Committee I
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EXPLANATIONS OR MICROREDUCTIONS?

by

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Discussion Paper

on

Karl-Dieter's Opp's

THE INDIVIDUALISTIC RESEARCH PROGRAMME IN SOCIOLOGY

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Professor Opp's paper has many excellent qualities. First of all, it succeds very well in giving a clear statement of the most important features of the theses about the individualistic perspective in the social sciences. Secondly, the paper gives a very good rational reconstruction of the individualistic research programme. Last but not least, it makes the crucial but often neglected distinction between factual and normative aspect of such research programme. These qualities alone would be enough for justifying the great attention that the paper deserves.

1. Professor Opp summarizes his reformulation of the positive aspect of the individualistic research programme in three theses:

a. "IT_s /individualistic theories/ can be used to derive (i.e. explain) singular and general collectivistic propositions";

b. "If attempts are made to derive existing singular and general collectivistic propositions by using IT_s, the collectivistic propositions are derivable in their original or in a corrected version";

c. "Concepts designating aggregates or their properties (i.e. collectivistic concepts) in fact refer to individuals or their (relational or non-relational) properties, as a meaning analysis of the collectivistic concepts always reveals" (p.8).

The normative claim is in turn expressed by the following thesis:

d. "IT_s should be applied in explaining singular and general collectivistic propositions" (p.11).

Professor Opp remarks that acceptance of positive theses does not imply acceptance of the normative claim; but acceptance of positive theses is a necessary condition for acceptance of the normative claim, given that "one will not claim anything, if this cannot be realised" (ibidem).

However, we prefer to start our analysis from the normative claim. Well, why one should attempt to reduce general collectivistic propositions to IT_s? Professor Opp's answer is that "IT_s have a relatively high explanatory power and the explanations they deliver are more valid than those offered by collectivistic propositions" (ibidem). Unfortunately, in the paper there is no valid demonstration of this thesis. References to the failures of functionalist or "marxist" explanations are merely a de facto, not a de jure (i.e. logical or methodological) argument.

Let us focus on the first part of the above quoted statement. What Professor Opp seems to have in mind is that IT_s will constitue a theoretical explanations in Hempel's sense[1]: that is to say, IT_s will explain collectivistic theories exactly as particular facts are explained by general laws. If some IT_s explain some collectivistic theories, then it trivially follows that IT_s have an explanatory power higher than these collectivistic theories. But the crucial point is precisely whether IT_s with such explanatory power exist.

First of all, we have to point out that the problem at issue is completely different from that one of the above quoted reconstruction thesis c. The individualistic reduction statement (or reconstruction statement, as Professor Opp prefers to say) of a collectivistic concept will be constitued by a conjunction of statements "describing" the behaviour of an individual (or, if one prefers, containing the description of properties appertaining to individuals). Even on the supposition that this conjunction will be complete - i.e. that it will cover the whole descriptive range covered by the collectivistic concept - it follows that there is no reason at all why the testability or the logical strenght of the conjunction should be higher than that one of the collectivistic concept. Each statement which refutes the conjunction refutes also the collectivistic concept, and

no additional information is contained in the individualistic reduction statement.

Professor Opp affirms that "throughtout this paper we have in mind particulalrly the rational choice model (or utility theory)" (p.7). The assumption of RCM - which should be supplemented by "hypotheses from learning theory" - is justified by Professor Opp on the reason that these IT_s "are mainly used by social scientists working in the frame" of the individualistic research programme (IRP). But, as it is obvious, the fact that RCM is widely used does not help at all in solving the logical problem that we are facing.

It is probable that lack of space prevented Professor Opp from giving further specifications about RCM itself. But such specifications would be extremely useful for our purposes. We can conjecture that what Professor Opp has in mind is expected utility theory, as it has been classically formulated in slightly different ways by von Neumann & Morgenstern, Friedman & Savage, or more recently, by John Harsanyi. It is well-known that the original EUT is confronted with many difficulties and that some reformulations have been produced - especially in order to take into account the discrepances between observed choice behaviour under uncertainty and EUT axioms.

