with them, although always only a finite amount. In the second part of the work I am beginning to look at the other facet of the Logic, namely, Hegel's idea that the Logic should not just be a necessary condition for his *Realphilosophie*, but also a ground for it: that is, that the Logic should somehow justify the *Realphilosophie*.

Traditionally Hegel's insistence on the Logic being the ground of the *Realphilosophie* has been understood as a metaphysical statement. The view of there being such a metaphysical task for the Logic in Hegel's System needs still some justification. Hegel has of course renounced all connection between his philosophy and metaphysical philosophy, by which he refers mainly to pre-Kantian school of thought in Germany, originated by Wolff. But on a closer look it appears that Hegel renounces only two things in Wolffian philosophy. Firstly, he criticises the way that Wolffians accepted their conceptual schemes without trying to construct them in the way Hegel tries to do in his Logic: the Logic should show that conceptual schemes or structures can have instantiations. Secondly, he rejects a habit of earlier metaphysicians of using their conceptual schemes abstractly, that is, the habit of locking words only to one situation or model – to one interpretation – without seeing the possibility that they might have been used differently: the Logic should be modal in the sense of trying to see how meanings can differ from one situation to another. What Hegel doesn't renounce is the metaphysician's conviction that one can apply concepts or categories in deducing consequences for the actual world. Indeed, Hegel even praises this attitude of a metaphysician over Kant's apparent denial of such application:

Ancient metaphysics had in this respect a higher concept of thinking than is current today. For it based itself on the fact that the knowledge of things obtained through thinking is alone what is truly true in them, that is, things not in their immediacy but as first raised into the form of thought, as things thought. Thus this metaphysics believed that thinking and determinations of

thinking are not anything alien to the object, but rather its essence, or that *things* and the *thinking* of them — our language too expresses their kinship — correspond in and for itself, that thinking in its immanent determinations and the true nature of things are one and the same content.¹

In fact, we have Hegel's own statement that earlier metaphysics is akin to his Logic, not only the ontological part of defining basic concepts, but also the part of applying them to concrete objects, such as soul, world and God.²

I shall then provisionally accept this idea of Hegel being a metaphysician in some sense. Particularly, I shall suppose that the main purpose of Hegel's System is to prove in some manner claims that there exists objects instantiating certain characteristics: for instance, when Hegel moves in his System to electricity, he is trying to prove that there must be electrical phenomena. Only if further studies show some reasons to doubt this presupposition, shall I attempt to modify it and to reinterpret the apparently obvious quotes from Hegel himself. The reader may thus view the next pages as a sort of empirical test: will the metaphysical interpretation of the Hegelian System make sense?

If Hegel's Logic is then supposed to have a metaphysical relationship with his *Realphilosophie* – if the Logic should ground and justify the *Realphilosophie* – how does this justification work? Some Hegel-scholars have been eager to show how Hegel tries to point out similarities in the order of categories of the Logic and in the order of the *Realphilosophie*, and they have accepted the main idea of Hegel's task by saying that such structural similarity between basic structures of the world and the world itself must evidently exist.³ These scholars have convincingly shown that Hegel has tried to organise the the Logic and the *Realphilosophie* with such similarities in mind. But firstly, as I have argued, Hegel's idea of organising his Logic in a linear, and even more in a triadic fashion, is not well-based on the actual method he uses – the Logic should be more like a tree with many possible roads to take. If we, then, deny the need for one correct linear order in the Logic, we at the same time deny that it could have any effect on the structure of the world – the world might not be organised in levels. Secondly, although we admit that by pointing out the structural similarities Hegel is trying to justify certain metaphysical statements of the world, it doesn't really explain how this justification is made. The reconstruction of the Logic in the previous chapter showed merely that it is capable of producing different types of models for certain general structures, not that any of these structures should be actualised in the physical world.

Now there are at least two ways to interpret Hegel's Logic in modern terms. Firstly, the models constructed in the Logic could describe some Platonist realm of pure

situations and constructions, which go through all possible types of structures – but in that case they do not determine whether such structures could be realised in the actual world. Secondly, these models could be understood as structures consisting of signs and as constructions using signs, which does make them possible to actualise in the real world – signs are objects that we can sense – but leaves open the possibility that there are other kinds of structures that the human mind doesn't comprehend. If the metaphysical reading is correct, instead of accepting one of these conclusions, Hegel tries to have his cake and eat it: categories of the Logic are independent of human frailties and they do have a say on what can exist in the concrete world. Something similar we saw in Hegel's argument for the principle of plenitude. At one hand, Hegel seemed to be talking of possibilities – of something ontological and independent of the human subject; on the other hand, of our knowledge of possibilities – of something that human subject has constructed. Indeed, Hegel's proof apparently accepted the principle of plenitude before it set out to prove it. If we subscribe to the metaphysical interpretation, it is then probable that Hegel would have merely accepted the principle of plenitude. Furthermore, it seems to be this principle which is behind Hegelian metaphysics: the Logic gives all the possibilities, and because all possibilities must become actual, the Logic determines everything that shall be actual.

The version of principle of plenitude Hegel is committed to must be defined in more detail. Firstly, we noticed in dealing with Hegel's theory of possibilities that he entertained the principle of plenitude only in qualitative matters: the quantitative side – that is, how many objects actualised the possible qualities and in what combinations they occurred – Hegel maintained to be a contingent affair. Secondly, as we saw in dealing with the constructive nature of Hegel's ideas, the Logic is concerned not just with finding all the possible qualities or types of structures, but also with discovering all the possible constructions – how one structure can be turned into another. Thus, Hegel's version of the principle of plenitude would according to this interpretation be twofold: a) the Logic determines all possible basic qualities and constructions of one quality from another; b) all of the basic qualities and constructions shall be instantiated in the world, but the number of these instances and the ways that these qualities and constructions are combined is a contingent matter.

I shall give some examples how the principle of plenitude would work in metaphysical grounding of Hegel's *Realphilosophie*, if the metaphysical interpretation were correct:

1. We saw how Hegel's Logic uses situations or models of situations as objects: thus, given some object, one could take the situation with that object as a new object. Because Hegel takes an empty situation – a situation with no objects – as a first object, he can construct a potential infinity of abstract objects – structures with other structures as objects. Thus, the Logic is equipped with a construction which produces new objects from a given one – this construction is an instance of what Hegel calls repulsion. In the Logic the objects constructed are mere abstractions – mere possible structures – but due to Hegel's version of principle of plenitude, there should be a similar construction, which makes concrete, material objects out of a given concrete, material object. It is obvious that Hegel takes the division of objects to be such construction.⁴ This means that to Hegel all the pieces of matter must be divisible into ever smaller pieces of matter: otherwise we wouldn't have the potential infinity of concrete objects that the potential infinity of abstract objects together with principle of plenitude implies.

2. The objects studied in the Logic, concepts or general structures that can be modelled, are such that they can be, in a sense, combined into a new concept or structure: it is possible that the same situation or object might be an instance of two different structures. In this new combined structure the constituent structures are not anymore independent, or their separation needs a new construction of analysing them: this was the result of the construction that I have called idealisation. As the world must follow the example of the Logic, Hegel consistently states that material substances must be such that they can be combined in the same fashion – not in such way that the substances would exist in each other's pores, but they must mix completely to form a new substance. Thus, Hegel is bound to deny the molecular chemistry, which maintains combinations of substances to be not complete mixtures, but mere external connections of atoms.⁵

Furthermore, the objects of the Logic – the abstract structures – can all be constructed from one another by using certain combinations of basic constructions. Hegel investigates such constructions especially in the chapter on Measure, where he concentrates on mathematical constructions: objects can be arranged into numerical series according to some measurable quality, in which one object can be constructed from another by enlarging or diminishing the corresponding number. Because the Logic determines world, Hegel must insist that also material substances can be changed to one another: basic stuffs of the world literally change into one another, quite in the fashion of Aristotelian elements.⁶

3.⁷ Hegel talks of the Logic as living or organic. This metaphorical pronouncement means nothing more than that the Logic is determined by the basic constructions, and in some sense, all the structures and constructions of the Logic are nothing but modifications of these primary constructions: the constructions “create” objects similar to themselves or “determine themselves” into different shapes. Because the structure of the Logic is reflected in the structure of the world, the world must also be living in some sense: Hegel’s world is an organism, where laws of nature take the place of basic constructions on determining what kind of situations there can be (ultimately even the laws of nature should be, in Hegelian context, at least partly derivable from constructions of the Logic). Also, as the basic constructions of the Logic determined other constructions – other “organisms” – the world determines parts of it similarly to be organisms: indeed, Hegel is determined to show that one corner of the world, our planet Earth, has some structural similarities with such organisms as animals.⁸

Although Hegel takes the Logic to be a unity in some sense – one group of constructions determining and developing itself – the Logic also presents two objects of different qualities: the situations or mere structures and constructions or causal structures. Of these, the situations cannot be said to do or determine anything, they are merely a passive material for the constructions. Constructions, on the other hand, can be said to cause or more likely determine certain situations (given some previous situations): metaphorically put, they are active element in the Logic. Furthermore, Hegel takes the constructions to be more essential: the structures of the Logic could be produced, if we have the necessary constructions and despite what situations we are aware of. This dualism must, in the metaphysically interpreted Hegelianism, appear also in the actual world, in the form of difference between nature and spirit. Nature is the passive, the unessential part of the world and a mere material for active beings – for organisms and especially for humans. Spirit or consciousness, on the other hand, must be understood as an active agent, moulding the world in its own shape. As I noted in the previous chapter, the situations have more of a spatial character, whereas constructions are more temporal. The same difference transfers to the world, where nature is, for Hegel, ultimately unhistorical and shows no development, and where spirit is essentially teleological and historical: it is a construction from a given point (the condition of nature) to its goal (the condition of freedom).⁹

Many of Hegel's metaphysical results are dubious and even manifestly wrong in light of our current information: the atomistic view of matter seems certain; nature and natural kinds and objects are seen as changing and developing in time etc. Furthermore, if the metaphysical interpretation of Hegel's System is taken seriously, these results are not merely superfluous addition to Hegelianism, but essential results of its basic presuppositions, the completeness of the Logic and the principle of plenitude. True, Hegel has an escape route: determining which objects and events of the actual world correspond to structures of the Logic is a matter of empirical research, which is thus independent of the correctness of the Logic itself.

The proof that this thought-determination, the identity with itself or at first abstract self of centrality, which the matter now has within itself – this simple ideality as being there – is *light* must be made empirically, as was shown in the introduction. Immanently philosophical is here, as always, the necessity that belongs to the *determination of concept*, which then is to be shown as *some arbitrary* natural existence.¹⁰

This statement might be seen as a commitment to empiricism, but in the context of the metaphysical interpretation it is at most a very minor commitment, adopted merely to make Hegel's System immune from any empirical revision: if no empirical structure corresponds with a logical structure, then we have just not found it yet. Hegel's System is still committed to the existence of all the possible structures in the actual world: a thesis which Hegel hasn't proven and which seems to be impossible to prove on basis of mere logical investigations – even when the logic is of the peculiar kind of Hegel.

If the Hegelian System as a whole is not salvageable within the metaphysical interpretation, perhaps a portion of it might be. Although the grounding of the *Realphilosophie* by the Logic is suspect, perhaps some results of it could be saved by changing the deductions so that no reference to the principle of plenitude would be required. I shall investigate whether this is possible in Hegel's view of space and time. This example has the advantage that as the first piece of Hegel's *Realphilosophie* it should be the simplest and thus easiest to reconstruct: if the reconstruction fails at this point, it undermines the possibility of salvaging anything from Hegel's *Realphilosophie* as interpreted metaphysically. But before it is possible to decide whether Hegel truly could deduce his account of space and time, we must investigate what view of space time he did have: this is what I set out to do in the next chapter.

¹ G 21, p. 29, 15 – 24.

² Ibid., p. 48, 22 – p. 49, 6.

³ See for instance Höhle 1987, 101 – 127.

⁴ A number of evidence supports this conclusion. Firstly, Hegel takes repulsion to be also a construction applicable to matter (e.g. in G 20, § 262 and G 21, p. 166 – 167). Furthermore, Hegel connects

repulsion with discreteness (G 21, p. 177, 1 – 2), a term which Hegel has explicitly connected with divisibility of things.

⁵ See Hegel's criticism of atomism, for instance, in G 11, p. 337 – 339 and G 21, p. 357 – 358.

⁶ “The basic deficiency in observations of this field is based on the fixed idea of the substantial unalterable *diversity* of elements, to which the understanding holds on to in studying the processes of *individualised* matters. If higher transitions are shown in these cases – for example, when water solidifies into crystal, or when light, warmth etc. disappears – the reflection avoids them with the help of nebulous and meaningless representations of *solution, becoming latent in combination* and similar. Here belongs essentially the replacement of all relations in phenomena with *materials* and *matters* that are partially *imponderable*. In this manner every physical existence is transformed into the already mentioned *chaos* of matters and their coming and going within pores of every other matter: here we have left not just concept, but also representations. Foremost the *experience* has been discarded; yet another empirical existence is assumed when nothing empirical can be seen anymore.” (G 20, § 286, A, p. 288, 18 – p. 289, 3; see also § 334, A, p. 340, 7 – 17).

⁷ The examples of the third section are admittedly central ideas for Hegel himself (see e.g. Beiser 2005, p. 80 – 112). Thus, my remarks are not meant to deny, for instance, organicist tendencies of Hegel, but more to show that Hegel's justification for them is incomplete, if we assume the metaphysical interpretation.

⁸ Examples of Hegel's habit of seeing Earth as living or quasi-living in G 20, § 287 – 288 and § 338.

⁹ Ahistoricity of nature Hegel expresses e.g. in G 9, p. 165, 36 – p. 166, 6 and G 20, § 299, A. Essential temporality of spirit Hegel pronounces, for instance, in G 9, p. 429, 7 – 19.

¹⁰ G 20, § 276, p. 278, 8 – 14.

6. Space and time according to Hegel

a. Predecessors of Hegel

Before approaching the work of Hegel himself I shall study the ideas concerning space and time that might have affected Hegel's ideas. For this end it is necessary to investigate the works of three men: Newton, Leibniz and Kant.

(i). Newton's idea of space and time

Isaac Newton presented his ideas of space and time in what might be called his masterpiece, *Philosophiae naturalis principia mathematica*, a book describing the laws regulating the movement of bodies and by the aid of these, the movement of the Solar System. Interesting is the way Newton introduces these ideas: not as definitions, although *Principia* is organized in the form of mathematical treatise with axioms, definitions and propositions, but as a side note, a scholium. He explains this lack of definition by saying that everyone knows beforehand what space and time are. What is necessary according to Newton is to clarify these ideas and remove any false impressions pertaining to them.¹ His means in doing this is the separation of scientifically understood, that is, absolute space and time from commonplace ideas of them, which Newton calls relative.

By relative space Newton understands something or some measure, which people use to tell positions of things.² Newtonian relative space would be, for example, the atmosphere where clouds and birds move or a town where houses are situated. Accordingly, relative time is for Newton is some measure which we use in telling when things happened, for example a year or a month.³ The name relative already tells that these measures depend on something, namely, the bodies that we sense and their motions: atmosphere and town are bodies or collections of bodies, and years and months are calculated by motions of the Sun and the Moon.

Now these relative measures are not always the most accurate ones. Time measures like day are reckoned by the apparent movement of the Sun, but this movement doesn't always happen at the same speed. Therefore a day is not a suitable unit for scientific purposes: laws of movement would become too complex to handle if we tried to base them on daily rotation of Earth. There are more and more accurate time measures, and there must be a limit, which they approach, that is, the absolute time.

Absolute time does not flow unevenly but always in the same, steady way and so offers the most suitable ground on which to construct physics.⁴

The case is similar with relative space. Newton does not think that spatial measures like length could change, i.e., meter has always the same size. Instead, Newton notices an inaccuracy in locating ability of relative spaces. We speak of things as located somewhere on Earth, but this does not give a stable system of places because Earth is constantly moving around the Sun. As we had to suppose the existence of absolute time, we must think that there exists an absolute space. This is an absolute system of locations, which cannot move from one place to another: if they could we would need another space where these locations were and therefore the first space wouldn't have been absolute.⁵

Obviously, absolute space and absolute time cannot exist just in relation to some material entity,⁶ i.e. space cannot be a place in another body and time cannot be a measure of a body's movement: it is always possible to abstract from bodies and still the space and time would exist. On the contrary, all the bodies presuppose absolute time and space as something in which they are located and moved: this is why they are called absolute in contrast to relative time and space. Space and time do not depend on bodies, but bodies depend on them.

Newton's account of absolute space and time contains an obvious problem. Absolute space and time are independent of all bodies, therefore we can't observe them via bodies. But bodies are the only thing we sense, that is, we can observe only relative spaces and times – even Newton admits this⁷. How then is it possible to know that there are such things as absolute space and time? Or, to put it another way, how do we know that different ways to measure movements and places of bodies form an increasingly accurate series, and even if they do, how do we know that this limit is something real and not just a fiction or an abstraction?

Newton himself tried to prove the existence of absolute space and absolute time by showing the existence of absolute motion. Absolute motion would differ from relative motion in similar fashion as absolute time differed from relative time: bodies can move relative to other bodies but that might not be real, absolute motion. Now, we can observe absolute motion, Newton says, by its effects, which relative motion does not have. He proposes an experiment with a bucket full of water which is hung by a cord; the cord is twisted and suddenly let go, which makes the water start revolving and receding to the sides of the bucket; in itself water is moving circularly and this absolute movement can be measured; on the other hand, the water's motion in relation to the

bucket, which finally becomes relative rest, has no measurable effects.⁸ Concerning Newton's experiment it is sufficient to notice that even the motion of the water in relation to the bucket may have an effect, but it is just too small to be noticed compared with its motion in relation to larger bodies like Earth, which Newton called its absolute motion.⁹

Newton also speaks of space as being a sensorium of God,¹⁰ and this might be seen as an effort to base absolute space on God's existence. But Newton's statements concerning this seem not to support this idea: Newton says only that God sees everything that happens in space and so space is comparable with the human organ of sight. Newton is even clearly against the idea that the world would be taken as the body of God.¹¹

Thus, it seems to be that Newton does not have a clear proof for the existence of absolute space and time. Therefore it is understandable that philosophers were eager to find alternatives to Newton's view. The problem in Newton's account of absolute space and time can be faced in at least two ways. Firstly, we can say that we don't need absolute space or time, but the relative spaces and times are sufficient and indeed the only ones that exist. This is the solution Leibniz maintained. Secondly, we can think that absolute space and time are necessary for us, that is, we need them in apprehending objects. This way out of the problem is the one Kant used. It is to these two gentlemen to whom we must turn our attention now.

(ii). Leibniz and the relativity of space and time

The main source for Leibnizian view of space and time is found in his correspondence with Samuel Clarke, English philosopher. The correspondence started when Caroline, princess of Wales, sent to Clarke a letter from Leibniz, which contained, among other things, Leibniz's critique on Newton's idea that space was a sensorium of God.¹² Contents of the letters of Leibniz and Clarke became soon more diverse, and one of the things discussed was the nature of space and time and the question whether they are absolute or relative.

Although Clarke acted as defendant of Newton, he didn't strictly hold the theory of absolute space and time. Instead he endorsed the idea that space and time were qualities or properties of God: space was the immensity or omnipresence of God and time was His eternity.¹³ Clarke means by this that space and time depend on God being everywhere and at every time: empty spaces and times can exist because God is in

them.¹⁴ Thus, we should actually count Clarke's view as a separate one: space and time as depending on God. But as Hegel does not investigate this possibility, unlike the ideas of Newton, Leibniz and Kant, Clarke's view may be left aside and he may be taken just as a Newtonian: after all, according to him neither space nor time depends on matter or consciousness.

The main reasons for Leibniz's dislike of the theory of absolute space are, firstly, the principle of sufficient reason, and secondly, the principle of identity of indiscernibles: the principles which Leibniz held to be the ground of metaphysics, without which it would be a mere play of words.¹⁵ The first principle seems clear enough: whatever happens must happen for a sufficient reason: for example, if there is no cause that makes one end of a balance to weigh more than the other one, the whole balance shall be at rest.¹⁶ On that interpretation, Leibniz's principle would say that everything has a cause, and this is the way Clarke first takes it.¹⁷ But when it comes to cases where the reason is someone's, for instance, God's, volition, the principle takes on quite a new look. Leibniz does not consider the mere act of will to be a sufficient reason for anything: a will must have a motive for its actions, for mere motiveless choice would be an event happening just accidentally, that is, without a reason.¹⁸

Out of the principle that everything must have a reason, either a cause or a motive, Leibniz tries to deduce the impossibility of absolute space and time. If there would be an absolute space or time, Leibniz says, there would be a number of places where He could have created the world and there would have been a number of times when He could have made it. But there would be no reason, i.e., no motive, for creating it rather in one certain place and time than in another, as every place and moment in absolute space and time is just as good as others.¹⁹ Now, Clarke gives a convincing counterargument that God could have a good motive for creating a certain thing or situation although He wouldn't have any reason for creating it in certain place or certain time: then it would be, in His point of view, better to create it somewhere and at sometime than just be idle.²⁰ Leibniz's only answer to Clarke's statement seems to be a more suspicious-looking opinion that the reason or motive must completely determine the action the will chooses.²¹

As the principle of sufficient reason did not seem to offer a convincing argument against absolute space Leibniz tried also to use the principle of identity of indiscernibles. This principle states that there can be no two things completely alike: there are no two identical leaves or drops of milk, because a thorough investigation will reveal some difference between them.²² Now, Leibniz seems somewhat undecided as to

whether this principle needs justification: sometimes he explicitly states that speaking of two identical things would be just speaking of one thing under two names;²³ at other times he holds that it must be deduced from principle of sufficient reason.²⁴ If we accept Leibniz's second opinion, his arguments against the principle of sufficient reason reduce into the one mentioned: that God cannot have any motive to choose one of two completely identical states of affairs. As this argument has already been investigated, it is more profitable to view Leibniz taking the identity of indiscernibles as an axiom.

The supposition of absolute space and time is, according to Leibniz, in clear contradiction with the identity of indiscernibles: after all, absolute space and time consist of places that we cannot distinguish without the help of bodies in them. We might imagine the whole world moved to a new position in absolute space, in such a way that the order of things wouldn't change, and there would be no discernible difference. Likewise, we could think of the world beginning a few moments before it really began, but there would be no difference because all the events would follow in the exactly same order than they used to.²⁵ Of course, if one is not inclined to believe in the identity of indiscernibles, he wouldn't be impressed by this argument: Clarke, for instance, believes as an atomist that the final components of matter could very well be indiscernible.²⁶ In any case, the argument of Leibniz has a merit in showing that the existence space and time, when seen as absolute space and time, entails the existence of indiscernible differences.

We must proceed to consider the alternative that Leibniz offered for the in his opinion unsatisfactory view of absolute space and time. We could shortly describe it, with Leibniz's own words, that space and time are orders of things, space the order of coexisting things, and time the order of successions.²⁷ When space and time are defined in this way, they lose the status of independent beings: there wouldn't be any order of things if there wouldn't be things. Space and time are not some given structures that can exist without any filling, but they come to existence with or after the material things. These spatial and temporal systems that depend on material things Newton had called relative space and time, and therefore Leibniz might be said to endorse the idea of relative space and time.

Leibniz's account needs some clarifying. If we examine just the words "order of things", the nature of space and time seems very strange. Objects are scattered in a certain order or they have certain relations to each other – this is their space. Now, if we changed their present order, would it change the space, that is, would we have another space instead of the old one? No, is the answer of Leibniz. What he means by space and

time is strictly taken not a certain determinate order of things, but an idealisation of spatial and temporal situations.²⁸ We first have the situations of things, which obviously depend on things: then we abstract out of these particular situations and get the order of all possible situations – space and time.

It is still unclear where we get the idea of situations of things and how we construct space out of them: if we just said that situations are places where things are located in space and time we would have fallen into circularity. Leibniz states the matter concerning space in following manner: we see things as having certain relations to each other and notice that they have different distances from each other. This is what he calls situation: it is something given and not deduced out of space. Now, we might see one of the things change its relation to a group of other things without the internal relations of the groups changing at all. If we now notice some new thing coming to have the same relations as the thing that moved before, we can say it occupies the same place that the other occupied earlier. Space can now be defined as a collection of these places.²⁹

Leibniz's account concerning the construction of space would need some reworking before it would be of practical use. Even Clarke noted some deficiencies in Leibniz's view: how the quantities of spatial things, that is, volumes, can be constructed from relations of them,³⁰ how can we speak of space being finite,³¹ etc. In addition to these weaknesses, there is also the obvious want of similar construction in case of time. Time seems to have so different properties than space that mere copying of the method used for space does not suffice.³² As the purpose of this study is not to criticize Leibniz's work, we may leave these concerns aside. Furthermore, we don't have to worry about the relationship of the theory of relative space and time to Leibniz's metaphysics and his theory of monads: even the bodies of which space and time depend are not the true reality, in Leibniz's opinion, but just a phenomenal world behind which there exists the monads.³³ Thus, we may state Leibniz's idea of space and time like this: space and time are relative; they depend on bodies and are mere idealisations from relations between bodies.

(iii). Kant's transcendental view of space and time

As was the case with Leibniz, we may start with Kant's views concerning the ideas of his predecessors and the critique that he launches against them and after that proceed to his own ideas of space and time. We shall start with Kant's *Critique of Pure Reason* and the section dealing with transcendental aesthetics, that is, the study of the principles of

pure sensibility. With the idea of absolute space and time that Newton, or as Kant says, some “mathematical students of nature” hold, we may be quick as Kant’s opinions on them are similar to the opinions of Leibniz. Kant views the absolute space and time as mere impossibilities, nonentities (*Unding*) that should at the same time exist and be the holding place for all the material entities.³⁴ Spatial and temporal properties are nothing but relationships, and thus we cannot determine from them what the things might be in themselves.³⁵

Kant seems to take Leibniz’s, or the metaphysician’s, idea of relative space and time more seriously than Newton’s absolute space and time and praises Leibniz when he does not take the existence of space and time seriously.³⁶ Also, most of his criticism is targeted against Leibniz, and especially two aspects of Leibniz’s theory are under special surveillance: firstly, that the space and time depend on material objects, and secondly, that space and time are abstractions out of spatial and temporal situations. Concerning the first aspect, Kant states against Leibniz that on the contrary, material objects cannot exist, or at least they cannot be experienced to exist, without space and time where they are situated: space and time, on the other hand, we can imagine being quite empty of any filling. Thus, things, when we experience them, depend on space and time and not the other way around.³⁷

Notable is the difference between the ways in which Leibniz and Kant argue their positions. Leibniz has in mind an ontological question whether space and time really depend on things or not, and as he is convinced that they cannot be anything independent he infers the conclusion that they must depend on things, while things or entities might conceivably exist without space or time. Kant, on the other hand, is speaking of experiencing things – this is the so-called Copernican turn. He argues that we cannot experience anything without space or time nor can we imagine what this kind of experience would be like. Kant gives also another argument against the dependency of space and time on things, based on the necessity of the geometrical truths, especially the axioms of Euclidean geometry. While nowadays these axioms might not be called necessary truths when one remembers the possibility of non-Euclidean spaces, the case was different in Kant’s time. Now, Kant says, such axioms or properties of space and time can’t be necessary if they are acquired only via knowledge of empirical things, as no knowledge of that kind is necessary. Thus, the intuition of space and time and our geometrical and mathematical knowledge based on that intuition must not depend on empirical knowledge of things.³⁸ Here we may again note the discrepancy between Leibniz’s and Kant’s arguments, when one speaks of ontological, other of

epistemological matters.

