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## *Dialectics and Materialism*

### 1. INTRODUCTION

In the description of the Marxist-Leninist world-view, what is the relationship between dialectics and materialism, terms that have been joined together as “dialectical materialism” for more than a century now? As is well-known to most students of Marxism, grasping this relationship has been one of the major problems in the history of Marxist-Leninist thought. In the tradition of Marxist thought in India, the problem was raised sharply by E.M.S. Namboodiripad’s in his review<sup>1</sup> of Debiprasad Chattopadhyaya’s book *Lenin the Philosopher*. In general though, since Marx, the answer to the question raised has tended to vary, or swing, between choosing to emphasise the aspect of dialectics or the aspect of materialism to the relative exclusion of the other. An important pedagogical tradition in the exposition of dialectical materialism has sought a middle path of balancing the two, but has often appeared to end up in merely asserting a certain mechanical unity. A long tradition of popularising Marxist thought has tended to follow this third attitude.

However even a cursory reading of Marx, Engels or Lenin shows that none of the three ways of understanding the relationship between dialectics and materialism mentioned above, does justice to the sophistication and nuance of their presentation of the Marxist world-view. Engels, in particular, has often been identified as the author of a certain formulaic approach to dialectics, especially due to his statement of the so-called three laws of dialectics in his, *Dialectics of Nature*. A closer reading of the oft-cited passage in this connection however shows that it is unfounded to burden Engels with the responsibility of having promoted such an approach.<sup>2</sup> Elsewhere, Engels’ writing clearly shows his regard for a sophisticated view of dialectics, and we shall comment on it appropriately later in this note.

In two earlier notes to this journal, the author has discussed the philosophy of science, so to speak, from a materialist perspective, progressively including elements of a dialectical viewpoint. However, a proper dialectical materialist view, that took into account a much closer study of dialectics was still absent in these earlier notes. While a study of even some limited aspects of contemporary science from such a viewpoint remains a difficult task, we attempt in this note to draw renewed attention to the need to closely understand materialism from the perspective of

dialectics, which is a necessary first step to a deeper, dialectical view of science. We also believe that understanding materialism from a dialectical perspective is a project that is of value in its own right and still needs to register substantial progress. Such an understanding would undoubtedly be of much value in a variety of ways in dealing with some of the most important issues that confront society today.

Before we proceed further, we first summarise the main points that we will make:

Materialism (or materialism, dialectically conceived, but better simply the one word) *is* the dialectical account of the objective world and the manner in which we come to grasp it in thought. Dialectics is a “necessary” aspect of materialism. “Dialectical materialism” is not a mechanical combination of, on the one hand, the assertion of the primacy of matter over mind, and, on the other, the assertion of matter always being in motion and the interconnectedness of all things.

This follows from the manner in which Marx and Engels sought to stand Hegel’s dialectics on its feet and the ultimate justification of their effort is embodied in the method which Marx employed in the *Grundrisse*, his account of the discovery of the laws of motion of capitalism. Lenin’s reading of Hegel and his formulation of dialectics as both logic and the theory of knowledge of materialism further justifies this understanding of materialism.<sup>3</sup>

This dialectical account of the objective world, asserts that it is the nature of the world that determines how we come to know it, and that the nature of thought arises from the nature of the objective world.

In this view of materialism as a dialectical account of both the objective and the subjective, the categories of materialism, meaning thereby its philosophical concepts such as being, motion, quality, quantity, essence, and so on, are not arbitrarily introduced. Instead, these categories naturally arise in a “progressive” movement. By “progressive” is meant that these concepts can be seen to follow upon each other, the one leading to the other, with the concepts at each stage becoming more concrete and less abstract, endowed with more content and less formal. These categories and their progression take concrete forms in different aspects of the objective world.

Dialectics is also the study of the functioning of thought, the subject of logic. Logic, in dialectics, is about thought-for-itself, as opposed to mere thought-in-itself.

Materialism, dialectically conceived, is the study of objective contradictions, including the study of how contradictions arise through the progression of different categories. Dialectics does not simply assert the significance of contradictions, nor does it merely infer it from a series of examples. The category of contradiction is the result of a progression from

diversity to difference, then opposition and finally contradiction and it has a determinate relation to other categories.

Dialectics as a method shows how in the development of the knowledge of any aspect of the objective world, the various categories associated with that aspect must be built up concretely, stage by stage, carefully locating where the beginning should be, and then moving progressively from the formal to the real, from the abstract to the concrete, progressively richer in content, from purely external conditions and internal structure to a self-subsisting whole.

Hegel remains an indispensable source of learning for materialism, dialectically conceived, and without some acquaintance with that source, we would underestimate the extent to which Marx and Engels based their views and understanding on dialectics following directly from Hegel. This is not at odds with the critical nature of the break that they made with Hegel. But this break cannot be encompassed in any simple-minded contraposition of idealism against materialism without examining what they indeed carried forward from Hegel. If Hegel were not an idealist of a special kind ( even as an objective idealist), it would not have been possible for Marx and Engels to take his dialectics, which was, as it were, standing on its head and set it on its feet. Lenin's Philosophical Notebooks are indispensable in understanding this aspect of Hegel. Similarly, for Marxists today, the contemporary writings of Hegelian scholars continues to be of much value.

In what follows we will not be able to explain at the same level of detail every point that we have made in the summary, nor will we make these points in the same order in which we have listed them above. But each of these points will be touched upon either through direct explanation or by the discussion of specific instances from developments in some specific sciences which illustrate these issues.

We will proceed in the rest of the note as follows. In the next section we will begin with a brief set of remarks on the sources of the dialectic. In section 3, we will indicate why materialism cannot simply be reduced to science and the need for a world-view that subsumes science. In section 4, we will speak of materialism, dialectically conceived, and indicate how a consistent materialism, based on a dialectical account presents itself. In this section, we will use the terminology and techniques of Hegel's dialectics, especially from the so-called Shorter Logic and from the longer work Science of Logic. However we will not constantly refer back to Hegel, except where unavoidable, especially as we wish to emphasise our goal that the methods of materialism, dialectically conceived, should stand on their own, without constant recourse to Hegel. In section 5, we will speak of dialectics, materialistically conceived, where we discuss how, consistent materialist dialectics differs from the Hegelian, even while indicating why, nevertheless, Hegel remains so important. Section 6 concludes the note.

