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**Marx's general rate of profit transformation: methodological
and theoretical obstacles**

an appraisal based on the 1864-65 manuscript for *Das Kapital III*

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Abstract

Part Two of *Capital III* sets out the (in)famous transformation of the rate of surplus-value into the general rate of profit. This text is discussed in confrontation with Marx's manuscripts of 1864-65, from which Engels edited *Das Kapital III*.

The assessment of Marx's transformation procedure hinges on the interpretation of his method. Two alternative methods are set out, called the Method of Concretion and the Method of Completion each one based on a proceeding in terms of levels of abstraction.

The first method is a plausible one for *Capital I*. However, it makes Marx's transformation procedure methodologically illegitimate to the extent that quantities are transposed from the one level of abstraction to the other – this is quite a different critique from the usual ones. For the second method such a transposition is legitimate – though not without logical problems. It also poses problems for the *Capital I* interpretation.

From the manuscript text it is clear that Marx was aware of many of the problems and that he hesitated about his achievements. All this was polished away by Engels. Generally it is misleading to interpret the *Capital I* text in the "light" of the Engels' edited *Capital III* text – at least as far as Marx is concerned.

The paper also makes the subsidiary point that a solution of Marx's problem was blocked by his theoretical assumption of synchronically uniform rates of surplus-value.

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Introduction ¹

In Part Two of the third volume of *Capital* Marx addresses the famous transformation of the rate of surplus-value into the general rate of profit. This paper discusses Marx's 1864-65 manuscript on this issue – the text that Engels (selectively) used for his edition of *Das Kapital III*. We will see that this text is a research manuscript rather than a near to final presentation of the matter, and that Engels polished away this preliminary status of the manuscript – in this I merely confirm the view of the *MEGA* editors.

The assessment of Marx's transformation procedure very much hinges on our view of the method that he adopted. Two main alternative interpretations of the method are set out in section three. Even if only one of those would make Marx's transformation procedure methodologically legitimate, we will see in section four that, paradoxically, it is not obvious that Marx intended to adopt this method. Thus the main object of this paper is to lift the discussion on the 'transformation problem' to a more fundamental level.

References without mention of author (e.g. M:272 or E:208) are to works of Marx as follows (full references are in the bibliography).

M Marx (1992M/1864-65): main manuscript for 'Das Kapital III' (*MEGA*);

E Marx (1894E/~1864-65): *Das Kapital III* as edited by Engels (*MEW*);

F Marx (1894F/~1864-65): *Capital III* in the Fernbach translation.

The first date is the date of first publication; the second one indicates the year(s) of composition of the manuscript. A tilde ~ before the second date means that the text is roughly based on that manuscript.

Within citations italics are always in the original. Any underlining is my emphasis. Unproblematical insertions in quotations are in square brackets. Comments are in curly brackets. The indication "mt" after a page number (370-mt) means 'my translation'. Within my translations the original German term also appears, in case, in curly brackets.

§1. The published drafts for Part Two of Das Kapital III

¹ I am grateful for the comments and discussion by the participants of the 2006 ISMT meeting in Bergamo. I have also benefited a lot from written comments by, and correspondence between, Chris Arthur, Fred Moseley and Tony Smith. As a result I added on the completely new section 4 (against which, due to space limits, other parts of the original paper were removed).

Engels edited the text of Part Two of *Das Kapital III* from a 1864-65 manuscript of Marx. For the main argument of this paper it is important that this manuscript thus dates from before the final manuscript of 1866-67 for the first edition of *Das Kapital I* (1867).²

The transcript of the German 1864-65 manuscript was first published in 1992 (*MEGA* II/4.2). There is no (published) English translation. A 1857-58 manuscript, the *Grundrisse*, contains notes concerning the problematic of this part.³ A more mature – though relatively short – draft is of 1861-63, first published in 1980 (*MEGA* II/3.5), first English translation 1991.⁴

Other relevant texts, published for the first time in 2003, can be found in *MEGA* II/14. It includes a substantial manuscript dating from 1875 as well as four shorter texts from (probably) 1871?, 1873-75?, 1877-82 and 1878? (see §5 for a note on especially this last ms).⁵

A final number of eleven draft texts for *Das Kapital III* (dating from 1867-68) is to be published in *MEGA*'s II/4.3. Herewith the publication of Marx's manuscripts for the work will be complete (Vollgraf and Roth with Jungnickel 2003:382).

From reading the 1864-65 manuscript it is obvious that it reports preliminary investigations; it includes 'try outs' together with mistakes of which the author at some point becomes aware. In Engels's manner of carrying out his editorial work, this investigative character of the text has been polished away; hence it has seemed for over a century that much of *Das Kapital III* (and *II*) was in a rather finalised state – as including its Part Two. I am of course not the first one to observe this (see e.g. Vollgraf & Jungnickel 1994 and Heinrich 1996; cf. the papers by Roth and Heinrich in the current collection). In fact there was no simple solution to the problem that faced Engels: most of the drafts were not in a state readable for non-specialists. The problem is that given the solution he adopted, he gave very ill warning as to his interventions.⁶

² Kopf *et al.* (1983:15*-16*).

³ Relevant are esp. pp. 373 ff and 434 ff of the English edition.