Let us move on to the second aspect that Kant criticises, space and time being abstractions. If space and time were abstractions of spatial and temporal situations this would make them like concepts that are abstracted out of the things or situations that realize these concepts: thus, the concept of colouredness is abstracted out of particularly coloured objects. But the relationship between the concept colour and particular colours is different from the relationship between, for example, space as such and some particular space, Kant says. Different colours, like blueness or redness, might be called species of the concept of colouredness, but spaces are not species of space. Determinate spaces and times are more like parts of one whole than species of one genus, and therefore the way we experience them does not resemble the way we experience concepts: according to Kant, they are intuitions, i.e., given to us in our sensibility, although maybe not via sensibility, like objects of senses.³⁹

Out of his critique for the two aspects in Leibniz's idea of space and time Kant constructs his own, transcendental view of them. Space and time are not entities in themselves, but they are also not dependent on the experienced things. On the contrary, experience depended on them – experience of outer objects in the case of space, and all the experience, but especially experience of our mental states in the case of time. Furthermore, space and time were connected to the intuitive or sensible side of human experience, not to the discursive or the conceptual side. Now, they can't be the content of sensibility, that is, objects that we are aware of through our senses, as this would make knowledge of them empirical. Only one possible solution is left, says Kant, namely, that space and time are forms of sensibility: they are not relationships or structures which we abstract from things, but structures in which we imagine the things to be. This makes the space and time dependent on the constitution of the human subject, his way of experiencing the world. Our knowledge of space and time is thus limited to experience of things – we cannot say if things in themselves, that is, outside of experience, would be spatial or temporal – and particularly to our kind of experience – there might be other beings that wouldn't need sensibility for knowing things.⁴⁰

We have, according to Kant, in our sensibility, a faculty for receiving impressions from things, two inborn systems of places, one for situating impressions that seem to belong outside of us – the space – the other for ordering impressions that seem to belong within us and mediately also the changes in the outer impressions – time. But when we go forward to the section of the Critique called the Transcendental Analytics that investigates the conceptual side of human experience, we see that this

capability of situating different things is not the only property of space and time. In addition, Kant notices, we are bound to speak of spatial and temporal entities such as lines and triangles. These entities are not just different things lying side by side, that is, they are not mere collection of points, but they must also be taken as unities. In order to see them as unities, Kant thinks, we must construct them, for instance, we must picture us drawing a line. Even space and time, when taken as unities, we must construct in this manner, for instance, we must picture time as a line drawn from past to future. This construction is effected in Kant's system by the faculty of productive imagination, which means just the capability to see manifolds, such as collections of points of space and time, as parts of a unity. In certain places Kant seems to suggest that this capability of producing unity comes from the property of human experience that it is always related to a subject "I", a property that he calls transcendental apperception.⁴¹

The addition of seeing unities in space and time is not the only change that the conceptual side of our experience brings with it. We need the concepts to make our experiences more regular and consistent, Kant says. Actually, Kant calls just this conceptually modified sensibility experience, whereas mere images without any pattern or regularity wouldn't deserve that name. Now, one of the conditions that the conceptual side of us poses to our experience is that we must suppose something stable behind all the changes in the world. But this cannot be just empty time or empty space as we do not literally sense these. Thus, there must be something that we can sense, some material object or objects, which remains same in all the changes.⁴²

Earlier we saw how Kant said that we could *intuit* space and time without any objects filling them. But now he has modified his earlier view by stating that we cannot *experience* them without any objects. From the point of view of the sensibility, space and time are independent in relationship to objects, although dependent on subject, but when the conceptual side of the experience is introduced, space and time appear to be dependent on the objects. Kant can therefore say, when investigating physics in his *Metaphysische Anfangsgründe der Naturwissenschaft*, that the space of our experience is relative, that is, connected to some object. As every relative space must be in some place and thus in some space, we can think of absolute space as the final situational system of all material objects and relative space, but it will always remain a mere idea that can never be experienced.⁴³

Let us summarise Kant's opinions. He denied that space and time depended wholly on material objects as they had some properties that could not be abstracted from relationships between objects. This independent nature in relationship with objects

space and time had because they depended on the consciousness, that is, they were the forms of human sensibility. But in experience in the Kantian sense, i.e., in a regular and law-like experience that is no mere dreaming, space and time needed objects to support them. Thus, space and time depend in Kant's opinion on the subject, while their relationship to objects of experience depends on the kind of experience that is meant.

b. Space and time according to Hegel

Let us recapitulate the results. We studied first the ideas of Newton who thought that space and time were independent of things in space and time: space and time were absolute, they were like containers, which could be emptied of their contents. Against this view Leibniz held the idea of relative space and time: space and time were just an order of things or a logical construction or abstraction out of relations between things. According to this view there would be no space or time if things would be taken out of them. Finally Kant asserted against both Newton and Leibniz that space and time were dependent on human capacities of intuition: they were not absolutely existing containers or abstractions out of objects. Instead, space and time were in Kant's opinion subjective forms of our sensibility, the way that our intuition ordered the outer and the inner sensations.

It is easy to see that Hegel at least does not uphold the Kantian view of space and time. For example, in his history of philosophy Hegel makes a remark how Kant's forms of sensibility are meant to be like our teeth, which are forced on things themselves.⁴⁴ Space and time are not something that the subject gives to objects, i.e. they exist independently of the subject at least, and although we have a spatial and temporal sensibility, this does not exhaust the concept of space and time.⁴⁵ There still is some truth in Kant's ideas, Hegel thinks: "If we set aside from the Kantian notion all that belongs to the subjective idealism and its determinations, we are left with the correct determination that space is a mere form, that is, an *abstraction*: an abstraction of immediate *externality*".⁴⁶ We will return to this point shortly.

Now, if Hegel does not uphold the Kantian position, this leaves as possibilities only the Newtonian and Leibnizian accounts of space and time. Space and time are objective according to Hegel, but are they absolute or relative, something in themselves or only relationships between things? Hegel considers this problem himself and concerning space gives a definite answer to the question: absolute space is only an abstraction and relative space is something much higher than it.⁴⁷ There is no space

without things in space filling it. Here we come back to the abstraction mentioned before. Hegel seems to say that the so-called absolute space is only an abstraction of all the spatial things out of it. This idea Hegel shares with Kant and Leibniz. But, Hegel continues, this does not make space real or independent of things, even in the sense of subjective forms: after all, Kant's forms of sensibility are something that are forced on the thing in itself and not something belonging to it.

It is misleading to think that space would be real because we can abstract everything out of it, Hegel says; curiously enough, he makes this remark when talking of Leibniz,⁴⁸ who seems to have endorsed the idea of relative space. Our feeling of peculiarity subsides when we notice what Hegel is really criticizing: Leibniz has said that space is *an* order of things, when he should have said it is *the* order or *the* externality of things.⁴⁹ Hegel is separating two kinds of properties of things: the external properties (mere order) and the internal properties of things; he counts space as being an external property and in addition he says that space is not just one of the external properties, but the property that grounds all the other external properties of things: without space (and perhaps time also) the things would have only internal or essential properties.

To this idea of space as abstraction Hegel adds a characterization of space as something between sensible and insensible.⁵⁰ This remark underlines the role of space between thoughts and things we perceive with our senses: this middle role has been ascribed since antiquity to mathematical and geometrical objects, says Hegel.⁵¹ Space is not one of the things of nature, but their external form, which can be abstracted from them; although it can be abstracted it is also always dependent on things of nature, absolute space is nothing in itself. If we identified the things of nature with sensible things, we could say following Kant that space is a form of the sensibility. The difference between Kant and Hegel is that Kant thinks this form comes from subjects who sense whereas in Hegel's opinion it arises out of things having external relations with each other.

Besides abstractness, Hegel gives another property of space as being a unity of discreteness and continuity.⁵² When these words are understood as they usually are, this characterization sounds quite strange. A discrete magnitude would be, for example, five cows: there is no continuous series of cowherds, but there is a leap from herd of four cows to the herd of five cows. On the other hand, five meters is a continuous magnitude: between four and five meters are innumerable many different lengths, which are arbitrarily near five meter's length. The solution to the seeming

contradictoriness lies in what Hegel means by the words discrete and continuous: we have investigated the issue more closely in the first section.

When Hegel says that space is discrete he means that one can divide it or set limits to it – it doesn't concern us now if this limiting happens only in imagination or if it requires literally building fences to divide spaces from one another. Space can be separated into different points, “heres”. I do not intend to look if these points are really points without any dimensions, so I will for now use instead the more neutral word location. Space has many locations or, as it would be more appropriate to say in Hegel's opinion, possible locations: after all, space is dependent on material objects in it, and therefore there are no real locations without something located in them.⁵³

Space has many locations, but they are only possible locations: this gives us immediately the meaning of continuity that Hegel sees in space. When space is viewed as absolute, that is, when one abstracts out of material objects in it, there is no way to separate one location from another – this was noted even by Leibniz. In mathematical terms it could be said that every location of space is mappable into every other location of space in a way that preserves their structure; or if we prefer somewhat more informal explanation, the whole world could be transferred a few light years in one direction without anything happening to the relations between objects in the world.⁵⁴

Now, when discreteness and continuity have these kinds of meanings they are obviously not contradictory terms. “Space is discrete and continuous” means in Hegel's parlance just that space can be separated into different locations but every location is just as good as others. It might seem that a consequence of combining these terms is that Hegel's space does not have any limits: if there were a location at which the space ended it would not be possible to map this “limit location” to other places while preserving the structure of space. But we must be cautious, because this would make Hegelian space infinite and we have already seen that Hegel does not swallow the idea of quantitative infinities. Fortunately we don't have to speak of infinite space; after all, space is nothing in itself for Hegel, and points of space are just possible locations. We already noted in discussing Hegel's ideas of quantities that he could not accept any final World encompassing all the existing objects: for any world it is possible to find another world wherein it is enclosed. “Space is limitless” is then true in the sense that there are no possible limits for finding new and new spaces: every space can be seen as a part of a larger space. We must here correct our earlier explanation of Hegel's space: this concept refers not just to a unique existing structure of objects, but it involves also the possibility of finding another structure of the same sort where there are objects behind

the objects of the current structure, or more generally, objects in different places than at the moment.

Let us not forget about time. We see at once Hegel giving similar remarks of time that he earlier gave of space. “[Time] is abstract *self-relating* negativity, and in this abstraction there is yet no true difference”: that is, time is an abstraction, i.e. it is not a container for changes but an abstraction out of these, the form of processes.⁵⁵ It can also, like space, be described in a Kantian way, as a form of sensibility, something between sensible things and thoughts; but it is not subjective in the sense that it would belong only to the human consciousness.⁵⁶ Time has also the forms of discreteness and continuity. It is discrete in the sense that we can separate it into moments, nows. But it is continuous in a Hegelian sense because every moment of time is in itself same as any other: when the whole world process is imagined to be moved few moments back in time, there would be no difference, that is, everything could have begun earlier or later.⁵⁷ And similarly like the concept of space, the concept of time refers not to a single structure, but to a number of structures or times, which could always be embedded into a yet more extensive time.

The similarities between space and time should not make us forget their differences. Hegel describes their difference by saying that while space is being outside of each other (*Aussersichsein*, *Aussereinander* or *Nebeneinander*), time is going outside of itself (*Aussersichkommen*).⁵⁸ These expressions do convey some idea of what separates space from time: space is somehow a more stable structure, while time is usually thought to be flowing or becoming. Indeed, Hegel himself says that time is visible or intuitable becoming.⁵⁹ We could say that while space is the form of things, time is the form of processes. But just by itself this explanation seems hopelessly circular: what is a process, but something happening in time, something temporal? We should get some more details concerning the difference between space and time.

A helpful remark is the one Hegel gives of dimensions of space and time. Space has three dimensions,⁶⁰ which are indifferent to each other: “[o]ne can thus not say, how to separate height, length and breadth from one another, because they merely *should* be different, but *are* still no different”.⁶¹ Time has also three dimensions, says Hegel, but these are of different sort: time’s dimensions are the past, the present and the future, which cannot change their places in the same sense that spatial dimensions can (past can’t come after the future etc).⁶² This remark gives one property of time that space does not have: order. Parts of time come in natural order, and it makes sense to speak of one part of time being before another; spatial parts don’t, on the other hand, have any

order in themselves. The ordinality of time (if we may use this expression) is also not a mere temporal property: it also characterizes, for example, the number series, of which it is natural to say that one number comes before another. This is important, on the one hand, because it confirms that ordinality is a nontrivial description of time not relying on time itself, and on the other hand, because it tells of a similarity between time and number series.

Hegel gives also another distinction between space and time: space and time relate to each other as objectivity and subjectivity; or as reality and ideality.⁶³ This sounds rather strange when one remembers that Hegel had said that neither space nor time was something only subjective. It might be thought that Hegel is suggesting here that time is nothing but an illusion, or at best, merely a subjective form like Kant's time of inner intuition. More careful study shows what Hegel is really aiming for; he is talking about the subjectiveness of temporal parts or dimensions. Firstly, there really, or in nature, is only one dimension of time, only one moment, that is, the one that is going on now. "In nature time is *now*, and thus there is no stable difference between those dimensions [that is, the past, the present and the future]; they are necessarily only in the subjective representation, in *memory* and in *fear* or *hope*".⁶⁴ Temporal moments and parts exclude the existence of other moments: Napoleon at Elba can't exist at the same time as Napoleon at Waterloo. Secondly, moments are always running into each other, becoming other moments: "[time] is a state of being, that *isn't*, when it *is*, and *is*, when it *isn't*".⁶⁵ Temporal parts have a bond to each other that makes it possible to speak of the same things and people at different times: for example, Napoleon at Elba and Napoleon at Waterloo are the same Napoleon. Space, on the other hand, has neither of these properties. Spatial parts are really at the same time, the left side of the Napoleon does not exclude the existence of the right side of the Napoleon. Because of their simultaneous existence, spatial parts differ from each other: they might be parts of the same thing but they are not identical.

This characterization of time and space might seem a bit circular: Hegel has spoken of time as something different parts of which can't exist at the same time. This worry would subside if we could find another object which would express the same properties while not being time. These kinds of objects we have in possible worlds, situations or states of affairs, as they are conceived in certain interpretations. Different possible situations cannot exist or be actual at the same time: Napoleon can't be pope if he actually is emperor. Possibilities have also some kind of bond to each other which enables us to speak of certain possible states of affairs concerning the same thing or

person: Napoleon as a possible pope is the same man as Napoleon as emperor.

Let us collect all the results of our investigations. Hegel does not take space and time to be something subjective or something dependent of the constitution of knowing subject. He also does not support the idea of space and time as independent objects but takes them to be something depending on material objects: space and time are abstract structures of how things can relate to each other externally. More precisely space and time can refer to a number of structures, or spaces and times, which can then be embedded into further spaces and times. As structures space and time have some common properties: they potentially have different places where material things might be situated, but every one of these places is mappable into every other place without interfering with their structure. Besides these common properties space and time have certain separating characteristics: time has a natural order whereas space has no essential direction; temporal moments are also more connected to each other (ideal, as Hegel says) in a way that spatial points are not.

Summary:

For Hegel, space and time aren't subjective forms of intuition or absolute containers independent of both objects and subjects, but objective, relational frameworks dependent on objects within them. Hegel calls them discrete – in the sense that they can always be divided into further parts – and continuous – in the sense that every part of space or time could be mapped to any other part. Time has a natural order, or it is intensive in the Hegelian parlance, while space is more of an extensive quantity. Furthermore, parts of space are really distinct, while only one part of time exists during one moment.

¹Newton 1947, p. 6.

²Ibid.

³Ibid.

⁴Ibid, p. 6 and p. 7 – 8.

⁵Ibid, p. 6 and p. 8.

⁶Ibid, p. 6.

⁷Ibid, p. 8.

⁸Ibid., p. 10 – 11.

⁹Mach 1933, p.226.

¹⁰Newton 1957, Quest. 28, p. 370.

¹¹Newton 1957, Quest. 31, p. 403.

¹²Robinet 1957, I (p. 23).

¹³Ibid., VI 3 (p. 69) and X 36-48 (p. 194).

¹⁴Ibid., VIII 9-10 (p. 110).

¹⁵Ibid., VII 5 (p. 84).

¹⁶Ibid., III 1 (p. 35 – 36).

¹⁷Ibid., IV 1 (p. 47).

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- ¹⁸Ibid., V 7 – 8 (p. 54 – 55).
- ¹⁹Ibid., V 4 – 5 (p. 53 – 54).
- ²⁰Ibid., VIII 1 – 2 (p. 108).
- ²¹Ibid., IX 17 (p. 129).
- ²²Ibid., VII 4 (p. 83 – 84.)
- ²³Ibid., VII 6 (p. 85).
- ²⁴Ibid., IX 21 (130 – 131).
- ²⁵Ibid., VII 6 (p. 85); IX 55 (p. 151 – 152).
- ²⁶Ibid., VIII 3 – 4 (p. 108 – 109).
- ²⁷Ibid., V 4 (p. 32).
- ²⁸Ibid., VII 41 (p. 97); IX 104 (p. 170 – 171).
- ²⁹Ibid., IX 47 (p. 142 – 146).
- ³⁰Ibid., X 54 (p. 195 – 197).
- ³¹Ibid., X 26 – 32 (p. 191 – 192).
- ³²For more complete statement why time cannot be dealt in same way as space, see Winterbourne 1982, p. 67.
- ³³Ibid., p. 69.
- ³⁴KRV B, p. 56.
- ³⁵Ibid., p. 66 – 67.
- ³⁶Ibid., p. 57.
- ³⁷Ibid., p. 38 – 39 and 46.
- ³⁸Ibid., p. 40 – 41 and 47.
- ³⁹Ibid., p. 39 – 40 and 47 – 48.
- ⁴⁰Ibid., p. 41 – 44, 49 – 51 and 73.
- ⁴¹Ibid., 138 and p. 150 – 152.
- ⁴²Ibid., 218 and 224 – 232.
- ⁴³MAN, Erklärung 1 (p. 480 – 481), especially Anumerkung 2.
- ⁴⁴Gph 3, p. 563.
- ⁴⁵G 20, § 254 A; V 16, p. 14, 28 – 37. The arrangement of the Encyclopedia could also be seen as a proof for the independency of space and time in relation to the subject according to Hegel; after all, he deals with space and time in the Philosophy of Nature and not in the Philosophy of Spirit. But this argument might not be accepted by those who think that Hegel's philosophy is idealistic in the sense that everything depends on consciousness, because the nature itself would then depend of spirit.
- ⁴⁶G20, § 254 A, p. 244, 2 – 6; V 16, p. 14, 31 – 34.
- ⁴⁷Enz § 254 Z (Petry p. 224 – 225, 39 – 2).
- ⁴⁸Ibid. (Petry, p. 225, 14 – 17); V 16, p. 19, 221 – 265.
- ⁴⁹Enz § 254 Z (Petry, p. 225, 12 – 13 and 17 – 19); V 16, p. 19, 220 – 221.
- ⁵⁰Enz § 254 Z (Petry, p. 225, 11 – 12); G 12, p. 226, 14 – 18.
- ⁵¹G 21, p. 204, 18 – 24; similar idea of space as thing between sensibility and thought is expressed in V 16, p. 14, 29 – 30.
- ⁵²Enz § 254 Z (Petry, p. 224, 35 – 37).
- ⁵³Ibid. (Petry, p. 224, 19).
- ⁵⁴Ibid. (Petry, p. 224, 19 – 24).
- ⁵⁵G 20, § 258 A, p. 248, 1 – 3. See also Enz. §258 Z (Petry, p. 229, 31 – 32; p. 230, 19 – 27; p. 231, 15 – 20.)
- ⁵⁶G 20, § 258 A, p. 247, 18 – 21.
- ⁵⁷G20, § 258 A, p. 248, 1.
- ⁵⁸G 20, § 254, p. 243, 15 – 18, and § 258 A, p. 247, 25 – 27.
- ⁵⁹G 20, § 258, p 247, 15.
- ⁶⁰It doesn't concern us here why space has precisely three dimensions in Hegel's opinion. Wandschneider 1982 (59 – 64) has made some interesting speculations concerning this matter.
- ⁶¹G 20, § 255, p. 244, 20 – 22, and § 255 A, p. 245, 4 – 6.
- ⁶²G 20, § 259, p. 249, 2 – 3.
- ⁶³G 20, § 258 A, p. 247, 21 – 23.
- ⁶⁴G 20 § 259 A, p. 249, 13 – 17. When it comes to nature, that is, the world of physical objects, Hegel seems to endorse the view nowadays called presentism, i.e., he admits only the existence of present time and present states of affairs. As a consequence of this, Hegel underestimates the need of natural history. For instance, he thinks that the study of Earth's geological past is unnecessary and even meaningless. In the case of humans, on the other hand, Hegel admits also the existence of past times and states of affairs in memories, in the case of one person, and in historical records, in the case of whole human race – the content of human consciousness grows with every second, whereas the state of nature stays essentially same, Hegel seems to say. Furthermore, future events are even in the human

case still merely possible events (hopes and fears): there might be a situation where my memory contains this event which it doesn't contain now.

⁶⁵ G 20 § 258, p. 247, 14 – 15. See also Enz. § 259 Z (Petry, p. 235, 25 – 31).

7. Special problem of deducing the nature of space and time: first attempt at a solution

If we suppose the metaphysical interpretation of Hegel's System, the problem remains why there should be – for instance, if we suppose space to be given – a structure different from space and with temporal properties: because of the metaphysical interpretation, we must suppose that Hegel aims to prove some essential connection between the two structures. Before entering the problem itself, few words on the method used in this section. I shall present each part of Hegel's deduction twice: first, I show how the deduction follows when we allow the principle of plenitude, secondly, I try to analyse whether it is possible to drop the principle. If one wants a deduction to be valid after such a cancellation of the crucial link of a justification, one must inevitably transform the deduction itself. Thus, I shall consider the possibility of seeing Hegel's deductions, firstly, as generally transcendental – if one experiences something, then he must presuppose something else etc. – secondly, concerning the nature of sign-manipulation – if one can make signs expressing such matters, then one can make signs expressing other things – because these reinterpretations of Hegel's arguments seem most believable: the transcendental type of argument would perhaps appeal to those who see Hegel's Logic as describing the nature of consciousness or subjectivity, the second type of argument is obviously connected with Hegel's linguistic constructivism.¹

a. The general deduction of nature

Hegel's argument for the existence of nature has usually been regarded as quite confused and unclear. In light of the metaphysical interpretation the argument seems, on the contrary, quite clear and trivial, but still in need of one unjustified premise – the principle of plenitude. What is the result of Hegel's deduction, that is, how does Hegel define nature? Hegel says that the object of his Philosophy of Nature is the otherness of Idea, which here means the subject matter of the Logic.² We have seen that by otherness Hegel means structure with really different objects: it is not a question of just one object in different situations, but of truly different things. Furthermore, we have seen that the Idea, the object of the Logic, should be nothing else but a certain strategy by which one could construct instances or models for all sorts of structures. Thus, if the metaphysical interpretation is correct, the argument Hegel wants to present is just that from the basic constructions of the Logic one could derive structures with differences, that is, a

manifold of objects. This is actually no new argument, but one Hegel has presented many times before, for example, in deducing many things out of one thing: no wonder then that Hegel doesn't say so much of it anymore!

The argument to a structure with a manifold of objects is still not yet the whole story. Firstly, Hegel uses the peculiar terminology of the Idea letting itself free³ or of freely choosing to go over to nature.⁴ Behind these lofty words there is actually nothing mysterious. Remember how we saw in the first section that by the freedom of a concept – an infallible strategy for constructing models for certain general structures – Hegel meant only that the nature of the material used for constructions was irrelevant. Thus, the seeming allusions to a creation myth can be interpreted as saying only that one can construct examples for the ontological structures from nothing, or without anything given: how this was effected can be seen in the first section.

Secondly, according to the metaphysical interpretation, Hegel equates the structure of difference or otherness with nature, i.e. with our space-time world. Here is where the problems begin. Even if we admit the basic idea behind Hegel's construction of manifoldness, we have no reason to accept that any of those constructed new objects and situations corresponds to anything concrete, that is, anything in the everyday world: they seem to be mere abstractions, mere possibilities or mere models. If Hegel's argument should have the conclusion he wants according to the metaphysical interpretation, he must add the principle of plenitude as one premise. Then the argument would go as follows: given Hegel's method, we have an infallible strategy for creating models of many different things; *but for everything we construct by the method there must be a corresponding actual situation*; thus, there must be some actual situation with many things (the nature).

Any attempts to bridge the deduction without using the principle of plenitude seem hopeless: it just isn't believable that a method for building abstract models could make something real, even less the whole reality, although its products could reflect or represent reality or its parts. Transcendentally interpreted, the supposed argument would speak of the method – the Idea – as a method of thinking in some actual subject. Thus, the deduction would be something like: I can produce many thoughts, thus, I must experience, in addition to my thoughts, many actual things. This deduction would be correct only if my thoughts would invariably correspond with some things outside me. But perhaps we have not been fair enough to the transcendental approach: we may have taken too general a stance. After all, Hegel's Logic should happen in language and in signs, not in any mere thoughts. Then the argument would turn out as: I can produce

many signs, and signs being things outside me, I must experience many actual things.⁵ Indeed, signs are things outside me, but while correct, the deduction is now in a sense trivial: I have written many signs on paper or on blackboard, thus there are many signs on paper or on blackboard. Furthermore, in another sense it is not even a proper argument, because it involves change of the situation: we create many signs and thus modify our environment before we can say with certainty that there are many objects. If Hegel's transition should be an argument, it needs some link to connect the "inside" – the abstractions of the Logic or the thoughts of a subject – with the "outside" – the space-time –world; but when this link is provided – whether it be a principle of plenitude, a correspondence between thoughts and things or the fact that we have used our ability to make signs – the argument becomes trivial, because its point was to deduce the existence of such link.

b. Characteristics of space and deduction of time from it

Hegel's Philosophy of Nature begins not with matter, but with space. When accepting the metaphysical interpretation of Hegel's System, this is undoubtedly in line with Hegel's deduction of nature as a particular instance of his general deduction of manifoldness: the new objects constructed in that deduction are situations, places in which other objects are. Thus, the principle of plenitude justifies the claim that there must also be an actual manifold of different situations, a space. In addition, such a beginning might be thought as appealing to Hegel, because it is easier to identify spatial situations instead of matter with logical structures or situations, thus adding to his claim that philosophy has only one object: spatial situations are merely copies of the basic structures of the Logic. The only difference between logical and spatial situations seems then to be that from the viewpoint of the Logic all the situations can be seen as modifications of one situation, whereas from the viewpoint of the Philosophy of Nature there are irreducibly different situations. Indeed, Hegel states space to be a quantity, which in Hegelian terminology entails, as we know, that one can always find new spaces or spatial situations – space is potentially infinite. This potential infinity of space is then based on (1) logical construction of many situations out of one and (2) the principle of plenitude, which ensures that there really is something to which such construction can be applied – an illimitable group of potential situations or places.

Hegel has then characterised space as a potentially infinite cluster of situations, but it is dubious whether Hegel has been able to determine the nature of space

conclusively. Hegel has nothing to say, for instance, on how the spatial places relate to each other – what does it mean when we say that one is closer to another. Furthermore, although in Hegelian space we can find more and more places, there is no telling where we shall find them – between those already known or beyond them. The only further property of space Hegel tries to explain is its three-dimensionality: and here the argument – if it is meant as an argument – isn't very convincing. Hegel starts from the premise that the concept of the Logic has three “moments” and then concludes that the space must have three dimensions too:

Space has in itself as concept in general its *differences* in itself, a) immediately in its indifference as merely *diverse*, completely indeterminate three *dimensions*.⁶

In the metaphysical interpretation we might understand this sentence as saying that because the strategy used in the Logic always produces models for triplets of structures, by the principle of plenitude, the spatial situations must become ordered in three directions also. As I have criticised the implicit trinitism in Hegel's ideas, I deem this argument to be faulty: because the Logic has no reason for being three-layered, there is no justification for the three-dimensionality of space.