## 2. SOURCES FOR THE STUDY OF DIALECTICS

Before we proceed, we briefly discuss the various sources for the study of dialectics. As Lenin remarked, Marx's *Capital* cannot be understood without a thorough study of Hegel's *Science of Logic*. An easier, more compact text, is the Part One of the *Encyclopedia of the Philosophical Sciences: The Logic*, often referred to as the *Shorter Logic*. However in many instances the full power of Hegel's ideas and the parts that Marx relied upon require the former and is the part of Hegel's work that is the most significant for materialist dialectics. These two works, and several others due to Hegel, are most usefully available online at <http://www.marxists.org>. Unfortunately, in some critical passages, the most appropriate translation of Hegel is a problematic issue and English translations are at variance with each other. A good example is Hegel's statement that is often translated as: "Essence must appear". But as other commentators have pointed out, a better translation is "Essence must manifest itself", since Hegel uses a different German word when he means "appearance" whereas in this passage the word that is used translates better as "manifest". There is however no easy way around this problem and the only way to proceed appears to be to keep in mind the larger context and direction of Hegel's thought.

Hegel also applied dialectics and the dialectical method in the context of different sciences and different classes of phenomena ranging from the natural sciences to politics in works such as the *Philosophy of Nature* and *Phenomenology of the Spirit*. The thrust of much criticism of Hegel, from Marx to many others including non-Marxist philosophers, stems far more from these writings than from his two works on Logic that we have mentioned above. Some acquaintance with these works is required to understand the limitations of Hegel and these criticisms, but it is not absolutely essential to understanding the works on Logic.

There are many contemporary works on Hegel that are useful for our understanding. These are of two kinds. Several engage with Hegel but from a point of view that is undialectical and tend to constantly critique Hegel from the perspective of other philosophers like Kant, who is the major source of both modern positivism as well as anti-positivist thought (of some varieties). A classic example is the philosopher Charles Taylor's book on Hegel. Of more value to Marxists are works of the other kind, such as those by the late South African philosopher, Errol Harris, the edited volume by Stephen Houlgate and Michael Baur or the work of John Burbidge. At the end of this note, a brief bibliography is provided. An interesting aspect of these writers is the fact that they pay welcome attention to the dialectics of nature, indeed more so than many Marxist scholars, some of whom among the latter have been even outrightly dismissive of the subject.

Among Marxist writings on dialectics, the essentials of course are the critiques of Hegel by Marx and Engels and Lenin's *Philosophical Notebooks*

that offers invaluable assistance in understanding Hegel's *Science of Logic*. Lenin's engagement with Hegel is fascinating in itself, especially for its insight into the spontaneous expression of Lenin's thought, but we will not enter into this subject in this note. There is of course a large literature on Marxism and Hegel, of which the few that we have used will be listed in the bibliography. A simple and quite useful introduction to Hegel's *Logic* from a Marxist perspective is provided at the Hegel-by-Hypertext web pages at the [www.marxists.org](http://www.marxists.org) website by its curator Andy Blunden.<sup>4</sup>

Particular mention must be made of commentaries on dialectics and the *Grundrisse*. The foreword by the translator, Martin Nicolaus, to the English translation of the *Grundrisse* is itself of much value in understanding the role of dialectics in Marx's work on *Capital*. Nicolaus, citing Marx, establishes the fact that *Capital* was written with a more expository purpose and that it was in the *Grundrisse* that the full methodology, as it were, was set down.<sup>5</sup> There are two important texts in this area that explore the dialectics in the *Grundrisse* in some detail, one by the Japanese Marxist scholar, Hiroshi Uchida and the other by Mark Meaney. The latter is particularly useful as an exegetical analysis of the *Grundrisse* drawing out all the dialectical aspects that echo or directly take from Hegel. Even if one does not agree in entirety with the author's analysis, it nevertheless provides a valuable starting point for understanding the application of dialectics by Marx.

A remarkable contemporary source of inspiration for the study of dialectics comes from the manner in which dialectical insight into the contradictions of modern mathematics has been utilised in practice in contemporary mathematical research. Some of this work began under an explicitly Marxist inspiration and continues to pursue an explicitly dialectical approach, especially in the work of F.W. Lawvere, one of the leading figures in this line of research. Among its achievements has been to show that motion need not be thought of as a series of jumps from one discrete point to another but can be thought of as a concatenation of infinitesimals. In particular, this work finally puts Leibniz's original idea of the infinitesimal on a firm foundation and provides a broader framework in which both the notion of the infinitesimal as well as the notion of the discrete can be brought together. This is of considerable significance for dialectics.<sup>6</sup> Among the efforts of this branch of mathematical research today is a renewed, technically sophisticated attempt to build a mathematical version of dialectical logic.

### 3. WHY THE CATEGORIES OF SCIENCE ALONE WILL NOT DO

The statement of the existence of a mind-independent world is of course the common, fairly unproblematic starting point of materialism. This is also of course the fundamental divide with subjective idealism, which asserts that

the material world is the manifestation of the mind. But in the traditional presentations of materialism, all the subsequent categories, such as motion, quality, quantity, essence, appearance, the whole and the parts, cause and effect and so on, arise simply as assertions. Our knowledge of these categories are then relegated to a separate account where we defend the objective nature of these categories and the manner in which we grasp these categories in thought. How then do we justify these assertions? What then follows typically is justification by illustrations drawn from the specific sciences and the manner in which they have developed historically.

Per se there is nothing incorrect about this dependence on science as the justification of the categories of materialism. But this leaves us with a series of unresolved, problematic questions. What do we make of the twists and turns of the quotidian development of the sciences? Is each twist and turn tantamount to a redefinition of our world view? What are the categories common to all sciences or are there simply only the categories of different specific sciences? More problematically, we are left with a variety of contradictions that confuse us. For instance, what is the relationship between wholes and parts? Should we contrast a "holistic" science with a science that always divides and fragments, a contradiction that haunts the understanding of the biological sciences? A classic example from the history of science, discussed at length by Engels in *Dialectics of Nature* is the long-standing confusion over the meaning of "force", a confusion that persists in the teaching of science or in the philosophical view of scientists even today. Especially in the era of quantum physics, there is ever-present confusion over the relation between essence and appearance in the realm of quantum phenomena. Is the probabilistic nature of phenomena such as radioactivity, which is a consequence of the probabilistic nature of quantum phenomena, merely the appearance of a deterministic essence? The social sciences too share such confusions, in the relationship between cause and effect, and necessity and contingency. Social constructivism builds on the confusion between the logical order of things with their historical evolution. The post-modernist slogan of the denial of the meta-narrative is another confusion of both the whole and the parts as well as the relation between necessity and contingency. Neo-classical economics revels in the positivist notion of the knowability of only phenomena. Especially in the social sciences, given their ideological character, it is clear we cannot allow the mere practice of the sciences to be the justification of the categories of materialism.

At the same time, the answer to this challenge cannot be found in a philosophy or world-view that stands outside of the sciences, dictating to them. Much of contemporary philosophy does precisely that, though often disguised as sceptical or critical enquiry into the nature of what science is.

Dialectics is the indispensable connection (method) that enables us to develop the categories of materialism in a manner that takes from the sciences and yet is not bound by the immediacy of the development of

science itself. We may thus also tentatively characterise, materialism, dialectically conceived, as science-for-itself, in contrast to science-in-itself.

