

CHAPTER 9

LIMITS AND CHALLENGES OF THE CONSISTENCY DEBATE IN MARXIAN VALUE THEORY

G. Carchedi

ABSTRACT

While many inconsistencies can be found in Marx's theory if one chooses a view of reality in which time is absent, these inconsistencies disappear if the view is taken that time is an essential component of that theory. The debate is thus between the simultaneist and the temporalist camp. This article sides with the temporalist approach but at the same time it argues that both sides have focused mainly on quantitative and formal logic aspects. This is the limit of the debate. The debate should move on from being only a critique and counter-critique of each other applying only formal logic to the issue of consistency to showing how and whether the different postulates (a time-less versus a time-full reality) and the interpretations deriving from them are an instance of a wider theory of radical social change. From this angle, simultaneism implies equilibrium and thus a view of the economy tending toward its equilibrated reproduction. Capitalism is thus theorized as an inherently rational system and any attempt to supersede it is irrational. This is simultaneism's social content. Temporalism, if immersed in a dialectical context, reaches the opposite conclusions: the economy is in a constant state of nonequilibrium and tends cyclically toward its own supersession. Capitalism is inherently

Why Capitalism Survives Crises: The Shock Absorbers

Research in Political Economy, Volume 25, 233–275

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ISSN: 0161-7230/doi:10.1108/S0161-7230(2009)0000025006

irrational and any attempt to supersede it is rational. Simultaneist authors should now show how their approach to the issue of consistency fits into a broader theory furthering the liberation of Labor.

To choose a dialectical view of temporalism is thus to take sides for Labor.

1. INTRODUCTION

Since its appearance (and especially after the appearance of the third volume of *Capital*), Marx's theory has been the object of sustained attacks aiming at showing its logical inconsistency. The attacks have centered upon four issues: the indeterminacy of the law of the profit rate to fall, abstract labor as the only source of value, the materiality of abstract labor, and the so-called "transformation problem." These are crucial areas of Marxist theory. If the critiques were proven to be correct, there would be no sound platform on which to build a really radically alternative view of capitalism. This is the vital question behind the issues of consistency.

The debate has focused mainly on the *quantitative* and *formal logic* aspect of the four issues. But formal logic cannot explain *qualitative*, and *radical* change. And this is the limit of the debate. Looking back, this limit has been a necessary evil. Marx's critics have used the rules of formal logic and mathematical tools to support their arguments. It has then been necessary to use the same rules and tools to rebut the critique. But this is insufficient. This article will argue that both the critiques and the defenses of Marx's internal consistency suffer from a common constraint, the exclusive reliance on formal logic. To provide a complete proof of Marx's internal consistency, one has to use Marx's own method, the dialectical method as briefly highlighted below. By "Marx's own method" I do not mean that what follows is necessarily what Marx had in mind. What I mean is that the method to be set forth below is extracted from his own writing, provides a key that reveals his theory's internal consistency, and contains potentially within it the possibility to be developed in order to account for both those aspects of reality he did not develop and the new aspects he could not have foreseen. Even though evidence will be submitted that the present approach is supported by Marx's quotations, the question is not faithfulness to quotations but consistency and explanatory power.¹ It is in *this* sense that the notion of dialectics to be submitted below is argued to be Marx's own.

While there is general agreement that an interpretation that is logically consistent in its own terms (logically valid, for short) should be preferred to one that is not so, the debate, while showing that neither approach can be used as a tool of an internal critique of the other, has not produced a selection criterion commonly accepted in case two or more interpretations derive from opposite postulates and are equally logically valid. To accept or reject an interpretation, quantitative and formal logic consistency with Marx is undoubtedly a prerequisite but other criteria cannot be excluded a priori, as for example, textual evidence. But textual evidence alone, while being certainly important, leads only to a useless battle of quotations. It lacks the objectivity inherent in the consistency criterion. The point is that, purely in terms of formal logic, there is no reason why one criterion should be chosen rather than another. The cause of this indeterminacy is that formal logic is implicitly based on methodological individualism (which implies that everybody is free to choose whatever theory she likes) rather than on a dialectical and thus a class and objectively determined logic.

This article argues that, *if* (and this is the essential condition) participation in the debates is meant to be an aspect of the development of a theory representing and defending the cause of Labor, the selection criterion should be whether the different postulates and the interpretations deriving from them are *an instance of a wider theory of radical social change*. In short, the criterion should be an interpretation's *class content*. If the final aim of the debate is to contribute to Labor's liberation from Capital, this challenge cannot be avoided. If that is not the aim, the debate is not worth being pursued. The debate, then, should change focus, from exclusive reliance on formal logic to reliance on dialectical logic (of which the *tools* of formal logic are an aspect). We have to shift grounds, from a restricted focus to a wider picture, from formal logic to dialectical logic, from disregard of, to emphasis on, the different interpretations' class content. First of all, the notion of dialectics as a method of social research and its relation to formal logic have to be highlighted.

2. DIALECTICS AS A METHOD OF SOCIAL RESEARCH²

As well known, Marx did not explicitly write a work on dialectics. Nevertheless, he thought it would be possible to make intelligible to people with ordinary intelligence in a few pages what is *rational* in the method

“which Hegel discovered and at the same time mystified.” In spite of Marx’s warning that Hegel mystified dialectics, traditionally commentators have tried to force Marx into conformity with Hegel. I will depart from this tradition and will submit a notion of dialectics as a method of social research, a method focused exclusively on social reality. This method is extracted basically from Marx’s own work (but also from that of other Marxists) rather than from Hegel.

The starting point is a class-determined analysis of *phenomena* as the unity in contradiction of relations and process. Relations are interactions between people. Every time an enterprise is started (or goes bankrupt), a family is formed (or breaks up), a political party is founded (or is dissolved), i.e., every time a relation arises, or changes into a different type, or ends, there is a change in the social fabric (whether it is perceptible or not). *Processes* are transformations people carry out in the context of those relations. The reason why the unity of relations and processes is contradictory will be explained later. The analogy with Marx’s method in *Capital I* is clear. Marx starts the inquiry into economic life with a class-determined analysis of commodities conceived as the unity in contradiction of use value and exchange value. The present approach starts the inquiry into social life with a class-determined analysis of phenomena as the unity in contradiction of relations and process. This method is based upon three principles.

2.1. *First Principle: Phenomena are Always Both Realized and Potential*

This principle rests on the empirical observation that everything is what it is and at the same time is (can be) something different. This applies to ourselves since we are actualized being and at the same time potentially different; or to an institution, like the state that is both the actualized state and a potentially different state that can evolve in many different directions and take many different shapes; to knowledge, which is subjected to a constant process of change (realization of its potentiality), etc. Thus, reality has a double dimension; it is both actual existence and potential existence. Marx makes extensive use of the difference within the same entity between its actualized and its potential existence. Suffice it to mention the distinction, fundamental for his value theory, between realized and potential value. A commodity can realize, upon its sale, more or less than the value contained in it or even nothing at all, if it is not sold. The *individual* value is

then a *potential realized* value (Marx, 1976, p. 434). A particularly important example of a potential phenomenon is a type of tendency that realizes itself cyclically (as the fall in the average rate of profit, ARP): the rise (countertendency) is potentially present in the fall (the tendency) when the latter becomes realized and the fall (the tendency) is potentially present in the rise (the countertendency) when the latter becomes realized.

More generally, as Marx puts it, the “properties of a thing do not arise from its relation to other things, they are, on the contrary, merely activated by such relations.” Now, *what is activated can only be what is already potentially present* even though, as we will see, *its realization is modified by its relation with other phenomena*. In short, each realized phenomenon (a person, the state, a form of knowledge, etc.) contains within itself a realm of potentialities. In symbols, given two phenomena A and B, this principle can be symbolized as in relation (α)

$$(\alpha) A = \{A^r, A^p\} \text{ and } B = \{B^r, B^p\}$$

where the curly brackets indicate a phenomenon’s unity of its realized and potential nature and the superscripts r and p refer to the realized and the potential state, respectively. Notice that potentials are (a) *real* possibilities because they are contained in realized phenomena but (b) *formless* possibilities because they take a definite form only at the moment of their realization due to the interrelation among all phenomena. Three points follow.

First, since a phenomenon is potentially different from what it is as a realized phenomenon, $\{A^r, A^p\}$ indicates the *unity of identity and difference*. A^r is identical to itself but also different from itself, as A^p . $\{A^r, A^p\}$ is the synthetic rendition of the “affirmative recognition of the existing state of things [and] at the same time, also the recognition of the negation of that state” (Capital I, quoted in Zelený, 1980, p. 87). It is only by considering the realm of potentialities that the otherwise mysterious unity of identity and difference makes sense. Second, $\{A^r, A^p\}$ indicates also the *unity of opposites*, inasmuch as the potential features of a phenomenon are opposite (contradictory) to its realized aspects.³ Finally, $\{A^r, A^p\}$ indicates the *unity of essence and the form of manifestation of the essence, appearance*: A^p is the essence of A, that which can manifest itself in a number of different realizations, while A^r is its (temporary and contingent) appearance, the form taken by one of the possibilities inherent in A’s potential nature. Notice however that the essence, just like its appearance, is not immutable but subject to continuous change.

*2.2. Second Principle: Phenomena are Always Both
Determinant and Determined*

Here too the starting point is empirical observation. We can observe that all elements of social reality are interconnected (people can live and reproduce themselves only through reciprocal interaction) into a whole (society), that this whole changes continuously (even though some changes might be minimal), that this change can be continuous or discontinuous, and that the whole interconnected parts can be contradictory (i.e., the reproduction of some phenomena might imply the supersession of some other phenomena). This apparently chaotic movement is given a conceptual structure by the notion of dialectical determination.

Consider again two phenomena, A and B. Phenomenon A is said to be determinant if it calls into realized existence the determined one, B, from the realm of its potentialities as a condition of its own reproduction or supersession. The determined phenomenon, B, was already contained in the determinant phenomenon, A, as one of its potentialities (A^p) and thus into A^r . This is how A determines B. In relation (β) below, this is indicated as $A \Rightarrow B$. Phenomenon B, after having been actualized as the condition of reproduction or supersession of A, reacts upon A and either reproduces it (in a changed form) or supersedes it. This is how B determines A. In relation (β) this is indicated as $A \Leftarrow B$. The typical example is the capitalist class that calls into existence the laboring class (Labor is potentially present within Capital). Labor is the condition of reproduction of Capital. But it can also become its condition of supersession.

