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## Negation and Contexture

To begin with we shall have to distinguish between categorial context and universal contexture. Everybody is familiar, from the normal use of conventional language, with the idea of a context. We refer, for instance, to human beings within such different contexts as are denoted by law, by biology, by politics or by history. Within each of these contexts we assign to a person different properties. Within the context of (criminal) law a person may be guilty or not guilty. Within the context of biology we may consider a person healthy or sick, and within the context of politics an individual may be considered conservative or progressive. All these cases have one thing in common: wherever we perform a predication – as e.g. in the proposition: "this person is guilty" – we assign to the object of the predication not only a predicate but also a context within which the predicate is relevant, or not relevant. We are not permitted to ignore this relation between predicate and context. And it makes no sense to say that a sin is triangular or may be octagonal. In other words, the Tertium Non Datur (TND) which decrees that a given datum of experience must either have the property *a* or *non-a* (exclusively) normally refers to a stateable context. Such contexts may be very narrow or extremely comprehensive; but their stateability is always required in order to make Logic applicable to the empirical world. On the other hand, this world displays such a fantastic amount of contexts and demonstrates such an impenetrable incommensurability between uncountable groups of them that it was necessary from the very beginning of the history of logic to introduce a "metaphysical" postulate with regard to the disparity and incommensurability of certain contexts. It was assumed that all contexts are ultimately capable of well ordering and forming a universal system in the sense of the Platonic pyramid of Dialectic. This led to two conclusions which are closely connected with each other. The first is that a statement like "a sin is triangular or not triangular" is meaningful in the sense of the TND and the second that we have to stipulate that the TND may be used in two ways: either with referring to a stateable context or in the sense that it is in principle impossible to indicate the context to which the alternative of position and negation may refer. The history of logic has not always clearly distinguished between the two ways of applying the TND. The context which determines the operational field of the excluded middle in the first case may be of such practically unlimited generality that it may be difficult to find a negation for it which would establish a material viewpoint outside of the proposed context. However, this practical difficulty should not be confused with the principal absence of a context. This latter case has, in the history of logic, found its most famous expression in the *coincidentia oppositorum* of Nicolaus Cusanus.

This raises the question: is the universal system of all conceivable contexts which is denoted by the index of the Platonic pyramid also a context or is it not? The answer is

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rather obvious. A system which integrates all possible contexts cannot itself be interpreted as a context because if it were a context it would have to be stateable as such and materially differ from the other contexts. But this means it would be a potential object of integration itself which precludes that it could take over the function of integrating concepts.

If we still insist on the logical meaningfulness of the idea of a total integration of all stateable contexts it must be something that – although it is governed by the TND – cannot be defined as a context with *positive* properties. We shall call such a domain without positive properties a universal contexture and want to add that it can only be interpreted as an empty dimension which may either be filled with "objects" (scil. contexts) or not.

This means that the TND is still relevant, even under circumstances where its relevancy does not belong to a stateable context. In other words: we have to distinguish between two entirely different functions of the TND which, in the history of logic, have not always been clearly separated: the TND referring to stateable (positive) contexts on one hand, and the TND referring to a universal contexture on the other. In order to illustrate the difference and also the case where the TND is not relevant at all we shall go back to our example about the predication of sin. If we say 'sin is triangular or rainy' the TND is totally inapplicable, because 'sin', 'triangle' and 'rain' belong to three different contexts. On the other hand if we say 'sin is permissible or not permissible' the TND is applicable because sin refers to a context which is positively stateable and which is meaningful for the term to be affirmed or negated. But there is a third case which may be exemplified by the proposition 'sin is triangular or not triangular'. This latter statement should never be confused with our first one that 'sin is triangular or rainy' because in this former case we have arbitrarily chosen for predication two contexts which do not form an alternative in the sense of the TND and which exclude positively other contexts. However, if we state 'sin is triangular or not triangular' our alternative does not exclude any context at all because 'not triangular' may encompass all conceivable contexts except the one to which the term triangular belongs. Thus we are permitted to say that the statement 'sin is not triangular' is in a peculiar and limited way true insofar as this negative predicate implies all possible affirmative predicates which may be assigned to the subject of predication. But if we say, that, owing to the character of implication, there is some sense in saying that such seemingly absurd statement like 'sin is not triangular' covers some hidden logical meaning, the same must also apply to the other predicate of the alternative. What is meant is this: the term triangular is only an empirical index of some hidden 'metaphysical' property. Therefore it could be re-formulated in a way that the total alternative of triangular or not triangular would be applicable to our propositional subject called 'sin'. However, it should be understood that such a re-formulation could not be produced by a finite number of steps. Ergo it can never lead to a context which can be stated in positive terms. What this postulate of re-formulation really designates is what we have called a universal contexture. In other words: an empty domain in which operations may be performed.