#### 4. MATERIALISM (DIALECTICALLY CONCEIVED)<sup>7</sup>

With such a subject, it will of course be impossible to provide even a complete sketch, let alone a complete account, of the relationship of the categories of materialist dialectics to each other in their progression. We will be able to provide only a overview, flying over the terrain, as it were, of the subject. This hopefully will be enough to motivate for the reader of the point we wish to make, even if it is not entirely convincing, though to make any further progress will require much more detailed effort.

##### *(a) Materialism and the world of phenomena*

What is the manner in which the materialist world-view is to be developed? Where does one begin, is a question of particular importance, especially if the rest is to follow in a "logical" manner? We will begin where all the challengers to materialism also begin, with the mass of chaotic sensations with which we first sense the world. The logical form or philosophical category that we obtain from considering this mass of sensations of things and their interconnections, is the first category of pure being. At this stage, being is simply all that "is". Alongside being, we also get the category of nothing, that is really indistinguishable from being, because pure being has no distinguishing character, no particular way in which we can apprehend it. Or to put it differently, the chaotic mass of sensations is as good as nothing, if that is all we have. We also obtain the first intimation of the connection or inter-relationships, in the passage from being to nothing, from existence to non-existence, in the categories of "coming-to-be" and "ceasing-to-be", expressing the fact that the only relations we see in this chaotic mass of sensations is the to and fro of movement and change.

However, the progression of categories at this stage presages in an initial, undifferentiated form all that is to follow, with the introduction of the basic idea of the existence of an objective world that is ever-changing. In the identity of being and nothing we obtain the first intimation of the unity of opposites and in the category of transition, the first intimation of change that will eventually lead to the category of development.

As Engels puts it: "When we consider and reflect upon Nature at large, or the history of mankind, or our own intellectual activity, at first we see the picture of an endless entanglement of relations and reactions, permutations and combinations, in which nothing remains what, where and as it was, but everything moves, changes, comes into being and passes away. We see, therefore, at first the picture as a whole, with its individual parts still more or less kept in the background; we observe the movements, transitions,

connections, rather than the things that move, combine, and are connected. This primitive, naive but intrinsically correct conception of the world is that of ancient Greek philosophy, and was first clearly formulated by Heraclitus: everything is and is not, for everything is fluid, is constantly changing, constantly coming into being and passing away."<sup>8</sup> Engels is presenting the issue in both the logical and historical sense here, in the evolution of all knowledge of Nature.

Nothing can be done further with this primitive holistic oneness. Much of the plea for holism, especially among those who deny the role of science, is really at the level of this primitive holism. No progress can be made here if we do not distinguish, by attributes or character, finite subsets of this holistic mess. Thus the next category of significance is that of "determinate" being. Quality<sup>9</sup> follows immediately, being the case of "determinateness" that is associated with being itself, the character by which different "determinate" beings are recognized. Without quality, determinate being simply ceases to be. But with each such determination there is also negation, since in determining something that is a finite part of the world we also determine the opposite, that part of the world which does not possess that attribute. So the origins of quality and the origins of opposition are located in the same move towards determinate being. In the specific sciences, as opposed to the setting of philosophy, this step is as crucial. For instance, in political economy, this is the stage where we begin to perceive the economy as the process of exchange of a mass of commodities.

To quote Engels again: "But this conception, correctly as it expresses the general character of the picture of appearances as a whole, does not suffice to explain the details of which this picture is made up, and so long as we do not understand these, we have not a clear idea of the whole picture." And then: "The analysis of Nature into its individual parts, the grouping of the different natural processes and objects in definite classes, the study of the internal anatomy of organized bodies in their manifold forms — these were the fundamental conditions of the gigantic strides in our knowledge of Nature that have been made during the last 400 years."<sup>10</sup>

From determinate being and the category of quality comes the category of quantity when, in determinate being, quality is simply set aside. Number, is one of the simplest forms of quantity. We learn this in childhood, when we learn the difference between numbers in themselves arising from the counting of objects, from two oranges and two pencils to the notion of the number two. A more complex example is exchange value in political economy, where to each commodity, a quantum, the amount of labour time involved in its making can be associated.

In dialectics quality has relative primacy over quantity. In contrast to quality, quantity can change without affecting being, and thus is a character or attribute that is external to being itself. A large house is still as much a



house as a small one, and ten oranges are as much oranges as two. In exchange, as Marx puts it in the *Grundrisse*, the “natural properties” of each commodity are extinguished, they are rendered qualitatively equivalent and it is their quantitative difference that comes to the fore. This is another example of quantity.

There is a great deal which can now be said about the relationship between quantity and quality, of much value to specific sciences from politics to mathematics. But two important remarks need to be made at this point. The first is the presence of the categories of space and time as manifestations of quantity. The second remark is the distinction between dialectics and the Kantian world-view, where in the latter it is quantity that has primacy over quality. For Kant, space and time were a priori conceptions, without which one could not proceed beyond the chaotic mass of sensations and bring order to them, a view that is decisively rejected by dialectics.

The origin of the category of quantity is also the first simple example of a characteristic move in dialectics, translated variously from the original German as sublation, surpassing, suppression or setting aside. In Marxist literature in particular it can also mean abolition/overcoming. The point in the case of quantity discussed above is simply that different things (determinate beings) leads to counting and number, only when the the individual attributes of things are set aside. Similarly, space and time too emerge from the attributes of determinate beings. Another way to think of sublation is as negation, but negation that does not simply annihilate, but preserves some part of the original.

It is at this stage of the development of categories also that we encounter the transition of quality and quantity. This is what Engels calls the first law of dialectics. Transitions, the passage of one determination into the other, are part of the constant change and movement of the objective world as we directly encounter it. The transitions of quality and quantity is only example of the transitions possible between different kinds of determinateness. It is worth emphasising that there are transitions of quality due to quantity and vice versa. A simple example is that when water becomes steam, a new characteristic quantity related to its property as a gas will emerge and be appropriate to the new state.

However we have jumped the correct sequence here. Before we can have such transitions, we need to see how quality and quantity come together in the category of measure. Measure is qualified quantity, the unity of quantity and quality. In the case of pure quantum, then of course measure is set aside, because pure quantum such as a number, has no quality. Mathematics is indeed the science of quantity where quality has been set aside. But in all other sciences it is measure that is the category of interest rather than pure quantum and pure quality.<sup>11</sup> When quantitative changes take place, at some point then quality is itself negated, only to be replaced

by a new quality. At the transition then there is no measure, since the quality breaks down, but it is replaced with a new relationship of quantity and quality thus again restoring measure. Thus the constant passage of measure through the measureless, intimates the presence of something beyond the constant transience of quality and quantity. To take the familiar example of water and its transitions we can see that with every qualitative change, while the original measure is overcome, a new measure arises in the new state. Underlying this change of measures, is a substrate, water as a chemical compound, consisting of molecules made up of a combination of two atoms of hydrogen and one atom of oxygen. This, the substrate underlying the transient world of immediate sensations, observations and perceptions is the first intimation of the category of essence.

