Psychoanalysis and Pseudoscience

Introduction As is well known, the scientific status of psychoanalysis is heavily disputed. In this paper I will defend the notion that psychoanalysis is in fact a pseudoscience for various reasons. To this end, I will first explain why it does not matter whether or not psychoanalysis is claimed to be a science in order to pass judgement on it in terms of science. To achieve that goal, I will discuss how psychoanalysis makes claims about things that are in the domain of a branch of science, namely in the domain of psychology. The scientific status of psychology itself is subject to some dispute (particularly among those who might be favourable to psychoanalysis). I will therefore explain why the non-scientific "psychologies" (for example, the hermeneutic "psychologies" in Messer et. al. 1988) are wrongheaded. (Section I) Then I will proceed to examine some of the concepts and claims of psychoanalysis in an attempt to show their status or lack thereof in science. (Section II) I will then continue the paper by answering some more general criticisms on this enterprise that may arise in the course of *the pape*r but are sufficiently general that they deserve a section of their own. (Section III) Finally, I will conclude by summing up what has been learned about the scientific status of psychoanalytic concepts, and discuss a few consequences this should have on psychoanalytic therapy and practice more generally. (Section IV) I note in passing that this paper will say nothing, except indirectly, about the philosophical status of psychoanalysis.

But first, a general methodological point, before I get started with section 1. It is true that there are many branches and schools of psychoanalysis with different concepts and so on. In this paper, I will treat all the schools as a monolithic block. I think this is fair, as my comment[s] will be sufficiently applicable that they will be relevant to all the schools, at least to a reasonable extent. As I clearly do not have the time to survey all the schools, I am more than willing to amend my claims *about psychoanalysis to exclude certain branche*s if that turns out to be appropriate; however it is my general impression from the psychoanalytic literature that my comments herein are generally applicable. I would also like to note that any translations that occur within the text are my own.

Section I - Why Psychoanalysis Claims Are Within the Domain of Science

[1] I take it as given that we want to distinguish pseudoscience from science. If this notion is disputed, I will not defend it here. See, however, section III for a brief discussion on this issue. This assumption will be all the more critical in the last section of the paper, when I discuss the upshot of the science-oriented investigation. If necessary, I will, however, be willing to further discuss it in the discussion following the presentation of my paper.

As I have said previously, my first task is to explain why psychoanalysis makes claims in the domain of science at all. This is important, because some psychoanalysts have claimed that it shouldn't be judged by scientific criteria if it is not claimed to be a science. This is false, as that would entail that one could protect one's pet pseudoscience by simply claiming that it isn't science at all, and so on.

I will start by drawing examples of psychoanalytic concepts and their explanations from the book A Narrative Textbook of Psychoanalysis (Giovacchini 1994). First, let us at the section concerning the subject matter of psychoanalysis. We must do this in order to find the proper science to compare it to. The author writes (p. 25) concerning psychoanalysis's "metapsychological approach":

"Freud's intention was to understand psychopathology, but the metapsychological approach is not limited to psychic aberrations, as it encompasses all mental functioning."

Compare this explanation with the one found in a typical introductory psychology text. For instance:

"... psychology has become the science of behaviour and mental processes." (Myers 1996, p. 3)

So, then, both psychoanalysis and psychology are about the mental, at least in part. (We shall return to the concept of the mental later, as will *play an important role in* our future discussion.) But can one talk about the mental nonscientifically - and hence psychoanalysis might be placed in this category. While we will eventually see that this the case, it is also true that psychoanalysis makes specific claims and conjectures about the functioning of the mental. This is why it is not just a "common sense" or "everyday" notion of the mental. (Though, as we shall see, it does include a lot of common *sense ideas* of it in its explanations.)

Let us begin our analysis of psychoanalytic concepts by looking at the "topographic hypothesis." Giovacchini (1994) discusses how the topographic *hypothesis is concerned with such notions as "psychic*

[2] I note in passing that the author asserts that psychoanalysis IS a science, though doesn't explain why.

[3] I shall leave to section III why common sense is not a good way of "getting out" of the difficulties with psychoanalysis.

