RATIONALITY, PROBLEMS, CHOICE

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Morality and rationality have been traditionally identified. This identification has raised one central problem, i.e. how can morality be reduced to rationality. This problem in turn leads to further problems especially concerning the justification of moral principles. The traditional problems have been fairly well defined, however, due to the wide acceptance of the view that rationality is the same as demonstration. When this view is rejected the nexus of problems of rationality, of choice of problems and of moral theory become radically altered. In this essay we wish to in part describe, in part develop and in part advocate this change. In brief, when rationality is taken to mean not demonstration but openness and criticism, then the problem of the rational-moral choice of problems is altered and made central. In this change the aim of the traditional program, i.e. to make problems of morality problems of rational action, is largely retained; yet the problems of its development are radically different. We see in this change progress because the problems seem to represent movement as well as greater depth.

1 The Problems at Hand

The problem of rational choice is as old as philosophical ethics. Indeed this two problems are (nearly) identified since the problems of philosophical ethics are viewed as one variant of the problem of rational choice. Whereas moral codes offer directions for proper choices under given common conditions or at least criteria for such choices, philosophical ethics is almost exclusively devoted to the choice of a criterion or to directions for the proper choice of a criterion. This task as we shall see was taken to be a problem of showing how criteria could be rationally justified. It was taken for

granted that choice ought to be rational, thus reducing the problem of ethics to a problem rationality : by what criterion does choice become rational ? Or, how does the decision to choose rationally affect choice ? Or, what is rationality ? And so on.

The problem of rational belief became the basis of the reduction of ethics to rationality. A basis for reduction was needed because the theoretical identification could not be developed unless the theory of rationality could be unified with the use of rationality. This could be accomplished if one supposes that one acts on one's opinion. Then, it appears that the problem to be studied may be, when is one's opinion rational ? Thus the problem of rationality is double-faced : what makes action rational and what makes thought rational ? Yet there is a reduction of rational action to rational thought : action is rational if and only if it is based on rational thought. This idea, though not stated in Spinoza's *Ethics* is a sine qua non for every page in its ethical discussions.

What then is rational thought ? This problem, too, was no sooner raised than solved : rationality is demonstrability. This, in its turn, raised serious problems, from those raised by Zeno to those raised by the Skeptics. Rationalist philosophers traditionally saw their task as that of rescuing rationality — of giving the ship back its compass, to use Kant's metaphor.

But no adequate compass was found. One central difficulty was that rationality was not itself shown to be rational. So instead of appealing to rationality a circularity was introduced. Rationality was the basis for morality but rationality was itself grounded in morality. This is a significant change from the ambitions of Spinoza.

As a result of this theoretical difficulty and qualification the possibility of uniting rational thought and rational action is threatened if not broken : one has not only to know the truth but also to decide to act on it. This creates numerous problems for the theory of the application of moral theory as well as its content.

The first problem is a theoretical one. The program which started out by identifying rationality and morality leads to a sharp distinction between knowledge of how to act properly and the decision to act properly. This separation is minimized on the traditional view by discussing the problems involved   in the application of moral knowledge. Thus discussion of character and ambiguity or difficulty of application thus gained undue importance. This attempt at a minimization of the gulf between moral knowledge and action raises further difficulties of its own. It does this by dividing problems into two sorts, rational and decisional. Yet since the program is to reduce all problems to one kind, there are no

desiderata for the criterion by which to decide to which kind belongs any given problem. Some problems were deemed outside the limits of reason, i.e. they are allegedly simply matters of decision; others are problems of inadequate principles; still others have turned out to be in a no man's land of problems of application of principles, whether of character or of appraisals of situations. Clearly ethical problems can be shifted from one level to another as suits the theorist. But this leads not only to a failure to appraise problems, but also to too easy a defence of any ethical principles. For problems with principles can always be shifted to problems of application and/or decision.