*(b) From phenomena to essence and back to appearance*

In the next stage, we move from the phenomenal world to the domain of essence. This is more familiar territory for the materialist, with the categories of essence and appearance, form and content and so on appearing in succession. However essence is often seen as a search for something permanent underlying the world of phenomena and traditional realism or materialism often conceives of essence in this fashion. While this is true in some immediate sense, this also opens the door to thinking of essence as something disconnected from the world of phenomena. The key therefore in a dialectical view, is to connect essence to the world of phenomena, with its changes and transitions, while trying to penetrate beyond the superficial to what lies beneath. Thus essence will also develop through a progression of categories, which will provide us with both these aspects.

Here, in the realm of essence now, categories will no longer be transformed into each other as in the domain of phenomena. Instead they will refer to another, be related. Every category, every thought determination, will be inextricably bound to its opposite. Thus in our progression in the realm of essence we will also deal with the category of contradictions. But contradictions, as we will see, will be really a particular category of the various categories of "reflection." And this will be the sphere of the second law of dialectics, the unity and interpenetration of opposites.

But why would this necessarily be so? Because in the progress from being to essence, we come face to face with the difficulty of getting hold of something even while it is in motion. As Marx describes it in the *Grundrisse*, referring to grasping in thought that which is in motion: "The fixed presuppositions themselves become fluid in the course of development. But only by holding them fast in the beginning, is their further development possible without confounding everything." Lenin, expresses it even more strikingly in his notes on Hegel's Lectures on the History of Philosophy: "We

cannot imagine, express, measure, depict movement without interrupting continuity, without simplifying, coarsening, dismembering, strangling, that which is living. The representation of movement by thought always makes coarse, kills, — and not only by means of thought but also by sense-perception, and not only of movement, but every concept. And in that lies the essence of dialectics. And precisely this essence is expressed by the formula: the unity, identity of opposites."<sup>12</sup> And it is precisely this dialectics that also has objective significance as well: "Dialectics in the proper sense is the study of contradiction in the very essence of objects: not only are appearances transitory, mobile, fluid, demarcated only by conventional boundaries, but the essence of things is as well."<sup>13</sup> And the first of these contradictions will be the one between essence and appearance itself.

Before we discuss essence further, with the introduction of the term "reflection," we must pay attention to another important aspect of dialectics. In the nature of both the objective world and thought, dialectics distinguishes between the notions of immediacy and mediation. In the earlier realm of phenomena and transitions all relations were marked by immediacy. Nothing that is deeper or underlying is involved and we are dealing with the world of phenomena as it presents itself. In thought too it is the realm of the immediate. It is the first ideas, without further interrogation or enquiry, not derived but directly presented, what we can superficially discern, as it now turns out once we have essence in hand, that mark the realm of the transient. Both with respect to nature and thought, the deeper interconnections have not yet been discerned, and it is only we, with our knowledge of all that will go on ahead, who may infer the presence of such deeper interconnections. Dialectics distinguishes carefully between interconnections that are objectively present as opposed to those that are putatively present or posited. Thus, logically speaking, to infer the presence of such interconnections at the earlier stage is jumping the gun. For instance, we can infer the opposition of being and nothing, the contradiction of quality and quantity, but these inferences are really a consequence of our knowledge of what will follow, rather than inferences that are naturally present at this stage. The true setting of the categories of opposition and contradiction arise only subsequently. In reality at the first stage the categories are independent and are not connected and when transitions happen, one category gives way to the other.

By "reflection" itself, in an objective sense we will mean the correlative effect of one determinate being on another, the image as it were (hence the term reflection) of one on the other. This is obviously too non-concrete a category to be of much value and it has to progressively acquire content as we proceed. "Reflection" can also be used in the sense of the correlative effect of the more abstract on the more concrete, as in, say, the properties of the molecules being "reflected" in the properties of a crystal. At the same

time, at this level, we have the role of thought in proceeding beyond the superficial mass of sensations to the underlying essence, and hence we will use the term "reflection" in the sense of thought thinking about the world, scientific categories and so on.<sup>14</sup> This is also related to the idea of nature "reflected" in thought. We are also now in the realm of the mediated, where by the mediated (as opposed to the immediate) we refer to that which is derived, involves relations and distinctions with something other, and has to go beyond itself for explanation and justification.

In the first passage to the category of essence, essence is the negation of past (logically and temporally prior) being with all its determinations. This is the first formal intimation of essence. The negation here is essential, otherwise we would simply reproduce a trivial identity and go back to the beginning where it all began. It involves only the past, since essence at any stage can only involve what has gone before and not what is to come later, both logically and temporally.

But in defining essence in this form, we have being itself as the opposite, loosely speaking, of essence. This, the world as first seen that we began with, can now be regarded as the unessential in relation to essence. But we are not done yet, since the separation of the unessential from the essential is "external" separation. Indeed there is nothing fixed about this separation of the essential and the inessential and one may well have interchanged the two. One needs really to have an "internal" relation between essence and the phenomenal world. Or to put it in another way, we cannot be satisfied with essence described as that which is not being (or determinate being). That is an insufficient description. What we really need is to show how the phenomenal world is a consequence (or shines forth, to continue with the notion of "reflection") of essence. Further at this point essence in this definition that we have given above, still does not satisfy the requirement of being mediated, or to put it differently non-immediate. By being defined as the negation of determinate being it still is immediate, namely as something that is. But we need to define it in a purely negative fashion as that which it is not, in this case non-immediate.

Before we move to resolve the difficulties noticed above, we note that it is another typical characteristic of the dialectical view to "internalise" relations that are "external". When relations are external, there is no way to bind or relate things in such a way that they become part of a whole. External relations are immediate or formal. It is "internal" relations that can make disparate beings into a whole.<sup>15</sup> Dialectics is not about a totality that is a simple sum made up of a number (that may be infinite) of things with external relations.<sup>16</sup> On the contrary a totality that gives rise to a newer or higher level or a totality that encompasses disparate things into a coherent combination would require the relation between things to be "internal". Similarly in the dialectical view, infinities that are simply the proliferation of

the same without any structure do not lead to any understanding. It is “infinities” that are absorbed in coherent wholes that are meaningful.

To return to our problem of essence, let us focus on what was negated to define essence. This, the original determinate being, the phenomenal, is what we now wish to define as that which shines forth. This is the other of essence and hence it is the negation of an “other” apart from itself. And it has being only in the “other” in the negation of itself. Thus within essence so to speak is the negation of the negation of determinate being. But this negation of the negation is contained in essence, and it is now a “moment” of essence.<sup>17</sup>

Now since the “shine” (or “show”), is a moment of essence, we have that essence and illusory being are internally related, which is what we were after.