Thus we have described two modi of operation for the TND. First it may operate within a stateable context which can be described in positive terms of this empirical world. Second the TND may operate in such way that it encompasses all positive contexts and puts them into relation to something that is not a positive context at all. It stands to reason that in the second case no context can be given for the operation of the TND. It designates a universal contexture. The tradition has old names for the two modes of op-

eration in which the TND may be activated. In the first case where it is concerned with a positive context it applies itself to Existence. In the second case it refers to Essence. Existence has frequently been identified with the particular forms of Being and Essence with Being-in-general as the underlying substratum for all empirical contexts of Existence. Another historical form in which universal contexture has made itself felt in the history of Logic is the *coincidentia oppositorum* of Nicolaus Cusanus. It is highly significant that it is impossible to interpret the *coincidentia oppositorum* as a material context because what coincides in it is the alternative of affirmation and negation. Thus the *coincidentia* is not negatable. But a context has to be negatable in order that it can be exchanged against a different one. This leads us to the conclusion that, if the TND is applied in such a way that no concept can be given as the range of its application, then the result will always be the *coincidentia oppositorum*. At this point Logic transcends into Metaphysics. This is incontestable in the case of Nicolaus Cusanus because he expressly identifies the *coincidentia oppositorum* with God, and since Christianity is a monotheistic religion this identification implies that there is only one universal contexture.

It goes without saying that this sort of argumentation is of little use to mathematics and exact science. For in the classic tradition a universal contexture can only denote a metaphysical entity and it is not our intent to lose ourselves in metaphysical speculations. It seems we have been led astray by following the classical argument. We shall therefore retrace our steps in order to find out whether we have not overlooked something that will permit us to remain with our logical analysis in this world instead of being transported into a mystical Beyond.

We repeat: two interpretations of the TND are extant in the history of Logic. It can be either assumed that the TND operates in a definable positive context or that it is effective although it is on principle impossible to state any positive context to which it may refer. In the first case it is capable of a material interpretation, in the second case it denotes the purest expression of formality. What has been overlooked, however, is the fact that the second interpretation of the TND is ambiguous and can be understood in a twofold way. We may either assume that the exclusive alternative which the formal TND represents may be understood as an alternative between context and contexture, in other words between material content and that which does the containing. But another interpretation is also possible. The ultimate TND may not refer to a positive context because it represents an alternative between two universal contextures. It is evident that the introduction of this ambiguity is incompatible with the total of classic tradition and especially with the philosophy of Nicolaus Cusanus. If we assume that the TND is originally directed by positive contexts which follow each other in a hierarchical arrangement of ever increasing generality, then it follows that the separating power of the TND which keeps an affirmation and its total negation apart grows weaker and weaker the more general the individual contexts become till finally the point is reached where the context becomes so general that the separating power of the TND completely disappears and nothing is left but the *coincidentia oppositorum*. To put it differently: the classic tradition postulates an ultimate collapse of the TND and at the point of the collapse the Physical transcends into the Meta-physical.

However, the recent history of Logic has debunked this type of argument because it involves the idea of a completed (actual) infinity. The elimination of the actual Infinite has been one of the most convincing results of modern set theory.

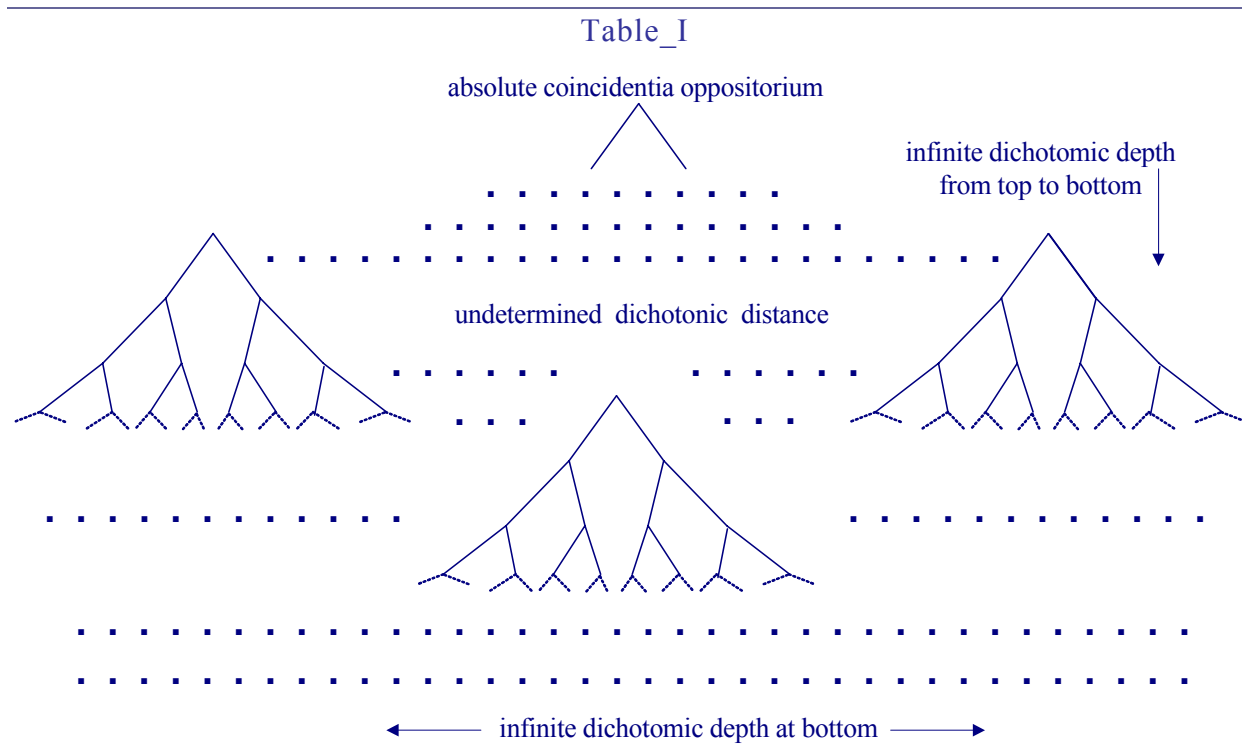
But since the hypothetical collapse of the TND leads us straight into the realm of the actual Infinite it will be necessary to abandon the idea of the *coincidentia oppositorum* as regular and methodical principle of formal Logic. This does not mean, however, that we negate the statement that with the increasing generality of the contexts the power of the TND which separates affirmation and negation becomes weaker. We only note that this is not the whole story and that the classic tradition which in itself is unimpeachable acquires a small of rawness because it more or less explicitly states in its metaphysics that it *is* the whole story.