⁴ For a comparison: the 1861-63 draft is 35 printed pages (*MEGA*); the 1864-65 draft is 285 printed pages (*MEGA*); the final text of *Das Kapital III* as edited by Engels (including texts by Engels) is # pages (*MEGA*) (220 pages in the *MEW* edition).

⁵ The annotations to the texts (e.g. text variations, crossing outs, dating and contextualisation) by Vollgraf and Roth (with Jungnickel) are of superb scrutiny and scholarship.

⁶ Heinrich (1996) writes about all of the manuscript for *Das Kapital III*: 'there are modifications to the original text on practically each page that have not been indicated. Hardly one paragraph remained as Marx had written it. Engels's modifications are not confined to "stylistic" matters. ... [T]he 1894 edition was an extensive adaptation of Marx's manuscript, and Engels did not inform the readers about the true

§2. A note on Marx's method in *Capital*

Although in my view the project of Marx's *Capital* is methodologically based on a development from Hegel's Systematic Dialectics (cf. the chapter by Arthur in the current collection), the main argument of this paper can do without this stringent position. Instead I just emphasise one, less controversial, aspects of Marx's method in *Capital*, namely that it proceeds by way of *conceptual development*. Between the three volumes of *Capital*, as well as within each one, we have a movement of 'levels of abstraction', running from abstract, relatively indeterminate, general and simple concepts to increasingly concrete, determinate, particular and so complex concepts. At the earlier levels, certain complexities are suppressed, or 'bracketed'. Each time it is the 'insufficiency' of the earlier level presentation that drives to the introduction of further complexities. (For the purposes of this paper these levels of abstraction may even be interpreted in terms of a movement from 'simple models' to 'complex models' in the course of which initial ceteris paribus assumptions are increasingly dropped.)

§3. A formal presentation of alternative interpretations of the *Das Kapital I* categories in perspective of those of the *Das Kapital III* ms

§3.1. Rate of surplus-value and rate of profit

In this section I use the following four main concepts and definitions. Circulating capital (k):

$$k_i = c_i + v_i \quad \text{[definition] (1)}$$

where c and v are the parts invested in means of production and in labour-power (the wages sum of wl). For simplicity we abstract throughout, like Marx, from fixed capital and from differences in turnover time.⁷ The subscript i refers to a specific sector of production (later on the subscript j will refer to any other sector).

The rate of surplus-value (s'):

extent of his adaptation. ... The interventions ... offer solutions for problems which the manuscript left open ... and in some passages they even change the argumentation of the original text, if this obstructs Engels' interpretations.' (pp. 456, 459, 464). See also the extensive comments by Vollgraf & Jungnickel (1994) about Engels's mark on the text ('Engels left only few of Marx's sentences untouched' – p. 47-mt).

⁷ Relating to (uniform) turnover time there is a problem with equation (1) that I set aside for the purposes of this paper (see Reuten 2006).

$$s'_i = f(e^*_i) \quad [\text{explanation – pro memory}] \quad (2a)$$

$$s_i = s'_i v_i \quad [\text{explanation; here reduced to definition}] \quad (2b)$$

Capital I posits surplus-value (s) and its increase as the driving force of capital. The focus of the middle part of *Capital I* is the *explanation* of surplus-value in terms of labour-time and of the productive forces of labour operating on means of production.⁸ The *rate* of surplus-value (s') is the concentration of these explanatory determinants. Here, as for Marx in the *Kapital III* ms, all this explanation is assumed. Thus we have s' as a determinant for s . It remains to be seen (cf. the subsections below) *how* it is also a determinant for profit (r) and the rate of profit (r'):

$$r'_i = r_i/k_i \quad [\text{definition}] \quad (3)$$

The spectrum of wages is posited synchronically equal for all sectors ($w_i=w$), hence:

$$wl_i = v_i \quad [\text{approximation}] \quad (4)$$

For the sake of brevity I posit throughout this section a number of assumptions without further argument. For our purposes there are three types: 'simplifications' serve to make a problem tractable; the same applies to 'stage simplifications', these, however, are dropped in a later stage; 'approximations' {Annäherungen} set out the uninhibited result of forces (tendency laws).

The assessment of Marx's general rate of profit transformation in the 1864-65 draft for Part Two of *Das Kapital III* depends very much on the view of how the categories presented in this part are connected to those of *Capital I*. We will see (§4) that Marx is aware of the importance of the connection, and how he hesitates about the Part Two consequences (his self-interpretation!) for the, then, draft of *Das Kapital I*. Both in order to shortcut the discussion in the next section, and because the categorical connections are not obvious, the current section sets out a brief formal presentation of the two main alternatives. Note that a formal presentation necessarily looses conceptual richness; on the other hand, once quantitative matters are involved – as is the case – it is a means of precision.

For the purposes of this section I reduce Marx's complex method of many stages (levels of abstraction) to simply *two* stages: that of *Capital I* and of Part Two of *Capital III*. The movement to the later stage is one of increasing determination (concretion or completion).

⁸ Marx's explanation is discussed in Reuten (2004).