Recently, a change came about. Perhaps due to difficulties such as these — theoretical problems which seem irresolvable theoretically, perhaps out of the sheet tedium of the tasks — either theoretical or applied difficulties, and perhaps under the influence of Weber's (Kantian) methodology of the social sciences, one way or another, the idea that we ought to study rational choice in action took over. How do people choose their criteria for rational action ? This is a Weberian variant, indeed, of Kant's transcendental proof. This variant is, rationality is possible since people do act rationally; or something to that effect. Still nearer to Kant, we may look for the most rational of human choice : how do men of science choose their hypotheses ? In this way we may further minimize the difficulties mentioned above, yet study rationality without overthrowing the traditional view.

Yet problems remain. They remain because this approach adopts a strict demarcation between the descriptive and the prescriptive. Indeed this distinction must be upheld if the traditional program is to be maintained. This means that even though the new program is an advance, it is still severely limited and confused : the program will for ever remain descriptive and so leave unsolved the problem which still seeks the proper prescription for action. Studies of rationality thus, not surprisingly, fail to fall on either side of the descriptive-prescriptive line but become a little of both. The most important example of this defect is its inability to deal with the problem of the choice of problems. It is clearly seen that there are alternative paths to take and that description alone cannot give us the prescriptions we need. Yet the traditional program itself falls into the same difficulties : we need to choose problems for the rational study of rationality, yet our very theories fail to provide theories of how to choose.

Thus in response to these problems and in a revolt against positivism the problem of choice of problems, i.e., how do / should

we / scientists choose problems ? is becoming increasingly fashionable. And so much the better we say. The study of the practice of reason leads in the same way as the study of the prescriptions of theories of rationality to the problems of the choice of problems

Closing the circle, we believe we should replace the problem of the criteria for proper action or of the rationality of such criteria with the problem in ethics, what cognitive/moral problems are/should be high on our agenda ? and more generally, how can we evaluate and improve alternative agenda ?

Thus the problem of the choice of problems is becoming increasingly central. It enables us to see the problems of choice of problems, of rational / moral conduct, of ethics and of the limits of reason as both fused and interacting. This is so, since faced with any problem we may treat it more or less generally. Thus they fuse. Yet when treated at one level or another we may seek criticism of one level from another. The problem of the choice of problems or the critical consideration of agenda enables us to coordinate and be critical — on our view, to be rational — about the selection of problems. We thus increase the scope of rationality; we no longer isolate problems of decision and we further reduce arbitrariness by opening up to criticism the standards for choice of problems. We do this even though we lower the standards of rationality, i.e., we no longer seek justification or reduction. We believe these moves greatly enhance the traditional program for ethical rationality. It is not easy however to view these problems as unified in the traditional way as we hope to do. The problem of choice of problems need not be constrained to rationality and to ethics, but can be applied to diverse fields, more specific or less. The problem of rationality, likewise, need not be constrained to the rational choice of problems and/or of proper conduct, but may pertain to the rationality of other matters, for example of belief. And, finally, the problem of proper conduct need not be constrained to the choice of problems and of rationality. Nevertheless, at least at the present stage matters are fluid enough and in the present essay we shall make an effort to combine them all though we also wish to show they interact. We shall eschew the traditional split between the descriptive and the prescriptive approach to norms, however, on the basis of the claim that existing norms were first proposed and then accepted, perhaps to be ousted by the latest proposed norms . This significant fact is often disregarded on the basis of the claim that the choice of the accepted norm, when that norm is inferior to the one recently proposed, was not as rational as the choice of the latest norm. But then rationality,

morality, and the intelligent choice of problems — all three are matters of degree.

So much for our three problems, for our attempt fuse them and for our desire to see any solution to them to be not polarized but a matter of degree. Yet we also wish to explain how these problems interact. We wish to explain how criticism of solutions to problems of rationality can improve discussions in ethics or how discussions of ethical problems can uncover limits to our theories of rationality. But we do not wish to go so far as to offer solutions to the three problems posed, especially not when fused. We further wish to maintain some interaction as a tool for progress. We think even partial attempts to attack them at times extremely powerful : they serve to generate further advances. For example, it is well-known that classical rationalism insisted, in an exaggerated optimistic mood, that in principle all problems are soluble. It was the mathematician L. E. J. Brouwer who, early in this century, turned the claim around and said, in principle every solution is problem-ridden. When is it worthwhile to attend a given problem, when is it worthwhile to center on a solution, however problematic, and when is it better to discard a solution in preference of the search for a better substitute to it, or replace even the problem behind the solution ?
When is it preferable to burrow deep and when to stay on the surface ? These problems, even if solvable to a small degree, may harbour powerful techniques and perhaps the mere promise of such powerful techniques warrant centering on them; perhaps, on the contrary, these are false promises distracting us from the real job at hand.