According to the metaphysical interpretation, Hegel proceeds to argue for the existence of time from the existence of space and at the same time for the existence of a line from the existence of a point:

b. But the difference is essentially determined, qualitative difference. As such it is α) at first the *negation* of space itself, because this is the immediate *undifferentiated* being-outside-itself, the *point*. β) But the negation is a negation of *space*, i.e. it is itself spatial; the point as essentially this relation, i.e. as subsuming itself, is *line*, the first other- or spatial-being of point; γ) the truth of other-being is then the negation of negation. The line goes thus over into a *plane*, which on one hand is a determination opposed to line and point and therefore plane in general, but on the other hand is the sublated negation of space, thus a reproduction of spatial totality, which now has the negative moment within itself – the *enclosing surface*, which abstracts one *singular* whole space.⁷

The negativity that connects itself as point to the space and develops in space its determinations as line and plane, is then in the sphere of being-outside-itself *for itself* and its determinations in it, but it also is positing in the sphere of being-outside-itself, hence appears indifferent to the peaceful coexistence. Thus posited for itself it is *time*.⁸

Analysis of the first paragraph reveals not so much an argument as a construction. One can find differences within space, thus, one can at first find in it something that is not spatial – a point. Because this point is still spatial in the sense of being within space, we can find a line, which is supposed to be the other-being of the point. Hegel's idea here would seem to be twofold. Firstly, starting with one point we should, by nature of space

(its discreteness, as Hegel calls it), be able to find or construct other points, and hence, lines between them.⁹ Secondly, because of the characteristic Hegel has named continuity – the fact that every point is essentially similar as all the other points – we can come to the conclusion that the two points are merely modifications of one point. Thus, we can think of a state of affairs in which one point is at first here and after construction in another place, or in other words, we can map any point in space to any other point in space: here occurs a transition from Hegel’s extensive magnitude (number: two points) to intensive magnitude (order: one point being before another) and from reality to ideality (two different points are interpreted as stages in the movement of one point). The spatial structures can then be interpreted as resembling temporal structures.¹⁰ Such an interpretation would, undoubtedly, not change the true nature of space, but it would help us to reach time, which we should then discover in the second paragraph. The supposed argument starts with noticing the elements resembling time within the structure of space and then notes that we can abstract these elements from the whole space: the “negativity” or capacity to construct points within space can be regarded as *für sich* or independent of the space. In other words, a construction of one point and a subsequent mapping of the first point to another point form a series or an ordering of constructions. The result is an abstract model of time. In order to reach concrete time, we merely have to assume the principle that every logical construction is actualised in the concrete world: if it is possible that a sequence of point-constructions could occur – and it should be possible, because we can interpret the spatial points as having that characteristic – then there must occur at least one such sequence, which is then a temporal sequence. Thus, the metaphysical interpretation of Hegel has once again been shown to be based on the principle of plenitude.

The transcendental version of the argument fails again. We should start from an experience of space: for the sake of simplicity, I assume that the space we experience is our everyday view of space. Now, we definitely see many points or places around us, but when we come around to identifying them, problems emerge. In our everyday spatial experience we see things from a perspective: one place is the centre and some are closer to the centre than others. If then we really want to conclude that all the points are the same as all the others, we should be able to see all the other points as centre points as well: but this means, we would have the capability to change place, which already presupposes temporality. A version of the argument, which uses the nature of the Logic as sign-manipulating, fares somewhat better. If we first mark the existence of one point and then the existence of another, time has passed between the markings:

thus, we must be able to experience temporally. This argument is correct, but too general: it doesn't matter what we use as signs, because making of signs requires always time. Thus, the argument wouldn't be one from spatial to temporal experience, but a general note on the temporal nature of sign-manipulating.

c. Characteristics of time and deduction of space from it

Hegel equates time with both pure self-consciousness or I and the concept of the Logic: "Time is the same principle as I = I of pure self-consciousness; but I = I or simple concept still in its full externality and abstraction".¹¹ If properties of space were deduced from properties of (logical) situations it would seem plausible that the properties of time would be deduced from (logical) constructions. When we remember that what Hegel calls concepts are just general structures for which we can in every situation construct a model, it becomes clear why he wishes to relate time with concepts and furthermore with the pure I, which we have remarked to be the entity of the actual world Hegel takes to be the image of the general structure of concepts. The relationship between constructions and time seems obvious: if there are (possible or potential) constructions, then there is the possibility that some situations are before others in the sense that one could "move" from one situation to another by this construction etc. Of course, these are only possibilities, and here we need the principle of plenitude to conclude the existence of time or ordering of situations in terms of before and after.

The transition from time to space is also obviously dependent on the principle. Hegel handles the transition in great hurry: "because moments of time, held together in a unity, immediately sublimate themselves, time is immediate *coincidence* into indifference, into unseparated coexistence or *space*".¹² There is a constant flow of moments that are now present becoming mere past. We may think of the collection of past events by a spatial analogy as a line, as a group of moments (as Hegel says, space is the true past¹³). As temporal, these moments are in Hegelian phraseology ideal – a book yesterday is the same book as today, it is just in different times, and generally, all past times are merely versions of the one time – but they may be thought as real – we may think of the temporal versions of one object as different objects like two spatially separated books. This possibility doesn't mean that there should be any real spatially related situations – not unless we ascribe to the principle of plenitude.

Can Hegel's apparent argument be transformed into a form that would not require the principle of plenitude? Transcendentally taken, the argument would say: I

experience the passage of time; furthermore, I can remember that things have been otherwise; I can represent my thoughts in a linear fashion, thinking the events as before and after one another; thus, I must experience something spatial within me – and here the argument necessarily breaks off. The conclusion should be experience of space *outside* me, but the most that we can get is experience of “inner space” of my memories. It might be that we couldn’t imagine spatial structures if we hadn’t sensed such outside us – but this a question hardly to be decided by any a priori deductions. The linguistic or sign-manipulatory version of the argument is again more interesting. We can write down or describe in signs the previous states of our surroundings and activities (for instance, if we are doing some sign-manipulation in one paper, we can copy the different stages of this paper to other papers); these descriptions of diverse states can, indeed, be arranged spatially. Like the previous linguistic argument, this one merely shows a characteristic of sign-manipulation – signs we use are usually spatial – but not any intrinsic connection of time with space.

d. Deduction of movement and matter

I shall follow Hegel a few steps further, as he makes a transition to matter.

Metaphysically interpreted, the final result of Hegel’s supposed deduction should then be that space and time are not independent, but require objects within them – space and time are only in relation to some material things. Hegel’s transition to matter from space and time goes via motion. If this transition is understood as a metaphysical deduction, Hegel apparently argues first that the existence of space and time requires also the existence of motion and then that the existence of motion needs something to move. The transition begins from space and time understood as aspects of a larger whole called place:

The place, which is the *posited* identity of space and time, is firstly as well the posited *contradiction*, which both space and time in themselves are. The place is the spatial and therefore indifferent *singularity* and is this only as *spatial now*, as time, so that place as *this* is indifferent to itself, it is external to itself, negation of itself and some *other place*. This *disappearance* and *self-regenerating* of space in time and time in space, in which time is posited spatially as *place*, but this indifferent spatiality is as immediately posited *temporally*, is the *movement*.¹⁴

This transition is rather easy to decipher on the basis of the previous transitions. As spatial, one place is as good as the other, and thus it is once again possible to interpret this place as being somewhere else: this mapping of one place to another is then a model for the structure of movement. If this transition is understood as a deduction of

motion, it is essentially the same as his supposed deduction of time out of space: one spatial place at one moment of time can be mapped into another spatial place at other moment of time; thus it is possible that a certain place, thought as a centre, would have been at a point some metres away from the centre; with an unmentioned use of a principle of plenitude we get the result that there must occur such changes of spatial places. The final step from movement to matter is quick:

But this becoming is itself also the collapse of contradiction in itself, the *immediately identical and existing* unity of both, the *matter*.¹⁵

We can replace one place with another. Thus, we can also say that there is something that stays the same in this replacing. In other words, the movement happens always according to some viewpoint which is supposed to remain constant during the movement. If we now apply the principle of plenitude, we may then suppose the existence of an object or matter according to which the motion takes place.

Once again, the deduction does not hold without the principle of plenitude. In the transcendental version we begin with the situation where we experience ourselves to be situated somewhere in space and time. The deduction then states that we can exchange two places with one another – that we could experience being there, instead of here: but this already assumes that we can move, i.e. that we can change places. The transcendental deduction is thus mere triviality: I can move, therefore, there is something that moves. The results are no better if we interpret the deduction as based on using signs: we start with a system of signs showing a structure of space – how one place is in such a position in relation to another, etc.; then, we could change the positions of two places in our system, and because signs themselves are spatial, we must have moved something – for instance, if our system is made of tiny pieces of stones representing different points of space, we have to move one piece in place of another. This version of the deduction depends obviously on the materiality and movability of our signs, being thus also circular.

e. The results of a metaphysical interpretation

If Hegel is truly trying to deduce the properties of space and time, his deduction depends essentially on the principle of plenitude, or more generally, on some connection between the abstract possibilities of the Logic – whether they be understood as independent ontological objects or as general structures of thinking – and the actual things of the concrete world. Even the idea of deductions based on signs needs such a connection: this connection is implicit in the idea of the sign which expresses a thought

on the one hand, and on the other is a spatial-temporal object. It is particularly obvious that the step from the Logic to the *Realphilosophie* already presupposes the connection between the Logic and the *Realphilosophie*: it presupposes the result it should already prove. Clearly such a presupposition cannot be justified by the Logic either, as it is limited to the study of the earlier mentioned abstract structures. Thus, it seems that this presupposition is not justified anywhere in Hegel's philosophy.¹⁶

Hegel's Logic does not ground or justify his *Realphilosophie* in the sense that one could deduce the *Realphilosophie* from the Logic – at least if we allow that the Logic is independent of the *Realphilosophie*. If we, on the other hand, accepted that the Logic itself depends on the *Realphilosophie* – that the Logic would be a mere abstraction from the *Realphilosophie* – we would already have the required connection between possibilities of the Logic and actualities of the *Realphilosophie* and the deduction of the actual world would go somewhat like this: there are some possible structures (proven by the Logic), and if there are some possible structures, then there must be some actual structures (the dependence of the Logic on the *Realphilosophie*), therefore there must be some actual structures. But the dependence of the Logic on the *Realphilosophie* would make the whole of Hegel's System like a loop without any beginning, a building without any foundation but its own roof. But this is exactly what Hegel is saying, one might object: Hegel's philosophy is supposed to be an interconnected whole where every part supports and requires every other part. This idea of Hegel's System as a closed circle is so prevalent and tangled with the problem of my work that we must investigate it more closely.

Hegel indeed seems on few occasions to speak of a circular nature of his System. For instance, in the beginning of the Logic he states that it is both the first and the last science,¹⁷ that the Logic itself depends on the Phenomenology¹⁸ and that the movement of the whole science or philosophy constitutes a circle¹⁹. The first statement describes how people learn sciences – it concerns the way of human knowledge and not the way of nature, as Aristotle would have said. Hegel is saying that people should begin the study of science with the Logic, because it deals with the most abstract structures, but they should also end the study with it, because then they can see how the structures of other sciences can be seen as mere applications of the structures of the Logic.

The idea of philosophy or science as a circle – or circle of circles, as Hegel says at the beginning of Encyclopaedia²⁰ – deserves more attention. The difficulty with this idea is that Hegel does not give any explanation what this simile is supposed to mean: particularly he does not say whether it should be understood ontologically – as implying

that the existence of the abstract objects of the Logic would depend on the existence of the objects of the *Realphilosophie* or the concrete things of the actual world and vice versa – or whether it should be understood merely as applying to the subject investigating science – that one could move from the study of the real world to the study of abstractions. In the latter case the simile of circular philosophy would not commit Hegel to the mutual dependence of abstractions and concrete world: the simile would talk only of the way of the human knowledge, not of the nature.

The greatest difficulty in estimating Hegel's simile of circular science is the lack of transitions from the *Realphilosophie* to the Logic. One of the rare moments is the one occurring in the beginning of the Logic, where Hegel argues for the transition from the Phenomenology to the Logic in the following way:

Pure knowing as *concentrated* into this *unity* has sublated all connection to another and to mediation; it is without distinctions; this distinctionless ceases thus itself to be knowledge; there is present only *simple immediacy*.

The simple immediacy is itself an expression of reflection and relates to its difference from what is mediated. In its true expression this simple immediacy is therefore *pure being*. Just as *pure* knowing is to mean nothing but knowing as such, quite abstractly, so should pure being also mean nothing but *being* in general; *being*, and nothing else, without any further determination and filling.²¹

Although we have not yet studied the argument pattern in the Phenomenology of Spirit, what Hegel is saying here seems apparently simple: the Phenomenology ended with a discovery that a conscious subject is identical²² with the object of its consciousness; now, when we abstract from everything but this identity of subject-object, we see nothing but the abstract being from which the Logic begins. I have few remarks on this argument. Firstly, in its present condition it actually does not lead us from the subject-object to the abstract being, but to the category of one. As we remember, the being of Hegel meant a *situation*, and abstract being was a situation with no objects in it. A subject-object supposedly found at the end of the Phenomenology is on the other hand an *object* or *entity*, although an idealised one, i.e., such that it is one and the same object with different aspects – thus having the structure of one. The abstract being – an empty situation – should then be abstracted from this situation with one object by taking our attention away even from the subject-object.

Even in this modified form Hegel's supposed argument seems unnecessarily complicated: it is merely a particular application of the general method of thinking abstract being by abstracting from all the characteristics and objects of the current situation. Furthermore, it is difficult to see how it is connected to the relationship of the

actual world and the possibilities. At most it seems to be saying merely that we are justified to set aside all epistemological worries concerning our ability to reach the objects and therefore we can merely start to investigate abstract being. This interpretation is apparently verified by Hegel's statement that the mediation of the Phenomenology is self-defeating – that it is merely used to rid oneself of all the presuppositions and of the need to do epistemology before science.²³ Then the argument would only concern the way of the knowing subject – that the human being must renounce all presuppositions in order to start researching abstractions – but not the way of nature – that abstract structures of the Logic would somehow depend on minds of the human beings.

It is undoubtedly possible to interpret the idea of the circle of philosophy as advocating a complete interdependence of the abstractions and the actuality. But this would result in a complete overhaul in many parts of Hegel's doctrine. The idea of the Logic as ontology in particular would be completely lost: there would be no way that the Logic could really ground or justify the existence of the objects of the *Realphilosophie*, because the Logic and the existence of its abstractions would already depend on the existence of the actual world. In another sense, we could say that the Logic as ontology would be trivialised: it would be too easy to deduce the existence of the concrete objects from the possibilities of the Logic, because the existence these possibilities would depend on the existence of concrete objects.

Furthermore, this would make Hegelian philosophy an extremely constructivist affair. I have in the previous chapter stated that there is certain constructivist flair in Hegelianism. The question is how far it goes. This interpretation would make Hegel's approach similar to Fichte's: Fichte is only talking of what there is or must be from our human point of view and he particularly admits that we cannot justify this point of view itself to anyone who does not share it, for instance, to God. Similarly, when the idea of the circle of science is taken in the way just characterised, then Hegel would have just accepted the standpoint of his System, but there would be no way to justify this standpoint to anyone outside of it. Hegel's only justification would be the completeness of his philosophy, which is worthless, because there is always the possibility of some standpoint beyond it – some method out of the reach of the Hegelianism.

In any case, Hegel himself says that the Logic can be started without any presuppositions,²⁴ and if we want to understand Hegel's System metaphysically, we apparently must understand him as insisting that he can argue for the truth of his System without any presuppositions. Furthermore, as we have seen previously, the ontological

task of the Logic that it should ground the *Realphilosophie* must be of the greatest importance for Hegel's System according to any interpretation that believes Hegel set out to prove the existence of some species of objects. Yet, this ontological task would not be satisfied within a circularly justified philosophy. Thus, it seems that Hegel has given the more important role in his System to the Logic. We have seen that the actual grounding of the *Realphilosophie* by the Logic understood as independent from *Realphilosophie* is not justifiable.

We have then two options: either to deny the argumentational independence of the Logic, as the idea of circular Hegelianism implies, or to deny that there is any argumentational connection between the Logic and the *Realphilosophie*. The former approach we could call the ontologically constructivist interpretation of the Logic, as it makes the abstractions of the Logic mere productions of human minds: we have seen that it is a possible way to amend Hegel, but one in which both the Logic and the *Realphilosophie* are left unjustified. The latter approach we could call Platonist, as it makes abstractions of the Logic independent of any human constructions.²⁵ Its possibility as a theory is guaranteed by the reconstruction of the Logic presented in the previous chapter, but its value as an interpretation is negligible, as it fails to explain the existence of two thirds of Hegel's System. There are then three ways to appropriate Hegel's philosophy, when it is understood as a metaphysical attempt. The first of them is the strictly metaphysical interpretation, which uses the unjustified principle of plenitude or some equally unjustified manner of reaching being from concepts. Second is the ontologically constructivist interpretation, which on the one hand borders on triviality, but on the other fails to give an ultimate justification for the System. Third is the Platonist interpretation, which is severely lacking as an interpretation, although otherwise a tempting possibility. Hence, the prospects of understanding Hegel's philosophy in a metaphysical manner and still as a convincing theory seem hopeless.

Summary:

A common manner of interpreting Hegel's philosophy is to see it as a metaphysical attempt to argue from the possibility of constructing certain structures in the Logic to their actuality in the concrete world. Such an argument would depend on some hidden presupposition, like the principle of plenitude, which Hegel hasn't justified properly. Thus, viewed according to the metaphysical interpretation, Hegel's philosophy seems

hopelessly dated. Particularly, the transitions from space to time and back and further to matter – assumedly some sort of arguments – would not work without some hidden assumption. If we interpret Hegel’s philosophy as a theoretical attempt, our only options are to a) suppose the Logic is actually an abstraction based on the *Realphilosophie* and thus the transition back to the *Realphilosophie* is merely a natural return to the true beginning or to b) suppose the Logic is completely independent of the *Realphilosophie*, which is just a strange appendix to the Logic. The first possibility does not really explain anything, while the second is not true to the spirit of Hegel’s’ philosophy.

¹ If the strongly metaphysical interpretation of Hegel’s philosophy is correct, then these interpretations are clearly mere reconstructions, instead of faithful descriptions of Hegel’s own ideas. Indeed, it is controversial whether they should be included in the discussion: one could even say that they are strongly antimetaphysical readings of Hegel. Yet, they share one common presupposition with the metaphysical reading of Hegel, namely, that Hegel is trying to make some sort of an argument for the connection of space and time: the difference being only whether this connection is supposed to be ontological or merely a connection for us as subjects in general or as linguistic or sign-manipulating subjects.

² G 20, § 18, p. 60, 4 – 5.

³ G12, p. 253, 21 – 23.

⁴ G 20, § 244, p. 231.

⁵ Of course it might be that although I have the ability to produce the signs I might not ever really produce them: thus, even the phenomenological argument needs principle of plenitude. We could then change the argument to end to the conclusion that I *can* experience many things, but even this would fall to the objection given above.

⁶ G 20, § 255, p. 249

⁷ Ibid., § 256, p. 245, 14 – 25.

⁸ Ibid., § 257, p. 247, 7 –11.

⁹ Here Hegel is, of course, making tacit assumptions of the nature the space, which he hasn’t proven – such assumptions as any points can be connected to form a line etc.

¹⁰ I shall leave the further transition from the line to the plane uninvestigated as it does not tell us anything of the transition from space to time. Suffice to say that it apparently makes a similar construction through a movement of the line, which results into a plane that can then be used to enclose some determinate space – this final link obviously presupposes the three-dimensionality of space.

¹¹ Ibid., § 258 A, p. 247, 23 – 25.

¹² Ibid., § 260, p. 251, 23 – 26.

¹³ Ibid., § 259 A, p. 249, 17 – 18.

¹⁴ Ibid., § 261, p. 252, 2 – 10.

¹⁵ Ibid., § 261, p. 251, 10 – 12.

¹⁶ A Hegel-scholar might object that it is given in the Phenomenology. I shall investigate this claim more closely in the next chapter.

¹⁷ G 21, p. 42, 16 – 27.

¹⁸ Ibid., p. 54, 28 – p. 55, 2.

¹⁹ Ibid., p. 58, 11 – 17.

²⁰ G 20, § 15 and 17.

²¹ G 21, p. 55, 23 – p. 56, 2.

²² Identity must here be understood in the sense of Hegel’s concrete identity, i.e., the subject and the object have similar structures.

²³ Ibid., p. 55, 11 – 22; p. 56, 3 – 5,

²⁴ Ibid., p. 56, 5 – 12.

²⁵ This doesn’t contradict the fact that Hegel’s Logic is constructivist in its method: ontological constructivism implies methodical or epistemic constructivism, but not vice versa.

8. *Practice instead of theory*

a. **Thinking as a capacity of constructing models**

The metaphysical interpretation of Hegelian philosophy left us unsatisfied, and thus, there seems to be a real demand for a more reasonable manner of interpreting Hegel that would still respect the general tenor of his System. Now, the basis of the metaphysical interpretation was Hegel's habit of asserting that thinking could know things, even as they are in themselves. The metaphysical interpretation follows from these assertions, firstly, if we interpret thinking as a sort of theoretical activity which aims at discovering basic truths from which to deduce in some manner more truths – that is, at discovering correct theories – and secondly, if we interpret things in themselves as things as they are outside the range of the usual cognition, which is supposed to be the true manner of viewing things: if Hegel's assertions are read in light of these presuppositions, then it seems obvious that he is claiming to know something of things that the ordinary cognition does not yet know. The crucial question is whether we should make these two presuppositions, i.e. what does Hegel mean by thinking and things in themselves. I shall begin now with thinking and proceed in the next section to the things in themselves.

We have actually already dealt with what Hegel understands by thinking in an extensive manner, namely, in the sixth chapter, where the subject matter was the essential part of thinking for Hegel or the logical thinking. What we still must investigate is, first, the relation of thinking to other forms of cognition – intuition and representation – then, the relation of thinking to the practical side of human mind, and finally, the relation of logical thinking to other forms of thinking. Starting with the first issue, we are already acquainted with what the intuition meant in the tradition of German philosophy: it was the general capacity of becoming determined, or receiving something given. True, Hegel admits that we have some measure of choice in deciding what aspect of the given we should concentrate our attention to: Hegel even calls this mode of attention a sort of self-determination.¹ Yet, this concentration of attention requires something more than mere intuition, namely, the capacity to recognise the more general aspects within the totality of intuition, or recollection [*Erinnerung*], as Hegel calls it.² Furthermore, this self-determination is still only formal, as the content of the aspect under attention is still determined by the totality of what is intuited.

Intuition was in the tradition of German philosophy also the only thing that

connected our thinking to any existence. Without intuiting anything we did not have any justification for positing existence of anything. As we have seen earlier, even Hegel admitted that his logical method required something intuitable in order to make the connection with existence, namely, the linguistic signs used to model the general categories of the Logic. Related to the role of intuition as a justification of existence is the singularity or individuality of intuitions: intuitions are at the very bottom of the scale of generality. Because of their singularity, they can almost never be reproduced in all their detail, although one could perhaps reproduce their general aspects.

The next level above intuitions is formed by the representations [*Vorstellung*]. Hegel actually distinguishes several stages within the level of representations. The lowest of them is the stage of the images [*Bild*], which are still similar to intuitions in being sensuous,³ but are not nearly as determined as the intuitions were.⁴ In effect, these images are actually those general aspects where the attention could be concentrated in intuitions. Thus, the images, when they have been buried into the pit of the consciousness, as Hegel so pictorially describes, are more general than the respective intuitions:⁵ an individual intuition does not repeat itself from one place or time to another, but its general aspects might be recognised in a different intuition. Because of their generality, the images seem actually to be dependent on the intuitions:

If my representation is constituted in the same way as intuition, then my representation is correct, in the recollection I confirm my representation, that it is not just subjective, but has the same content as the intuition. My representation has thus been posited as true, it is confirmed.⁶

In order that an image or generally a representation of an object would be correct, its content has to correspond to the way that we intuit the object. Furthermore, it isn't a true or good image, if it doesn't correspond to any intuition. Note that the truthfulness is attached to representations instead of intuitions: it would make no sense to compare intuitions with, say, the object intuited, because only thing we can do is compare our more general representations of objects with the way that the individual objects have been intuited.

The images are essentially dependent on intuitions in that they need the confirmation of the intuitions. This dependency is even truer of other sorts of representations. Hegel notes that we can make the content of the representations less and less pictorial through many different means. We may abstract certain determinations from the images by concentrating our attention on them and thus producing even more general representations.⁷ We may imagine objects like of which we have never intuited by combining our representations into novel shapes.⁸ We can

finally even rid of ourselves from the shackles of pictorial representing completely and use language in referring directly to objects, without any mediation of images.⁹ Yet, while we stay at the stage of the representations we cannot be certain that there are any objects corresponding to the representations without having recourse to intuitions, which on the other hand are not necessarily in our power to produce.

The difference between thinking and representation lies then not in that latter will always be necessarily more pictorial than the former, but more in the ability of the subject to exemplify or model the content of the both. As we saw, representation in Hegel always requires some external confirmation: we need to have something given in order to evaluate the truth of our representations. As we already saw in the chapter six, in thinking we have the capacity to construct a bridge from the abstract structure to the concrete intuition:

The immediate existence, intuition, feeling is recollected, the intelligence determines them as its own; the other is as essential, the expression of its subjective determining, that the content of intelligence is also posited as not-subjective, so that this content would be in the guise of immediacy as such. Thus is the difference sublated that was present in the representation; in the representation the external or the given differs from the determinateness or what belongs to intelligence. In thinking it has come to happen that the external is what belongs to intelligence. So has become unity and truth. What is, is only in so far as it is thought, and what is thought, is the issue [*Sache*].¹⁰

This does not mean that the structures of thinking would automatically be exemplified. Instead, we must first express our thoughts or posit something as their model. Thus, thinking is superior to representation in that it has the unhindered ability to find or create models for its structures: we saw earlier that this modelling was done using linguistic signs as paradigmatic examples of objects in general.

This is the crucial point. Thinking is not superior because of some ability to provide better theories: instead, its superiority is based on its practical ability of constructing things. Thinking does not give us tools for building theories, but tools for making models: remember how the Hegelian concept means a general structure with an infallible method of modelling it. This brings us straight to the close relation between thinking and practical reason, presented clearly in the following quote:

The goal of intelligence is to posit the immediate, the given as something mediated by intelligence, as its own, and to be there with itself, infinitely reflected to itself. When intelligence is thus that it is the universal itself which so makes itself particular, then intelligence is with itself, then it is free. Thinking as reason is free, and the will is free, reasonable thinking and will have something in common, the freedom, but the will is still something more, will realises the freedom that intelligence has in itself, will posits this freedom – that the content, the determinations in intelligence are its own – in the form of

immediate that does not belong to will.¹¹

Intelligence is free as thinking. That is, it resembles will, although its products are not as independent as products of will. Furthermore, it is free just because it is the universal that makes itself particular, that is, it is a process of modifying and instantiating general structures through concrete actions. Here is a clear demonstration of the importance of making and practice for what thinking means to Hegel. Thinking is the final and best form of theoretical reason just because in thinking we are not reliant on mere contemplation, analysis and argumentation, but instead have also the power to put our thoughts into reality, even if this reality consists still of mere linguistic signs. Thinking in the Logic is dependent on human freedom, because it involves actions, and indeed, it is at the same time a sort of performative proof of freedom, albeit still very minimal freedom: by constructing models of possible ways that things might be, we show that we can freely decide to do things, at least in some abstract manner. The intermingling of theory and practice is thus evident in the part of thinking that Hegel calls conceiving. It is even more evident in the way that Hegel conceives judgement and syllogism, that is, in the transitions from one concept to another. As we have seen, the Hegelian transitions are not so much arguments as they are constructions: they change the situation at hand into something else at very least by interpreting it differently.