*structures" and their positions and fu*nctioning. For instance, he reports how Freud divided the mind into three parts, the unconscious, the preconscious, and finally the conscious. Despite the fact that he did not specify rigid boundaries, this is a scientific-like claim. This is because the subject matter of science is the structure of and interactions of things in the world.

I will digress briefly to explain why that subject matter is in fact the correct subject matter for science, as it may not be obvious to some. After all, as is well known, there is some dispute over the meaning of the word science. Let us take the definition of system of factual scientific research fields proposed by Mario Bunge in Finding Philosophy in Social Science (Bunge 1996) and elsewhere. One part of his definition includes the domain (universe of discourse) of such a field, which includes putatively real entities. Science looks to find explanations (or at the very least descriptions) of the interactions of these things. It may be rejoined at this stage that a general theory of things in the world is not the province of science, and is in fact the province of metaphysics, our First Philosophy. This is true, however, I feel that any metaphysics in this day and age must be continuous with science. For more on this issue, wait until section III of the paper, and consult Bunge 1977 for much more than I can provide here.

But, some may object, **what is the** place of psychology in the scientific pantheon? This is important, as we cannot simply rely on the definition I proposed before to determine this. After all, some things claimed to be science aren't, and often things that are sciences are often claimed by various people to not be. Once this is done, we will finally see that psychoanalysis makes claims both in the domain of a science and in specific in the claims of psychology, as hinted at above.

Let us first look at psychoanalysts own views about the status of their discipline. It is relatively common for psychoanalysts to claim a hermeneutic status for their discipline. A related remark is that of the French psychoanalyst Lacan who said: "Psychanalyse c'est l'art de bavardage." (Psychoanalysis is the art of chatting.) I will examine the central claims of what is called hermeneutic "psychology" next.

Hermeneutics, broadly speaking, is the interpretation of texts. Prima facie, it does appear that animals (such as human beings) are not texts,

[4] That Penfield himself was a dualist (see Penfield 1975) is of no concern as an objection as it is simply an appeal to authority.

but as this thesis has actually been claimed (or, alternatively, that we are "like" texts), I will take this claim seriously enough to make some comments on it. But do not lose sight of our aim, here. Our aim is now to show the scientific nature of psychology, and hence complete the explanation of why psychoanalysis makes claims in the province of science. (I am preceding somewhat negatively - by showing that the typical opponents of scientific psychology are mistaken.)

For example, let us look at the claims of the well known Charles Taylor, in his piece Wittgenstein, Empiricism, and the Question of the 'Inner': Commentary on Kenneth Gergen (Taylor 1988) concerning the hermeneutic status of psychology. He writes (p. 58 of the collection in which this paper appears):

"But insofar as we mean just minimally by it, that what people do has a 'meaning', which is often not clear on the face of it, then it doesn't need to lead us astray. Unless, that is, we in turn interpret *this no*tion of 'deeper' *meaning in terms of the old em*piricist theory and think of it as hidden in some space that by its very nature is inaccessible to the 'outside' observer."

This passage betrays some ignorance concerning the nature of the discipline of psychology as well as other errors. First of all, Taylor makes the common mistake of misusing the term "meaning." People (and their actions) do not have meanings, they have purposes (at the best of times, anyway). This elementary confusion is one root of the hermeneutic approach. I will be charitable and assume that Taylor meant by "meaning" the notion "purpose." He next sets up a strawman of the science of psychology - no psychologist would say that purposes are by nature inaccessible. For instance, unless one is a committed dualist (an issue on which we shall see more later), a purpose to an action is presumably a collection of brain processes in the brain of the subject performing the action. At this stage[5] it is important not to commit the solecism of confusing a statement of a purpose with the purpose itself. It may be also rejoined that this measurement of purpose is impossible. Admittedly, we are unable at present to do such investigations with our

[5] Grammar and theology are not branches of science!