It would seem, then, that what we may be after initially is a problem somewhat like, *what is the right way to choose problems to put on top of our agenda, and how practical or theoretical should they be ?*

2. The Background to the Problem

Traditionally, the optimism of the rationalistic school made the high moral value of reason (= science) so obvious as to be unproblematic. If the road to knowledge is known and demonstrable and final knowledge is attainable with ease, then clearly it is most expedient to invest as much of our resources as possible in the effort of acquiring knowledge. We would do this so as to apply it wherever possible if not for the fine moral value of truth as such.

With the success of the Einsteinian Revolution it has become clear that science does not attain demonstrable final knowledge. The

question then arises, what does it achieve? at what cost? The problem of the opportunity cost of scientific investigation has arisen. The problem, should we invest more in space programs or should urban renewal and all that take precedence? is but an example of this new general problem. How then can we assess the opportunity cost of research? Only by assessing its possible achievement. But even the theory that science approximates the truth cannot tell us this, as there are degrees of approximation, and the degree of progress of one theory can only be appraised from the viewpoint of the final destination — from the viewpoint of the truth. Even if we want only a partial assessment of the success of a theory, it must be launched from the viewpoint of a more successful theory, i.e. in retrospect. So, we cannot assess the value of our next research project! How, then, can we assess its opportunity cost? Moreover, by reference to what goals? The most obvious goal, regarding knowledge, may still be knowledge of the truth. But then, first of all, we do not know if the truth is attainable, and so the limits of knowledge may have to replace this goal. This will offer, as an end of our enquiry the limit of its possible success: the problem, then, would be, what is the limit of rational enquiry?

Similarly, we would replace the question, when is it reasonable to seek knowledge and when is it reasonable to seek improvement? with the question, when is the improvement to be sought an intellectual improvement? And, moreover, is this problem within the limits of inquiry or beyond it? If it is beyond reason, should we drop it altogether, or tackle it piecemeal? For one of the obvious facts, so well illustrated by Gödel's theorem, is that a generalization that is beyond our reach has infinitely many instances each of which may be open to rational inquiry. But is it worth it? In Gödel's case, clearly, rather than studying either the general problem or its specific instances, we may go far afield and study newer problems of decidability, of under what conditions an undecidable problem becomes decidable, and at what cost, etc.

The impact of Einstein as well as of Gödel on the problem of rationality was tremendous. It was, in either case, destructive in the first instance. Many got stuck with the destroyed views, or with some aspects or corollaries of them, and were thus driven to pessimism and to defensive attitudes. Yet, clearly, the destruction of old norms, of old problems, of old situations, all these have opened up new vistas. Perhaps at the cost of loss of bearings; and so the problem what should we do in order to regain our bearings sufficiently so as to be able to proceed? has now gained prominence. Perhaps the most obvious pragmatic rendering of this abstract problem to a more

operable agenda is, what problems should we place high on the agenda ? Perhaps, better, can we find soon enough a criterion of choice of problems ? If not, shall we select problems arbitrarily, or even at random ? And so on. Or, to take the problem of the criterion of choice of problems more slowly for a while, what desiderata should such a criterion fulfill ? In particular, how shall we make such a criterion both intelligent and decent ? In other words, can the criterion of choice of problems answer desiderata that will make it proper from both the rational and the moral point of view ?

In spite of the enormous impact of Einstein and Gödel on our views of rationality, until very recently the plurality of philosophers of science adhered to the traditional overoptimistic view of rationality, insisting that every question is answerable and every choice between competing answers is uniquely decidable, at times by demonstrations that hold good once and for ever, at times by demonstrations relative to alterable bodies of evidence, yet they viewed their solutions, even when temporary, universally binding pro tem.