What we should consider, the whole story reads approximately as follows: While it is true that the increase of generality in the positive concepts diminishes the separating power of the TND for assertion and negation it increases at the same time its power to distinguish between context and contexture.

In order to understand what is meant by this statement we have to consider a peculiarity of the Platonic pyramid of diairesis which has occasionally been noted but never recognized in its full significance. Every logician worth his salt will readily testify to the fact that the Platonic pyramid is never properly drawn on paper if its apex is meant to represent the absolute *coincidentia oppositorum*. Because climbing up the ladder from the *differentia specifica* to the *genus proximum* we never reach any but a preliminary apex which is – no matter how many steps we have climbed and how comprehensive generalities we have attained – still an infinite number of steps removed from the absolute apex of the hypothesized *coincidentia oppositorum* of Nicolaus Cusanus.

On the other hand, we encounter an analogue situation if we descend from the *genus proximum* to the *differentia specifica*. We will never reach the bottom of the pyramid because it is supposed to represent individuals. But no matter how far we descend, we will always encounter *genera proxima* which afford us the opportunity of further dichotomies. There is no level reachable by a finite number of steps where we could say, that we have ultimately reached a basis of data that are no longer amenable to further dichotomies. The Platonic pyramid is bottomless! The indivisible individual is as much a metaphysical hypostasis as the absolute general which encompasses "everything".

It follows that a diagram of the Platonic pyramid should look as shown in Table\_I. The top of the pyramid should be separated by dotted lines from its lower reaches in order to indicate the immeasurable distance between them. Their dichotomies should be disconnected in order to indicate that their common basis and ultimate connection at the bottom is unknown and unknowable. The consequence is that the Platonic pyramid as drawn in Table I contains logical incommensurabilities because it is impossible to define properly the logical relations between the three systems of dichotomies which we have drawn in the middle of Table I. It is quite impossible to say how many dichotomies they are apart. For this very reason they must be considered as indexes of different contexturalities. We have introduced the idea of the universal contexture in order to bridge the gap between the individual and the general. It is obviously not bridgeable in a world the structure of which is mono-contextural. But this mono-contexturality is exactly what our classic scientific tradition assumes. Under the circumstances it is no wonder that complaints have been heard all through the history of Western civilization that Logic is not good enough to describe the richness and intricacy of empirical existence.



The complaint is justified insofar as in the history of Logic the theory of the general has been assiduously cultivated but rarely the theory of the individual and particular. With regard to the Platonic pyramid the trend has always been up and up to higher and higher generalities, but rarely down to the bottom where materiality was located. Thus we have very few investigations about the problem how Form and Matter are related if we interpret Form as the mould of the general and Matter as the spawning ground of the individual. The Platonic diairesis is an expression of the tendency to sublimate Matter and to thin it out till the development culminates in the Aristotelian absolute Form of the Form.

It will be the task of the Logic of the future to prevent this thinning out of materiality and to retain individuality from the bottom to the top of the system of diairesis. In order to do so we have first to investigate what is meant by individuality in contraposition to generality. We begin by removing a popular misconception about the relation of 'Form and Matter' as represented by the difference between the bottom and the top of the Platonic pyramid of diairesis. In the Aristotelian system of development the beginning is represented by the totally formless *hyle*, the mere materiality. The end by an emerging form which has nothing but itself as content. We shall see there will be very little to quarrel with the Aristotelian concept of a form of the form if we interpret it as the peculiar relation of two-valuedness to its contextural envelope. So much the more, however, we have to criticize the concept of mere materiality. From it has developed the 'Weltanschauung' of vulgar or naive materialism in contrast to what is nowadays called dialectic materialism.

Nobody can really understand how Matter as conceived in the classic tradition can be the carrier of individuality. The first great system of materialism is Democritus' theory of the atoms. Matter is here an indefinite plurality of indivisible entities called "atoms". But they have as such no different individualities. What they have in common with in-

dividuality is nothing but the logical element of quantity and unity because it is senseless to talk of individuals unless there are at least two, or better many.

