We feel that this criterion is satisfying on three grounds. First, it preserves the familiar inductive/deductive distinction along traditional lines. Not only is the distinction maintained, but arguments traditionally regarded as deductive will remain so, as will arguments traditionally regarded as inductive. Second, the criterion preserves and integrates certain insights of those working in the field, particularly Sam Fohr and David Hitchcock, about what should count in judging an argument deductive or inductive. In particular, it suggests a reconciliation of these two divergent views. Finally, the criterion is flexible. It can accommodate disagreements as to whether specific arguments are deductive or inductive. Just as different persons may weigh differently the same set of **prima facie** obligations and so come to different views as to what is the overriding obligation in a given situation, so different persons may weigh differently the various marks an argument presents and so judge differently whether the argument is deductive or inductive. But as the former case discredits neither the notion of **prima facie** duty nor of overriding duty, so such examples do not show that there are no **prima facie** marks to distinguish deductive from inductive arguments nor that the inductive/deductive distinction is not viable. Disagreements over cases or inability to decide a case are not the fault of the criterion, but of the cases. There may not be any clear **prima facie** marks or the marks may be so conflicting as to prevent reliable judgment. But even here, our criterion yields an explanation for the difficulty. We conclude then that we can maintain the distinction between deductive and inductive arguments along traditional lines. We can hold that there are at least these two categories of arguments.

What is the status of an argument, A, pray tell, which argues that a certain argument, B, is either deductive or inductive? Is A inductive or deductive? By taking account of various factors each of which is a relevant mark for th e argument's being deductive or inductive, much of the reasoning

> derives its conclusion from a variety of premises each of which has some independent relevance....Since what is characteristic of this sort of reasoning is the leading together of various considerations, it seems appropriate to label it "conduction."

((15, p. 52; quoted in (6), p. 12) So such an argument, or much of the reasoning in it, is conductive. Are conductive arguments a third type, over and above inductive and deductive arguments? Apparently we need to answer that to determine the status of A. But the analysis of conductive arguments is the subject of another paper.

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Piagetian Insights and Critical Thinking

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and

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I. Introduction

Richard Paul, in his recent paper, "Teaching Critical Thinking in the 'Strong Sense': A Focus on Self-Deception, World Views, and a Dialectical Mode of Analysis"[1] argues for a basic change in approach to the teaching of Critical Thinking. He feels his approach would avoid the common pitfalls of traditional approaches. These pitfalls, according to Paul, include "sophistry", "dismissal", and an unhelpful atomistic approach to and analysis of reasoning.

Paul's approach is particularly noteworthy for his

identification of egocentrism and sociocentrism as the root problems that affect our reasoning. He also contends that to evaluate arguments appropriately one needs to fill out the world views which they presuppose, evaluate the argument and its accompaning world view against a counter argument and world view, and ultimately utilize the product of the analysis as a means to modify our own world view.

Like Paul, Howard Kahane, in his popular textbook **Logic and Contemporary Rhetoric** suggests the importance of analyzing world views in conjunction with the analysis of reasoning when he states:

> World views are crucial. Accurate world views help us to assess information accurately; inaccurate world views lead us into error. A world view is like a veil through which we perceive the world–a filter through which all new ideas or information must pass. Reasoning based on a grossly inaccurate world views yields grossly inaccurate conclusions, no matter how good our reasoning may be otherwise.[2]

We are strongly sympathetic to Paul's approach and intend this paper to function as an organized series of suggestive ways in which Piaget's analysis of egocentric thought in children can serve as a pedagogically useful tool for helping adults take significant strides toward recognizing and dealing with their irrational (i.e. egocentric, sociocentric) tendencies, especially as those tendencies affect their world view.

We do not mean to imply that knowledge of egocentric identifications in and of itself refutes reasoning. It is not the reasoner's motivation that we are interested in analyzing. We are interested in the motivation only as it sheds light on a more complete line of reasoning.

We would like to note that we will not extend the scope of this paper to argue for Piaget's findings. We will refer to these findings throughout the paper enabling our readers to check, if they will, the substantial foundation of support for them.