The great exception was Karl Popper, yet he, too, endorsed a view which binds all rational beings by a rule to one unique rational choice in the circumstances. In methodology the rule was, choose the most highly testable theory or choose the most highly testable-and-as-yet-unrefuted theory. We are not clear whether (1) most testable and (2) most-testable-and-as-yet-unrefuted, or even these and (3) most-testable-and-already-severely-tested-and-nevertheless-as-yet-unrefuted, whether these three are variants of the same view, the same view under slightly different conditions, or different options offered by Popper. Yet all this, pertaining to scientific research only, is not broad enough : the broad study by Popper is his study of the theory of rationality in chapter 24 of his *Open Society* where he concedes that for logical reasons rationality cannot be founded on rational foundations, yet rejects the irrationalism that is usually ascribed to such a concession. Rather, he says, since we must have an irrational component in our theory of rationality it is most rational to narrow down the irrational assumption to the minimum. The minimum, he adds, is faith in reason, where reason equals criticism. The faith that series of trials and errors amount to progress is his irrational axiom. Progress in science, to conclude, means towards the truth. IN ethics, by comparison, once we accept any objective approach, any cognitivism so-called, progress is towards the proper moral standard. In both the factual and the moral field, we can say, the right answers (most likely) should be preceded by the right questions. Indeed, the logic of questions at times presents a question as the equivalent to a

set of alternative answers to it. This cannot be universally true in practice, since we can understand a question while having no idea about any answer to it (Bromberger). Nevertheless, the idea seems plausible enough to have expression even in folk-wisdom : a question will put, it says, is half the answer.

Thus far concern was shown not about the place of questions in rationality, but the place of arbitrariness in it : it is the question, is rationality rational or is it arbitrary ? that bothers an increasing number of philosophers these days. The moral import of this question is all too obvious : the question is the choice of rationality imperative or arbitrary ? is another wording of it in a strictly moral mode.

An instance illustrates this is the choice between W. W. Bartley's proposed variant of Popper's theory of rationality and Popper's view itself. Popper, Bartley argues, views faith in reason unfounded and hence irrational, but he does not identify reason with "founding" and so he is in error; he identifies reason with criticism and rationality with openness to criticism. Hence, corrects Bartley, the question whether faith in reason is rational should not mean, Is it founded ? but Is it open to criticism ? So far we agree, and here on there is a debate as to whether the affirmative or the negative answer is correct, or still further, whether the question cannot be replaced by a better one ? In any case, Bartley gave an affirmative answer : it is rational to have faith in reason as long as this faith is itself open to criticism.

J. W. N. Watkins took it for granted that Bartley has offered necessary and sufficient conditions for rationality — so as to preclude all arbitrariness, of course, — and criticizes him for leniency. For, indeed, Bartley does not go into the details of what it is to have one's views open to criticism. This is understandable as long as he views his idea as a variant of Popper's; but the very possibility of having or not having one's openness to criticism open to criticism makes openness to criticism a new kind of entity. It lies in the no man's land mentioned above between theory and application. Yet the very manner in which the problem has arisen may show the direction in which it may be worth while to develop it. First Popper considered logical and empirical criticism to be all the criticism possible. This in spite of the fact that in his book in which he said so, he offered different kinds of criticism, e.g., the criticism of metaphysics as uncritizable by logical or empirical means, or of a theory that includes a redundant metaphysical component that is better — says Popper — omitted. (He calls, quite rightly perhaps, the attempt to effect such omission whenever possible, Heisenberg's program). Now

the very approach of Bartley, and the whole debate on rationality that he has opened may raise the most general questions about rationality, about criticism, about improvement of thought, mores, and inquiries.

