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Unforgivable Misrepresentation: Deliberately Distorting the Temporal Single System Interpretation Of Marx In-Order To Dismiss Marx's Value Theory.

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Abstract

I wish to show that Sinha's (2009) review of Kliman's *Reclaiming Marx's "Capital": A Refutation of the Myth of Inconsistency* (2007) is both inaccurate and misleading. Firstly I explain how following the Temporal Single System Interpretation (TSSI) of Marx ensures that Marx's value theory is consistent. I explore an example from Kliman (2007) to illustrate the TSSI's sequential and non-dualistic approach to price and value. Then I turn to Sinha's (2009) criticism of Kliman (2007) in particular and the TSSI in general. I argue that Sinha's criticisms amount to accusing Kliman of not taking the simultaneous and dualistic approach to value most 'Marxist' economists follow, which renders Marx's value theory inconsistent. I find Sinha (2009) to be inaccurate both numerically and in its theoretical understanding of the TSSI. Finally I conclude that it is unscientific to not understand but nonetheless comment on (or worse, seek to misrepresent) a theory that just happens to not be your own approach.

Keywords: Marx's Value Theory, TSSI, Kliman, Sinha, Misrepresentation.

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Introduction.

When I first studied Marxist economics at the L.S.E. in 1988 I learnt from Meghnad Desai that Marx's value theory was internally inconsistent and must be 'corrected' to be of any use (Desai, 1979). The corrections were mathematically complex, like the rest of the economics the L.S.E. expected us to master in a purely technical way. In contrast Keynes *General Theory* engaged with actual events, with its arguments expressed in words rather than complex maths. So I read Keynes, not Marx - why trouble with Marx if he was inconsistent anyway? It was not until 1998 that I came across the Temporal Single System Interpretation (TSSI) of Marx. Since the 1980's the TSSI of Marx had provided a logically consistent interpretation of Marx's theory of the determination of commodities' value by labour-time (summarised in Freeman and Carchedi, 1996). With Marx apparently not broken it made sense to investigate, so I read *Capital* (Marx, 1976, 1978 and 1981) and was amazed by the scope and depth of Marx's analysis. Subsequently I have attempted to understand our world through trying to apply Marx's theory of value to it, for example considering knowledge (Potts, 2007), the environment (Potts, 2011a) and our current crisis (Potts, 2009a, 2009b, 2010a, 2010b, 2011b).

"So what?," you might think, it's just another Marxist getting over-excited about putting the caffeine back into decaffeinated Marx, who you probably don't agree with anyway. But that misses the point: if I knew a consistent Marx existed I would have chosen to research in this area 10 years before I did. 'Marxist' economists had no right to mislead me in this way, and who knows how many radical young economists have been (and continue to be) mislead in this way. Of course this is only misleading if the TSSI of Marx is

indeed a consistent interpretation of Marx. This is why Kliman wrote *Reclaiming Marx's "Capital": A Refutation of the Myth of Inconsistency* (2007) - to fully answer this question. Marxists economists should accept (and teach their students) that a consistent interpretation of Marx's value theory does exist, or respond by clearly explaining why they reject the consistency of the TSSI of Marx. This is not to say that other theories of value should not be taught and researched; economics in general is a discipline that is in desperate need for more pluralism. The point is simple: don't tell a student Marx is inconsistent when it is possible to interpret him consistently: that's not science at all.

It is for this reason that I wish to respond to Sinha (2009). I think Sinha's review makes no attempt to understand or engage with the TSSI of Marx. Rather it is a warning to Marxist economists/students to avoid the TSSI completely. It is simply not worth the trouble to consider this ridiculous economics, that any good economics student would obviously understand to be nonsense. Dismissive is too small a word for it; Sinha is horrified that such nonsense should be published at all. This worries me greatly because I can see how a reader with a background in economics, but little prior knowledge of the TSSI, would casually agree with Sinha's 'reasonable' comments, and just as casually dismiss the TSSI.

The Transformation 'Problem'/Revealing the TSSI of Marx.

Perhaps the most famous/infamous model Marx ever employed was his illustration of the transformation of commodities' values into prices of production (Marx, 1981, Chapter 9). Throughout most of Volumes I and II of *Capital* (Marx, 1976, 1978) Marx, for simplicity, assumed that commodities sold at their produced value, as determined by the value of constant capital used up in their production plus the total living labour worked in their production. This was a social average for each industry, with individual firms having higher individual produced value if they were less efficient

(laggard, earning, if any, below average profit in that industry) and lower individual produced value if they were more efficient (leading, earning above average profit). But as Marx (1976, page 421) made clear, assuming that commodities sold at their produced values was a simplifying assumption, to be relaxed latter. In reality, if commodities sold at their produced values, industries employing more living labour relative to constant capital would make a higher profit rate than those with more constant capital/mechanisation. So, if we assume competition/free movement of capital across sectors, we can logically assume that a process of profit rate equalisation will tend to occur. Marx's 'transformation' examples (Marx, 1981, pages 255 to 256 and 264) seek to abstractly show this process, Marx (1981) page 264,

> 'I. $80_C + 20_V + 20_S$. Rate of profit = 20 per cent.
> Price of the product = 120. Value = 120.
> II. $90_C + 10_V + 10_S$. Rate of profit = 20 per cent.
> Price of the product = 120. Value = 110.
> III. $70_C + 30_V + 30_S$. Rate of profit = 20 per cent.
> Price of the product = 120. Value = 130.'

If commodities are sold, not at their produced values (Value), but at their 'prices of production' (Price of the product), the profit rate is equalised across sectors. The important point Marx seeks to make is that this process does not invalidate his theory of the determination of commodities' values by labour time, as –

> Total profit is determined by total surplus value extracted from labour in production. Both total profit and total surplus-value are 60 in Marx's example.
>
> The total price of output/capital continues to be determined by the total produced value of output/capital. Marx assumes that all constant capital is consumed in production in this example, i.e. we have no fixed capital, so total capital equals the total produced value of output, with total price and total value equalling 360.

> The overall profit rate for the economy is determined in production, with deviations of prices from produced values redistributing profit, but not changing the overall profit rate. Above the overall profit rate is 20% (60/300), each Capital has a cost price (c+v) equal to 100, so profitability will be equalised if all have prices of production equal to 120. 10 units of profit is redistributing from III to II, leaving all three sectors making 20% profit.

Kliman (2007, Chapters 8) explains how in 1906-07 Bortkiewicz (1952, 1984) argued that Marx's transformation revealed his value theory to be inconsistent. This is the basis of Marxist economics' belief in the inconsistency of Marx's value theory (Sweezy, 1942, Samuelson, 1971). It is this myth that Kliman (2007) in particular and the TSSI in general seek to refute.

