Money as concrete Universality. A reading of the Marxian Value Form Analysis against the background of the Hegelian Mass chapter in The Science of Logic

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The first of the three volumes of Hegel's *Science of Logik* (*SL*) deals with the orderly deduction of the categories of quantity, quality and mass. The first two categories cover the physical aspects of a thing, its quantitative and qualitative properties. Both categories thus correspond to the Marxian "immediate or natural use value" of the commodity. In contrast to "social use value" (*Gesellschaftliche Gebrauchswert*), "natural use value" plays no role at all in the political economy.

"Exchange value" and "social value" are, however, rigorously relational and economical categories. In my paper I will attempt to show that the third category of the first volume of the *SL*, namely, the mass, is the category within which the Marxian "exchange value" and "social value" are to be comprehended. For this purpose, I will show that the inner movement of the mass category in the *SL* is key to the Marxian value-form analysis in *Das Kapital*. My analysis is also intended to clarify the metaphor of "the animal" that Marx uses to illustrate the definition of money: an animal, a universal entity which is at the same time, concrete.

Table 1:

	commodity 1	commodity 2	…	commodity n
commodity 1	$e_{11} = 1$	e_{12}	…	e_{1n}
commodity 2	e_{21}	$e_{22} = 1$	…	e_{2n}
…	…	…	…	…
commodity n	e_{n1}	e_{n2}	…	$e_{nn} = 1$

> For Marx, the essence is socially necessary labour.

Mass is defined by Hegel as the unity of the previous two categories: the quantity and the quality [XXI.323][1]. This means that the mass of something is the quantity that is obtained when it is put in relation with another something, and it is this act of "putting in relation" which for Hegel, following Spinoza (*determinatio est negatio*)[2] defines quality [XXI.96][3]. The mass of something is initially something not essential or external to it. The immediate mass of something is, for example, the weight. On a weighing scale, we put into a relation of analogy two weights (intensive quantities) and two lengths (extensive quantities) measuring something that is not directly observable – namely, the weight – by means of lengths. In the same way, in the arbitrary exchange of one commodity with another commodity, value corresponds to an indirectly measurable quantity and is again measured using a relation of analogy with a measurable quantity: if a quantities of X are exchanged with b quantities of Y then X is b/a times more valuable than Y.

The problem with these measurements is that they are something external to the thing. In Hegelian terms, the mass is not yet real (*real*) but specific (*spezifisch*), in Marxian terms, the "value form" is not yet total (*total*) but arbitrary (*zufällig*). In the total value form, the specific exchange relation in which a commodity is placed is not something arbitrary but real or objective to it. The exchange relation is now a relation of equivalence (*Äquivalenzrelation*), that is to say, a relation which is reflexive[4], symmetrical and transitive. For this reason, we can consider the value of a commodity as something that is objective to it. The objectivity so defined by Marx is not a physical objectivity but a social one. Value is thus something objective that is manifested by means of the relation or exchange web in the total value form. To express this in Hegelian terms, the commodity is now a real something (*reelles etwas*) and not only a thing (*Ding*).

The problem with the total value form is that the value of something real is not expressed by one single number but by as many numbers of commodities as we have. Each commodity differs from the other commodities through a series of exponents[5]. The distinction between amount and unity in Hegel can be used to express the distinction between the relative value form (*relative Wertform*) and the equivalent form (*Äquivalentform*). In table 1, the commodities located in the column are in relative value form while the commodities of the row are in equivalent form. We can form a matrix using the various exponents[6] of the exchanged commodities (see table 1).

Due to the relation of equivalence, the determinant of this matrix will be zero. This means that the rows and the columns of

the matrix are lineal combinations of each other. The base of the n-dimensional space defined by this matrix is a line situated in this n-dimensional space and the vectors defining the different commodities (for example, the commodity 1 is defined by the vector $[e_{11}, e_{21}, …, e_{n1}]$) are different parts of this basis. This basis can be interpreted as the common substance of all the commodities, namely, labour.

Hegel uses a similar matrix in his mass chapter. In this case the elements of the matrix are, on the one hand, acids and, on the other hand, bases. The exponent in this case expresses the quantities of the acid and the base which are required for their mutual neutralization. Analogously to the commodity matrix of Marx, we can also form a matrix with the bases as its columns and the acids as its rows (see table 2).

The problem with the matrix formed in this way is that it is not possible to compare the neutralization behavior of the acids, on the one hand, and of the bases, on the other. Each base and each acid is defined by a series of exponents whose elements are not capable of giving the specific property of the respective acid or base. In order to compare, for example, the acids, it would be necessary to have a series of exponents whose unity would be the same for the complete series but different for each acid.