If we combine the determination of A by B and of B by A we obtain $A \Leftrightarrow B$. Between $A \Rightarrow B$ and $A \Leftarrow B$ there is a temporal difference. If we take time into account, mutual determination becomes

$$(\beta) A^{t1} \Leftrightarrow B^{t2}$$

where the superscripts $t1$ and $t2$ indicate two points in time. *At $t1$, A determines B. At $t2$, B determines A.* Dialectical determination takes place within a temporal setting: reality is a temporal process of determinations in which some phenomena, the determinant ones, become actualized prior to other phenomena, the determined ones. It follows that only previously existing phenomena can determine the actualization of other phenomena because the latter are initially only potentially present in the former.

If we substitute (α) into (β) we get the *relation of mutual or dialectical determination*

$$(\gamma) \{A^r, A^p\}^{t1} \Leftrightarrow \{B^r, B^p\}^{t2}$$

Two points should be stressed. First, due to the action of B on A, A can reproduce itself but it does that *in a changed form* and not at $t2$ (even less at $t1$) but at a subsequent point in time, $t3$. Thus, if A reproduces itself, $\{A^r, A^p\}^{t1} \neq \{A^r, A^p\}^{t3}$. After the mutual determination has taken place, the process starts again with $\{A^r, A^p\}^{t3} \Leftrightarrow \{B^r, B^p\}^{t4}$. Second, at $t1$, before its realization at $t2$, B^r is contained in A^r as one of the many possible A^p . At $t2$, one of the many possible A^p becomes realized as B^r and this B^r contains within itself a range of B^p . The new B^r and the new B^p form a new unity, $\{B^r, B^p\}^{t2}$. It is this new unity, $\{B^r, B^p\}^{t2}$, that is a condition of reproduction or supersession of $\{A^r, A^p\}^{t3}$. Relation (γ) represents the *most concise* way to express the notion of dialectics in social reality.

The dialectical relation between phenomena can now be applied to phenomena's inner structure, i.e., to relations and processes. As just mentioned, only what has realized itself can be the condition of existence of what exists only potentially. Since relations are temporally prior to processes, they are determinant and processes must be determined. For example, under capitalism, the owners of the means of production (MP) must hire (engage in a relation with) the laborers before the production process can begin. This is why phenomena are *units in determination*. Given that a unit in determination can supersede itself by calling into existence its own condition of supersession, a unit in determination is also a *contradictory* unity in determination: a process can be a condition of supersession of the relation within which it is carried out. Two points follow: First, given that relations determine processes and given that processes are transformations, i.e. movement, relations *determine their own movement by determining their own processes*. Second, given that we can observe a relation only by observing what people do when they engage in a process, *processes* are also the specific, *empirically observable form taken by relations*.

The question now arises as to why and how the determined phenomenon can become a condition of supersession of the determinant one. This can be explained by choosing the ownership relation as the ultimately determinant phenomenon. *Given a certain time period*, production is prior to distribution and consumption (only what has been produced can be consumed). The former contains potentially the latter within itself. Therefore, only the former can be determinant of the latter. Distribution and consumption can precede temporally production but this is the production of the *following* period. This holds for all societies. But each society has its own specificity. There is thus a specific sense in which production predominates under capitalism. What is specific to this system is that the producers have been expropriated of the MP and must sell their labor power to the owners of the MP. The specificity of the production relation under capitalism

(the production of surplus value) is thus the consequence of the ownership relation. It should be clear that by ownership relations it is meant the real relation and not the juridical one, meaning that the ultimately determinant relation is the relation between those who do not own the MP because they cannot decide what to produce, how to produce it, and for whom to produce it and those who own those MP in the sense that they can take those decisions and impose them on the nonowners. If the ownership relation is capitalism's specific element, it is also that which informs the rest of society (phenomena), the determining element in the last instance.

This feature affects the rest of the society. According to Marx our species has potentialities that set it apart from other living creatures, as for example, the capacity to create our own MP (Marx & Engels, 1970, p. 42). Other authors point out other specifically human features as for example, the capacity of creating languages and communicating through them (Geras, 1983, p. 48). These potentialities and features are not unchangeable. Society moulds them; it not only gives them an historically specific form but penetrates them and adapts them to itself. A dramatic example of society changing those potentialities is the possibility created by biotechnology to shape human life in ways functional for profit making (human cloning). It is within these socially given boundaries that humans try to develop those potentialities to the utmost.

Due to the ownership relation, under capitalism the development of the capitalists' potentialities is informed by their need to deal with the laborers as the source of the maximum feasible quantity of unpaid labor. On the other hand, the development of the laborer's potentialities is informed by their need to resist and abolish their alienation not only from their own products (which they must alienate to the owners of the MP) but also from themselves (because they are not free to fully develop their potentialities). Capital has the objective need to exploit Labor and Labor has the objective need to resist and abolish that exploitation. One class needs to hold back human development, to shape it in accordance with its own needs, the other class needs to expand it to the maximum and to break the constraint imposed by the former class. The former class needs an egoistic and exploitative behavior, the latter an altruistic and solidaristic behavior. For the former, one's well being must be based upon the others' misery, for the latter one's well being must be both the condition for, and the result of, the others' well being. The satisfaction of the former need is functional for the reproduction of the capitalist system; the satisfaction of the latter need is functional for the supersession of that system.

There is thus not only one rationality under capitalism (Capital's rationality, for example, the extraction of the maximum surplus value, profit maximization, etc.), but also there is a *double and contradictory rationality* emanating from the capitalist ownership relation: Capital's rationality and Labor's rationality. This double rationality constitutes the *ownership relation's contradictory social content*. Since the ownership relation contains potentially within itself all other phenomena, it *transfers* this double rationality to all other relations and processes. It is in *this* sense that this relation is *ultimately determinant*. Of course, there are more than the two fundamental classes, there are also the old and the new middle class, as well as fractions of classes (Carchedi, 1977) but the focus on these two classes is sufficient for the present purposes.

The above would seem to imply a contradiction. If relation (γ) is expanded to more than two phenomena, each phenomenon is determined by and determinant of all other phenomena. However, they are all determined in the last instance by the ownership relation. The contradiction is only apparent. Phenomena are not simple copies, reflections, of the ownership relation. Phenomena receive the ownership's relation social content but only indirectly because of their mutual determination. There is thus both a direct and an indirect determination of all phenomena by the ownership relation. It is because of this that each phenomenon has a social content that is a *specific* manifestation of the ownership relation's contradictory social content and it is because of this that each phenomenon is *relatively autonomous* from the ownership relation. Since phenomena are determinant of, and determined by, each other and since they are all determined in the last instance by the ownership relation, they are all condition of existence and/or reproduction and/or supersession of each other and of the ownership relation and thus ultimately of society. This is *phenomena's contradictory social content*. Society is thus *causa sui*, i.e., it both determines itself and is determined by itself. If by A we indicate the ownership relation and by B any other phenomenon, relation (γ) indicates the determination in the last instance of B (which here stands for all other phenomena) by the ownership relation. If A and B are any two phenomena determined by the ownership relation, (γ) indicates the *specific* manifestation of the determination in the last instance of B and C through their mutual determination.

We can now understand why and how the determined phenomenon can become the condition of reproduction or of supersession of the determinant one. We know that phenomena have a contradictory social content. We also know that the determinant phenomenon calls into existence the determined one from within the realm of its own potentialities. It follows that if the

determinant phenomenon calls into existence the determined one from among the realm of its inner possibilities, it *transfers* to it its own contradictory social content. Upon its realization, and due to this contradictory nature, the social content of the determined phenomenon reacts upon and modifies the social content of the determinant phenomenon and in this way it reproduces or supersedes the determinant phenomenon. Thus, relation (γ) concerns the transfer of A's social content to B and the (formal or radical) modification of A's social content by B's social content. *In the last analysis, movement is powered by phenomena's contradictory social content.*

A particularly important example of dialectical determination is the determination of knowledge by the ownership relation, through the reciprocal interaction (determination) of all phenomena as in relation (γ). This means that all elements of knowledge have a social content, i.e., they represent the interest of social classes and ultimately one of the two rationalities (or, more usually, a mix of both rationalities in which either one or the other is dominant). It follows that the verification of an element of knowledge is both in terms of formal logic and in terms of dialectical logic, in terms of that element's social content. Neither formal logic verification nor dialectical verification is both necessary and sufficient. Labor's knowledge needs both of them. From the point of view of Labor, given two equally logically correct interpretations starting from two different sets of assumptions, *it is the logically consistent interpretation (and thus its initial set of assumptions) that is functional for Labor's interests that should be chosen.* This is the principle of verification that will be applied in this article. There is no class neutral knowledge.⁴ For Marx, dialectical logic is class logic.

2.3. *Third Principle: Phenomena are Subject to Constant Movement and Change*

This principle follows from the first two. A realized phenomenon can change only because this is potentially possible, because of its potential contradictory nature that is a specific manifestation of the ownership relation's contradictory nature. Without this potential reality, realized phenomena are static, they are what they are and not also what they could be. Their potential nature makes possible not only their change but also delimits the quantitative and qualitative boundaries of that change. But phenomena do not change in isolation; they do not change only because of their own potential nature. They change through the relation of mutual determination ultimately determined by the ownership relation. Thus, *movement* is the

change undergone by phenomena from being realized to being potential and vice versa; and from being a condition of existence to being a condition of reproduction and/or of supersession (and vice versa) of each other and thus of society.

Phenomena's movement exhibits different features. Here, only two will be considered, its being cyclical and tendential. A determinant phenomenon can call into existence more than one phenomenon. Phenomenon A can determine phenomena B, C, etc. Given A's contradictory nature, B can be a contradictory condition or reproduction and C a contradictory condition of supersession of A. If B is dominant, A reproduces itself in spite of the conditions of supersession. In the opposite case, it supersedes itself in spite of the conditions of reproduction. However, the contradictory reproduction is only temporary because the superseding force gains eventually the upper hand and the same for the contradictory supersession. Thus, the contradictory movement toward reproduction or supersession is cyclical. Second, this cyclical movement is *tendential* in the sense that one of the two forces, either the reproductive or the superseding, is the tendency and the other the countertendency. The principle for discerning the tendency from the countertendency will be submitted shortly.

We can now return to relation (γ). Continuity in social life requires a type of relations and processes which are independent of, and thus both preexist and survive, specific individuals, i.e., *social phenomena* (Carchedi, 2008a, 2008b). Without them, society would collapse and disintegrate. If applied to social phenomena, relation (γ) shows how all social phenomena are bound by the relation of mutual determination (in which the ownership relation is ultimately determinant). This is the *social structure* that by being independent of which specific individuals become carriers of those relations and agents of those processes keeps society together. Also, given that $\{B^r, B^p\}$ can either reproduce or supersede $\{A^r, A^p\}$, relation (γ) shows also *society's movement*, the change undergone by realized social phenomena due to the realization of their potentialities and thus both the reproduction and the supersession of society as a whole. Any contraposition between structure and movement is thus artificial. It follows that this relation represents from a class perspective the *ever changing building block of society*, the cell out of which the constantly changing social structure is made up.

