dependency of some concepts on others is real and unavoidable, but this hierarchy is not a simple sequence, like the number line, which extends in two directions (positive and negative).

Hierarchy has sometimes been analogized to structures — to skyscrapers or pyramids. But the most accurate analogy for the hierarchy of concepts is the suspension bridge. Some of the higher parts of a suspension bridge serve to hold up the structures below them; other parts do the opposite, supporting what lies on top of them. But every part of the suspension bridge is subject to and works in relation to the force of gravity, just as every concept in the hierarchy is subject to the necessary order of learning. Just as a given part of a suspension bridge has support but also supports other parts, so a concept in the hierarchy may have prior concepts that make it possible, while also making possible grasping other concepts that rest on it.

And just as any bridge part will fall unless it is supported, ultimately, by the ground, so any concept which does not reduce through intermediate concepts back to the perceptual level will fail to function cognitively. Ungrounded "concepts" are mere sounds, without a cognitive link to the facts of reality. Rand calls them "floating abstractions." (Methods of preventing floating abstractions will be discussed in CHAPTER 7.)

In the field of abstraction from abstractions, certain concepts require special attention: concepts of characteristics, concepts of consciousness, and axiomatic concepts.

CONCEPTS OF CHARACTERISTICS

The first concepts a child forms are concepts of entities — e.g., "dog," "table," "cookie." These concepts are formed directly from perception, rather than requiring prior concepts, and perception is geared toward discriminating entities from each other. Though we also perceive the attributes and actions of entities, perception does not *discriminate* attributes or actions from entities. When we perceive a big dog barking, the dog is given as discriminated from the ground on which it is standing (and from every other entity in the scene), but we are not given any discrimination of the dog's size from the dog; nor are we given any discrimination of the dog's action of barking from the dog. Yet, after a period of development, we are of course able to form the concepts "big" and "barking." By what means do we do this? How do we form concepts not of entities but of their *characteristics*: their colors, shapes, locations, what they are doing, and what they can do?[72]

This is an important question, because concepts of characteristics are our means of identifying the nature of a thing, breaking down what is, perceptually, an unanalyzed whole. It is one thing to see a red ball rolling by, it is quite another to isolate its color, shape, or action and to name it. Concepts of characteristics offer this analysis and identification, enabling us to gain explicit, conceptual knowledge of what things are and do. Doing so enables us to connect the properties of a thing to its actions — i.e., we can identify causal factors.[73] E.g., the ball's round shape is necessary for it to roll, but its red color is not.

By breaking down perceived entities into separate characteristics and then identifying the action-consequences of each, man has been able to harness the power of wind, water, fire, sunlight, and petrochemicals.

For instance, man uses concepts of characteristics to grasp that wind *pushes* in a certain *direction*; he uses that analytical knowledge to develop the sailboat. Similarly, he observes that *flowing* water *pushes* things, and uses that analytical knowledge to invent the waterwheel. Even at a more primitive stage, in learning how to tame fire, he must recognize that fires are *hot*, that fire has *fuel*, that different fuels *burn* differently, that a fire can be *starting, steady, or dying*. This is the kind of analytical knowledge that

---

72   I include "actions" under "characteristics" to avoid having to repeat "characteristics and actions."

73   "The law of causality is the law of identity applied to action. All actions are caused by entities. The nature of an action is caused and determined by the nature of the entities that act; a thing cannot act in contradiction to its nature." [AS, 1037]

permits primitive man to progress from fearing fire to taming it, to making wood fires, inventing torches, then candles, then ovens and foundries. None of this would be possible if man were restricted to the pre-analytical concept of "fire" as being just "that kind of thing." Without concepts of characteristics, man would be restricted to "Here is wind" and "There is fire," which is in itself hardly any advance over the perceptual associations formed by animals. Concepts of characteristics make possible man's mastery of nature — and of himself.

In view of the inestimable value of causal knowledge, it is imperative to understand how characteristics are isolated and conceptualized.

Concepts of characteristics are formed by the same basic method used to form concepts of entities; the difference here pertains to what is being conceptualized, not directly to the means of doing so. Nevertheless, there are some wrinkles — and some questions — that arise regarding concepts of characteristics.

To form a concept of an *entity*, we contrast two or more instances of the entity with a foil — e.g., some tables vs. a chair. Likewise, to form the concept of an attribute, we contrast this and that instance of the attribute with a foil — e.g., two or more shades of blue vs. a shade of green. To form the concept of an action, we contrast this and that instance of an action with a foil — e.g., two or more instances of a thing moving vs. being at rest. And, as with entity-concepts, concepts of characteristics are formed by measurement-omission, on the "some but any" principle, and are integrated into a new mental unit by means of a word.

We form higher-level concepts of characteristics just as we do in the case of higher-level concepts of entities.[74] "Blue" is first-level, within attribute-concepts; "color" is a widening; "indigo," and "ultramarine" are narrowings. Narrowing by cross-classification is exemplified by "pastel blue," if we allow two words to count as a concept, since "pastel blue" stands for those shades

---

74 A technical issue arises regarding "levels," because the term has two senses. In one sense, only concepts of entities are "first-level": only entity-concepts presuppose no prior conceptualization. Since concepts of characteristics presuppose concepts of entities, concepts like "blue" are not "first-level" in this sense. But, in another sense, "first-level" denotes concepts that do not integrate or subdivide any prior concepts, and in this second sense "blue" is first-level: it conceptualizes what is directly perceivable. Accordingly, these concepts need no validation or checking (there's no such thing as getting "blue" wrong). Concepts like "blue," "round," and "moves" are part of the incontestable base to which more abstract concepts must be reduced and against which their validity is to be judged. As such, they could be called "reductively first-level."