In considering surplus-value and production, we can of course not get around exchange and prices. We assume that 'market prices' converge to what I provisionally call 'supply prices' (and what Marx will call 'production prices' in *Capital III*). We want to explain production ($x = pq$) in terms of these convergence prices (p). In principle we can adopt two methods, and we can take these as possible interpretations of the two stages referred to. I call them 'the method of concretion' and 'the method of completion'. For both methods we will all along be concerned with *synchronic* matters only (some synchronic uniformity of sectors of production may go along with diachronic change).

§3.2. [CC-1] **Method of Concretion** at Volume I level: *Abstract Explanandum*

Before we get to the explanation of the prices p , we first explain an abstract approximation of them, labelled ' π ' (π), whence we also have an abstract approximation of production: πq . Thus we have an abstractum or a theoretical construct. (This may be interpreted as a systematic-dialectical stage; or also as a theorisation of variables constructed in a (ideal) experimental constellation so reaching *ceteris paribus* conditions.) In brief we posit:

$$\pi_i q_i = k_i + s'_i v_i \quad \text{[explanation of a construct/abstractum] (5)}$$

Via the moment of $s'_i v_i$ this incorporates the explanation represented by equations (2a–b). We proceed by adding on two simplifying assumptions. First that of synchronically uniform rates of surplus-value:

$$s'_i = s' \quad (\text{for all } i) \quad \text{[simplification or approximation] (6)}$$

A key question is whether this is indeed a simplifying assumption or rather an approximation of a systemic force (see §3.3, §4.1 and §5). Second that of synchronically uniform compositions of capital:

$$(k/v)_i = k/v \quad (\text{for all } i) \quad \text{[stage simplification] (7)}$$

Dividing (5) through v_i , and making use of (6) and (7) we have:

$$\pi_i q_i / v_i = k/v + s'/v \quad (\text{for all } i) \quad \text{[implication] (8)}$$

Because $w l_i = v$ (eqn. 4), then substituting $w l_i$ for v_i , and multiplying by w , we also have:

$$\pi_i q_i / l_i = k/l + s'/l \quad (\text{for all } i) \quad \text{[implication] (9)}$$

In the way I have presented it here, it is the *implication* of the construct that its prices (π) are proportional to labour commanded (Smith) as well as to labour

embodied (Ricardo).

Even if Marx introduces the (general) rate of profit only in *Capital III*, another implication is that we have *uniform rates of profit* since (cf. eqn. 3):

$$r'_i = s'v_i/k_i = s'/(k_i/v_i) = s'(\mathbf{k}/\mathbf{v}) \quad [\text{implication}] \quad (10)$$

(This is roughly how I interpreted *Capital I* until my study of the 1864/65 ms discussed in this paper.⁹ In §4 we will see that this interpretation makes Marx's *Das Kapital III* ms transformation procedure methodologically mistaken.)

§3.3. [CC-2] Method of Concretion at Volume III level: Concretion

We drop the construct π and proceed to 'production prices' (p). We assume that real market prices converge to these production prices ('centres of gravitation').

Variant (a)

Marx (at some point, see §4.2-§4.3) defines this constellation as follows.

➤ Analogous to the πq equation (5):

$$p_i q_i = k_i + s'_i v_i \quad [\text{explanation}] \quad (11)$$

Via the moment of $s'_i v_i$ this incorporates again the explanation represented by equations (2a–b).

➤ Rates of profit converge to uniform rates:

$$r'_i = \mathbf{r}' \quad (\text{for all } i) \quad [\text{approximation}] \quad (12)$$

➤ Non-uniform compositions of capital (thus 7 is dropped). Hence in general:

$$(k/v)_i \neq (k/v)_j \quad [\text{empirical observation}] \quad (13)$$

➤ Uniform rates of surplus-value (thus 6 is maintained):

$$s'_i = \mathbf{s}' \quad (\text{for all } i) \quad [\text{simplification or approximation}] \quad (6)=(14)$$

Because of the diverging k/v there is no labour commanded or labour embodied proportionality for the production prices p (we merely have $p_i q_i/v_i = (k/v)_i + \mathbf{s}'$). Marx is aware and explicit about this. Rather more problematical is that the

⁹ I feel constrained to stress that an interpretation may be truthful as an interpretation, but that this does not imply that the interpreter agrees with the interpreted.

combination of the three restrictions (12),(13) and (14) is impossible.

$$r'_i = s'v_i/k_i = s'/(k/v)_i \quad [\text{implication}] \quad (15)$$

Thus $r'_i \neq r'_j$. We can have uniform profit rates only with either (1) both of s' and (k/v) uniform (the πq constellation) or (2) both of them non-uniform.

Variant (b): reconstruction of variant (a)

The obvious way to mend the incompatibility is to reconstructively drop the (simplifying) assumption of uniform rates of surplus-value (14).¹⁰ So we have:

$$s'_i \neq s'_j \quad [\text{empirical observation}] \quad (14^*)$$

Whence we derive:

$$r'_i = r' = (s'_i v_i)/k_i \quad (\text{for all } i) \quad [\text{implication}] \quad (15^*)$$

In this reconstruction the *micro* equality of profits and surplus-value ($r=s$) is maintained;¹¹ by implication we also have the macro $R=S$. Each at this level.