There is thus no need, as in the neo-liberalist view, to ascribe this cohesive factor to the self-regulating and equilibrating function of the market, i.e., to the fact that the market, if not tempered with, tends toward equilibrium. The economy is in a permanent state of nonequilibrium, it is a cyclical movement from periods of growth to periods of crisis and vice versa.

Thus, reproduction is not equilibrium, neither static nor dynamic. Reproduction in a dialectical sense is not only a situation in which the reproductive forces dominate the superseding ones, but also a cyclical process, it is a process that tends toward supersession, it is the repression of the superseding forces. Supersession is the tendency and reproduction the countertendency (see Sections 3 and 4 below). The notion of equilibrium in economic theory can only explain reproduction (from Capital's point of view). This is its social content, it's being constitutionally blind to the possibility of capitalism's supersession.

The picture of capitalist reality inherent in this notion of dialectical determination is that of a temporal flow of determining and determined contradictory phenomena continuously emerging from a potential state to become realized and going back to a potential state in a cyclical and tendential movement toward capitalism's supersession. This is the notion of reality summed up in relation (γ). It follows that the dialectical research method (a) inquires into a phenomenon's origin, present state and further development within this view of reality and (b) tests the results of this inquiry in terms both of formal logic and of their class content. Relation (γ) thus represents not only the *most concise* way to express the notion of dialectics in social reality and the *basic unit* of social life; it is also both the *basic tool* of the dialectical method of social research.

Conclusions in many ways similar to those submitted here are reached by Resnick and Wolff (2006). Their work builds upon Lukacs, Gramsci, and especially Althusser. Its specificity is its focus on contradiction, class, and overdetermination as the three basic coordinates of analysis. *Overdetermination* holds that each process is the cause and at the same time the effect of all other processes and that processes are constituted through this interconnection (p. 36). This is society's dialectical movement. No process exercises "any more determinant influence on the others than any of those others do on it" (p. 30). This is contrary to essentialism, the view that "one aspect of capitalist society ... functions ... as an essence, that is, the determinant of the other social aspects" (p. 106). *Class* is defined in terms of production and appropriation of surplus labor (p. 21). The fundamental class process is based on the production of surplus labor and the subsumed class processes are "based on the distribution of the already appropriated surplus" (p. 77). Finally, *contradiction* arises from overdetermination, from the fact that each process is pulled and pushed "in all directions with varying force" (p. 71).

There are differences with the present approach. First, as in Althusser, overdetermination focuses on social processes as each other's condition of

existence but undertheorizes their being also each other's condition of supersession. Second, if each process is constituted by an infinity of other processes with no ultimately determining factor, one falls into infinite regression. The authors answer that indeed all explanations are necessarily and inherently partial and subject to infinite regression. However, they hold that their theory is not an explanation but rather an "intervention," or "position," or "story" (p. 86). But the infinite regression implied in overdeterminism applies no matter how an explanation is called. Third, since no factor is ultimately determining, any social process or notion of it can be the "entry point" into analysis. "No reductionism is possible here, no ranking of the relative effectivity of one vs. another process" (p. 132). The authors' preferred entry point is class as the production and appropriation of surplus labor. However, if each theory has its own entry point and if each entry point is the "conceptual tool to make sense of this infinity of social processes" (p. 49), "the concept that will distinctively shape the asking of all questions" (p. 265), then each entry point is the concept of what each theorist believes is specific to social reality. This applies also to class. But the process that is specific to social reality and from which the theorist must begin her analysis is actually the ultimately determinant process if not in reality at least in theory. The authors are aware of this objection: if the theorist must "focus on but some aspects pertinent to the explanation of any event ... will not that focus amount ... to a kind of explanatory essentializing of those aspects?" (p. 82). Their negative answer is that this is only "a momentary" essentialist moment and that each subsequent essentialist moment "*changes the relation posed in the initial essentialism*" (p. 83, emphasis in the original). But this is open to the objection that the essentialism inherent in the first moment (stage of the analysis) disappears only to reappear enlarged in the next moment. A finite sequence of essentialist moments is simply an enlarged essentialist moment. In short, Resnick and Wolff are correct in stressing that social phenomena constitute themselves in their mutual interaction. But this can be combined with the determination in the last instance. Without determination in the last instance not only infinite regression cannot be avoided, but also the inherently contradictory nature of social phenomena remains unexplained.

In spite of these differences, the authors' work is to be recommended because of a number of real achievements. Among these, one should mention the rejection of empiricism, i.e., the view that considers facts as "conceptually neutral" (p. 16); the stress on dialectics (even though this is synonymous with overdetermination) as the foundation of social analysis; the dynamic approach to social reality which is seen as a complex of continuously

changing processes (p. 24); the stress on contradiction as the characteristic of social processes; and the concept of class as a process (p. 78) Moreover, there are two points of fundamental importance shared by the authors and the present approach. First, a nonequilibrium theory of capitalism deriving from the point that “Overdetermination entails rejecting...order for disorder” (p. 51) and that a deep instability describes capitalism’s functioning (p. 239) Second, the *scientificity* of a “partisan reading” of reality due to an opposition to capital and a preference for communism (2008, p. 62). Even though the authors do not connect this latter fundamental insight to the presently ongoing discussion between equilibrium and nonequilibrium Marxism, their work is a welcome departure from a formal logic reading of a theory whose vital lymph cannot but be dialectics.

3. ABSTRACT LABOR AS THE (ONLY) SOURCE OF (SURPLUS) VALUE

This is *the* fundamental assumption of Marx’s economic theory. First, why should laborers create (surplus) value? If this were not the case, they would not be necessary and would gladly be dispensed with by the capitalists. Attempts such as Arthur’s to show that laborers, even if necessary (because exploited), create neither use value nor value (Arthur, 2004; Kicillof and Guido, 2007) are undermined by deep logical contradictions and lead to absurd conclusions (see Carchedì, forthcoming b). But the real question is: Why should the laborers’ abstract labor be the *sole* source of value? The objection most often heard is that there is no reason to exclude the MP and the capitalists from being the producers of (surplus) value.

Concerning the MP, the argument can be split into two variants. The more extravagant one holds that the MP can produce (surplus) value in the absence of laborers. For example, in a fully automated system a certain input of machines can create a greater output of machines. In this case, profit and the rate of profit would be determined exclusively by the technology used (productivity) and not by (abstract) labor. If 10 machines produce 12 machines, the profit is 2 machines and the rate of profit is $2/10 = 20\%$. But, first there is a logical inconsistency deriving from the impossibility to aggregate different use values into a homogeneous quantity. Second, value here stands for the monetary expression of (quantities of) use values produced by machines. This has nothing to do with Marx’s notion of value, which the monetary expression of abstract labor expended by people. This view is

logically inconsistent both in its own terms and in terms of Marx's labor theory of value. However, for Marx the MP (and the same holds for nature) affect human productivity (and thus the output per unit of capital invested) as well as the quantity of labor, inasmuch as they change the quantity of labor needed for the production of a certain output.

An apparently more plausible argument could be that, given that both labor and machines are needed to produce machines, it seems reasonable to postulate that value is created by both labor and machines. But, first, one would have to explain why, if machines without labor cannot produce value, they can produce value in combination with labor. It is more logical to assume that machines increase the physical productivity of labor, the production of use values (and not of value), and thus of machines as use values. This is Marx's position. Second, since value in this approach would be produced by both machines and labor, the same quantity of value is produced by a unit of capital invested, irrespective of the relative weight of machines and labor, for example, irrespective of whether 10% of that unit of capital is machines and 90% labor or vice versa. In Marx's theory 90% machines and 10% labor create much less new value than in the opposite case. In the former approach, labor saving and productivity increasing technological innovations lead tendentially to economic growth because a percentage increase of constant capital (machines) results into a greater production of value. In the latter (Marx's) approach they lead tendentially to economic crises because a percentage increase in constant capital decreases the quantity of new value produced and thus decrease the ARP. Given that labor saving and productivity increasing technological innovations are the motor of capitalism's dynamics, for the former approach capitalism tends toward growth and reproduction while for the latter (Marx) it tends toward crises and its own supersession. In terms of formal logic both approaches are internally consistent. Two opposite initial assumptions lead to two opposite conclusions. How, then, do we verify them? According to the principle sketched above, i.e., according to their class content.

If one holds that the economy tends toward growth and thus toward its own reproduction and that crises are only temporary interruptions of this growth (the countertendencies), one deprives the working class of the objective basis of its struggle. This stand makes the struggle of the working class not only a pure act of volunteerism because contrary to the objective movement of the economy but also irrational because aiming at doing away with a rational system, a system that tends toward growth and equilibrium. This is Capital's view. On the other hand, the thesis that the system tends toward crises and thus eventually its own supersession not only grounds

Labor's struggle on sound, objective foundations because this struggle is in accordance with the real, objective tendential movement (growth is then seen as the countertendency) but also rational because it wants to do away with an irrational, exploitative, and destructive system. *Only a view stressing the capitalist economy's objective tendency toward its own supersession can provide an adequate basis for Labor's cause.* Admittedly, this is a class-determined stance. But a view of society tending toward equilibrated growth and reproduction or a view incapable to discern the tendency from its countertendency (as in many Marxists), is equally class determined and thus carries a definite class content, whether the individual theorists are aware of it or not.

Alternatively, it could be postulated that the capitalists are the producers (with the laborers) of (surplus) value. Here the capitalists would pay to themselves the value of their labor power and produce more value than that value. Income differentials between Capital and Labor would be explained in terms of the "captains of industry's higher skills," "greater responsibility" "reward for risk taking," etc. Again, this approach would be internally consistent. However, its social content would be contrary to Labor's interests because it hides exploitation. As such it would have to be rejected by Labor. Managerial theories do hold that value (understood as the monetary expression of use value) is produced by both the capitalists as the organizers of the production process and by the laborers. Marx agrees with this but adds that the organization of the labor process is one of the two functions performed by the capitalists, the function of labor. When performing this function, the capitalist is part of the collective laborer. But the capitalists perform also another function, the function of capital, the extraction and appropriation of surplus value. When performing this function, they do not produce but expropriate and appropriate surplus value (Carchedi, 1977).

4. THE MATERIALITY OF ABSTRACT LABOR

For Marx abstract labor is the substance of value and is the expenditure of human energy irrespective of, abstracting from, the concrete, specific forms it takes (concrete labors). Value is thus contained in the commodity before it realizes itself as exchange value, i.e., before the commodity is sold. At present, the protagonist of the opposite view is C. Arthur. Arthur rejects this approach and thus Marx's labor theory of value. "My position is quite different from that of the orthodox tradition, which sees labor creating

something positive, namely value, then expropriated” (Arthur, 2004, p. 45). And further: “the natural body of the commodity under this description [i.e., as a use value, G.C.] is clearly a substance present to inspection. To speak of ‘value’ as a substance, by contrast, could be taken as highly objectionable” (op. cit., pp. 154–156). However, it can be shown that *abstract labor* and thus the substance value, *can be observed to be a material substance expended during production and thus existing materially before exchange*.⁵ If this is the case, what can be observed at the moment of exchange is the social form of existence of that material substance, money.