What we have achieved now is a proper understanding of what essence is and how the phenomena of the objective world, shine forth from science. This is indeed what all science seeks to do. A proper scientific theory also leads an explanation of why the phenomenon appears in the manner it does, and this explanation is inherent in the essence of the phenomenon. However what we have put down here is the general materialist understanding of essence and in any particular science and in any particular class of phenomena the hard task of understanding what essence is must be undertaken in that specific context.

One may wonder whether this somewhat difficult machinery is indeed what it takes to determine what is essence. However a close reading of the *Grundrisse*<sup>18</sup> shows that Marx follows a very similar method in determining the essence of capitalism, where the illusory being is simple circulation, indeed using the term reflection in the process. The essence of capitalism is the production of exchange-value. Simple circulation itself cannot sustain itself. Commodities have to be constantly thrown into as “fuel into a fire.” Simple circulation can only be sustained if these are produced elsewhere, and hence we may say that simple circulation has its “immediate being” only in an “other”, this other being the process of production. Thus production results in simple circulation and then returns from simple circulation to itself to create commodities anew. Thus production relates to itself through circulation in a constant return to itself.

It is important to insist that in this understanding of essence, it is not the fixed material substrate that we mentioned in the previous section as the first intimation of essence. One can argue (which we will not enter into here) that the material substrate is negated (or set aside) and that essence is indeed a process. One can argue further, that essence may be thought of as the process which is the movement of the illusory immediate being to illusory immediate being. Indeed in our example above, from the development of capital, we see that the essence is indeed the process

whereby from production a new supply of commodities is constantly injected to make simple circulation keep working.

The purpose of the rather extended discussion is to provide a flavour of the subtlety and rigour of dialectics. And at the same time, this discussion points to the rather different nature of some of the key conceptions of materialism, dialectically conceived as opposed to a materialism that does not develop dialectically.

One may see here also the import of Engels' remark that the third law of dialectics is the negation of the negation, which is fundamental to the whole system. Indeed in developing many key categories, the negation of the negation<sup>19</sup> can be considered as a stronger means of establishing the category. Otherwise the mere assertion of the existence of the category leaves us with the immediate, whereas the negation of the negation is a mediated definition.<sup>20</sup> This is not quite identical to the way the negation of the negation is usually presented as part of the upward spiral of development. It is very interesting to note that the negation of the negation also has an important role to play in various considerations in modern studies of non-Aristotelean logic.<sup>21</sup> We shall refer to this briefly later on.

One must be careful, materialistically speaking, to not consider being and nothing as definite and fixed, especially the category nothing as something that really denotes complete emptiness in any material sense. They are logical categories and in particular contexts of study of the world they would be different. Essence at one level of phenomena would be the being of another level of phenomena, such as molecules with respect to properties of materials. Another example would be the essence of capitalism vis-a-vis what one may call the essence of man. Though one may add here that the advance of science, has provided new meaning to the category of nothing. The vacuum, as it is referred to in modern theoretical physics, is not a theoretical emptiness, but a concrete and objective state that has discernible effects that are essential to the description of the world of elementary particles.

We are here again at something similar to the original starting point of being in the previous stage. But now we have to move forward with a new set of determinations, the analogue as it were of the determinates of quality and quantity of the previous stage. From here on, there will be two sets of developments. One is the development of "reflection" itself, both in the objective world and in thought, from identity, to difference, to opposition and finally to contradiction. It is key to materialist dialectics here that the development of the categories of "reflection" are present both in thought and the objective world (though of course the categories of reflection in thought could be present independently, as for instance in contradiction that is subjective error). There will also be another development, where essence

from formal essence moves forward to existence and appearance and finally to "actuality", which is the unity of essence and appearance.

How are these two developments related to each other? This is through the introduction of the category of "ground". Ground is the unity of identity and difference while contradiction is the opposition of identity and difference. Ground, put more colloquially, is the basis or explanatory reasons for things or processes.<sup>22</sup> From ground we move forward to the category of existence and finally appearance. In parallel to determinate beings and qualities, we arrive at the categories of things and their properties.

There are a number of categories here that deserve closer attention than we have time or space to work out in any detail. Among the most fascinating aspects of materialism in this dialectical view is the clarity that it brings to the question of necessity and contingency. But we will not enter into any of these aspects in this note.

*(c) From contradiction to "development" and theory and practice to truth*

From a materialist point of view, dialectics provides clarity on two aspects at the next level. On the one hand it illuminates how contradictions give rise to development. At the same time, it also sheds light on the relationship between thought and reality and the manner in which truth is approached.

Dialectics, we have already noted, is directed towards considering the objective world as an integrated whole, as a totality and as a "good infinity", as opposed to a fragmented structureless world, with a bad "infinity", which is really an endless progressing of increasingly larger finiteness, that is not a true infinity and gives rise to paradoxes between the finite and the infinite. In the progression from the initiation of the category of essence, we are now ready to take account of how this integrated whole evolves, both temporally and logically.

In the whole, the various categories do not pass into each other, they are not simply organically related to each other, but are part of a continuous movement from the abstract to the concrete. By the time this stage is reached, the whole has become self-sustaining. And the categories that arise at this stage, are both "moments" of the whole as well as the whole itself. A good and significant example of this are the categories of the universal, the particular and the individual. Thus the particular is the universal made concrete, while the particular in its self-identity is the individual. For instance, to say that man is a tool-making animal, is the particular as a universal made concrete. Man is not defined as an abstraction shorn of all particular attributes, as some universal with no particular. In that direction we are led to meaningless abstractions, or pure theology as in talk of an universal soul, and so on. Similarly, to say, Ramu is a man,<sup>23</sup> is not to describe an individual as a disconnected particle of the whole, but as one

embodying the wealth of the economic, social and cultural development that is the history of man, that makes Ramu who he is.

Similarly it may be argued that in the later part of *Grundrisse*, Marx revisits the same aspects of capital that he had discussed earlier, such as circulating capital, but now they are not mere presuppositions or conditions for the emergence of capital, but arise as a consequence of the existence of capital as an organic whole. Another excellent example is the manner in which Marx establishes, that with the development of capital, profit arises from all component of capital, even though it was argued in the initial stages that profit was indeed just surplus-value.

