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OBJECTIVISM:
THE PHILOSOPHY OF
AYN RAND
**Definition as the Final Step in Concept-Formation**

The final step in concept-formation is definition. This step is essential to every concept except axiomatic concepts and concepts denoting sensations.

The perceptual level of consciousness is automatically related to reality; a sense perception is a direct awareness of a concrete existent. A concept, however, is an integration that rests on a process of abstraction. Such a mental state is not automatically related to concretes, as is evident from the many obvious cases of “floating abstractions.” This is Ayn Rand’s term for concepts detached from existents, concepts that a person takes over from other men without knowing what specific units the concepts denote. A floating abstraction is not an integration of factual data; it is a memorized linguistic custom representing in the person’s mind a hash made of random concretes, habits, and feelings that blend imperceptibly into other hashes which are the content of other, similarly floating abstractions. The “concepts” of such a mind are not cognitive devices. They are parrotlike imitations of language backed in essence by patches of fog.

If a concept is to be a device of cognition, it must be tied to reality. It must denote units that one has methodically isolated from all others. This, in Ayn Rand’s words, is the basic function of a definition: “to distinguish a concept from all other concepts and thus to keep its units differentiated from all other existents.”

In the early years, a child keeps his concepts tied to reality by the simple method of “ostensive” definition; he points to instances. He says: “By ‘table,’ I mean this.” At a certain stage, however, this method ceases to work. The child acquires too many concepts, and increasingly they are higher level abstractions, often involving concepts of consciousness. His abstract structure thus becomes so complex that the mere act of pointing will not differentiate the units of one concept from those of all others. This is the point at which formal definitions, which identify explicitly the nature of a concept’s units, become necessary. (Axiomatic concepts and concepts denoting sensations can only be defined ostensively.)

A definition cannot list all the characteristics of the units; such a catalogue would be too large to retain. Instead, a definition identifies a concept’s units by specifying their essential characteristics. The “essential” characteristic(s) is the fundamental characteristic(s) which makes the units the kind of existents they are and differentiates them from all other known existents. (This definition will become clear as we proceed.)

A proper definition is made of two parts, each of which follows from the nature of concept-formation. When we form a concept, we isolate its units by grasping a distinguishing characteristic. In the definition, this becomes what the medieval Aristotelians called the *differentia*. Further, we can differentiate only on the basis of a wider characteristic, the CCD, which is shared both by the concretes we are isolating and by the concretes from which we are isolating them. In the definition, this gives rise to the *genus*.

A definition in terms of genus and differentia is like a logical X ray of a concept. It condenses into a brief, retainable statement the essence of the concept-forming process: it tells us what distinguishes the units and from what they are being distinguished, i.e., within what wider group the distinction is being made. To give the standard example: if we conceptualize man by differentiating men from dogs, cats, and horses, then “animal” would be the genus—“rational,” the differentia.

Since definitions are a step in the process of concept-formation, all their features reflect the nature of that process. Another such feature is the fact that definitions, like concepts, are contextual.

Conceptual knowledge is not acquired in a state of total ignorance or from the vantage point of omniscience. At any stage of development, from child to sage and from savage to scientist, man can make conceptual differentiations and integrations only on the basis of prior knowledge, the specific, limited knowledge available to him at that stage. Man’s mind functions on the basis of a certain context. The context, states Miss Rand, “is the entire field of a mind’s awareness or knowledge at any level of its cognitive development.”

This fact has profound implications for human knowledge in general (as we will see in chapter 4) and for definitions in particular. Definitions are contextual. Their purpose is to differentiate certain units from all other existents in a given context of knowledge. At an early stage, when one has made
relatively few discriminations, a simple, obvious characteristic may achieve this purpose. Later, when one discovers new aspects of reality, that same characteristic may no longer serve to differentiate the units; the initial definition must then be revised. Our knowledge grows in stages, and we organize at each stage only the facts that are available.