Bortkiewicz recast the problem in the special case of simple reproduction (Marx, 1978), arguing that if commodities as inputs and outputs sold at their values, simple reproduction, meaning the economy identically repeating itself each period, could be achieved. However if inputs were priced at their values and outputs at their price of production the economy could no longer be in simple reproduction, as the supply and demand for each sectors' output would not match. So Marx's value theory is logically inconsistent. Kliman (2007, page 151 to 152) (originally Kliman and McGlone, 1988) refutes Bortkiewicz's 'proof' of inconsistency by showing that simple reproduction (in physical terms) can occur if input and output prices differ. Recognising that reproduction is a sequential process, i.e., that this period's output price becomes next period's input price, ensures that if supply equals demand in physical terms it will also match in monetary terms.

Kliman (2007, Chapter 9) explains how Bortkiewicz corrected Marx's transformation to fit his view of what economics 'should' be. As an admirer

of Walras's simultaneous equilibrium approach (Freeman, 1996a, Kliman, 2007, page 47), he 'properly ground' the problem by simultaneously calculating the values and prices of inputs and outputs in an equilibrium state of simple reproduction. Value is now one distinct system, while price is a second separate system. In each period a commodity would simultaneously have the same value as a unit of input or output, and likewise have the same price as a unit of input or output, but, to equalise profitability, price would deviate from value. But the separate systems could only be brought together to satisfy one equality between those systems. If, as Bortkiewicz did, total profit was equated with total surplus-value, the total price and value of output would not be equal, and the value profit rate would deviate from the price profit rate. As Kliman (2007, Chapter 9) explains, if we equate the total price of output to its value (Moszkowska, 1929, Winternitz, 1948), the other aggregate equalities do not hold and 'equilibrium' prices are different. The solution thus undermines the central results of Marx's theory of value. Furthermore, as Steedman (1977) made clear (Kliman, 2007, Chapter 5) simultaneous valuation ensures that we only need data in physical terms to calculate relative prices and the profit rate. Marx's notion of value in terms of labour-time is not only inconsistent, but also redundant.

As we shall see, it is this 'physicalist' understanding of 'proper' economics which shapes Sinha's (2009) review of Kliman (2007). Sinha simply makes no attempt to explain the TSSI of Marx's sequential and non-dualistic approach to price and value, but how can anyone talk about something without firstly trying to clearly explain it in its own terms?

To reveal what the TSSI of Marx understands sequentialism and non-dualism to mean, let us return to the example of Marx's transformation we quoted above (Marx, 1981, page 264). Marx does not define the units he is using: we must remember that Marx (1981) is an unfinished work. Marx is clearly not measuring in terms of physical quantities, as it would make no sense to say price or value in department I was 120 units of physical output (Ford

sold 120 cars for 120 cars!). Rather it makes sense to think that in this example the total price and the total value of department I's output is 120 units of value, which can either be expressed in units of money or labour-time. The dualistic approach's separate worlds of price and value (with all its complexity and inconsistency/different solutions depending upon which equality is preserved) is just a complex way of missing the point. Price in money and value in labour-time are both expressions of the same thing, value in a single system, it is a non-dualistic approach.

Inputs of constant capital for the current production period are bought in the preceding period of circulation at prices, their appropriated values (Kliman (2007, page 25) calls this "value received") determined at the end of the previous period of production.[1] It is this appropriated value, expressible in money or labour-time, not the inputs' produced value, also expressible in money or labour-time, that transfers its value, as the inputs are productively consumed in production, to this production period's output. To move between expressing value in money to expressing value in labour-time (or between expressing value in labour-time to expressing value in money) we must know the monetary expression of labour-time (MELT) holding at the time we are considering. As inputs are purchased in circulation prior to this period's production the relevant MELT to convert these inputs from monetary expression to labour-time is determined at the end of the previous period of production when the inputs' prices are determined. In this illustration for Marx to write, for simplicity, one set of numbers to represent inputs of constant and variable in both labour-time and money, the MELT at the end of the previous period of production must equal one.

The total produced value of this period's output equals the value of the constant capital consumed plus the total living labour worked in production. Again this produced value can be expressed in money or labour-time through the MELT (established with price formation at the end of this period's production), with the commodities' prices/appropriated value likely to

deviate from this produced value within the overall constraint that total appropriated value equals total produced value. Kliman (2007, page 39) defines MELT as the 'economy-wide ratio of the total money price of output to the total labour-time value of output.' At the end of production in Marx's illustration, the total price of output equals 360 units of money and the total value, meaning produced value, of output equals 360 hours of labour-time, so, for simplicity, the MELT continues to be one at the end of production this period.[2]

Total price is determined by total value, while the values of outputs depend partly on the cost of inputs, and thus prices *in the past*. Marx makes this point (see Kliman, 207, page 106) when considering the illustration of the transformation problem we have quoted above, Marx (1981) pages 264 to 265,

> 'It was originally assumed that the cost price of a commodity equalled the *value* of the commodities consumed in its production. But for the buyer of a commodity, it is the price of production that constitutes its cost price and can enter into forming the price of another commodity. As the price of production of a commodity can diverge from its value, so the cost price of a commodity, in which the price of production of other commodities is involved, can also stand above or below the portion of its total value that is formed by the value of the means of production going into it. It is necessary to bear in mind this modified significance of the cost price, and therefore to bear in mind too that if the cost price of a commodity is equated with the value of the means of production used up in producing it, it is always possible to go wrong. Our present investigation does not require us to go into further detail on this point. It still remains correct that the cost price of commodities is always smaller than their value. For even if a commodity's cost price may diverge from the value of the means of production consumed in it, this error in the past is a matter of indifference to the capitalist.'

To further illustrate the TSSI of Marx let us consider another example, one from Kliman (2007), which, as we will see, Sinha (2009) criticises.

Table 1 – Kliman (2007) Page 163.

	Units	Start Production		End Production							
				Value Produced				Value Appropriated			
		c	*v*	*L*	*s*	*w*	*rp %*	*ppu*	*p*	*π*	*rap %*
Branch I	$	192	8	24	16	216	8.0	2	240	40	20.0
	h	64	$2^2/_3$	8	$5^1/_3$	72	8.0	$^2/_3$	80	$13^1/_3$	20.0
	o	96	10			120			120		
Branch II	$	24	16	48	32	72	80.0	0.8	48	8	20.0
	h	8	$5^1/_3$	16	$10^2/_3$	24	80.0	0.267	16	$2^2/_3$	20.0
	o	12	20			60			60		
Total	$	216	24	72	48	288	20.0		288	48	20.0
	h	72	8	24	16	96	20.0		96	16	20.0
	o	108	30								

Input prices (the prices established at the end of production last period) are set at $2 for Commodity I and $0.8 for Commodity II.