We will begin by briefly reviewing Paul's approach. Then we will discuss the basic concepts of egocentrism and sociocentrism, describing some of their features and suggesting how they could fruitfully be used in Critical Thinking courses to help the student avoid the aforementioned dangers. We will conclude with a summary of how Piaget's research supports teaching Critical Thinking in the 'strong sense'.

II. Paul's Theory of Critical Thinking

Paul contends that to be successful an approach to Critical Thinking must take into account largely underestimated dangers involved in teaching the subject. These "dangers" include: 1) a sophistic use of the skills to defend egocentric commitments accompanied by an increased ability to put one's opponent on the defensive; 2) dismissal of the course in favor of such alternatives as faith, intution, and higher consciousness; 3) dismissal of the course, itself, as sophistry (i.e. the course, in this case, is viewed as a course on how to win debates, rather than on how to reason congently); 4) dismissal of the course as common sense; 5) a failure to give due consideration to the fact that arguments characteristically do not function separately from argument networks of which they are part, and that we can more fully understand arguments by noting these

interrelationships; and 6) a treatment of "mistakes" in reasoning which overlooks the patterns of irrationality.

The assumption implicit in most traditional modes of teaching Critical Thinking is that barriers to cogent reasoning and to the analysis of reasoning involve a simple lack of specific skills rather than the presence of irrational structures of thought which function in a "skilled" though distorting manner. The objectives of such a course is to teach students the supposed missing skills, but not the insight that such skills can become a set of more "sophisticated" techniques for masking egocentric processes with seemingly rational modes of thought. Paul, on the other hand, argues, and we agree, that reasoning in which rational skills serve infantile egocentered needs should be distinguished from innocent mistakes in reasoning, which presuppose simple ignorance.

Unique to Paul's approach to teaching Critical Thinking is his emphasis on a theory of human motivation and its significance in argument analysis itself. It is his belief that irrational thought, like rational thought, can be viewed as having logic, and that an understanding of this logic can aid one in the analysis of reasoning.

As we see it, an important part of a successful Critical Thinking course involves convincing the student, with arguments and vivid examples that touch upon the student's own prejudices, that irrationality exists, in varying degrees, in all of us. Part of this argument includes evidence that "mistakes" in reasoning occur much more frequently in support of our egocentric and sociocentric commitments and there is a pattern of logic to these mistakes. We need to provide the student with numerous examples of what Paul refers to as "the motivated nature of argument flaws" and cases where the student himself can begin to note this tendency in his own thought.

The Critical Thinking course should provide the student with tools for understanding the nature of the hidden structure of his thought, thereby helping him to detect the presence of irrational structures (inference licences, assumptions) controlling his own reasoning, and that of others. Piagetian insights can be extremely useful in this regard. The student, we will attempt to show, will be much better equipped to analyze and fairly evaluate the arguments of himself as well as of others.

Paul argues for a dialectical mode of argument analysis. His approach involves taking an instance of reasoning, explicating where possible, specific interest and world view which it may presuppose, then imagining possible alternative interests and corresponding world views, thereby generating alternative lines of reasoning to be evaluated in relation to one another. This method serves to highlight significant problematic areas, such as importantly different assumptions, different alleged facts highlighted, played down or suppressed, alternative and competing conceptualizations of the same fact or of the issue itself.

Analyses of this sort help the student appreciate and deal with the complexities in most political, ethical, and social issues. With practice students can develop a sensitivity to the need for asking: "How might someone with a different point of view argue this issue?" Students can then become more aware of their egocentric committments (including commitments to defend their own world view) and so come to use critical skills more and more, even when

their own commitments are threatened. They can achieve this objective only if they have developed a sensitivity to the sophistic misuse of those skills. Having developed what Paul calls "weak sense" critical skills without insights into one's egocentricity is no assurance that they will be used consistently, especially if the student has no practical sense that he has a world view or egocentric tendencies. This emplasis on egocentricty doesn't, of course, guarantee appropriate fair-minded use of critical skill, but it certainly helps.

III. Egocentrism

Although Piaget was much more interested in the development of the child's mind than in the structure of adult irrationality, Paul has found interesting parallels between what Piaget describes as childish thought patterns and many common forms of adult fallacious thought. We believe with Paul that one can use Piaget's insights to understand and dramatize significant obstacles to critical thought.