These considerations have shown that in logical thinking practice plays a considerable role, but the status of other forms of thinking is still misty. In fact, we do not even know whether Hegel would have accepted any other kind of thinking. In this connection, the next quote is of particular importance:

Intuition, understanding etc. is judgement, and that one is identical with itself in this particular, that one has maintained itself in it and that one has integrated it with itself – this is the spirit. Concept is at first in the form of universality, and if *thinking stays in this universality, it is formal understanding*. But thinking is as essentially diremption, determinateness, judgement, negativity, and the intelligence in itself is just this diremption of itself in itself. This in itself being diremption implies that the intelligence is feeling, intuiting, that it divides itself in this universality to be feeling, intuiting, We start from immediate, which is not truly original, but at the same time something posited, and the judgement is that the intelligence is as being, finding itself determined. The intelligence is feeling, intuiting, the connection, the copula, is the identity of both, that the intelligence is that which feels and intuits.¹²

The starting point of the diremption described here is the concept in its universality which is nothing truly original, but something posited. These properties characterise obviously the Hegelian Logic where we explicitly construct linguistic models for certain general structures and thus provide paradigmatic examples of these structures.

In this phase, everything depends in a sense from the one doing the constructions or the thinker: true, the characteristics of the models are determined once they have been constructed, but it is completely up to the thinker whether he constructs models for certain structures. Now, this is not all what intelligence does, and thus intelligence divides itself. There happens a judgement, not in the sense that intelligence would make a judgement within the logical thinking: this would be mere construction of a new abstract model. Instead, the judgement here refers to a movement from the situation of doing mere Logic to a situation or context with intelligence involved in something different, namely, intuiting or receiving some given information.

We have learned thus far that Hegel admits intelligence to have two different roles, one of which is constructing linguistic models for general structure and the other of which is receiving given information. What is still lacking is an account of the interaction of the two sides of intelligence:

This identity, which in judgement has not yet been *posited*, is truly identity in itself, is the syllogism. The copula of the “*is*” implies that the diremption is at the same time one and the same, but it has not yet been *posited* as identity, the sides of the judgement do not form the fulfilment of the “*is*” or the identity. Only in the syllogism has the concrete identity been posited, this concrete identity that with intelligence – which in the judgement is in a state of particularity, feels, intuits – this particularity is posited as I itself, as its own being, as the action of intelligence. We saw this development that intelligence assimilates its feelings, intuitions, representations, posits them as identical with itself so that intelligence is with itself in this particularisation and determinateness; then intelligence is not in an immediate similarity with itself and not in immediate freedom, but it is free only in such a manner that it has unlocked itself from such difference and has sublated this difference and posited this difference as identical with itself.¹³

If the mere logical thinking was called formal understanding or concept in its universality and its separation from intuition judgement, the interplay of the two is here called syllogism. This interaction consists just in modelling the given information by turning them into “thoughts”, that is, finding in it some general structures for which the intelligence can freely construct examples.

The so-called syllogising phase of the intelligence is clearly the method by which the Hegelian *Realphilosophie* is supposed to work: this can be seen also from the remark on the relation between empirical information and concepts that I quoted in the previous chapter. Hegel clearly accepts that the conceptual-linguistic models do not always describe the phenomena correctly. True, the logical concepts always have some possible reference in the empirical world, because the models we can provide for them are empirical objects. Yet, it is still possible that a certain empirical phenomenon – such as light – does not correspond to a model that we have made of it.

Despite this apparent preponderance of the empirical information, Hegel still prefers to see the conceptual part of the interaction as the dominant one. A plausible reason for this preference is the practical nature of the intelligence and thinking. If the main task in the interaction of the intuition and thinking would be mere modelling of phenomena, then the intuition would be the preponderant element. But as we should remember, the Hegelian Logic is not interested in just modelling of general structures, but also in providing some general methods by which one could change model of one structure into a model of another structure. In other words, Hegelian pure thinking is also involved in finding how one could change situations. This task is clearly practical and it is reflected also in the more concrete parts of Hegel's System: they must find connections or transitions between intuitions and also some methods by which to discover more of these connections. It is a task of major importance in Hegel's philosophy to show how one thing or characteristic becomes another. According to what has been said thus far, this metaphor does not imply any argumentative or deductive relation between the different parts of Hegel's System. Instead, the transitions in question mean possible constructions: we are changing, as it were, things of one kind to things of other kind.

We have learned that for Hegel thinking – both in its pure form as construction of models for general ontological structures and in its application to concrete experience – is essentially practical matter. The theoretical task of describing things is only one aspect of the cognition in Hegel's philosophy: it is also important to learn how to manipulate them. Indeed, we might say that the knowledge of the nature of things is in Hegel mostly for the sake of knowing how to use them: this seems especially true of the nature which Hegel interprets as being clearly lower in status than spirit. Thinking is merely the most universal form of the human ability to manipulate things and thus also the most abstract, because we must be able to apply it in every possible situation we might face. Note the difference between Kant's and Hegel's idea of thinking. For Kant, thinking is essentially conceptual process, and indeed, any connection of concepts is already thinking according to Kant. In Hegel thinking is more complex matter. Applied thinking already involves intuition and is thus more like what Kant calls cognition, and even Hegelian pure thinking of the Logic is no playing with empty concepts, because the Logic can provide linguistic models for its own structures. Thinking in the Hegelian sense agrees or is identical with the things in the sense that it has the ability to interact with them, either theoretically by trying to model their general structure or practically by changing them. Now, it is still problematic what the things that the thinking faces are supposed

to be. Are they, in Kantian terms, mere things as we experience them or are they things in themselves? We shall see Hegel's answer in the next section.

b. Hegel and thing-in-itself

Hegel's attitude towards Kantian thing-in-itself seems ambivalent, and it could well be that his attitude changed during his philosophical development, from an outright rejection to a moderate indifference. I shall restrict my attention only to Hegel's later writings starting from *Phänomenologie des Geistes*, leaving, for instance, *Glauben und Wissen* uninvestigated. But before we look at what Hegel explicitly says of the thing-in-itself, let us ponder for a moment the results of the previous section: in light of those results, what could Hegel possibly mean by saying that thinking can know things? As we saw earlier, the Hegelian account of thinking differs from what Kant calls thinking in that Hegel's thinking already involved some intuition, at least the restricted and humanly controllable intuitions in language. Thus, the question of connection between thinking and things becomes moot. Thinking for Hegel already involves a capacity of constructing – that is, finding or creating – things that correspond to the content of thinking, and furthermore, a capacity for finding what general structures some experienced things or events have. True, there may be individual cases where we have not managed to think some thing properly and where we then do not yet know the proper structure of that thing, but there is still no essential cleft between things and thinking. Kant would undoubtedly admit as much, but would then point out that Hegel is here speaking of mere things as they are experienced by us, while the question of knowing things as they are in themselves, beyond the human experience, has been left untouched.

Hegel's attitude towards thing-in-itself depends obviously on how this Kantian concept is interpreted. In Hegel's time the preferred way of reading Kant was undoubtedly to take the thing-in-itself as a separate object beyond all experience: the interaction of this object with our cognitive capacities produced another object, the representation or appearance of the object, certain properties of which we could know with certainty, because they were put there by the activity of our cognition. The beginning of the introduction to the *Phenomenology of Spirit*¹⁴ may be seen as such a popular way of explaining Kant: here experience or cognition is regarded as a mere tool by which the person cognising attempts to get in contact with a separate thing outside all cognition and experience. Hegel's answer to such interpretation is quick: it makes unjustified assumptions.¹⁵ If the interaction of the structure of our

consciousness with an unknowable object is meant as an explanation of our experience, then this is rather bad explanation, as the explanandum is something we can never verify in our experience. Generally, explanations work within what could be experienced in some manner, but not from unexperiencable and unimaginable to experience.

There is also another way to interpret Kant and perhaps one that agrees with his purpose.¹⁶ The thing-in-itself might not refer to another thing beyond the things we can experience, but to an aspect of the ordinary things, thing as it is in itself, that is, without those characteristics that we could know of it. Now, Hegel seems to be aware of this possible reading, which can be seen in the manner he himself uses the more general notion of “being something in itself”. As we have seen, when Hegel speaks of something in itself, he means that we should look at this something in a context or situation where we have abstracted from its further properties and relations: for instance, a triangle in itself would be a triangle regarded as a mere triangle, that is, as undetermined as to how large its angles are etc. Thus, a thing-in-itself in this Hegelian usage would mean anything in a context where only the most common characteristics like identity, existence and such are ascribed to the thing, but in other ways it would be left undetermined and unstructured. Such a definition agrees with the Kantian one, if we just remember that Hegel is here speaking only of such structures that we could know of. Hegel’s attitude towards such a thing-in-itself is straightforward:

Things are called “in themselves” in so far as abstraction is made from all being-for-other, which means simply, in so far as they are thought devoid of all determination, as nothings. In this sense, it is of course impossible to know *what* the thing-in-itself is. For the question: “*what?*” demands that *determinations* be assigned; but since the things of which they are to be assigned are at the same time supposed to be *things in-themselves*, that is, without any determination, the question is thoughtlessly made impossible to answer, or else only an absurd answer is given.¹⁷

When everything that we can know has been taken from an object, there is nothing left to know. This is like taking an object out of your sight and asking how it looks to you now. The only possible answer would be that it doesn’t look anything to me, because I cannot see it. There is thus no great mystery in thing-in-itself: there just isn’t anything else to know in it.

A Kantian might make the objection that Hegel’s critique misses the whole point. Although we would think away all the characteristics of a thing that we could know, there could still be left some characteristics which we couldn’t know. Furthermore, beyond the things we can know at least partially there might be things completely beyond our cognitive capabilities. Such things we could think in the

Kantian sense, but not cognise or think in the Hegelian sense. This criticism is clearly based on the notion of possibility, as it speaks of what *might* exist or how things *might* be. Now, as we should remember, Hegel was not particularly interested of what he termed formal possibilities, that is, possibilities which haven't and even cannot be actualised in our world. In light of the results of this chapter, Hegel's attitude could be explained by practical reasons: such empty possibilities can play no role in our experience; therefore, they need not be taken seriously. Thus, the Kantian counterargument falls apart. Of course, we can accept that there are quite a number of possibilities that might hold beyond our possible experience. Yet, as long as they cannot affect the experience and thus actually become part of it, all talk of them is meaningless in the sense of not having any correlate in the experience.

The real issue separating Kantianism and Hegelianism lies clearly in this attitude towards possibilities transcending all possible experience. Kant maintained that while we cannot know anything of, say, the existence of a transcendent, omnipotent and morally perfect God, we still have practical reasons to believe in his existence: God's existence would provide us the certainty that in the end person striving for perfect morality gets happiness as his or her reward, thus making this striving reasonable.¹⁸ Now, in the *Phenomenology of Spirit* Hegel discusses this issue extensively¹⁹ and comes to the completely opposite result: the belief in possibilities transcending experience is a very bad justification for morality, as it ensnares consciousness into all sorts of inconsistencies and is thus even detrimental to morality. For instance, assuming the existence of God for the sake of justifying belief in the possibility of the highest good or the coincidence of morality and happiness is according to Hegel in contradiction with the supposed independence of morality from all external purposes.²⁰ Furthermore, Hegel notes that the supposed perfectness of God's morality would make it impossible to ascribe moral goodness to him, because morality in Kantian terms is always attached to struggle against natural impulses.²¹

If we leave the issue about the practical value of believing in possibilities aside, what is left of Hegel's and Kant's apparent differences concerning thing-in-itself? Precious little, it seems. Both philosophers agree that in the things as we experience them there is nothing ultimately alien and incomprehensible for human cognition. Furthermore, things as they are in themselves are beyond what can be known by humanly means, or as Hegel would prefer to say, there is nothing in there for us to know. Finally, both Kant and Hegel admit that there are some empty or unrealisable possibilities beyond our possible experience, although no proper knowledge of their characteristics or of their possible existence can be found: for

Hegel, this means that these empty possibilities are also meaningless for us.

c. The constructivist reading of the Phenomenology

The interpretation of Hegel I have suggested in this chapter regards the transitions between different parts of the System not as theoretical arguments from one position to another, but as practical methods of construction or change of one situation type for another. This new angle helps us to avoid the problems of metaphysical interpretation: Hegel is not presenting some grand theory of all possible things, but concentrates on the more modest problem of how to understand and change things we can experience. Now, my reading of the Logic was already essentially constructivist in this sense: it interpreted the Logic as providing methods for modelling certain general structures, when examples of other structures were given. In the next section, I shall approach the particular problematic of how the transitions at the beginning of Hegel's Philosophy of Nature should be understood. Before this, I would like to present yet another example of how the constructivist interpretation could be applied to Hegel's System, namely, by a short investigation of the Phenomenology of Spirit. Such an investigation will not just provide us with more evidence on the applicability of the constructivist interpretation, but it will also help us to understand the ambiguous manner in which Hegel's System of science presupposes the Phenomenology.

Hegel's Phenomenology of Spirit is a quite good proving ground for the constructivist interpretation, as Hegel's method in that book seems more in line with the usual argumentative paradigm of Hegel-interpretation. I shall base my account of the method of the Phenomenology on Kenneth Westphal's excellent reading of the introduction of the Phenomenology.²² The main elements in this method are that what an object is for consciousness and that what an object is in itself (according to the consciousness): the consciousness is at first unaware of the fact that the supposed object in itself is actually only the object in itself for the consciousness or that it is here dealing with its own criterion of what an object in itself should be like. In this sort of situation there is no problem of how to compare an object for the consciousness with "the object in itself": we merely have to see whether the criterion of the consciousness agrees with its actual experience. When the consciousness notices an incongruity between its criterion and its experience, something must change: either the knowledge, i.e. the experience, or then the object, i.e. the criterion.²³

The argumentative paradigm appears to explain the method of the

Phenomenology perfectly: we are faced with one theory which Hegel criticises and we have to replace it with better theory. After all other theories have been refuted, the remaining one or Hegel's own theory is then justified.²⁴ When we compare the Phenomenology with other parts of the Hegelian System problems start to appear. According to first appearances, the topic of the Phenomenology should be theories or ways to interpret objects of the world. But then it becomes problematic how to separate the Phenomenology from the Logic. If we accept the argumentative paradigm as a guideline for whole of Hegel's System, we have to interpret the Logic also as consisting of arguments against some theories, but then the difference between the Logic and the Phenomenology would become non-existent. The difference becomes obvious if we interpret the topic of the Phenomenology to be, not theories, but possible varieties of human consciousness. Now, the arguments of the Phenomenology are not arguments of or about consciousness, but arguments for or to consciousness: they are not used for interpreting consciousness, but for changing or educating it to the level of science. Thus, the arguments actually can be naturally seen as constructions: we are given a person with a certain outlook on life and we are required to change his or her outlook by showing that this outlook does not correspond with further experiences he or she might have.²⁵

Further reason for accepting the constructivist interpretation of the Phenomenology is that all transitions of it seem not to be theoretical. In some cases the criterion in question seems to describe how, for instance, the state of the world ought to be. Although the transition would still work by showing to the consciousness the clash between its criterion and its experience, the following move is then not a theoretical change of a criterion but a practical change of the world. Especially the more historical parts of the Phenomenology fall into the latter pattern.

A detailed interpretation of every transition in the Phenomenology cannot be given here, but a more specific explanation of its primary phases in light of the constructivist interpretation is still needed. The general purpose of the Phenomenology, as a guideline for instructors, is to present, perhaps not a full method, but at least a strategic outline of how to lead an individual – or a community, as we shall see – to the standpoint of Hegelian science: including how to make the instructed capable of becoming an instructor himself. Now, it seems that this general purpose can be divided into further subpurposes. I am not denying that there might be a single purpose running through the whole Phenomenology, as for instance, H. H. Harris has insisted²⁶. It is only that in application one often comes across individuals in different phases, who thus fail to be scientific in different ways. There is hence a need for

several substrategies for education of different persons.

(i) The section on consciousness is one where the argumentative interpretation of the Phenomenology succeeds best for the obvious reason that it considers theoretical education of a person. Now, by theoretical education I do not mean mere introduction of new facts, but instead, a more essential correction of wrong viewpoints. The person to be educated has some prior criterion or view of how things in the world stand, and this view is to face criticism from the educator. As the description of the method of the Phenomenology has shown, the criticism is not a pointing out of internal contradictions within the criterion or "the in itself for the consciousness": in itself or in abstraction from all else considerations worldview of an individual might be quite consistent. It is the clash with what else is "for consciousness" or with other possible experience that is the kernel of the criticism. The theoretical education of consciousness consists therefore of bringing about or pointing on certain experiences that do not fall into the general pattern by which the consciousness has thus far managed to interpret his or her experience. As an example, I shall show how the very first chapter of the Phenomenology, on sense-certainty, exemplifies this general educational strategy.

The subject matter of the chapter is the immediate knowledge: immediate both in the sense that it is the simplest form of knowledge and in the sense that it is a mere apprehending of what one finds immediately around oneself. Here "the *individual* knows a pure this or *the individual*":²⁷ that is, we have a single subject of cognition with its single context of awareness and connected to a singular situation as the object of the cognition. Now, it would be natural assumption that this setting would be connected with the problem of how a person can have reliable immediate knowledge or even information from objects around him: the educated consciousness would then receive an epistemological lesson on how one is not to believe one's senses without ado. Yet, Hegel seems to be quite uninterested of such problems and even to accept without any arguments that we can describe the situation in front of us in a fairly accurate manner.

Instead, Hegel proposes another sort of lesson, or actually two lessons. Firstly, we ask of the consciousness what he sees, write down the answer and let the time pass: after a sufficient passage of time, the previously correct answer has become false.²⁸ Secondly, we may ask the same question, then turn the consciousness around and note that he now is aware of a completely new situation.²⁹ These little games have shown consciousness not that its original statements were wrong, but that they were correct only in the current situation and that there are or can be many different

situations. Furthermore, the consciousness has learned also that there is something we could call universals, which are not restricted to any one "this" or to any single situation.³⁰ In effect, these universals are common elements occurring in many different situations. It is these universal elements that the consciousness is supposed to learn as the real truth of the sense-certainty. These elements are the truth in the sense that they are more stable than the variable elements of individual situations.

Although the consciousness should have realised the worth of universal elements, it may turn its attention elsewhere also. It may think that the multiplicity of possible situations and contexts makes the objective side of cognition unstable, while the subject of cognition still remains singular. It then transfers its interest to the subject and states that this unitary apprehender of all experience makes cognition certain: no matter how variable the objects might be, it is always I who apprehend them in a certain manner. The lesson of the previous phase can then be repeated in another manner. We can introduce the consciousness to another person with his own experiences: while the first consciousness says he sees a tree, the other might be seeing a house. The seemingly singular subject faces then the same fate as the apparently singular object: my experience is not the only possible experience there is.³¹

It is the third battle with the immediate consciousness that is by far the most intriguing. Here the consciousness that we have been trying to educate tries to shut himself out of any external influences so as to make solipsism into a reality: it refuses to compare the situation it now apprehends with any situation in another time or in another place nor does it wish to be reminded that other people have different experiences.³² In practice one should stop from moving, in order to not become aware of spatial differences, and one should try to shelter oneself into an environment with no signs of any change in order to not become aware of temporal differences. I shall ignore the question how believable such a position is: we have to respect the standards of this consciousness and try to show some examples of other situations and contexts using only the situation consciousness is currently aware of as a base of our constructions.

Hegel uses two constructions, the first of which reminds us of certain constructions in the Logic. At first sight, the construction may seem rather mysterious: "The *now* is shown; *this now*. *Now*; it has already stopped, when it is shown; the *now*, which is, is something else than what is shown, and we see that the *now* is just this already not being, when it is."³³ Actually, the construction is rather simple. We ask the consciousness to show, or in general, to describe the situation it perceives. By this

showing or describing, it has actually created a new element that changes the general situation: it is now a situation that has been described. The whole construction is very reminiscent of the construction by which one introduces new individuals in the Logic, the only difference being that here Hegel emphasises that the consciousness cognises this addition as a temporal change of situations. Hegel's second strategy depends, on the other hand, on the spatiality of the situation: not its placement in a spatial framework, but its internal spatial structure. "The *here* that has been *shown* and which I fix is similarly *this here*, which in fact is *not this* here, but front and back, over and under, right and left."³⁴ We can ask the conscious person to analyse his situation into smaller constituents and hence we have provided him with examples of other situations.³⁵

This example has hopefully shown what sort of strategies a Hegelian educator might use in trying to change the theoretical outlook of a person. The only question left to ask is what goal the education of consciousness has. The literal result of the section on consciousness should be something called self-consciousness. The obvious explanation would be that we should get the consciousness to turn his attention from objects outside him to his own structure. Such a move might be helped by an argument suggesting that consciousness of objects always presupposes consciousness of oneself. Yet, Hegel himself seems to say that he wants to do something more, that is, he wants to show "that not only is consciousness of things possible only for a self-consciousness, but that only self-consciousness is the truth of those shapes [of consciousness]".³⁶ This passage suggests that Hegel is not interested of finding presuppositions of consciousness nor even of making a conscious person interested of them, but of making consciousness literally into self-consciousness. That is, Hegel wants to force the person to interpret or see objects apparently quite different from him as structurally similar to himself. Indeed, at the very end of this section Hegel presents an example where consciousness knows the structure of an "infinite" or self-replicating object and where the educator can point out that the structure is in some ways similar to the structure of the conscious I.³⁷ The outcome of the whole educational process of consciousness would then be that the person educated wouldn't regard objects around him as completely alien or inexplicable, but would find in his environment something that he could understand because of its similarity with himself.

(ii) If the purpose of the section on consciousness was to show how to change any state of consciousness into self-consciousness – that is, to show how one can find objects that exemplify similar structures as oneself – the task of the section on self-

consciousness should then be to show a method of changing any self-consciousness into consciousness. This involves not so much introducing self-consciousness to external objects, but a change of the very values self-consciousness ascribes to itself and to others:

From the fact that self-consciousness is reason, its hitherto negative attitude towards otherness turns round into a positive attitude. So far it has been concerned merely with its independence and freedom; it has sought to save and keep itself for itself at the expense of the *world* or its own actuality, both of which appeared to it to involve the denial of its own essential nature.³⁸

The self-consciousness can think of itself as somehow special compared to the rest of the world, and then the Phenomenology provides a strategy by which one can make self-consciousness re-evaluate its position in the world. Compared to the previous section, here the educator tries to give an essentially practical lesson, that is, a lesson on how to behave.

The general strategy in educating self-consciousness is based on the presupposition that the self-consciousness is at least implicitly after recognition given by some other self-consciousness. I shall not go into a detailed account of the section, but instead I mention only two general viewpoints the educator might face and the use of recognition in changing these viewpoints. Firstly, the self-consciousness may have too high opinion of himself. That is, he may consider himself to be the master of everything and thus treat everything and everyone as subservient to him. This is the starting point of the famous dialectic between the master and the slave. The strategy of the educator consists then in showing to the supposed master that because of this viewpoint he fails to get the recognition he truly wants. One calling himself the master needs the recognition of an equal, but the “truth” of his viewpoint is that he is surrounded only by people he sees as servants and thus he can only get the recognition from people he does not value.³⁹ Secondly, the self-consciousness may have, on the contrary, rather low opinion of himself: he may think that his individuality is the primary reason for his not being as perfect as he wants – this attitude is shown by the final phase in the development of the so-called unhappy consciousness. The educating strategy for such self-consciousness is almost a reverse of that used for the master consciousness, where the educator shows that master is incapable of receiving recognition. What the unhappy consciousness needs is mediation between himself and the supposed perfect consciousness:⁴⁰ in effect, the educator must recognise the self-consciousness as being in contact with what could be called “the consciousness of the community”.

What is still unclear is the reason why a teacher leading a student to the

standpoint of Hegelian philosophy or science should learn such strategies of education: it may seem that the educator could do with the strategies presented in the section on consciousness. Still, the inclusion of the strategies for practical education in addition to the strategies of theoretical education is reasonable, as the following quote shows:

As a matter of fact, the need to occupy oneself with pure thought presupposes that the human spirit must already have travelled a long road. In the silent regions of thought which has come to itself and communes only with itself, the interests which move the lives of races and individuals are hushed. It is, one may say, the need of the already satisfied need for the necessities to which it must have attained, the need of a condition free from needs, of abstraction from the material of intuition, imagination, and so on, of the concrete interests of desire, instinct, will, in which material the determinations of thought are veiled and hidden. In the silent regions of thought which has come to itself and communes only with itself, the interests which move the lives of races and individuals are hushed.⁴¹

The science or philosophy presupposes not just a theoretical, but also a practical education, Hegel suggests. Indeed, it is the lack of self-interest that characterises philosophical thought, even of the Hegelian variety. A wrong image of oneself could hinder even the theoretical education of a person. For instance, picture an educator trying to teach the lessons of the section on consciousness to a person thinking of himself as the master. The argumentation of the educator would stop right at the sensuous certainty, because the master wouldn't be affected by the second strategy where he is confronted with impressions of another person: the master wouldn't acknowledge anyone else as a true person and would thus ignore all arguments relying on the existence of other equally valuable persons.

(iii) The rest of the *Phenomenology* need not be investigated in so much detail, and merely for the sake of completeness I shall indicate the general educational strategies contained in it. The section on reason seems, on one hand, to be a mere recapitulation of what has gone before, as it consists of parts dealing with both theoretical and practical education of a person. On the other hand, having thus two distinct subject matters, it seems to have no single agenda. Yet, on a closer look we can discern one overall goal aimed at in the whole section. The crudest shape of a person with a reason that the educator might come up with knows by heart the lessons of the previous sections, but is not yet capable of teaching these lessons to other individuals.⁴² It is not that the reasoning person wouldn't have the talent in both theoretical and practical matters, but his reason is still abstract and avoid of all content,⁴³ and the educator must provide him with some context where to use his capabilities as reason. This field of application is provided by the context of the

surrounding society and to this context the educator must direct his student. In effect, he must show to the reasoning person that he cannot function properly as a mere individual.

This general aim of the section on reason has then two sub-aims. Firstly, there is the aim of the theoretical part. The reasoning individual knows instinctually the lesson the consciousness had to learn: things outside consciousness are something reasonable or understandable by human beings.⁴⁴ What it doesn't know is the proper place to use its reason. It shouldn't be trying to find reason in things external to human affairs, but in the human affairs itself.⁴⁵ The task of educator is then not primarily to teach how things should be experienced, but to show how ultimately unsatisfying the mere observation of inorganic things, organisms or even humans understood as more complex natural objects is. Secondly, there is the aim of the practical part. Here the reasoning individual aims at his own happiness and even in the crudest form of practical reasoning knows that this can be found only in the company of fellow individuals.⁴⁶ The educator has then merely to redirect the individual to find his happiness within the community and its mores and laws.