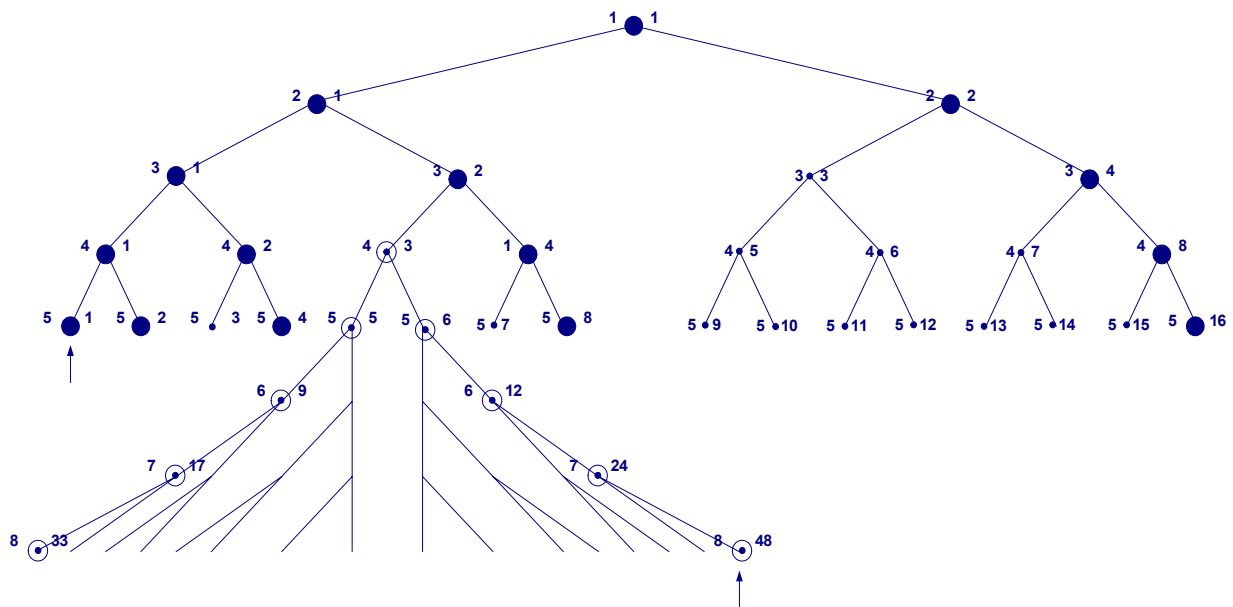
More important is a characteristic which they share with the *coincidentia oppositorum*. Since the latter is located at the top of the Platonic diairesis and the former at the bottom we notice in both cases a peculiar metabasis eis allo genos. The Platonic pyramid is nothing but a system of dichotomic relations where the apex as well as the basis is on principle unreachable, as we should never forget. But Democritus' atoms are objects and not relations and the coincidentia oppositorum as the dissolution of all differences also signifies the absence of all relation. In other words: the *coincidentia* as well as the atoms are mythological projections of basic structural properties which the Platonic diairesis displays. The properties we are referring to are: unity, plurality, symmetrical and nonsymmetrical relation.

In the classic tradition the striving for unity dominates at the expense of plurality and individuality. This theoretical trend is accompanied by heavy value accents of ethics which point out that the top of the pyramid is "better" than the bottom. It followed that the problem of the many-foldness of individuality was more and more neglected. The further science advanced the more transparent it became on account of the increasing simplicity of its basic concepts. An anecdote (perhaps apocryphal) ascribed to Einstein illustrates what we mean. This famous scientist was once asked why he had developed the Theory of Relativity. According to the story he answered: Because I found the ideas of Newton too complicated.

The trend toward simplification, however, has nowadays reached a point where very little more can be done in this direction. Moreover in recent time a host of new problems has emerged which demand for their treatment exactly the opposite, namely an increase in logical structure and a growing complexity of relationships. In other words: the guiding motive is not at the top but of the bottom of the pyramid. It is the bottom of the pyramid where the problem of the universal contexture and the idea of poly-contexturality emerges. The Platonic diairesis represents a mono-contextural system by gradually wiping out all multiplicity. This has an appearance of justification insofar as all dichotomic relations at the bottom are undistinguishable and if we replace them with Democritus' "atoms" the same has to be said about them. It is only a multiplicity of what is always the same. The atoms – or whatever we may call these ontological fix-points – are no individualities because they are no systems with an internal organisation. But they may serve as focal points from which individualities come forward.

On account of this origin the first that must be said about universal contextures is that they form a hierarchy with elementary contextures at the bottom and compound contextures arising above them in ever increasing complexity of their compound structure. The elementary contexturalities have something in common with the Democritic "atoms". They are totally indistinguishable from each other and differ only by number. But there is something else which they have not in common with the said atoms: they are systems of two-valuedness and the atom, of course, is a one-valued entity. Insofar as they have, by dint of their two-valuedness a diairetic property and on account of their unity a similarity with the atoms, they bridge the antinomy that, wherever we establish our bottom of the pyramid, we find only diairetic fissures although we are forced to think if we would only penetrate deeper, we could at last encounter ultimate entities which are units. The universal contexture is a manifestation of this dialectical relation.

