CHAPTER 3: MATERIAL VALUES AND REASON

The Logical Structure of Values

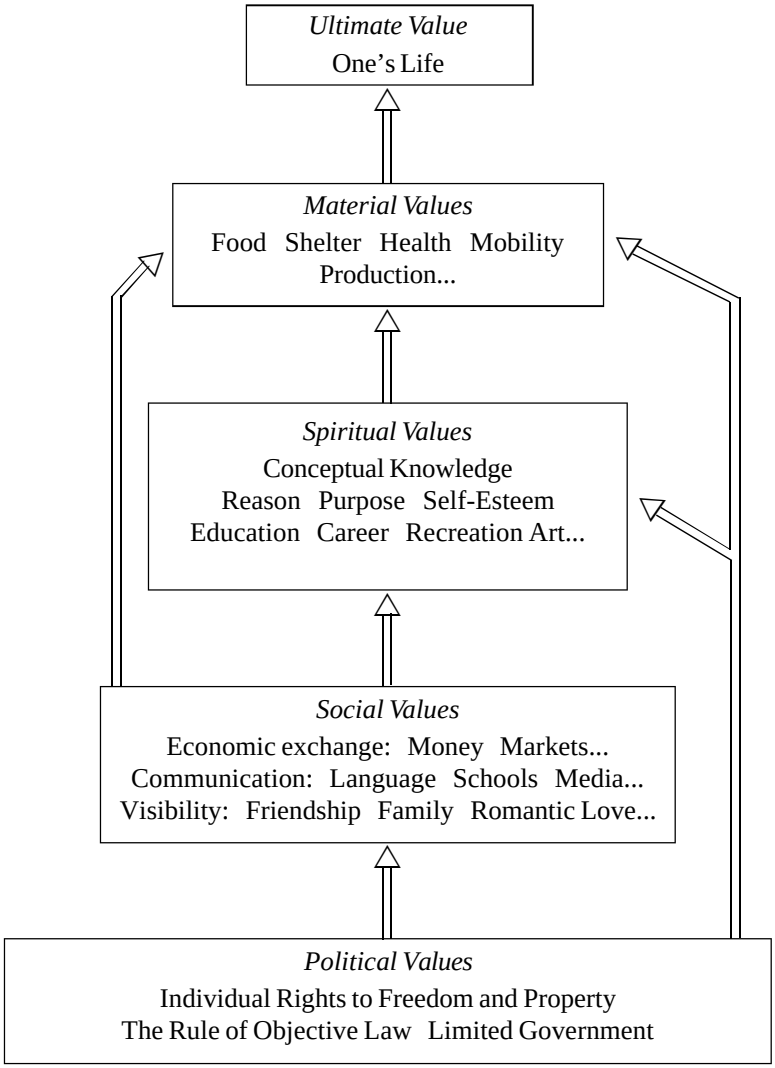
Now that we have established the foundations of the ethics, we are ready to start constructing the Objectivist idea of a good life. Following the pattern of reasoning illustrated in the diagram of the Basic Logical Structure (Diagram 2.3), we can combine our acceptance of life as the ultimate value with our knowledge of human nature to determine the values that man needs. When we know these, we will be able to establish how man should act, i.e. the virtues.

Our basic method of determining values, as we saw last chapter, is causal demonstration: we show that X is a value by showing that it's something we need, i.e., that it would significantly enhance our ability to preserve ourselves.

The needs of the whole person are varied. We can categorize them logically into four groups based on the directness with which they serve life. Naturally, for each category of needs, there is a corresponding category of the values that fulfill those needs. The categories are as follows:

- **Material needs** such as needs for health and food: these values contribute directly to survival.
- **Spiritual needs** such as needs for conceptual knowledge, self-esteem, education and art: these values are *spiritual* in the sense that they primarily pertain to consciousness, and contribute to survival by helping reason to function properly.
- **Social needs** such as needs for trade, communication, friendship and love: these values are *social* in that they occur only through interaction with others. Logically, their status as values is due to the fact that they contribute to the fulfillment of spiritual and material needs.
- **Political needs** such as needs for freedom and objective law, which are needs concerning the organization of society. These provide the context for fulfilling our material, spiritual and social needs.

Diagram 3.1: The Logical Structure of Values



Arrows mark primary lines of logical justification.

Why do we say that material needs are more fundamental than other kinds of needs? The point is one of logical priority, not importance. Because we live in a material world, and are material beings, our immediate needs for survival are material.[1] Values such as food, shelter, mobility, health, and wealth are what we need to stay alive from one day to the next, and provide us with the means to produce more values and thereby fulfill our needs over the long-term.

