THE USE OF PROTOCOL ANALYSIS IN PHILOSOPHY

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> Some recent philosophers appear to have given their moral support to the deplorable verdict that the intelligence of an individual is a fixed quantity. . . . We must protest and act against this brutal pessimism. . . . A [student's] mind is like a field for which an expert farmer had advised a change in the method of cultivating, with the result that in place of desert land, we now have a harvest. It is in this particular sense, the one which is significant, that we say that . . . intelligence . . . may be increased. Binet (1909)

Among teachers of philosophy, it can perhaps be readily agreed that the objectives of learning philosophy are at least twofold: there is an historical interest in achieving a well-developed sense of familiarity and scholarship with regard to the works of authors of the present and past, and there is a desire to encourage the growth and cultivation in the student of a philosophical orientation that is represented by a loosely-defined yet characteristic set of attitudes and intellectual abilities. It is to this second set of concerns shared by those who teach philosophy that I would like to address my remarks here.

Until fairly recently, educators and the professions have had no other alternative but to maintain an *unreliable dependence* upon something called "native intelligence" that has usually been conceived to be a function of a general set of intellectual abilities and problem-solving skills. As a result of this single-minded and unquestioned orientation, education has traditionally been conceived as responding to a fixed, innate potential of pre-existing intelligence in students, from the standpoint of which training in general cognitive skills has been, to speak candidly, a by-product of a more or less accidental and unsystematic exposure to problem-solving pressures and needs experienced during an individual's formal education and subsequent professional experience. This perspective on learning has led quite naturally to the view that some students will come to learn the desired set of cognitive skills, and others will not, and

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there is little more that a teacher of philosophical skills can do but to present a description of these skills to his students, and seek to illustrate their application. After that, students will, of their own accord and as a function of their fixed general intellectual ability, sort themselves out into those who are philosophically able and those who are not, with a grey area inbetween.

Research in the area of information processing and in that of the psychology of human problem-solvers lately has provided educators with an interesting alternative: that what we commonly refer to as comprising intelligence, and measure via IQ tests (and, in a more specialized way, via tests of analytical, sequential reasoning ability in the context of philosophy), is the expression of fundamental problem-solving skills which are capable of systematic investigation, and which can be taught successfully with measurable effectiveness. Where traditionally education has responded to what has been thought to form an unchangeable set of learning capabilities and problem-solving skills, there is a rapid realization that general problem-solving intelligence, and analytical, sequential reasoning, in particular, is, at least in great part, a function *of* education.

In fact, a substantial number of controlled studies indicate that verbal comprehension skills, nonverbal reasoning abilities, and learning capabilities in general can be developed and have successfully been taught.[2] The first systematic efforts have appeared which seek to minimize the dependency of the instructor upon the uncertain and unequal learning capablities and cognitive abilities exhibited by any group of individual students. Training in comprehension and reasoning skills is possible, and has been shown to be effective.

If such training is assumed to be an objective of some philosophy teachers, the valid objection will immediately be made that the particular skills fostered in philosophy tend to be rather special, even though they are likely to include aspects of verbal comprehension and nonverbal reasoning. A difficulty this objection poses, and I accept the objection and the difficulty, is this: To develop appropriate ways to teach skills that are philosophy-specific, these skills must be differentiated and defined. But except in a very general and loose sense, philosophers are no more likely to be privileged authorities about what constitutes their special reasoning processes than problem solvers of any specialized breed are inclined to be. For example, there has been

[2]See bibliographical note.

some interest in understanding the nature of the skills which are specific to chess masters, skills the possession of which distinguish between a mediocre or good chess player, and a master. Similarly, in the development of programmable algorithms capable of solving complex problems, there has been an interest in the nature of the reasoning processes of competent human problem solvers. The concern to make explicit skills which are specific to chess masters or competent problem solvers generally, is not satisfied by direct consultation with the chess master or the general problem solver. The confidence we legitimately place in their abilities does not provide a basis for the belief that they are privy to know what constitutes their skills.