Variant (a) and (b)

Instead, Marx endeavours to get around the incompatibility via a macro-micro détour in which he transposes quantities between the two levels, and that in effect results in:

$$r'_i = r' = [(s'v_i) + \delta_i]/k_i \quad [\"methodologically illegitimate détour\"] \quad (15^{**})$$

(with the aggregate sum of the δ_i amounting to zero).

However, within the constellation of the Concretion Method this is methodologically illegitimate (though not for the reasons usually stated). Since the two explananda πq and pq are non-identical, transposition of quantities from the one to the other level makes no sense. (To be sure, it does make sense to apply the qualitative conclusions from the earlier level to quantification *at* the lower level – that is as long as any *ceteris paribus* conditions of the earlier level allow for it.)

§3.4. [CP-I] **Method of Completion** at Volume I level: partial explanation of 'concretum'

There is also a very different interpretation of what happens at *Capital I* level. In

¹⁰ The theoretical ground for this reconstruction is in the productive force and the degree of intensity of labour (cf. *Capital I*, Ch. 15) as discussed in Reuten (2004, esp. 136-141).

¹¹ That is, prior to the introduction of finance and interest.

this alternative we have no π construct but we rather start immediately with the convergence price p (and hence pq), thus prices of production – even if these are explicitly called like this only at Volume III level. However, given that we have the same set of simplifying assumptions as in [CC-1] (equations 6 and 7) we have approximations for the explanation of p , leaving some of p unexplained. (In §4.4 we will see that Marx at some point leans to this (self-)interpretation. Fred Moseley (e.g. Moseley 2000) seems to be proposing the same. For each I am not sure they would draw all of the consequences.) Thus p is explained in successive stages, here reduced to two. Until we reach full explanation we have an unexplained part u .

$$p_i q_i = k_i + s'_i v_i + u_i \quad [\text{partial explanation}] \quad (16)$$

As in CC-1 the moment of $s'_i v_i$ incorporates the explanation represented by equations (2a–b). Again we proceed by adding on the two simplifying assumptions of synchronically uniform rates of surplus-value and of synchronically uniform compositions of capital:

$$s'_i = s' \quad (\text{for all } i) \quad [\text{simplification/approximation}] \quad (6)=(17)$$

$$(k/v)_i = k/v \quad (\text{for all } i) \quad [\text{stage simplification}] \quad (7)=(18)$$

Here, however, we have from the beginning no labour commanded or labour embodied proportionality because of the factor u :

$$(p_i q_i)/v_i = k/v + s/v + u_i/v_i \quad [\text{implication}] \quad (19)$$

(cf. 8 and 9 above). It has been argued (e.g. Moseley) that *Capital I*, merely provides a partial explanation of prices (in a different way CC–1 of course neither provides a full explanation).¹²

§3.5. [CP-2] Method of Completion at Volume III level: completion

Rates of profit converge to uniform rates:

$$r'_i = r' \quad (\text{for all } i) \quad [\text{approximation}] \quad (12)=(20)$$

Hence we have for (what is now explicitly thus called) prices of production:

¹² As a corollary it may be noted that, as against CC-1, there is at *this* point no implication of (implicit) uniform profit rates.

$$p_i q_i = k_i + r_i \quad [\text{accounting identity / empirical observation}] \quad (21)$$

$$p_i q_i = k_i + r' k_i \quad [\text{putative explanation}] \quad (22)$$

This is a putative explanation pending the determination of r' .

Again we have non-uniform compositions of capital (thus the simplifying assumption 18 is dropped):

$$(k/v)_i \neq (k/v)_j \quad [\text{empirical observation}] \quad (13)=(23)$$

The uniform rates of surplus-value thesis (17) is maintained; however, given (22) it is considered to play no (new) role *at the current level*.

$$s'_i = s' \quad (\text{for all } i) \quad [\text{simplification/approximation}] \quad (17)$$

Reordering (20)–(22) we have:

$$r'_i = r' = r_i/k_i \quad (\text{for all } i) \quad [\text{implication}] \quad (24)$$

Because the pq in the two price equations (16) and (22) are on the same plane, it is now methodologically legitimate to transpose quantities from the one level to the other (CP-1 and CP-2). (Cf. the Marx/Engels (in)famous aggregation tables of *Capital III*, Chapter 9.)

Substituting (16) and (2b) into (21) we have:

$$r_i = s_i + u_i \quad [\text{implication}] \quad (25)$$

$$r_i = s'_i v_i + u_i \quad [\text{implication}] \quad (26)$$

In fact this is a shortcut for Marx's aggregation tables. However, it deserves a serious warning (and here the usual critiques come in), namely that it is *assumed* that the unexplained factor of u_i concerns, and so is to be allotted to, profits rather than (in part) any other factor in equation (16).

We now aggregate surplus-value (S) and profits (R):

$$S = \sum s_i \quad [\text{aggregation}] \quad (27)$$

$$R = \sum r_i \quad [\text{aggregation}] \quad (28)$$

Next it is posited that S explains, and fully determines, R:

$$R = S \quad (\text{right to left determination}) \quad [\text{derived explanation}] \quad (29)$$

(The explanation is derived from the set of equations (1)–(4) and (16)–(28).)