To illustrate this point, Ayn Rand indicates the pattern by which the definition of “man” might develop as a child’s cognitive context expands. The child’s first (implicit) definition might amount to: “a thing that moves and makes sounds.” If the child grasps only household objects and the people around him, this definition is valid: it does separate men from the other entities, such as tables and chairs, which the child knows. Then the child discovers cats and dogs. In this context, he must revise his definition, because it no longer separates the units from the entities he now knows. The first definition remains true as a description of men—men do still move and make sounds—but it can no longer serve as a definition of “man.” Now the child might define “man” (implicitly) as “a living thing that walks on two legs and has no fur.” This would be a valid definition within the new context. The same pattern applies to all the later stages of defining “man.” It applies to most definitions as knowledge expands.  

When a definition is contextually revised, the new definition does not contradict the old one. The facts identified in the old definition remain facts; the knowledge earlier gained remains knowledge. What changes is that, as one’s field of knowledge expands, these facts no longer serve to differentiate the units. The new definition does not invalidate the content of the old; it merely refines a distinction in accordance with the demands of a growing cognitive context.

Although the definition of “man” is dependent on context, we can determine an objective definition of “man,” one that is universally valid. A universally valid definition—in this case, “rational animal”—is one that has been determined according to the widest context of human knowledge available to date. Miss Rand states the principle as applied to any concept: “An objective definition, valid for all men, is one that designates the essential distinguishing characteristic(s) and genus of the existents subsumed under a given concept—according to all the relevant knowledge available at that stage of mankind’s development.”

Although definitions are contextual, they are not arbitrary. The correct definition at any stage is determined by the facts of reality. Given any specific set of entities to be differentiated, it is the actual nature of the entities that determines the distinguishing characteristics. For example, once a child discovers dogs and cats, he cannot decide to retain his earlier definition. Since dogs and cats also move and make sounds, he must seek out new characteristics of men, ones that do differentiate them from such creatures. These characteristics are not a matter of caprice; they are determined by the facts about men, dogs, and cats, so far as one is able to observe and identify such facts. Definitions (like all truths) are thus “empirical” statements. They derive from certain kinds of observations—those that serve a specific (differentiating) function within the conceptualizing process.

Definitions are determined by the facts of reality—within the context of one’s knowledge. Both aspects of this statement are crucial: reality and the context of knowledge; existence and consciousness.

A further rule of definition is necessary to clarify fully the concept of an “essential” characteristic: the rule of fundamentality.

This rule applies when the units of a concept are observed to have more than one distinctive characteristic. The definition must then state the feature that most significantly distinguishes the units; it must state the fundamental. “Fundamental” here means the characteristic responsible for all the rest of the units’ distinctive characteristics, or at least for a greater number of these than any other characteristic is. The definitional principle is: wherever possible, an essential characteristic must be a fundamental.

For example, one could not define “man” as an entity possessing a thumb, even if this feature were distinctive to man. If men had no thumbs but were otherwise the same as they are now, the species would still have to be conceptualized and defined; there would still be profound differences between man and other creatures. When one defines by fundamentals, however—e.g., when one defines “man” by reference to “rationality”—the definition identifies the root of
the largest set of man’s distinctive characteristics. It thus names that which most significantly sets man apart. It names that which “makes” man man, i.e., that which underlies and carries with it the greatest number of distinctively human characteristics.

The opposite of the principle of fundamentality is exemplified in certain kinds of psychotic thinking. One schizophrenic in New York City’s Bellevue Hospital routinely equated sex, cigars, and Jesus Christ. He regarded all these existents, both in his thought and in his feelings about them, as interchangeable members of a single class, on the grounds that all had an attribute in common, “encirclement.” In sex, he explained, the woman is encircled by the man; cigars are encircled by tax bands; Jesus is encircled by a halo. This individual, in effect, was trying to form a new concept, “encirclist.” Such an attempt is a cognitive disaster, which can lead only to confusion, distortion, and falsehood. Imagine studying cigars and then applying one’s conclusions to Jesus!

This mode of thought is calamitous because “being encircled” is not a fundamental; it is not causally significant; it does not lead to any consequences. It is a dead end. Groups erected on such a basis necessarily lead to cognitive stultification.