MELT at the start of the period (established with prices at the end of production last period) is set at $3 per hour of labour-time.

End Production MELT equals *p* (in money) divided by *w* (in hours) = 288 / 96 = $3 per hour.

Where –

c constant capital input at the start of the production period.

v variable capital input at the start of the production period.

L labour-power applied in the production period.

s surplus-value extracted by the end of the production period.

w the total produced value of output at the end of the production period.

ppu the unit price of commodities at the end of the production period.

p the total appropriated value of output at the end of the production period.

π appropriated total profit at the end of production.

rp the profit rate produced at the end of the production period.

rap the profit rate appropriated at the end of the production period.

$ indicates value in nominal units of money.

h indicates value in hours of labour-time.

o indicates use-value/physical units of each commodity.

Again for simplicity we have a pure circulating capital model (no fixed capital or unsold stocks). Physical quantities of inputs and outputs have been arbitrarily chosen, as they are not the focus of analysis. Rather the point is that these physical quantities are the same for all the interpretations of value that Kliman (2007) Chapter 9 considers, so any difference in results simply follows from how we interpret "value".[3] Kliman sets the unit value of inputs equal to the unit value of outputs so this example can apply to both the TSSI of Marx and the Simultaneous Single System Interpretation (SSSI) of Marx. He latter, as we will, modifies the example to show how, when the unit values of outputs differs from the unit values of inputs, the TSSI of Marx and the SSSI diverge (through the SSSI retroactively re-valuing inputs to the value of outputs).

Branch I combines in production 96 units of means of production with 8 hours of living labour (paying those workers 10 units of means of consumption) to make 120 units of means of production. Branch II combines 12 units of means of production with 16 hours of living labour (paid 20 units of means of consumption) to make 60 units of means of production. Kliman does not explain how this abstract scenario has come to pass precisely because it doesn't matter. It is a simple example that abstracts from anything not needed in order to focus on the question in hand – the difference between different theories of value.

Following the TSSI of Marx, the unit value of inputs is determined by their appropriated value at the end of the previous period of production (the price, established at the end of production last period, they are purchased at in circulation between the periods of production, $2 for a unit of

commodity I and £0.8 for a unit of commodity II). To convert this value in units of money into units of labour-time, we divide price by the MELT that was established at the end of production last period. At the end of the previous period of production, the MELT was equal to the total appropriated value of output in money divided by the total produced value of that output in labour-time. This information is not included in the example. MELT at the end of production last period, which still holds at the start of production this period, is simply set exogenously at \$3 per hour; \$3 represents one hour of labour-time at these times. This MELT allows us to express the value of inputs in terms of money or in terms of labour-time. The 96 units of means of production applied in Branch I have a unit price of \$2, so their total price equals \$192, with their value in labour-time equalling this total price divided by the MELT established at the end of production last period, \$192/3 = 64 hours. In Branch I 8 hours of living labour are worked, with wages/variable capital being \$8, 10 physical units of means of subsistence multiplied by their price of \$0.8, or $2^2/_3$ hours of labour-time (\$8 divided by the MELT established at the end of production last period, \$8/3). Knowing v and L allows us to know what surplus value has been extracted in production, $L - v = s = 5^1/_3$ hours. To express s in money, now that we are at the end of production this period, we must multiply by the MELT established at the end of production this period, not the MELT established at the end of production last period.

Branch II applies 12 units of means of production with unit price of \$2 and total price of \$24, with value in labour-time equalling this total price divided by the MELT established at the end of production last period, \$24/3 = 8 hours. In Branch II L = 16 hours, with v = \$16 or $5^1/_3$ hours, ensuring $L - v = s = 10^2/_3$ hours. The total produced value of output in Branch I equals $c + L$ or $c + v + s$ = 72 hours or 72 × MELT units of money, and in Branch II 24 hours, ensuring a total produced value of output of 96 hours. The unit produced value of commodity I is 120 physical units divided by 72 hours which equals 0.6 hours, and for commodity II 24/60 = 0.4 hours. Again to express these produced values in money, we must multiply by the MELT

determined at the end of production this period. To calculate the produced value profit rate, we divide each branch's surplus-value by the value of its inputs in terms of labour-time (their price divided by last period's MELT).

To know the MELT at the end of production this period, and all appropriated values, we need to set prices for the two commodities. This we set exogenously in this simplified scenario (again at a less abstract level we could examine how price is determined, but this is not the question in hand). In this particular example, as I noted above, Kliman sets the price of commodity I at \$2 and commodity II at \$0.8, the same price at the end of last period/the input price for this period. Total appropriated value in Branch I equals \$240 and in Branch II \$48, so the total price of output at the end of production in money is \$288. Given the total produced value of this output is 96 hours, MELT = \$288/96 = \$3 per hour of labour-time, again. To simplify Kliman has held the MELT constant, through his exogenous choice of prices. Let us be clear: the MELT does not determine price; rather, the MELT follows from price determination. Knowing the MELT, we can determine the monetary expression of produced values, *s* and *w*, and the labour-time expression of appropriated values, *ppu*, *p*, and π.

The total profit appropriated in terms of labour-time for each branch is equal to their total revenue divided by this period's MELT minus the capital they advanced (the total cost of inputs) divided by last period's MELT. The appropriated value profit rate in terms of labour-time for each branch is equal to their total profit appropriated in terms of labour-time divided by the capital they advanced in terms of labour-time.

We can see in Table 1 for each Branch how their produced value profit rate differs from their, equalised between Branches, appropriated value profit rate. The equality between the aggregate appropriated rate of profit and the aggregate produced value profit rate – a key feature of Marx's account of the transformation – is preserved. Indeed this abstract example of the transformation process satisfies all three of Marx's equalities. Total profit is

equal to total surplus value, the price of total output is equal to produced value of total output and the overall price/appropriated rate of profit is equal to overall produced value rate of profit. Furthermore we can see how this can be expressed in terms of money or labour-time by adjusting by the appropriate MELT.