The defining characteristic of egocentrism is the inability of the individual to see his point of view as a point of view; rather he continualy confuses it with reality. Features of egocentricity exist in their most extreme form in the new born. The baby, Piaget believed, cannot distinguish the external world from its subjective internal world. For example, in the early stages of development, objects no longer visible to the infant are no longer sought, as though they no longer exist.[3]

As the child begins to gain command of some language the structures of his egocentric thought become more overt. The young child, because he cannot distinguish his experience from external reality, is incapable of entertaining any point of view other than his own. He doesn't consider that he may be wrong, or that anyone else might see things differently. In addition, he moves from atomistic belief to atomistic belief without relating any one of them to the rest.

The child also begins to identify with others and believe what they believe. "I know it. Dad said so." His desires are more important to him than those of others, and the desires of those he identifies with are more important than the desires of those he does not identify with. He moves into a state of sociocentrism. The interests of his group and eventually those of his country define reality. The world view he develops during this time which reflects his sociocentricity remains unanalyzed and uncritiqued into adulthood. The major premises of his world view are generally unaffected by rational disagreement, partly because he is unaware of their existence. Those premises shared by the rest of his society may never be called into question.

As other people begin to challenge his beliefs, he begins to try to justify them. When contradictions between beliefs are pointed out, he can avoid anxiety by adopting whatever premises resolve the contradictions. And he begins to repress contradictions to avoid being challenged. But because he is unaware of his thought processes, and so can't critique them, he can't distinguish beliefs arrived at through rational processes from those which are not.

According to Piaget, the child develops a whole array of rational structures which, ideally, replace egocentric ones.

Yet egocentric and sociocentric beliefs and structures remain and can re-emerge in disguised form. We believe that the rational faculties often serve egocentric functions, and we use skills of adult thought to make egocentricity look good. Piaget also suggests that egocentric structures continue to function in adults when he says:

> ...and at each new stage of the process egocentricity re-emerges in new guises further and further removed from the child's initial center of interest. These are the various forms of sociocentrism—and they are the causes of subsequent disturbances or tensions, any understandings of which must be based on an accurate analysis of the elementary conflicts between egocentricity and understanding others.[4]

In the following sections we will discuss in more detail some major features of egocentricity which we think can be useful in Critical Thinking courses. We will include examples of adult reasoning which, we believe, reflect egocentric structures, and some of the ways these structures affect world views. We will also suggest ways these concepts can be introduced to Critical Thinking students.

1.   Egocentric thought is syncretistic.

For the child "immediate perception is the measure of all things".[5] Because the child cannot distinguish his perception from reality or appreciate the differences between his experiences and the experiences of others, whatever he finds linked in his experience becomes linked together in his mind. In his mind pictures may substitute for reasoning; symbols may be indistinguishable from what they symbolize. Therefore, he cannot distinguish different kinds of connections: logical implications, accidental conjunctions, or necessary and sufficient conditions. These are all understood as "this goes with that".[6]

This phenomenon is exemplified by many adults' attitudes toward their country's flag; the sight of it elicits feelings and images associated with love of country and its ideals; and harm to it elicits moral indignation more appropriate as a response to harm to the country itself. Commercials rely heavily on this feature of the mind. When they associate sexiness with 'brand X' enough times, people will begin to do so automatically, resulting in a change of buying habits.

Adults find conclusions which violate their associative links hard or even impossible to accept. "Communism can't go with democracy." And many U.S. citizens simply couldn't consider the concept of Richard Nixon as a criminal. Criminals mug people or push drugs for a living; they aren't elected U.S. president. Many people believe Nixon broke the law, but still couldn't conceive of treating him like a suspected criminal, trying him, or worse, punishing him if he was found guilty.

Syncretism aides in the commission of Stereotyping; Appeals to Ceremony, Ritual, and Surroundings; General Fallacies; and Provincialism.

To introduce this concept in Critical Thinking the instructor can first have his students list their associations with a concept. Second, he can discuss examples which conflict with sociocentric associations and encourage the students to bring in others. Third, the class could discuss what associations others might make (e.g. Russians would link Capitalism to tyranny). Practice breaks these links, loosens their hold on the mind, and makes previously unnoticed irrational assumptions explicit and available for critique.