Of course, it is not our concern to consider these reformulations and their validity. What we have to examine is whether EUT in any of its versions can succed in "covering" Professor Opp's theses a and b. Given that general collectivistic propositions are intended to be explained by IT_s, EUT will have to be of a content higher than that of the one collectivistic theories. If one accepts the widely held position that higher content means higher testability, it follows that EUT will have to be more testable that any general collectivistic proposition (e.g. that suicide rate in all industrialised countries has increased, or that division of labor has increased). However, in our opinion this

is plainly false. One of the main features of EUT is exactly its adaptability to any observed behaviour. If discrepancies will arise, they will be eliminated by a suitable change in the structure of the utility functions held by the agents. This is not merely an ad hoc procedure, but the very hard core of EUT[2]. Let us just take the example of the most important reformulation of EUT put forward in recent times, i.e. Loomes' & Sugden's "regret theory". This theory has been conceived in order to take into account the well-known empirical evidence first pointed out by Maurice Allais in 1953, and systematically analysed in recent years by several researchers[3]. The following quotation summarizes very clearly the aims and the results of regret theory: "We do not claim that acting according to our theory is the only rational way to behave. Nor do we suggest that all individuals who act according to our theory must violate the conventional axioms. Some individual may experience no regret or rejoicing at all, while some others may have linear Q(.) functions: in these special cases of our theory, we could predict that the individual's behaviour would conform with all the conventional axioms. On the other hand, individual with non-linear Q(.) functions of the kind described in this paper may consistently and knowingly violate the axioms of transitivity and equivalence without ever accepting, even after the most careful reflection, that they have made a mistake"[4].

Facing this situation, one could be tempted to say that utility theory presupposed by Professor Opp's IRP is not one of the family of EUT_s in the technical sense. What IRP presupposes is just an unformalized and "broad" utility theory. However, this is an unsatisfactory move. If we reduce the formalization and the precision of the utility theory involved, its explanatory power will be weakened.

As we learn from examples such as the explanation of the laws of thermodynamics by the laws of mechanical statistics, theoretical

explanation cannot be just a matter of linguistical sussumption [5]. Therefore, in any case we cannot accept the thesis that EUT can explain any general collectivistic proposition <u>because</u> these can be expressed in EUT terms.

2. If our analysis is correct, it follows that Professor Opp's "explanatory programme" is untenable. Of course, this does not mean that any "explanatory programme" is impossible (e.g. our arguments do not concern at all the problem whether collectivistic general concepts can be explained by psychological laws). We have also to emphasize that the fortune of IRP is in no way unavoidably linked to the "explanatory" programme. If we are right, Professor Opp wishes to substitue reductionism with explanation. But, in our opinion, IRP <u>cum</u> utility theory is a viable programme only if one gives up the "explanatory" programme, and considers IRP as a case of <u>microreduction</u> in the sense of Oppenheim & Putnam [6].

The situation for IRP is very well described by Hempel and Oppenheim, when they point out that microtheories are normally required in science in order to ensure the full <u>understanding</u> of the phenomena [7]. Professor Opp seems to have a very different opinion: "It is true, as Homann emphasizes, that <u>sociological</u> hypotheses are of a low explanatory power and,it may be added, are often not put in such form that they can be criticized at all. Even if sociological propositions have a low empirical content (like hypotheses on suicide or on the formation of protest groups), they are of interest to many social scientists - and practitioners - and should be confronted with the pertinent deductions from IT_s" (p.25). We have already expressed our opinion about the theoretical (in)validity of this claim [8]; but it could be also questioned if such deductions in IRP are <u>de facto</u> intended to explain the sociological propositions,or if they have to

give a microtheoric foundation (reduction). Of course, this is a matter of empirical enquiry. Personally, we are unable to answer the question. However, we would like to point out the example of the important works of Raymond Boudon in the field of sociology of education [9]. In our opinion, the models produced by Boudon are much more alike to a microreduction rather than to an explanation of some well-known collectivistic general concepts (regularities) about e.g. the correlation between social status and educational level. Given that Professor Boudon is amongst the participants to our conference it would be very interesting to know his judgement. At any rate, it seems to us that the importance of Boudon's works is not to be attributed to their underlying IT_s [10], but to the models put forward.

3. In a famous article, Hempel has very well indicated the ontological roots of the sientific reductionism[11], and we think that this ontological dimension "explains" also the importance of microreduction in Hempel's & Oppenheim's sense.