III. Infinite Regress Surmounted

The idea of infinite regress is exceedingly obvious and vexing. Its oldest and most graphic variant is the idea that earth stands on four elephants which stand on a tortoise, or the other way around. Once we explain that the earth rests on basis one, basis one must then, *by the same token*, rest on base two, base two *by the same token* on base three, and so on *ad infinitum*. The question, do infinitely many bases keep the earth afloat is another kind of question. The operative expression here is, *"by the same token"*. Other regresses do not annoy. The fact that zero is preceded by minus one and minus one by minus two and so on ad infinitum is not vexing, even though by the same token that minus one is preceded by minus two also minus two is preceded by minus one. Hence, the expression, "by the same token" is not felicitous.

An infinite regress is a process where a question is answered in a way which raises the same question with no profit. The operative word here is "with no profit", as a few examples may illustrate.

The problem of infinite regress can be raised in all cases of character testimony. One person testifies that another person is trustworthy. His testimony is acceptable, provided his own character is trustworthy. But the question may arise again about the character of the person offering a character testimony. If so, we have here an infinite regress. Is it so ? No, and for different reasons which may convince this or that audience. For example, those who accept the idea that a person's character is to be presumed trustworthy unless properly challenged, they will find it advisable for the defence to bring a character testimony by a person whose trustworthiness is not questioned to restore the trustworthiness of the accused whose character was properly questioned by the police and the prosecution. Of course, in this case they may agree to let the police and prosecution cross question the witness to see if they cannot question his character too. If they do, then the witness has done no good, perhaps unless another witness defends his character. If this goes on for long enough the judge and jury may object to the infinite regress, but if not then the defnece may have won a point. Another explanation will deny that the police and porsecution can throw

doubt on too many citizens of the community within which the trial takes place, on the assumption that a passable character is one which abides by practices acceptable by his community. For those who argue this way there is even no need to accept the maxim that a character must be considered trustworthy unless questioned. Others may argue that the power of a character testimony is not in numbers but in the fact that the character of some citizens is known *a priori* to be *bona fide*, for example that of the town's mayor or of the director of the local hospital. This may raise another problem, but not the same as the one the witness comes to solve : he establishes the trustworthiness of the accused without thereby raising for the judge and jury the problem of the trustworthiness of himself.

So much for the need for a character testimony for a character witness. The other example is that of a causal explanation. The game in which two children participate following any question of cause is very well-known : one says, why ? and the other says, because... and each repeats his part until bored or until the match becomes a shouting match and deteriorates or until external factors intervene. Many people think that science is a hopeless venture because it is endless because every causal explanation may call for another to explain it. Now there may be all sorts of objectionable aspects to this fact. For one thing, Plato and Aristotle both thought the scientific character or the rationality of science or its certitude rests on the finality of its final causal explanations. be they axioms or definitions. Hence, denying that the axioms or the definitions defy further requests for explanation may indeed be the denial of rationality to science. Even so, this need not be an infinite regress, since each causal explanation may contribute something in the right direction, for example if each step unifies some theories, or if each step brings us nearer to the truth or, generally, whatever the aim of science is, if each move leads us nearer to the aim we may feel rewarded even if the task is infinite. The operative word is "may" : at times reaching an end is not substituted by approaching it, e.g., the end of entering a town or of marrying one's heart's desire; and at times it is, for example perfect happiness, or justice, or beauty in the arts.

The point, then, is not only that some regresses are obviously (potentially) infinite, but to show that there is no gain in it. How can we show that there is no gain ? At times it is easy to show no gain, if, for example, the regress is in a vicious circle : the elephant stands on a tortoise which stands on an elephant etc. At times it is easy to show that the regress is not problematic at all, especially if it is not of answers to questions. At times we simply do not know.

Both the problem of rational thought and the problem of rational

action ware traditionally answered by the demand to have demonstrably right standards — whether cognitive or moral. Now the standard can be demonstrated only in accord with proper standards of demonstration. Hence there is an infinite regress. However interesting and valuable our cognition or moral norm is the founding of a norm or a norm that needs founding leads to an infinite regress : the need to found arises afresh and with no gain.