[6] Quantification is not sufficient for exactness - for instance, take the notion of subjective utility common in mainstream neoclassical microeconomics. This concept is very fuzzy, and yet has been presented numerous times in mathematical dress in journals, text books, etc. of economics. See Bunge 1996, 1998 for details.

instruments but nothing rules it out in principle. A great deal about the locations of various “higher brain functions” is known. (See, for example, Petrides 1998.) Secondly, Taylor assumes that psychology (or, I assume) all sciences are committed to an epistemology of empiricism only. This is false. Science is both rationalist to some degree and empiricist to another degree. This synthesis is called ratio-empiricism, and it is adopted at least tacitly by all genuine scientists. (See Bunge 1996.) Granted, all science data are empirical, but unorganized data is not the aim of science, as is well known. As for the third popular strand of epistemology, intuitionism, including what is called “Verstehen” and Husserl’s Phenomenology, this generally has no place in science. This does NOT entail that scientists do not or should not make use of intuition.

Let us now look at a second way hermeneuticists (and more generally, those who dismiss the scientific character of psychology) try and justify their thesis. This second way has to do with the meanings of these two German terms, Naturwissenschaften and Geisteswissenschaften. The first of these terms is acceptably translatable as “natural science.” The second of the terms, however, results in some confusion. Literally “sciences of the spirit”, some (for example: Taylor, Dilthey, Gauld, etc.) have thought that this entails a gulf between the kinds of disciplines. The single best reason for the falsity of this thesis is the existence of interdisciplines which exist between natural and social science. Psychology is precisely one of those disciplines! Psychology is an interdiscipline because it <u>studies</u> both natural objects, and social realities. For instance, behavioural neuroscience studies the workings of the brain and its relation to behaviour. And social psychology studies society-individual relations. For instance, while language requires the brain to function, it can only be learned in a social setting. (For the same reason, linguistics is another example of a mixed science.)

Some people may at this stage claim that the societal aspects of psychology are what they are interested in, and that these may be divorced from the rest and “interpreted” by means of hermeneutics. This cannot be done, at the very least for the case of my language example. And what do hermeneuticists seem to pay the greatest attention to? Language. As we saw previously, they insist that people are or are “like” texts. *Furthermore human beings* are partially natural objects - they are not wholly social. To deny the importance of biology is dangerously ludicrous in this age of great advances in physiological

psychology, evolutionary biology, and so on. Finally, the divorce between Geisteswissenschaften and Naturwissenschaften is untenable because science is unified in method - and so the social sciences and the natural sciences cannot be divided on that account either. Basically, they are both the same sort of enterprise (i.e. they are both branches of science) because of the common characteristics to both. See Bunge 1996 for more details.

We have now seen that contemporary worries about the scientific status of psychology are spurious. We have hence also seen that psychoanalysis makes claims in the domain of science. Let us now turn to the second section of the paper, where we actually will see how psychoanalytic concepts fare under scientific scrutiny.

Section II - Scientific Scrutiny of Psychoanalytic Concepts, etc. Let us return to Giovacchini's (1994) work and take the concepts therein under rigorous investigation. Among the very first concepts we find explored is the notion of psychoanalysis itself. The author opens the text by discussing the possibility of a definition of psychoanalysis, and concludes *that it shouldn't* be defined because the definition would be "too limiting." To a scientist or a student of exact philosophy such as myself, this is sheer obsfucation, for several reasons.

The first is because definitions are conventions, and as such we can revise them when and as often as necessary. For instance, the definition philosophy used to include works on the explanation and description of motion. (Hence Aristotle's Physics and Newton's Mathematical Principles of Natural Philosophy.) Today we would say these works would be in the province of what is now known as the science of physics. We do not see courses on motion of bodies and so on in our department today. Nor is it necessary that definitions be revised by narrowing their scope; they can also be enlarged. (For example, the concept of element, in the physical sense. In Aristole's time, there were said to be 5 elements. Now we know there are at least 109 of them, probably more, and we regard them in a different way.