The following proof cannot be explicitly found in Marx (it draws upon medical knowledge not available to him). However, it is inherent in and consistent with his work. The process essential for our purposes is human metabolism. The analysis of human metabolism shows that people, irrespective of their differences, produce the *same* type of energy and thus consume the *same* type of energy, no matter which specific activities they engage into.⁶ This is consonant with Marx’s “physiological,” “material” expenditure of undifferentiated human energy. As Marx says: “all labour is an expenditure of human labour-power, in the physiological sense, and it is in this quality of being equal, or abstract, human labour that it forms the value of commodities” (Marx, 1976, p. 137). Abstract labour is a “*purely abstract activity*, a purely mechanical activity . . . a merely *formal* activity, or, what is the same, a merely *material* [stofflich] activity, activity pure and simple” (Marx, 1973 [1939], p. 297, emphasis in the original). This is exactly what human metabolism is.⁷ The observation of the expenditure of calories during production is the observation of abstract labor. If one wanted to, one could measure a laborer’s physical fatigue or the consumption of calories while at the same time observing her producing a specific use value, i.e., engaging in concrete labor. Denial of the existence of the material substance of value is simply incompatible with modern medical science. Therefore, it lacks the scientificity needed by Labor for its struggle against Capital. Some might agree, but object that what we see is abstract human labor, the substance of value, and not value itself. However, if the substance of value can be observed to exist materially before exchange, the same must hold for value, whether it is observable or not.⁸

This would seem to be contradicted by Marx’s text: “If, however, we bear in mind that the value of the commodities has a *purely social reality*, and that they acquire this reality only insofar as they are expressions or embodiments of one identical social substance, viz., human labor, it follows as a matter of course, that value can only manifest itself in the social relation of commodity to commodity” (Marx, 1967, p. 47, emphasis added, G.C.).

This passage has been read as if Marx, by stressing the purely social character of value, denied the materiality of abstract labor and thus of value. The critics think they have found yet another logical inconsistency in Marx. In reality what Marx means and cannot but mean is that the materiality of abstract labor is purely social because it acquires social significance only under capitalism. Value's reality is purely social because abstract labor could not be value without that social dimension. Value is the specific social dimension of a material reality. It is neither only physical nor only social, it is *both*.

The thesis of the immateriality of abstract labor leads Arthur to the conclusion that value and surplus value are created neither by labor, since it would be wrong to see "labour [as G.C.] creating something positive, namely value" nor by Capital given that Capital's work of exploitation cannot be abstract: "I never argued it is abstract" (Arthur, 2004, p. 18).⁹ Rather, capital *posits* value in production because concrete labor "becomes socially posited as abstract in virtue of its participation in the capitalist process of valorisation" (2004, p. 45), i.e., because it is exploited by capital. For Marx the laborers are the protagonists because their labor, under coercion, produces both the use value of the commodities and the (surplus) value contained in them. In Arthur's approach, on the other hand, the laborers have become the "servants of a production process originated and directed by capital" (Arthur, 2004, p. 47) so that labor is "reduced to a resource for capital accumulation" (op. cit., p. 51). Capital is the subject of valorisation even if valorisation depends on labor being exploited. In short, labor is the "servant" who can only be given what has been extracted by capital, the master. This view, then, gives away Marx's most precious legacy, the ability to see reality from the perspective of Labor as the protagonist, as the producer of wealth and value, a perspective which is grounded in a logically coherent, and as yet unsurpassed, economic theory of capitalism.¹⁰

5. THE LAW OF THE TENDENTIAL FALL IN THE AVERAGE RATE OF PROFIT (ARP)

For Marx, technological innovations tend to decrease the ARP because they tend to replace people with machines. Since only labor creates values, the output per unit of capital increases while the value incorporated in it decreases. As Marx says, "The value of a commodity is determined by the total labor-time of past and living labor incorporated in it. The increase in

labor productivity consists precisely in that the share of living labor is reduced while that of past labor is increased, but in such a way that the total quantity of labor incorporated in that commodity declines”(1967, pp. 260–261). It follows that “The rate of profit does not fall because labor becomes less productive, but because it becomes more productive” (1967, p. 240).

It is this contradictory outcome, an increasing output of use values incorporating a decreasing quantity of (surplus) value, that is the ultimate cause of crises: “periodical crises . . . arise from the circumstance that now this and now that portion of the laboring population becomes redundant under its old mode of employment” (Marx, 1967, p. 264). In other words, ultimately crises are the consequence of labor reducing but productivity increasing technological innovations. Therefore, “the ultimate reason for all real crises [as opposed to financial and speculative crises, G.C.] always remains the poverty and restricted consumption of the masses [due to the expulsion of labor as a consequence of labor decreasing and productivity increasing technologies, G.C.] as opposed to the drive of capitalist production to develop the productive forces [the productivity of labor through those technologies, G.C.] as though the absolute consuming power of society [rather than the poverty and restricted consumption of the masses, G.C.] constituted their limit” (Marx, 1967, p. 484). This is why new technologies decrease the ARP.

5.1. The Logical Inconsistency Critique

This stance has been criticized on two accounts. The first one has focused on the Okishio theorem (Okishio, 1961).¹¹ Okishio argues that capitalists introduce new techniques not when they raise the productivity of labor but when they decrease the costs of production (op. cit., p. 86). If real wages are held constant, the ARP must necessarily rise, contrary to Marx.¹² The Okishio theorem has been subjected to a number of critiques (Laibman, 1982, p. 100; Foley, 1986, p. 139; Alberro & Persky, 1981; Shaikh, 1978) whose common feature, as Kliman remarks, is that of being based on a modification of Okishio’s initial assumptions. On the other hand, Marx would not object to the thesis that lower costs as a result of higher productivity increase profits.¹³ Let us then consider Okishio’s “cost criterion”

$$\sum a_{kj}q_j + \tau_k \tag{1}$$

where a_{kj} denotes the amount of the j th commodity directly necessary to produce a unit of the k th commodity, q_j denotes the ratio of the price of the j th commodity (p_j) to the wage rate (w), and τ_k denotes the amount of labor directly necessary to produce a unit of the k th commodity.

Formula (1) above says that, if the *physical* inputs are multiplied by their monetary prices, holding wages constant, lower costs due to increased productivity *must* increase *monetary* profits. This is contrary to Marx because the rate of profit is here *physically* determined and value in Marx's sense plays no role. But it also implies tacitly as a-temporal perspective, again contrary to Marx. The reason is that within a temporal perspective Okishio is internally inconsistent. The reason is that an increase in productivity increases the output per unit of capital invested and thus the physical rate of profit. However, the money rate of profit depends upon the quantity of money at the beginning and at the end of the period. If the quantity of money decreases sufficiently while physical productivity increases, the money profit rate falls while the physical profit rate rises. This is squarely contrary to Okishio's claim that a price fall (cost reduction) leads necessarily to an increase in profits (wages being constant). In its original formulation, which is the one invoked by Marx's critics, the theorem is invalid. Notice that these results depend crucially on a distinction between the initial and the final moment of the production period, i.e., on a temporal perspective.

Nevertheless, Okishio's theorem can be rescued if two additional assumptions are added. One is to let the quantity of money vary with the variations in the physical output. This option has been considered above. The price paid for internal consistency is the extremely limited application that makes the theorem practically useless. The other is to value the inputs at the price they would have when the output is sold rather than at the price actually paid for them when they are bought (Kliman, 1996, p. 212; Carchedi, forthcoming a). The prices of the inputs and of the outputs are made to coincide because they are computed *simultaneously* at the end of the period. Given that at the end of the period the price has fallen (as a consequence of the increased productivity), the inputs are devalued retroactively not as a consequence of a real process but simply to make accounts square. But accounts square simply because time has been cancelled. Moreover, due to simultaneous valuation, the money rate of profit is unaffected by the level of prices (as long as prices are determined simultaneously) so that only physical quantities determine the profit rate. This is the physicalist approach. It follows that, to obtain the desired result, Okishio would have to explicitly pose as its premise the simultaneous

valuation of inputs and outputs. But this premise is posed neither by Okishio nor by those who defend its validity¹⁴. But assume this assumption is made. Then, Okishio is internally consistent. It can hardly be seriously held that an approach that jettisons value and time, even if internally consistent, can be seen as an internal critique, a refutation, of Marx's law. Yet this is what the critique boils down to.¹⁵ Okishio's is then a theory alternative to Marx's. But, is it a *valid* alternative, a theory functional for the liberation of Labor?

First of all, it has been submitted above that a theory focusing on use values rather than on value implies a notion of capitalism tending toward growth rather than crises. This is contrary to Labor's struggle. Second, in formula (1) mentioned above, the quantities of the inputs multiplied by their prices are a cost and the labor necessary to produce the k th commodity (τ_k) is also a cost. What has escaped the commentators is that *Okishio's perspective is that of the capitalists for whom both the labor contained in the commodities' inputs and the new labor added are exclusively a cost*. Clearly, if costs are reduced and wages are unchanged, profits must rise. Okishio's critique, by seeing labor as a cost (the capitalists' point of view), disregards Marx's absolutely essential assumption that labor is the creator of value (the laborers' point of view). To show that Marx's law is logically inconsistent, Okishio would have had to use Marx's own assumption. Since he does not do this, he cannot argue that the law is internally inconsistent. Okishio could assume explicitly labor as a cost and not as the value-creating factor. But then Okishio would become explicitly irrelevant for a critique of the law.¹⁶ The social, class, content of the Okishio theorem is incompatible with the interests of Labor. It is because of *this* inconsistency that it should be discarded.