However, this unity cannot be an external unity: rather, in Hegel words, it should be a

"common unity that is for itself" (*gemeinschaftlich fürsichseiende Einheit*) [XXI.349].

For example, if we set 1000 mg of acid as an external unity of the series of neutralizations, we will have a matrix for the nitric acid, sulphuric acid, sodium, lime, magnesium and ammonia (see table 3)

With this external unity it is neither possible to make the comparison between the acids nor between the bases. The reason for this is that with the external unity of 1000 mg acid, we are not able to isolate the peculiarity of the bases, on the one hand, and the peculiarity of the acids, on the other. That is to say, in order to compare the acids in themselves, we have to suppose the existence of a "base as such" with which each of them is neutralized. The same can also be assumed, *mutatis mutandis*, for the comparison of the bases. By this means, we are able to retain only the peculiarity of each acid, on the one hand, and of each base on the other hand, giving no account of which base or acid has been neutralized. The objective is ultimately to obtain a matrix of amount and unities in which the amount will only give an account of the various behaviours of the bases and the unities will only give an account of the various behaviours of the acids. The simplest matrix with such exponents, which are referred to as "equivalent weights", is the following table 4.

Using this matrix it is possible to compare the different neutralization capacities of the acids, on the one hand, and of the bases, on the other. In the former case, we only have to compare the unity of the nitric acid series with the unity of the sulphuric acid series, that is to say, we compare the number 63 with the number 49. These numbers no longer expressed the required proportions of nitric acid and sulphur acid in order to neutralize a particular quantity of odium, lime or any other base, but rather those required in order to neutralize a base as such. Analogously, the amounts 40, 28, 20 and 35 express the proportions which are required for the bases sodium, lime, sulphur and ammonia in order to neutralize an acid as such. Both, the "acid as such" and "the base as such" are concrete universals. The "acid as such" is not a particular acid; it is neither nitric acid nor sulphuric acid, but is something universal. At the same time however the "acid as such" is able to neutralize the bases (it even gives the behaviour pattern of the bases) as if it were a particular acid. The same thing could be said about the "base as such": it is not a particular base but is able to neutralize the acids as if it were a particular base.

Let us now turn to Marx. Within the set of exchange relations between the commodities we do not have two separate sets of elements as in the case of the chemical neutralization. Rather, the commodities located on the rows are the same as the commodities situated on the columns. For this reason, the comparison will not be twofold (between the bases, on the one hand, and between the acids, on the other) but simple, namely, the direct comparison between the commodities themselves. However, the problem that arose in the neutralization matrix is present here once again. As in the former case, we need a unity within the commodities by means of which the commodities may be compared between themselves. In order to make this comparison we isolate a particular commodity which plays the role of "commodity as such". That is to say, we move from the matrix (table 5) tot the matrix (table 6)

If we observe the different exchange relations of the commodities with the commodity as such, we will be able to compare the commodities between themselves.

Table 2:

	Base 1	Base 2	…	Base n
Acid 1	e_{11}	e_{12}	…	e_{1n}
Acid 2	e_{21}	e_{22}	…	e_{2n}
…	…	…	…	…
Acid n	e_{n1}	e_{n2}	…	e_{nn}

Table 3:

	sodium	lime	magnesium	ammonia
nitric acid	$\dfrac{635}{1000} = 0{,}635$	$\dfrac{445}{1000} = 0{,}445$	$\dfrac{318}{1000} = 0{,}318$	$\dfrac{556}{1000} = 0{,}556$
sulphuric acid	$\dfrac{816}{1000} = 0{,}816$	$\dfrac{572}{1000} = 0{,}572$	$\dfrac{408}{1000} = 0{,}408$	$\dfrac{714}{1000} = 0{,}714$

Table 4:

	sodium	lime	magnesium	ammonia
nitric acid	$\dfrac{40}{63} = 0{,}635$	$\dfrac{28}{63} = 0{,}445$	$\dfrac{20}{63} = 0{,}318$	$\dfrac{35}{63} = 0{,}556$
sulphuric acid	$\dfrac{40}{49} = 0{,}816$	$\dfrac{28}{49} = 0{,}572$	$\dfrac{20}{49} = 0{,}408$	$\dfrac{35}{49} = 0{,}714$

Because it is the commodity in which all the other commodities express their value, this isolated commodity plays the role of the universal equivalent. Its problematic status, due to his singular-universal character, is illustrated by Marx through the fiction of an animal which is none of the particular animals, namely, the animal as such or "das Tier"[7]. This "commodity as such", the singular universal of the commodities, is money.