A technique which has been extremely productive in studies of this sort is called protocol analysis. An investigator of skills associated with chess mastery asks a given subject to provide a continuous, verbalized report of the way he encounters and attempts to solve a specific problem. Such reports are called informal protocols, and have proved to be of great value and usefulness in studies of the psychology of human problem solvers, and in the development of numerous computer applications that simulate human problem-solving intelligence.[3]

If protocol analysis has been employed in detecting and defining the nature of general problem-solving processes, it has also been instrumental in the teaching of cognitive skills.[4] Summarizing research on the teaching of general intellectual skills done under an NEH grant at the institute of Human Learning at the University of California at Berkeley, Whimbey [1975] reports that greatly increased effectivensss in cognitive training occurs when a model's thinking process is made explicit through a written protocol, and read by students to gain a clearer picture of precisely what thorough reasoning and problem analysis consists. Students are normally accustomed to relatively well-organized presentations by the instructor who seeks to describe certain objectives and exemplify applications which achieve those objectives. The most important part of the process involved in the teacher's own ability to do this has been left out: little or no attention is paid to *what it is like* to undertake a particular type of philosophical analysis; rather, attention tends to be directed almost exclusively toward the products of representative analysis. Students who come to the class with

[3]See bibliographical note.
[4]See bibliographical note.

already developed general comprehension and reasoning skills that are fundamental in that class, are likely to be able to undertake similar philosophical analyses. But it is also likely that neither they nor the teacher has understood explicitly what the specific nature of the reasoning or problem analysis is. At the same time, a significantly large student population will very probably remain at a comparatively low level of development in the requisite skills.

Intelligence, and philosophical intelligence, in particular, is most profitably understood as an open-ended set of mental skills. It can, as Whimbey has emphasized, no more be defined as a unidimensional characteristic than can any other complex skill such as tennis or swimming. A useful definition of intelligence will make explicit the character of the main processes that are carried out in achieving specified objectives. What is interesting here is that protocol analysis serves both to make these processes explicit, and to provide students with a model of these processes in a manner which they can simulate.

Although there have been philosophical objections to this view, the prevailing conception of intelligence maintains that the skills which constitute general intelligence are exercized in an internal, private, and concealed manner. This traditional conception of intelligence has been associated with the view already commented on to the effect that intelligence is a fixed quantity. The resulting perspective has not only stood in the way of the education of intelligence, but has furnished an obstacle to a conception of intelligence in terms of specific, definable, and communicable skills.

Protocol analysis is of value in bringing the particular variety of intelligence sought to the surface where its activities can be monitored, and can profit from guidance, criticism, and approval. No philosophical point is being made here covertly, but rather a practical suggestion is proposed which there is good evidence to believe is useful to students in acquiring skills, and to researchers interested in understanding those skills.

If the thesis is accepted that protocol analysis is useful in the teaching of philosophy, then it probably also is the case that only representative protocols will make explicit to receptive teachers of philosophy what a philosophical protocol can be like.

In what follows, a sample protocol analysis is reproduced which has proved useful to students in the skill-oriented component of a course in analytic philosophy. The motivation in comunicating the protocol was conscientiously to disclose to

students an uncensored reasoning process employed in developing a philosophical analysis. The utility value of such protocols was evaluated based on the subsequent ability of class members to develop independently careful analyses with respect to a set of related problems.

SAMPLE PROTOCOL ANALYSIS

Sample question: Is there a metaphysical self?

Protocol: Let's see, the first thing I should try to do is make the question as specific as possible, pin it down, so that I can handle it. This means I will have to interpret the question, . . . but then this is the case no matter how well-formulated the question is that I start with: My interpretation of the question is likely to bring with it a way of answering the question. . . . So, how shall I proceed in interpreting the question? What alternatives are open to me? One would be to attempt to describe a view I am already acquainted with, and make this view the basis for my handling of the question. Another might involve my making a more or less random choice by fixing the meaning of 'metaphysical self' in a way which reflects one or maybe more than one way in which that expression appears to me to be used, probably by philosophers, since ordinary men don't go about speaking about metaphysical selves'!

There are probably more routes available to me, but two alternatives supply me with some options to start with. They seem to be: To provide a brief exposition of an author's views I am familiar with, or to try to make up my own mind about what I think about the matter. Now, it makes good sense to me that I am probably in a better position to talk about what I think than about what should appropriately be ascribed to someone else's thinking. The word 'appropriately' is important here, I suspect. Because I am certainly in a good position to talk about what *I* think *or* about what I think about someone else's thought; when I bring the word 'appropriately' in, that means I can be mistaken in what views I ascribe to someone else. If that is built into one alternative, I guess I might be well advised to take the other, and perhaps I can eliminate one source of error that way.