In the development of these categories we also come to realise the role of thought and the manner in which thought thinks itself. For the materialist, thought is the reflection of the objective world. But this reflection is not simply a camera-copy of the world as it exists, as Lenin's notion of reflection has often been derided. The progression of categories and their development is also the manner in which thought progressively grasps the nature of the world. We have so far been ambiguous about the use of the term categories, not explicitly referring to whether they are purely categories of thought or of the real world. At this point we may assert that they are indeed the same, that the objective progression of categories is indeed the manner in which they are grasped in thought and that our conception of a concrete whole and its parts and their contradictory interconnections are as much a part of the objective world as the manner of their being grasped in thought. In doing so, we can relate the role of formal logic to dialectical logic or the manner in which thought thinks of itself, of thought-for-itself as opposed to thought-in-itself. We have actually implicitly touched upon this in the previous paragraph in our illustrations using the two propositions relating the particular to the universal and the individual to the particular. Logic itself therefore arises, not as a set of rules imposed arbitrarily from outside, but in reality as a consequence of practice of humanity and its concrete historical development.

In similar fashion, truth is not a final state to be arbitrarily achieved at some point. Truth is a process. We can do no better here than to quote from Engels' writing in *Ludwig Fierbach and the end of Classical German Philosophy*:

Truth, the cognition of which is the business of philosophy, was in the hands of Hegel no longer an aggregate of finished dogmatic statements, which, once discovered, had merely to be learned by heart. Truth lay now in the process of cognition itself, in the long historical development of science, which mounts from lower to ever higher levels of knowledge without ever reaching, by discovering so-called absolute truth, a point at which it can proceed no further, where it would have nothing more to do than to fold its hands and gaze with wonder at the absolute truth to which



it had attained. And what holds good for the realm of philosophical knowledge holds good also for that of every other kind of knowledge and also for practical action. Just as knowledge is unable to reach a complete conclusion in a perfect, ideal condition of humanity, so is history unable to do so; a perfect society, a perfect "state", are things which can only exist in imagination. On the contrary, all successive historical systems are only transitory stages in the endless course of development of human society from the lower to the higher. Each stage is necessary, and therefore justified for the time and conditions to which it owes its origin. But in the face of new, higher conditions which gradually develop in its own womb, it loses vitality and justification. It must give way to a higher stage which will also in its turn decay and perish. Just as the bourgeoisie by large-scale industry, competition, and the world market dissolves in practice all stable time-honoured institutions, so this dialectical philosophy dissolves all conceptions of final, absolute truth and of absolute states of humanity corresponding to it. For it [dialectical philosophy], nothing is final, absolute, sacred. It reveals the transitory character of everything and in everything; nothing can endure before it except the uninterrupted process of becoming and of passing away, of endless ascendancy from the lower to the higher. And dialectical philosophy itself is nothing more than the mere reflection of this process in the thinking brain. It has, of course, also a conservative side; it recognizes that definite stages of knowledge and society are justified for their time and circumstances; but only so far. The conservatism of this mode of outlook is relative; its revolutionary character is absolute — the only absolute dialectical philosophy admits.

##### *5. Dialectics, materialistically conceived or the significance of Hegel*

As we had already indicated, much of what we have sketched in the previous lengthy section depends significantly on Hegel's exposition of dialectics and the dialectical method. But yet, we have evaded a direct reference to Hegel, for reasons that we must now touch upon. There is indeed no doubt that Hegel was an idealist, though he did refer always to Kant as the idealist. Hegel was an objective idealist. Nature was for him the realisation of the idea. As Engels remarks in the section titled "Marx" in *Ludwig Feuerbach and the end of Classical German Philosophy*: "According to Hegel, therefore, the dialectical development apparent in nature and history — that is, the causal interconnection of the progressive movement from the lower to the higher, which asserts itself through all zigzag movements and temporary retrogression — is only a copy [Abklatsch] of the self-movement of the concept going on from eternity, no one knows where, but at all events independently of any thinking human brain." And then Engels adds: "This ideological perversion had to be done away with."

But yet Hegel had a revolutionary side too, in his understanding that the world was not about fixed things and static relations but the world as a complex of processes and it is the recovery and development of this side that was fundamental to Marx and Engels. Marx concretely describes one aspect of how this separation of this revolutionary side from its idealist form is to be achieved in his comments on Hegel in the *Economic and Philosophical Manuscripts of 1844*, in the section "Critique of Hegel's Philosophy in General". As he points out, the issue is not in the progression and development of categories as Hegel describes it, but Hegel's view that it is sufficient to achieve in thought the continuous process of determinate negation, sublation and the negation of the negation, and not in reality (though in Hegel's illustrations of dialectics he often does precisely this!). But the key to a materialist dialectics is the realisation of this progression in reality (particularly in time) and its reflection in thought. As Marx says: "And because thought imagines itself to be directly the other of itself, to be *sensuous reality* – and therefore takes its own action for *sensuous, real* action – this superseding in thought, which leaves its object in existence in the real world, believes that it has really overcome it. On the other hand, because the object has now become for it a moment of thought, thought takes it in its reality too to be self-confirmation of itself – of self-consciousness, of abstraction."

The two sections on Dialectics in *Ludwig Fuerbach and Socialism Utopian and Scientific* by Engels, the section titled "Marx" in *Ludwig Fuerbach and Marx's critique of Hegel in Economic and Philosophical Manuscripts*, and other writings, furnish the key to the critique of Hegel and we have no need to repeat all of that here. In these writings also the reader will undoubtedly notice that the main points that we had made in the summary earlier are clearly derived or rephrased from what appears in these writings.

But it would be a mistake to think that with a mere reading of these passages (and its ritual invocation in lectures on the subject) we have grasped the essence of dialectics and the dialectical method. As Engels remarks in the section titled Marx in *Ludwig Fuerbach* (after a mention of how sometimes the dialectical viewpoint in its general form is even taken for granted): "But to acknowledge this fundamental thought in words and to apply it in reality in detail to each domain of investigation are two different things." The burden of this note has been to draw attention to precisely what it takes to accomplish this task of applying this fundamental thought to all domains of investigation.

From the many remarks of Marx and Engels that are critical of Hegel, indicate where materialism breaks from the idealism of Hegel, but nevertheless their acknowledgement of the significance of Hegel, one may still not discern the depth of their use of his dialectics in their work. The *Grundrisse* of course is the place to learn of this, but that is a text that often does not attract the attention of Marxists who do not specialise in political

economy. Indeed one may suspect that for Marx and Engels, the great familiarity with Hegel and his work that was current in their times, rendered a definitive handbook of dialectics unnecessary. It is evident by Lenin's time, given the effort he undertook to study Hegel's logic, that this was no longer the case. Lenin is caustic too about the fact that contemporary Marxists had not studied Hegel and thus did not understand Marx!<sup>24</sup>

From Lenin's reading of Hegel's *Science of Logic*, and the first part of Hegel's *Encyclopedia of the Sciences*, that deals with logic, one obtains a view of what is of significance to materialists in Hegel's work and why Hegel in particular, unlike other idealists, was of particular value to materialists.