Table\_II



The process of gradually shaping individualities out of mere separate entities begins when a universal contexture joins other contextures in such a way that the result is what we shall call a compound contexture. A compound contexture does not originate if we just gather at our stipulated bottom of the pyramid a smaller or larger amount of elementary contextures. It is required that a compound contexture "closes" at least a single diairesis which holds between two elementary contextures. A compound contexture, even in its most elementary form, extends at least over three diairetic levels of the Platonic pyramid. In order to understand what is meant by that last statement we introduce Table\_II in which the starting points of the two-valued dichotomies have been made identifiable by two numbers, one ahead and one behind the point of the departure of the diairesis. At some exceptional points the bifurcations have been made to stand out by separating the two numbers by big blackblobs the meaning of which will be explained later. The top of the pyramid is denoted by 1•1 and the basis by 5•1, 5•2, 5•3, 5•4, 5•5, 5•6, 5•7, 5•8, 5•9, 5•10, 5•11, 5•12, 5•13, 5•14, 5•15 and 5•16.

After what we have said before it should be understood now that the sequence of numbers, enumerated at the end of the last paragraph may be interpreted in two ways. If we assume that this is the absolute bottom of the pyramid and no further dichotomies are possible, then our numbers – no matter whether they are separated by blob or not – play the part of entities which are indivisible and which may be interpreted as the ultimate building-blocks of Matter... whatever that may be. On the other hand, if we assume that the pyramid is supposed to extend further down then each pair of numbers represents a two-valued system and as such an elementary contexture. It follows that terms like indivisible unit or ultimate object on the one hand, or contexture and compound contexture on the other hand are entirely relative. What may be considered an indivisible unit on one level of the pyramid may be a contexture on the next provided apex and bottom of the pyramid are shifted. But since we interpret a contexture as a closed system with an infinite range of two-valued properties we may as well interpret the data which are supposed to fill the contexture as irreducible properties of a universe based on the principle of duality or as predicates of a two-valued logic. In both cases we have abandoned the purely structural viewpoint and entered the semantic sphere.

It will be useful, for the time being at least, to stick with the consistent structural viewpoint and consider the points where dichotomies start either as indivisible units or as systems of duality. Whether we prefer one or the other interpretation depends entirely on the answer to the question: is a given starting point of a dichotomy to be considered in its relation to another starting point which is "higher" or "lower" in the Platonic pyramid. Relative to what is lower it is to be considered a contexture, relative to what is higher it must be understood as part of the duality which is content of the contexture above. (It is to be understood that we talk about such points which are connected with each other by lines of dichotomy).

After we have re-interpreted the relations between *genus proximum* and *differentia specifica* in the Platonic pyramid as relations between a system and its content – where the contents are totally ordered in the duality of position and negation – it should be clear that the Platonic pyramid has a certain affinity to many-valuedness. Such affinity is highly probable if we let us be reminded of the fact that already a three-valued system displays a specific value-duality which, however, is essentially different from the value-duality of classic Aristotelian logic. In the latter the contra-position of 'positive' and 'negative' is symmetrical as the Platonic pyramid shows. In a three-valued system two-valuedness returns as the alternative between acceptance and rejection values. This transclassic alternative has in common with the classic alternative of affirmation and negation that both are unrestrictedly governed by the TND; but whereas in the classical case the negational relation is symmetrical it is non-symmetrical in the trans-classic case.

It is always a two-valuedness which is rejected by a single value. This is enough to say that the Platonic pyramid has some relation to the theory of universal contextures for which the development of many-valued systems is necessary although this relation is not identical systematic arrangement of *genus proximum* and *differentia specifica* which a diairetic pattern displays.

In order to show the difference we have mapped the organization of a compound contexture which is carried by a five-valued system of logic onto the Platonic pyramid in Table II. It is assumed that 5•1 at the basis of the pyramid is an affirmative property, of a universe and it is connected with its negation, denoted as 5•2, in the two-valued system 4•1. This two-valued system is, in its turn, a member of a duality to which also 4•2 belongs. These two systems are related to each other within 3•1 which is, in its turn together with 3•2 connected in 2•1. We finally reach the apex of the pyramid when we ascend to 1•1 which contexturally unites 2•1 and 2•2.

Thus we have obtained four pyramids. The first with the apex 4•1 and the basis formed by 5•1 and 5•2. As apex of the next pyramid we have determined 3•1 with the intermediate stages of 4•1 and 4•2 and the basis 5•1 and 5•4. The apex of the next pyramid is located at 2•1 and runs on the left side through the dichotomies 3•1, 4•1 to 5•1. And on the right side through 3•2, 4•4, 5•8. When we finally reach the top, 1•1, we have only to add that 2•2, 3•4, 4•8 are the intermediate stages through which we reach again the bottom at 5•16.