2. The egocentric mind juxtaposes beliefs.

Piaget believes that the egocentric mind can be characterized by a lack of logical synthesis. He claims "the child owing to the difficulty he experienced in becoming aware of his own thought, reasoned only about isolated or particular cases; generalization and consequently any sustained deduction do not come naturally to him". Hence he doesn't notice the contradictions within his system of beliefs.

Furthermore, Piaget found that since the child has to go through a process of relearning at the conscious level what he already knows in action, the child is incapable of noticing when the implications of his actions contradict the implications of his speech.

We see the same features in adults in the various forms of inconsistency, between beliefs, and between words and actions. We believe that adults juxtapose rational judgements with egocentric ones, and move between them automatically, utilizing whichever beliefs serve the interests of the moment. The fallacies of inconsistency, double speak, and double standards reflect this problem.

If the instructor were to give the student numerous examples of the motivational nature of inconsistency in adult reasoning (e.g. the treatment given by the U.S. media to the Russian involvement in Afghanistan and the American involvement in El Salvador, that is, cases in which different principles are applied to similar cases), and if he could have students bring in personal examples of juxtaposition the students would be much less likely to reject the course as "common sense", and argue that "maybe others do these things, but I don't".

In our view, it is important that the students be rewarded with positive feedback for gaining insights into their own egocentricity. They will be less likely to dismiss as "sophistic" a course that emphasizes turning critical skills on oneself to make one's reasoning more consistent. They will feel better about themselves for the movement toward increased integrity which this approach emphasizes.

3. Egocentric reasoning is absolutistic.

Absolutistic reasoning is characterized by broad dichotomies, and a non-relative application of concepts.[7] Since the young child cannot reason from more than one point of view, he misuses relative concepts by using them as labels. He believes, for example, that since foreigners are "people from other countries", he is never a foreigner, wherever he is.[8] Nor do children distinguish degrees. A "good boy" is all good; a "bad boy" all bad.

Adult absolutism is reflected in the common world view assumption that there are "good guys" with good hearts and pure intentions, and "bad guys" with evil intentions and the desire to do wrong. For example, in a history textbook reflecting a U.S. world view we find an absolutistic application of the concept of friendliness which illustrates a common form of sociocentrism:

> A friendly Indian named Squanto helped the colonists. He showed them how to plant corn and how to live in the wilderness. A soldier, Captain Miles Standish, taught the Pilgrims how to defend themselves against unfriendly Indians.[9]

Friendliness and unfriendliness seem to be character traits, as though Squanto was just a nicer person. The Indians weren't friendly or unfriendly **to the Pilgrims.** Similarily, people talk about "the enemy" rather than "our enemy". According to sociocentric logic enemies are malicious aggressors; they are the enemies of that which is good and right. Individual's absolutistic tendencies are also reflected in the lack of qualifications in their claims, as in "You **never** listen to me," and "You **always** get your way". Furthermore, a focus on this concept can counteract the tendency of Critical Thinking students to blast reasoning in which they find the smallest flaw as "totally fallacious" and "of no worth".

Discussion of absolutism can be incorporated into explanations of the following fallacies: Stereotyping; Provincialism; All or Nothing; the Genetic Fallacy; Straw Man; and Self-righteousness (i.e. the belief that one's motives are purer than others).

4. The egocentric mind lacks reciprocity.

Piaget argues that because the child doesn't realize he has a point of view he is incapable of taking any other. This is illustrated by the child's failure to take his audiences into account. He assumes his listeners know what he means because he knows what he means. Children tend to assume others agree with them, that is, see things the way that they see them.[10]

We can see in adults a general inability to give fair and accurate representations of lines of reasoning with which they disagree. This is suggested by the frequency with which the Straw Man fallacy is committed. Many people find it difficult, and often impossible, to listen to the opposition. Whey they disagree with the conclusion of an argument they often discredit the whole argument. To the extent that our world view is sociocentric, that is, we believe that "our way of life is best, and our way of seeing things is the only way", we will have difficulty entertaining positions which come from world views which differ from our own. We will see other points of view as "begging crucial questions", "bizzarre", and "contradicting the obvious", and so will ourselves beg important questions.