But labor *is* a cost. Don't we have a contradiction here? No. Labor is a cost for the *individual* capitalists (when they purchase it as labor power) but is also and above all (as abstract labor) the sole value-creating factor (see Section 3 above). Less living labor might mean lower costs and thus higher profits for the capitalists introducing labor decreasing and productivity increasing technologies but it means also less new value and surplus value produced by them and thus, exclusively on this account, a lower ARP. The technological innovators do indeed realize a higher rate of profit but if they have produced less (surplus) value *ceteris paribus* their higher profit rate can be realized only at the expense of, i.e., by appropriating the surplus value produced by, the other producers who have not yet introduced those labor decreasing and productivity increasing technologies. This happens through the price mechanism. Assuming an unchanged total purchasing power, the

greater combined output must be sold for a lower unit price. The innovators, by selling their greater output for the same unit price as that of the technological laggards (whose output per unit of capital invested is lower), realize a greater surplus value per unit of capital invested (a greater rate of profit) at the cost of the laggards.¹⁷

5.2. *The Indeterminateness Critique*

The second line of critique focuses on the tendential nature of the law. Marx qualifies the law by ascribing to it a tendential nature, i.e., by considering factors that temporarily hamper the fall in the ARP (the countertendencies). The three countertendencies most often mentioned are the production of cheaper MP due to technological innovations, the increase in the rate of exploitation due to the production of cheaper means of consumption (MC) also as a consequence of technological innovations, and the increase in the rate of exploitation due to an increase in the length of the working day. These three factors increase the (surplus) value created and counter the fall in the ARP which is caused by the percentage decrease of variable capital, and thus of labor power, per unit of capital invested as a consequence of technological innovations. However, the tendency is only “delayed,” “checked,” “partly paralyzed,” “retarded,” “not [done] away with... but [simply] impair[ed] [in] its effect” by the countertendencies (Marx, op. cit., pp. 226, 232–237) and “Under all circumstances... the balance will be restored by the *destruction of capital* to a greater or lesser extent” (1992, p. 328, emphasis in the original).¹⁸

It is because of these countertendencies that the law is argued by the critics to be indeterminate (the ARP can fall or rise) and that there is no reason to assign the role of the tendency to the fall and thus the role of the countertendency to the rise in the ARP. For example, Fine and Harris (1976, p. 160) hold that the law cannot predict “actual falls in the rate of profit.” Of the same opinion is Steedman (1977, p. 132). For Cullenberg, “there is no unidirectional, or teleological direction, whether up or down” in the rate of profit’s movement (Cullenberg, 1994, p. 86). Of the same opinion is Reuten (2004).

After what has been said above, it is easy to see why the indeterminateness critique should be rejected. As we have seen above, whenever alternative interpretations are equally possible in terms of formal logic (the tendency is the fall versus the rise in the ARP), it is dialectical, class verification that decides. If the downward movement is the tendency, capital tends toward its

cyclical self-destruction, it tends toward crises, not equilibrium, and the ARP tends toward its lowest point (the trough) as a precondition for its further ascending movement. After this destruction has taken place, growth can resume.¹⁹ The contrary thesis or the agnostic position held by many Marxists carry a class content functional for the reproduction of capitalism because it deprives Labor of the view that the objective movement of the system tends toward its own collapse.

Notice that if the system tends toward its supersession it cannot tend toward its reproduction and vice versa. This is quite different from arguing that, given that only abstract labor creates (surplus) value, the tendency is toward crises and supersession (if less labor is employed) and the countertendency is toward growth and reproduction (if more labor is employed). There is no contradiction here because when abstract labor increases (the upward phase of the cycle) its reduction is present in a latent, potential state and when value decreases (the downward phase of the cycle) its growth is present even if only potentially.

6. THE TRANSFORMATION “PROBLEM”

The debate around Marx’s transformation procedure has become one of the most obscure in the literature. The transformation of values into prices is simply the redistribution of the value contained in commodities at the moment of and through exchange under the assumption that each modal capital realizes tendentially the ARP. The supposed difficulty concerns the value of the inputs, given that the individual value of the commodity is given by the individual value of the inputs plus the new value created. Since the critique concerns the difference between values and prices, let us first set out clearly what they are and how they differ. The *individual value* is “the labour-time that the article costs the producer in each individual case” (Marx, 1976, p. 434). It should be distinguished from the *market value*, the individual value of the commodities produced under average conditions of production (average efficiency) in each sector. Both the individual and the market value are *values contained* or *embodied* in the commodity before realization. The *value realized* by a commodity upon its sale is called its *price*. The *production prices* are the value *tendentially* realized when the rates of profit are equalized among branches. The *market prices* are the value *actually* realized by those commodities when the rates of profit in the different branches differ according to the profit actually realized.

Value here is equivalent to abstract labor (under capitalist production relations) (see Table 1 below).

On the basis of these notions, let us first review Marx’s transformation procedure.

6.1. The Transformation Procedure

In Table 2 below both sector 1 (the producer of MP) and sector 2 (the producer of MC) are represented by a modal producer.²⁰ Let i and o indicate inputs and outputs, respectively so that, for example, MP_i stands for the MP as inputs. We consider first the use value aspect and focus initially on columns 2, 4, and 7. To address the critique, we assume simple reproduction, i.e., all the surplus product is consumed by the capitalists, no surplus product is reinvested.

At t_1 , sector 1 starts the production process with $60 MP_i + 40 MC_i$ and at t_2 it has produced $140 MP_o$ (column 4). Similarly, sector 2 starts its production process at t_1 with $80 MP_i + 20 MC_i$ and at t_2 it has produced $120 MC_o$. The $140 MP_o$ are purchased only by the capitalists while the $120 MC_o$ are purchased both by the capitalists and by the laborers.

Point t_2 is the end point of period t_1-t_2 . As an initial assumption (to be relaxed shortly), t_2 is also considered to be the starting point of t_2-t_3 (column 7), i.e., there is no time lag between the end of one process and the

Table 1. Value Contained and Value Realized (Prices) in Marx.

Value before Realization, i.e., Value Contained	Value after Realization, i.e., Prices
Individual value	Production price (tendentially realized)
Market value	Market price (actually realized)

Table 2. The Computation of Production Prices in Marx.

	t_1	t_1-t_2	t_2	t_2	t_2	t_2-t_3
(1) Sector	(2) Inputs	(3) Value produced	(4) Outputs	(5) Market price	(6) Production price	(7) Inputs
1 MP	$60 MP_i + 40 MC_i$	$60 c_1 + 40 v_1 + 40 s_1 = 140 V_1$	$140 MP_o$	$150 V_1$	$130 V_1$	$60 MP_i + 40 MC_i$
2 MC	$80 MP_i + 20 MC_i$	$80 c_2 + 20 v_2 + 20 s_2 = 120 V_2$	$120 MC_o$	$110 V_2$	$130 V_2$	$80 MP_i + 20 MC_i$

beginning of the next one so that the outputs of $t1-t2$ become immediately the inputs of $t2-t3$. The 140 MP_o are purchased as inputs at $t2$ by sector 1 (60 MP_i) and sector 2 (80 MP_i). Thus, all MP are purchased in the same proportions as at $t1$, the beginning of $t1-t2$. The 120 MC_o are purchased by the laborers of both sectors (40 MC_i in sector 1 and 20 MC_i for sector 2) and by the capitalist (40 MC_i in sector 1 and 20 MC_i for sector 2). All the MC are again used by the laborers in both sectors as at $t1$ and the rest is consumed unproductively by the capitalists.

Let us now consider the value aspect. We assume that one unit of abstract labor (value) is represented by one unit of money (so that the following figures can be read, as in Marx, both as money and as labor, or value, quantities).²¹ Each sector invests a certain quantity of money as constant capital (c) to buy MP and as variable capital (v) to buy the laborers' labor power and forces the laborers to produce surplus value (s) so that the total value produced by each sector is $c + v + s = V$. Then, column (3) gives the value invested at $t1$ as well as the value produced during $t1-t2$ by both sectors (140 $V1$ and 120 $V2$). At $t2$, the producers of MP_o and MC_o sell their products at their market price. These commodities are bought by other producers as MP_i and MC_i of the next production period at the same prices (if the same commodity is bought and sold at the same time it must be bought and sold for the same price). The transformation is thus, first of all, the redistribution of the value contained in the outputs if the value represented by their market price does not coincide with their value contained. This is column 5 where, for example, sector 1 sells its MP_o at 150 $V1$. Given that the total value realized cannot exceed the total value contained, sector 2 must sell its MC_o at 110 $V2$. There is thus a transfer of value equal to 10 V from sector 2 to sector 1, i.e., sector 1 realizes 10 V more than the value it produces at the expense of sector 2. The new production period begins with MP and of consumption whose value is not any more 140 MP_i and 120 VMC_i , respectively (as in column 3) but 150 MP_i and 110 MC_i .

Under the assumption stated above, it is a matter of empirical observation that the output of a production process is the input of the next production process so that the value of an output of a process is also the value of the same commodity as an input of the next production process. But an empirical observation is not yet a theory. The transformation implies the first principle of dialectics set out in Section 2 above, namely that phenomena are always both realized and potential. If the value contained in the outputs (140 $V1$ and 120 $V2$) is realized as 150 $V1$ and 110 $V2$, the former set of values realizes itself as the latter set of values. *The value contained in the output*

(140 V_1 and 120 V_2) is potential value and the price realized by them is the value realized. The quantitative transformation rests on a qualitative, dialectical, transformation from potential to realized quantities. But also the other way around. If those outputs enter as inputs the next production process, *the value realized by them as outputs of t_1-t_2 (150 V_1 and 110 V_2) becomes again the potential value of those same commodities as inputs of t_2-t_3 .* This means that the initial assumption in Table 2 that the values contained in the MP_i and MC_i at t_1 are $(60 + 80)c$ and $(40 + 20)v$ implies a previous production period, t_0-t_1 not shown in Table 2, whose MP_o had been sold at 140 V_1 and whose MC_o had been sold at 60 V_2 . Thus, *not only the values realized by the commodities as outputs of one period but also the value of the same commodities as inputs of the following period can be expressed in money terms.* It is simply mistaken to think that the inputs can be expressed only in labor terms and the outputs in money terms. *This is why Marx can refer interchangeably to value as abstract labor as well as money.* It is thus mistaken to consider value as labor before taking, and price as labor after having taken, its money form.²² This is the first point at which dialectics comes in, the transformation of potential into realized and back to potential values.

Up to here we have considered the transformation of the potential value of the output into its actually realized price and of this latter into the potential value of the same commodity as an input of the next process. But the transformation does not stop here. Consider two production processes, t_0-t_1 during which commodity A is produced and sold as an output at t_1 , and t_1-t_2 during which A is bought by the producer of B and becomes the input of B. At t_1 , A is bought as an input of B. At t_2 it exits that period *not as outputs in itself but as part of (the value of) B.* Suppose now that between t_1 and t_2 new commodities A (call them A^*) might be produced whose average value is different from the value of A. They are used by other producers of B to produce other B (call them B^*). Then, at t_2 , the value that can be realized by the producer of B is that charged by the producers of B^* using A^* .²³ Thus, at t_2 , A might realize a different value (a value equal to that of A^*) than what it had at t_1 (its value contained). The value contained in A is the value it had at t_1 and this is the value it transfers to B; but the value realized by B at t_2 is the value of B^* because the value of A at t_2 (when A is sold as part of B) is the value of A^* : “Although [the inputs, G.C.] entered the labour process with a definite value, they may come out of it with a value that is larger or smaller, because the labour time society needs for their production has undergone a general change” (Marx, 1988, p. 79).²⁴ Here too the theoretical foundation is provided by dialectics. The value of A

at t_1 is only potential because A realizes its value (in a possibly modified quantity) at t_2 when B is sold. At t_2 , the producer of B suffers a loss to the purchasers of her B if A has a higher value than A^* and vice versa in the opposite case.