As it is well-known, many years ago Leon J. Goldstein explicitely put forward the distinction between ontological and methodological individualism [12]. Ontological individualism is "that doctrine which denies the existence of certain alleged entities" [13]; as successive debats showed, acceptance of ontological individualism does not imply acceptance of methodological individualism. If our theses are correct, it is only on the basis of the ontological claim that individualistic microreduction can be justified. Microreduction cannot be justified from the point of view of progress in explanation. If we adopt a Popperian methodology (in the broad sense of this term) we do not need at all to offer a microreduction of general collectivistic statements. All that we have to do is to test these hypotheses. A sociology formed only by general collectivistic statements could fit

very well the basic Popperian criteria. Therefore, even if Popper is an advocate of the methodological individualism, in our opinion methodological individualism cum utility theory has no justification within his own theory of method.

4. As the final point, we have to stress an important problem that we would like to see discussed here. This is the problem of the so called "rationality principle". Any utility theory presupposes this principle in one of its versions, and therefore also methodological individualism as it has been presented by Professor Opp needs it. Popper put forward a quite widely known version of the rationality principle, and some criticism of it have been produced [15]. However, in our opinion the crucial point is not the formal adequacy of Popper's definition: the point at issue is whether sociology can be grounded on a purely syntactical principle without at the same time losing its empirical character (that is to say, without being reduced to a "pure logic of choice"; in this case, sociology would be distinguished from pure economics only in reason of its object - "sociological" phenomena).

We repeat that all these remarks do not concern at all the explanation (or reduction properly said) of sociological hypotheses by means (to) psychological laws, in any empirical sense of "psycological". (Of course, this programme has in turn many well-known difficulties). But we have also to point out that EUT is not the only existing theory of rational choice, and that IRP has not to be bound by any of its variants. In our opinion, Herbert Simon's theory of rationality is by far a more adequate research programme and a more promising foundation for IRP. But to argue in favour of this two theses would lead us behind the limits of our task in this conference.

N O T E S

1. C.G.Hempel, The Logic of Explanation, in Aspects of Scientific Explanation and Other Essays in the Philosophy of Science, New York, Free Press, 1965. See also E.Nagel, The Structure of Science, London,Routledge and Kegan Paul, 1961, and K.R.Popper, The Poverty of Historicism, London,Routledge and Kegan Paul, 1961[3],section 28.

2. See the criticism of this strategy by H. Simon,Rationality as Process and as Product of Thought, "American Economic Review", LXVIII (1978),pp.1-16. Dr Enrico Colombatto has very clearly resumed the situation: "Research on utilitarianism in general, and on expected utility in particular, is based, one way or another, on the assumption that individuals behave rationally. If a 'rational' model yields predictions which differ from the observed individual's behaviour, then it follows that the model is not well specified, and that some important variables or relations heve been forgotten. However, if we agree to take into consideration all the important variables and relations, we end up by making rational all sorts of behaviour; by defining within sufficiently wide boundaries the very concept of utility, all actions become - by definition - utility maximizing. For instance, while we may have problems in justifying altruism the framework of an individual 'short term utility function', it becomes perfectly logical and acceptable within 'long-term utility function', since altruism can be looked upon as some sort of investment. By the same principle, the utilitarian principle has no difficulty in explaining all sorts of subjective behaviour,

provided all utility functions are properly estimated" (Teoria della decisione e razionalità: commento su Harsanyi, in A.M.Petroni and R.Viale (eds.),Individuale-Collettivo.Il problema della razionalità in filosofia,politica ed economia, Torino,La Rosa, 1985).

3. M.Allais, Le comportement de l'homme rationnel devant le risque; critique des postulats et axiomes de l'école américaine,"Econometrica", XXI(1953),pp.503-546 (see also the volume by M.Allais and O.Hagen (eds.),Expected Utility Hypothesis and the Allais Paradox,Dordrecht, D.Reidel Publishing Co.,1979). The widest empirical evidence against EUT axioms has been produced by P.Sclovic and A.Tversky, Who Accepts Savage's Axiom?, "Behavioural Science",XIX (1974),pp.368-373, and A.Tversky and D.Kahneman, The Framing of Decisions and the Psychology of Choice, "Science", CCXI (1981),pp.453-458. For a philosophical interpretation of the so called Allais paradox see J.W.N. Watkins, Contro la massimizzazione dell'utilità attesa, in A.M.Petroni and R.Viale (eds.),op.cit. (see also the discussion of Watkins' paper by Harsanyi and Watkins' rejoinder).

