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THE RELEVANCY OF ARISTOTLE'S THEORY OF CHANGE TO MODERN ISSUES (E.G. CONCEPTUAL CHANGE)

In *Metaphysics*, B VII, Aristotle presents the problem of defining the nature of primary substance by first assuming certain obvious characteristics and then expanding the analysis in order to avoid certain impossible conclusions which one might draw if one restricts himself to those obvious characteristics. That initial outline of the nature of substance consists in the following: Substance is that which underlies primarily a thing in a way that it is not (the substance) predicated of anything else while every thing is predicated of it. But for Aristotle, it seems that if we state just this we could not think of anything else about the nature of substance other than being merely matter. This is what will remain of a thing if we take out all its definite characteristics. This is precisely what is wrong with matter or with the first outline of substance for we are faced with a kind of primary substance which results after all possible determinations of a thing have been taken away. In other words, it seems impossible that the nature of the primary substance of a thing would turn out to be insufficient to relate with the particularity of the thing, the «this» of it, or simply its name.

Therefore forms must belong to the nature of substance as well. An adequate description of the nature of substance can only be given by an appropriate account of the assumed matter-form combination, an account which will be rather demonstrative of the function of this combination in accounting for the nature of substance and at the same time of Aristotle's motive in introducing substances. This motive is probably the most important reason. Plato gave priority to the forms and Democritus to matter. So the impossibility for Aristotle to settle with matter alone or with forms can only mean a desire to get over inadequacies of these doctrines, inadequacies which cannot be overcome by assuming a mere compound of them. Such a combination unless it is a sophisticated synthesis would imply a possibility of physical separation of forms and matter rendering the compound a mere 'posterior' of them, unsuitable to represent the nature of the primary substance. The inadequacies of the Platonic and the Democritean doctrines can



be seen with respect to the possibility of giving an intelligible account of change.

Change really means two things. Firstly, the possibility of assigning a name to a given set of characteristics, in view of common relationships among those characteristics. That gives us an object to which we can refer when we talk about change. Secondly, the possibility of considering a substitution of some characteristics of the object as not sufficient to render the name given to the previous set of characteristics totally irrelevant and inappropriate to the new set of characteristics. The hard problem comes from that second part for what we need in order to have a reason to use the same name, some how, after the substitution of some characteristics with others, is a relation defined by all the characteristics before the substitution and at the same time not by all. In other words, we need to have something which can be preserved after the substitution of certain characteristics but its relation to the whole is equally essential before and after. This kind of 'unchanged change' could not possibly be compatible with the purely unchangeable Platonic forms. On the other hand, Democritean atoms could not provide but an «accidental» account of the various instances of the changing material world. It is this kind of unchangeable yet changeable, most perplexing nature of substance of things with which Aristotle has to deal in order to surpass the inadequacies of the other doctrines and give an account of change.

However, there is no simple combination of form and matter that will be sufficient to preserve the identity of a changing object. What Aristotle does, seems to me that it far exceeds any kind of combination however sophisticated. He above all introduces a conceptual change about the role of form and matter in reality.

The unchangeable yet changeable nature of substance, that perplexing 'something' which relates equally essentially to the whole 'before' and 'after', has not been discovered as one of the possible combinations of form and matter for there was not any such possible combination, instead it has been assumed. The 'one' which can afford change and still be the same one, the substance of change, could not have appeared in some other way.

Matter and form continue to be involved terminologically in descriptions of this new concept of substance. However, its main characteristic which is its time-dimension is to be accounted by concepts like 'essence' and especially by 'potentiality' and 'actuality'. A thing changes over time but it continues to be its essence which at any moment is represented by its actualized and its unactualized potentialities, namely the thing itself. The nature of substance is the essence, the definition of the thing, which is however under-

lied by matter (the substratum). (But there is no connection of that sense of 'underlying' with 'priority' of any kind. It is such a material priority that Aristotle rejects it in his first outline of substance). Considering the meaning of change as analyzed above and the task that Aristotle had to accomplish in giving an account for it, one can give the following plausible interpretation of the nature of his substance and the new role of forms and matter with respect to it. Aristotle basically introduced axiomatically the concept of change itself as potentialities actualized over time. Such a process is the manifestation of his substance of things in which matter has the role of an underlying substratum, forms describe the actual characteristics of the thing at any given time, and potentiality, an almost arbitrary assumption that we can essentially relate different actualities at different times and assume that they are materially grounded, thus enabling us to name an object and preserve meaningfully that name over time and after alterations.