To define a valid concept in terms of nonfundamentals is to commit a similar error. Such a practice evades the actual basis of the concept, the root similarity uniting its instances, and substitutes instead an insignificant resemblance. This evasion converts a legitimate concept into the epistemological equivalent of “encirclist” and confounds the very purpose of conceptualization.

A definition in terms of fundamentals can be formulated only by reference to one’s full knowledge of the units. In order to identify a fundamental distinguishing characteristic (and a fundamental integrating characteristic—the genus), one must take into account all the known facts in the case. One must bear in mind how the units differ from other things, how they resemble other things, and what causal relationships obtain within these two sets of attributes. Only on this basis can one establish that a certain characteristic is fundamental (within that context of knowledge).

Although a definition states only a few of the units’ character-istics, therefore, it implies all the other characteristics one knows. It does so because this is the knowledge that determines and validates the definition. “As a legal preamble (referring here to epistemological law),” Ayn Rand notes, “every definition begins with the implicit proposition: ‘After full consideration of all the known facts pertaining to this group of existents, the following has been demonstrated to be their essential, therefore defining, characteristic...’”

A definition is not an arbitrary selection of several of the units’ features. On the contrary, a proper definition is a condensation, which implicitly includes all the known features. “A definition,” writes Miss Rand, “is the condensation of a vast body of observations—and stands or falls with the truth or falsehood of these observations.”

Such condensation is indispensable if concepts are to achieve their cognitive purpose. The function of a definition, we have said, is to enable man to retain concepts (as against floating abstractions) in his mind. To retain a concept, however—to keep its units clearly distinguished—and then to use the concept in a cognitive process, one must be able to retain and make use of the wealth of data one has learned about the units. But one cannot hold data in mind in the form of an endless catalogue of unrelated items. What is required, therefore, is a deliberate cognitive processing of the units. What is required is a survey and analysis of similarities, differences, causal relationships, culminating in the selection of an essential characteristic, which serves to condense the total.

Such a characteristic, by virtue of its method of selection, is an invaluable tool of integration. It reduces a complex sum of features to a few relatively simple elements, expressed in the form of a brief, retinable statement.

A definition in terms of nonessentials achieves the opposite result. If one arbitrarily picks some distinguishing feature as definitional, then it does not proceed from any cognitive processing and does not carry with it the units’ other features. Instead of condensing and enabling man to retain data, such a definition splinters and works to obliterate data. It fosters a grasp not of a concept’s units, but merely of an isolated characteristic(s), one unconnected in the definer’s mind to the other features of the units. If one were to define “man” by reference to his thumb, for example, the concept would be-
come equivalent in one's mind to "some kind of thumb-haver"—while all man's other characteristics would be relegated to a limbo of the unprocessed, unrelated, and ultimately unretained. Such an approach works to detach a concept from its units; it turns a concept into a floating abstraction. The result is not to clarify a concept, but to invalidate it, along with any proposition that uses it.

The truth of a proposition depends not only on its relation to the facts of the case, but also on the truth of the definitions of its constituent concepts. If these concepts are detached from reality—whether through lack of any definition or through definition by nonessentials—then so are the propositions that employ them. A proposition can have no greater validity—no more of a relation to reality—than do the concepts that make it up. The precondition of the quest for truth, therefore, is the formulation of proper definitions. "The truth or falsehood of all of man's conclusions, inferences, thought, and knowledge," Miss Rand concludes, "rests on the truth or falsehood of his definitions."\(^3\)

There is one sure sign that a man has failed to formulate proper definitions: his claim that a concept is interchangeable with its definition. This claim, widespread among modern philosophers, is a confession. It indicates that concepts, in such minds, do not stand for existents, but for random, floating characteristics.

A concept is not interchangeable with its definition—not even if the definition (thanks to the work of other men) happens to be correct.\(^3\) "Man," for example, does not mean "animality" plus "rationality." It is not a shorthand tag substituting for two other words. It does not mean "anything whatever that has the characteristics of rationality and animality, no matter whether it has two legs or ten, requires oxygen or methane, is covered with skin or with fur." This approach to concepts is a brazen prescription for disintegration. It demands that one drop one's knowledge of everything about the units except the characteristics mentioned in the definition.