Our spiritual needs are the needs of human consciousness, insofar as consciousness contributes to survival. Reason, as our means to conceptual knowledge, is the aspect of consciousness that contributes to survival most directly (as we shall see when we discuss reason and production) by making us better able to produce material goods. So the *spiritual* values directly or indirectly contribute to the satisfaction of *material* needs.

Social values are values we gain from interacting with other people, and they also aid our lives indirectly. It is often observed that man is a social animal, but from the perspective of the logical structure of needs, the values we gain from society are truly values only to the extent that they support our lives. And they can do so only as means to material or spiritual values. A similar analysis applies straightforwardly to political values, which are means to the achievement of social values as well as spiritual and material ones. What need have we for freedom, for instance, except that it allows us most effectively to trade with others, form friendships, share knowledge, create art, and secure wealth?

So there is a strict order of logical dependence between the several categories of values: All values serve the ultimate value of life, but the only ones that do so directly are the material values. This order is illustrated in Diagram 3.1: each box contains some of the values, virtues or principles that fall within that category. When we justify any value, our method must be to trace its effects back to the material, survival values it helps us to obtain.

There are in fact complex feedback loops that we can see as our structure of values develops. For example, to fulfill our spiritual needs (with such values as art), we need material means of expression (canvas, clay, paint, pens, film etc.). Art supplies are material, of course, so we would classify them as material values, but they are values only as means to spiritual values. This doesn't change the fact that a spiritual value like art is a value in the first place because it contributes to one's material survival.

Because of this one's wealth, which is one's store of material values, is a means to fulfilling both material and spiritual needs. Everything of which one's wealth is composed has a physical form. Stocks and bonds, for example, represent claims to real assets. However, many valuable items, such as books or works of art, are valuable primarily because of their spiritual significance. So one's wealth is a material value in its substance, but can fulfill more than material needs.

Feedback loops can also enrich our appreciation of established values. For example, wealth is initially justified as an important value because of its direct material benefits. But once we establish what our spiritual and social values are, we will be able to see that the more materially secure we are, the more we can afford time for those pursuits. That means wealth is a more important and multifaceted value than we had thought.

Bear in mind, when you consider Diagram 3.1, that this is not a hierarchy of personal values, but of logical fundamentality. When we justify a logically derivative value, we build it into the structure of the philosophy. Then we have every reason to say that it is a value in its own right, an element in the integrated Objectivist way of life, an aspect of the comprehensive ethical standard of man's life qua man. From a moral standpoint, every aspect of that standard is equally important. From a personal standpoint, a derivative value like aesthetic enjoyment or time spent with a romantic partner might contribute more to one's sense of the meaning of life than does one's job. When we say that material values are more fundamental than spiritual values, we are concerned with the logical order in which we establish that something is an objective value in the first place. Although to justify derivative values you have to consider their place in the logical structure, you shouldn't confuse that structure with the personal hierarchy of values that you form by considering *all* your values in the context of your own life and circumstances.

The Role of Reason in the Logical Structure of the Ethics

Reason, as we remarked above, plays a central role in human life. Reason is not merely a need, but is a necessary means to the achievement of any chosen value. It is man's distinctive means of acting and pursuing his life. This fact depends logically on the key role reason plays in the production of material values.

Establishing reason's central place in man's life provides us with the tool we need to show the importance of spiritual values such as self-esteem. We can prove the worth of spiritual values indirectly, via their contribution to the full and successful exercise of reason. The crucial role that reason plays in human life allows us to trace the logical structure of the ethics through it, making it the super-highway, as it were, of ethical justification.

To exercise reason, we need to employ logic, attend to the evidence of the senses, integrate on the basis of essentials, and so on. But many of our spiritual needs are not components of reasoning in this narrow sense. The rational faculty is an aspect of human consciousness, which is a complex, intricate instrument that has needs of its own. Some needs of consciousness relate to its essential functions, and some relate to the effects or by-products of those essential functions, but all must be fulfilled if the instrument is function well.

Consider a car's motor by way of analogy. The essential function of the motor is to provide power through internal combustion. Internal combustion is the basic driving force of the car; that's what gives it its ability to move. The capacity of internal combustion serves the need of providing power to the wheels. But internal combustion also produces heat, which gives rise to the need for a cooling system: the radiator. And the mechanism that captures the energy suffers from friction, so it needs motor oil for lubrication.

Similarly, reason has its own "radiators" and "motor oil" which make its essential functions possible, but are not part of them. We determine what these needs are inductively, by introspection and by investigating how the human mind functions in others. The findings of specialists in psychology and neuroscience can provide confirmation for our introspective conclusions, and add to the facts available to us. The needs of consciousness include such values as:

- A comprehensive view of existence: Philosophy;
- A way of embodying that view in a concrete, perceivable form: Art;
- A commitment to valuing oneself and one's abilities: Self-Esteem;
- A way of experiencing one's own self through others: Visibility.