We also aggregate (25) into:

$$R = S + U \quad [\text{aggregation}] \quad (30)$$

Because theoretical priority is given to (29) we have:

$$U = 0 \quad [\text{theory decision}] \quad (31)$$

Finally the sector u_i 's are determined via the rate of profit criterion. From (24)–(26) we have:

$$r'_i = r' = (s'v_i + u_i)/k_i \quad [\text{implication}] \quad (32)$$

Hence:

$$u_i = r'k_i - s'v_i \quad [\text{implication}] \quad (33)$$

§3.6. Some conclusions and a preview

1. The last equation (33) is the 'tache de beauté' of this CP set up. The u_i 's are determined by the 'general rate of profit', instead of the rate of profit being fully determined by explanatory entities. Two objections may be raised against this alleged blemish. One is that we have a simultaneous determination. The other, as argued by Marx, is that, at a still lower level of abstraction, the u_i 's are determined by competition (see §4.3).

2. Remind Marx's equation (15**) from CC-2 that I qualified as 'methodologically illegitimate' (a qualification that I maintain, that is within the Concretion Method). We had:

$$r'_i = r' = [(s'v_i) + \delta_i]/k_i \quad (15**) \quad (15**)$$

Its outward appearance is similar to (32).

3. In Variant (b) of CC-2, i.e. my reconstruction of Variant (a), we have the rate of profit fully determined without any transformation 'problem':

$$r'_i = r' = (s'v_i)/k_i \quad (15*) \quad (15*)$$

4. In my view CC-1 is the better *interpretation* of *Das Kapital I*, published by Marx in 1867!, and revised shortly before it. In my view CP-2 is the better *interpretation* of Marx's manuscript for Part Two of *Das Kapital III*, written in 1864/65! (at least up to some point of the ms – see §4.4).

5. How come? This is methodologically inconsistent! Yes. Because of this problem the next section (§4) is rather complex. My hypothesis is as follows. The 1864/65

ms for Part Two initially followed the path of the 1861/61 ms which is in line with CP-2 – i.e. the 'Chapter 9' transformation procedure (see §4.3). Then, reflecting on this transformation procedure in his 'Chapter 10', Marx got increasingly worried about what he had been doing in terms of his ms for *Das Kapital I* (see §4.4).¹³

Engels, however, in his editing of the 1864/65 ms for 'his' *Das Kapital III* polished away these worries whence we have the "CP-2" result.)

6. Each of [CC-1 with CC-2] and [CP-1 with CP-2] is consistent. The usual post-Marx solutions to the transformation problem obviously took Engels's version of *Das Kapital III* for granted, and then combined the 'theoretical domain' of CC-1 with that of CP-2, which is methodologically inconsistent. If one would want to use the 'domain' CP-2 (not only for a solution to the transformation problem but also for any other quantitative matters) then one is bound to CP-1.

§4. The 1864-65 manuscript and the text of 'Capital III' Part Two

§4.1. General outline

Regarding Part Two (originally "chapter") of the 1864-65 manuscript Engels left unchanged the main chapter *structure* of the text for his *Capital III* edition (Chapters 8-12); however there are changes of order within the chapters as well as texts that disappear altogether. For convenience of the reader I therefore refer in this section to the *Capital III* chapters.

At the very opening of Part Two (Chapter 8) we immediately find the crucial assumption of a uniform rate of surplus-value, for all of Part Two (M:212; E:151; F:241).¹⁴ It is repeated regularly throughout the part. According to this manuscript it is not just a simplifying assumption but rather a *law*. In 'Chapter 10' Marx writes that competition between labourers gives rise to:

"a general rate of surplus-value – tendentially that is, as for all economic laws; we posit it as a *theoretical* simplifying presupposition; in fact it is the actual presupposition of the capitalist mode of production even if inhibited by practical frictions ...; in theory we assume that the laws of the capitalist mode of production develop in their pure form {rein}." (M:250-mt; cf. E:184, F:275)

Given this assumption/law the terrain of the problematic for Part Two is defined by the prevalence of non-uniform compositions of capital (ratio's of k/v) between

¹³ Another problem is that the pen-ultimate ms for *Das Kapital I* is missing. We just don't know to what extent – if at all – Marx adapted his text as a consequence of the worries mentioned.

¹⁴ I write 'uniform'; the ms has 'constant' and 'given'. The ms has 'chapter'; Engels apparently forgot to change this into 'part'.

sectors of production, or also non-uniform turnover times of capital – which offers the same problematic (M:216). Thus whereas *Capital I*, Parts Four, Five and Seven treat the diachronic change of the capital composition (with any divergences between sectors 'bracketed') the current part makes the reverse assumption: constant though diverging.

Part Two comprises three main chapters (8-10) that in my view should be considered together (the two smaller chapters (11-12) may be regarded as 'addenda'). I begin with a brief outline of these three chapters before discussing some of the details.

In Chapter 8 Marx sets out the constellation that results from the assumptions just indicated. These together with the assumption that commodities are sold "at their values" [presumably equation (5)] would result in differing rates of profit between sectors (M:223-4) [cf. eqn (10)]. This constellation, however, does not exist in reality (M:229-30). Hence the presentation is insufficient.