Conceptual Change.

By an account of conceptual change I mean a unified account of the conditions under which an individual or a group of individuals come to have a different opinion about a certain part of the world or their relation with it from the one they had before. In this paper I wish to examine the possible implications that one could derive from Aristotle about theories of conceptual change and also the limitations that such a philosophy imposes on them. I will try in particular to see how Aristotle's philosophy is reflected in his logic, especially the law of contradiction, thus reducing to a less unmanageable task the comparison with relatively modern theories by examining them basically from the way they are also reflected in attitudes towards the law of contradiction and the question of relation among logic, language and the world. In the light of this, I will try to examine to what extent Aristotle, the philosopher who first defined 'change', is still competitive with respect to problems of conceptual change with modern approaches.

In Book IV of the *Metaphysics*, Aristotle states 'the principle' which was going to provoke end less philosophical and logical controversies: «The same attribute cannot at the same time belong and not belong to the same subject and in the same respect». Aristotle, in defending the law of contradiction, reveals, I think, the basic aspects of his philosophy.

His defense is concerned with two kinds of objections: a) the objection from those who deny the law of contradiction for the sake of argument and b) the objection from those who deny it because of their observation of the world.

The way he faces the first objection is by arguing in general for the necessity of determinateness in meaning. That necessity is indicated by the simple needs of communication. To say something is to say something definite, i.e. 'x'. That presupposes the law of contradiction for otherwise nothing would prevent that saying from being 'not x' at the same time. His argument against those who demand proof about anything can be seen also as part of Aristotle's desire for definiteness, for to give a proof of everything means to get indefinitely involved in an endless demonstration where nothing could be finally demonstrated and knowledge would simply be a word without any meaning. Aristotle's doctrine of essence is also directly related with the need of significance and hence the law of contradiction. If anything can be equally truly attributed to a subject, there would be no essential nature but only accidental characteristics. Aristotle deals with the second objection arguing again for a kind of determinateness or definiteness, but this time it is more like a definiteness in reality rather than in meaning.

He uses his 'principle' against Anaxagoras, by pointing out that «... if all contradictory statements are true of the same subject at the same time evidently all things will be one... And thus we get the doctrine of Anaxagoras that all things are mixed together so that nothing really exists» (1007 b20-27). Of course, the conclusion uses as premise Aristotle's view that something exists only if it is something definite. Not even change could be interpreted as indicating the non-definiteness of reality, for in order to have change there must be something which remains unchanged through change. Claims against the law of contradiction because of certain observations of the changing reality cannot thus be true. This also holds because pure sensation is infallible and could never say at the same time of the same object that it is simultaneously «so and not so» and appearance which could be in error, represents an error in judgement which has no implications against the Law of Contradiction.

Aristotle's defense of the law of contradiction brings together indeed the most important characteristics of his philosophy. The ordinary use of language, the doctrine of essence and that of his substance which underlies change, are all used in supporting the laws of contradiction in the two fronts of meaning and of reality. But what is now important is to realize the implicit unification of these two parts in view of the status of the principle of contradiction both as a law of thought and a law of reality. As a matter of fact it is a principle of being (of all that is) which as it appears from the way it has been defended, represents the definiteness of being, in both of what I think its isomorphically related aspects, thinking (of the mind) and things (of the material world).



If now language can be naturally assumed that it reflects the structure of the mind it does also reflect through isomorphism the structure of the world. Linguistic ontologism or since the law of contradiction is an axiom of logic, logical ontologism is one way of characterizing Aristotle's position and a useful way too for the purpose of this paper.

The next question is now what are the implications of this isomorphism of thought and reality to our account of conceptual change.

This isomorphic relation is really very interesting for conceptual change mainly because of two basic characteristics. The first one is that the thinking does not depend on reality absolutely as for example it would have been if thoughts or ideas were a mere reflection of reality. On the other hand, the thus resulting autonomy of thinking does in no way lead to subjectivism. For although thought does not passively reflect reality there is the coincidence of their isomorphic structures into possible objects of experience. That does not guarantee truth but it guarantees the possibility of truth.