Kliman's simplified scenario thus achieves its purpose; it illustrates the transformation process in a way that satisfies all three of Marx's equalities. Now to illustrate how the TSSI of Marx continues to do this, when the SSSI of Marx fails because of its simultaneous (retroactive) valuation of input unit values to output unit values, Kliman modifies his example. (Note that, as we are explaining the TSSI of Marx, we will not record how the SSSI of Marx now diverges; see Kliman (2007, page 166) for the SSSI solution.) Kliman assumes a simple case of purely labour-saving technological progress. He keeps inputs of constant capital and outputs identical in physical terms and cuts living labour to 4 and 8 hours in Branch I and II respectively. Keeping the same wage rate of means of consumption per hour, Kliman cuts total wages to 5 units of means of consumption in Branch I and 10 units in Branch II. Input prices continue to equal $2 per unit of means of production and $0.8 per unit of means of consumption. The new scenario is illustrated in Table 2

Table 2 – Kliman (2007) Page 166.

	Units	Start Production		End Production							
				Value Produced				Value Appropriated			
		c	*v*	*L*	*s*	*w*	*rp %*	*ppu*	*p*	π	*rap %*
Branch I	$	192	4	12	8	204	4.08	1.805	216.6	20.63	10.526
	h	64	$1^1/_3$	4	$2^2/_3$	68	4.08	0.602	72.2	6.877	10.526
	o	96	5			120			120		
Branch II	$	24	8	24	16	48	50.0	0.589	35.4	3.37	10.526
	h	8	$2^2/_3$	8	$5^1/_3$	16	50.0	0.197	11.8	1.123	10.526
	o	12	10			60			60		
Total	$	216	12	36	24	252	10.526		252	24	10.526
	h	72	4	12	8	84	10.526		84	8	10.526
	o	108	15								

Input prices (the prices established at the end of production last period) are set at $2 for Commodity I and $0.8 for Commodity II.

MELT at the start of the period (established with prices at the end of production last period) is set at $3 per hour of labour-time.

End Production MELT equals *p* (in money) divided by *w* (in hours) = 252 / 84 = $3 per hour.

The rate of profit falls from 20% to 10.526% as productivity rises. The produced unit value of commodity I falls from 0.6 hours in our first example to 0.5667 hours (68/120) and the produced unit value of commodity II falls from 0.4 to 0.2667 hours (16/60). This should be no surprise, as we are using a concept of value based on human labour-time, its central feature is that it identifies total profit as equalling the total surplus-value extracted from living labour, which is halved in this example. Kliman points out how this result is not shared by the SSSI of Marx, for which the rate of profit rises from 20% to 23% through retroactively/simultaneously re-valuing inputs to the now-lower unit value of outputs (Kliman, 2007, page 165).

Total produced value now equals 84 hours with surplus-value equalling 8 hours, and total capital advanced equalling 72 hours of commodity I and 4 hours of commodity II, a total of 76 hours, ensuring that the overall produced value profit rate equals 8/76 = 10.526%. Prices for commodities I and II need to be set such as to ensure that both branches share this profit rate. We know that the total capital advanced for commodity I in terms of labour-time is c = 64 plus v = $1^1/_3$, a total of $65^1/_3$, and for commodity II, $10^2/_3$ ($8+2^2/_3$). For Branch I to appropriate a 10.526% rate of profit, it must appropriate $65^1/_3 \times (1 + 8/76)$ = 72.21 hours of value in terms of labour-time, so that the unit price is 72.21/120 = 0.6018 hours. Branch II must appropriate $10^2/_3 \times (1 + 8/76)$ = 11.79 hours, so the unit price in labour-time equals 11.79/60 = 0.1965 hours. So, to equalise profitability in terms of labour-time commodity I must be priced at 0.6018/0.1965 = 3.0625 times commodity II (working on the exact and not rounded up prices of I and II in labour-time). Any set of prices in money that maintain this proportion will equalise profitability across the two branches.

Furthermore, Kliman keeps the MELT constant at $3 per hour of labour-time so that input values and output values can be clearly compared in monetary terms without the distortion of a changing value of money. Given that the total produced value of output falls to 84 hours, the total price of output must be 3 × 84 = $252. Pricing commodity I at 3 × 0.6018 = $1.805 ensures that Branch I appropriates 120 × $1.805 = $216.63 while Branch II appropriates $35.37 (3×0.1965×60), a total of $252.

Clearly this is not the sequence of determination that we would imagine to occur in practice, rather it is the way we find appropriate prices, in order to clearly illustrate behaviour in an abstract model focussed on illuminating the TSSI of Marx's concept of value.

Table 3 illustrates this scenario again but now allows the MELT to rise. As we price commodity I at 3.0625 times the price of commodity II (with prices of $3.0625 and $1 respectively) profitability is still equalised, but

appropriated values in nominal money expression rises as the MELT rises from $3 to $5.089 per hour of labour-time. To compare inputs and outputs meaningfully, we must now focus on labour-time rather than the monetary expressions of value, through adjustment by the appropriate MELT (the MELT established at the end of production last period for inputs, and the MELT established at the end of production this period for outputs). We can now clearly see how Kliman's decision to hold the MELT constant did not drive the result of the scenario, rather it just made it more simple to record and read.

Table 3 – Kliman (2007) Page 166 Variable MELT.

		Start Production		End Production							
				Value Produced				Value Appropriated			
	Units	*c*	*v*	*L*	*s*	*w*	*rp %*	*ppu*	*p*	π	*rap %*
Branch I	$	192	4	20.6	13.6	346.1	76.57	3.0625	367.5	35	87.5
	h	64	$1^1/_3$	4	$2^2/_3$	68	4.08	0.602	72.2	6.877	10.526
	o	96	5			120			120		
Branch II	$	24	8	40.7	27.1	81.4	154.46	1	60	5.7	87.5
	h	8	$2^2/_3$	8	$5^1/_3$	16	50.0	0.197	11.8	1.123	10.526
	o	12	10			60			60		
Total	$	216	12	61.1	40.7	427.5	87.5		427.5	24	87.5
	h	72	4	12	8	84	10.526		84	8	10.526
	o	108	15								

Input prices (the prices established at the end of production last period) are set at $2 for Commodity I and $0.8 for Commodity II.

MELT at the start of the period (established with prices at the end of production last period) is set at $3 per hour of labour-time.

End Production MELT equals *p* (in money) divided by *w* (in hours) = 427.5 / 84 = $5.089 per hour.