(We will discuss each of these spiritual values in Chapter 4.)

So what consciousness needs to keep functioning are the kinds of values that we esteem as the glories of human nature. It may seem demeaning to think that some of your highest aspirations serve as the spiritual equivalents of an oil change, but that is the causal role they play. What makes our spiritual values glorious is, in the end, the glorious powers of the "engine" they serve. Human reason is open-ended, with no natural limits to what it may understand, know, or choose to do, and that is why satisfying its needs is such a distinctive and precious part of living a human life.

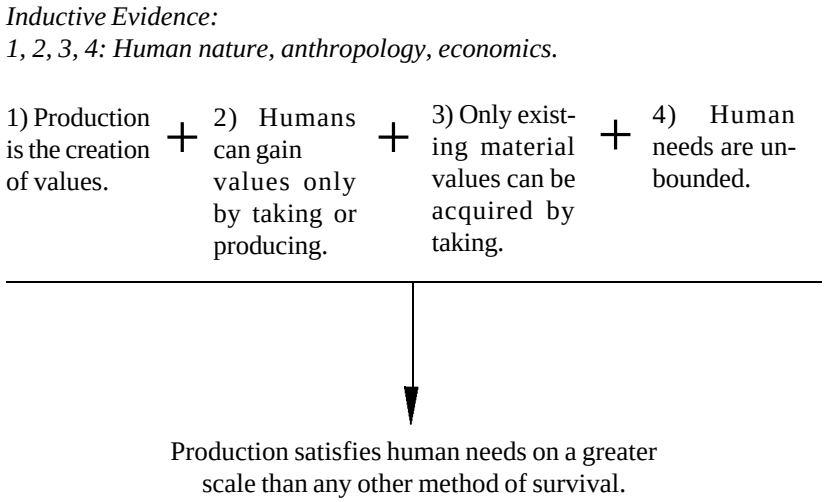
Reason and its needs are the key to establishing the spiritual values and the virtues of Objectivism. But before we can turn that key, we have to show that it is strong enough to play that role in the logical structure of the ethics. We have to show that reason is essential to human life. Reason is essential because it is our only source of conceptual knowledge. So the value of reason turns on the role of conceptual knowledge in human life. And the role of conceptual knowledge, for its own part, turns on the fact that production is man's characteristic and most efficacious means of achieving material values. To show this chain of connections between reason and survival, we must begin by considering production's place in human life.

Production and Life

Production is our most important need, because it is our means to the fulfillment of our material needs, and of our other needs through the provision of material means to them. Is production more important than reason? If production were not possible, reason would merely be an open-ended game, not a glory. In fact, in ancient times, before the potential of production was fully understood, philosophers thought the life of the mind to be distinct from the life of the body, and on the basis of that distinction they esteemed the needs of the soul as opposed to the needs of this life.[2] But without a link to survival, that esteem was essentially an aesthetic preference, not a value that could be justified objectively. Objectivism subscribes to Francis Bacon's dictum that knowledge is power, in the sense that its value is ultimately derived from the practical efficacy it gives us.[3]

Diagram 3.2 shows the argument for the conclusion that production meets human needs on a greater scale than any other method of survival. It is because of this conclusion that we single out production as the proper mode of human survival. Let's see what goes into it.

Diagram 3.2: Production and Needs



Production is the creation of value. This definition is **Premise 1** of Diagram 3.2, and is derived inductively by observing the different ways organisms gain values. If one doesn't produce, one must take whatever values one finds that can be used without further modification. When a bird comes upon a berry, and eats it, that is merely taking, but when a person gathers berries and makes preserves of them, that is production. Any action by which an organism acquires a value through substantial modification of its environment is production. Animals other than humans produce: beavers build dams and create ponds, for instance, and birds build nests. Human production, however, is on a greater scale than that of other animals, and human production technologies have tended to advance from one generation to the next.

The only alternative to producing values is taking them. When people take from nature, we call that mode of life hunting/gathering, and when they take from other people, we call that theft or looting, but the two involve the same approach to values.[4] Indeed, a thief, like a hunter, is a kind of predator. Both types of taking are restricted to the values available locally. The hunter/gatherer can only gather as much fruit and meat as the wilderness affords. The looter can only steal what others have already produced: the store of goods available for theft constrains him. In essence, looters are dependent on the willingness and ability of others to produce for them.