On the other hand, if our author thinks that definitions "compartmentalize" things, this is to some degree true. However, no discipline stands alone. For instance, all discourse with any hope of being understandable has to make use of logic. As we all know, logic is the study of patterns of argument. Even those writers, for example, some existentialists, some feminist "theorists", and so on who claim not to

use logic then go on to give such and such a group of interconnected reasons in an attempt to persuade (in some way) their readers of their case. Hence they use logic. Many other disciplines besides logic can go into the “input” to a given discipline. By failing to provide a definition of psychoanalysis, we cannot even begin to know what it putatively studies. (Of course, our author claims that it has something to do with the psyche, and later he will talk about what it studies generally, but for now, he is leaving the reader in the dark.)

He then introduces the core psychoanalytic concepts of the id, ego, and superego. In these definitions/explanations (it isn’t clear which he intends), he talks about “levels of the mind.” Nowhere does he provide a definition of mind. This is one example of the leaving things to common sense that was alluded to previously. Since, as we all know, there is great controversy surrounding the nature of the mental itself, I regard this as a grievous oversight. But this is not the worst part of these remarks. If, as one ought to do in science, one construes the mental as being particular brain processes (to be specified by investigation scientifically), the use of the term level needs to be explained, for it does not appear that “level” in the context of a process makes any sense. (It does have a well defined meaning in conventional cognitive

Table 1 - Psychoanalytic references

Discipline	References	Comments
Psychoanalysis	205	
History	6	
Medicine	3	1 from 1825, 1 from 1911
Biology	7	
Sociology	1	
Philosophy	3	Kuhn, Spinoza, Nietzsche
Psychology	2	Not referenced in text!
Grammar	1	Style guidelines from JAMA
Theology	1	Maalleus Maleficarum
TOTAL:	229	

psychology. See, for example, Medin and Ross 1997, for details. It is, however, unlikely that the concepts have anything in common, as Giovacchini's notion appears to be (broadly speaking) ontological, and the one in conventional cognitive psychology to be epistemological.) If we do not take materialism for granted, we cannot do science.

Let us see why. Science and anything compatible with it (i.e. a philosophy, world view, etc.) requires a commitment to ontological materialism for several reasons. Firstly, there is Descartes' problem. This is the problem of how something immaterial interacts with something material. Descartes' answer is a non-answer, because it just amounts to "and then a miracle occurs", and as we know, miracles are incompatible with science. (This has been pointed out in various ways by various thinkers at least since Epicurus, and probably Democritus.) Furthermore, dualism is wildly inconsistent with evolutionary biology. How does something obtain an immaterial nature through evolution? Also, dualism is also inconsistent with physiological psychology. For instance, if one has ever kept oneself awake with caffeine, gotten drunk, felt funny after eating something, or used any other recreational drugs, they know first hand that mental functioning is affected by material objects. Saying that there is some sort of interaction without specifying how is just an obscurantist begging of the question against the materialist. It also makes Penfield's famous experiments in somatotopic mapping impossible to understand . There are also yet more*reasons from physics and other fields, but I will leave* that to the literature. (See reasons in, for example, Bunge 1981 and Dennett 1991.)

Hence if dualism is taken for granted in psychoanalysis, it makes nonscientific claims about the mental and is hence pseudoscience at best. Which of course would prove my thesis, but I will assume, in the interests of charity (at least for the moment) that psychoanalysis is not committed to dualism.

Some may say there is a third alternative, namely that we are supposed to take leve[l] somewhat metaphorically. Two problems arise from this suggestion. One is that metaphor is to be avoided in scientific discourse, or at the very least elaborated upon. Neither are done in the present piece. The more damming problem, however, with treating the "level" concept as a metaphor is that it makes the whole "trinity" of psychoanalysis vague and fuzzy. (This is one reason for the first problem.) This is of critical importance, because if psychoanalysis is aiming to understand the relationships between these mental components,

and fuzziness is introduced and tolerated, we *shall not know how to* test, evaluate *and so* on. If it is then claimed that we should not test such things, then my interlocutor has conceded the point that psychoanalysis is a pseudoscience. One mark of pseudoscience is the unwillingness to put conjectures to the test - especially fundamental concepts in the particular field. Later we shall see how well psychoanalysis has actually fared in the testing arena.