The exponents $p1$, $p2$, …, pn-1 of the vector of (1xn-1), the previous "equivalent weights", are now the prices of the different commodities.

It is worth noting that in the same manner as in the example with the acids whereby the isolated acid was an ideal one, it would also be possible to isolate an ideal or symbolic commodity which would play the role of the universal equivalent of all the other commodities. This ideal commodity, symbolic money, was to appear in the economic arena in the middle of the 1970s with the collapse of the Bretton Woods System.

Conclusion

In my paper, I have tried to show the parallels between the deduction of the mass chapter in Hegel's *Science of Logic* and the so called deduction of the value form by Marx. My interpretation has, I hope, thrown new light on the singular-universal character of money defended by Marx. But there are also some collateral conclusions that are worth highlighting.

The first of these is that value manifests itself in a relational web. This web, represented by the matrix of commodities, describes the exchange ratios between the various commodities and between commodities and money. The value of a commodity is always the value manifested in a given exchange relation. If this exchange relation has the logical property of equivalence, then we may speak of the non-physical but objective character of value. This means that there is nothing like a value prior to the exchange process. Before it has been sold, a commodity is strictly speaking not a commodity but a product and a product has as yet no value whatsoever.

Table 5:

	commodity 1	commodity 2	…	commodity n
commodity 1	$e_{11} = 1$	e_{12}	…	e_{1n}
commodity 2	e_{21}	$e_{22} = 1$	…	e_{2n}
…	…	…	…	…
commodity n	e_{n1}	e_{n2}	…	$e_{nn} = 1$

Table 6:

	commodity 1	commodity 2	…	commodity n-1
isolated commodity	p_1	p_2	…	p_{n-1}

This point is connected to the second conclusion that I want to point out. If value is only manifested in exchange, then the factors that determine exchange, such as the properties of the demand curve will also determine value. That is to say, both demand and labour determine the value of a commodity. The idea of the role of the demand as, so to say, determining value is expressed by Marx through the concept of "social use value" (*gesellschaftlicher Gebrauchswert*).

Last but not least. It is important to bear in mind where Hegel's mass chapter culminates, namely, essence (*das Wesen*). For Marx, the essence is socially necessary labour. The relation between the manifestation of essence (value) and the essence itself is not, however, a relation of causality. This is something that has been forgotten by the previous readings of Marx, and, for this reason the latter should be referred to as "metaphysical interpretations of *das Kapital*".

Notes:

[1] "Im Maße sind, abstrakt ausgedrückt, Qualität und Quantität vereinigt".

[2] In Spinoza, *Opera*, (ed. Gebhardt), Vol. 4, p. 240: "Quia ergo figura non aliud, quam determinatio et determinatio negatio est; non poterit, ut dictum, aliud quid, quam negatio, esse".

[3] "Durch seine Qualität ist Etwas gegen ein Anderes […] bestimmt".

[4] The reflexivity of the relation of equivalence is expressed by Hegel with the term "mutual specification" (*gegenseitige Spezifikation*) [XXI.347].

[5] The exponent is defined by Hegel as the quotient between the amount (*Anzahl*) and the unity.

[6] These exponents are the "qualitative exponents" of Hegel.

[7] Cf. Marx [II.5] p. 37: "In der Form III [umgekehrte, rückbezogene oder totale Form des relativen Werths], welche die rückbezogene zweite Form und also in ihr eingeschlossen ist, erscheint die Leinwand dagegen als die Gattungsform des Aequivalents für alle andern Waaren. Es ist als ob neben und außer Löwen, Tigern, Hasen und allen andern wirklichen Thieren, die gruppirt die verschiednen Geschlechter, Arten, Unterarten, Familien u.s.w. des Thierreichs bilden, auch noch das Thier existierte, die individuelle Incarnation des ganzen Thierreichs. Ein solches Einzelne, das in sich selbst alle wirklich vorhandenen Arten derselben Sache einbegreift, ist ein Allgemeines, wie Thier, Gott, u.s.w. Wie die Leinwand daher einzelnes Aequivalent wurde, dadurch daß sich eine andre Waare auf sie als Erscheinungsform des Werths bezog, so wird sie als allen Waaren gemeinschaftliche Erscheinungsform des Weths das allgemeine Aequivalent, allgemeiner Werthleib, allgemeine Materiatur der abstrakten menschlichen Arbeit. Die in ihr materialisierte besondre Arbeit gilt daher jetzt als allgemeine Verwirklichungsform der menschlichen Arbeit, als allgemeine Arbeit".