Finally to illustrate how robust (not dependent on assuming a state of equilibrium) the TSSI of Marx is, let us set prices such that the MELT varies and profitability is not perfectly equalised; see Table 4. All values, which do not depend on the setting of price at the end of production, are unchanged from Tables 2 and 3. The value of inputs depends on the prices and the MELT established at the end of production last period. Produced values *s*, *w*, and *produ* are unchanged in labour-time terms as they are not determined by the formation of price at the end of production, whereas their monetary expressions do change as they depend on the formation of prices and thus the MELT at the end of production. All appropriated values (*ppu*, *p*, and π) in terms of money are revealed through and depend on price formation. Price formation determines the MELT at the end of production, and the determination of MELT allows appropriated values also to be expressed in terms of labour-time.

Table 4 – Kliman (2007) Page 166 Variable MELT & Unequal Profit Rates.

		Start Production		End Production							
				Value Produced				Value Appropriated			
	Units	*c*	*v*	*L*	*s*	*w*	*rp %*	*ppu*	*p*	*π*	*rap %*
Branch I	$	192	4	18.6	12.4	315.7	61.08	2.75	330	$26^2/_3$	68.34
	h	64	$1^1/_3$	4	$2^2/_3$	68	4.08	0.592	71.1	5.74	18.791
	o	96	5			120			120		
Branch II	$	24	8	37.1	24.8	74.3	132.14	1	60	10.48	87.5
	h	8	$2^2/_3$	8	$5^1/_3$	16	50.0	0.215	12.9	2.26	21.154
	o	12	10			60			60		
Total	$	216	12	55.7	37.1	390	71.05		390	37.14	71.05
	h	72	4	12	8	84	10.526		84	8	10.526
	o	108	15								

Input prices (the prices established at the end of production last period) are set at $2 for Commodity I and $0.8 for Commodity II.

MELT at the start of the period (established with prices at the end of production last period) is set at $3 per hour of labour-time.

End Production MELT equals *p* (in money) divided by *w* (in hours) = 390 / 84 = $4.643 per hour.

The prices we set do not equalise profitability. All appropriated values in Table 4 differ from those in Tables 2 and 3 in both monetary expression and labour-time terms. *What is constant, however, is precisely Marx's three equalities, i.e. the aggregate situation.*

Total profit is determined by total surplus value extracted from labour in production. In terms of money both equal $37.14, in labour-time both equal 8 hours.

The total price of output/capital continues to be determined by the total produced value of output/capital. In terms of money both equal $390, in labour-time both equal 84 hours.

The overall profit rate for the economy is determined in production, such that deviations of prices from produced values redistribute profit, but do not change the overall profit rate. The overall produced value and appropriated value profit rates equal 10.526% in labour-time terms or 71.05% in money terms. But what of the profit rate in real terms? The rate of 71.05% in 'nominal' money terms is high because the value of money/MELT has changed, and to account for this 'nominal inflation' we must appropriately adjust by the MELT to reveal value in terms of labour-time.[4]

Price formation transfers $14.3, or in labour-time 3.1 hours, of value from Branch II to Branch I. This brings the branches appropriated value profit rates (Branch I 8.8% in labour-time and 68.3% in monetary expression, Branch II 21.2% and 87.5%) closer together than their produced value profit rates (Branch I 4.1% and 61.1%, Branch II 50% and132.1%) but does not fully equalising them.

The consistency/usefulness of Marx's concept of value is not confined to balanced/equilibrium situations. Yes, price determination at the end of production does determine appropriated values at the end of production, defining the value of inputs for the next period, but this does not make value indeterminate or redundant in any way. Profit rate equalisation depends on dynamic processes that tend to occur in the capitalist economy, and as our concept of value must be able to function in such a dynamic situation – it can't rely on or work only for the abstract world of equilibrium.

Turning to Sinha's Criticisms.

Sinha's review begins with the following paragraph Sinha (2009) page 422,

> 'In the preface to this book, Andrew Kliman claims that his aim is "to reclaim Marx's *Capital* from the century-old myth of internal inconsistency." Then the reader is told that there exists a group of scholars who claim that no such internal inconsistency exists. And therefore, according to Kliman, "The very existence of the TSSI [such an interpretation, generally called the Temporal Single System Interpretation] carries with it two important consequences. First, the allegations of inconsistency are unproved. Second, they are implausible." Following such reasoning, one could then also argue that the existence of a group of scholars who argue that the theory of evolution is false and that creationism is consistent with empirical evidence, must lead us to reject the claims of evolutionism as unproved and implausible. The same must follow from the existence of a group of scientists who question greenhouse effects and global warming. This foreshadows the major weakness of this book: a lack of rigor in reasoning.'

Just quoting this single sentence allows Sinha to make Kliman look totally ridiculous - the TSSI thinks its right because it exists, like creationist bible-bashers. But if we were to extend the quote from Kliman (2007), page xiii (Sinha's quote is marked in italics),

> 'As this book shows, Marx's theories need not be interpreted in a way that renders them internally inconsistent. An alternative interpretation developed during the last quarter-century- - the temporal single-system interpretation (TSSI) - eliminates all of the apparent inconsistencies. *The very existence of the TSSI carries with it two important consequences. First, the allegations of inconsistency are unproved. Second, they are implausible*. When one interpretation makes the text make sense, while others fail to do so because they create avoidable inconsistencies within the text, it is not plausible that the latter interpretations are correct. Thus the charges of inconsistency, founded on these interpretations, are implausible as well.'

We can now see how the full quote argues that claims of inconsistency are unproved and implausible because the TSSI has demonstrated that by its method the alleged inconsistencies disappear. It makes no sense to say that this is not the case by saying that by employing a different interpretation

they are still there. Hermeneutically it is simply wrong to attribute a method to an author if it makes that author inconsistent, when a method exists that does make that author consistent (Kliman, 2007, Chapter 4).

Whether one agrees with the TSSI of Marx or not, it should be clear that Sinha has cherry picked Kliman's paragraph to deliberately make him appear to say something that anyone who reads the whole paragraph will see Kliman simply does not say. Sinha is deliberately quoting Kliman out of context, in order to in effect say, "don't read Kliman because he is an idiot" (perhaps someone could quote this out of context). Furthermore, given that Kliman had precisely commented on this point in a response to a draft of Sinha's review, Sinha's continued use of this quote represents an intentional attempt to mislead and to harm Kliman's professional reputation.[5]