Moving on, then, to the concepts introduced in the metapsychology chapter in Giovacchini (1994). I will first examine the concept of censors. One of these (whatever it is they are) is postulated to exist at the boundary of the preconscious and the unconscious. Another, “less rigid” one is postulated to exist between the preconscious and the conscious. What are these structures and in what sense are they rigid? We are not told even a working hypothesis of how to find them (again, we must assume in the interests of charity that they are supposed to be something in the brain.)

It might be rejoined that at the time in which Freud was writing there was little knowledge of brain function, and hence to judge him by modern scientific standards is hence unfair. Σeveral comments of note can be made concerning this ρεμark. One is that Giovacchini himself discusses these concepts as if τhey are still usable today, αnd we certainly know enough about the brain to hazard a few hypotheses about these

Table 2 - Typical Psychoanalytic Hypotheses

Tested	Untested
There are only two drives: Eros and Thanatos	The mind is composed of id, ego and superego
Personality is determined by toilet training and early sexual experiences	All early experiences are repressed (not just forgotten)
There are only two personality types: oral and anal	If the manifest dream content is not sexual the latent is
All males suffer from the Oedipus and castration complexes	The course of all mental processes is automatically regulated by the pleasure principle
All females suffer from the Electra complex and penis envy	Sticks, trees and the like symbolize the penis
Behaviour is determined by the Unconscious	Holes, tunnels, and the like symbolize the vagina
All neuroses are caused by repressed sexuality	Paying for every analysis has a curative effect
All persons go through homosexual phases	Hamlet suffered from an unconscious Oedipal guilt
Dreams are basically neurotic (or psychotic) and their goal is to protect sleep	All intellectual and artistic creativity is a sublimation of frustrated libido
Violence and the watching of it have a cathartic effect	The ego of one and the same person can be masochistic while the superego is sadistic, or conversely

sychoanalytically critical processes or structures. Second, Freud himself was well versed in the neuroscience of his day, or at least that up until the time he started practicing psychoanalysis. For instance, as reported in The Freudian Fallacy (Thornton 1983), Freud did study neurology under the great Charcot in Paris. If he had kept up with this emerging science, Freud surely would have taken into account Cajal’s 1891 discovery of the neuron. The question of why he did not is best left for the historians and the biographers - the aforementioned book

discusses this issue in detail.

Let us now look at an interesting assertion by our current author. He writes (p. 31):

“Studies of emotional development and psychic adaptation, such as longitudinal studies and neonatology, have indicated that Freud’s ideas hold well in regard to their findings and that some of his models serve as useful conceptual scaffolds for their observations.”

Note the complete lack of references here. Even one reference to a paper in one of the fields mentioned would do wonders towards improving the author’s credibility. But none are cited. Why? A more cynical critic would suggest that the author is making this up or at least distorting it. I will make no such claim, however, in the interests of charity.

Giovacchini then discusses a clinical case of a patient who would continually forget a dream that she told the author about during an analysis session. Giovacchini uses the case to illustrate the alleged interaction between the preconscious and the unconscious. But does he consider any alternatives, or perhaps better explanations? No. A conventional psychologist or physician at this stage might begin to wonder whether the patient had physical damage to her brain to account for her memory lapses. This unwillingness on the part of psychoanalysts to consider physiological damage is *explored in great detai*l in The Freudian Fallacy. Here is one particularly horrifying case. (p. 230)

“Thanks to Freud, a patient coming under the care of a psychoanalytically oriented psychiatrist has an excellent chance of never receiving a single physical investigation in the whole course of his illness. An example of this approach is the Freudian psychiatrist who was invited to a children’s ward and asked for a diagnosis of some of the patients there (Benda 1960). He made various Freudian suggestions involving Oedipal motivation and so on. The children were actually suffering from phenylketonuria, a congenital disease in which metabolism of phenylalanine, one of the amino acids, is impaired.”