These two modes of survival, production and taking, are the only means we have of gaining values. This point, which is also inductive, is **Premise 2** of Diagram 3.2: **Humans can gain values only by taking or producing.**

But why does production merit pride of place? Production is our best mode of gaining values because it allows us to get more that we otherwise could. When we create values, we end up with what we can take, *and* what we've produced, which is more than we can get by taking.[5] The fact that taking is a strictly limited means of gaining values is expressed in **Premise 3: Only existing material values can be acquired by taking**. Production, because it creates values that do not exist to be gathered from the environment, is not limited in this way.

However, we have yet to establish that our needs are such that we benefit from a mode of gaining values that is open-ended in this way. Do we always *need* more values? Don't most other animals get along well enough with what they've got? We do always need more values, because **human needs are unbounded**. This is **Premise 4** of the diagram. It is an inductive truth we observe in human nature. Economists put it in this way: one can never have too many goods. We can never have too much of what we need: more health, more wealth, more knowledge, more love—more life. This doesn't mean that you always need more of the same things: your house *can* be big enough. Neither does it mean that we have an infinite number of needs. But isn't there always something you could use a little more of? In fact, this is equally true of other ani-

mals—animals benefit from medical techniques discovered by human veterinarians, after all— but they aren't able to do anything about it. We are.

Now we have the **conclusion** we were looking for: because production gains more values that any other mode of survival, and because our needs are unbounded, we can see that **production satisfies human needs on a greater scale than any other method of survival.**

Although the reasoning in Diagram 3.2 is sound, it is based on sweeping inductive generalizations; it is very abstract. So to check to make sure we haven't overlooked anything in forming our premises, we should look for other evidence that bears on the same conclusion. Furthermore, we weren't able to establish by this deductive argument *how much greater* the scale of production is compared with the two kinds of taking. So we could use direct evidence of that, too, if we can find it.

In fact there is a vast amount of inductive evidence about the effects of production on human life. For example, we can point out that all the wealth of a modern developed economy, all the food, clothing, shelter, medicine, communications, transportation, etc., is produced, and in ever-growing amounts. This evidence indicates that the scale of production is vastly greater than that of other modes of survival. In fact, human production has grown over time as if it were itself unbounded.

What would life be like *without* production? For one thing, there would be much less of it, as the evidence from history and anthropology indicates. Until about 10,000 years ago, humans lived as hunter-gatherers. Because the land could support only about one person per square kilometer or about 2.5 per square mile, people had to stay spread out: even a village-sized community was hard to sustain. Murderous conflict between different families, or even isolated individuals, was endemic, because people were in direct conflict for the limited resources.[6] Life under these "natural" conditions really was (and in remote parts of the Earth still is), as Thomas Hobbes put it, "poor, nasty, brutish, and short."

With the domestication of high-yielding grains and useful animals, people began to change the carrying capacity of the land significantly. Under pre-modern agriculture, technological advance was slow, and for the vast majority of people life was still short and onerous, but population densities could be radically increased, so that a square kilometer could support several hundred people. Actual figures varied between civilizations, and progress was not uniform, but despite its limitations, pre-industrial production made urban life, with its rich arts and complex division of labor, possible.

Since the industrial revolution, which harnessed inanimate energy sources and brought to bear an increasingly deep understanding of the basic physical nature of things, the carrying capacity of land has continued to increase, and in a more dramatic fashion than previously. Production has *created* resources where none existed before: as Ayn Rand pointed out, the oil beneath

the Arabian deserts was not a value to anyone until the industrialists and engineers of the modern petroleum industry invented both a use for, and a means of extracting, it.[7] Most people in the industrialized world today use very few goods, apart from the air itself, that have not been processed, treated, manufactured, or otherwise altered to better suit our needs. Even when we grow plants, we employ domesticated and hybrid seeds. Even our water has been treated with chemicals to purify it, and stored in reservoirs to insure us against the effects of drought.

The power of production is evident in the increase of world population, from perhaps ten million hunter-gatherers 10,000 years ago, to around one billion people in AD 1750, on the eve of the industrial revolution, to more than five billion today. And this rise in population has been accompanied by a rise in life expectancy at birth from little more than twenty years in the era before agriculture, to more than seventy years, and rising, today.

The causal sequence is: production creates wealth, which raises standards of living and the carrying capacity of resources, which increases longevity and population. These in turn are sure signs that production supports survival. With so much evidence for this conclusion, we can be confident our abstract argument in Diagram 3.2 was not only correct, but too conservative: production satisfies needs on a scale *far* greater than any other mode of survival.

Reason and Production

We now turn to the role of reason in production. In surveying the historical record of production, we noted that its growth has been unending. It is not the human physical capacity for handling goods and making simple tools that has made this unbounded mode of survival possible. After all, chimpanzees can handle physical objects as well as we can. The inventiveness of human production depends not on our physical skills, but on the application of *conceptual knowledge* to the problem of survival. The precise reasons why this is so are outlined in Diagram 3.3: Reason and Production.