A concept designates existents, including all their characteristics, whether definitional or not. As an aid to the conceptualizing process, men select from the total content of the concept a few characteristics; they select the ones that best condense and differentiate that content at a given stage of human development. Such a selection in no way shrinks the concept's content; on the contrary, it presupposes the richness of the concept. It presupposes that the concept is an integration of units, including all their features.

If it is true that man walks on two legs, requires oxygen, and has no fur, then the concept "man" includes and refers to these facts also, even though they are not distinctive to man. Varying definitions of a concept in varying contexts are possible only because the concept means not its definition, but its units.

Just as a concept is not restricted to the defining characteristics, so it is not restricted to the known characteristics (a point mentioned earlier). A concept is an integration of units, which are what they are regardless of anyone's knowledge; it stands for existents, not for the changing content of consciousness. When we learn more about the units, we are learning about characteristics that the units possess by their nature; all such characteristics are included in the concept from the outset.

The term "man," for example, means not merely some isolated characteristics nor even all the human characteristics we already know; it means an entire (and as yet largely unwritten) library. "Man" means men, including everything true of them—every characteristic that belongs to such an entity in reality, whether discovered so far or not. This essential point Ayn Rand describes as the "open-end" nature of concepts:

It is crucially important to grasp the fact that a concept is an "open-end" classification which includes the yet-to-be-discovered characteristics of a given group of existents. All of man's knowledge rests on that fact.

The pattern is as follows: when a child grasps the concept "man," the knowledge represented by that concept in his mind consists of perceptual data, such as man's visual appearance, the sound of his voice, etc. When the child learns to differentiate between living entities and animate matter, he ascribes a new characteristic, "living," to the entity he designates as "man." When the child learns to differentiate among various types of consciousness, he includes a new characteristic in his concept of man, "ra-
tional"—and so on. The implicit principle guiding this process, is: "I know that there exists such an entity as man; I know many of his characteristics, but he has many others which I do not know and must discover." The same principle directs the study of every other kind of perceptually isolated and conceptualized existents.

Since concepts represent a system of cognitive classification, a given concept serves (speaking metaphorically) as a file folder in which man's mind files his knowledge of the existents it subsumes. The content of such folders varies from individual to individual, according to the degree of his knowledge—it ranges from the primitive, generalized information in the mind of a child or an illiterate to the enormously detailed sum in the mind of a scientist—but it pertains to the same referents, to the same kind of existents, and is subsumed under the same concept. This filing system makes possible such activities as learning, education, research—the accumulation, transmission, and expansion of knowledge.

One important implication of the above is that a concept, once formed, does not change. The knowledge men have of the units may grow and the definition may change accordingly, but the concept, the mental integration, remains the same. Otherwise there would be no way to relate new knowledge of an entity to previous knowledge subsumed under an earlier-formed concept—because the concept would have changed; the file folder itself would be different. In addition, no two people's concept of the same entity would be the same if their knowledge varied, which would make communication impossible, and along with it education and the cognitive division of labor. All such activities presuppose the stability and universality of concepts. "Universality" here does not mean that two different languages necessarily use every concept of the other; it means that all men who do use a given concept are using the same one.

(Occasionally, a process of reclassification—a change in the filing system itself—is necessitated by advancing knowledge. Even in such a case, which is rare, a concept does not change, or vary from one man to another. The old concept is simply dropped outright and replaced by a new one.)

Let us sum up by extending Miss Rand's metaphor. The file folder (the concept) is not the same as the label (the definition) that identifies and condenses the folder's contents. Nor is the folder restricted to its present contents. The folder exists so that we can separate out as a single unit, and then study and interrelate, all the data ever to pertain to a given subject. That is precisely what the concept enables us to do.

Concepts as Devices to Achieve Unit-Economy

I have indicated several ways in which concepts expand man's power of knowledge. The fundamental cognitive role of concepts, however, has not yet been discussed. Fundamentally, concepts are devices to achieve unit-economy. This idea can be grasped most easily by reference to an experiment with crows that is cited in Introduction to Objectivist Epistemology.