Someone might object that very often it is difficult to tell the exact biological causes of illness, and so the analyst in the above example simply erred. This remark is ill-advised on two grounds. Firstly, the analyst made no *attempt to study the biolog*ical issues in the above case, so the *issue of whether a biological cause could be found* wasn’t

even explored. Secondly, note how incredibly far the analyst was off the mark. To quote *the great Enrico Fermi, the* psychoanalytic diagnosis in this case was *“not even wrong.”* It is also relevant to note that Giovacchini’s book does *not at any time tell the r*eader (who is supposed to be a *student of psychoanalysis) when to not analyze and instead use physiological* means. This is not to say he need dwell on this point, but the fact that *it does not come up at all suggest*s an antipathy towards more conventional medicine, and hence to science. This is important, because one of *the marks* of a pseudoscience is isolation. (Bunge 1996) Later we shall *see another way in which psychoa*nalysis is scientifically isolated

If we continue *with the examination of Giovacchini’s* text, we next find discussion of the so called “structural *hypothesis”. We are tol*d that this model *is ant*hropomorphic. This *should set off one’s “*alarm bells”, as there is a danger here of committing the homunculus fallacy. (Not necessarily though - *some anthropomo*rphic concepts would not, for instance those *in De*nnett 1991.)

But, *even more striking is how* some passages in this text stand out particularly saliently in the *course of a philosophico-scientific investigation. One su*ch passage concerns “elements” (what these elements are (i.e. things, processes, etc.) we are not told) of the ego and the id. Ego elements *are said to be psychological qualities of mentation, and the id is said* to be comprised *of biological* interactions and processes that are *prementational. The point o*f interest here is the biological/psychological divide. As remarked earlier in this paper, psychology has two main focuses that can be more or less emphasized by a given researcher. These are the social/physiological axes. But as we know, there is physiological social psychology; these two kinds of systems in the world interact and hence so do the disciplines studying them. Yes, Giovacchini is right in claiming that there are prementational processes that go on within us; but why the distinction he draws? It seems to be implying that “higher order” mental processes (presumably things like reasoning and so forth) are not biological, which suggests a mind-body dualism once again.

Let us now move on to the relationship between psychoanalysis and other sciences. As was remarked previously, one mark of pseudoscience is isolation. We would expect that psychoanalysis (if a science) would draw upon materials in other scientific disciplines. I have summarized the bibliography of Giovacchini’s work in the following table.

As we can see, only 7.4% of the references are to other branches of science . If we remove the history references as being irrelevant (psychology is generally too removed to make use of history per se; further, a perusal of the actual titles indicate their irrelevance - for instance a collection of the works of Herodotus), and we remove the ancient medical references, we are left with the 6 biology texts, a sociology text, and 2 psychology texts which are not referenced by the work itself and 1 medical text. This leaves 4.4% of the texts in the references which are possibly “outside” references. If one actually bothers to check on the usefulness of these to Giovacchini’s book, as I did, at best 8 of them remain (3.5%) as he does not ever refer to what appear to be the two token psychology books. This is absurd. If psychoanalysis has anything meaningful to say about mental functioning, one would expect numerous references to the psychological literature and likely to many allied disciplines.

If one does the reverse of the previous tactic, and takes a modern cognitive psychology text and looks for references to psychoanalysis (surely an enterprise that putatively concerns cognitive function), what does one find? I took Medin and Ross’ 1997 text and did just that. The subject index does not have a single reference to psychoanalysis; the references list many texts in all branches of psychology (learning, perception, motivation, social psychology, psychophysics, cognition proper, etc.), as well as in linguistics, computer science, neurology, economics, medicine and so on. This tells us two things about psychoanalysis. One, that it is indeed isolated from other disciplines, and two, that legitimate scientific disciplines do indeed borrow extensively from other fields.