Animals other than humans engage in production. But only human production is unbounded. Not only can we produce in ever-increasing amounts, but we can adapt, by production, to survive in almost any environment.[8] What makes it so? If it isn't due to physical skill, then it must be due to some kind of mental activity. To determine what kind, we must abstract from the many human acts of production the kinds of conscious tasks that go into such them. Essentially, we must inductively investigate the same body of evidence from which we formed the concept of production in the first place.

Animals adapt their actions to causal relationships, but do not grasp them, and so are limited in the scope of their actions. Humans are not limited in the same way, because we can generalize beyond our immediate surroundings. Humans can learn from the way things act under a variety of circumstances

what potentials of action things have. In other words, humans can **understand causal connections**. This is **Part a)** of the first premise of Diagram 3.3. This kind of understanding is crucial to production, because the only way to create new things is to cause things as they normally are to change. And one can only do that systematically if one understands how they will change in different circumstances. That is the source of Bacon's dictum that nature, to be commanded, must be obeyed.[9]

Let's use the production of steel as an example. No other animal produces steel, so we can presume that whatever is distinctive about human production will be at work in this case. To make any metal, one must first identify an ore. But one must also know what can be extracted from it, and how to use fire, and other refined substances, in that process. One has to bear this knowledge in mind, and apply it when one sees ore. This knowledge isn't evident at first glance: metallurgy could not be discovered on the perceptual level.

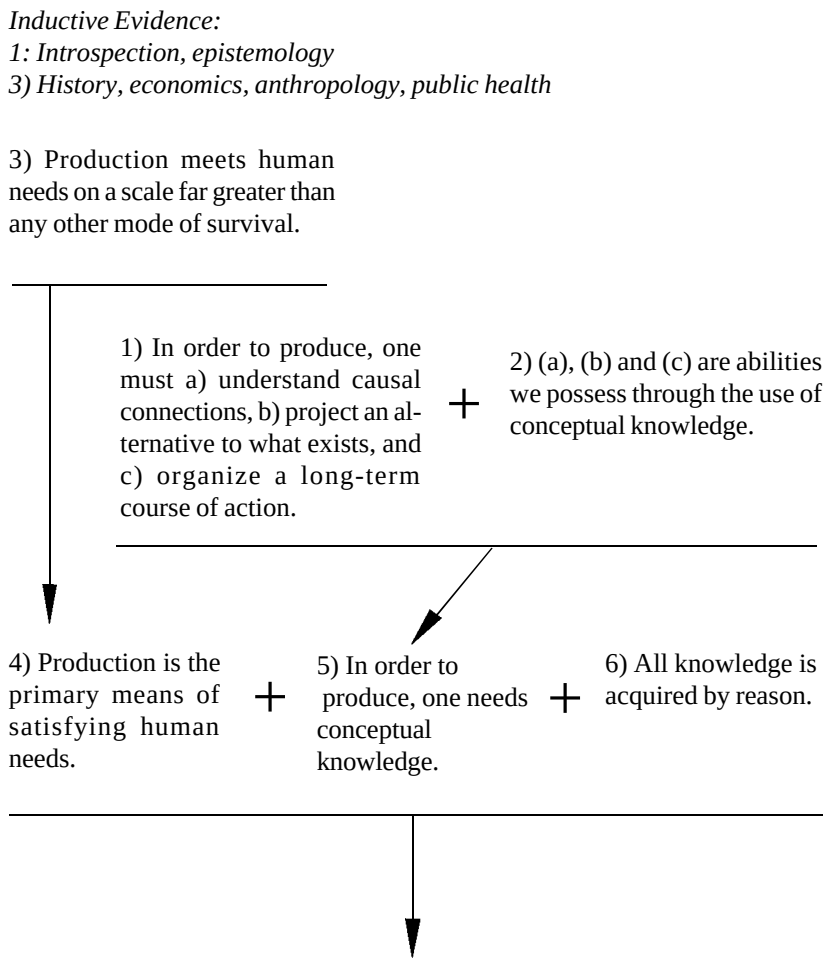
Being able to grasp causal connections also allows humans to identify what our needs are explicitly. For example, before the discovery of the human need for vitamin C, long distance sea travel was impeded by the tendency of seafarers to develop scurvy. It was only through experimentation and analysis that people were able to understand that scurvy was caused by a dietary deficiency, and what the value was that could fulfill that need.[10] It is this ability to identify our needs conceptually that allows to produce things that are of value to us, and not simply random objects that may or may not serve our needs.