To bring together what I have thought so far: I have decided to exercize a comparatively random choice, and select a possible interpretation of the question which I can propose. I will not attempt to defend the interpretation, since this seems usually

to lead to quarrelling over one's choice of words. The position I represent via my own interpretation will be the position I will try to analyze. . . . And the validity of what I will have to say will be limited to that position, or to positions, I should rather say, that can be reduced to that position. This provides my analysis with a wider sense of generality, even if it is selective and hence limited.

Now I must decide what interpretation to fix upon that I will associate with the question. It is tempting to bring in a lot of terminology from specialized points of view; doing this makes me feel more confident that I really know what I am talking about. But now I suspect that all this specialized terminology will burden me with a responsibility that I don't need to accept. I would need to make clear, again, what my interpretation of the specialized terms is, and that would just push me away from a direct answer to the question. . . . Perhaps I should then try to confine my attention, as much as I can, to what I am able to state in what appears to me, at least, to be 'plain language". . . .

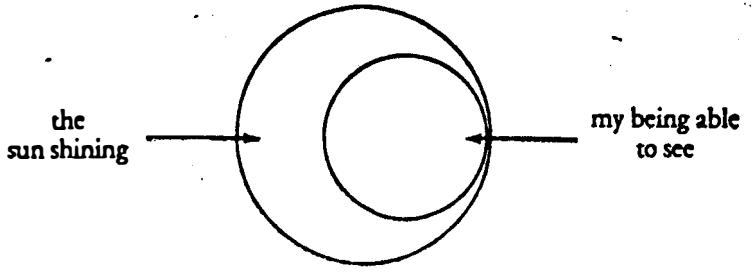
So, what does a "metaphysical self" appear to be to philosophers, from my own point of view? The fact that I am working in an analytical context, rather than, say, a psychological one, for example, makes certain things stand out as relevant. My analytical sense tells me the role of 'metaphysical' here will be important, since metaphysics constitutes a much more general thesis to which analysts react, than the less complex, specific issue about a self. . . . Things that come to mind that make something "metaphysical" are: it is somehow "more" than what I see, or am able to see—and not just see, but generally, can imagine, think about, refer to, hear, taste, etc. So, now I ask myself, What is a simple way of talking about a "self", and in so doing, make some claim like the basic "metaphysical" ones in the last sentence? First, then, what is a "self"? I can think of numerous terms that suggest themselves, like 'person', 'individual', 'ego', 'thinker', etc. It would be easiest if I limited myself to a smaller vocabulary. I think, even if this makes for some monotony in the terms I do use. . . . 'Persons', 'individual', and 'ego' seem respectively, the first two, too vague, and the third, too specialized since it brings many theses to mind from philosophy and psychology. But the term 'thinker' seems pretty straightforward, at least at the moment, so I'll try that.

I go back to the original question, Is there a metaphysical self? Now I want to translate the question into plainer language. To do this I want to combine what I have said about something

being 'metaphysical' with talking about being a thinker. I need to have a relationship I am going to pay attention to, a relationship between something which is metaphysically supposed to be "more" than what I can see, hear, think, etc. . . ., and a thinker who bears this relationship to that something metaphysical. I want a relationship that is general, but still in plain language. . . . Something just occurred to me: Why not think in terms of this question: Must there be a thinker for every thought? But wait a minute, this just occurred to me; what brought it to mind, and is the question really appropriate to what I have said I want?

I have made a jump here. The question I just thought of is rather indirect: It appears to *imply* the kind of metaphysical thesis I want. I guess something went through my mind like this: How can I ask a question that suggests—here's where the implication came about—that something is "more" than what I can see, think about, etc.? If I ask, Must the sun shine every time I am able to see something?, it seems to be built into the question that maybe being able to see something depends on, or is a function of, the sun's shining; In other words, perhaps the sun shines at other times than those when I am able to see. . . .