The experiment was an attempt to discover the ability of birds to deal with numbers. When crows were gathered in a clearing in some woods, one man entered the clearing and walked on into the woods. As soon as he appeared, the crows hid in the treetops; they would not come out until the man returned and left the area. Then three men entered; again the crows hid. This time only two of the men left, and the crows did not come out; they knew that one still remained. But when five men came and then four left, the crows came out, apparently confident that the danger was now over. These birds, it seems, could discriminate and deal with only three units; beyond that, the units blurred or merged in their consciousness. The crow arithmetic, in effect, would be: 1, 2, 3, many.

This experiment illustrates a principle applicable to man's mind as well. Man too can deal with only a limited number of units. On the perceptual level, human beings are better than crows; we can distinguish and retain six or eight objects at a time, say—speaking perceptually, i.e., assuming we see or hear the objects but do not count them. But there is a limit for us, too. After a certain figure—when the objects approach a dozen, to say nothing of hundreds or thousands—we too are unable to keep track and collapse into the crow's indeterminate "many." Our mental screen, so to speak, is limited; it can contain at any one time only so many data.
Consciousness, any consciousness, is finite. A is A. Only a limited number of units can be discriminated from one another and held in the focus of awareness at a given time. Beyond this number, the content becomes an unretainable, indeterminate blur or spread, like this: /////

For a consciousness to extend its grasp beyond a mere handful of concretes, therefore—for it to be able to deal with an enormous totality, like all tables, or all men, or the universe as a whole—one capacity is indispensable. It must have the capacity to compress its content, i.e., to economize the units required to convey that content. This is the basic function of concepts. Their function, in Ayn Rand’s words, is “to reduce a vast amount of information to a minimal number of units...” 36

A concept integrates and thus condenses a group of percepts into a single mental whole. It reduces an unlimited number of perceptual units to one new unit, which subsumes them all. It thereby expands profoundly the amount of material that a person can retain and deal with cognitively. Once the term “man” is defined and automatized in your consciousness, for example, the vast sum of its referents is available to you instantly; it is available in a single frame of awareness, without the need of your trying to visualize or describe and then somehow hold in mind all the individual men that are, have been, or will be. One mental unit has taken the place of an endless series, and you can proceed to discover an unlimited knowledge about the entity.

Philosophers often say that concepts are time savers. It is much more instructive to say that concepts are space savers.

A consciousness without concepts could not discover even the most elementary fact about man—say, that men have ten fingers. The problem is not merely that one cannot perceive every man, since they are spread across the earth and the centuries. Even if, in imagination, we were to endow a perceptual-level creature with unlimited transportation including time travel, information about all men would still transcend its mental capacity. The creature, let us say, perceives Tom, Dick, and Harry, grasps their hands in one frame of awareness. Then it turns to study Hugh, Victor, and Sally—and loses the first three. Like the crow, it cannot keep six entities discriminated in the focus of its awareness; the new units keep pushing the old ones out of mind; the mental content keeps evaporating. Even if the creature did somehow manage to survey every man, therefore, it still could not grasp any fact about all of them. It has no means of holding such a scale of information.

If the creature could articulate its plight (which would be a contradiction in terms), it would say: “If only my mind had room in one frame of consciousness for such a wealth of data; if only I could squeeze the countless units given successively in perception into a manageable compass; then I would be able to grasp a complex total, and not merely fleeting aspects of it.” The translation of this plaint is: “If only I had concepts.”

The remark that “A picture is worth a thousand words” has many valid applications. Ayn Rand’s epistemology, however, offers us a different perspective. Her theory of concepts teaches, in effect, that “A word is worth a thousand pictures.”

Conceptualization, she sums up, “is a method of expanding man’s consciousness by reducing the number of its content’s units—a systematic means to an unlimited integration of cognitive data.” 37 Given the claims of today’s so-called “drug culture,” I cannot resist observing that it is the power of reason, of abstract thought, which in the literal sense expands consciousness—not mind-killing LSD or its like.