The first point in this regard to note about Hegel is his linking logic with metaphysics (as it is referred to in mainstream philosophy) or the structure of Nature. While all logic overall is about the development of the Idea, in the first instance the Idea appears in alienated form in Nature. Thus in the first instance, logic begins with the reflection of Nature in thought, first in immediate form and then later in talking about essence, through "reflection". Thus in these parts, Nature is an objective reality, even if it began as the alienation of the Idea, a starting point that plays a relatively minor role in Engels' study of being and essence. Hegel's dialectics therefore provides a dialectical view of Nature of value to the materialist.<sup>25</sup> To be sure, it is interspersed with entirely unnecessary remarks about religion, God, and material of that kind but little of it interrupts the main thrust of the argument that is quite evident. The second is Hegel's firm position against Kant, whose viewpoint he always refers to, correctly, as idealism. Hegel is firmly with the position, contra Kant, on the knowability of the objective world, on the relationship between essence and appearance and the inability of idealism, as embodied in the work of Kant, to solve the very problems that it posed so brilliantly. This is clearly of value, especially given the increasing rise to prominence of Kant as the pre-eminent bourgeois philosopher, a reality which was not evident in Marx's day but was evident to Lenin. Thirdly, Hegel is pre-eminently the philosopher who studies change, transition, contradiction and development. But he does so without ever falling for the trap of a sceptical relativism and is entirely critical of such attitudes. Hegel acknowledges Kant's great role in putting forward the contradictory nature of pure thought but shows the way forward in dealing with these contradictions that Kant failed so signally to do.

But the fourth, and in some ways the truly striking part of Hegel's work, is the fact that even in the third part of his *Science of Logic*, that deals with the evolution of thought, one may see clearly many dialectical propositions and arguments of value to the materialist, without a trace of the idealism that one might have thought to find in this, what might be expected to be, the most idealist part of his work. These propositions and arguments are of much interest to Lenin, who follows him closely in these sections. Lenin is

rapidly able to apply what Marx and Engels referred to as inverting Hegel (Lenin remarks at one point, after copying a quote from Hegel: "Invert it!") and shows how by replacing the Hegelian concept of the Absolute Idea by the concept of absolute truth, one is able to utilise the full power of Hegel's arguments. Repeatedly, Hegel, as Marx described it, rises above himself. Lenin notes for instance how close Hegel comes to the idea that eventually it is man's practice that is able to establish for him the correctness of his ideas, concepts, knowledge and science. In another instance, when Hegel remarks: "In his tools man possesses power over external nature, although as regards his ends he is often subject to it" , Lenin notes that even the seeds of historical materialism are present in Hegel in a primitive form.

Where Hegel, despite the brilliance of his *Logic*, fails so signally, is in his insistence that the real world must now be interpreted as the realisation of the universal Idea. No work of Hegel has drawn more flak from philosophers subsequently than the manner in which he applies his methods to the study of natural phenomena, revealing his rampant idealism. And the same afflicts all of Hegel's applications of his *Logic* to the objective world.

A close reading of Lenin's notes on the third part of Hegel's *Logic* also shows clearly the reasons why Lenin turned to a study of Hegel after his writing of *Materialism and Empirio-Criticism*. There are three issues that Lenin particularly focuses on in his notes on this section of *Logic*. The first is the theory of knowledge that comes out of Hegel's dialectics. The second is the approach to absolute truth that emerges from Hegel's arguments (after inversion). The third is the indication of a dialectical view of the unity of theory and practice, even if in a somewhat implicit manner, that emerges from Hegel. All three are issues that preoccupy Lenin in his struggle against positivism in the earlier work and a dialectical view of all three issues is clearly what is of significance to him. One may also remark on the interesting contrast between Lenin's interest in the third part of Hegel's *Logic*, *the Doctrine of the Notion*, that deals with thought in particular and Engels' apparently greater interest in the second part of the *Logic*, *the Doctrine of the Essence*.

## 6. CONCLUSION

If the reader, at the end of this note, feels unsatisfied and sees the incompleteness of it all, and the expert reader is sharply aware of how bare this account of such rich subject has been, the author would share their sentiment. Nevertheless we hope that we have served the limited purpose of emphasising the need to view materialism as dialectics and recognise the need for a science-for-itself, even while appreciating the critical value of science. Above all, we have sought to convey the flavour of dialectics as rigorously argued, both as method and world-view, rather than as a set of general propositions that appear at best philosophical afterthoughts or at

worst dogmatic impositions on how the world should be understood. With the passage of more than a century and a half since materialist dialectics began to take concrete shape, and with the many changes that the world has undergone since then, we undoubtedly need to re-appropriate dialectics in our own times. But even more, given the transformed manner in which old challenges re-present themselves and the new ones that have emerged, going beyond the concerns of the pioneers of Marxist thought, understanding dialectics in all its rigour appears less an option than a necessity.

## BIBLIOGRAPHY

### *Works by Hegel:*

- G.W.F. Hegel, *Science of Logic*,  
<http://www.marxists.org/reference/archive/hegel/index.htm>
- G.W.F. Hegel, *Encyclopedia of the Philosophical Sciences in Outline*,  
<http://www.marxists.org/reference/archive/hegel/encindex.htm>
- G.W.F. Hegel, *Science of Logic*, edited and translated by George Di Giovanni, Cambridge University Press, 2010.
- G.W.F. Hegel, *The Encyclopedia Logic (with the Zusatze)*, translated by T. G. Geraets, W. A. Suchting and H. S. Harris, Hackett Publishing Co., Cambridge, 1991.
- G. W. F. Hegel, *Lectures on Logic*, translated by Clark Butler, Indiana University Press, 2008.

### *Texts on Hegel:*

- John W. Burbidge, *The Logic of Hegel's "Logic": An Introduction*, Broadview Press, 2006.
- John W. Burbidge, *Hegel's Systematic Contingency*, Palgrave-Macmillan, 2007.
- Robert S. Cohen and Marx W. Wartofsky, *Hegel and the Sciences*, D. Reidel Publishing Company, 1984.
- Errol E. Harris, *An interpretation of the logic of Hegel*, University Press of America, 1983.
- Stephen Houlgate and Michael Baur (ed.), *A Companion to Hegel*, Wiley-Blackwell, 2011.
- Michael Inwood, *A Hegel Dictionary*, Blackwell Publishers Ltd., 1992.
- Ralph Palm, *Hegel's Concept of Sublation: A Critical Interpretation*, Ph. D. Thesis, Leuven, 2009, available on the web at <https://lirias.kuleuven.be/bitstream/123456789/234670/1/PALM>.
- Michael John Petry (ed.), *Hegel and Newtonianism*, Springer Science+Business Media B. V. , 1993.
- Charles Taylor, *Hegel*, Cambridge University Press, 1975.