Discussion of the concept of, and the difficulties of engaging in, reciprocity can help the students become more sensitive to the strengths of positions with which they disagree. The instructor can encourage students to test their skills in reciprocity by asking them to attempt to summarize positions of people with whom they are arguing. This may help minimize student claims that the course is of no use to them because they "already think critically", when they find the task harder than the expected.

The student will have less of a tendency to dismiss as Sophistic a course that emphasizes entertaining the strengths of opposing viewpoints. Whereas the student may have taken the course to imply that "truth" lies in how well one can argue for a position, they may begin to see it as a means of finding more objective common truths. For instance, they may begin to note that demanding certain rights for themselves necessitates granting these same rights to others. This we believe, also helps combat students' ethical relativism.

Finally, we see this more global approach to the analysis of reasoning as helping to reduce the common student problem which we call "fallacy frenzy", in which, for example, the student views all emotive words as

fallacious, all analogies as faulty and all arguments which contain fallacies as having false conclusion. By focusing on more global skills, such as the explication of alternative world views and arguments, we hope to help the student avoid the pitfall of "fallacy frenzy". We don't wish to discredit fallacy theory altogether, but rather to highlight the dangers of the mususe of fallacy labels, and propose the development of a foundation which will aid the student in a more accurate application of fallacy labels. Skills in reciprocity are fundamental to any such foundation as we see it.

It is our belief that in stressing skills of reciprocity students will become generally more fairminded and reduce their sophistic misuse of critical skills. Students need a lot of practice seeing the strengths in other points of view. They will reason more accurately when they can incorporate the strengths of other world views into their own and rid it of sociocentric biases.

5. Egocentric thought is irreversible.

As we have said, Piaget believed the child cannot distinguish his perspective from reality and isn't aware of the process of his thought. Hence he can't reverse his thought process; he can't trace his conclusions back to his original data. He confuses conclusions with evidence; the two are merged. In Piaget's words:

> Either the child is incapable of retracing the steps he had taken, or else after the operation is over he **inverts** an artificial series of steps and becomes the dupe of his own thought, taking as a starting point what was really the final goal.[11]

Studies have shown that adults read into experience that which they expect to find there. For instance they see honesty and sincerity in faces from pictures of those they are predisposed to like, and sneakiness and hypocrisy in 'aces of the supposed opposition. So they don't distinguish beliefs arrived from a fair examination of the evidence from prejucices.

This tendency manifests itself in question begging. One of Paul's classroom examples of adult irreversibility involved a conversation with a student who was complaining about the Financial Aid Department "harrassing" him. When Paul asked for his evidence all he got were reworded conclusion:"Everytime I do in there they give me a bad time"; "I walked in and right away the lady at the desk started hassling me". He couldn't reverse his reasoning process and describe the situation objectively, or give evidence to support his conclusion.

Students need practice reversing reasoning, separating data from process, and developing a sensitivity to what sort of evidence a given claim requires. They need to become more sensitive to what they are in a position to know.

6. Egocentric reasoning is tendentious.

In the way that every thought seems true, every feeling seems justified to the child. Every desire, for instance, is accompanied by the belief that it deserves to be satisfied.[12]

Insofar as adults are egocentric they will use rational skills to serve egocentric impulses. They will justify the satisfaction of their desires whether justifiable or not. Piaget argues that "reality is infinitely plastic for the ego".[13] In the child's life this is clearly manifested in play, but in the life of the adult the deforming of reality is often neither

so clearly nor so harmlessly manifested.

There is a common pattern to tendentious reasoning which includes justaposition. U.S. State Department reasoning often illustrates this pattern of sociocentricity. When we want to violate international law, we believe that this is a hard cruel world, and that we do what we have to do to protect"our oil", for example, and moral concepts seem irrelevant. When another country does the same in a way that hurts us, international law becomes sacred, and moral concepts become relevant. Yet we don't notice the different standards of relevance.