(iv) The final stages of the *Phenomenology of Spirit* describe not phases of an individual, but of the history of communities and world in general. The most obvious interpretation of these stages in the light of the argumentative interpretation would be that Hegel attempts to show that certain phases in history have been more successful in avoiding contradictions and problems evident in certain other phases. The fact that the temporal succession of these phases follows the order of their values seems then like a miraculous coincidence, unless some theses on the necessary progression of history are accepted. For constructive paradigm of Hegel-interpretation there are other options available. While the progress of history represented in the *Phenomenology* is still not fully necessary in this interpretation, it at least is a natural progression, as the previous phases contain the possibility of turning into the later phases. Furthermore, the sections on spirit and religion are then not just explanations of past, but also strategies for modifying the future: a person who knows how, say, the Enlightenment or French revolution was instigated could use similar processes in order to guide other cultures to similar results. This possibility is underlined by Hegel's habit of turning descriptions of particular historical events into general shapes that could be applied to a variety of different historical events.

The two-fold division of Hegel's study of history in his investigation of spirit in general and investigation of religion reflects a similar division of previous stages in practical and theoretical education. Thus, the section on spirit consists essentially of a

method for changing the society and the practical attitudes of people: the final goal seems to be to raise the value of an individual. The section on religion, on the other hand, aims at finding methods for changing theoretical viewpoints of cultures, first within the level of religious thinking and then more generally from religious to scientific thinking.

d. The dialectic of space and time reconsidered

The aim of the Phenomenology was to provide an educator with method and strategies for guiding both individuals and cultures into a proper level of maturity where the objective study of science was possible. In case of individual this meant, firstly, guiding the individual to use his theoretical skills in describing general regularities instead of mere particular occurrences. Furthermore, the individual was shown that self-centred worldview did not help him gain what he truly needed. Finally, the individual was helped to find his place in the community of rational agents. In the case of communities the maturation meant upholding the worth of an individual and his liberty, both in social and ideological spheres.

If the Phenomenology is a prelude to science, which was about moulding and improving an individual, the Hegelian System itself is about letting the individual do the moulding and educating himself or herself with skills to make something happen. The object of construction has thus become the subject doing the construction. As we should know by now, the beginning of the System, or the Logic, is about methods and strategies by which an individual can construct models of all basic ontological structures, which he is then free to apply to different phenomena: most complex of them supposedly even to his own activity in the Logic.

What should happen when the individual leaves the confinement of the Logic? We know that at the end he should acquire the capabilities for becoming a similar educator of people to the one that helped him to find science, but we are here more interested of the beginning of this journey. Before we can approach our main interest, the construction of space and time, we must say few words on how the transition to the nature as a whole is effected. As we saw in the previous chapter, if the transition was interpreted as an argument for the existence of nature, it required the assumption of the principle of plenitude. Earlier we saw that Hegel apparently endorsed the principle of plenitude – at least if we read the section on modalities in the Logic as an argument for that principle. Thus, we need first to look at how the transition from possibility to actuality must be interpreted according to the constructivist

interpretation.

In light of the constructivist interpretation of Hegel's philosophy, the transition from possibility to actuality cannot be understood as an argument from the possibility of some genus to an existence of particular belonging to that genus, but instead as a construction of such a particular. Hence, we must change our previous interpretation of the chapter on modalities in the *Logic*. Hegel is not trying to prove the principle of plenitude with some sophistic trick, but he merely shows that he and indeed any human being has the capability of constructing for any true possibility a context where it is actualised. Some explanations are in order. Firstly, this is to be seen more as a criterion for accepting something as a possibility than as a definition of it. If someone claims something to be possible, we have the right to demand that he should actualise this supposed possibility in some context. If he cannot do it, we must suspend our judgement on whether it truly is a possibility.

Secondly, we shouldn't think of the actualising involved in the transition as some sort of context-independent event. Instead, there could be different levels of actualising a possibility, some more concrete than others. In Hegelian terms, what is a real possibility in one context or in one level could be only a formal or abstract possibility in a more concrete level – for example, a possibility that could be constructed in the context of our imagination might not be constructible in the actual world. We could perhaps even reconstruct a system of different levels of possibilities. At the lowest level would be issues truly or formally impossible: contradictions in the non-Hegelian sense of the word. Above those are then things that are not formally contradictory, but which we cannot still humanly construct even in our imagination: any structure which would require infinite constructions is a good example. Next level is formed by the just mentioned imaginable possibilities that are not actualised outside our imagination. Finally, there are things that are or have been actualised somewhere or things that we could discover, and even above those, things that we are capable of producing ourselves.

Note that with the reinterpretation of the transition from actuality to possibility, the interpretation of what Hegel means by necessity must also change. Necessity of something does not mean its actuality in all possible situations or contexts and not even inevitability of its actualisation, but is connected with the processes of how such something is constructed, that is, discovered or produced. Necessity of a sort of object means then nothing more than an infallible capacity of constructing such an object, although any object of that sort wouldn't be present in the current situation.

The explanation of the transition from possibility to actuality enlightens

at once the apparently difficult transition from the Logic or absolute idea to nature. The concept or idea lets itself free, says Hegel. As we saw earlier, this should mean nothing more than that the person reading the Logic should have after this reading the ability to construct a model for any basic ontological structure, without requiring any previous material for these constructions. The models created are, as we have seen, made of linguistic signs – or at least one has the ability to turn the models in one's thoughts to this public form. Thus, in case of human subjects, the models they can produce exist in the same space-time as they themselves do. Furthermore, these models are also independent of the person who constructed them, after the construction has been made: as Hegel says, the creation or construction of the subject exists absolutely for itself without any subjectivity.⁴⁷ This is, of course, true of all things we can produce: after we have produced them, we cannot change their properties merely with our thoughts. The transition from the Logic to the Philosophy of Nature is then truly in some sense a creation of a nature. It is not a creation of the whole nature – Hegel would perhaps not even admit that there is any whole of nature to speak of – but a creation of one particular instance of nature, that is, something independent of us.

The transition from idea to nature is thus based on the ability of human beings, or indeed all conscious subjects, to produce something. How have things improved from the previous chapter? One might object that we still have merely justified the existence of a link between thought and nature by presupposing a link between thought and nature. The objection would be valid if Hegel were interested in making an argument here: this is just what we have denied. Instead, he is merely showing how to produce an example of nature or subject-independent realm of discussion. At least one point of this lesson is to show how one could always explain what a nature is to a person who claims he is not acquainted with any nature. This task of modelling the concept of nature is a clear continuation of the task of modelling ontological categories in the Logic.

What interests us now is the special nature of the transitions in the Philosophy of Nature, especially how it differs from the nature of the transitions in the Philosophy of Spirit. One general characterisation of these different areas that Hegel implies is that nature resembles more the structure of space, while spirit, being more historical, is essentially connected with time.⁴⁸ Whatever other consequences could be drawn from this description, one of them concerns the general nature of the transitions involved in the different areas of Hegel's System. In the Philosophy of Spirit, the thematic content is usually always the same, and merely its properties change: thus,

the Phenomenology is all about education of one individual or one culture – a change of one individual’s viewpoint etc. In the Philosophy of Nature, the things are usually different: we do not have a constant theme, but a succession of many themes. Thus, we are not, for instance, learning how to change sound to warmth or plants to animals, but merely how to discover warmth or animals, when sound or plants are given to us. Even the transition from idea to nature is explicitly not a change of idea – the methodology for producing models – into nature, but a creation or discovery of something differing from the idea. In many cases the transitions in the Philosophy of Nature appear to conform better to an even weaker reading: we are not literally discovering these new things, but only a model of their general structure.

If we then move on to the particular transitions within the Logic, we may begin with the transition to space. Actually, there is hardly any transition, but Hegel merely begins with “the abstract *universality of the being-outside-itself of nature* – its unmediated indifference or *space*”.⁴⁹ Indeed, the construction of nature or a model of nature already is a construction of a model of space. We have constructed many instances of structures or situations that are interpreted as being completely independent of one another, and space is for Hegel nothing more than such a framework of distinct, independent situations. We only have to ignore the content of all the structures within our model of nature and concentrate on this form of situations being independent and we have then constructed a model for space. The medium of this construction is irrelevant. If we are constructing the model for ourselves, we can rely on mental images. If we want to construct it to a person, with whom we have a common language, we may use the signs of this language or some similar method of producing intuitions. Note that now the spatiality of our signs is no reason for dismissing Hegel’s construction as circular, because the aim of this construction is not understood to be deducing or proving existence of spatial structures: the intention of Hegel is merely to show through examples what it means that a structure is spatial.

Further properties of empirical space should then be discoverable within the model of space we have produced or within some modification of it. The basic characteristics of the concept of space according to Hegel – the discreteness or the possibility of discovering further spaces and the continuity or the possibility of identifying any two spaces – can be demonstrated rather easily. The discreteness of space is exemplified by our ability in the Logic to add further structures to any given framework of structures, and its continuity is exemplified by the possibility of arbitrarily reorganising the structures in this framework. Even Hegel’s outlandish deduction of three-dimensionality of space can now be explained properly as no real

deduction, but as a construction of a model of three-dimensional space: we merely have to organise the framework of distinct situations we have constructed according to a classificatory scheme of three “dimensions” in order to exemplify a three-dimensional space. Notice that we do not anymore need to worry of the fact that Hegel states three-dimensionality to be a necessary characteristic of space.⁵⁰ We have seen that this necessity refers in Hegel merely to the fact that we have an infallible method of modelling the three-dimensionality of empirical space.

We have already seen in the previous chapter that the transition from space to time is naturally understood as involving a construction of a series of spatial structures, which as a series shares some similarities with a temporal series: for instance, a series consisting of point, line, figure and body has an irreversible order. The problem in the previous chapter was to understand how one could then argue from a possible existence of such a series to an actual existence of time. The inevitable answer is that Hegel is not even attempting such an argument. He is merely interested of showing that we can model time by means of space. Thus, if we were acquainted with a person who could experience space, but could not experience time, we could explain to this person some characteristics of time through his representation of space.⁵¹ Indeed, we saw also in the previous chapter that Hegel was willing to connect all possible constructions with time. This connection becomes evident if we just discard the idea that Hegel is arguing for the existence of time in basis of these possible constructions. Let us construct something or change our environment in some manner: then we have not deduced that time flows always, but we have shown what the passage of time is. We have shown what it means to say that things are different than they used to be.

The transition from time to space depended on the nature of the past, as we saw in the previous chapter: the sequence of past states, regarded as a sequence of independent situations, resembled space as a framework of similarly independent situations. In light of the constructivist interpretation, nothing further is needed: the modelling of space through time is enough, because we need not show that there is any “outer space” beyond our “inner space”. According to this reading, Hegel’s manner of relating past with the human capacity of recollecting and memorising things⁵² becomes important. Indeed, in describing different memorising capabilities of human subject – capability of storing and recollecting intuitions [*Erinnerung*] and capability of storing and recollecting signs [*Gedächtnis*] – Hegel explicitly compares these memory storages with space:

When the intelligence recollects or internalises intuition, it sets the *content* of the *feeling* in its

internality, in its own *space* and its own *time*.⁵³

[T]his highest recollection or internalisation of representing is its highest externalisation, in which it sets itself as *being*, the universal space of names as such, i.e. meaningless signs.⁵⁴

A person is aware of time when he can remember that situations used to be different than they now are, that is, when he can recollect a situation differing from the present situation. Thus, this person is aware of a collection of possible situations – his own space of memories – where he can move with some freedom. If this person claimed to have no idea of external space, we could point out this inner space of his as an example of what the external space resembles.

The final moves I shall investigate take us from space and time to their connection in movement and matter. But before that I shall make some remarks on what Hegel calls place (*Ort*). In the previous chapter I merely suggested Hegel referred by place to a unity of space and time: we could perhaps imagine that while point was meant to be a position in space, place would be a position in space-time. Within the constructivist interpretation, we may suggest a weaker meaning behind Hegel's description of place as a posited unity of space and time: place exemplifies or models characteristics of both space and time. Place is a spatial position, just like point, yet, it should also share properties with time. Indeed, we might say that the place is merely a modification of point. When Hegel investigated mere space, he thought that the points and their relations were to be taken as fixed. But like the “now” – position in time – Hegel takes a position of a place to be also alterable: place is a point in space, in so far as we may change it to another position.

Note that this change of the position of a place need not be a concrete example of motion: it may well be only an abstract mapping of one place to another. Indeed, such abstraction is all Hegel requires, if his aim is not to argue for the existence of motion, but merely to show how to model empirical motion. Hegel presents a method of how to explain motion to a person who claims to have no experience of it, although he understands what space and time are: we can just ask this person to imagine a position in space to be in different place than it used to be. Furthermore, if the person in question can experience spatial things, we can even concretely show how one spatial object can be transferred to another position.

How should the transition from motion or generally from space and time to matter be then understood? It would be consequent to assume that the transition would mean at least modelling matter through space, time and motion, but there seems to be something more going on. Indeed, Hegel says that the transition from space and time to matter – from ideality to reality – involves something that is hard to understand for

common understanding.⁵⁵ The transition itself happens in one sentence: “This becoming [that is, motion] is then itself just as much the coincidence in itself of its contradiction, the *immediate identical being-there* unity of both [space and time], the *matter*.”⁵⁶ Motion is a change of places – or more generally, a change of fixed spatial position into a state of being altered and then a change back into a state of fixedness, but in another spatial position. What the transition involves is an acceptance of a unity behind these “states of being in different positions”, that is, an acceptance of an object that has been in one place, but has then moved to another place. Note that this is no argument: Hegel is not deducing the existence of a material object from the fact of a state of movement. The transition to matter involves a change of interpretation and thus a change of context or situation – it introduces new objects. Instead of making an argument, Hegel merely points out some situations in which we are justified in doing such a reinterpretation: when motion occurs, we may suppose there is something material moving.

Although the transition from movement or generally from space and time to matter is more complicated than the previous transitions, the basic idea of modelling new phenomena through the previously known phenomena is still present. One can understand motion on basis of understanding space and time – as a difference of positions in different moments of time – and one can understand matter on basis of understanding motion – as something that moves. Thus, one can understand what matter is, if one just has experience of space and time.⁵⁷ Yet, it is the “something more” in this transition that seems more interesting. Particularly intriguing is to think how this transition as a construction or discovery of matter differs from simple argument for the existence of matter. If we were deducing the existence of matter, we would assume that the matter could have always been there and we just happened to come in contact with it through its effects on space-time, while in Hegel’s transition the question of the pre-existence of matter is meaningless. The difference is not as radical as it sounds: Hegel is not saying that we literally created matter by our change of interpretation. It is more a difference in the possibilities of interpreting matter. If space and time were only our means for arguing for the existence of matter, we could imagine that matter might truly exist without space and time. On the other hand, in Hegel’s transition we have no way to justify that the matter could exist without space and time, because such assumption would be meaningless for us. Hegel admits that we can think of matter without space and time, but adds at once that we are then looking at matter within some abstract context.⁵⁸ That is, in thinking of matter without space and time, we are ignoring something that is essential to matter as we understand it.

Matter is completely characterised by being identity of space and time, Hegel says,⁵⁹ but he does not mean that matter would be nothing but a combination of space and time. On the contrary, Hegel suggests that all further characteristics of matter are, as it were, applications or consequences of spatiotemporal characteristics in more determinate contexts. Matter is spatial or it has a position in space: thus, it is, for instance, divisible to parts. Matter is also temporal, and by this Hegel means not only that it has a position in time, but also that its position in space may differ in different moments of time. It is this possibility of changing the position of matter which shows us that matter is, although always in a spatial position, not necessarily connected to any position. On basis of this possibility we are justified in separating matter from space and positions in space – while a position in space is a situation, matter is an object in such situation.⁶⁰ It is the combination of these two characteristics – being spatial or in space and being different from space – which Hegel tries to indicate with the bland expression “identity of space and time”.

How then are the further characteristics of matter applications of this basic structure of matter? Let us consider the fact that a material object resists other material objects when they try to penetrate its space. Firstly, the possibility that the objects come in contact presupposes that they both share the same spatial situation: this is the moment of spatiality or the aspect of matter being in relation with something else. Secondly, the first object resists the second object just because it is not a spatial situation, but an object within a spatial situation: this is the moment of matter being different from space or the aspect of matter being a separate entity.⁶¹ What is new in this example in comparison with the abstract structure of matter is that we have somehow come up with a situation with different material objects. In light of the constructivist interpretation of Hegel’s philosophy, we should be able to construct this multiplicity of objects from matter – or at least we should be able to model it through matter. The intricacies of this construction are not anymore a task of my thesis.

Summary:

Hegel’s thinking is not primarily a theoretical activity in the sense of proof or argument of some theorems. Instead, it is a practical manufacturing of models for a) types of objects and situations and for b) types of methods for modifying objects and methods. When thinking is applied to concrete things, we are examining whether these things conform to models created by thinking: this correspondence must be determined empirically, Hegel says. Because Hegelian thinking can create models for

all of its concepts by linguistic means and thus contains the ability to manufacture some objects, the concepts it has will always have some reference. Although it is formally possible that there might be structures that such thinking couldn't conceptualise, we couldn't ever experience any situations or objects exemplifying such structures. Therefore Hegel dismisses the idea of such structures as meaningless for us.

The transitions between different parts of Hegel's philosophy are thus no arguments from one position to another, but constructions of one situation, object or model from another. For instance, the *Phenomenology of Spirit* is primarily no argument for Hegel's philosophy, but a methodology for training people to understand Hegelianism. Furthermore, the transitions from the *Logic* to nature, from space to time, from time to space, and from both to matter are not arguments, but constructions showing how one can model the end of the construction in the terms of its beginning.

¹ V 13, p. 189, 11 –12

² Ibid., p. 190, 39.

³ Ibid., p. 198, 324 – 325.

⁴ Ibid., p. 199, 353 – 356.

⁵ Ibid., p. 200, 405 – 406.

⁶ Ibid., p. 201, 428 – 432.

⁷ Ibid., p. 204, 544 – 551.

⁸ Ibid., p. 206, 601 – 606.

⁹ Ibid., p. 217, 973 – 980.

¹⁰ Ibid., p. 224, 177 – p. 225, 185.

¹¹ Ibid., p. 237, 456 – 473.

¹² Ibid., p. 235, 402 – 416.

¹³ Ibid., p. 237, 416 – p. 238, 431.

¹⁴ G 9, p. 53, 1 – p. 54, 6.

¹⁵ Ibid., p. 54, 11 – 13.

¹⁶ The best account of this interpretation of Kantian philosophy is Allison 2004 and especially the first three chapters of it (p. 3– 73).

¹⁷ G 21, p. 109, 1 – 8.

¹⁸ KPV, p.124 – 126.

¹⁹ In the section on morality (G 9, p. 324 – p. 340).

²⁰ G 9, p. 334, 37 – p. 335,8.

²¹ Ibid., p. 338, 20 – 35.

²² Westphal 1989, p. 100 – 111.

²³ G 9, p. 59, 26 – p. 60, 14.

²⁴ Advocates of this argumentative reading of the *Phenomenology* are too numerous to recount. In fact, one often gets the impression that almost no other sort of interpretation exists at least in the English-speaking Hegel-scholarship, where the *Phenomenology* is seen primarily as an epistemological work. In any case a recent example of such reading is Dietmar Heidemann's article "Substance, subject, system" (2008).

²⁵ The double role of the *Phenomenology* both as a prolegomena to the system and as a part of the system becomes obvious in this constructivist interpretation. From the viewpoint of the one doing the construction – the educator – the *Phenomenology* is obviously already part of the system: that is, when the educator is reading the *Phenomenology*, he is learning how to convince his pupils of the worth of the Hegelian system. To the object of the construction – a learning student – the *Phenomenology* is an introduction to the system: when the student is reading the *Phenomenology*, he is supposed to change his possibly limited or unfruitful way of life.

²⁶ Harris 1997, p. 14–15. Harris speaks actually of a single argument, but I have ignored this reference to the tempting and still faulty argumentative interpretation.

²⁷ G 9, p. 63, 32 – 33.

²⁸ Ibid., p. 64, 29 – 37.

²⁹ Ibid., p. 65, 24 – 30.

³⁰ Ibid., p. 65, 11 – 13.

³¹ Ibid., p. 66, 1 – 21.

³² Ibid., p. 67, 9 – 22.

³³ Ibid., p. 67, 33 – 39.

³⁴ Ibid., p. 68, 22 – 24.

³⁵ The reader might have noticed that my account of the chapter on sense-certainty differs drastically from the reading of this chapter favoured in argumentative interpretations of the *Phenomenology*: advocates of such reading are once again too numerous to mention, but a recent example of such interpretation would be Willem deVries' article "Sense-certainty and the 'this-such'" (2008). Specific characteristics of this argumentative reading of chapter on sense-certainty include a) the notion that sense-certainty is a theory of knowledge or consciousness, b) the idea that sense-certainty is an impossible, contradictory, inherently unstable, paradoxical or in some other sense completely ridiculous theory, because it tries to rely on unconceptual knowledge, while all knowledge is conceptual and c) the opinion that Hegel tries to argue against this absurd theory through some clever linguistic analysis of indexicals or of universality of words. This argumentative reading is often also connected with a comparison with Sellars or Wittgenstein or whoever happens to be the Great Hero of modern philosophy according to the writer.

This argumentative reading fails to explain why sense-certainty should be interpreted as a theory of consciousness, when all later chapters of the *Phenomenology* are more readily interpreted as describing *shapes* of consciousness, and indeed, possible shapes of consciousness (some even have historical instances). Thus, it seems more likely to hold that sense-certainty is also a possible shape of consciousness. It is possible as an independent shape, although one that has probably been long gone when language steps in: a person cannot be purely sense-certain when he or she has understood that things change or that things have been different than they now are. Even after this, sense-certainty may be discerned as an aspect in other shapes of consciousness, because we still can momentarily just watch things as they are in some individual context. Hegel's strategy is not to disprove sense-certainty, but to lead us away from it, to other, more important or "truer" objects of consciousness: that is, to lead us from describing individual contexts and viewpoints to discovering connections between contexts and regularities leading from one situation to another. His methods against sense-certainty are a bit overkill, as there are in total five different strategies that he uses to show us the existence of several situations: i) spontaneous temporal change, ii) difference of a situation from another situation in different spatial position, iii) different opinions of other people, iv) artificially produced temporal changes, like changes in an interpretation of a situation, v) spatial and in general analysis of any situation into constituent situations.

³⁶ G 9, p. 102, 3 – 5.

³⁷ Ibid., p. 101, 30 – 37.

³⁸ Ibid., p. 132, 21 – 25.

³⁹ Ibid., p. 114, 1 – 7.

⁴⁰ Ibid., p. 129, 38 – p. 130, 8.

⁴¹ G 21, p. 12, 29 – p. 13, 2.

⁴² G 9, p. 133, 34 – p. 134, 1.

⁴³ Ibid., p. 134, 20 – 22.

⁴⁴ Ibid., p. 137, 20 – 32.

⁴⁵ Ibid., p. 138, 11 – 21.

⁴⁶ Ibid., p. 199, 24 – 27.

⁴⁷ G 21, p. 253, 23 – 25.

⁴⁸ See G 9, p. 433, 5 – 13, where Hegel explicitly identifies nature as the externalisation of spirit as space and history as its externalisation as time.

⁴⁹ G 20, § 254, p. 243, 16 – 17.

⁵⁰ Ibid., § 255, 23.

⁵¹ Note that Hegel would probably feel the idea of an untemporal consciousness to be outlandish: all forms of consciousness we know are temporal and it is futile to speculate of other sorts of consciousness. Hegel has then more likely in his mind a less extravagant argument, where we explicate the structure of time to a person who is capable of experiencing time, but claims not to have experienced time: we show to the person that when he thinks of a series of geometrical figures, he goes through a series of temporal changes.

⁵² G 20, § 259, p. 249, 13 – 16.

⁵³ Ibid., § 452, p. 446, 10 – 12.

⁵⁴ Ibid., § 463, p. 461, 9 – 11.

⁵⁵ Ibid., § 261 A, p. 252, 13 – 16.

⁵⁶ Ibid., § 261, p. 251, 10 – 12.

⁵⁷ Indeed, when Hegel mentions that space and time are always experienced as filled – at least partially – with matter (G 20, § 261, p. 252, 17 – 18), he may be suggesting that experience of space and time is impossible without experience of matter. This would be in line with his conviction that absolute space and time are nothing but abstractions.

⁵⁸ *Ibid.*, § 261, p. 251, 23 – 27.

⁵⁹ *Ibid.*, § 261, p. 252, 31 – p. 253, 2.

⁶⁰ Indeed, Hegel himself connects temporality of matter with its being singular object (G 20, § 261, p. 253, 1 – 2).

⁶¹ *Ibid.*, § 261, p. 252, 22 – 31.

Conclusions and suggestions for further study

The questions we asked at the beginning of this work concerned the relation of Hegel's Logic and his *Realphilosophie*. Is the Logic a condition for the *Realphilosophie*, that is, does one need the Logic in order to understand the *Realphilosophie*? Is the Logic conditioned by the *Realphilosophie*, that is, does one need the *Realphilosophie* in order to understand the Logic? Finally, does the Logic ground the *Realphilosophie*, that is, do structures of the Logic somehow explain the structures of the *Realphilosophie*? Now, the meaning of these questions themselves is completely different if we read Hegel as an argumentative philosopher than it would be if we read him as a constructivist philosopher. In the previous case, the conditioning and grounding should be theoretical relations, while in the latter case they should be more of practical¹ relations.

The answer to the first question does not change very much from one interpretation to another. Whether we read Hegel as an argumentative or as a constructivist philosopher, he clearly wants to say that the Logic is a condition of the *Realphilosophie*: structures of the *Realphilosophie* contain structures of the Logic as more concrete structures in general contain more abstract structures. Yet, even this question involves some difference. Transitions in the *Realphilosophie* understood as constructions in concrete world are easier to discover than relatively abstract constructions of the Logic. Thus, one could well be aware of transitions in the *Realphilosophie* – for instance, how to change one sort of matter to another – but still be unsure about the transitions of the Logic – one might not know how generally to find different objects from given objects. On the other hand, if the transitions are understood as arguments, there seems to be no difference between arguments in one realm of discussion and another. Thus, arguments of the *Realphilosophie* would be conditioned by the arguments of the Logic, that is, the correctness of the first would require the correctness of latter.

The answers to the second question differ more radically. If we interpret the supposed transition from the end of Hegel's philosophy to its beginning as a deductive or generally argumentative relation, the supposed circle of sciences would be a circle of arguments, and Hegelian philosophy would be an anti-foundationalist system based perhaps on some form of coherence. Then again, the supposed independence of the Logic would be in jeopardy, and one would have to explain this apparent contradiction within the heart of the Hegelian System. Within the constructivist interpretation this

problematic does not appear. The end of the *Philosophy of Spirit* and the *Phenomenology* leads to the beginning of the *Logic*: this means just that we have the ability to educate any person into having the ability to take up the *Logic* himself. Indeed, an ordinary human being must go through such preliminary education before he has the necessary skills needed in the *Logic*: skills required include impartiality and ability to model abstractions. Then again, the *Logic* can still be independent in another sense: we need no special given for constructing the structures of the *Logic*, because the beginning of the *Logic* can be reached from any given situation through abstraction. At least it seems that Hegel thinks the *Logic* is independent in this sense: whether it truly is so or whether it requires somewhere introduction of structures that cannot be constructed from any given should be decided by a complete investigation of the *Logic*.

It is the third question where the greatest differences arise. If we interpret the transition from the *Logic* to the *Realphilosophie* according to the argumentative interpretation, we would have to view it as a sort of argument. Either the structures of the *Logic* would metaphysically determine what kind of concrete objects and phenomena there are, or then we could deduce the existence and characteristics of these concrete objects and phenomena from the structures of the *Logic* because these structures are mere abstractions from the concrete world. The first option sounds too farfetched, while the second is again in contradiction with the supposed independency of the *Logic*. The constructivist interpretation solves the matter in a completely different way: the transition from the *Logic* to the *Realphilosophie* is not an argument, but a construction of concrete objects and phenomena, or at least of models of concrete objects and phenomena. The *Realphilosophie* would then be grounded by the *Logic* in a practical manner: the methods used to construct structures of the *Logic* can be applied in modelling structures of the *Realphilosophie*.