This brings to mind the following diagram



In the diagram, the sun's shining is something more than what is available to me when I see. And this kind of relationship came to mind, when I thought of asking, Must there be a thinker for every thought? To make the analogy with the sun complete, I would have a second diagram showing the term 'thinker' on the left side, and 'thoughts' on the other. That diagram would suggest that there is a thinker for every thought, and that being a thinker is somehow more than something just associated with all thoughts, but is something "metaphysical".

This seems to help. It seems to give me more to deal with than I had at the beginning, just looking at the original question.

So, I have transformed the original question into the question, Must there be a thinker for every thought? and by this question, I mean the kind of relationship that my diagram makes explicit. . . .

Now I can begin to deal with the issues in an analytical way. Apparently, the question has two parts, since I realize I just distinguished between them above: One is the question whether there is a thinker for every thought, and the second is whether being a thinker is something more than a mere association with with every thought (if the first question is answered affirmatively). Now, I have two questions, and both seem to be essential to what I am going to claim is fundamental to the idea of a "metaphysical self". . . .

Now, I want to be in some position to offer an answer to each question. I know I should accept, at least for the purposes of analysis, that I must be able to justify in some fashion what I say. I can't just go ahead and answer each question, then, but have to build into my analysis my standards or criteria that give me a right to say what I will say. What ways do I have of justifying what I say? Well, I have the possibility of appealing to an empirical basis, to facts of observation; I can try to reason things out, and appeal to logic; I can set up some standard for the acceptability of a thesis: maybe simplicity, or maybe an operationally defined sense of meaningfulness (these two seem to be pretty much the same, at least operationalism claims it is the simplest explanation of what we do mean). Probably there are others. . . . What would I like to try using? What seems applicable by me? This is too difficult for me to answer without going back to my questions.

Maybe it would help me if I ask myself, how I would go about trying to show that there either is or isn't a thinker for every thought (my first question). Well, that is much more direct: I guess I would try to give evidence, from observations, that every time thought goes on, there is also a thinker correlated with the thinking. Of course, even if I could appeal to empirical evidence like this, it is always open to the philosopher to ask whether the relation between the correlates, the thinker and the thinking that goes on, is purely accidental or is more than that. . . . Here is that word "more" coming in again. Perhaps the metaphysician wants to say this relation *is* more than accidental. . . . Yes, I think that is true. So, I feel I should consider *more* than empirical evidence; I should also ask about the nature of the relationship between thought and thinker.

Have I now answered my own question, What standards or criteria would I appeal to to justify my answers? Yes, I think I have: I will appeal to the standard of empirical observation, and then will ask a logical or psychological question about the relationship between the thinker and the thought. I'm not sure whether I want to think about this psychologically, now that I reflect about this, since this is probably already included in the idea of using empirical observations—if I assume psychology is empirical in nature. So, I am now asking whether there is an empirical or a logical basis for two claims: that there is always a thinker for every thought, and that being a thinker is somehow *more* than something just associated with all thoughts, as my diagram makes this clear for me.

I seem to have done something I haven't made clear: I have again made a transformation here of my own two *questions* into corresponding *claims*. A claim seems to be something I can sink my analytical teeth into, whereas a question is harder to pin down. I'll ask whether there is any empirical or logical basis for making either of the two claims I have associated with my two questions. So, my own answer to the original question may involve answering either or both questions negatively or affirmatively, which means four possible answers. . . .

Before I begin doing anything in a step-by-step fashion, can I anticipate my own point of view? Yes, I think I can: I think I will be led to say there is no empirical or logical basis for the first claim; I'm not so sure about the second, but I feel there is something contradictory going on there, since if I look at my diagram, what immediately comes to mind with regard to the second question is this: If the right side contains all of my ways of making observations, all my ways of thinking, etc., how would I be able to justify that there is more than what I can think about or observe? Wouldn't I need to think about this? or make some kind of observations about it? If so, then I am still not getting over into the left side; I am still talking about what I can think about, etc. If this turns out to be contradictory as it seems to be to me at this point, then I think I foresee these as answers to my two questions: That there is neither an empirical basis nor a logical basis for making the first claim, and that the second claim is inconsistent since it is self-contradictory. If I can show these two things, then what is my point of view with regard to the original question, Is there a metaphysical self? If I say logic and observations cannot allow me to know, and that anyhow, the whole idea is self-contradictory, have I