The principle of unit-economy is essential not only to the field of concepts, but also, as one might expect, to the field of mathematics.

Numbers have a function similar to that of concepts. When you the reader count a group of entities, each step of the count reduces the amount of material you need to hold in the focus of your consciousness. You grasp the total at each step in the form of a single mental unit: “one,” then “two,” then “three,” and so on. Without counting, a quantity such as “ten” could be held in mind only in the form of ten units, like this: /////—which you could hardly distinguish from ////////// or //////////. This is another reason why our creature of a moment ago could not know that men have ten fingers; like the crow, it could grasp merely that the fingers are “many.”

The same principle is evident in higher mathematics. An algebraic equation, for example, condenses pages of numerical calculations, reducing them to a single brief formula.
The principle of unit-economy has many further manifestations in the field of concept-formation. Proper definitions, I have said, are condensations, which enable us to retain in a single statement a complex set of the referents' features. Thus definitions, too, are unit reducers. The concept condenses its referents, reduces them to a single mental unit; the definition then condenses their known characteristics; it reduces these to a single statement. And such condensing continues as knowledge grows. A higher-level abstraction, for example, condenses concepts themselves. Thus "furniture" reduces to a single unit such first-level concepts as "chair," "table," and "bed." From start to finish, one cognitive need is evident: the mind's need to compress data into fewer units, so as to be able to deal with an ever-increasing scale of information.

The fact that concepts are devices to satisfy a need of the human mind does not mean that concepts are arbitrary. On the contrary, to achieve their cognitive purpose, concepts must be based on the facts of reality. They must be formed by reference to the mathematical relationships that actually obtain among concretes and defined in terms of objectively essential characteristics. Otherwise, one's power of thought meets its nemesis in such dead ends as "encirclist" or even worse.

Concepts do satisfy a need of man's mind, but they do so because they are not subjective inventions—because they do correspond to reality. Here again, as I remarked about definitions, two elements are critical: the mind and reality, consciousness and existence.

The principle of unit-economy—or the "crow-epistemology," as Ayn Rand called the principle informally—has many further applications. As one more illustration consider the issue of literary style. Some styles are praised as economical; the writer communicates a complex content by means of relatively few words. Other writers are prolix, weighing our consciousness down with more units than the content requires. At the evil extreme of this continuum is the writer who deliberately flouts the crow-epistemology; he seeks to subvert the reader's consciousness by loading it methodically with more units than it can hold. For example, he gives you a seemingly endless sentence, with a jungle of qualifications, subordinate clauses, and parenthetical remarks erupting in the middle, all of which you must plow through and try to retain while you are still holding the subject of the main clause and waiting for the verb. After a few pages of such prose, the reader's mind simply closes, and the words turn into meaningless verbiage. That is the crow-epistemology asserting itself. When the number of units on his mental screen becomes excessive, then, like the crow, man becomes helpless.

Logically enough, the world master of the anti-economy style is, in regard to the content of his ideas, the world's greatest subverter of the conceptual faculty. For evidence of both points, consult the Critique of Pure Reason.

Ayn Rand regarded her theory of concepts as proved, but not as completed. There are, she thought, important similarities between concepts and mathematics still to be identified; and there is much to be learned about man's mind by a proper study of man's brain and nervous system. In her last years, Miss Rand was interested in following up these ideas—in relating the field of conceptualization to two others: higher mathematics and neurology. Her ultimate goal was to integrate in one theory the branch of philosophy that studies man's cognitive faculty with the science that reveals its essential method and the science that studies its physical organs. Unfortunately, she did not live long enough to pursue this goal systematically. All she could do was to leave us some tantalizing but fragmentary leads indicating the direction in which epistemology should be developed in the future.

Such leads are beyond our province here. What we must do is to apply the Objectivist theory of concepts, as Ayn Rand herself did, to the crucial questions of epistemology. We need to learn not only when (and when not) to form concepts, but above all, once they are formed, how to use concepts properly in the quest for knowledge.