Next Sinha tries to make Kliman look foolish through referring to his treatment (Kliman, 2007, page 41) of Dmitriev's fully automated one-good model of the economy (that Sinha simply asserts to be 'valid'). If 4 machines are used as input and 5 machines are produced as output, we have a 25% profit rate in terms of machines/use-value/physical terms. According to Sinha the relative price (compared to other commodities) of a machine is one machine, as it 'must be' in this one-good world. But Kliman is stupid enough to think that the profit rate is not 25% and price is not constant. To an economist used to working in use-value terms, Sinha's criticisms seem fair, but the one thing that Sinha has avoided mentioning is that Kliman is responding to Dmitriev's criticism of a theoretical result of Marx. Let us get the context right, as just like quoting out of context, deliberately changing the context of an argument to dismiss it is simply unscientific. As Kliman explains, Marx's theory of the determination of commodities' values by labour-time does not measure the value of anything in physical terms; Marx did not price machines in terms of machines. Rather if, like Marx, we hold that profit is made possible by the extraction of surplus-value from living labour, then when there is no living labour, there can be no profit in the value terms that Marx and Kliman are actually considering - the physical

situation is irrelevant. If the 4 machines as inputs have value they can only pass this value to the 5 machines produced as output, causing price to fall by 1/5. With no new living labour and thus no surplus-value, there is simply no basis for profit in value terms. If this process continued, price in terms of labour-time would continue to fall. Sinha concludes that, following Kliman's logic we must generally assume diminishing returns to avoid all prices collapsing to zero. But what would diminishing returns mean in Dmitriev's fully automated economy? We would use, say, 4 identical machines to make 3, so the value of 4 machines is now transferred to 3, increasing the machine's price by a third, but why produce at all if it only reduced the total quantity of the one-good? In general, recognising that productivity tends to improve leads us to conclude that prices in terms of labour-time will tend to fall, but not collapse to zero, as we are not imagining a production process that magically produces machines without the intervention of living labour.

Sinha now states that the point of Kliman (2007) is not, as Kliman claims, to reclaim Marx, but to reject simultaneous interpretations of Marx in favour of the TSSI of Marx. But, the TSSI of Marx makes Marx's value theory consistent, whereas a simultaneous interpretation makes it inconsistent. *Hence, the rejection of simultaneity in favour of the TSSI of Marx is precisely the same thing as the reclamation of the consistency of Marx's value theory.*

Furthermore, as Steedman (1977) explained, when Marx's value theory is made simultaneous, it also becomes redundant. Value terms become perfectly proxied by real (physical) terms. As Kliman (2007, page 76-77) notes,

> 'I use the term *physicalism* as shorthand for Steedman's (1977: 72, 216-17) "physical quantities approach," a term he coined to designate his approach to questions of value, price, and profit. Steedman is a prominent Sraffian, but Sraffianism and physicalism are not synonymous. The latter term refers to *any* approach that draws conclusions about the workings of capitalist economies from models

> in which the sole proximate determinants of values, relative prices, profits, and the rate of profit are "physical quantities" or, more precisely, technology and real wages. … Since input and output prices are constrained to be equal, they are solved for together (i.e., simultaneously). … Such models are also simultaneist in the sense that they determine prices and the rate of profit simultaneously, but this is simply a consequence of the simultaneous determination of input and output prices. Thus, although proponents of simultaneism (e.g. Sraffa 1960: 6) frequently claim that prices and the rate of profit must be determined simultaneously, they need not and cannot be so determined if input and output prices are permitted to differ.'

Sinha (2009, page 423-424) now turns to criticising another of Kliman's (2007, page 80) simple examples. He argues that it would be better for Kliman to take the superior simultaneous approach to this example that, he claims, Kliman fails to understand. But Kliman's one-good example is actually as simple as it possibly can be to illustrate the point he is making. Which is, precisely if we *do not* take a simultaneous approach, the profit rate in terms of money or labour-time will drop below the profit rate in physical terms if the output price of corn fall's below the input price of corn. Completely ignoring the non-simultaneous context of Kliman's example, and failing to explain this to the reader, Sinha (2009, page 423) presses on with his equilibrium simultaneist rethinking of this example. Sinha arbitrarily introduces discounted prices, the rate of profit, equal to the rate of interest, ensures a unit of input is worth a unit of output times one plus the rate of profit, to suggest Kliman does not understand what simultaneous economists mean by equating input prices to output prices. However the debate on Marx's value theory (see, Kliman, 2007) does not employ discounted prices, input prices are simply equated with output prices. To equalise the profit rate in Sinha's simultaneous world, input prices, or more precisely their prices relative to a commodity money, must equal output prices. Sinha asserts Kliman should understand that it is this equalised profitability situation, through equalised input prices to output prices, that economists actually understand to be price. But this is Sinha's concept of price not Marx's, its a simultaneous economists' understanding of price, which can only be all economists' understanding of price if all

economists follow a simultaneous approach. Sinha might as well simply say, Marx you are not one of us, which we all knew already.

Indeed throughout his review Sinha argues that it would be better for Kliman to take the superior simultaneous approach, but this is simply a bait and switch tactic. Shinha is trying to make the debate into a debate between "*respectable*" simultaneist economists and some "*upstart*" temporal approach in order to avoid confronting the issue with which Kliman's book is concerned - the allegations that Marx's value theory is inconsistent. In this context, it simply is not the case that it that would be better for Kliman to take the simultaneous approach. Kliman's assessing the logical consistency of Marx's theory. To assess its logical consistency, one needs to employ the concept of price that Marx actually employed not the discounted-price concept. When one does so, and when one interprets his value theory in a way that makes it make sense (i.e. in accordance with the TSSI), one finds that Marx is not guilty of the inconsistencies with which he's been charged. Sinha is not "*reviewing*" Kliman (2007) he is simply attempting to "*dismiss*" it – stop at any cost anybody from actually reading it.

After the initial attack, Sinha (2009, page 424) "*improves*" on Kliman's one-good model, which he declares to be "*theoretically weak*", by defining a Sraffian n-good world (with Sraffian concepts such as basic and non-basic sectors). Again it would be sensible to do this only if all economists have to follow a Sraffian approach. But, of course this has nothing to do with Kliman's work, nor - as Kliman (2007) centrally sets out to prove - Marx's work, precisely because they are not Sraffians.

Sinha (2009, page 424) states that if, as it became more productive, a firm appears to make zero profit, because its output price falls so far that its total revenue equals the total capital advanced, it would actually be making a profit as inputs for the next period are cheaper. But from the perspective of Marx's theory this is not *profit* (Marx, 1981, Chapter 6). It is simply a

release of some of the capital tied up in this firm, and a release of value is simply not the same as the creation of surplus-value or profit, i.e. the augmentation of the value of the capital advanced.