Creating something new also requires that one be able to **project an alternative to what exists.** This is **Part b)** of Diagram 3.3's first premise. It isn't enough to grasp what the causal properties of a substance are, one must also envision ways of exploiting those properties that are not evident in nature. To do this requires the disciplined use of imagination, and imagination, too, is a conceptual capacity. To return to the example of metallurgy, an animal that found a piece of iron would not know what to do with it. But a human imagination could project different forms for it, recall its malleability when heated, conceive of bending it into a useful shape, and so envision making a knife or hoe out of it, for instance, or even a previously unknown kind of object.

Finally, in order to produce one must enact a precise procedure over an extended period of time. In other words, one must **organize a long-term course of action**. This is **Part c)** of Diagram 3.3's first premise. Even agriculture, one of the first productive processes invented by man, requires the careful tending of fields and crops over the course of a year. Some animals, such as bees, have evolved patterns of behavior that organize their actions over the long-term, so that they can engage in an elementary kind of food production. But these patterns of behavior do not adapt to big changes in the environment, or allow the production of new products. But conceptual consciousness can grasp the idea of the future, and plan for it. Humans can organize a long and complex chain of

actions, and adapt quickly to changing circumstances.

Diagram 3.3: Reason and Production



The way a piece of sheet steel is made exemplifies the need for long-term planning. Someone must find the ore, identify it, and dig from the ground. It must be smelted, refined, and converted into steel, which is a process for which one needs a hot-burning substance like coke. One has to foresee requirements like that if production is to proceed smoothly. To handle the hot metal,

one must employ new techniques and build specialized tools to roll it out and to create sufficient pressure to flatten it. This immense chain of action cannot occur in the present, and it cannot be perceived, as a whole, by the senses. It is only our conceptual consciousness that gives us this ability to abstract from the present, and organize a number of actions — too many to hold in mind at any one time — into a unified structure, in order to make something unknown to brute nature.

Premise 1 of the diagram summarizes the fact that production has these three essential requirements.[11] **Premise 2** states another fact that we uncovered in the foregoing discussion: **each of these characteristics is an ability we possess through the use of conceptual knowledge.** Combined, Premises 1 and 2 give us the straightforward deduction that **in order to produce, one needs conceptual knowledge**. This intermediate conclusion is summarized in **Premise 5.**

Premise 3 at the top of Diagram 3.3 should look familiar, since it is our conclusion from Diagram 3.2, modified by our direct empirical evidence: **Production meets human needs on a scale far greater than any other mode of survival.** This premise straightforwardly implies that **production is the primary means of satisfying human needs**. That intermediate conclusion is **Premise 4)** on the diagram.

Premises 4) and 5) allow us to infer that conceptual knowledge is necessary to all human production. **Premise 6)** expresses the fact that all **knowledge is acquired by reason**. So reason is necessary to all human production. In fact, if we reflect on the facts behind Premise 1), we can see that reason is the means by which we go about producing. In other words, reason is our means of engaging in our best means of acquiring material values, and thus of surviving. So Premises 4), 5) and 6) combined, including all the facts they incorporate, give us our conclusion that **reason is man's primary means of survival.** We do not possess instincts of sufficient strength to secure our survival, or indeed to guide our actions even in a fairly limited context. In place of detailed instinctive responses that dovetail with the exigencies of our environment, we have evolved the capacity to understand the world abstractly, and to act on that understanding by grasping causal relationships, projecting alternatives to what exists, and organizing our actions over long periods of time.

Unit-Economy and the Need for Reason

The logical analysis outlined in the preceding section typifies the means-end reasoning characteristic of ethics. We showed that production is a value directly related to human survival, and then showed that conceptual knowledge, and thus reason, are necessary means to that end. The Objectivist ethics, however, asserts a more general proposition: that reason is necessary to the achieve-

ment of *any* value. How do we establish this more general claim?

Following the same pattern, we would need to establish what other things are values, and then show how reason is necessary to their achievement. As we noted earlier in the chapter, however, values in categories other than the material—i.e., spiritual, social, and political—arise from the needs of reason itself. That is why we had to establish the importance of reason in the first place by showing its relation to material production. As we turn to the other categories of values in succeeding chapters, it will become clear why reason is a necessary means to the satisfaction of its own needs: reason is our means of acquiring self-esteem, producing art, trading with others, creating a free society, etc. In this way, the general claim that reason is necessary for the achievement of any value can be supported by inductive inference from its role vis-à-vis specific values. We have already surveyed one instance of this evidence, namely the role of reason in production.

But there is a feature of reason itself that provides a general rationale, at the outset, for the proposition about its value as a means of achieving values in general. The ability to think abstractly allows a mind of limited capacity to grasp an open-ended range of facts. Ayn Rand called this function *unit-economy*: the reduction of a vast welter of information to a limited, comprehensible number of units.[12] Whatever values we pursue, the achievement of unit-economy is a vital means. Diagram 3.4 examines the value of reason as a means of achieving unit-economy.