These examples should show that the decision to choose either the argumentative or constructivist interpretation of Hegel's philosophy is crucial. In my thesis, I have tried to argue that Hegel's philosophy as a whole should be understood in the light of constructivist interpretation. Of course, I am not suggesting that it would completely lack in arguments. Many parts of the *Phenomenology* and the *Logic* contain arguments: for example, the long remark on the differential and integral calculus in the latter book contains a critical argument against certain interpretations of the calculus. Even a pure construction with no argumentative power in itself could be stated as an argument. For instance, in the *Logic* constructions of an example of one structure from an example of another structure could be stated as arguments for

the possibility of the first structure when an actual instance of the second structure was given – indeed, even I have sometimes presented Hegel’s constructions in this manner. We might also note that, according to Hegel, in the imperfect synthetic method constructions and proofs or arguments are separate from one another: constructions add something to the situation – e.g. new geometric figures – but are in themselves purposeless, while proofs do have a purpose, but they do not truly change the situation.² This implies that in the perfect method construction and proof are one: the method constructs something or changes the situation at hand, and the aim of this construction is just to see what new possibilities arise from such a change. In fact, one could thus transform the whole of the *Logic* into an ontological theory. Among the primary theses of this ontology would be at least the following: (a) there are many possible ways that things could be or could be said to be, (b) some of these ways are more informative or adequate than others and (c) we have an ability to construct instances of the most general ways things could be. Yet, this possibility of turning transitions into arguments and models into theories is secondary in comparison with the role of these transitions as methods of constructions. Similarly, one could prove from a recipe that cakes are possible, but the true purpose of the recipe is still to bake cakes.

A question that has almost ruled the field of the Hegel-scholarship in the last decades has concerned the rivalry between the so-called metaphysical and non-metaphysical interpretations of Hegel’s philosophy.³ In light of my research, this question is of secondary importance in comparison with the true question whether Hegel is an argumentative or constructive philosopher. It is, firstly, ambiguous what the term “metaphysical” is supposed to mean here.⁴ The rivalry of the two interpretations has often concentrated on whether Hegel still follows Kant, but even Kant upheld in some sense metaphysics, although his metaphysics was supposed to be not transcendent, but immanent, that is, restricted to what can be experienced.⁵ I have suggested that Hegel shares Kant’s restriction of knowledge to what can be experienced and is Kantian in this sense, but he is still opposed to Kant in many questions. Indeed, in light of the constructivist interpretation, the more crucial question is how well the practical philosophies of the two gentlemen correspond. It is here where the true difference of Kant and Hegel is to be found: while Kant endorses transcendent goals of action that can never be achieved by human capabilities, Hegel wants to concentrate action on goals that are immanent to the world of experience and that are therefore possible to reach through human endeavours.

Another misleading question rising from the application of an argumentative

approach to Hegel's philosophy concerns the problem whether the Hegelian System is supposed to be foundational – based on some indubitable truth – or in some manner antifoundational – for instance, based on the holistic nature of the whole System. Now, this is obviously a theoretical question and therefore fails to touch the basic purpose of Hegel's philosophy. Undoubtedly we could ask whether Hegel would uphold foundationalism or antifoundationalism of cognition, and this would be an interesting investigation, if it were done properly. Still, we couldn't base our answer on aspects of Hegel's philosophy that were not explicitly connected with his thoughts on the workings of cognition.⁶ For instance the supposed circular nature of Hegel's System shouldn't be used as an evidence for one side or the other. When Hegel speaks of beginning philosophy, he is not trying to find a first truth nor does he try to disprove the existence of such truth. Instead, he merely tries to provide an example of a general structure that any subject of cognition could construct despite of what structures he happens to know. Of course, such a beginning would presuppose quite a lot empirically, most importantly a person having some information and being capable of doing the necessary constructions. As the aim of Hegel's philosophy is not primarily to prove anything, but to educate how to do such constructions, he may without any regret just accept these presuppositions.

Until now I have investigated some consequences of the constructivist interpretation for our outlook on the whole Hegelian System. Now is the time to turn our attention to its individual parts. Let us start with the Logic. The constructivist interpretation of the Logic is not committed to any metaphysics of absolute spirit, which was the eternal burden of theological interpretations of the Logic, where the content of the Logic is the thought of this spirit. Furthermore, according to this interpretation, the Logic is generally not committed to any strong metaphysical theses: the Logic is more of a practical endeavour that aims at improving one's methods. Of course, this does not mean that the Logic would be in the constructivist interpretation completely non-metaphysical: I have just outlined few ontological theses that could be defended on basis of the the Logic in its constructivist interpretation. Indeed, the Logic interpreted in a constructivist manner would not be empty in the sense that it would give us a mere formal classification of all possible categories. Instead, it would offer us concrete ways to do something with categories and to find actual instances for all categories.

We may quickly note again the similarities and differences between the Hegelian Logic and what has been traditionally known as logic. The main commonality between the Logic and logic is their abstractness. Because of this

abstractness, the ordinary logic allows a mathematical treatment, and I believe that for the same reason the Hegelian Logic can at least partially be also represented in a mathematical fashion – a tentative description of some characteristics of such a treatment has been given in the first appendix. Furthermore, both logic and the Logic can be understood as methods, although logic is supposed to be a method of deduction, while the Logic should be a method for creating models for different structures and for changing these models. Both logic and the Logic are also tightly connected with language. Yet, for logic, the language is more of an object of investigation – we may, for instance, study deductive relations in some language – while for the Logic, language is mostly a mere means for creating models for concrete structures.

The constructivist reading of the Logic defuses some of the main controversies surrounding this book. For instance, Robert Pippin suggested⁷ that the Hegelian Logic continues the tradition of Kant's transcendental philosophy by investigating the conditions for something to be an object of a self-conscious judgement: for instance, the Logic shows that thought must characterise objects contrastively. Stephen Houlgate, on the other hand, upholds⁸ that Hegel's mission is to argue for some ontological claims: for example, for the claim that objects necessarily must oppose and contrast one another. The constructivist interpretation resolves the dilemma by noting that Hegel is not trying to prove anything. Instead, he is merely showing how to construct examples of structures where objects do necessarily oppose and contrast one another – in argumentative terms, he shows that this sort of ontological structure is a real possibility.

If we then proceed to the *Realphilosophie*, we may now explain Hegel's ambiguous relationship with empirical discoveries manifested in the already familiar remark to paragraph 276 of Encyclopaedia: "Immanently philosophical is here, as always, the necessity that belongs to the *determination of concept*, which then is to be shown as *some arbitrary* natural existence". The crucial question here is what one means by the necessity of the determination of concept. If it is supposed to mean some sort of deductively or otherwise proven necessary existence of entities exemplifying some structure, then the relation of this deduction to the discovery of corresponding natural entities becomes problematic. Why should we need to discover such entities, if we already knew they would exist? Indeed, empirical discovery couldn't even falsify the results of an argument involving necessity: thus, Hegel would apparently think his *Realphilosophie* would be strongly immune from any empirical revision.

The constructivist interpretation solves the problem in an easy manner. The

determination of concept refers to a method by which one can create models for certain general structures and the necessity involved in it means merely the infallibility of such a method. Thus, by use of Hegelian concepts one would only have been able to create a model for something. It would then be completely natural that we would like to know whether this model characterises some interesting object or phenomenon, which would then be matter of empirical science to discover. Briefly: philosophy shows how to model interesting phenomena, but empirical science provides us with what to model. Furthermore, Hegel admits that the correspondence between a model and an empirical phenomenon cannot be determined a priori, but requires empirical investigation.

Let us then see what the constructivist interpretation would imply of Hegel's view of the particular objects of the *Realphilosophie*, that is, nature and spirit. An interesting question, and one that seems to be almost ignored in Hegel-research, concerns Hegel's attitude towards the form of the natural world: in terms of Kant's first antinomy, the question whether the world is infinite or finite or possibly something else. Hegel's answer, as I have tried to argue earlier, is to avoid this problematic by denying the meaningfulness of the concept "world", when it is supposed to refer to a totality of all spatiotemporal things whatsoever. We can model finite "worlds", that is, spatiotemporal regions within larger spatiotemporal regions, but we cannot model a spatiotemporal region that would cover all spatiotemporal regions. Thus, there is no proper sense in which we could speak of the World. The inevitable consequence of Hegel's attitude towards the supposed World is that all statements concerning spatiotemporal things and events are always contextualised to some spatiotemporal region. That is, we may have an infallible ability to prove or construct such statements in any arbitrary context, but an actual proof or construction must always happen in some limited context.

If the subject matter of the Logic was "the idea in and for itself"⁹ – that is, the method for constructing models for general ontological structures and for modifying these models – and the subject matter of the Philosophy of Nature was "the idea in its other-being"¹⁰ – that is, structures in an indefinite realm of space and time to which we could apply these models and the methods of changing them – the subject matter of the Philosophy of Spirit should be "the idea that returns from its other-being".¹¹ What is this third moment in the series? I would suggest it should be the concrete process of finding the method for modelling and changing the environment when an indefinite realm of spatiotemporal events is given. It is this process that would then define what Hegel calls *Geist*. We may note a certain normativity hidden in this

subject matter that doesn't appear in the subject matters of either the Logic or the Philosophy of Nature. An abstract or concrete structure may be more complex or informative than another, but just for that reason it isn't any better than this other structure.¹² *Geist* or a conscious person, on the other hand, can use the methods of modelling and shaping environment in an improper way or he may even fail to use them at all. Such a person would potentially be a "proper *Geist*", but he would still have to actualise his potential or to use his capabilities in order to properly show himself to be worthy of the name *Geist*.

The process of actualising the methods of construction has an ambiguous relationship with the never-ending and indefinite realm of space and time. As we saw earlier, Hegel separates in the Logic between judgements of allness and categorical judgements: former started from some actual class of objects and concluded with some common characteristic of the objects in this class, while the latter started from what Hegel called an objective universal and concluded with some characteristic that objects subsumed under this objective universal have. We noted earlier that categorical judgement cannot be reduced to any universal judgement, because these refer always to some determinate, finite class of objects, while categorical judgement could refer to a potential infinity of objects. A categorical judgement refers to a method that is in some sense perfect: we can apply it to any context with an arbitrary number of objects characterised by the universal. The difference between a categorical judgement and a universal judgement refers then to a lack of any universal context with all objects characterised by the universal: for Hegel, all actual infinities are out of meaningful discussion.

This relationship of the two forms of judgement is repeated in the relationship of *Geist* and nature. *Geist* involves a method or ability for modelling and modifying one's natural environment. Although this ability would be perfect – if *Geist* could understand or model everything that is natural – *Geist* wouldn't still have the ability to model or modify whole of nature or World. This incapability would not imply any imperfection in the method, because there would actually be no "whole of nature" or World for us to model or modify: it is the desire to find such World that is misconceived. This misconception seems to create the two manners of misrepresenting Hegelianism: the so-called right-Hegelianism and left-Hegelianism.¹³ The right-Hegelians start from the presupposition that Hegel has shown the existence of a universal method applicable in all contexts and from this presupposition deduce the possibility of applying this method also to the World or universal context. The left-Hegelians, on the other hand, note that Hegel explicitly denies the possibility of

applying any method to the supposed universal context and deduce then the impossibility of any universal method. What both interpretations don't notice is Hegel's denial of any universal or "infinite" context as a meaningful realm of investigation. Thus, Hegel can admit that our context is always somewhat limited – for instance, that we can never completely overcome the limited outlook of our historical context – and he can still uphold the ideal of a universally applicable method as a possibility – because this method need only be such that can be made more and more fine-grained or it must be capable only of being applied in all finite contexts.

This characterisation of Hegel's attitude towards *Geist* has some interesting consequences in relation to certain disputed questions of Hegel-scholarship. As a first example we may take the question of the relation of Hegel's philosophical language to common languages.¹⁴ According to a right-Hegelian interpretation, Hegel must have been able of constructing an artificial, perfect language which will not be hindered by deficiencies of any natural language: for instance, meanings of the words of Hegelian language should not be determined by any contingent historical events. On the other hand, a left-Hegelian interpretation would emphasise that if Hegel's philosophical language and its concepts are to have any meaning for us, they must have some relation to words of ordinary language: Hegel must use words of ordinary language, and although they are to have new meanings, they still contain at least an implicit reference to their original meanings. According to my interpretation, the truly Hegelian opinion would be that an ideal of perfect, historically contextless language would be a mere chimera: all we need in philosophy is a method for making language more and more perfect by making its words less and less dependent on their historical connections.

Another problem that my interpretation solves is the question of Hegel's attitude towards history and especially the problem whether it has an intrinsic end. Here the faulty interpretative options are either to suppose that Hegel believes in some final state of history where the social, cultural and intellectual development of *Geist* has ended and no more perfect state of human condition is possible or to suppose that while we should endeavour to achieve such a final state of perfection, we must admit that no finite development of *Geist* can achieve it. According to my interpretation, there would actually be two different senses in which history could be said to have an end. Firstly, this end could mean the final or most perfect state of history: such an end could never be achieved in Hegelian philosophy, and because of this, it wouldn't even be a reasonable goal for human endeavours. Secondly, the end of history could refer to a time when the *Geist* would have perfected its methods of perfecting its state, that is,

when it would have discovered means by which it could indefinitely perfect human condition – for instance, the scientific method by which human society could perfect its state of cognition. While the end in the first sense would be humanly impossible, the end in the second sense might still be possible to achieve. In effect, although human culture and society could never be perfect, there could be some reliable method of making it more and more perfect. An end in the second sense would not stop the change of the human society and culture, but would only make it possible to regulate this change in some measure. Furthermore, the end in the second sense would not mean that humanity would have come to know everything adequately, but it would mean only that it had reached reliable means by which to appropriate knowledge of the world surrounding it.

The natural objects and phenomena are in the Hegelian System more of materials for methods, while spirit or *Geist* is characterised by its methods for analysing and modifying this given stuff, or more specifically, by the process of trying to achieve these methods. Thus, it seems probable that the fulfilment of Hegelian Philosophy of Spirit – the so-called absolute spirit – should coincide with the best humanly methods of investigating and changing our world. If Hegel's absolute spirit is then identified with what has traditionally been called God, we may perhaps interpret Hegel's philosophy of religion as an investigation into these human methods of analysing and modifying objects and their historical development.¹⁵ I shall elucidate this manner of interpretation by showing how Hegel seems to equate the traditional cosmological and ontological proofs of God's existence as manners of showing how one can apply humanly methods of theoretically investigating and practically changing the objects around us.

Starting from the cosmological proof, Hegel equates it with a transition from finitude to infinitude:¹⁶ given some supposedly separate entities we may idealise them or interpret these entities as mere aspects of a larger unity. Firstly, we should note that because of the lack of any universal context, this method of transition can always be applied only in some limited context. That is, we cannot wholesale identify everything there is as mere part of one "unity", because there is no final unity to speak of. Secondly, the application of method of transition requires the fulfilment of some conditions. There should be some connection between the entities in order that we would be justified in idealising them, for instance, they should share some characteristics and perhaps be even in some causal or explanatory relation to one another. Thus, an application of this method of transition could then be interpreted as a development of our vision of our environment: we learn to integrate some entities

that previously appeared separate into a coherent worldview. The outcome of such a transition or “proof” is a more perfect theoretical model of our environment, and the proof itself is a method for perfecting our cognition.

An ontological proof, on the other hand, Hegel equates with a transition from thought or concept to reality.¹⁷ That is, this proof is equated with a process by which a general structure with an infallible method of construction is realised. Like the Hegelian interpretation of cosmological proof could be applied only in some limited context, because there is no universal context in Hegel’s System, so too the Hegelian interpretation of ontological proof can be applied only in some limited context. Thus, an application of this “proof” would be any process whereby we construct something that can be constructed in the relevant context, that is, in which we do something. The ontological proof in the Hegelian sense is then a general description of the practical behaviour of human beings. The outcome of this “proof” is the actualisation of some purpose and the proof itself is a general method for realising our will in our environment.

If we once more summarise the constructivist interpretation of Hegel’s philosophy and its difference from any argumentative interpretation, we may use the following expression: Hegel does not primarily want to describe the world and its denizens, but only the method by which we can model and change the world. Of course, by describing these methods Hegel is bound to describe something of the world. Hegelian philosophy comes with metaphysics, although one much weaker than has been traditionally thought. What then, finally, are the main characteristics of the worldview that is implicit in Hegelian philosophy? We could say that the worldly things form for Hegel an endless ocean with no discernible shores. Despite this apparent manifoldness of the ocean, an observer could see that the movement of the ocean merely repeats few patterns and thus offers no infinity of distinct phenomena. And we have at least one observer, the human spirit, sailing in the ocean in a raft. The observer appears at first sight to be in a precarious position, but he is actually able by his knowledge of the movements of the ocean to move at will to any position suitable for him: he can harvest food from the ocean and he can even use the trees floating in the water to enlarge his raft. The sailor can never truly harness or conquer the ocean, but only because there is actually no ocean to conquer: there is only an endless supply of water which doesn’t form any final unity. The highest moment in the life of the sailor occurs when he understands the worth of his own abilities and his power over the apparently more powerful ocean: this is the Hegelian religion – the holiness is not found in the world, but in the achievements of the human beings.

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- ¹ As should be evident by now, I use practical in the sense of including both the practical and technical parts of Aristotle's classification of sciences: many of the constructions of Hegel's philosophy do not involve other human beings, but are mere modification of materials.
- ² G 12, p. 225, 3 – 38.
- ³ A recent account of this rivalry is Lumsden 2008.
- ⁴ Kreines 2006 actually argues convincingly that the so-called non-metaphysical interpretations of Hegel should not be called non-metaphysical, but non-traditional.
- ⁵ At least this is suggested by Thöle 2004, p. 378.
- ⁶ One thing that should at least be taken into account in such an undertaking is Hegel's conviction that everything in the world is both immediate and mediate (G 21, p. 54, 13–17), that is, although immediate in one context, mediate in another. When we apply this idea to the question of justification of knowledge claims, we end up with what could be called contextual foundationalism: in all contexts we have something that we could accept as a certain truth, although for any truth we could find a context in which we should justify it.
- ⁷ Pippin 1992, p. 176.
- ⁸ Houlgate 2008, p. 119.
- ⁹ G 20, § 18, p. 60, 3.
- ¹⁰ *Ibid.*, p. 60, 4 – 5.
- ¹¹ *Ibid.*, p. 60, 6 – 7.
- ¹² Actually Hegel admits a normative element in the case of organisms that can be either healthy or sick, that is, that may correspond to their general structure or not (G 20, § 371, p. 371, 2 – 5). This is undoubtedly due to organisms having already certain methods of changing environment in their grasp: sickness is a failure to use these methods properly.
- ¹³ At least if these philosophical movements are interpreted in the manner of Mccumber 1993 (p. 22 – 23).
- ¹⁴ I am here once again following Mccumber's analysis of the dispute (1993, p. 218 – 220).
- ¹⁵ Thus, when Stekeler-Weithofer says that Hegelian God is the form of humanity (1992, p. 105), I could concur, if by form we understand the methods and capacities that form the essence of humanity.
- ¹⁶ G 20, § 50 A, p. 87, 15.
- ¹⁷ G 20, § 51, p. 90, 26 – 28 and p. 91, 25 – 30.

Appendix 1. Of the formalisation of Hegel's Logic.

I have criticised above the common prejudice that Hegel's logical project cannot be stated in a formal or mathematical fashion by noticing that it is caused either by a weak knowledge of Hegelianism or of modern logic. Such criticism does not amount to a proof of the possibility however, and although I gave a short characterisation of the Logic, the reader may feel that a crucial link in my book is missing if no real formalisation of the Logic is given. Now, I think that nothing essential in the rest of this work requires the assumption that the Logic can be stated in a strictly formal or mathematical fashion: what is important is the idea of the Logic as a method for providing examples of certain ontological structures. Still, as the issue is interesting on its own account, this appendix will try to answer that demand and provide at least the rudiments by which the answer to the question of formalisation, or more precisely a mathematisation, of Hegel's Logic could be given.

We must firstly notice that a mere formal system by itself could never model the intricacies of Hegel's Logic: in this the opponents of formalisation have been correct. Yet, they have then misunderstood what modern formal or symbolic logic or generally all mathematical investigation is about. True, we can investigate general characteristics of a formal system: such study is done in algebra, for instance, where we can investigate a formal system with some definite operations by which to manipulate elements of the system. But it is not always just such "syntactic" properties that interest a logician or mathematician, or if they do, that interest is caused by the meanings that the elements and the operations of the system are meant to have. The algebraic system becomes generally interesting when we learn that it is supposed to model calculations in ordinary arithmetic or some manipulations in geometry. Thus, it is the study of syntax of formal systems with the study or at least determinate definition of semantics of those systems that makes mathematics a useful tool outside pure mathematics.¹

For the sake of comparison, let us look at a rough picture of what sort of semantics logic in the usual sense of the word has had, both in Aristotelian syllogistic logic and modern first-order predicate logic, in so far as the latter has replaced the former. The three traditional subject matters of logic were concepts, judgements or propositions and deductions or inferences. Of these, concepts could be interpreted extensionally, but also intensionally, as definitions formed from a collection of basic marks that either characterised a thing or not: thus, such definitions divided objects

into classes. After Frege, the intensional sense of concepts was gradually displaced by a wide acceptance of extensionality as what is at least formally the most important issue in concepts: predicates of first-order predicate logic refer to some collection of objects, so that one of the main issues in usual logic – the truth – can be analysed through the notion of object belonging to a class. As the predicates cannot be then used independently of the objects, like the concepts of the syllogistic logic perhaps could be, the modern predicate logic requires variables which refer to some possible objects.

Now, judgement in the traditional syllogistic logic was simply a connection between two concepts: “A is B” could be interpreted, for example, intensionally as indicating that the all the characteristic marks of concept B belonged also to the characteristic marks of A. In the first-order predicate logic what was traditionally called judgements were shown to be actually an amalgam of many different relations. In the predicate logic the basic relation was that of an object satisfying some predicate – atomic sentence or proposition – which could extensionally be interpreted as an object belonging to a collection. Through many operations, more complex type of sentences or propositions could then be formed. Inferences were and in some measure still are finally perhaps the most important issue in logic in the usual sense. There were certain rules as to what judgements can also be asserted as true once one has accepted certain other judgements. All inferences were then series of assertions, derived by applying the rules to some accepted propositions.

It should be clear by now that the subject matter of Hegel’s Logic differs radically from the subject matter of traditional logic: thus, the semantics of the Logic must be of a completely different nature. Although Hegel’s Logic does nominally investigate also concepts, judgements and syllogisms, the terms are understood in a completely different sense than in traditional logic. What Hegel calls concepts are no mere intensional entities individuated by their definitions nor are they mere classes of objects. Instead, Hegelian concepts are general types of situations or structures that are equipped with certain methods of providing a model or instance for that particular type of situations. Similarly, Hegel’s judgements are really connections between different types of situations – the relation that a model of one concept can be constructed from model of another concept. Finally, the syllogism is a statement of a definite method of constructing one type of structure from another. The Hegelian Logic works thus in a different level than what is usually called logic and with a purpose completely different from the purpose of conventional logic. Hegel’s Logic investigates structures or models – more particularly, it tries to construct such models

– while logic in the usual sense deals with entities within some structures or even with mere concepts referring to such entities.

If the Logic then deals with what is now known as models, how we should then account for the inner structure of them, which is nowadays represented by means as diverse as objects, sets, definitions for truth of a sentence in a model, to name just a few? Hegel seems sometimes to suggest that individual structures or situations are undivided unities if they are not involved in any construction.² The other side of the coin is that Hegel clearly presupposes that the structures of the Logic can be analysed into simpler structures by certain constructions: that we can abstract some common properties from a certain type of structures. Thus, it seems that we are justified in taking advantage of the development of the logic after Hegel and that we can represent the models of the Logic in the modern fashion. Only significant change from the usual is that we must accept possibility of incomplete models, i.e., models in which certain sentences are not determinately true or false, but undecided: this is a consequence of Hegelian theory of universals, as we shall see.

Furthermore, Hegel's Logic is modal in the sense that it investigates how different objects occur in different situations with different structures. Reasons for taking the Logic to be modal have been given in the text: the modality of the Logic explains most sufficiently why Hegel thinks contradictions occur everywhere (because contradictions in Hegelian sense are nothing but occurrence of two incompatible, but equally justified structures), what he means by transitions (possibility to find another model or situation) etc.

Finally, Hegel is clearly interested not just in providing some exemplary models for certain basic structures, but also in giving a general method or at least strategy for this "model-constructing": this desire can be seen especially at the very end of the Logic, where Hegel describes the method or strategy supposedly used in the Logic also as the final goal to be modelled in the Logic. We could perhaps present Hegel's Logic merely as a list of strategies for producing models – essentially, this is what the *Wissenschaft der Logik* is, together with some remarks on historical connections some of the models have and of the possibilities of applying certain models to, for instance, scientific issues. Yet, it would be perhaps more instructing to represent it through a guise of a game, where the constructions of new structures from given structures would be interpreted as possible moves.³ It would be most likely a game for solitary players, like patience, although we could introduce an opponent who would give tasks to the player.

How would the game begin and what would its goal be? Here we have to

separate what could be called mini- or subgames – smaller portions of the Logic with their own subgoals – from the main game with its primary end. Most of the subgames would be of the following nature: given a certain kind of structure – or a suitable universal for that structure – construct a specified kind of structure or universal (in many cases the goal structure should be in some sense the opposite of the beginning structure). The beginning point of the primary game would be literally nothing – a state without any models. The end of it is somewhat hazier, but it could be expressed as giving a model of the game itself. The syntax of this “formalised” Logic would then consist of strategies for the game, which would still have to be interpreted by reference to some possible ontological structures.

It is quite important to realise what this game-theoretical interpretation of the Logic implies. Jim Vernon has stated that Hegel’s Logic should not just be a computation of the next term from the previous, as it is interpreted, for example, by John Mccumber, but an organic development of one concept from another.⁴ The game-theoretic interpretation satisfies this requirement. Concepts or categories are for Hegel no mere individual structures or even universal structure types, but such types together with a clear method of how to model or exemplify them. Thus, the formerly so mystical movement from one concept to another is revealed to be merely a presentation of a strategy for constructing a model for the other concept when a model for the first concept is given. This is no mere external operation of constructing an arbitrary model from another, but truly in a sense organic. When one consciously has the capacity to exemplify a structure type, then one might also implicitly have the capacity for exemplifying other structures: thus, the two Hegelian concepts are intrinsically connected, and the sentences of the Logic merely make this connection explicit by showing the strategy of how to produce an example of one concept from an example of the other concept.

The previous remarks suggest that in order to decide whether Hegel’s Logic can be formalised as a guide book for such a game we must primarily investigate how to formalise the basic constructions by which examples of new structures are to be gained from given ones: in effect, we must look at what sort of transitions Hegel accepts and how they could be modelled. In the chapter six we have found some of these constructions, although it is still open whether one could discern more of them. Here I shall satisfy myself with expressing the constructions in such a form that I state what characteristic the new, constructed model shall have, if the original models have certain characteristics (I will not explicitly discuss what other similarities the new model might have with the old one): complete versions of these constructions should

then be easy to produce.

The first construction Hegel uses I have called abstraction: given a structure, one can always imagine there being a simpler structure. At closer look this construction consists actually of two constructions. One of these diminishes the number of objects of a structure: in this structure there are such and such objects, but in the new structure some of them have been taken away. Given the usual presentation of a model, the formalisation of this construction isn't difficult – it is merely a question of taking away objects designated as members of a certain model.