Changing gears a little, let us now investigate the formal tools used in psychoanalysis. As is well known, physics was the first science to make extensive use of formal tools (i.e. mathematics); we also know that any science can use as much mathematics as we like. How much mathematics does psychoanalysis use? I could not find a single equation in Giovacchini’s present work or in a sample of Freud’s (1949). This suggests some backwardness; however when one cannot even find any figures either, these are yet another symptom of pseudoscience. Note very well - I am not expecting tensor calculus à la general relativity or graph theory as in a book on data structures. But one does expect

some use of figures and hopefully (i.e. eventually) some equations in all science. Even a so-called soft science like sociology tends to have some numerical data. For example, Unknown Gods: The Ongoing Story of Religion in Canada (Bibby 1993), a text on the sociology of religion in Canada, contains numerous tables of church attendance polls, and so on. No equations, but plenty of quantification - in other words, a good start towards using formal tools. For hints on how to apply mathematical tools to “softer” sciences, see, for example, Bunge 1998, particularly appendixes 1 and 2. (There we find mathematical models of societal cooperation and competition.)

Why should we quantify? This question is important, as without a satisfactory answer, this objection to psychoanalysis would carry little weight. Firstly, the use of formal tools includes exactification. Secondly, whatever comes in degrees can be quantified. Hence the last two points taken together entail that formality can be used towards a cure of fuzziness, at least in part . Thus we can see how two objections to the psychoanalytic enterprise become stronger when buttressed together, as I suggest that they should be now. I will not hazard any in depth guess as to why mathematical tools are absent from psychoanalysis, but one reason may the hermeneutic influence we have seen previously. Hermeneutic thinkers seem to abhor mathematics as well, for whatever reason. (Again, however, I do not claim to know why.) If we examine hermeneutic strands of thought, for example, the book Hermeneutics and Psychological Theory (Messer et. al. 1988) we also find the absence of number and equation.

At this stage we have now examined the scientific status of several psychoanalytic concepts and further investigated its relation to other sciences and to formal tools, let us move into how it fares when actually tested. Testing is important to anything that might be science, as we all know.

Let us start with one of the most famous psychoanalytic concept of all - repression, before moving to a general survey. The idea behind repression was Freud’s conjecture that there is no such thing as forgetting (or alternatively, that we don’t forget as much as was thought, and “block out” memories to a great extent.) Fortunately, memory studies have progressed since Freud’s idea came on the scene, and it is now well known that it is false. Further, and perhaps more horrifyingly, the so-called repressed memory therapists are in effect creating the memories in their clients. Also, fortunately, due to the

creation of the False Memory Syndrome Foundation and the intervention of conventional psychologists, this disturbing chapter in medical and legal history is coming to an end. (See Medin and Ross 1997 for details on the nature of constructive memory.)

Some other typical psychoanalytic hypotheses and their status are presented in the following table. Again, I am not saying one must directly test everything. Often times one has to rely on indicators and perform indirect testing. Of course, that requires a exact system of indicators, which is difficult in disciplines where the concepts are fuzzy. Hence one more reason for exactness is hence to provide some semantic and logical structure for hypotheses. For instance, if we cannot test hypothesis b directly, but we know we must have a⇒b (this is called an indicator hypothesis), we can make a obtain and hence check b.

I have adapted the preceding table of tested and untested psychoanalytic hypotheses from Bunge 1985. The most important question at this stage, then, is - what is the status of the tested ones? The very way the table is set up gives a hint at the answer. In other words, the tested ones have either been refuted empirically or shown to be inconsistent with findings in experimental psychology, neurophysiology, ethology or anthropology. The others have not been tested either because they are untestable or because nobody has bothered to do so.

Either possibility is damming. If a hypothesis is untestable, it does not belong to science. (Bunge 1996.) If it hasn’t been tested, it is unscientific to assert its truth. (And, as I will discuss a bit later, dangerous to develop a technology from it.) The question remains of why various psychoanalytic hypotheses haven’t been tested seems unclear. Dogmatism towards hypotheses is typical of pseudoscience, so we have yet more evidence towards our thesis.

At this stage, we have seen that psychoanalysis is fuzzy, marginal, hints towards mind-body dualism, the complete lack of formal tools, suffers from endemic untestedness and untestability, and even found direct refutation of some psychoanalytic concepts. We are now ready to put all this together and find the upshot of the analysis of psychoanalysis. But first, I will field some general questions concerning my current project.