Sinha's (2009, page 424) ridicules the idea that Kliman has disproved the Okishio (1961) theorem. Okishio supposedly 'proved' that labour-saving technological change increases the profit rate, invalidating Marx's (1981, Part Three) argument that there is a tendency for the rate of profit to fall. This critical issue is understated in Sinha (2009), but the most important consequence of reclaiming the consistency of Marx's value theory is the rediscovery that labour-saving technological change does indeed tend to reduce the profit rate. The examples from Kliman (2007) I have illustrated above show this crucial result and thus disprove the Okishio theorem. In Table 2, which assumes that a labour-saving technology is introduced, the profit rate is lower than in Table 1. This is an completely unsurprising result given that we are employing a theory of value which bases its notion of profit on the surplus-value extracted from living labour – fewer workers, each working the same quantity of unpaid labour each period, implies that there is less total unpaid labour/profit.[6]

I did not report any 'physical' profit rates in Tables 1 and 2 precisely because outside of a one-good model, 'real' terms depend on the relative price of goods (their physical exchange rates with each other). Hence physicalist economists search for determinacy through creating 'stable' simultaneous solutions with equalised profit rates and outputs equal in unit value to inputs. To avoid these complexities it is simplest to disprove the Okisho theorem in a one-commodity model (Potts, 2009c). In the potentially identically-repeating world of Table 1, with outputs equal in unit value to inputs, the 'physical' profit rate equals the value profit rate at 20%. Once the unit value of outputs falls below the unit value of inputs in Table 2, due to labour saving technological change, the value profit rate falls to 10.5% as 'the' physical profit rate rises to 23.6%. Note to calculate 'this' physical profit rate I use the end-of-period relative price of the two

commodities to aggregate inputs of both commodities to a total physical level of inputs, and likewise aggregate outputs of both commodities to a total physical level of output. If I used the start-of-period relative price of the two commodities to aggregate both inputs and outputs the rate would be different (26.3%), and different again if the start-of-period relative price was used to aggregate inputs and the end-of-period relative price was used to aggregate outputs (22.4%).

As Kliman (2007, Chapter 7) fully explores, a simultaneous approach simply ensures a physicalist approach to profit, so that, if technological change increases the physical surplus per unit of physical input, the profit rate in physical terms must rise. Sinha's desire to defend the Okishio theorem is again nothing more than a desire to defend a physical concept of value that Kliman (2007) precisely argues that Marx did not hold at all. The number of physicalist economists that do have a physicalist concept today is irrelevant. It merely illustrates the extent to which most Marxist economists, by becoming simultaneists, have distanced themselves from Marx's own work.

Sinha (2009, pages 424-426) now states he is turning to the question of the internal inconsistency of Marx's value theory, the precise issue of Kliman (2007) that Sinha (2009) in fact never addresses. More precisely Sinha turns to creating confusion over the TSSI's concept, and use of, the MELT, so as to make the TSSI look trivial and inconsistent. Rather than acknowledging the ample explanation of different approaches to the transformation problem in Kliman (2007, Chapters 8 and 9), Sinha (2009, page 425) simply states that Marx's solution is incorrect. Input prices are determined by the 'labour theory of value' but as output prices will vary to equalise profitability, treating inputs in this way makes Marx's theory of value inconsistent. Sinha's approach to the transformation problem thus follows Bortkiewicz's approach. The point of Kliman (2007) is to precisely escape this simultaneous and dualistic method that makes 'Marx's' value theory inconsistent. As Kliman (2007) explains, to reclaim the consistency of Marx's value theory, we must understand what sequentialism and non-

dualism actually implies about how value is expressible in money or labour-time, with the appropriate MELT at that point in the sequence allowing conversion between monetary and labour-time expressions of value.

Instead of explaining what the sequential and non-dualistic nature of the TSSI actually is, Sinha just focuses on trying to show that the MELT is an arbitrary conversion factor. However Sinha gets the sequence wrong. The appropriate MELT to convert inputs values into monetary expressions of labour-time is the MELT established at the end of the previous period, not the MELT established at the end of the current period. The process is simply not one in which 'From here we go back' (Sinha, 2009 page 425). If you fail to explain what produced and appropriated values are, and do not understand how they and the MELT work sequentially together, then you do not understand the TSSI of Marx. Distorting the TSSI in order to 'prove' that it is not what it claims to be is not valid criticism, nor is it serious engagement with the TSSI. But Sinha's incorrect application of the MELT and assertion that the MELT must just be assumed makes the TSSI seem arbitrary and trivial. Sinha (2009, page 427) states that Kliman utterly fails to reclaim the consistency of Marx's theory of value, but here we see that this conclusion is based on a completely inaccurate presentation of what he is supposedly criticising. As I explain above, Kliman (2007) does clearly lay out how the TSSI works and how the MELT is established. The magnitude of the MELT is not something that is merely assumed. The reason why Kliman usually holds the MELT constant in his examples is to simplify them, i.e. to help the reader actually understand what he is explaining.

Sinha (2009, pages 426-427) now considers the example from Kliman (2007, page 163) that I have already fully explained and detailed in Table 1. Sinha first considers the two commodities' produced values at the end of production. But he does not explain that the value that inputs transfer to these produced values is their appropriated values at the end of the previous period of production, or that the right MELT to convert these monetary expressions into labour-time is the MELT established at that time.

Sinha actually miscalculates the produced value of the two commodities by double counting variable capital (the produced values should be 72 and 24 hours, respectively, not 74.66 and 29.33 hours). Although Sinha gets the overall profit rate right at 20%, he miscalculates the price of production of commodity I (it should be 80 hours = 1.2 × 66.66, not 89.592 = 1.2 × 74.66). This is double double counting. He should be multiplying cost price, $c + v$, not the produced value $c + v + s$, which he has calculated as $c + v + v + s$ anyway. After miscalculating the price of production of commodity I in labour-time terms, when he now uses the end period MELT (not that this is explained) to convert this price of production to its monetary expression, this is wrong too (its £240 = 3 × 80, not £269.776, and 3 × 89.592 = £268.776 anyway).

Sinha does not explain how calculating prices of production in this way follows from the nature of the example, i.e. to equalise profitability while keeping the MELT constant for simplicity. Nor does he explain that, in general, the TSSI end-of-period MELT equals the total appropriated value of output in money terms, as revealed by price formation at the end of production, divided by the total produced value of that output in labour-time. Instead Sinha criticises Kliman for not specifying production techniques for the two commodities, leaving the reader to have to work out an input-output system, and to find that input prices are likely to be different to output prices. But as we have explained, the example is from Kliman (2007) Chapter 9 which uses a common scenario in physical terms to focus on how different concepts of value produce different results despite sharing the same physical scenario. Furthermore, when this scenario is changed to introduce technical change Kliman (2007, page 165) precisely says what these changes are.