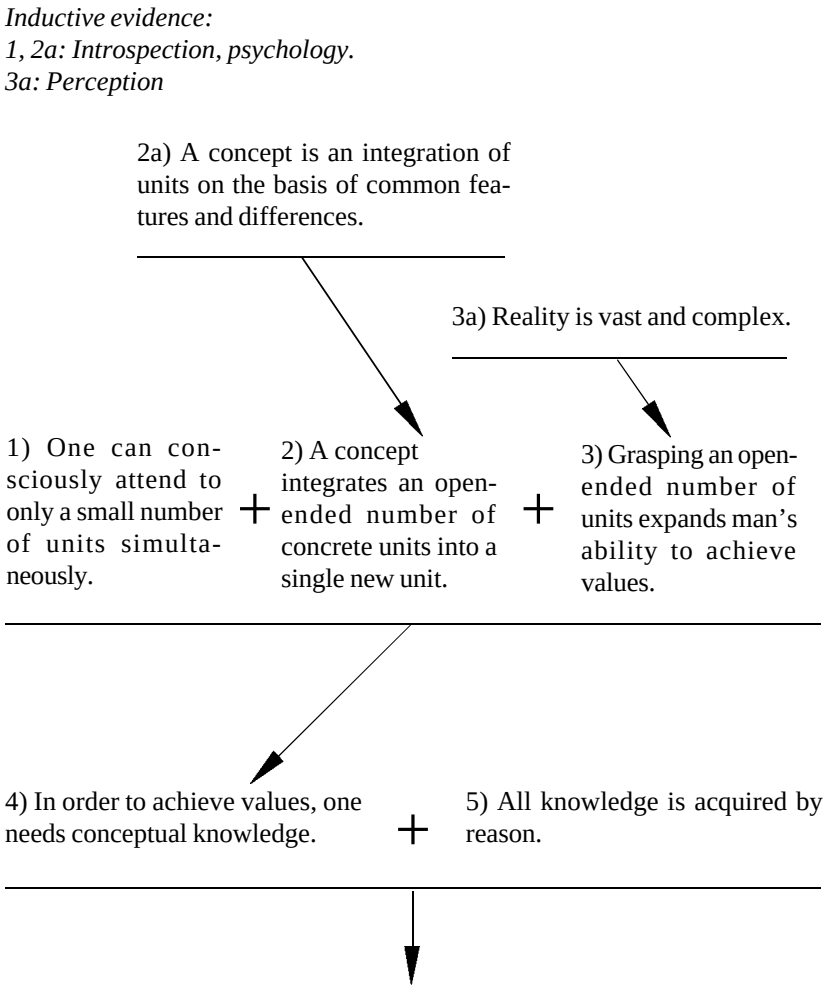
Premise 1 states the basic reason why one needs unit-economy: **one can consciously attend to only a small number of units simultaneously.** This does not mean that our knowledge is limited; rather, it means that the number of distinct mental units on which we can concentrate our attention in any moment is limited. This is an inductive point about the human mind, one that has been confirmed by numerous psychological studies.[13] Introspectively, we can observe this phenomenon in our own attempts to hold many units in focus. For instance, take the sequence AG6T. This is easy to remember, isn't it? Take a look, close your eyes, and focus your mind on it. You've got it, right? Now try to do the same with this longer string of units: AC8ZXJE6Y3NLS243. Take a look, close your eyes: what is it? The longer string exceeds your ability to directly grasp, at the perceptual level, a number of distinct items.

Premise 2a restates the definition of a concept: **a concept is an integration of units on the basis of common features and differences.** From this premise, which we first discussed in Chapter 1, we can infer that concepts can provide us with unit-economy: **A concept integrates an open-ended number of concrete units into a single new unit.** This conclusion is **Premise 2.**

Using concepts, we treat any number of things that are similar —i.e. that fall within a delimited range of difference— as if they were the same. We create a new mental unit, the concept, to which we attach a symbol, such as a

word, as a perceptible marker. That single new unit then stands for all the particular units of the concept. We can hold that single new unit in mind, allowing us to concentrate on all the units of a concept abstractly, without having to hold every one of them in mind at the same time a distinct unit. We can grasp, for instance, that dogs bark, without holding in mind every single, distinct dog and every distinct sound they make.