4. G.Loomes and R.Sugden, Regret Theory: an Alternative Theory of Rational Choice Under Uncertainty, "The Economic Journal",XCII (1982), pp.805-824;p.820. The Q(.) function is such that for all ξ $Q\xi = \xi + R(\xi) - R(-\xi)$. R is the regret-rejoice function such that if m_{ij}^k is the modified utility, $m_{ij}^k = c_{ij} + R(c_{ij} - c_{kj})$; that is to say, R assigns a real-valued index to every possible increment or decrement of choiceless utility.

5. See G.Bergmann, Philosophy of Science;Madison, University of Wisconsin Press, 1957, pp.131-144. For a good exposition and

analysis of the most important epistemological aspects of reductionism see R.Egidi, Il linguaggio delle teorie scientifiche, Napoli,Guida, 1979 (in particular the fourth chapter). We are much indebted to this book.

6. P.Oppenheim and H.Putnam, Unity of Sciences as a Working Hypothesis, in H.Feigl and G.Maxwell (eds.), Concepts,Theories, and the Mind-Body Problem, "Minnesota Studies in the Philosophy of Science,2", Minneapolis, University of Minnesota Press, 1958, pp.3-36.

7. C.G.Hempel and P.Oppenheim, The Logic of Explanation, "Philosophy of Science", XV (1948),pp. 135-175.

8. Of course, under the condition that IT_s involved are utility theories

9. R.Boudon, L'inégalité des chances, Paris,Colin, 1973; Institutions scolaires et effets pervers - 2/L'enseignement supérieur court, in Effets pervers et ordre social, Paris, P.U.F.,1977 (see also the model of the "relative deprivation" in La logique de la frustration relative, ivi).

10. Boudon's models presuppose some general concepts of utility theory, but we are unable to say if other IT_s are presupposed.

11. C.G.Hempel, Reduction. Ontological and Linguistical Facets, in S. Morgenbesser,P.Suppes,M.Whithe (eds.), Philosophy, Science and Method. Essays in Honour of Ernst Nagel, New York, Macmillan Press, 1969, pp. 179-199;p.179.

12. L.J.Goldstein, The Two Theses of Methodological Individualism, "British Journal for the Philosophy of Science", IX(1958), pp.1-10. In the notes to the X chapter of The Open Society Popper affirms to share a methodological nominalism, but not a metaphysical nominalism. Popper's problem, however, is not the status of the sociological explanations, but the nature of the definitions.

13. Ibidem, p.3.

14. This is an important fact, given that Popper explicitely rejects the reduction of sociology to psychology. Popper recognizes his debt to von Hayek for the principle of methodological individualism. However, as K.J.Scott has shown, "Hayek's principle is synthetic, Popper's analytical: Hayek says that the social sciences do not deal with 'given' wholes but their task is to constitue these wholes by constructing models from the familiar elements; Popper says that 'institutions (and traditions) must be analysed in individualistic terms' "("British Journal for the Philosophy of Science", X(1959-1960), p.332). Anyone who is acquainted not only with von Hayek's works, but also with "Austrian economics" in general - especially with Carl Menger and von Mises - can easily understand the important consequences that this difference between Popper's and von Hayek's principles has on the conception of the nature and role of economics.

15. At this proposal see the section 7 of our Introduzione in K.R. Popper: il pensiero politico, A.M. Petroni (ed.), Firenze, Le Monnier, 1981(in particular pp.66-76). Popper's various formulations of the rationality principle are often contradictory inter se. Noretta Koertge has given an intersting reformulation of Popper's

principle, but in our opinion her proposal is still unsatisfactory (see The Methodological Status of Popper's Rationality Principle, "Theory and Decision", X(1979),pp.83-95, and the discussion at pages 87-88 of our Introduzione).

16. On the comparison of EUT and Simon's theory see the good article by P.Mongin, Modèle rationnel ou modèle économique de la rationalité?, "Revue économique",XXV(1984),pp.9-38. See also A.M.Petroni and G. Scaramuzzi, Heuristic, Logic and Rationality in H.Simon, "Economia delle scelte pubbliche",III(1985).