A Criticism of Objectivist Epistemology

1. Requirements of Any Theory of Concept Formation

Before we can criticize the Objectivist theory of concept formation, we first need to specify the criteria any theory of concept formation should meet in order to be considered a good theory. The criteria are quite simple:

Definition 1. A theory of concept-formation is considered admissible if and only if it gives us a set of necessary and sufficient conditions for determining whether a concept is formed or not.

Definition 2. A theory of concept-formation is considered accurate if and only if 1) no concept can be formed when any necessary condition is violated, 2) no concept is formed unless at least one sufficient condition is met, 3) a concept is formed whenever a sufficient condition is met. Furthermore, the concept thus formed must be uniquely determined by the theory. That is, no two or more concepts may be formed under the exact same conditions.

Proposition 3. *If a theory cannot account for even some basic notion of arithmetic, then it cannot be considered true.*

2. The Objectivist Theory of Concept Formation

The conditions for concept-formation that Rand gives us are the following:

(1) Two or more entities must be distinguished from all others on the basis of some shared similarity among them.
(2) The entities so isolated must have some commensurable characteristics.
(3) A quantitative difference in the measurements corresponding to those characteristics must exist.
(4) The concept (and only the concept) corresponding to the characteristic(s) whose measurements are omitted is formed.

Since Rand does not specify explicitly which conditions are necessary and which ones are only sufficient, we must do this for her. It may be inferred from the source material (ITOE) that all four of the above conditions are individually necessary and that they are jointly sufficient. That is, a concept is formed if and only if all four of the above conditions are met, and a (unique) concept is formed whenever all four of the above conditions are met.

From the above conditions we can derive a few useful theorems:

Theorem 4. *Every concept has at least two referents.*

Proof. From condition 1, and since a concept subsumes all of the entities that are integrated during its concept-formation (and a possibly unlimited number besides). □

Theorem 5. *Every characteristic which corresponds to a concept must have at least two values. For example, if the characteristic is redness, then there must be at least two shades of red.*

Proof. From condition 3, since the set of entities in question must actually possess the characteristic in question in order for their measurements to be comparable, but since there must be some difference still between those measurements. □

Theorem 6. *No two distinct concepts share all of the same referents. (Although they may have some members in common).*

Proof. If they did, the the Objectivist theory of concept formation could not be exhaustive. That is, there would have to be some concepts that are not formed via the Randian process of concept formation specified above (that is, only one of the concepts would be formed by the process, the others would have to be obtained in some different manner). But we have assumed that the process of concept formation is exhaustive. Hence, by modus tollens, the theorem is proved. □

3. Challenges For The Theory From Arithmetic

In this section we show that the Objectivist theory of concept formation cannot account for simple and basic concepts from arithmetic.

Theorem 7. *The Objectivist theory of concept formation is not exhaustive. That is, there exist concepts which cannot be formed by the process specified above.*

Proof. Consider the concepts of "natural number greater than 0" and "natural number which dividides at least one natural number". These two concepts have the same referents since 0 is the only number which divides no number whatsoever, and every other number is greater than 0. But they are different, hence theorem 6 is false. Therefore, by modust tollens, there exist some concepts which cannot be formed by the Objectivist process of concept formation. □

Theorem 8. *There are characteristics which do not have at least two possible values.*

Proof. Consider the notion of primeness. A number is either prime or it is not. There are no degrees of primeness. (Keep this in mind for later). □

Corollary 9. *There are concepts whose referents have no differences in their specific measurements.*

Theorem 10. *There exist concepts with only one referent.*

Proof. Example: "a number greater than 0 but less than 2". □

Theorem 11. *There exist concepts with no referents.*

Proof. Example: "any number greater than 1 but which divides both 17 and 6". □

Corollary 12. *Concepts can be formed by perceiving just one entity or no entities at all.*

Remark 13. There is a simple example for concepts consisting of only a single referent, i.e., proper nouns such as "The Golden Gate Bridge". There is clearly and there can only be exactly one.

Remark 14. There is also an interesting example of a concept for which we do not know whether any referents exist or not. For example, "a number which is a counterexample to Goldbach's conjecture".

4. A Concrete Demonstration of the Issues with the Theory

Consider the following question. Given the Objectivist theory of concept formation, how could we form the concept of prime number?

Well, first off, by condition 1, we need at least two numbers that are referents of the concept, say 3 and 5 (but pretend we don't know that 3 and 5 are prime yet). Still the question remains just how many examples of a prime number we would need in order to form the concept. Though, as we will see, even if we had all of the prime numbers before us in our perception, we would still fail.

But in order to isolate the two numbers we need some characteristic which distinguishes them from all the others. However, there are far too many to choose from. One possibility is that they are both prime, yes, but another possibility is that they are both odd, or that they are both odd numbers between 2 and 6, or that they are the two solutions of the equation $x^2 - 8x + 15 = 0$, and so forth. There are infinitely many ways to characterize the two numbers (more importantly, infinitely many ways that have nothing to do with primeness), and the same goes for any other collection of numbers. Deciding which characteristics *objectively* (in the sense that the notion of prime number will be thereby objectively determined by concept-formation) distinguish the two numbers from all others is not even remotely clear.

Let us nonetheless say that we have somehow magically hit upon the correct characteristic, that is, each is divisible only by 1 and itself, and go to step 3 (We will skip step 2 since I have absolutely no clue what "commensurable characteristics" is even supposed to mean in this context, we will just assume that primeness is a commensurable characteristic and pursue the matter no further). According to step 3, a difference in the degree of primeness must exist between the two numbers. But there are no degrees of primeness, and this step fails.

Step 4 is the last step, but it is not clear what comes out of this whole process when every step either fails or doesn't even make sense to apply.

5. Evaluation of the Theory

Not only do the conditions required for concept formation fail to exhaust concept formation, but they barely even make sense, especially when it comes to simple arithmetic. We have seen counterxamples to all of the above conditions. Hence, none of them can be necessary. We must therefore conclude that Rand's theory is not accurate and cannot be true.

Nonetheless, the theory does seem to have some plausibility. It at least appears to work for the examples that Rand had in mind. Perhaps it only applies to concepts of extended bodies in three dimensional space, e.g., chairs, tables, planets, etc. Maybe it works better for more "geometric" concepts even if it fails for more "arithmetical" ones. Although, I strongly suspect that careful analysis will show that it won't work in that case either.

6. Possible Objections

6.1. **"a number which is not 0" and "a number greater than 0" are the same concept (since they have the same referents), etc., but you say they are different.** Yes, they are different. For example "any pair of numbers which obey commutativity of addition" and "any pair of numbers which obey the

commutativity of multiplication" have all of the same referents, but they are clearly different ideas.

6.2. **Your analyses of concept-formation of primeness etc., are insufficient. There probably exists a more complex derivation involving a long hierarchy of concepts and so forth.** Possibly, but until such an example is actually produced, I see no reason to believe that it exists.