Therefore the next Chapter 9 must widen the theoretical terrain. Marx introduces a new concept 'production price'; 'its presupposition is the existence of a *general rate of profit*' (GRP) (M:234). Thus Marx *posits* in Chapter 9 the 'production price' [cf. eqn 11/22]. He indicates that this is 'a transformation of value' ('eine verwandelte Form des Werths' – M:239; E:173) but nevertheless carries out a quantitative *substitution* between the two levels of abstraction! This is a problem *if* his method is the Method of Concretion (§3), which is the hypothesis from which I start.

The point is that the status of *this* transformation is very different from the *purely conceptual* one that Marx presented in Part One and in which no quantitative differences are involved. Consider e.g. the following quotation from its Chapter 2:

"while surplus-value and profit are in fact the same – they are *numerically* identical – profit is still for all that a transformation {verwandelte Form} of surplus-value ..." (M:64; cf. E:58, F:139)

Or from Chapter 1:

"Materially {Stoff; stofflich} considered ... the *profit* ... is not different from the *surplus-value* itself. Hence its absolute magnitude is not different from the magnitude of the surplus-value (...) it is however a *transformation* {verwandelte Form} of the latter ... (M:8-9-mt)¹⁵

¹⁵ This text appears on the opening pages (2-3) of the manuscript; apparently it is omitted in Engels's text.

For the Part One transformation no new quantitative determinations come in. However, as Marx is well aware, for his Part Two transformation we do have different quantities ($\pi_i q_i \neq p_i q_i$ and $k/v \neq k_i/v_i$ and $s'v_i \neq r'k_i$), at least for the micro level. Thus he substitutes quantities of a theoretically insufficient constellation (πq) into that of a theoretically enriched, more concrete, constellation (pq). On basis of the Method of Concretion this would be very awkward. Then the problem is not primarily that the two famous conditions of aggregation (of $\Sigma \pi q = \Sigma pq$ and $R=S$) are mathematically incompatible (as stressed in the literature on the issue). No, the primary problem is that of conceptually incompatible quantities.¹⁶ (Note that for Post-Marx solutions to "the" transformation problem there is potentially the same pitfall.)

It is especially in Chapter 10 that Marx reflects on, and questions, what he accomplished in the previous chapters, including the consequences for his self-interpretation of the concept of value set out in his manuscripts.

§4.2. Chapter 8: the problematic

I now move on to the relevant details. I begin by recapitulating the important point about Chapter 8 that was been made above. This chapter sets out the following five assumptions/theses (M:223-4, 229-30):

- [A] assume commodities are sold 'at their values' [presumably πq ; cf. eqn 5];
- [B] assume equalised rates of surplus-value [$s'_i = s'_j$];
- [C] we have diverging compositions of capital [$(k/v)_i \neq (k/v)_j$];
- [D^a] hence [A-C] equal capitals produce unequal surplus-value or profit [$(s/k)_i \neq (s/k)_j$];
- [D^b] therefore we have diverging rates of profit [$r'_i \neq r'_j$];
- [E] in fact, however, we have (tendentially) equalised profit rates [$r'_i = r'_j$].

These five assumptions/theses are inconsistent. At least one of them must be wrong, it remains to find out which one(s). *Analytically*, I repeat analytically, this set up might make sense. (Chapter 8 makes sense generally – also in that there are no deviations from the later *Capital I* terminology.)

§4.3. Chapter 9: a cheerful accommodation for the inconsistency

Chapter 9 sets up a *possible* constellation accommodating for the inconsistency

¹⁶ A similar critique was made earlier by Hartmann (1970:370): "The mistake made by Marx was the mistake of viewing a transcendently early (category) as identical to a transcendently late one." Smith (1990:168) adds: "This goes against one of the basic canons of systematic theories of categories." (Hartmann is cited from Smith.)

(this is my interpretation); however, in any case it is obvious that the text is investigative (*Forschung*) not presentational (*Darstellung*).¹⁷ As it turns out Marx's set up is much along the lines of his earlier 1861-63 manuscript.

The chapter starts by repeating the assumption about the rate of surplus-value [B]. Marx also introduces a number of simplifying assumptions such as the full and linear depreciation of fixed capital within the year, and equal turnover times (M:230-1).

Next he sets out the famous three schemes (231-33). (The first and the second scheme apply assumptions/theses [A]-[D];¹⁸ the third scheme is the one where Marx introduces prices of production as diverging from value [eqns (11)/(16)]. He drops sales at value [A], introduces (instead) production prices and so gets rid of diverging profit rates [D^b]. He does so without hardly any argument:

"Their presupposition [i.e. of production prices] is the existence of a general rate of profit ... In reality the very different profit rates ... are by way of *competition* equalised into a *general rate of profit* ..." (M:234-mt; cf. E:167, F:257)

Note that he maintains the disproportional production of surplus-value [D^a] (M:234-5).

However, [A] is not really dropped. At this point in the text Marx posits one of the famous two aggregate equalities, i.e. that of 'values' and production prices (perhaps $\Sigma pq = \Sigma \pi q$). The aggregate equality of profits and surplus-value ($R = S$) is posited throughout.¹⁹

As indicated, from the point of view of the Method of Concretion, these equalities make no sense. Not so much because of an analytical mistake (the standard critique), but because of a methodological mistake: the "values" [πq] ("values" in Marx's terminology at this point) have no concrete existence, hence they are quantitatively incompatible with (more) concrete existents. From the point of view of the Method of Completion there would not be such problem; however, at this point in the text I am still assuming Marx adopts the Method of Concretion.