*Texts on Hegel and/or Marx and Marxism:*

- Tony Burns and Ian Fraser (ed.), *The Hegel-Marx Connection*, Palgrave-Macmillan, 2000.
- Andrew Chitty (ed.), *Karl Marx and Contemporary Philosophy*, Palgrave-Macmillan, 2009.
- Karl Marx, *Grundrisse*, translated by Martin Nicolaus, Vintage Books, 1973.
- Mark E. Meaney, *Capital as Organic Unity: The Role of Hegel's Science of Logic in Marx's Grundrisse*, Springer-Science+Business Media, B. V., 2002.
- Hiroshi Uchida, *Marx's Grundrisse and Hegel's Logic*, edited by Terrell Carver, Routledge, 1988.
- Tony Smith, *The Logic of Marx's Capital, Reply to Hegelian Criticisms*, State Univ of New York Press, 1990.
- Alexander Spirkin, *Fundamentals of Philosophy*, Progress Publishers, 1990.

NOTES

- 1 EMS Namboodiripad, "DIALECTICAL Materialism and Dialectical MATERIALISM", *Social Scientist*, 107, April, 1982
- 2 In the relevant passage, after Engels lists what he calls the "the most general laws of these two aspects of historical development, as well as of thought itself", that "can be reduced in the main to three, " he states: "We are not concerned here with writing a handbook of dialectics, but only with showing that the dialectical laws are really laws of development of nature, and therefore are valid also for theoretical natural science. Hence we cannot go into the inner interconnection of these laws with one another."
- 3 In the absence of a short summary of the dialectical method that Marx promised but never wrote (or the "handbook of dialectics" that Engels could have written but never did), Lenin's characterisation of the relationship between dialectics and materialism assumes a critical importance.
- 4 Though it tends to have a somewhat superficial and far-too-quick commentary on some aspects especially in relation to Nature and the natural sciences.
- 5 See relevant citations in Martin Nicolaus' foreword to his translation of the *Grundrisse*.
- 6 Bertrand Russell, the implacable foe of dialectics, was of the opinion that Hegel's notion of dialectics was based on a mathematically untenable and wrong notion of the infinitesimal and the continuous and that in essence both were based on simply jumps from point to point. Lawvere led the way to establishing that indeed one could think of the infinitesimal as a fundamental object with remarkable consequences for geometry and logic. In the latter, this notion of the infinitesimal, for its construction, requires the violation of the law of the excluded middle. The study of such issues in

modern mathematics belongs to the domain of what is technically referred to as category theory and topos theory. In his celebrated talk to the International Congress of Mathematics in 1970 (a high point of recognition in the mathematical world), Lawvere begins with a reference to dialectical contradictions in mathematics, with a citation to the work of Mao Zedong.

<sup>7</sup> In what follows, we will freely use the terminology, and insights of a number of authors and will be heavily reliant in particular on the terms of art of Hegelian dialectics. However in order to keep a smooth narrative, unbroken by the typical barrage of references to Hegel in such essays, I have not provided any direct citations to Hegel. Further, as we indicated earlier, we wish to underline the self-sustaining character of a dialectical account of matter.

<sup>8</sup> Engels, "Dialectics", ch. 2 in *Socialism: Utopian and Scientific*, <http://www.marxists.org/archive/marx/works/1880/soc-utop/ch02.htm>. This is a passage from a text familiar to many and yet without having passed through Hegel, one would not see the profound reference to Hegel's dialectics that is on display here.

<sup>9</sup> There is a more rigorous way to arrive at these two categories from the categories of being and nothing and coming-to-be and ceasing-to-be but we will not enter such detail here.

<sup>10</sup> Engels, op cit.

<sup>11</sup> Clearly the dialectical view of measure is the appropriate antidote to the interminable and tiresome debate in the social sciences over the relative importance and merits of the qualitative and the quantitative modes of analysis.

<sup>12</sup> See Lenin', Vol. 38, *Collected Works*, at <http://www.marxists.org/archive/lenin/works/1915/cons-lect/ch02.htm>.

<sup>13</sup> Lenin op cit.

<sup>14</sup> Hegel's use of the term reflection and associated terms like shine forth, reflection-into-self, reflection-into-other and so on are a major barrier to the study of his work. Michael Inwood remarks that what contributes particularly to the obscurity of the terminology is Hegel's subscribing to the unscientific theory of light due to Goethe and the influence that this has on him in his use of this jargon. The manner in which it is used follows the indication due to Andy Blunden in his note Meaning of Hegel's Logic available at the Hegel-by-Hypertext page at <http://www.marxists.org>.

<sup>15</sup> We are not using the term whole and parts quite precisely here which appear logically somewhat later.

<sup>16</sup> As neo-classical economics habitually does, for instance.

<sup>17</sup> A "moment" is one aspect of a internal unity that makes up the whole category. Thus quality and quantity are moments of measure. Moments have relative autonomy and may evolve independently.

18 As explained by Mark Meaney.

19 Following Hegel of course!

20 Ralph Palm has a fine dissertation on the notion of sublation in Hegel (from a non-Marxist perspective) that usefully underlines the significance of the negation of the negation in Hegel's overall method in the *Science of Logic*. Available on the net at <https://lirias.kuleuven.be/bitstream/123456789/234670/1/PALM>

21 To anticipate what we will say later, in so-called intuitionistic logic, where the law of the excluded middle does not hold (but the law of non-contradiction does) any proposition implies the negation of the negation of the proposition but not vice versa. On the other hand for paraconsistent logic, where the law of non-contradiction does not hold (but the law of the excluded middle does hold), the negation of the negation of a proposition implies the proposition itself, while the converse is not true. Neither of these is quite equivalent to dialectical logic, where both the law of the excluded middle as well as the law of non-contradiction are not expected to hold.

22 As in statements like "what are the grounds for believing this?" or "what are the grounds for asserting this?"

23 This is an example taken from Lenin, *On the Question of Dialectics*, Vol. 38, available at <http://www.marxists.org/archive/lenin/works/1915/misc/x02.htm>.

24 Lenin in the *Philosophical Notebooks* in his Conspectus of Hegel's Logic remarks: "*Aphorism*: It is impossible completely to understand Marx's *Capital*, and especially its first chapter, without having thoroughly studied and understood the *whole* of Hegel's *Logic*. Consequently, half a century later none of the Marxists understood Marx!!"

25 As Engels writes to Lange: "The absurdities of detail in Hegel's Philosophy of Nature I grant you of course readily enough, but his real philosophy of Nature is to be found in the second part of his Logic, in the doctrine of Essence, the theory. . . . I am of course no longer a Hegelian, but I still have a great feeling of piety and devotion towards the colossal old chap. In the first section (Being) do not spend too long over Being and Nothing; the last paragraphs on Quality and then Quantity and Measure are much finer, but the theory of Essence is the main thing: the resolution of abstract contradictions into their own instability, where one no sooner tries to hold on to one side than it is transformed."