The assumption that the end of a period is also immediately the beginning of the next one can now be relaxed. The above holds also if the outputs of the previous period (A) are not sold immediately upon being completed or if, even if immediately sold, they lay unused for some time before entering the production of B. The value of A might change (from A to A^*) during the period they are not sold or not used. The value A transfers to B is the value it realizes when it is sold as outputs of the previous period. The value realized by B on account of A can be different. The loss or gain of the producer of the output (B) using those inputs (A) is then given by the difference between the value realized at the sale of A as an output of the previous period and first the value it has when it enters the production of B and second, as seen above, between this value and the value A realizes when B is sold.

It follows that the complete transformation must take into account not only the redistribution of surplus value but also that of the value of the inputs. It also follows that, if capitalists who are more productive than the average in their sector realize more than the ARP and vice versa for less than average productivity capitalists, the surplus value produced is redistributed among all producers but in such a way that only the producers who adopt the average technique at the moment of their products' realization receive the ARP.²⁵ Marx provides the example of a capitalist using a gold instead of a steel spindle. Only the capitalists using a steel spindle (the average technique) realize the ARP. The capitalist using a gold spindle realizes less than the value of the spindle transferred to the product. The difference is appropriated by the producers using the average technique (steel spindle). While the ARP is computed by dividing at t_2 the total surplus value produced during t_1-t_2 by the total capital invested at t_1 (i.e., invested both by average and non average producers), the production prices are computed by adding this average profit rate to the *average* value of the inputs at t_1 (which is why the ARP is tendentially realized only by the average producer).

The above has dealt with the transformation of the individual values into market prices. However, market prices tend toward production prices, i.e., those prices at which all modal capitals realize the ARP. These are tendential prices. There are two reasons for conceptualizing the ARP and thus the production prices. We have seen that technological innovations,

inasmuch as they replace people with MP, decrease the surplus value produced and cause a tendential fall in the ARP. The technological leaders realize a higher profit rate, the laggards a lower profit rate, and the ARP falls. After the crisis, the ARP rises again. The ARP is thus the thermometer of the economy. Second, due to capital movements from low to high profitability sectors, the ARP is the average toward which the actual profit rates tend. This tendency cannot become realized because every time a capital moves to a different sector it changes its organic composition and thus it changes the average profitability. Nevertheless, this tendency is a real, even though only tendentially so, phenomenon. Since it is a real phenomenon, the ARP is the center of gravity around which the market prices fluctuate. It is this center of gravity that reveals the inner structure of a movement (the movement of the market prices) that otherwise would seem chaotic and indeterminate. The transformation procedure applies also, *mutatis mutandi*, to the tendentially realized prices, the production prices. This procedure has been criticized on two accounts. They are the backward ad infinitum critique and the price inconsistency critique.

6.2. *The Backward Ad Infinitum Critique*

We have seen that, in order to compute the production price of this period's outputs, we must know the individual value of this period's inputs. But they are the production price of the previous period's outputs that, in their turn, depend upon the individual value of their inputs. Supposedly we are trapped in infinite regression. This is the backwards ad infinitum critique (Robinson, 1972, p. 202). This approach, the quest for the origin, is absurd because it would make any science impossible. However, to posit the value of the inputs at the beginning of the period as a given is a weak defense against the critique. While prices are empirically visible and thus amenable to being posited, values are not. The value of the inputs should be computed without falling in the backward ad infinitum critique. The solution hinges on the principle that abstract labor is not simply the expenditure of physical human energy in the abstract. It is its *social evaluation when the output of this real expenditure is sold* (see Carchedi, forthcoming b, *Historical Materialism*). Seen from this perspective, there is no need to regress infinitely in time. As shown in Carchedi (1996) and Carchedi and de Werner (1996), one step backward in time is sufficient.

Suppose we want to calculate the abstract labor (value) contained in the MP, for example, a machine, entering a certain period, say the t_1-t_2 period

at $t1$. We can do that only if we start our computation in the preceding period, $t0-t1$. We can count the hours of *new* labor needed to produce that machine during $t0-t1$. This is necessary labor plus surplus labor. To it, there corresponds the quantity of money paid as wages and profits after the sale of that machine. Suppose wages and profits amount to Euro 40,000 and that the hours of new labor are 200. The ratio $200/40,000 = 0.005$ indicates that one Euro represents 0.005 of one hour of new labor. Given the *inherent homogeneity of both money and value as abstract labor* the same ratio applying to new labor can be applied to all labor realized by the sale of that machine. If the machine costs Euro 60,000, by applying that ratio we obtain the *social valuation* (300 hours) of the abstract labor (value) realized by that machine at the moment it is sold as an output, at $t1$. This is also the labor contained in that machine when it enters as an input the next production period $t1-t2$. The individual value of the inputs of $t1-t2$ is thus obtained not by endlessly counting the hours of past labor but through a *social valuation* of past labor at the end of the previous process ($t0-t1$). Starting from $t1-t2$, the labor value of the output of $t1-t2$ is also the labor value of the input of $t2-t3$ and no step back in time is needed any more. Notice that the 300 hours of labor constituting the individual value of that machine as an input of $t1-t2$ are hours of average intensity and average skilled labor. To this value, one can add new labor and thus value according to the level of intensity and skills.

6.3. The Price Inconsistency (Circularity) Critique

Even though a first critique was put forward by Von Böhm-Bawerk (1973 [1896])²⁶ shortly after the appearance of Capital III, by far the most influential attack on Marx's transformation procedure has been mounted by von Bortkiewicz (1971, p. 30) and has been brought to modern readership's attention by Sweezy (1973). To exemplify, in Table 2 the value of the MP_o is 140 but their production price is 130. Similarly, the value of the MC_o is 120 but their production price is 130. The capitalists sell their MP_o at 130 but need (must buy) MP_i for a value of 140 to start the new production process on the same scale. The MP_o are insufficient to start a new process. Similarly, the capitalists sell the MC_o at 130 but both capitalists and laborers need (buy) MC_i for a value of 120. Some MC_o are unsold and cannot enter the new process. *Simple reproduction fails*. The reason is that (supposedly) in Table 2 the inputs are bought at their value contained but sold at their production price. If this were the case, it would be a glaring contradiction

because, if the inputs of a process are also the outputs of another process, the same commodity must be bought by the purchaser and sold by the seller at the same price (value). This is the price inconsistency critique.

It follows that if prices cannot be derived from values, there are supposedly in Marx a value system in which the value of the outputs is determined by the value of the inputs (column 4 in Table 2) and a price system in which the (production) prices of the outputs are determined by the (production) prices of the inputs. There would thus be in Marx a dual system. It also follows that there would be two rates of profit. In the words of Steedman, Marx “assumes that $S/(C + V)$ is the rate of profit but then derives the result that prices diverge from values, which means precisely, in general, that $S/(C + V)$ is *not* the rate of profit” (1977, p. 31). In Table 2, the value system gives an ARP of 30% (inputs and outputs are valued at their value). But if the inputs are valued at the production prices, the MP_i are devalued to $130/140 = 0.9285$ so that sector 1 invests $60 \times 0.9285 = 57.72$ and sector 2 invests $80 \times 0.9285 = 74.28$ in MP. Similarly, the MC are revalued to $130/120 = 1.0833$ so that sector 1 invests 43.33 and sector 21.67 in MC. These would be the production prices of the inputs and thus, included in the price system (Table 3 below).

Now the ARP is not 30% (as in the value system) any more but $65/195 = 33.33\%$. The inputs are bought and sold either at their value or at their production price, but not at both.

The critique is based on confusion that, even though elementary, has held sway also among Marxists authors. The inputs MP_i are bought and sold at t_1 for 140 and the outputs MP_o are bought and sold at t_2 at 130. The inputs and outputs of a production period are *two different commodities* bought and sold at *two different moments at two different prices* (temporalism). The same for MC_i and MC_o . By holding that the MP_i are bought at 140 (their value) and *at the same time* sold as MP_o at 130 (their price of production) the critics discover a “contradiction.” To escape this “contradiction,” the prices of the inputs and of the outputs should be determined simultaneously through a system of simultaneous equations (von Bortkiewicz, 1973 [1907],

Table 3. The Retroactive Valuation of the Inputs.

c	v	s	V
55.72	43.33	43.33	142.38
74.28	21.67	21.67	117.62
130.00	65.00	65.00	260.00

pp. 199–221). In so doing, time is wiped out. But then, if realization is instantaneous, if time does not exist, production too must be a-temporal, i.e., the inputs must be the *same commodities* as the outputs. The inputs of one period become the outputs of *the same period*.

The postulate on which the critique rests and builds its simultaneous price determination is a reality without time. *This implies equilibrium and this is the class content of the circularity critique.*²⁷ This is inconsistent with the class content of Marx's theory as well as logically inconsistent with that theory. Clearly, Marx's supposed inconsistency is surreptitiously created by injecting the a-temporal assumption into an approach that, like reality, oozes with time. This inconsistency disappears if time is reintroduced in the analysis. In Table 2, MP_i are bought and sold at $80 + 60 = 140$ at time t_1 and MP_o (different commodities even if they were perfect copies of the MP_i) are bought and sold at 130 at time t_2 .²⁸ Such a simple consideration is sufficient to make the critique fail. Moreover, within a temporal dimension, reality is a succession of production and realization periods. As seen above, the price of the MP_o of one period become the value contained in the same commodity as the MP_i of the following period. If the end of one period coincides with the start of the following period, that commodity has at the same time both a price (a value actually or tendentially realized as the MP_o of a period) and a value contained (a value not yet realized) as the MP_i of the following period. While simultaneism and formal logic see the temporal coincidence of prices and values as a contradiction, temporal dialectics accounts for this coincidence.