Finally for Chapter 9 I draw attention to the passage where Marx seems quite happy about what he has achieved so far, declaring that the current presentation 'reveals for the first time ... the inner connection' between value and production price and between surplus-value and profit (M:245; cf. E:178 and F:268).

§4.4. Chapter 10: gloomy reflection

¹⁷ Cf. Vollgraf and Roth with Jungnickel 2003:385.

¹⁸ In the second scheme the silly addition of profit rates (to 110%) is Engels's (F:256).

¹⁹ When he posits $\Sigma pq = \Sigma \pi q$ (presumably) he feels there is a difficulty (M:236-7; E:169-; F:259-); M:241-43 on the same theme.

In Chapter 10, however, the scene seems much more gloomy and dismal. After two pages connecting the two chapters Marx posits two research questions, one immediately after the other (I call these Question 1 and Question 2):

{Question 1} The really difficult question here is this: how does this equalisation of profits or this emergence {Hertstellung} of the general profit rate come about, since it is evidently a result and cannot be a point of departure.

It is clear first of all that an assessment of commodity values, e.g. in money, can only be the result of their exchange, and that, when we presuppose such assessment, we have to consider them as the outcome of *actual exchanges of commodity value against commodity value*. {Question 2:} But how could this exchange of commodities against their actual values have come about? (M:250-mt; cf. E:183-4, F:274-5)

It is especially at this point in the text that the reader (I) may start doubting if Marx indeed *aims to adopt* (remember this is a research manuscript) the Method of Concretion. Note the 'actual exchanges' ('wirklicher Austausch') which especially for a Hegel inspired scholar cannot leave room for compromises. So we bid 'πq' farewell?

Marx devotes about 20 pages to Question 2, before he gets to the first. The answer to Question 1 (M:269-70; E 205-7; F:297-8) is rather limited. We learn mainly that capital moves from low to high profit rate spheres and that the thus affected supply in relation to demand establishes the transformation of values into production prices. This answer is far more problematical than it might perhaps seem at first sight. (The process briefly described *here* is not problematical – such movement of capital and labour is also part and parcel of classical political economy, and of many economics paradigms after it.) The problem is that Marx must rely, so it seems, on a *historical* process to set out a *systematic* problem! The movement of capital is a continuous *systemic* process. However, the implication of Marx's set up is that the GRP "transformation" is of the past. Marx is aware of this, as we can infer from the fact that he realises that Question 1 cannot properly be answered before Question 2.

By this time – i.e. when he finally gets to Question 1 (page M:269) – I guess that Marx had run out of steam as disillusioned by the consequences of his Chapter 9 outline (1864-65) – that is, the answer to Question 2.

On to Question 2: how could the *actual* exchange of commodities against their *actual* values {πq} have come about? Marx repeats (M:250) that such exchange (given the equalised rate of surplus-value assumption, as he once again stresses) would result in unequal rates of profit – which is counterfactual.²⁰ Obviously the production prices of the research manuscript for Chapter 9 put the (current) *Capital*

²⁰ Note that for the following 20 pages Engels maintains the structure of Marx's text.

I Chapter 1 presentation – of commodity exchange according to value – into question in a rather disastrous way.²¹ It is clear from the text that Marx was much bothered by this. My reading is that Marx sets out, in a unsystematic way, a number of analytical consequences of where he has got, together with some possible ways out. We find for example a model-like case in which workers own the means of production and exchange products according to their value; then a move to a "historical transformation"; next a long *détour* on *market* value and supply and demand generally, without coming to the point (in his work of 1896 all this was rightfully ridiculed by Böhm-Bawerk in this context).²²

The 'try out' of the historical transformation especially is inconsistent with the Chapter 9 procedure.²³

On page M:267 (E:203; F:294) Marx finally arrives at a systematically and thus methodologically relevant statement. Note that he uses the kind of 1859 (or 1867) terminology of exchange (Engels puts the following in the past tense suggesting an even more direct reference to *Capital I*, Chapter 1):

In considering money, it is assumed that commodities are sold at their values, because there is no foundation {Grund} to consider prices deviating from value since the concern is just the changes in form that commodities have to undergo when they are turned into money and then transformed back into commodities again. ... it is completely irrelevant for them as such [the commodities] whether the realised commodity price is below or above their value. The *value* of the commodity as groundwork {Grundlage} remains important, since money can only be developed conceptually from this foundation {Fundament}, and *price*, in its general concept {seinem allgemeinen Begriff nach}, is only *valeur monétaire* [monetised value; the two words appear in French]. (M:267-mt; cf. E:203, F:294-5)

Methodologically this is fine. I believe this sheds light on what Marx (with the 1859, or later, text in his mind) intended to do in the 1867 text. It is a *conceptual* presentation in stages of complexity. So finally it seems that Marx leans back to the Method of Concretion?