When we add to these the problem of choice of problems again we ask for a standard and again we hit the same snag of infinite regress if we want the standard demonstrable. Let us, then, replace demonstrability by criticizability and demand, with Bartley, that the standards be criticizable. Suppose we do find criticizable standards. Since they are criticizable, possibly one day they will be successfully criticised. What then ? We will then either need new criticizable standards or require that criticizability itself be replaced by something superior. This means that our very standards are tentative; this means the willingness to admit tentativity even of our standards, including of the idea of tentativity. Now already ancient skepticism took even doubt to be doubtful, but here we have something new : having doubt doubtful landed the ancient skeptics in a bind, and somehow they explained that the bind was congenial — perhaps because it was static and Plato identified rest with happiness very much in a vein we usually identify as the hallmark of oriental philosophy.

The idea of the tentativity of tentativity is different from the doubt of doubt : it is a regress, but not a bind : it is the hope to see progress in the change.

This leads us from Bartley to Popper, since Popper took the faith in reason to be the irrational base of rationalism. But this is not so. The idea of tentativity need not rest on hope for progress, nor does the tentativity of our present view of it. Rather going on with the venture we also may hope for progress : and this is no foundation of any sort.

This may well be worked out in the detail of the story. Popper, we remember, first suggested that tentativity in science is the criticizability (by empirical means mainly) of scientific doctrines proper. He suggested that the process of conjectures and refutations is fruitful and then explained that it is the process, in his view, of the approximation to the truth. Here, two kinds of scientific problems ensue, equivalent to the two tasks — of finding testable causal explanations and of finding possible criticisms or empirical tests for them. Solving one problem of the one kind leads to another problem of the other kind and back. But the picture is not that simple. What

theory should we try to test ? How do we decide, even prior to a test, that a given theory is better than a rejected one even if the test fails it ? Traditionally it was said, the new theory solves additional problems than the old one. Any additional problem ? And in which problematic domain should we invest our initial efforts ? Which field of inquiry deserves more investment ?

It looks as if we have a plethora of problems, and in a sense we do : we do have as many common or garden problems as any toddler can discover. But interesting and important and worthwhile problems have to be invented and nurtured and developed carefully. Moreover, every new problem passes tests for novelty, significance and the like. And it is worth noticing this remarkable fact about our own attitude towards problems.

There is an important corollary to this. If the choice of problems is problematic, as we contend, then it is controversial and so at times controverted. Hence, Kuhn's theory of the paradigm in which paradigms are both uncontroverted and prescribing problems for individual studies conflicts with ours. On Kuhn's view it is useless to tackle an unusual problem unless its solution has the chance to become a paradigm or be later justified by a new paradigm, whereas on our view an important solution may render a neglected problem important or exhibit the importance it always had which proves its neglect to have been erroneous. This is particularly the case when a new discussion may sweep an old one out of the agenda altogether.

In both moral and political philosophy (1) radicalism prescribes sweeping away as pointless all traditional theories, problems, preoccupations; (2) traditionalism prescribes staying in the old circle of problems or, in its reactionary variant, returning to them; and (3) reformism recommends a middle road of reforming rather than discarding the old. Our position not only allows cases of each of these schools to be rational but even reduces the question when to follow this school or that to the question of the choice of questions. And it is no doubt true that, as Kuhn notices, a radical revolution in a science drastically alters the problem situation within it. The same can be exemplified, we contend, in ethics and in politics, and for the same (formal) reasons, thereby invalidating Kuhn's reasons which he presents as specific to the community of science. Hence, all problems which his doctrine generates may be eschewed in preference to the theory and problems of the choice of problems. To which we have now arrived.

IV. *The Choice of Problems*

We do not mind that our problems are not the best possible, but we want to have the best available and to improve upon them a little. This means that we want criteria for progress Or, rather, since criteria may be too problematic to begin with, we may replace them with tentative desiderata — to be criticized and improved later on, namely on the meta-desideratum that the desiderata will not prescribe that we limit ourselves too much to problems that leave the desiderata intact. But we need not bother about that : even when we try it is not easy to see how the desiderata can be protected. So let us use tentative desiderata freely. We need desiderata for problems that might lead to progress. Now we do have some ideas about what kind of problem this might be. One of these ideas is that a good problem ought to be deep (Popper, Agassi, Bunge, Hattiangadi). A deep scientific problem will reveal the more fundamental secrets of nature. It will help us to come to a broader and more accurate picture of the world. Similarly with deep moral problems. Now our problem is somewhat further developed : we want a theory of problems which will provide desiderata which will enable us to identify deep problems *a priori* (i.e. before looking at possible solutions). Or, we want a theory of problems which will enable us to have reasonable discussions of the relative depth of problems even prior to our investing time in efforts to solve them.