It is now necessary to explain why there is no arbitrariness in the arrangement of the blobs which represent focal points in the structure of a compound contextuality which is supported by what we may either call (if we speak in logical terms) five values or 5 properties of the universe (if we talk in ontological terms). The basis enumerates – in terms of many-valuedness – sixteen potential values of which only five are emphasized

by blobs as belonging to the structure in question. The reason for these omissions is our demand on the TND which we discussed above, namely that the logical distance between position and negation should be infinite in order that no context stateable in positive terms could bridge the distance. We have indicated this in Table II (in the upper part) by placing the blobs only at the suitable points where the quoted demand can be satisfied. There is no difficulty about the first dichotomy counting from the left. There is nothing in between 5•1 and 5•2. Both refer to their apex 4•1. The same is to be said for the small pyramid with the apex 3•1 and the base 4•1 and 4•2. But the situation is different for the pyramid apexing in 3•1 and having its base in 5•1 and 5•4. In order that 5•1 and 5•4 should satisfy our requirement for the TND with relation to 3•1 it must be conceded that 5.3 does not belong to the structure in question. For the very same reason no blobs are attached to 5.5, 5.6, 5.7 and 4.3. The same holds for 5.9 to 5.15, also for 4.5 to 4.7 and finally for 3.3.

The distribution of the blobs in relation to the apex 1•1 represents the mapping of a compound contexture onto a finite part of the Platonic diairesis, if our compound contexture is developed as a place value system of logic with five values. The part of the values is played by 5•1, 5•2, 5•4, 5•8 and 5•16. If we arrange the values now as two-valued systems by connecting them with double-headed arrows (such arrows represent symmetrical exchange relations) we obtain ten two-valued systems which we have arranged in a significant order as follows:

$$\begin{aligned}
 &5\bullet 1 \leftrightarrow 5\bullet 2 \\
 &5\bullet 2 \leftrightarrow 5\bullet 4 \quad * \\
 &5\bullet 4 \leftrightarrow 5\bullet 8 \quad * \\
 &\underline{5\bullet 8 \leftrightarrow 5\bullet 16 \quad *} \\
 &5\bullet 1 \leftrightarrow 5\bullet 4 \\
 &5\bullet 2 \leftrightarrow 5\bullet 8 \quad * \\
 &\underline{5\bullet 4 \leftrightarrow 5\bullet 16 \quad *} \\
 &5\bullet 1 \leftrightarrow 5\bullet 8 \\
 &\underline{5\bullet 2 \leftrightarrow 5\bullet 16 \quad *} \\
 &5\bullet 1 \leftrightarrow 5\bullet 16
 \end{aligned}$$

To certain of these two-valued systems we have attached stars, to others not. We shall call those which have no stars orthodox systems and the others non-orthodox systems. The first example of an orthodox system is the mutual negation of 5•1 and 5•2, being the result of a dichotomy in 4•1. The first example of a non-orthodox system is given by the alternative of 5•2 and 5•4. Their antithesis does not stem from the same immediate apex; they refer to two different apexes which in turn form an orthodox alternative with regard to the apex 3•1. The un-orthodoxy of this relations results in the fact that already in three-valued logic we can introduce a new trans-classic two-valuedness between acceptance and rejection values. Relative to 5•1 and 5•2 the value 5•4 plays the part of a rejection value. It rejects the alternative which springs from 4•1. However, since we know from a former publication that each of the three values 5•1, 5•2 and 5•4 can assume the part of the rejection value it pays to have one more look at Table II because the Table shows graphically that all three cases of rejection have a different meaning. Only 5•4 rejects the alternative springing from the

apex 4•1. If we, however, accept 5•1 as the value of rejection then the alternative between 4•1 and 4•2 is rejected. And if 5•2 takes over the rejection function, then it is concerned with the denial of 3•1 as the source of the alternative between 5•1 and 5•4. If we move farther from the left to the right we encounter again, both categories of two-valued systems – orthodox and non-orthodox – with the only difference that with regard to the rejection the situation becomes increasingly complex.

What the upper part of Table\_II illustrates is the way how a five-valued system makes its influence felt in the Platonic diairesis, extending from a properly locateable property (or predicate) which in our case is 5•1. We have indicated this orientation by placing a vertical arrow under 5•1. But, if the apex of our pyramid is supposed to remain 1•1, there is, of course, only one other point which may be considered as basic place of orientation. This is 5•16. However, in order not to interfere with our blobs in the upper part of Table\_II we have chosen for the demonstration of the re-orientation of our five-valued system from 5•1 to 5•16 not the upper part of the Table but the lower pyramid which apexes in 4•3. One should, of course, always keep in mind that every origin of a dichotomy could be considered the apex of a Platonic pyramid which reaches down into infinity. But we have chosen 4•3 because it is one of the two dichotomic points on the fourth level of the pyramid with apex 1•1 which is not affected by our shift from the left to the right side of the pyramid. In the lower pyramid with the apex 4•3 the circles assume the functions of the blobs but their distribution is now anchored in 8•48 which corresponds with the previous 5•16 instead of 8•33 which has taken over the part of 5•1.