The other side of the abstraction is a bit trickier: we should be able to abstract properties of structures, that is, given a structure with certain property we should be able to think of a structure without that property or a structure with only that property (these are obviously two sides of the same construction, only difference being what is abstracted and what is not abstracted). The problem is whether the abstracted properties should be negated or merely left undetermined. I shall give an example to clarify the choice. Suppose I think of a right-angled triangle and I wish to abstract from the fact that it is right-angled: should I then think of a triangle that neither determinately has nor determinately hasn't any right angle (that is, indeterminate triangle) or should I think of a triangle that determinately has no right angles (that is, a determinate acute or obtuse triangle)? Or, if we take an example from the Logic itself, if we want to speak of a situation in itself without any other properties – of Hegelian pure Being – should we think of an indeterminate or an empty situation?⁵

Hegel's Logic seems actually to justify both kinds of abstraction. Furthermore, one of them seems more basic and the other one a mere derived construction. The more basic construction leaves the abstracted properties undetermined – this is where we have to accept the possibility of incomplete models in our formalisation. Now, such indeterminate objects are what Hegel means by universals or universal objects: the Lion which is not any particular lion, but in some sense all of them. Here Hegel is, of course, using two senses of identity – the abstract identity or identity within a situation or a model and the concrete identity or identity across different situations or models. The universal Lion is not identical (in one sense) with any of the lions – as an abstraction, it is not in any concrete situations – but all of them are identical (in the other sense) with the Lion – if we leave enough properties of lion undetermined, what is left is nothing but Lion. When Hegel says that an individual object is identical with the universal object Lion, one might also say that the individual object is an instance of Lion or lionhood. One can easily see a link with Hegelian theory of judgements: judging is in some sense dividing of a thing, that is, we abstract some property of it

and thus make a new, more undetermined model. Furthermore, when we judge, we identify (in the second sense) the object in the abstracted situation with the object in the original situation.⁶

Now, Hegel seems in many places to suppose that for every universal object there is one specially related to it: indeed, he sometimes identifies it with the universal even more closely than any other individual object. Such an object has determinately only those properties that the universal object has, but otherwise determinately has no properties: thus, the empty situation or state of being is supposed to be the primary example of situations or states of being in general.⁷ The best way to respect this idea of Hegel's, I think, is to add a corresponding construction to the game: given a structure with a universal object, one can construct a new structure with a singular object of the said nature. Then, the second interpretation of abstraction – that of negating properties – is actually a derived construction: for instance, to get a structure with a colourless square from a structure with a coloured square, one first abstracts the colour away – leaving universal Square, undetermined as to its colour – and then constructs as an instance of Square the colourless square.

We are finally in a position to give a definition of the abstractions and of the constructions we might call instantiations:

Abstraction 1 (of things): If object x determinately is an object of model M , then it is undetermined whether it is an object of M^* .

Abstraction 2 (of properties and relations): If objects $x, y \dots$ satisfy predicate P in model M , then it is undetermined whether they satisfy it in M^* . The x, y etc. of M^* are identical (in the concrete sense, across models) with all the objects in all models – also in those which shall be constructed later – which satisfy predicate P .

Instantiation 1: If object x isn't determinately an object of model M , then it determinately is not an object of M^* .

Instantiation 2: If objects x, y, \dots don't determinately satisfy P in M , then they determinately don't satisfy it in M^* .

The second construction that we found in the Logic is the one that makes objects out of structures: we could call it objectification. Note that this might not always be just a question of treating one model as an object; there could well be a group of structures whose relations to each other we would want to model.⁸ We could indeed state the objectification as applied to all models constructed so far – that is, it would model the whole “universe of structures”, as it is at the current moment – because all the “smaller” structures could then be constructed by abstraction. In any case, the definition of the objectification should be something like this:

Objectification: If a (possibly empty) group of models M is given, the new model M^* contains an object for each M and for every object of any M . The objects representing some M in M^* shall satisfy a predicate saying they are situations; also the objects representing some M and x belonging to M shall satisfy a predicate saying x belongs to M ; furthermore, if $x, y \dots$ satisfy predicate P in M , then they satisfy in M^* a predicate saying they satisfy P in M ; finally, if there is some significant relation between different models M or their objects, the corresponding objects in M^* satisfy the corresponding relation.

The definition of objectification shows that what kind of structures we can build depends on what relations there are between different models and their objects. Thus, it seems inevitable that there must be some constructions which add such relations between models. In the text I have mainly spoken of one representative of the kind – the idealisation – but it seems plausible that there should be more: indeed, even Hegel's text seem to support this. The simplest such construction, which I mentioned in the text also, is the one that constructs transitions – accessibility relations – between models. Given the characterisation I gave earlier, its definition is easy to present:

Construction of transitions: If given one model M , it is possible to construct another one M^* ,⁹ then we may add a transition between them (a model M^* is then accessible from the M or it is a possibility for M).

Hegel uses this construction mainly to argue for relations between universals: if we can show that from one property we can find another one and vice versa – which in the Logic is the case between, for instance, Being (being a situation) and Nothing (being an empty situation) or between Quality and Quantity – then these properties are somehow necessarily connected. Furthermore, Hegel is mainly concerned with the case where the object in the two models is same: in which we can change one object or make it reveal a new feature of itself. There seems to be nothing as such against this application: saying that universal A is a possibility for universal B (or in Hegelian terms, that B makes a transition to A) is merely a short-hand for saying that given a structure with an object of property B , it is possible to find or construction another structure with object of property A . Still, Hegel is unclear as to what such a symmetrical connection between universals really amounts to: he sometimes seems to suppose that it entails a symmetrical connection between individual objects also,¹⁰ although there is no guarantee that when there is connection between some universal properties of a and b and we constructed b from a that the same construction would produce a from b . It may be that Hegel's Logic requires also another sort of

accessibility relation, which would be weaker and always symmetrical. Indeed, Hegel indicates that when we have abstracted from something we can always return our attention to that from which we abstracted – we can abstract from our abstraction.¹¹ This possibility implies that all models introduced are somehow accessible from those introduced later – that we can introduce an accessibility relation between them. Now, this sort of accessibility relation is obviously weaker than the one Hegel calls transition: while this relation – of which Hegel perhaps uses the German word *Beziehung* – represents only our capability of recollecting situations that we have experienced before, the relation Hegel calls transition indicates a general method of constructing or finding situations of a certain kind from some given sort of situations.

The next construction is idealisation, which shows that real differences can be seen as mere ideal differences – mere modifications of one and the same object – that is, it assigns so-called trans-world identities between objects of different structures. The definition of idealisation according to Hegel's Logic seems to be the following:

Idealisation: If there are two models M and M^* with objects x and x^* such that M and M^* are accessible from one another (i.e. they can be transformed into one another) and x and x^* satisfy some common predicate (or they are identical with the same universal), then it is possible to add a transworld identity between x and x^* (x and x^* can be regarded as the same object in different situations.)

One clear problem with idealisation is that it seems to allow too much identification. As Hegel himself says, every two objects share some properties or some similar structures: at least they both are objects.¹² This laxity of identification of objects seems to be behind – or it is an attempt of justification for – Hegel's monism: everything can be seen as modification of one object, the so-called absolute. Yet, we can interpret it also in a less ontological way: then idealisation would refer only to the possibility of identifying similar things in some contexts, although according to another context they would still be different.

The final type of construction I have been able to analyse from the Logic is the one showing that something grounds or is the essence of something else – that an object (in some situation) explains why another is in certain situation (why it is something somewhere). The condition for adding an explanatory relationship between two objects seems to require that the explaining object is what I have called a (possible or potential) construction and what Hegel calls essence or reflection – it is something “active” in contrast with “passive” situations. What are these reflections? It seems that they are structures which express how one could move from one (type of) situation to another (type of) situation – that is, they express that one situation is

accessible from another (thus, structure of Becoming is essence of structures Being and Nothing, Measure is essence of Quantity and Quality etc.; although Hegel limits his examples mostly to cases with two moments, I see no reason why we couldn't allow also constructions between more than two constituent situations). Thus, a construction explains a situation or an object's being in a situation, because we could "move into this situation" by this construction: in some cases the explanation has also a "beginning situation" as a condition, in others the construction is such that it could be used without any given material. Thus, this construction might be expressed in a following manner:

Addition of a causation or grounding relation: Suppose we have a model A – possibly with an object x transworld-identical with universal X – a model B – possibly with object y transworld-identical with universal Y – and such a model C in which (i) A is accessible from B (that is, which shows that a situation B can be changed into A) or (ii) a model otherwise similar to A, but with X instead of x is accessible from a model otherwise similar to B, but with Y instead of y (that is, which shows that an object of type Y can be changed, under relevant conditions, into an object of type X). Then we can add a relation "C causes A", and if there is an x in A, a relation "C causes x "; if there is also y in B, we can also add a relation " y is a condition for C causing x ".

I shall proceed by presenting some subgames, the first of them being the construction of Nothing out of Being. As I have stated in the previous chapter, for Hegel "being" means what we would call a state of being or a situation and "nothing" means an empty situation. Being and Nothing denote then corresponding universals (a universal of being a situation and a universal of being an empty situation). The question is then how to construct from an indeterminate model with an object that is a situation (a model M_1 with at least an object x that has the property "being a situation") a model with an object that is an indeterminate empty situation (M_2 with only an object x with the property of "being a situation", but no objects with the relation "being an object in a situation" to x). As it is easy to see, an application of Instantiation 1 (admission that there are no other objects than x) is enough. Indeed, any model can be changed into M_1 : Suppose we have a model M ; then make another model M^* with M as one of its object (M has the property of "being a situation"); then abstract M_1 from M^* . Thus, we have shown that any model can be changed into a model with only an empty situation.

The subgames from Nothing to Being, from pure Being (situation without any accessibilities) to determinate Being (two situations connected with an accessibility

relation) and from One (situation with one object) to Many (situation with many objects) are based on the same idea of making objects (situations) out of the models. I shall only present the example of One to Many. Given model M with a situation S and another object x such that “belongs to a situation” holds between x and S the task is to find a new model M^* representing a situation with many objects. M^* shall be built by objectification of M : it shall be a model that has as its objects M , S and x , and S and x shall belong to the situation M . Clearly, the objectification can produce only finite models as it increases the number of objects only by one, but there is no finite limit which it couldn't exceed: hence the combination of finitism and potential infinitism in Hegel's ideas of quantities.

The final subgame I shall mention is the one from Finite (in the Hegelian sense that there is an object in a situation such that there is another object in another situation accessible from the first one) to Infinite (once again, in the Hegelian sense that there is an object such that there is no other object – other in the sense of not being transworld identical with the first one – in another situation accessible from the first one). Let the model M have two situations S_1 and S_2 and besides these two objects x_1 and x_2 , x_1 being an object in S_1 , x_2 being an object in S_2 , and S_2 and S_1 being accessible from one another.¹³ (Note: Here is crucially evident why we need the accessibility to be symmetrical). Obviously both x_1 and x_2 fulfil the conditions of finitude,¹⁴ thus we can by idealisation make a new model M^* which is otherwise identical with M , but says that x_1 and x_2 are identical things (in different situations).

The previous example sheds also some light on the question as to what Hegel means by essence and essential or by something being the truth of another (for instance, becoming being truth of being and nothing). One ingredient of Hegel's idea of essence is that the essence explains that to which it is essence. Another ingredient is that it is somehow truer than the other. It is this second ingredient I would like to discuss now. Notice that in the example we could have easily also just abstracted the other situation and its object away and the result would have been an infinite model. But the resulting model would have contained less positive information about the world – it wouldn't have told us that there is something else beyond the object x_1 – whereas the actual result M^* contains more information than M – it tells us that objects x_1 and x_2 are versions of the same object. Thus, when Hegel is speaking of something being truer than another or more essential, he occasionally means that the first contains more information than the second.

We have examined some subgames within the “great game of the Logic”, but the question remains whether we can show that we have modelled all possible

structures. Here an important qualification must be made. Of course, we can never – at least in any finite time – construct all the structures which could be constructed by this game. But Hegel is not so much interested in quantitative, but qualitative differences; thus, the question should be whether we can model all the *kinds* of structures. Even more pressing questions are 1) whether the structures discovered by game are all the structures the human mind can find and 2) whether they are all the structures there might be. At least to the question 2) we must answer negatively: Hegel's Logic has no constructions by which to create (quantitatively) infinite situations. Hegel would undoubtedly say that this makes the concept of quantitative infinities meaningless: it would be a mere nebulous word with no true reference.

Another question is how well the Logic mirrors the actual world. The ontological mission traditionally read in Hegel's philosophy would require very strong resemblance: all the models constructible in the Logic should correspond with similar models where all the situations have been replaced by actual objects. Also the methods of the Logic by which one model is constructed from another should correspond to similar methods in the real world: for example, the method of finding essences in the Logic should correspond to a method of finding causal connections in the real world. It seems obvious that such a strong correspondence couldn't work. Take for example the method of making objects out of models. The method guarantees that there is a potential infinity of objects to use in the Logic. Now, there should be a similar method of finding potential infinity of objects in the real world, and Hegel suggests the method of dividing objects. The correspondence of objectification and division is problematic – not just because there seems to be no a priori reason why all objects should be infinitely divisible, but also because objectification produces objects of a completely different level of abstraction than the original one, whereas parts of an object are still as concrete as the whole.

A complete resemblance of the Logic and the actual world is perhaps a far-fetched idea, but more interesting is the question whether the Logic corresponds with the actual methodology by which human or generally conscious beings find new interpretations of reality. A traditional Hegel-interpretation would perhaps suggest quite strong correspondence: the Logic would not be merely a game for finding new models, but a game for finding the truth, and the more essential models should be nearer to describing the whole actual world. However, the method of idealisation in particular is quite problematic in such a strong interpretation: as idealised models are more essential – more informative – than the models from which they are idealised and the criterion of the idealisation is so loose, the truth of monism would be

guaranteed from the start. These considerations make thus any metaphysical interpretation Hegel's philosophy suspect.

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- ¹ This is the main reason why, for instance, John Mccumber's attempt of formalising the Logic (1993, s. 123 – 143) fails. Mccumber's formalisation consists of mere signs and some operations by which one can combine signs and then define new signs as shortenings of these combinations. Mccumber has thus characterised at most the syntactic part of Hegel's Logic. Of course, Mccumber's interpretation suffers from the fact that he seems to suppose that the language of the Logic should be without any reference.
- ² Ibid., p. 382, 12 – 28, especially the passage 23–26: "In so far as nothing is done to develop the content, this has the form of *simplicity*; not until it is resolved into its determinations does *difference* emerge in it." Notice that the simplicity of unanalysed structures implies that every structure to which no construction is used is always self-consistent: contradictions arise only when we have done something to the structure.
- ³ Indeed Pinkard 1981, p. 455 already suggests this possibility. Yet, his actual description of the game is not very detailed.
- ⁴ Vernon 2007, p. 27.
- ⁵ Actually this same problem applies also to the first part of abstraction, that of putting objects aside: we don't know whether we should just say that certain objects do not determinately belong to new structure (that is, if their being objects in this structure is left undetermined) or whether they determinately do not belong to it. As the problem can be handled similarly as the one concerning the second part of abstraction, I have ignored it.
- ⁶ A Hegel-scholar might wonder why I have spoken of universals as if there were only one kind of them whereas Hegel differentiates between abstract and concrete universals – the scholar in question is perhaps implying that only abstract universals can be found by abstractions, but not concrete universals. But I deem the difference to be not that great, and furthermore, a bit muddled. It primarily concerns the question whether the universal is the "essence" of its instances or not – whether the singular objects always (in every situation) correspond to the universal in question. In the first case Hegel takes the (concrete) universal to explain or "cause" its instances – that is, their relationship is similar to one between a construction and constructed. Thus, in Hegelianism, a Lion explains in some fashion the existence of actual lions, whereas Blue does not explain the existence of contingently blue objects.
- ⁷ This might be the idea behind Hegel's suggestion that universal structure determines itself in such a manner that it even forms a species beside all the determinate or particular structures, because it can be differentiated from them through its abstractness (G 12, p. 38, 3 – 12). Hegel seems to obscure the difference between being-undetermined and not-being-determined-in-some-way, for example, the difference between an object undetermined in colour and an object determinately colourless. Then again, this might be just a characteristically Hegelian "contradiction": what is in one sense interpreted as undetermined can in another sense – when compared with objects that are determined – be interpreted as determinately not having relevant characteristics. Whatever the case, the division of abstraction to two constructions avoids the possible confusion.
- ⁸ For instance, Hegel's category of Becoming is essentially a type of model in which two structures – Being and Nothing – are compared.
- ⁹ More precisely, if it is possible to construct an isomorphic image of M^* from an isomorphic image of M .
- ¹⁰ For example, Hegel takes it for granted that if we used the construction of repulsion, we could have started the creation of objects from anyone of them.
- ¹¹ G 21, p. 87, 13–18.
- ¹² G 11, p. 271, 33 – 35.
- ¹³ Other "finite models" are of course possible, but I shall deal with the simplest example, because it is very easy to apply to the other cases.
- ¹⁴ But is the Hegelian finitude a property that can be expressed in the models of the game? Indeed it is: "there is a situation such that x is an object in it and there is another situation accessible from the first situation and with another object and the x is not transworld identical with the second object" or in less complex manner "somewhere there is something which isn't this."

Appendix 2. From the One to the Many and back again – a case study of the correctness of two paradigms in Hegel-research

The question I want to raise in this appendix is how to understand the transitions from one stage of Hegel's philosophy to another. That is, what sort of trick is required to get, for example, from quality to quantity or from space to time etc. It is often assumed that these transitions are meant to be primarily arguments, although no general consensus of the method or purpose of these arguments has been reached. There is, for instance, the traditional idea that Hegel's dialectics works through revealing contradictions and suggesting ways to fix these contradictions. Or, there is the Kantian way of looking at Hegel, in which Hegel's transitions are often thought as transcendental arguments revealing presuppositions of accepted theories etc. Indeed, this presupposition seems so obvious that it is apparently foolish to doubt it: how else could we make sense of Hegel's transitions?

There is one particular place in Hegel's System where the argumentative paradigm works very well, namely, the Phenomenology of Spirit, the method of which seems to be just argumentative. In the Phenomenology we face a consciousness with a criterion on how things should be interpreted, that is, what things are in themselves or truly. This criterion is then compared to what the consciousness experiences objects to be, in order to show that the criterion does not work as a complete interpretation of experience, which then leads consciousness to assume a new criterion.

It is remarkable that the argumentative paradigm lands into troubles once it is applied outside the Phenomenology of Spirit or the general Philosophy of Spirit. Firstly, it becomes problematic to interpret Hegel's *Wissenschaft der Logik*. The Logic should study concepts, and even if we disregard the many references where Hegel interprets concepts as something objective, it is still problematic as to how one could criticise concepts. Concepts in the Logic are not discarded as self-contradictory, like the concept of a square circle, because Hegel continues to use concepts that have been left behind in later discussions. A possible method of handling this problem is to equate the concepts Hegel enumerates with theories that take these concepts as central: this method could be justified by Hegel's remark that the concepts of the Logic correspond with theories in the philosophy of history. Although we ignored the scarcity of actual examples of such correspondence, another problem would arise. If the Logic should be an argumentative criticism of theories, what then would become of the Phenomenology, which should also present us with arguments against certain

philosophical or common sense theories of what the world should be like?

Hegel's Philosophy of Nature is even more difficult to view as argumentative. How could one argue against sound, for instance? The nearest we could come to reconciling the argumentative paradigm with Hegel's text would be to say that the arguments are aimed against theories concerning natural objects. Unfortunately, all the criticism against scientific theories in the Philosophy of Nature has been hidden in the remarks, while the actual text concentrates on analysing the structure of natural objects. Even the transitions in the Philosophy of Nature do not move from one theory to another, but from one species of natural objects to another, for instance, from space to time or from sound to warmth. We might perhaps interpret these transitions as arguments against theories that the world consisted of only one species of objects: for example, Hegel would argue that there is not just space, but also time, and not just sound, but also warmth. Even if this line of interpretation worked, there would still be further problems in the relationship between the Philosophies of Nature and Spirit. If we accept the view that the Philosophy of Nature concerns theories about natural objects, our standpoint on the Philosophy of Spirit will have to be changed accordingly. It will not be criticism against shapes of consciousness etc., but against theories concerning shapes of consciousness. Yet, this interpretation would be in contradiction with our previous interpretation of the Phenomenology of Spirit, which in some sense should be part of the Philosophy of Spirit.

It seems then that arguments cannot be what Hegel's transitions are primarily about. True, we might use them as instructions for arguments, but their original purpose must lie elsewhere. The next quote has something interesting to tell:

Connected with this was a pet idea of Leibniz, embraced by him in his youth, and in spite of its immaturity and shallowness not relinquished by him even in later life, the idea of a *universal characteristic* of concepts – a written language in which each concept would be represented as a relation proceeding from others or in its relation to others – as though in rational combination, which is essentially dialectical, a content still retained the same determinations that it possesses when fixed in isolation.¹

There are two interesting things to note in this paragraph. Firstly, Hegel denies that one could ever create a universal characteristic in the style of Leibniz, because the determinations of the concept might change from one context to another: for instance, terms in isolation do not mean exactly same as they do in relation to other terms. This suggests that the contextuality is in some sense always present in Hegel's philosophy. That is, there is no universal context in which the words could be defined in a

completely accurate way, but only finite contexts and situations to which concepts could be applied in different ways. Secondly, Hegel suggests that his dialectics are somehow connected with this change of meaning or contextuality of concepts. Suppose then that Hegelian transitions move us from one context or situation to another. Then a transition undoubtedly cannot be an argument: a proper argument must always stay within one context, because a change of context changes the meanings and the references of the concepts. How such a transition between contexts is effected is not determined further: it may be a concrete physical change of our environment or merely a change in our interpretations. We might say that the transitions in Hegel's philosophy are all about constructing new contexts, if we understand construction to cover both discovering and making of new contexts. Thus, I propose to call this paradigm constructivist.

If we suppose then that Hegel's transitions do not describe arguments, but methods for changing context, how is this reflected in the interpretations of particular divisions of Hegel's System? If we begin with Hegel's Logic, its subject matter seems to be categories, that is, certain basic ontological structures. Now, when the argumentative paradigm has been forfeited in favour of constructivist paradigm, the idea behind transitions of the Logic becomes quite simple. We begin a transition from a context exemplifying certain category – that is, from a situation with an object that is an instance of that category – and aim to make or find a context exemplifying another category: for instance, beginning with a situation with something finite we try to find a situation with something infinite. It seems that in many occasions Hegel aims for a more difficult transition where the object at the beginning and at the end of the transition are meant to be the same. In this sort of transition, an object is given to us as characterised by one category and we try to interpret this object in a new fashion or as characterised by a different category.

The transitions of the Logic are constructions from an instance of one category to an instance of another category. What then of the transitions in the *Realphilosophie* or the Philosophies of Nature and Spirit, for example, the transition from space to time? The beginning of the transition is obviously some instance of the genus in question, for example, an instance of space. Now, it seems that all transitions in the *Realphilosophie* do not result in a discovery of an actual instance of the second genus, but they merely reveal in the first object some characteristics usually attached to the second object. Thus, Hegel does not show how to literally change space into time, but shows that space has some characteristics that are usually seen as essential to time. Hence, the minimal goal of the transitions in the *Realphilosophie* seems to be of a

following sort: given an instance of one natural/spiritual genus, try to provide a model for some essential characteristics of another genus.

The preceding minimal characterisation of the transitions in the *Realphilosophie* does not undoubtedly preclude the possibility that some transitions in it could present more robust connections between some genera. Some transitions might actually construct an instance of the second genus from an instance of the first genus. For instance, the transitions in the *Phenomenology of Spirit* seem to be of this kind. In the *Phenomenology* we begin with some concrete instance of a type of consciousness and through rational argumentation try to change this concrete person into an instance of another type, that is, we try to change his outlook on world. Notice that even here the argumentative viewpoint is relegated into the background. Hegel gives arguments in the *Phenomenology*, but they are meant to serve as parts of a method for educating people into the standpoint of science.

Now there are at least two ways to compare two incompatible interpretational paradigms. Firstly, we could collect all the evidence for and against both paradigms and estimate which side of the balance weighs more. This method would require a whole book for itself, and the outcome could still be easily contested: it is always easy to explain away the apparent anomalies within a paradigm. Secondly, we could choose one passage as a concrete test case in which we could measure the worth of the both paradigms by investigating which of the two gives a more satisfactory reading of that particular passage. Although not a complete proof by itself, such a test would at least count as an evidence for the paradigm that happened to be on the winning side.

It is the second method this appendix intends to follow. I have chosen as a test case a passage belonging to *Wissenschaft der Logik* – that is, the passage concerning the transition from the One to the Many and back. This transition has been chosen mainly because the *Logic* of Hegel is the one part of his final official System that Hegel has investigated in an independent treatise, the place of the *Phenomenology of Spirit* in the whole System being somewhat ambiguous to determine. Furthermore, the passage occurs in the first part of *Wissenschaft der Logik* that Hegel had time to reorganise unlike any other part of the book. Finally, the passage itself is one that has many relations to the ideas of previous philosophers: Hegel himself mentions ancient atomists, Plato, Leibniz and Kant.

The purpose of this appendix is then to compare how well the argumentative and constructivist paradigms explain what Hegel has to say about the transition from the One to the Many and back. As a representative of the argumentative paradigm I have chosen Pirmin Stekeler-Weithofer's *Hegels Analytische Philosophie*. The choice

was not made just because I deem it to be one of the best interpretations of Hegel's Logic using the argumentative paradigm – such a subjective valuation could always be contested. Instead, the main reason for the choice has been that Stekeler-Weithofer is explicitly aware that he is suggesting an argumentative interpretation of Hegel's Logic: more particularly, he speaks of Hegel's Logic as an analysis of concepts.² It is also interesting that Stekeler-Weithofer suggests – or follows Dieter Henrich's suggestion – that Hegel's method is a complete opposite of the constructive method.³ Of course, Stekeler-Weithofer speaks of the constructive method in a completely different sense than I am here using. For Stekeler-Weithofer the constructive method means merely the usual argumentation in an axiomatic-deductive system.⁴ Although not axiomatic-deductive, Stekeler-Weithofer's version of the Hegelian method is still fixed in the argumentative paradigm. If he is correct, Hegel has been merely arguing for some presuppositions of our conceptual systems, while the constructivist viewpoint sees Hegel as showing how to make or discover some models for those conceptual systems.

Before entering the actual study of Hegel's text, we must note that Stekeler-Weithofer's interpretation seems to be based mainly on the smaller or the Encyclopaedia Logic. Indeed, we might say that the Encyclopaedia Logic by itself could well be interpreted in the analytic fashion Stekeler-Weithofer prefers: the smaller Logic consists mainly of small analyses of certain concepts and only occasionally hints how the transition to the next concept should happen. Similar analyses and conceptual criticisms based on them are contained also in *Wissenschaft der Logik*, but they by no means form the essential content of that book, as they are mostly enclosed in remarks attached to the main text.⁵

1. From the One to the Many

We begin our journey from something called the One (das Eins) or that which is for itself (Fürsichseiende). This One has been introduced from being for itself (Fürsichsein): an object that is for itself has been introduced from a state of there being for itself. This introduction must have been either some sort of proof or analysis which started from assuming being for itself and resulted in a conclusion that there must then be one object that is for itself; or then it has been a construction or a discovery of such an object based on a presupposed state of being for itself. Stekeler-Weithofer has nothing much to say of this introduction, because he is following the Encyclopaedia Logic where the transition to the One is much more simplified.