Sinha now sets off on a very strange line of argument based on his idea that output prices must be different from input prices in this example. But, as Table 1 shows input and output prices are in fact equal. In any case, Sinha concludes that there must be something wrong with this example because of

the (actually non-existent) difference in input and output prices that his own simple miscalculation has convinced him must exist, and recommends that we find an iterative solution to this (non-existent) problem. Sinha thinks that the fact that a simultaneous solution to this problem would be the same as a TSSI solution in this special case is some sort of result. But Kliman (2007, page 164) has constructed this example precisely so that the two solutions happen to be the same, i.e. in order to illustrate the Simultaneous Single System interpretion (SSSI) as well as the TSSI. Kliman (2007, page 164-166) then modifies his example to illustrate labour-saving technological change, as we explored and reported in Table 2 above. Output prices now drop below input prices and the rate of profit in terms of value falls as profitability in physical terms rises. Kliman (2007, page 166) presents the SSSI solution to this problem alongside the TSSI solution. The SSSI's simultaneous method of calculation produces different values for both inputs and outputs, with the value profit rate rising with the physical profit rate (because it is always tied to the physical profit rate by this method of calculation). As soon as there is technological change, a simultaneous/iterative solution will *not* be the same as a TSSI solution. The TSSI produces a different result, not through mathematical error or failure to understand more 'sophisticated' (simultaneous) methods, but *simply because it is a different approach*. Again it appears that Sinha does not understand what he is attempting to criticise.

Conclusion.

Personally I don't think there is room for the far-too-often insulting tone of Sinha (2009) in academic debate. But leaving this aside. *if Sinha had politely made the same points they would be just as baseless. Indeed, they would be more dangerous because they would sound more reasonable*. Misrepresenting an economic approach in order to dismiss it is unscientific – no matter how politely you do it. Marx employed his concept of value to explain why the capitalist system is inherently unstable/self-defeating. The tendencies toward concentration of capital and, growing inequality, and the tendency for the profit rate to decline (and to be restored through crisis) are not 'accidents' to be managed away by governments listening to wise simultaneous economists. Of course Marx and the TSSI may be wrong about how capitalism works, but the point of Kliman (2007) is to move the argument forward from attributing false inconsistency to Marx to considering whether and how Marx's value theory may help us to understand capitalism.

As early as 1999, Kliman (2003) argued that governments' acceptance of escalating debt to try to hold up demand, had maintained an unstable situation of inflationary stagnation/persistently low profitability since the 1970's (Kliman, 2010 and 2011). The economy failed to experience a crisis decisive enough to restore the profit rate. I have argued that Grossmann's (1929) use of Marx's value theory to predict the Great Depression, identifying how low profitability in the late 1920's caused increasing speculative use of surplus capital, fits our current situation (Potts, 2009a, 2009b, 2010a, 2010b and 2011b). Simultaneous Marxists (economists in general) should engage with the TSSI of Marx by attempting to prove that their own theories represent *empirically* superior explanations of events. Choosing misrepresentation over academic debate is unforgivable, especially in a time of crisis.

Endnotes.

1. The TSSI usually imagines for simplicity that production takes time while circulation between periods of production is instantaneous.

2. Note that how we calculate the MELT depends on how we interpret Marx's theory of how commodities' values are determined. Potts (2011c) explains how Kliman's (1999, page 105, 2007, page 21) and Freeman's (1996b, pages 255 to 256) interpretations differ. Kliman argues that the produced value of a commodity equals the total value of newly produced units of that commodity divided by the number of newly produced units. In contrast Freeman argues the produced value of a commodity should also be influenced by existing unsold stocks of that commodity carried forward from previous periods (and thus also by remaining units of fixed capital at the end of production). The produced value of a commodity equals the total value of newly produced output and other stocks of the commodity, divided by the total number of units of that commodity acting as capital. Kliman's interpretation ensures that the MELT equals the total monetary expression/price of output divided by the total produced value of this newly produced output. Freeman's interpretation ensures that the MELT equals the total monetary expression/price of capital divided by the total produced value of this capital. Since Kliman's interpretation implies that we need to re-value stocks to the value of newly produced output, the total price of capital divided by the total produced value of capital still equals his 'output' calculation of the MELT. As Potts (2011c) argues, this difference does not represent a 'problem'; it rather indicates that the TSSI of Marx is an open and under-explored area of research. If we assume an absence of stocks or fixed capital, the numerical conclusions flowing from Freeman and Kliman's interpretations converge.

3. We should note that in this example, and all of the examples in Kliman (2007) Chapter 9, and for that matter Marx's (1981) Chapter 9

illustrations of the transformation process, the focus is on production, not circulation before or after production.

4. In 'reality' we only know nominal money terms. Commodities as use-values are not comparable, making the concept of any physical/use-value based 'real' terms problematic outside of abstract one-commodity models. For the value of money in terms of labour-time to remain constant, as produced values fall through technological progress, prices/appropriated values in terms of money must fall in pace with the rate of technological change.

5. Please see http://iwgvt.org/rrpe/Extracts%20from%20OPE.pdf for the correspondence between Kliman and Sinha (sent by Paul Cockshott) on the draft review, in which Kliman informed Sinha of the misleading nature of and libellous charges contained in his review prior to the publication of the final review. In response to the deliberately misrepresentative nature of Sinha's review I was one of 15 academics who sent a letter to the *Review of Radical Political Economics* asking for the review to be retracted in October 2010, see http://iwgvt.org/rrpe/. In total more than 40 people have publicly called for the retraction of Sinha's review. See additional statements at the bottom of http://www.marxisthumanistinitiative.org/philosophy-organization/condemn-libelous-attack-on-marx-scholar.html.

6. For the rate of profit to fall, we do not need to assume that the number of workers falls, rather we must assume that the total capital advanced rises faster than the total surplus-value extracted from labour. If we keep 'real' wages constant (in use-value/physical terms) technological progress reduces the necessary paid labour time in a working day of fixed length, with this production of relative surplus-value acting as a counter-tendency to the falling rate of profit. Marx's prediction of a tendency for the rate of profit to fall follows from his prediction that, to out-compete each other by attempting to increase their productivity,

capitalists will tend to invest in comparatively more constant capital than variable capital. Reductions in the paid part of the working day are ultimately limited; wages can at most drop to zero, whereas the expansion of constant capital faces no such limit, other than eventually the limit imposed by the falling rate of profit itself. Potts (2009a), (2009b), (2010a), (2010b) and (2011b) all explore Marx's tendency for the profit rate to fall.

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