Thus far our development of the problem of the choice of problems was sketchy. But it does illustrate how past aims and theories of rationality can lead to desiderata for the solution to new problems concerning rationality. It is not our purpose here to discuss alternative solutions to the problem nor even to develop fully the problem. Rather we wish only to discuss the problem of the choice of problems in sufficient depth to illustrate how we can advance in a piecemeal and bootstrap fashion through a discussion of this problem. In order to do this we would like to make one further point.

If we have a solution to the problem of the choice of problems we already have an improvement in our theories of rationality — of thought as well as action — or such an improvement can be readily made. Traditionally, our theory rationally pursued unity as an end to be achieved through the achievement of the truth. Criticisms have revealed that unity can no longer be achieved in this way. Nevertheless we use past theories to form a theory of our new goal. To preceed to our further point : the solution to the problem of the choice of problems can be used to clarify the degree, nature, and

purpose of unity on our theory. A good theory of the choice of problems will provide us with a new theory of the purpose and extent of desirable unity. We can thus improve our theories of rationality in a bootstrap fashion. Indeed, we are currently doing just that.

This last contention may be criticized on the ground that we have no explanation of why these moves, or ones like them, might lead to progress. Our reply is, first, that they may lead to progress because they lead to solutions to new and better problems; secondly, they lead to a deeper comprehension of the inadequacies of past theories; thirdly, they develop tools for solving further problems. This is not a proof that progress can occur; nor does it purport to be one. But we do have a plan for pursuing progress.In our opinion this is sufficient for practical purposes and sufficient to refute the claims that we cannot rationally pursue the rational improvement of rationality.

But, to conclude, once the idea of science as an accumulation of truths has collapsed, we may still hold the aim not only of attaining the truth (as an ideal or a regulative idea, to use Kant's terms) but also the unity of knowledge — factual as well as practical. To that end we may reintroduce metaphysics, only as a tentative unifying system of physics; and meta-ethics (or metaphysics of morals)) to the parallel end in ethics; problems, then, may be generated by efforts to interpret cuurent separate theories in the light of the unifying metaphysics, especially when such attempts are most defective. And one way to generate deep problems is to seek a new metaphysics; whereas breakdowns in any attempt to force a metaphysics on a physics, or a meta-ethics on an ethics, may create some deeper problem calling for a new metaphysics or meta-ethics.

In brief, instead of Popper's theory of conjectures and refutations we offer similar ideas of diverse kinds of give and take, of bootstrap operations, all of which have as a common background the great Einsteinian revolution and the relinquishing of certitude that it has brought about in all walks of our intellectual life. Quite generally, we propose, intellectual activity meets problems of diverse sorts and on diverse levels; whether influence in one field and/or on one level or another is indicated, we seek to replace it with interaction, and describe that interaction as a bootstrap operation.

V. *Choice of Problems and Progress in Ethics*

Within traditional ethics concerns have paralleled those in the theory of rationality. The most widely sought aim was that of demonstrated ethical principles.In this way rationality could be

extended directly to ethics. Since rationality and the morality of rationality were unquestioned, rational ethical principles were a natural goal — even the only option open. This aim however, led to concentration on two types of problems, i.e., foundations and application. The problems with the foundations of rationality led to even more acute problems at the foundations of ethical theory, and with a simple logic. First the theory of rationality made the crucial and fundamental problem of ethics read : how can ethical principles be demonstrated ? This problem then, led to troubles even more severe than in theory of rationality alone. There seemed to be no more foundation in ethics than in rationality. But in science the transcendental argument bolstered the view that scientific rationality was possible. The similar transcendental argument in ethics was less plausible. The attempt to apply to ethics a transcendental argument of sorts led to studies of rational choice in action, i.e., to social science, whether a la Weber or Durkheim; and in either case the split between thought and action made the program fail and hope to overcome it led to moral relativism — quite opposite to the results of the same move in science since there is only one science but many moral codes. Thus the pursuit of the foundation led to the open questioning of the entire project. And this led to further questions about the morality of rationality itself and bolstered irrationalism and anti-science movements.