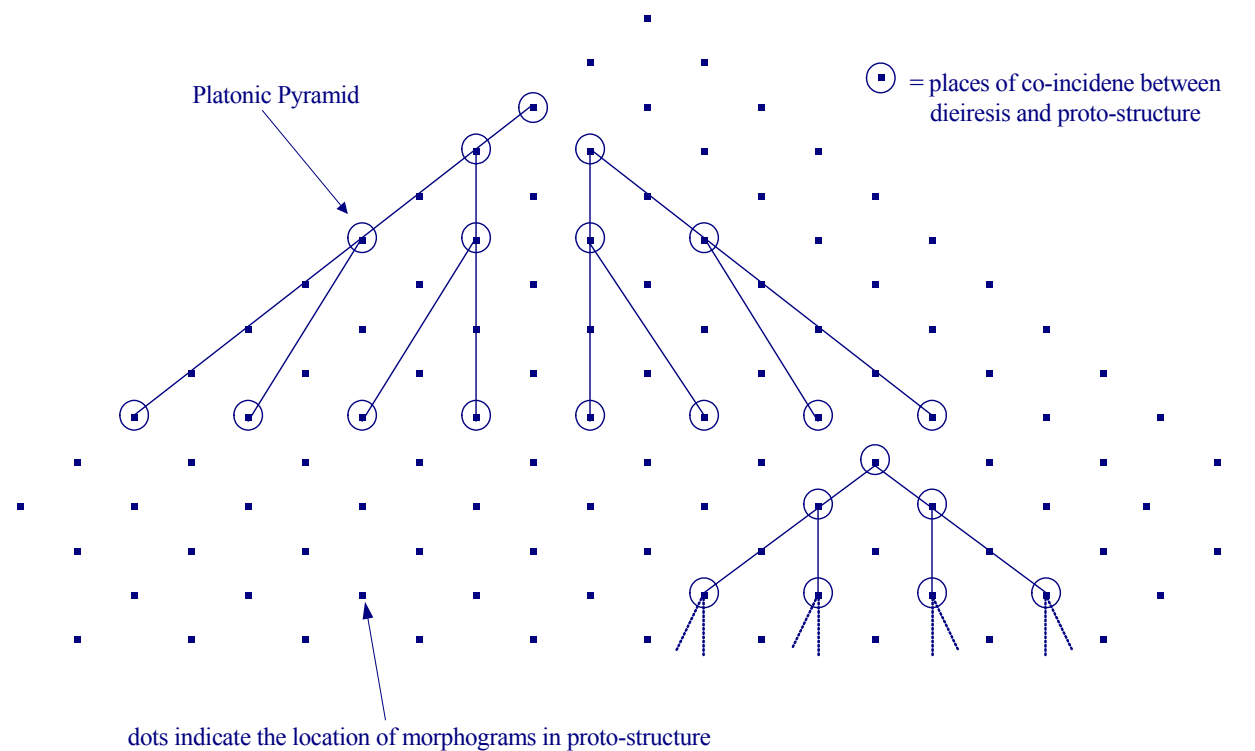
It is obvious that if we shift our five-valued system of compound contexturalities from 5•1 to 5•16 we obtain a mirror image of the original constellation. But the system of the circles orientated towards 8•48 also represents a mirror image of the original system anchored in 5•1. What we want to show here – although in a too elementary and incomplete form – is the difference of two mirror images on different levels of generality relative to one which is stipulated to be the original. Insofar as our universe has in a certain (although very restricted) physical sense a mirror image for every fact and event we are also aware of the fact that intelligent living systems are capable of creating so-called mental images from the same original set of data. Logic has never cleared the point how the physical image is related to the mental image. So much the more as for one single physical image there are an infinity of equivalent or not equivalent mental images.

The relation which Table\_II establishes between the original five-valued system and two of its images where one is its exactly symmetrical reversal is a necessary but by no means sufficient condition to solve the problem of reflection with regard to the concept of poly-contextuality.

In order to enlarge the scope of the problem we intend to remind the reader that, what we have done in Table\_II is a mapping of a compound contexture represented by a five-valued logic onto the Platonic pyramid of *genus proximum* and *differentia specifica* in three different ways. However, we may also map this pyramid in its turn onto the kenogrammatic structure as we have shown in a previous essay. Table\_III offers a sampling of such mapping. The pyramid of dots represents the order of the morphograms within proto-structure and the apex of the upper Platonic diairesis is located where we write, in proto-structure, the morphogram a a a . The lower Platonic pyramid starts with the morphogram a a a a b c d e f g h . In both cases the location is arbitrary and we might

take any other dot as apex of a diairetic pyramid. The relation of the pyramids, of course, becomes more intricate if we map them onto deutero- structure and even more if we use trito-structure as background.

Table\_III



This situation reveals a peculiar relation between logical values and contexture, provided we are not satisfied to confine ourselves to two values. If we do so the relation between logical value and contexture is very simple. All applications of values constitute an elementary contexture. It goes without saying that the TND is not restricted to a positively stateable context. *On the other hand, if we accept more than two values, and develop logic as a place value system of classic two-valuedness, the relation between value and contexture assumes for us, who are still too much accustomed to classical thinking habits, a very involved aspect. On the one hand, we may map many-valued systems which represent compound contexture – no matter how complex they are – onto the Platonic pyramid thus justifying the claim of the traditionalists that many-valued logic is superfluous because everything reverts ultimately to the Platonic-Aristotelian concept of logic. But we may also revert the whole process and map the Platonic pyramid in an infinite variety of ways onto the kenogrammatic structure.* Considering the fact that the apex of the kenogrammatic structure can also not be reached in a finite number of steps from every mapping we do, we are forced to the conclusion that, whenever we map a many valued system onto the Platonic pyramid, this very pyramid and what is mapped onto it is includable into a kenogrammatic structure which can harbor compound contexturalities of higher complexities than the ones which have been mapped onto the pyramid. But then again, this kenogrammatic system which encom-

passes a Platonic pyramid and what has been mapped onto it can, in its turn, be mapped again onto a Platonic pyramid.