Thinking is always meaningful with respect to reality although particular thoughts and ideas do not necessarily correspond with it. In other words, a thought and its corresponding, through isomorphism, real element do not always coincide in some actual object of experience. But what makes error possible makes truth possible (as an interesting, non empty concept due to the contingency of correspondence) and even further, it makes conceptual change possible in the way it has been defined in the first paragraph of this paper, also in a way that is consistent with Aristotle's definition of general change. The main idea in approaching conceptual change is to examine, given the assumption of isomorphism, the application of the essential feature of change in general, that is the actual-potential distinction in thought. However, before going further into such an attempt certain difficulties ought to be examined first.

An element of the objective world whether a thing or a process basically is while a corresponding element in thought both is and is about. Therefore, a direct transportation of the actual potential distinction in thought ought to take care of the further distinction which results from the accommodation of the actual-potential either in the 'is' or the 'is about' of thought. A state of thought could consist, if that distinction had not been made, of actual thoughts which would be about actual reality and potential thoughts, although not recognizable, about potential reality. Then conceptual change could be seen merely as an isomorphic image of the change in reality. But this simple state is unattainable after the distinction of 'is' and 'is about' of thought and I think it is for the better too for conceptual change. The simplicity of this situation can hardly not be seen as thought passively reflecting reality. That

simplicity also goes beyond the assumption of isomorphism, for isomorphism between two structures does not entail any necessary definite causal relation between them or domination of the one over the other. It only entails the possibility of a causal relation, a possibility that is in our case prevented from becoming a necessity because of the twofold 'is' and 'is about' aspect of thought. In other words to accept this isomorphism, an ontological assumption so that thought can be meaningful about reality requires that thought contain everything that belongs (or is thought to belong) to nature, originally and not after mere reflection.

Therefore, the imported through isomorphism actual-potential distinction in thought becomes: actual thought about actual reality; potential thought about actual reality; actual thought about potential reality; and potential thought about potential reality. It is the admittance of all those possibilities that makes actual or potential thoughts about actual or potential reality also distinguishable independently of reality, following their own process (dialectic?) of actualization of potentialities. Under these conditions thought although constantly about reality undergoes change in a way that satisfies both requirements of change, namely, alteration and some preservation of identity. The preservation of identity is achieved in terms of a constant reference of thought to a part of reality. That part undergoes its own development representing at any moment its actualized and its unactualized potentialities and we already assume because of that a preservation of identity. Therefore, for the 'is about' of thought there exists 'something that remains' through change. But since thought contains also its own independent potentialities, their actualization is possible without following some corresponding actualization in reality. That 'following', if necessary, would reduce thought into a passive reflection. It would also destroy its identity throughout a given period of time for it would render impossible any kind of fixation of reference. Conceptual change would then be impossible and together with it the loss of any definite being of thought. (We can notice how intrinsically related appear here the concepts 'change', 'definiteness' and 'being' a feature that in my opinion is historically the most important feature of Aristotle).

It would be interesting now to examine what limitations, if any, Aristotle imposes on possible accounts of conceptual change.

The assumption of isomorphism fruitful as it might have proved for the relation between language and the real world and eventually for conceptual change, does have its own shortcomings too. Their analysis would be useful in determining whether major changes in the history of philosophy have made at the same time any advances with respect to these shortcomings, or what advances could in general be made. For that we have to look again

into Aristotle's definition of change and examine it a bit more closely.

As I have argued in the first part of this paper, Aristotle's definition of change represents an axiomatic incorporation of time into the objects of experience which brings up their essence as their actualized and unactualized potentialities. This process which represents change for Aristotle is at the same time a manifestation of what he considers to be substance. This happens in a way that an alternative definition of change could be given as the property of substance (if the word 'property' could have any meaning while applying to substance).