Students, to avoid misusing critical skills, should become more sensitive to how egocentric and sociocentric commitments affect reasoning, when they are most likely to exist, and what forms the reasoning takes. The presence of egocentric identification generates the implementation of the egocentric structures we've discussed. Of course, we don't mean to imply that the presence of interest proves the reasoning false, but that the presence of these structures is more likely.

IV. Summary

We have seen how many different practical problems, tangible barriers to rational thought, can be explained in a large range of cases in terms of the unifying concept of egocentricity. Explanation of these different forms of uncritical thought in light of one unifying concept enhances understanding of egocentricity and sociocentricity, significant obstacles to rationality. Insofar as fallacies can be intuitively linked with egocentric tendencies, students will be less likely to misunderstand the nature of learning critical thinking as a matter of "memorizing all these fallacies" and grasp it more as a question of developing counter-egocentric insights and habits. The material can be understood, then, at a deeper level, and use of it won't be seen as a matter of recalling memorized formulas. We thus lessen the student's falling victim to the dread disease mentioned earlier, "fallacy frenzy."

Another common reaction to fallacy theory, that of dismissal as "common sense" and "what everyone else knows", can be addressed by a focus on Piaget. We see the commonly held belief that"we already reason well" as a fundamental barrier to rational thought. We can't believe this and also learn to watch for those instances in which we are most likely to reason fallaciously. For example, it is not until people become convinced that despite the obviousness of the tricks of the trade, commercials **do** influence the buying habits even of those who "see through them", that they can become more self-conscious about, and tend to take more positive control of, their consumption. Similarly, when students become convinced of the pervasiveness of egocentric and sociocentric thought (especially their tendentious and irreversible nature) they are more likely to take seriously, and have a more realistic idea of the task of implementing, the skills and principles covered in the cours.

A focus on egocentricity (again, especially tendentiousness and irreversibility) also suggests a useful counter–argument to those students who claim to prefer"intuition" to critical analysis. If all beliefs, whatever their origin, seem equally true to the egocentric mind which holds them, and if we all still have egocentric and sociocentric tendencies, then distinguishing true intuitions from false beliefs

(especially those that serve interests) becomes, we can argue, very problematic.

We have mentioned in earlier sections the effect a unit on egocentrism can have on students' dismissal of critical thinking as sophistic, how an emplasis on the need to engage in reciprocity when analyzing arguments helps answer the charge.

Paul has long believed in the importance of understanding, analyzing, and evaluating arguments in light of the argument networks of which they form a part. We've discussed the difficulty in taking arguments from very different world views seriously. We tend to dismiss such arguments as obviously absurd unless we can become aware of and critique our own world view. Students should be encouraged to entertain very different world views, imagine how a person or group with different interests, and history might see things, and incorporate their strengths, and so improve the world view so crucial to their analysis. Victims of U.S. sociocentric conditioning can learn a lot from seriously entertaining a Third World world view, to reduce the biases in favor of the U.S. and increase their sensitivity to the rights and needs of a greater number of people. The more fair and realisitic the student's world view becomes, (the less egocentric and sociocentric) the less sophistic and self-serving, and hence the more accurate, their evaluations of reasoning will be.

NOTES

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Towards a Structural Analysis of Extended Arguments

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One of the values of teaching practical logic is showing students how to portray the logical structure of an argument. A structural diagram visually depicts the logical relationships between all sentences of the argument. Not only does the diagram show the lines of reasoning between premises and a conclusion, but also the relationship between one premise and another premise, showing for example whether two premises are dependent or independent of another in supporting a given conclusion. This latter function of presenting the relationship between premises is particularly valuable for teaching how to analyze lengthy arguments. Students can conceptualize the variety of ways in which reasons can relate to each other within a lengthy argument, not as easily accomplished by traditional logic techniques.

A structural portrayal becomes indispensable in analyzing extended arguments, which are far more prevalent in natural language than the three-sentence arguments appearing in traditional logic texts. Recently many practical logic texts have in fact suggested a method for portraying the logical structure of extended arguments. This method, which I call the standard method for structural-analysis of an argument, recommends that the logical structure of an extended argument be presented by carefully combining the structures of all sub-arguments. This atomistic process of building the entire structure of the extended argument