It is useless to ask what is the highest and most universal system which includes everything. Is it the system of diairesis or the kenogrammatic structure? We might as well ask what was first, the egg or the chicken. But, although this question cannot be answered, because it is erroneously posed, a different question can be answered: Is the structure of the universe we live in mono-contextural or poly-contextural? The answer must be in favor of poly-contexturality for a reason which is well known in modern logic. A monocontextural universe in the Platonic sense would represent an actual infinity in which the infinite number of steps toward the *coincidentia oppositorum* has been completed. A poly-contextural universe does not imply such completeness, it harbors only potential infinity.

In order to introduce a plurality of universal contextures it is not necessary to assume that in any of the contextures all performable operations have actually been performed. The only requirement which is necessary is the functioning of the TND in the way that has been described above.

There is one more objection to poly-conetxturality that we have to deal with. Since the Platonic diairesis always alternates if with contexture we try to extend the scope of our logical system and the number of alternations must always be finite – why not always stop with the diairetic arrangement arguing that only resembles the absolute state of logic which Nicolaus Cusanus envisioned in the *coincidentia oppositorum*? This question misunderstands the relation between value and contexture.

Every student knows that the higher we climb in the Platonic pyramid the more general our concepts become the emptier they are of individual detail. Just the opposite is the case with the order of the universal contextures. The more we add – starting with the single contexture of a solitary two-valued logic – the richer the detail becomes and the more individuality is developed. We have introduced the concept of the Universal contexture in order to compensate for a fundamental omission of classic logic. There is no doubt that the *coincidentia oppositorum* represents the idea of a final unity into which the variegated plurality of objectivity is supposed to melt. The classical tradition had no motive to go beyond this idea because it was her ambition to develop a scientific theory of a subjectless universe. On the other hand, the religious component of this tradition raised the claim that the *coincidentia oppositorum* was really God himself. The upshot was that this tradition found itself in a quandary when it was called upon to distinguish between generality in the *object* and generality in the *subject*.

If we talk about generality in the subject we mean by the term 'subject', this focal point within the sphere of consciousness which in everyday language is called a soul. A logic of the future will have to draw a most rigid distinction between unity in the object and unity in the subject. But unity in the subject is something totally different from unity in the object, Where the latter is concerned we know that the more comprehensive a context of objects becomes the less individual distinction it shows till finally in the idea of Being-in-General all distinctions are obliterated. It is just the opposite with subjective unity: the more comprehensive it becomes the sharper it is delineated and the more pronounced it contrasts itself from other units of subjectivity. "Soul" in a model of flatworms almost resembles the *coincidentia oppositorum*. Soul in a pride of lions shows already rather sharp delineations which contexturally separate one animal from the other. But the more comprehensive and encompassing the sphere of consciousness be-

comes the stronger grows its unity and the more unsurmountable become its contextual borders. Consequently the opportunities for disharmony and strife are much greater in a human society than in a state of bees.

All these are data that have been known before empirically and they violently contradict each other within the frame of the Aristotelian system. What is required now is a logic which combines both: the characteristics of objective unity concentrated in the so-called "It" and the features of the subjective unity centralizing themselves in the so-called "Self". This can be done by resolving the age-old distinction between matter and form into the new one between content and contexture. The distinction between matter and form remains rigid till we reach the metaphysical level of the *coincidentia oppositorum*. But the distinction between content and contexture is fluid from the very beginning. If we take an "individual" in the world – let us say a, molecule – it is relative to smaller units a contexture, but relative to higher units content of a contexture. This is the reason why we have to distinguish between content, individual contexture and compound contexture. Within a compound contexture the elementary contextures revert to the role of the contextual content.

Consequently the Platonic diairesis, which seemed to be eliminated creeps in again when the relation of the elementary contextures to compound contextures is analyzed. This process repeats itself again and again the more encompassing our compound contextures become. There is obviously a trend towards unity in the classical sense. But this very trend is counteracted by the fact that a compound contexture can never increase its scope unless it increases the contextual differences within its own confines. But this increase contradicts the trend towards unity in the objective sense of the *coincidentia oppositorum* about which Hegel once remarked in the preface of the *Phenomenology of Mind* that all cows are black in the night of the absolute. If we recognize the absolute unity in the objective sense as the total obliteration of all differences the absolute in the subjective sense would have to be defined as the total obliteration of all sameness.

It is obvious that, if we want a logic which is competent to describe a universe that is a compound of subjectivity and objectivity, we require a logic which represents essentially a compromise between these two logical trends. In other words, we have to abandon the theory of mono-contextuality and replace it by a logic of polycontextual systems.

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