answered the question or not? This seems strange: I don't seem to be saying there *is* a metaphysical self, nor do I seem to be saying that there *isn't,* but yet I do feel my answer would be an answer to the original question. . . . What is my answer, then? It seems to be that the question with which I began has something wrong with *it*: It doesn't seem to be quite fair to say the question is *meaningless,* since, after all, I have spent a good bit of time trying to understand what its meaning is. It isn't itself inconsistent, because I wasn't aware of any inconsistency until I tried thinking about claims in favor of a 'metaphysical self'. Perhaps all I can say, or want to say at this point, is that the question is *seductive,* and that it leads easily into making claims for which no empirical or logical evidence can be given, and in a way which is inconsistent. . . . Finally, it is perhaps interesting that by arguing in this fashion, it seems to make very little difference how I characterize what constitutes a "thinker", so I make no attempt to define this everyday word.

What have I achieved in thinking this out informally? I'll try to outline what I think is important, in retrospect.

1. Reflection on the original question; try to make it specific, easily handled.
2. Realization that there are numerous possible ways of interpreting the question, and perhaps recognizing that I can't effectively deal with all at once, so I exercize an option to deal with one that I single out, perhaps at random.
3. I will not defend the interpretation, since this may imply that it is "appropriate', and this usually leads to quarrels over how words *ought* to be used. By not defending the interpretation I select, my position also seems to be stronger, since my own claim is quite general: All I intend to talk about is the (possible) interpretation I have selected, and my conclusions will be relevant only to positions that are reducible to being interpreted as I have outlined.
4. I decide to avoid specialized terminology, since this adds other responsibilities to my attempt to reach some clarity—i.e., the responsibility to make clear how I am using such technical terms.
5. I then try to pin down what, in plain language, a "metaphysical self" might be. I am willing to accept terminological monotony, if this is useful for purposes of clarity.
6. It seems to be useful to think of the problem in terms of a simple diagram, which makes explicit a way of *breaking*

down the original question into more easily handled parts. This is extremely important! Breaking a question down is one of the few ways problem solvers can exercise some *leverage* over the problem: breaking a question down gives the analyst almost a *mechanical advantage*—it is really a conceptual advantage—over his subject.

7. I then come to see a need to make my own criteria of justification explicit; unless I do this, I won't be able to judge, nor will anybody else, whether I have demonstrated something, or just expressed an opinion.
8. Criteria of justification come in all shapes and sizes, and it is tempting to wish to shoot a titmouse with a bazooka. But it is also not very efficient, and certainly not very elegant! So, I try to select ways of justifying the points I wish to make which seem to be almost naturally suggested by what I wish to say. I am able to make some headway by reflecting upon how I would probably proceed with a specific problem.
9. I find it more straightforward to treat *claims* rather than a vague question. My analysis of these claims will provide me with an answer to the two questions I distinguished.
10. Having done this much, I try to anticipate this answer and the conclusions I draw from it so as better to formulate my point of view.
11. I then need to turn back, and make clear to myself in what way my own answer to the question actually constitutes an answer to it. I realize that my answer to the question posed at the beginning in fact makes explicit difficulties which were built into the question itself, and which were inclined to serve as temptations for inconsistent claims.

It is now easy for me to develop my own argument in a more formal way, that is, in a step-by-step sequential manner. I would *reverse the order* of my own realizations, 1.—11.: I would first make clear that my answer to the original question constitutes an analysis or meta-critique of the question itself. I would describe how I planned to go about this analysis by directing attention to certain *claims*, making explicit appropriate standards of justification for what I say, breaking the original question down into easily handled parts, and then transforming the original question into two related questions stated in plain language. I make clear just how I intend my own analysis to be taken—i.e., I will not defend my initial interpretation, but address only the possible position I have described, since I do

not want to waste time worrying over the selection of "appropriate terms". My conclusions are to be taken only in a sense that is relative to positions the interpretations of which are reducible to the paradigm case I have decided to deal with.

Doing this leads me to believe I am beginning to exert control over the concepts I *choose* to work with, in a way that is open to view for all to judge, so that *I may also* determine whether my approach is valid: If others find it difficult to judge the quality of my ideas, probably I will inherit the difficulty they experience, but often without realizing it.

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