Section III - General Philosophical Worries Answered Since this paper is being presented in part to a philosophically oriented audience, I will take the time to answer some very general philosophical worries about the origins, motivation, and so on behind my criticisms.

The first worry concerns why we should care about denouncing pseudoscience. We shall see more of this in the upshot, but for now let us see several reasons here. For one, I take it as granted that we want to know something about the world. This seems plausible, because even the most radical of ontological constructivists betrays her philosophy every time she says “oh no, where did I put my <something>”. What follows from this is that one should attempt to correct false pictures of the world - e.g. pseudoscience. Secondly, and perhaps more critically is societal improvement. In other words, in order to make sensible, humane and productive reforms to society, we need genuine knowledge. We also must contain pseudoscience because it has a contaminant effect on legitimate science, particularly immature branches.

Second is the issue of science oriented metaphysics, alluded to earlier. I take Bunge’s suggestion concerning the continuity of science with metaphysics as a postulate of my philosophy. Disagreement with this postulate does entail some difficulty with understanding this paper. I would like to bracket those worries, should they exist, as it does take some rather lengthy and off-topic argumentation to support my position here. I plead completely guilty to the derogatory label of “scientism”, if any critics are wanting to label me such.

Thirdly, I mentioned I would explain briefly why common sense is inapplicable in the current dispute. There are several reasons. The first reason is that as far as I am, concerned, “common sense philosophy” is an oxymoron. The reason for this is very simple; as everyone no doubt knows, common sense repeatedly makes errors in inference and has incredible lacunae in all areas of knowledge. Hence a good philosophy should go beyond these limitations and attempt to fill in these deficits. The second reason, related to the first one, is that common sense also begs the question in the dualism dispute. For example, least in the European languages that I am aware of, a sort of dualism is already built into the language. (In passing, this may be one charitable way to interpret some of Wittgenstein’s remarks in Philosophical Investigations.) This, of course, is one reason to stress exactness and make use of formal tools.

Fourthly, I would like to stress that even if we are to take psychoanalytic concepts metaphorically my critique is still relevant, if only because psychoanalysis is used clinically. Giovacchini, at the very least, thinks that the concepts are literal at least to some degree, as I imagine any analyst does. After all, if the concepts are far removed from reality, how does the analyst hope to find any sort of applicability for them in the cases of his patients?

Section IV - Upshot We have seen that psychoanalysis has made claims in the domain of scientific investigation, and yet includes numerous pseudoscientific characteristics. These include imprecision, marginality with regards to legitimate scientific fields, lack of formal tools and use of quantities, and contains hypotheses of three kinds - untested, refuted and untestable, and mind-body dualism.

What then, do we conclude? I propose that any one of these problems with psychoanalysis is enough to suggest that it is indeed a pseudoscience. The fact that there are so many of these pockets of pseudoscience suggests that the entire discipline, so far as I have surveyed is pseudoscientific through and through. This, of course, prompts the question: “So what?”

Psychoanalysis being pseudoscience entails several things. For one, it is hence no likely better than a therapeutic placebo as a curative treatment. This conclusion is agreement with the opinions of psychoanalysts themselves, as pointed out in Thorton 1988. Hence why would anyone want to bother seeing a psychoanalyst, as opposed to any other sort of psychiatrist? Admittedly, some people will benefit from simply talking to anybody at all and so having “willing ears” available serves some function.

But it goes beyond that - it is in fact downright dangerous to get a pseudoscientific treatment. Would you trust a house builder who knew nothing of the strengths of materials? Or a computer scientist who claimed that computers function by intervention of ghosts? As we saw with the example of the babies with phenylketonuria, psychoanalysis can lead to devastatingly wrong diagnoses.

Because psychoanalysis is a dangerous health practice with no unique benefits to its patients, it does seem fair to commit it as one more obsolete chapter in the history of science and medicine. Or, if it is to have a future, it must first and foremost be stated in as precise a

language as possible, preferably with the help of formal tools, to leave no room for the various bugaboos I have mentioned throughout this paper. However, it isn't clear in what sense this radically transformed discipline would be psychoanalysis at all.

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