Accordingly, I shall also leave the introduction of the One uninvestigated.⁶

Although Stekeler-Weithofer does not describe how the One is introduced, his analysis of what it means for something to be for itself is interesting. He suggests that being for itself refers to the apparent paradox that objects x and y are somehow related to one another and still are merely aspects of the same object.⁷ Of course, no true paradox is involved, because the same object or different aspects of the same object have just been referred to with two different names. Something that is for itself is then simply an object that is considered as identical with itself and thus as a possible reference of a singular term. Yet, this identification in some sense presupposes also differentiation. Firstly, it presupposes the inner differentiation of the two aspects that are then identified: an identification of these aspects presupposes the possibility of separating them. Furthermore, Stekeler-Weithofer continues, the identification also presupposes a reference to possible differences outside the singular object: it presupposes a wider class of objects in which the One is perhaps only one among many objects.⁸

Hegel's text confirms Stekeler-Weithofer's interpretation, but only partially. What is correct in that interpretation is the idea of the One, or that which is for itself, being an object with many different possible aspects, which still can always be identified as being aspects of the same object. "As a negation that relates to itself according to its concept it has the difference within it: a directedness from itself towards another that then immediately turns back – because according to this moment of self-determining there is no other towards to which go – and that has returned to itself".⁹ We could differentiate within the One diverse facets by giving to it different names, but at the end we can always remark that these facets are nothing apart from the One. Indeed, they are nothing but the One in different contexts. Furthermore, the One is for Hegel something that exists, and as a mere unity, it is almost nothing else. "In itself [An ihm] the One *is* generally; its being is no being-there [Daseyn], no determination as connection to other, no constitution, it is this having negated this circle of categories".¹⁰ It is here where Stekeler-Weithofer's interpretation makes too many assumptions. Hegel clearly asks us to think of a situation with one object and at most only internal differences. If we assumed with Stekeler-Weithofer that the One is part of some wider class of objects, then it would be easy to deduce that the existence of the One presupposes the existence of many objects: the transition would be rather trivial. But Hegel wants to show that a more drastic sort of transition is possible. We can begin from a situation with definitely only one object and still end up with a situation with many objects. We thus have to make a longer journey, while Stekeler-

Weithofer is able to move to many Ones in few lines.

What sort of object this One should then be? The only thing we are actually told of the One is that it is not to be related to other objects. In fact, it may be any object we like – a rock or a tree – as long as it remains unrelated. It may perhaps be in contact with other objects in another context – like this rock stands beside other rocks and a tree. We are just abstracting from its surroundings and studying it as a mere unitary object. Because of the singleness of our viewpoint, the object in question cannot be determined by relating it to other objects: we have explicitly abstracted from all such relations to other things. Thus, it obviously cannot have any extrinsic properties, because extrinsic properties or characteristics are such that depend on contingent relationships with other objects. Because the object cannot now have any contingent properties, it cannot be, say, red in this situation and green in another. That is, the object cannot be said to change. In all situations in which we face the object now, it is merely unified, existent object and nothing else.

The One should have no external characteristics. Hegel has admitted that the One could have internal aspects, but then in the next sentence seems to take his words back. “In this simple immediacy the mediation of being-there and ideality itself has disappeared and with them all difference and manifoldness. There is *nothing* in it”.¹¹ Here even the possibility of internal differences is apparently lost: the One has nothing it, not even ideal differences. Within the constructivist framework Hegel’s statement would be easy to understand. He is not arguing that the One must be without any differences, but he just shows that we can take away its possible internal differences. Although there may be some implicit differences within the One, they are merely aspectual and thus we are justified in turning our interest away from them. Hegel’s motive for this abstraction should be equally clear. He wants to begin the transition to the Many from the hardest position possible, in which there are not even internal differences to speak of. Hegel is merely pointing out that we can at least think of such a beginning by taking our attention away from all the differences involved in the One.

We face then an object from which everything has been abstracted: we know nothing of it, except that it is a unity. Yet, Hegel proceeds to state that even in this undifferentiated unity some differences can be discerned. From the viewpoint of the analytic paradigm, we could not accept such a statement. At most we can say that while there apparently are no differences, we could show that some differences are actually presupposed. In the constructivist paradigm, we can accept that new differences appear when the One is interpreted in a new manner. The transition to differences is occasioned by the very fact that there is now nothing in the One: “this

nothing, the abstraction of relation to itself, is here different than the within-itself-being [In sich sein] itself, it is something *posited*, because within-itself-being is not anymore simple like something, but has the determination to be concrete as mediation; as abstract the nothing is identical with the One, but differs from its determination. When this nothing is posited in this way, as *in the One*, it is nothing as *void*. – Void is thus the *quality* of the One in its immediacy”.¹² The One that is nothing can be differentiated from the nothing that it is. That is, the object that has no characteristics can be separated from the fact that there is something without any characteristics. This transition discovers the fact or quality of nothingness and might be presented as a deduction. Still, it would be a very controversial deduction, because it is not at all clear whether qualities or facts or any similar abstractions should be accepted as objects. In any case, Hegel’s transition does not even suggest any argument to convince us that the nothingness is an object. Yet, as a construction or an assumption of existence the transition makes sense. We only have to think of a name for the object’s manner of existence to make this manner a possible issue of discussion – a possible object, in a sense. The name Hegel gives for the fact of object being without characteristics is void. Hegel obviously wants to suggest an analogy between the relation that the object has to its manner of existence and the relation that a material thing has to a void in which it exists. Like a piece of matter exists in some place or situation in a concrete space, similarly an object in general may be said to exist in a place or situation in a space of possible qualities.

The separation of the void from the One is not a sufficient guarantee for the existence of many equally independent objects. It might well be that the void would be like a shadow in that it would exist only as attached to some more real object. In order to find a true manifold, we would have to discover that void is as independent as the One or transform it. Hegel begins by noting that the One and the void – the object and its manner of existence – are equal merely in relation to each another. “Both of these moments have the negation as its determination and are also posited as being-there. According to the negation the One and the void is the *relation* of negation to negation as a relation of other to its other; the One is negation in determination of being, the void is negation in determination of not-being. But the One is essentially only relation to itself as relating *negation*, i.e. it is itself the same as what the void outside it should be”.¹³ When related to one another, the object and its manner of existence form a structure consisting of alternative objects. Although the object may seem like more essential, it is actually arbitrary which of the two is taken as the reference point and which as a mere background. We might as well take the manner of

the existence of an object as our subject matter instead of the object itself.

When an object and its manner of existence are related, both seem equally worthy of the name “object”. Yet, the object seems to have the upper hand in that we don’t have to relate it to this particular manner of existence. “The being for itself of the One is still essentially the ideality of being there and of other; it does not relate itself to another, but only *to itself*”.¹⁴ The whole idea of an object being for itself was that it could be seen as an identity of different aspects. These aspects did not present the whole of object, but only some facet of it. Indeed, we could abstract the object from any of its aspectual determinations without harming it in any manner. This object is considered as a featureless abstraction, and this abstractness is now its manner of existence. Yet, it can also be considered from other viewpoints, as this state of featurelessness is merely a product of our abstraction. Before the abstraction, the object appeared, for instance, as a rock and it can appear as rock again, if we just stop our abstraction.

Although the stakes are now in favour of the primacy of the One, Hegel does not stop here. “But because the being for itself is fixed as the One, as *something that is* for itself, as *immediately* present, its *negative* relation *to itself* is as the same time a relation to *something that is*; and while it is negative as well, that which it relates to remains determined as a *being there* and *another*; as essentially relation *to itself*, the other is not the undetermined negation, as the void, but is similarly a *One*”.¹⁵ We can suppose that the object is independent of its manner of existence, but then we also admit that the manner of existence is in some sense independent of the object. We may think of the quality of being void of features as a characteristic that may or may not have any objects instantiating it. In some contexts or situations there may be an object characterised by that quality, in other contexts there may be no object characterized by the quality. A logical place is like a physical place, because it has the capacity of being either filled or empty. As both the object and the manner of existence can be isolated from one another nothing stops us from supposing that they are equally essential objects. We may hence make a further transition and assume that the object’s manner of existence is as good an object as the original object.

Hegel says of the transition from the One to the Many that it is “*becoming to many Ones*”,¹⁶ but then immediately explains that instead of becoming in which the original One would vanish the transition is a repulsion. “This repulsion, thus as positing of *many Ones*, but through the One itself, is the very coming outside of the One, but to such outside it that itself is only a One”.¹⁷ Let us stop here for a moment. According to the exposition of this repulsion, it has not been any sort of argument or

deduction, but instead relied on existence assumptions or constructions. The void or the abstract manner of existence of the original object was not yet an object, before we assumed that it was. We might say that the existence of the void as an independent object was allowed by the original situation – we had the possibility of taking the void as an object. Still, the situation did not yet determine its existence – we couldn't have deduced that the void was an object, if we had stayed in the original situation. Even Hegel speaks of *positing* of many Ones. One feels a temptation to identify Hegel's positing with what I have called constructing. The preceding transition is then an example of a repulsion, which should refer generally to all kinds of methods for constructing existence of many objects from a given one object. Another example of repulsion could be a copying of an object, such as a paper with a piece of writing. But only true creations of new objects would be repulsions, but also more modest feats of discovering them. Thus, when Stekeler-Weithofer interprets repulsion as a mere difference between representatives of different classes of objects, this is correct in the sense that differentiation of objects or classes is an example of repulsion. Indeed, Stekeler-Weithofer's method of discovering difference as a presupposition of an existence of a self-identical object within a system of classes is a movement from the One to the Many. But as it is merely a discovery of many objects, it cannot be the only example of repulsion, because all creations of new objects are also repulsions.

Hegel himself actually makes the distinction between the wider class of repulsions and its particular species of mere discoveries of already existing multiplicities. The wider class Hegel calls "repulsion according to the *concept*, the *in itself* being [an sich seyende]. The second repulsion is distinguished from it and is that which first comes to mind in representation of external reflection, not as creation of Ones, but as reciprocal keeping off of presupposed, already *present* Ones".¹⁸ We may well rely on Stekeler-Weithofer's remark¹⁹ that the Hegelian "an sich" refers practically to the same thing what Plato would have called "kath auto". Thus, the "in itself being repulsion" refers to a repulsion as such or in general, without any further determinations. The other concept of repulsion Hegel occasionally calls relative repulsion.²⁰ This more particular form of repulsion is always repulsion relative to some context in which there already are some differences. In such a context we can say that an existence of one object presupposes the existence of many other objects, although this is not true generally. Now, although we would have constructed many objects in some manner, we are still not necessarily in a position to say that all of these objects presuppose the existence of the others. Because the repulsion in general covers a wider area than the relative repulsion, it is problematic whether one could

construct an example of a relative repulsion from an example of repulsion in general: “We must see how the *in itself* being repulsion determines itself as the second, external”.²¹ This construction of relative repulsion is quite simple: “The becoming of the Many or the being-produced of the Many vanished immediately as being-posed; the products are Ones, not for an other, but they relate themselves infinitely to themselves. The One repels only *itself* from itself, thus does not become, but *already is*; that which has been represented as repelled is similarly a *One, something that is*; repelling and having been repelled belongs to both in a similar fashion and makes no difference.” After we have constructed many objects from the One, we can forget which one of the whole set of Ones is original and which are only derived, because they all are now equally independent objects. It is only after this reorientation or reinterpretation that we can truly accept the validity of Stekeler-Weithofer’s thesis of distinct objects presupposing one another.

2. From the Many to the One

The transition from the One to the Many could be interpreted in two distinct manners: according to the argumentative paradigm, it is natural to see the transition as an argument – deductive, transcendental or any other – from the assumption of the existence of one object to the existence of many objects, while the constructivist paradigm interprets the transition as a construction of many objects involving new existence assumptions. The main difference between the two interpretations is that in the first the transition is interpreted as revealing something already pre-existing, while the second interpretation views the transition as possibly creating the conclusion of the transition. Similar two manners of interpretation can be applied to the transition from the Many to the One, although in this case the difference of the interpretations is based more on what to emphasise. Firstly, we might think that the assumption of multiple objects implies the existence of some common element, for instance, a common class to which all the objects belong, as Stekeler-Weithofer suggests.²² Secondly, the transition might be interpreted as a concrete making of identity assumptions, which should undoubtedly be justified as possible, but which still change the original situation, which has many objects.

The transition begins where the previous transition left us, that is, from a situation with many different objects that are interpreted as not dependent on some pre-existing unity, but as equally essential to one another. “Thus the repulsion now *finds immediately* that which is repelled by it. The repulsion in this determination is

excluding; the One repels only the Many that are not produced by it and that the One has not posited by itself. This repelling is reciprocal or happens in all Ones – it is relative, limited by the being of the One”.²³ The relative repulsion is here called exclusion (Ausschliessen). Hegel explains further what this exclusion involves: “[The many Ones] negate each other reciprocally, they posit one another as such that are only *for-the One*. But they *negate* as well at the same time this *being merely for-the One*; they *repel* their *ideality* and *are*”.²⁴ The expression “for-the One” (für-eines) may seem rather curious, but is actually quite simple to explain. Because of the equal essentiality of all the objects, any of them could be taken as a reference point or “the One” to which other objects are compared: all of these objects differ from this One. As the One has been granted the status of reference point, all other objects seem ideal, that is, not as real or essential as the One we have chosen. Yet, we can then choose another object as the One and then the previous central point is relegated into a status of a mere background.

The aim of the transition is then a position where the multiple objects have somehow been identified. Either we are simply arguing that there is some common ground between these objects or then we are explicitly constructing a context where the objects can be identified. As the construction according to the second option can happen only on basis of some commonality of the objects, both interpretations seem to be closer to one another than in the previous case. It might be even a mere question of emphasis. Indeed, Hegel’s first transition could be read in both ways: “Firstly, that by which [the many Ones] should have the fixed support of their difference against their becoming negated is their *being*, and more particularly their being *in themselves* contrasted with their connection to others; this being-in-itself is that they are *Ones*. But *all are this*; the Ones are *same* in their being-in-itself, instead of having there the fixed point of their difference”.²⁵ When we take any One or unitary object and regard it “in itself” or disregard all its characteristics, except its unity, the object we have chosen seems just like any other object we might have chosen to investigate. The many objects share the characteristic of being unitary objects, and this is a common feature uniting them. We have now either completed an argument for the position that all Ones share a common characteristic or we have made it possible to interpret the situation with many objects anew by taking them as identical: both interpretations seem equally possible.

The second transition from the Many to the One does not differ essentially from the first. Here the transition is not based on the being of many Ones, but as Hegel says,²⁶ on their positing. That is, we do not look at what common characteristics

the objects have in abstraction from the framework of related objects. Instead, we try to see how similar they are when we relate them to one another. All Ones are such that any one of them could be taken as the reference point to which other Ones should be compared: “but this is at the same time *one and same* determination for all, and through this determination they then posit themselves more as identical”.²⁷ The transition is once more based on the similarity of all Ones, and therefore neither of the interpretations still has the upper hand.

It is the third transition that truly favours the constructivist interpretation. The need for the second transition is obvious both within the argumentative and the constructivist paradigm. The first transition happens in a relatively abstract or restricted context that does not include all facets of the situation and thus must be supplemented by a transition occurring in a context including also these previously hidden facets. Hegel notes that the first two transitions were only “our comparison”,²⁸ but that we must still see “what is *posited* in them [i.e. in the many Ones] in their *relation* to one another”.²⁹ At first sight, this required transition would be only a repetition of the second transition, which also was supposed to happen in a context of related Ones. Yet, the difference is that we now should step into the viewpoint of one of these objects, instead of looking at the case from an external perspective. For an argument, such a difference makes no difference: a proper argument is argument, no matter what viewpoint we take. Indeed, it doesn’t even make sense how one would argue from a viewpoint of a possibly unconscious object. In the case of constructivist paradigm the need for the third transition is more understandable. The first and second transitions were constructions or changes only from our viewpoint: they were mere novel interpretations of a situation, while the objects themselves remain unaffected. Now we must begin from a viewpoint of one object among many objects and make more concrete changes in order to come to a situation with only object.

The third transition itself is then rather simple to understand. The many objects “*are*, this is presupposed in their relation – and they are only in so far as they reciprocally negate one another and at the same time keep their ideality or being-negated away, i.e. negate their reciprocal negation”.³⁰ That we can relate many objects to one another and thus even have multiplicities presupposes that these objects are also independent in the sense that we can emphasise any one of them while we relegate others to a mere background. Hence, the fact that it is possible to construct unities out of multiplicities “is not just our relating; the One that excludes Ones relates itself to them, to the Ones, that is, to itself”.³¹ This is no mere sophistic trick, but a fair description of what happens in what Hegel has called exclusion. Exclusion is not a

mere abstraction of one object from a group of many objects, but involves a construction by which we merge all the other objects into mere aspects of the emphasised object. Thus, exclusion is already a construction in which we transform a multiplicity into a unity, and it is a natural construction, because its possibility is presupposed by the very existence of many objects.

3. Arguments or constructions?

We have investigated the transitions from the One to the Many and back, or repulsion and attraction, and the constructivist paradigm has fared somewhat better in explaining them. Now, aside repulsion and attraction being forms of transitions, Hegel also speaks of themselves as sort of objects or structures. For instance, in the later parts of the chapter Hegel presents transitions from attraction to repulsion and back.³² Furthermore, Hegel introduces also the physical forces of repulsion and attraction as based on the more abstract form of repulsion and attraction.³³ How does, firstly, the making of transitions into objects fit in with both the argumentative and the constructive paradigm, and secondly, how do these paradigms explain the relation of the transitions to physical forces?

For the argumentative paradigm Hegel's habit of making repulsion and attraction into objects is difficult to handle. For instance, how could the existence of an argument pattern be deduced from the existence of another argument pattern? The best option for the argumentative interpreter would perhaps be to interpret repulsion and attraction here as propositions or statements: repulsion as a proposition that the existence of the One presupposes the existence of the Many, and attraction as the contrary proposition that the existence of the Many presupposes the existence of the One. Hegel's transitions from attraction to repulsion and back could then be interpreted as deductions or arguments from one proposition to another.

The constructive paradigm survives the ordeal better. While the upholder of the argumentative paradigm must change the nature of the issue from argument to proposition, the constructivist interpreter has to change only the modality involved: instead of speaking of repulsion and attraction as actual constructions, he must speak of them as possible constructions. The transition from attraction to repulsion is then easy to understand. Hegel is saying that if we know how to construct unity from multiplicity, we can find a method for constructing multiplicity from unity or for discovering new objects. Similarly, when Hegel talks of a transition from repulsion to attraction, he suggests that if we have the capacity of differentiating objects, we can

find a method for uniting these differentiated objects.

What then, finally, of the relation of the “logical” repulsion and attraction to their physical counterparts? Stekeler-Weithofer appears to accept the only solution consistent with an argumentative paradigm: he explicitly calls their connection only metaphorical.³⁴ Indeed, it is difficult to see in what other way an argument pattern could correspond with a physical power. The only other option that Stekeler-Weithofer considers is that the “logical” repulsion and attraction would be some sort of ontological or metaphysical forces which would be above the physical forces of repulsion and attraction and which would justify the correctness of the argument patterns. Stekeler-Weithofer counters this interpretation by quoting Hegel: “As one knows, attraction and repulsion are usually regarded as forces. [...] But also the attractive and repulsive forces, so far as they are regarded as forces of sensible matter, are based on the recently investigated pure determinations of the One and the Many, and their mutual connections, which I have called repulsion and attraction, because these names were the best available”.³⁵

What Stekeler-Weithofer fails to notice is the constructivist reading of the repulsion and attraction, not as forces nor as argument patterns, but as methods of changing contexts by creating or discovering new objects and by combining objects into unities through interpretation or actual manipulation. The physical forces of repulsion and attraction can then be viewed as instances of these general concepts of repulsion and attraction. For instance, when repulsion is connected to any quantitative object, Hegel calls it discreteness,³⁶ and when this quantitative object is material, the discreteness refers to the possibility of dividing this object into further pieces.³⁷ Thus, repulsion of material objects as the capacity to divide it is a simple method for obtaining multiplicities from unities.

The investigation of the test case has been completed. We have seen that what Hegel tells of the transitions from the One to the Many and back is more naturally interpreted through the constructivist paradigm as a construction of many objects from one given object and as a construction of identity between many objects that are given as different. Although the primary issue is over, I feel it is still necessary to point out some general characteristics of Hegel’s philosophy which the constructivist paradigm explains better. Firstly, the argumentative paradigm fails to account properly for the dynamic nature of Hegel’s philosophy. The most it can do, for instance, in the *Logic* is to suppose a formal movement within a ready-made and stable subject matter: it is we who change when we learn new things of being, becoming etc., while these concepts exist in a similar manner even without us. The constructivist paradigm, on the other

hand, shows where the supposed movement of concepts lies: it is embodied in the progressive construction of evermore detailed and complex structures. A good example of the problems occasioned by the static nature of the argumentative paradigm is found in Stekeler-Weithofer's account of how becoming is supposed to be the unity of being and nothing. He supposes that any becoming or change of some context shows how the truth values of true/being and false/non-being receive their meaning only from the concrete contexts in which something is true and something else false.³⁸ This is an example of the traditional reading of Hegel where later concepts should somehow solve problems implicit in the earlier concepts – thus, a becoming should solve the problem of the abstractness of the truth values by introducing a concrete framework of contexts where sentences have different truth values, that is, a framework where things are in a manner they used not to be. Obvious problem is where this becoming then arises. This is a problem that Hegel himself, understood as constructively, does not face. The becoming is introduced in the following manner: “What is truth is neither being nor nothing, but that being – does not pass over or make a transition [über geht] – but has passed over or made a transition into nothing and nothing into being. [...] Their truth is thus the *movement* of immediate vanishing of one into another; *becoming*”.³⁹ If we understand the transition [übergehen] as a literal construction of nothing from being and being from nothing – what these constructions are is here irrelevant, but following Stekeler-Weithofer's interpretation of being and nothing we could call them manipulations for changing truth values – the introduction of becoming becomes obvious. Because we ourselves have in the passage of previous paragraphs changed something, we become aware that something like changing is in general possible.

Another aspect of Hegel's philosophy explained better by the constructive paradigm is the close connection between theoretical and practical in Hegel's psychology:

The goal of intelligence is to posit the immediate or given as mediated by intelligence or as its own and to be in the given by itself, infinitely reflected into itself. Because the intelligence is in such a way that it is the universal itself that particularises itself, thus is the intelligence by itself, thus it is free. Thinking as reason is free, and will is free, reasonable thinking and will have freedom in common, but will is still more, it realises the freedom that intelligence is in itself. Will posits the freedom – that the content or the determinations in the intelligence are its own – in the form of given, which does not belong to intelligence. Theoretical and practical spirit, intelligence and will, are both one-sided.⁴⁰

As we saw earlier, one particular way to understand transitions in Hegel's philosophy according to the constructivist paradigm is that they showed how to model objects or phenomena through other objects or phenomena: this was especially true of transitions in the Philosophy of Nature. It is this modelling of natural objects or phenomena, I suggest, that Hegel describes colourfully as positing the immediate as mediated by intelligence: we learn to make a copy of an object that we could previously just experience. The primary task of theoretical spirit is then the construction of models, which is obviously one sort of action: we have to manipulate our environment – for instance, through creation of linguistic signs – in order to create such a model. Theoretical spirit is then active and thus resembles practical spirit or will, which also acts, although its actions have more extensive results. On the other hand, in the argumentative or analytic paradigm the relationship between intelligence and will is more difficult to understand: the task of theoretical intelligence would be proving of and arguing for theories, which has much less in common with actions of will.

¹ G 12, p. 109, 31 – 37.

² Stekeler-Weithofer 1992, p. 20 –21

³ Ibid., p. 15

⁴ It is interesting to note that Stekeler-Weithofer says that Hegel would have criticised Kant's constructive method, but would have accepted Kant's results if they would just have been presented as conceptual analysis that they actually are (Stekeler-Weithofer 1992, 18). This somewhat peculiar statement – Kant already affirmed that philosophy could only be analytic – seems to be a reference to Hegel's criticism of Kant's *Metaphysische Anfangsgründen* in a remark in *Wissenschaft der Logik*, where Hegel investigates the issue of Kant's supposedly using constructive methodology in that book (GW 21, p. 167,21 – 168,11). Yet, it seems that Hegel's point in that remark is completely opposite to what Stekeler-Weithofer interprets it to be. When Hegel says that Kant's approach is at most of analytic value ("höchstens ein analytisches Verdienst hätte", GW 21, p. 169,9–10), it is clear that he dislikes Kantian approach to the philosophy of nature because it is not constructive enough – that is, it does not show how to truly construct a model for matter, but only analyses what is contained in our concept of matter.

⁵ It is interesting that Stekeler-Weithofer (1996, p. 288) has apparently been fascinated first by one of such remarks, namely, the one criticising contemporary views on differential calculus. No wonder then that Stekeler-Weithofer would see the main issue in Hegel's Logic to be such a philosophical analysis and criticism of concepts.

⁶ For the sake of a reader interested in this introduction, I shall give a quick suggestion what this introduction might be about, according to the constructivist reading. It is most certainly not a simple deduction from a state of being for itself to an object that is for itself. Hegel seems to accept the possibility that there are what could be called empty or objectless states of being, at least as abstractions from states with objects: witness for instance the transition from being to nothing. In fact, the being for itself in Hegel seems generally to refer to all sorts of cases where limited states of being (what Hegel calls *Dasein*) can be seen as mere aspects of a larger structure or situation. The crucial transition to what is for itself is then made in the statement "The being for itself is then *what is for itself*" (GW 21, p. 151, 3). In this sentence Hegel presents the possibility of assuming the state of being for itself as an individual object: if we are not aware of any other objects, we could always take the state of there being no objects as an object. This is an obvious construction: we begin from a situation which perhaps is empty and by assuming this situation as an object we construct a new situation with at least one object.

⁷ Stekeler-Weithofer, 1992, p. 136

⁸ Ibid., p. 141–142

⁹ GW 21,p. 152, 16–19

¹⁰ Ibid.,p. 152, 10–12

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¹² Ibid., p. 152, 22–27
¹³ Ibid., p. 155, 6–10
¹⁴ Ibid., p. 155, 15–16
¹⁵ Ibid., p. 155, 15–21
¹⁶ Ibid., p. 155, 22
¹⁷ Ibid., p. 156, 3–4
¹⁸ Ibid., p. 156, 5–8.
¹⁹ Stekeler-Weithofer 1996, p. 303.
²⁰ E.g. in GW 21, p. 164,7–8.
²¹ GW 21, p. 156, 8–10.
²² Stekeler Weithofer 1992, p. 145.
²³ GW 21, p. 158, 14–18.
²⁴ Ibid., p. 159, 1–4.
²⁵ Ibid., p. 159, 17–22.
²⁶ Ibid., p. 159, 26–27.
²⁷ Ibid., p. 159, 23–24.
²⁸ Ibid., p. 160, 1–3.
²⁹ Ibid., p. 160, 3–4.
³⁰ Ibid., p. 160, 4–7.
³¹ Ibid., p. 160, 16–18.
³² Ibid., p. 161 – 163.
³³ Ibid., p. 167, 15–20.
³⁴ Stekeler-Weithofer 1992, p. 144.
³⁵ GW 21, p. 166, 21 and p. 167, 16–20.
³⁶ Ibid., p. 177, 1–2.
³⁷ Ibid., p. 187, 9–13.
³⁸ Stekeler-Weithofer 1992, p. 114.
³⁹ GW 21, p. 69, 24–26 and p. 69, 29 – 70,1.
⁴⁰ V 13, p. 237, 456–467.

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