Marx is said to have been conscious to have made a mistake and that he did not correct it: "We had originally assumed that the cost-price of a commodity equalled the *value* of the commodities consumed in its production. But for the buyer the price of production of a specific commodity is its cost-price. . . . There is always the possibility of an error if the cost-price of a commodity in any particular sphere is identified with the value of the means of production consumed by it. Our present analysis does not necessitate a closer examination of this point" (1967, pp. 164–165, emphasis in the original). Actually Marx says is that if the output A is valued at its production price, it enters the production of B as an input at that modified value, so that it would be an error to compute the cost price of B on the basis of the individual value (rather than the production price) of A. This does not concern Marx here because he is interested in the production price of B so that the production price of A can be taken as given. In any case, we have seen (in dealing with the backward ad infinitum critique) that both the market price and the production price of A can be computed

when A is sold and enters the production of B. Thus, if one wanted to, one could compute the inputs at their production price (as outputs of the previous period).²⁹

Finally, it could be held that the analysis of a static, a-temporal situation can be used as a starting point for a more realistic analysis. But this is inadmissible in this case. One can start from a simplified depiction of reality in order to proceed to a more and more complex and realistic one, but on condition that each further step should retain the basic, fundamental assumptions upon which the previous stage of research rested, rather than on their rejection, i.e. on condition that the further assumptions do not conflict with the initial ones. If, at a later stage of the analysis, one rejects those initial assumptions and replaces them with other, incompatible ones, one rejects the previous analysis (the more simplified one) and creates a disjuncture rather than a bridge between the different stages of the analysis. If one starts from a static analysis based on simultaneism, one should proceed to a dynamic analysis also based on simultaneism. If this cannot be done, the analysis of a static situation is severed from, and becomes useless for, further analyses of real, dynamic situations because the initial postulate of a lack of time conflicts with the further postulate of the existence of time. Either one postulates time or one does not. In other words, a timeless dimension cannot be the starting point of an analysis of reality because it denies reality (time) rather than distilling from it its most pregnant aspects and using them as the starting point of the inquiry. This is why it is admissible for Marx to postulate first that the cost price is the value of the inputs and then to postulate that the inputs are valued at their production price because production prices are a modification of values and compatible with them.

6.4. Reproduction Prices and Simple Reproduction

Let us now see how the production prices of the outputs are consistent with the requirements of simple reproduction.³⁰

In Table 2, at t_2 , the unit production price of the MP_o is $130/140 = 0.9286$. 80 MP_o are bought as MP_i by the capitalists of sector 2 at the unit production price of 0.9286 and 60 MP_o are bought as MP_i by the capitalists of sector 1 at the same price. All MP_o are sold at the unit production price. Similarly, the unit production price of the MC_o is $130/120 = 1.0833$. 40 MC_o are bought by the laborers of sector 1 and 20 MC_o are bought by the laborers of sector 2 at the unit price of 1.0833. The values spent for the

MP_o and MC_o needed to start a new cycle at *t*₂ are

$$\text{Sector 1 : } (60 \times 0.9286 = 55.714) + (40 \times 1.0833 = 43.333) = 99.05$$

$$\text{Sector 2 : } (80 \times 0.9286 = 74.286) + (20 \times 1.0833 = 21.667) = 95.95$$

Given that both sectors must realize 130 *V*, the profit the capitalists have to purchase the remaining 60 MC_o is

$$\text{Sector 1 : } 130 - 99.05 = 30.95 \text{ } V$$

$$\text{Sector 2 : } 130 - 95.95 = 34.05 \text{ } V$$

With this 34.05 + 30.95 = 65 *V*, the capitalists of the two sectors can purchase 65/1.0833 = 60 MC_o. Thus, 140 MP_o are supplied and demanded at their production price and the same holds for the 120 MC_o. All output is sold at its production prices and simple reproduction is ensured. Notice that the capitalists of sector 1 receive 30.95/1.0833 = 28.6 MC instead of 30 and that those of sector 2 receive 34.05/1.0833 = 31.4 MC instead of 30. The difference with the simultaneist approach is that these production prices apply to the MC and MP as inputs of the following period rather than being applied to their own inputs.³¹

6.5. Simple Reproduction with Production Prices and Parity of Purchasing Power

There is one aspect not explicitly considered by Marx that is worthwhile being considered. In Table 2, there are two sectors, one producing MP and the other producing MC. In it, all MP are exchanged for MC and vice versa. But at a lower level of aggregation, some MP will be exchanged with MP and some MC will be exchanged with MC. Sector 1 exchanges internally 60 MP for a value of 60*v*₁ and buys 80 MC from sector 2 by selling 80 MP for a value of 40*v*₁ and 40*s*₁ (for a total value of 80). Sector 2 exchanges internally MC for a value of 20*v*₂ and 20*s*₂ and buys MP from sector 1 by selling 80 MC for a value of 80*c*₂. As Marx finds out in Capital II, the condition for simple reproduction is then *c*₂ = *v*₁ + *s*₁. If products are exchanged at their values, a value of 80 is exchanged for a value of 80. This concerns intersector exchange. However, if 80 MP are exchanged for 80 MC at their production prices,

$$\text{Sector 1 sells 80 MP at } 80 \times 0.9286 = 74.288 \text{ while}$$

$$\text{Sector 2 sell 80 MC at } 80 \times 1.0833 = 86.664$$

By selling its 80 MP, sector 1 receives 74.288 from sector 2 but needs 86.664 to buy 80 MC. It lacks a value of 12.376. Conversely, sector 2 has a value of 12.376 in excess. The purchasing powers of the two sectors (the value obtained by each sector through the sale of its commodities and available for the purchase of the other sector's commodities) do not coincide. Simple reproduction with prices of production would seem to be inconsistent with the purchasing power needed for intersector exchange. But this is not the case.

If the problem changes, the conditions must change too. *First*, for the purchasing powers to be equal, the capital invested to produce MP and MC for intersector exchange must be *equal*. Then, the same profit rate on the same capital gives the same value realized and thus the same purchasing power. This is the case in Table 2 if all commodities are exchanged intersectorally (in that case both the 140 MP and the 120 MC exchanged intersectorally are produced with a capital of 100) but not if we assume that only 80 MP are exchanged for 80 MC (because those 80 MP and 80 MC require different quantities of capital for their production). Thus, Table 2 is unsuited to exemplify the case at hand. *Second*, each sector is now subdivided into two subsectors. Sector 1 is subdivided in the subsector producing MP for exchange with MC (i.e., for intersectoral exchange) and the subsector producing MP for exchange with other MP (i.e., for intrasectoral exchange). Similarly, sector 2 is subdivided into the subsector producing MC for intersectoral exchange and the subsector producing MC for intrasectoral exchange. The capitals producing MP must be free to produce either for intrasectoral or for intersectoral exchange and to move to the sector producing MC. The same applies to the capitals producing MC. All capitals participate in the process of equalization of the profit rates. Under these conditions all capitals realize tendentially the same profit rate and the capitals selling intersectorally generate sufficient purchasing power for this intersector exchange to take place.

6.6. Negative Values

Consider the case of an economy in which ten bushels of seed corn (input) are planted by farmers who perform a certain quantity of labor. However, owing to a drought, only nine bushels of corn (output) are harvested. For simultaneism, given that the price (value) at the beginning of the period is equal to the price (value) at the end of it, the output is worth less than the input. In this case, "labor subtracts value instead of adding it." Kliman objects to this conclusion because in terms of Marx's value theory, (abstract)

labor added must increase the value produced. The output (nine bushels) is worth more than the input (ten bushels) (2007, pp. 81–82). Actually, both positions are erroneous. In Marx's theory, abstract labor creates value *if as concrete labor it transforms use values into new use values*. If concrete labor *destroys* use values, abstract labor cannot create new value; it destroys the value contained in the seed corn. This would be the case mentioned by Baran (1968, p. xx) of a bakery paying a worker to add chemicals to the dough in order to increase the bread's perishability, thus destroying a part of the bread's use value. This is what I have called value destroying labor (see Carchedi, 1987, p. 228 and 1991, pp. 138–139 for details). The case mentioned above is similar, only the destruction of value is operated by nature rather than by laborers. The abstract labor gone in the corn destroyed by the drought has been destroyed and cannot create value, which is why if nature destroyed all corn one would be left without value no matter how much labor that corn has cost.

6.7. *The Hidden Dimension*

Dialectics is the hidden dimension that both makes Marx's transformation procedure intelligible and constitutes it as an element of a theory of radical social change. Consider first the dialectics of the relation between abstract labor and value.

1. If the capitalist production process has been started but is not yet finished, the laborers are performing abstract labor are thus creating the commodity's value embodied. However, that abstract labor is not yet value; more precisely it is value in forming, it is *potential* embodied value because the commodity itself, not being finished, is being created and thus it exists only potentially.
2. If the production process is completed and thus the commodity is finished (but not yet sold), the abstract labor that has gone into it becomes the value *contained* or *embodied* in it, whose material substance is abstract labor. Since a commodity must be sold in order to realize its value, its value contained is also its potential realized value.
3. The moment the commodity is sold, the value embodied in it becomes *realized* value (either tendentially or actually realized value) whose substance is the value contained.³² The labor embodied determines the value realized because the former calls into existence the latter from the

realm of its potentialities and because the latter reacts upon the former but in the following period.

4. Since commodities are produced in order to be sold for money, the labor value realized (labor price) becomes itself a substance that takes necessarily the *monetary form* of value. Money is the form of existence of, and thus represents, value but is not value.
5. The realized value (price) of the output becomes the nonrealized value, or value contained, or potential realized value of the same commodity as an input of the following period. Here too the former determines the latter for similar reasons.
6. Finally, this potential value becomes again realized when the following period's output containing that input is sold. Here too the same reasons hold. From here the cycle of determination starts again.

The transformation seen as a dialectical process is a temporal succession of transformations, from potential to realized values and vice versa and from determinant to determined values and vice versa. Dialectics is the *necessary qualitative* dimension that accounts theoretically for the quantitative transformation. The transformation seen as a dialectical process is thus an instance of the dialectical view of social reality as a temporal flow of determining and determined contradictory phenomena continuously emerging from a potential state to become realized and going back to a potential state in a cyclical and tendential movement toward capitalism's supersession. It is a manifestation of the class-determined view of social reality. It is thus perfectly consistent with Labor's world-view.

Dialectics does not reject but makes use of the tools of formal logic. From the perspective of temporalism immersed in formal logic Marx's theory is perfectly consistent. This shows that temporalism is the principle upon which the theory rests and that simultaneism, even though internally consistent, is foreign to it. A simultaneist critique is an internal critique neither of temporalism nor of Marx. Simultaneist theories are not an "improvement" of Marxism; they are different theories with their own class content. As argued above, simultaneism implies equilibrium and thus a view of the economy tending toward its equilibrated reproduction. From this angle, this is an inherently rational system and any attempt to supersede it is irrational. This is simultaneism's social content. Temporalism, if immersed in a dialectical context, reaches the exactly opposite conclusions: the economy is in a constant state of nonequilibrium and tends toward its supersession. From this perspective, capitalism is inherently irrational and any attempt to supersede it is rational. It is from this perspective that the

three above issues have been analyzed. From his perspective, the choice between temporalism and simultaneism turns out to be a choice between formal logic and simultaneism on the one hand and dialectical logic and thus temporalism on the other. This is much more than a personal preference; it is a class-determined choice based on a class-determined principle. If one is interested in radical change, one should face squarely these issues. This is the *real significance* of the dialectical (and thus temporalist) approach to the issue of consistency.³³

Both temporalism and simultaneism should move on from being only a critique and counter-critique of each other applying only formal logic to the issue of consistency to showing how their view of consistency fits into a wider theory of radical social change, thus grounding the choice of their initial postulate into Labor's perspective. Neither of the two camps has done this and this has been the limit of the debate, on both sides. The time has come to change course and the challenge is to overcome this limit. This work has attempted to do that on the basis of a dialectical method of which temporalism is an integral part. It is only a beginning.³⁴ Hopefully, simultaneist authors will accept the challenge and show how their approach to the issue of consistency based on simultaneism and equilibrium is a piece of a broader theory furthering the liberation of Labor. For both approaches holds what Marx once said: *Hic Rhodus, hic salta!*

NOTES

1. Earlier versions of the method to be submitted below have proven their fruitfulness in dealing with the transformation of values into prices (Carchedi, 1984; Freeman & Carchedi, 1996), with the law of the tendential fall of the profit rate (Carchedi, forthcoming a, *Capital and Class*), with a theory of knowledge (Carchedi, 2005), with a class analysis of the European Union (Carchedi, 2001) and with a theory of social classes (Carchedi, 1977, 1991, 1983, 1987). This chapter sets out that method in more details thus providing a fuller picture of dialectical logic as a method of social research.