In fact Marx shows here himself (implicitly that is) that the Chapter 9

²¹ Instead of *Capital I*, Chapter 1, we can take the 1859 *Critique* as a reference point. On page M:257 (E:191-2) Marx refers to this work (note that the 1864-65 manuscript for *Capital I* is lost – see Kopf *et al*, 1983:15*-16*).

²² Böhm-Bawerk of course read the text as a final document – that is as polished by Engels.

²³ Engels on the other hand seems to have liked the idea. It has given rise to a historical, as against systematic, interpretation of *Capital I*, Chapter 1 – rightly criticised by Arthur 1997. Such an interpretation, however, cannot save the Chapter 9 procedure (even neglecting the latter's internal problems of the two conditions).

procedure makes no methodological sense. An abstract magnitude of value cannot be put into quantitative equality with the magnitude of some concretum.

I close off this section with a comment on Engels's editorial work. Quite apart from all my methodological critique on Chapter 9 as addressed above, Engels seems to have misjudged Marx's own critique on that chapter in his Chapter 10 ms (and Engels's polishing work made all this worse). Thus Engels provided intelligent people like Böhm-Bawerk with plentiful opportunities to point out inconsistencies, inconsistencies that Marx himself in fact laid bare.

§5. Notes on a small 1878 ms: diverging rates of surplus-value

My suggestion that Marx was not happy with the Chapter 9 ms is sustained by the fact that Marx kept returning to the matter in manuscripts from much after the publication of *Capital I* (see §1) even if without substantial progress (that is in the *MEGA II/14* mss). However, I should like draw attention to a hint in Marx's final manuscript on the issue (Marx, 2003f/1878?).²⁴ This is a small manuscript of six pages dating probably from 1878 (see Vollgraf and Roth with Jungnickel 2003:697). Consider the following passages:²⁵

For [the] calculation of the rate of profit that the social capital yields it was assumed {angenommen}, 1) that the rate of surplus-value uniform for the different heaps of capital {Kapitalmassen} in different branches of industry, 2) and neglecting turnover, i.e. the turnover of the social capital over the year posited = 1.

In fact for the different heaps of capital different rates of surplus-value and different turnover times. (158-mt)

The clarification following it (after seven, printed, lines on the calibration of turnover times) is very interesting. Note Marx's usage of the term pure (*rein*) which he reserves for law-like entities.

These are just differences {Differenzen} emerging from the pure economic conditions, namely different {verschiedene} magnitudes of the capitals invested in business sectors, different rates of exploitation of labour-power, different turnover times. However [there are] other aspects of the equalisation such as unattractiveness, danger and standing of the work. (158-mt)

This text is ambiguous. With some hesitation I go for the interpretation that the

²⁴ If we neglect the 25 lines of algebra which is the content of a ms from probably 1877-82.

²⁵ It is extremely difficult to translate these texts. Marx's texts are unpolished and continuously mixed with shorthand phrases.

text emphasised by Marx in the last quotation, sums up the pure conditions. (In the alternative interpretation the two assumptions of the first citation would presumably be the 'pure conditions'. However, it would then be most puzzling how these could turn in their exact opposite.)

Remember the first quotation in §4.1 from the 1864/65 ms (p. 250) where Marx posited the uniform (general) rate of surplus-value as part of the 'pure' constellation. Thirteen years later, if my interpretation above is correct, non-uniform rates of surplus-value are seen to be part of the theoretically *pure* constellation – whereas the competition between labourers has become a subordinate factor. Then even Marx's reason for the troubling 1864-65 Chapter 9 type of procedure evaporates.

Conclusions

We have seen that the assessment of Marx's GRP transformation procedure in Chapter 9 of his 1864/65 research manuscript for *Das Kapital III* hinges on the interpretation of the general method that he adopts for the three volumes of *Capital*. If he adopts the Method of Concretion (cf. §3) then the procedure is illegitimate. The problem centres on the two equations for 'value' and 'price of production', each posited at a different level of abstraction. Then the mistake is to transpose quantities between these levels. If he adopts the Method of Completion the procedure is legitimate, though not without problems. More important, it would make much of *Capital I* problematical.

We have seen that in the course of writing Chapter 10 of the research manuscript Marx becomes increasingly worried about the consequences of Chapter 9. For over 15 pages it seems that Marx is leaning towards the Method of Completion. However towards the end of the chapter Marx's apparently reverts to 'the Method of Concretion', so leaving the Chapter 9 procedure in the air. This conclusion applies to the manuscript. On basis of "Engels's" text (as well as his interpretation of Part One of *Capital I*) the Method of Completion is fairly consistent for most of Part Two of *Capital III*.

The problem for the interpretation of Marx's work, and for the further development of marxian theory after Marx, is not that Marx encountered a big problem that he did not solve. The problem is that Engels in his editorial work polished away most of Marx's worries and so made it appear as if *Das Kapital III* was a near to final texts instead of a research manuscript on this issue.

We also saw (§3.3) that the very reason for Marx's troubling 1864-65 Chapter 9 type of procedure is in fact the thesis of a uniform rate of surplus-value. If that thesis is dropped there is in fact no transformation 'problem'. In reference to Marx's brief last manuscript on the issue, we saw in the final section above that there is some (thin) evidence that Marx might have been about to set on this track.

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