This relation of change and substance makes change unlike Heraclitean change, consistent with definiteness and as a result, a change that has been tailored to fit Aristotle's teleology. Indeed, definiteness cannot really stand without an overall definiteness represented by a fixation in the order of things which leads to Aristotle's teleology. Without time incorporated in the objects of experience (or in essence in terms of potentiality and actuality) we have an absolutely fixed being which cannot communicate with the becoming (perishing, non-existing-Plato's world). With time, we have a fixed world which is however becoming, marching towards a definite end. It is this kind of teleological change that we have transmitted into thought through isomorphism, an isomorphism that has been interpreted in a way that allowed us to see conceptual change, not as a passive reflection of reality. Now, whether one should be content with an account of conceptual change that presupposes teleology and logical ontologism is a matter of whether one can feel comfortable with a concept of change that represents a mere unfolding of preexisting aspects of a fixed definite being. It would be interesting however to see whether the relaxation of these ontological presuppositions have or could maintain a meaningful account of conceptual change. For example the general trend associated with empiricism drops the assumption of isomorphism and together with it logical ontologism and ends up with what we might in general call a conventionalist view of language. The law of contradiction becomes a linguistic convention together with all other 'necessary propositions'. What is more important though, is that there are no definite criteria involved in adapting conventions. Thus, any definite connection between language and the real world is reduced to an arbitrary labelling of what mind passively receives from the objective world through sensory perception. That can hardly be an advance to the problem of conceptual change for it destroys a useful link between language and reality without replacing it. In that respect, although it might sound quite bizarre, empiricism returns to the Platonic separatism.

I consider it to be a real challenge to attempt an account of conceptual



change by dropping logical ontologism and 'teleological change' but maintaining a rather realistic, non-conventionalist view of language. Modern attempts which are not necessarily constrained by empiricist doctrines succeed in describing the conditions under which we can recognize conceptual change but they have not yet reached the point of providing a causal explanation of it [cf. Kuhn, Feyerabend]. Aristotle's defense of the law of contradiction reveals an aspect which I think can be the basis for the required solution beyond his own system and that is the importance of communication. I believe that an elaboration of the dynamics of communication could provide an alternative ontology for language which goes definitely beyond the status of an isomorphic image or the result of conventionalizing our passive reflection from the objective world. Such an ontology would consider language as reflecting indirectly reality through the pragmatic needs of communication, the dynamics of which would provide the basis for the required causal explanation of conceptual change.

In such a situation the law of contradiction would hold as long as it represents a valuable element of communication which relates but cannot directly reflect the objective world. There is also no need for fixed meanings. As a matter of fact, it is the continuous change of meaning that allows conceptual change providing at the same time the basic material for the development of the dynamics of communication.

Η ΑΡΙΣΤΟΤΕΛΙΚΗ ΚΑΙ Η ΝΕΩΤΕΡΗ ΘΕΩΡΙΑ ΤΗΣ ΜΕΤΑΒΟΛΗΣ

Περίληψη.

Ο Άριστοτέλης είναι ο πρώτος που παρουσιάζει μια ενδιαφέρουσα εξήγηση του φαινομένου της αλλαγής. Το επίτευγμα του Άριστοτέλους συγκριτικά με τον «στατικό» πλατωνικό κόσμο και τον «τυχαίο» του Δημοκρίτου φαίνεται στον τρόπο που αντιμετώπισε το πρόβλημα της πρωταρχικής ουσίας. Το πρώτο μέρος της εργασίας εξετάζει τις έννοιες της *έντελεχείας* και *ένεργείας* (για τις οποίες χρησιμοποιείται ο όρος «actuality») και της *δυνάμεως* («tentiality») και τη σημασία τους στο πρόβλημα της πρωταρχικής ουσίας. Υποδεικνύει την επάρκεια αυτής της σημασίας για την εξήγηση της αλλαγής. Στο δεύτερο μέρος επιχειρείται η ανάπτυξη των δύο έννοιων σε σημείο σύμφωνο με τον Άριστοτέλη και εξετάζεται η αποτελεσματικότητά τους σχετικά με το σύγχρονο πρόβλημα της «νοητικής αλλαγής» (conceptual change). Η ανάλυση στηρίζεται στην έννοια του «νοήματος» και της «πραγματικότητας» (meaning and reality), που απορρέει από τον «λογικό όντολογισμό» του Άριστοτέλους.