2. This section is a concise version of Carchedi (2008a, 2008b), to which the interested reader is referred.

3. Disregard of the potential leads to absurd conclusions. For example, Lefebvre asserts that life and death are "identical" because the process of aging starts when a living organism is born (1982, p. 164). But life and death are opposites and not identical. Life is a realized phenomenon and death is a potential within life itself that will realize itself necessarily. Contrary to Lefebvre (op. cit. p. 172) the unity of contradictions is not identity. Notice the implicit simultaneism. If life and death are identical, they are collapsed into each other and the time difference between them disappears.

4. This does not contradict the trans-epochal and trans-class elements of knowledge. See Carchedi (2005).

5. There are many similarities between Arthur and the precursor of the value form approach. For example “Rubin’s approach shows a certain ‘discomfort’ with the materiality of the production process of human life.” This leads him “to an inverted conception of the relationship between production and exchange” (Kicillof & Guido, 2007, p. 16). This inverted relation is a feature in Arthur’s approach, and more generally of many value form theorists, to be discussed further down.

6. Human metabolism is a two-stage process. In the anabolic phase, human energy is produced in the form of calories and ATP (adenosine 5'-triphosphate) and stored. There are of course differences between the organs and functions of different individuals but these differences do not affect the *general, common* way in which we all produce energy in the above-mentioned form. This is followed by the catabolic phase, the use of the stored energy. This use or expenditure cannot but be the *consumption of the same type of energy* (calories and ATP).

7. The expenditure of human energy is observed and measured by referring to the basic metabolic rate, i.e., the amount of energy or calories the body of an average individual sitting and at rest burns to maintain itself in its resting state.

8. Whether value form theorists are aware of it or not, the denial of the material existence of abstract labor, or more precisely of the material existence of the abstract labor embodied in a commodity before that commodity’s exchange and therefore also after exchange, clashes with the reality of human metabolism. If the original aim of the value form approach was to avoid the transformation “problem” by denying the existence of value before its exchange, the strategy has misfired. The value form approach, to be credible, must show that human metabolism does not exist or that it can be justifiably assumed not to exist.

9. In a previous critique (Carchedi, 2003), I wrongly stated that for Arthur’s capital produces value. It should be said, however, that my mistake is not without justification. As Arthur concedes, “It seems that the point causing difficulty here is that I have not sufficiently made clear [that] I attribute to capital as a social form the positing of the product of labor as value. A related point is that although I slip into the standard terminology by speaking of the ‘creation’ and ‘production’ of value, I reject any analogy here with material production.” However, in his new book, Arthur repeats, quite confusingly, that “to be the source of new value is to be that out of which capital *creates* value” (Arthur, 2004, p. 211, emphasis in the original).

10. For a more detailed critique, see Carchedi (forthcoming b).

11. See Cullenberg (1994), Fine and Harris (1976), Foley (1999, 2000), Freeman (1999), Kliman (1996, 1999, 2007), Kliman and Freeman (2000), Laibman (1999b, 2000a, 2000b, 2001), Shaikh (1978).

12. For some, like Brenner (2002, p. 12), this is self-evident.

13. The qualification “as a result of higher productivity” is necessary because it makes Okishio’s initial assumption consistent with Marx’s own. If by lower costs it is meant cheaper constant and variable capital, then Okishio becomes inconsistent with Marx. For Marx, cheaper means of production and of consumption do increase the surplus value produced but lower costs due to less labor power have the opposite effect. For Okishio, any cost reduction increases productivity. See below.

14. But see Laibman (2000a).

15. See Kliman (1996, 1999), Laibman (1999a, 1999b), Freeman (1999), Foley (1999, 2000), Kliman and Freeman (2000, 2006), Laibman (2000b, 2001), Kliman (2001), Mohun (2003), Mohun and Veneziani (2007), Freeman and Kliman (2008). The last five entries are only indirectly related to the debate around the law. For a comprehensive review of the debates, see Kliman (2007).

16. Kliman mounts a sustained defense of Marx's law in Chapter 7 of 2007 edition. However, Kliman does not explicitly criticize Okishio for having substituted labor as value creator with labor as a cost. Moreover, his defense of Marx's law is incomplete because while the mention is made of the tendential nature of the law, no argument is submitted to support Marx's thesis that the fall rather than the rise is the tendency.

17. For Kliman (2007, pp. 21–23), a less than average productivity firm (a firm employing more labor than that socially necessary) does not create more value while a firm that increases its productivity with the same amount of abstract labor produces not only more use values but also more value. The former proposition makes value vanish into nothing; the latter makes it appear out of nothing. In reality the extra value produced by the former is appropriated by the latter through the price system.

18. This is the correct translation of the MEGA text which reads: "Unter allen Umständen ... würde sich das Gleichgewicht herstellen durch *vernichtung von Kapital* in grösserem oder geringerem Umfang" (Marx, 1992, p. 328). Compare this with the English translation: "But the equilibrium would be restored through the withdrawal or even the destruction of more or less capital" (1967, p. 253). "Gleichgewicht" is translated as "equilibrium" rather than "balance" and "through the withdrawal or even" is arbitrarily added.

19. The destruction of capital that makes recovery possible is not so much that caused by technical obsolescence as the destruction of capital as social relations. See Carchedi (1991).

20. We are dealing thus with market values. For a more detailed analysis in which each sector is composed of modal and non-modal producers see Carchedi (1991, Chapter 3). To simplify matters, in what follows by individual value, it will be meant the individual value of the modal producers, i.e., the market value, unless otherwise specified.

21. To further simplify matters, there is no fixed capital here, i.e., all the MP are consumed in one period.

22. There is nothing unclear about "the value of a commodity [being, G.C.] expressed in its price before it enters into circulation" (Marx, 1976, p. 260). The value of the output before realization (its value contained) is the price paid for the inputs, plus the surplus value.

23. Of course, more (less) than average producers of B's realize more (less) than average value.

24. The inputs "add to the labour time contained in the products only as much labour time as they themselves contained *before* the production process" (Marx, 1988, p. 177). However, the value realized by the producer of B on an account of A is the value of A*.

25. This is not shown in Table 2 because each sector is represented by one producer who is thus the average producer by definition. For numerical examples, see Carchedi (1991, Chapter 3).

26. Böhm-Bawerk argued that there is a contradiction between the first and the third volume of *Capital*. For a refutation of this critique, see Ernst (1982), Carchedi (1984), Freeman and Carchedi (1996), and Kliman (2007).

27. Some simultaneist authors hold that the inputs are valued at their replacement cost at the end of the period. If an input A costs 100 at t_1 but at t_2 it would cost 80 to replace it, its value is said to be 80 at t_2 . A value of 20 is made to vanish. In reality, A has cost 100 at t_1 and the producer of B (the output of which A is an input) realizes only 80 for A, i.e., loses 20 to the purchasers of her B because by t_2 the average price of A has dropped by approximately 20. However, in the replacement cost approach inputs and outputs have the same prices but are not the same commodities. The replacement cost of A is the value of another, even though physically identical, A.

28. The first critique of the simultaneist approach inherent in neo-Ricardianism is Perez (1980). Carchedi (1984, reprinted in Fine, 1986, pp. 215–239) reaches independently similar results and provides the first temporalist counter-critique in English. Differently from Perez, Carchedi stresses the need for a dialectical approach, an element that has been disregarded by all other temporalist authors. This work returns to the dialectical origin of the temporalist approach.

29. Another way to look at this point is by focusing on the cost price of the inputs. As Ramos (1998–1999) correctly stresses, in Marx the cost price is the same quantity whether one computes the value or the production price of a commodity. The charge leveled against Marx has been that Marx failed to transform the value of the inputs into their production price. But, as Ramos stresses, this supposed mistake is based on a simultaneist view. In terms of this work, a commodity, e.g., a machine, is sold as an output at t_1 , the end of the t_0 – t_1 period, at its production price. This is also what is paid for the same machine as an input at t_1 as the beginning of t_1 – t_2 , the next period. This is therefore the value of that commodity at the beginning of t_1 – t_2 and this is also the value transferred by that machine to the output of the new production period, t_1 – t_2 . Ramos' distinctive feature is his argument that Engels omitted a relevant passage and included a numerical example that did not appear in the original and that this omission reduced the strength of Marx's presentation, contributing to the consolidation of Bortkiewicz's interpretation.

30. The following example is taken from Carchedi (2005, p. 132).

31. Screpanti "proof" that the temporal approach is mistaken is based upon a computational mistake that, if correct, proves that the temporal approach is indeed correct. See Screpanti (2005). For the rebuttal of Screpanti's proof see Carchedi (2005).

32. Realized value is usually referred to as social value (also by Marx), as opposed to individual value. Since value has always a social content, *individual* value is here set against *realized* value.

33. Kliman holds that the TSSI (and within it temporalism) cannot prove that "Marx's theory is true" and that all it can prove is that it is logically consistent (Kliman, 2007, p. 168). This is correct if temporalism is immersed in formal logic. Kliman does an excellent job within this framework. But this is also the limit of present TSSI as it has evolved over the years. Temporalism immersed dialectical logic can indeed prove Marx's theory "true," i.e., correct from the perspective of Labor.

34. In discussing replication as a principle of verification, Mohun holds that, “What is required is not an assessment of rival interpretations, but a theory for today’s world and its use in empirical analysis” (2003, p. 100). Actually, this article has argued that what is required is an assessment of rival interpretations’ consistency in terms of both formal logic and class content. Dialectical verification is at the same time an element of “a theory for today’s world.” The ball is now in Mohun’s court and in that of the Marx’s critics.

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