The problem of the foundation of ethics, however, remained unsolved, and without a solution the development of ethical principles became difficult. So, the discussion also shifted to problems of description and application of existing problems.We have made conjectures above   as to why this shift occurred. It also seemed to resolve a problem in the application of ethical principles. As we explained above, just as rationality required decisions to act rationally and thus some irrationality, application of rational ethical principles likewise demanded decisions. And there were no principles for deciding how to decide or for deciding where problems should be located. When the analytic code was adopted these problems became more social than individual matters. The problems of decision in application could be mitigated in a similar manner as the problems at the foundations of ethics. This left only two views of the outstanding problems in ethics. On one approach they were viewed as profound moral choices yet outside the bounds of reason. This meant irrationalism and thus a virtual collapse of the traditional program. It could only be maintained by a moralizing posture which was just the type of posture the whole program hoped to surpass. The second approach available was to attempt to dissolve these problems by

treating them as problems of understanding the existing moral norms. When understood we could hopefully see that they met normal standards of rationality. The ethical principles were justified, and their application was governed by existing social principles.

Both of these views have come to be widely suspect; dogmatism and/or circulatiry and/or relativism seem implicit. So problems are ignored; we have a more drastic situation : we need to know what problems we should tackle. We feel that this situation is hopeful since now more fundamental problems seem to be raised. In raising the new problems here, of what problems are more fundamental, we do of course both use the suggestion that the limits of reason can be investigated by studying the problem of the choice of problems and appear to need a theory of the choice of problems to proceed. Initially however, we do not need such a theory. As we have argued earlier, the problem of rationality appears to lead to the question, how general or applied should our problems be ? This problem can be raised with some benefit in ethics.

We can benefit because the question enables us to view our problems in new ways. We no longer need either hard or fast ethical principles or principles of application. Rather, we can ask what we do when existing principles meet with difficulties. We can thus unite descriptive and prescriptive problems. We can go beyond existing principles without presuming that as they are unjustified they are utterly worthless, nor that they are utterly established. We can deal with problems of application either piecemeal or more generally. And we can view solutions at various levels as devices for criticism at other levels.

Perhaps, even more importantly, we can save the spirit of the traditional program of a rational ethic, i.e., we can remove moralizing and arbitrariness by viewing the problems of ethics, either of principles or application, not as problems of justification vs. decision, but as problems calling for the rational discussion of the limits of existing theories and how to improve upon them. We may turn the discussion to the choice of problems. We may thus retain an open-minded critical and rational attitude toward all our ethical problems. This does not mean of course that all arbitrariness can or even should be totally removed.

The use of a theory of the choice of problems to promote and make viable program of interaction between various levels that at the same time and to a large degree fuses the problems of rationality and morality. And it does so in a traditional way, yet with new and more progressive views of rationality at large.

VI. *Conclusion*

It is hard to find examples of shifts of problems leading to great progress, from physics or from ethics, since great strides are rare. Of course it is easy — all too easy — to show tremendous shifts in problems on the agenda, though this is hardly ever done. The traditional preoccupation of celestial mechanics and cosmology was with questions pertaining to the solar system; now preoccupation has shifted to nebulae and galaxies, to the statistical mechanics of the heavens and to quantum astrophysical problems. Likewise, problems in ethics have shifted from problems regarding one individual's obligation to another to problems regarding social obligations of the individual, problems of responsibility, of moral conflict and of moral growth, both individual and collective.

We have both described this shift and proposed a further problem shift. We find it striking that even without articulating the new metaphysics behind the problem-shift we can sense an increase in depth in the very choice of problems and the reader may feel ready to check by whatever desiderata, whether the ones outlined here or other, perhaps better ones.

We leave matters at that for now, with the wish to encourage readers to take matters up this way or perhaps some other way.

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