Diagram 3.4: Unit-Economy and Reason



But why do we need to grasp more than a limited number of units? If the world were very simple, with values few in number and easy to identify, and the means of achieving them equally simple and obvious, then perhaps we could live at the perceptual level, simply by "sniffing them out." But, as **Premise 3a** notes, in fact **reality is vast and complex.** There is an extremely large quantity of important facts that are too complex to directly grasp at the perceptual level. We can infer from this that **grasping an open-ended number of units expands man's ability to achieve values**, because it makes one aware of a wider range of facts than could perception**.** This intermediate conclusion is **Premise 3.** No matter what sort of purpose or end one wants to achieve, being able to reduce a large amount of information to a manageable number of cognitive units enhances one's chances of success.

We can infer from premises 1, 2, and 3 the conclusion that **in order to achieve values, one needs conceptual knowledge.** This is **Premise 4.** It is comparable to Premise 5 in Diagram 3.3, but it applies to all values, not just production. (At the same time, the earlier premise about production is an instance of inductive evidence for Premise 4.)

As in Diagram 3.3, we must refer to the role of reason in order to reach our conclusion. As noted in Chapter 1, **all knowledge is acquired by reason**. Reason is the capacity for and process of integrating perceptual data in accordance with logic. This fact, which is **Premise 5**, allows us to conclude our diagram with the generalization that **reason is man's means of achieving values**. By comparison with the conclusion of Diagram 3.3, this is the more general conclusion we sought.

The argument in Diagram 3.4 cannot take the place of Diagram 3.3 in the logical structure of ethics. Because the most fundamental values are the material values, it is reason's role in the creation and acquisition of these values that must provide the rationale for regarding reason as man's key faculty. If it were the case that our survival depended primarily on brute strength, or good tree-climbing skills, or some other physical capacity, then reason, while surely of some significance given the facts we have identified in Diagram 3.4, would still be relatively trivial. Diagram 3.4 expands our understanding the our need for reason, but it is reason's role in production that makes it our primary means of survival.

Thinking in Principles

Now that we better understand the value of conceptual knowledge, we can turn to the value-significance of thinking in principles. Objectivism is distinctive for the importance it attributes to the role of principles in human cognition, because they are one's means of integrating one's knowledge of a given subject or field. Of course, the term "principle" has long been associated with

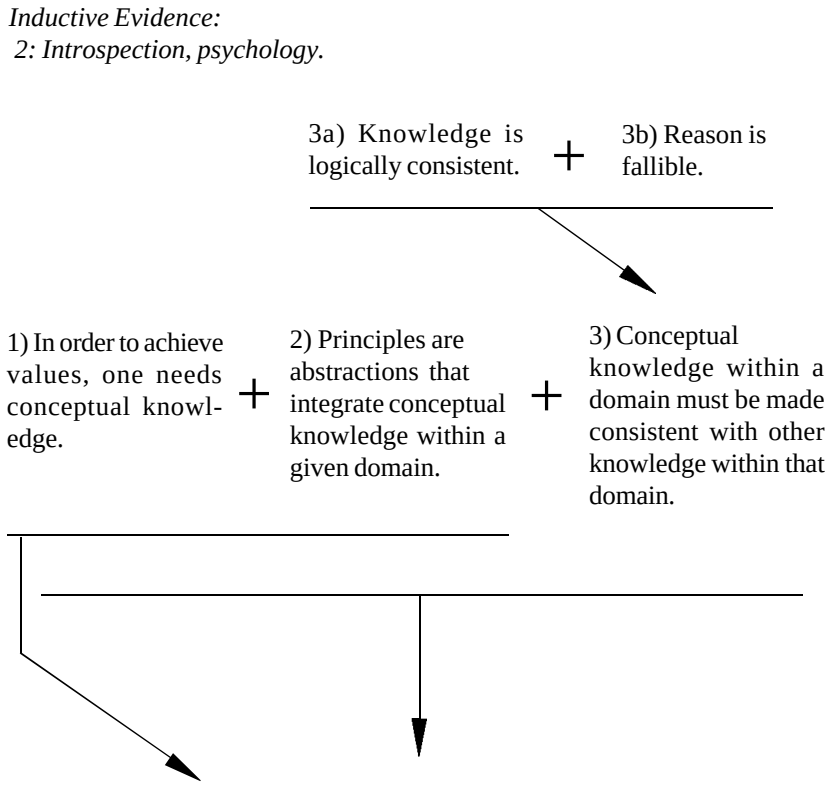
ethical commitment. Christians, for example, refer to people of great moral rectitude (by Christian lights) as people of principle. But notice the crucial difference between this traditional view of principles, and Objectivism's view. To a Christian, principles are merely rules, and being principled means adhering to those rules without regard for circumstances. In fact, principles identify key facts. This means that principles are contextual, and that they are not something one obeys, but rather something one understands. As we will see when we discuss the virtue of integrity, a committed, principled person is one who stands by and acts upon his essential understanding of reality, not someone who rigidly follows rules set down from above.

Why are principles important? At the conceptual level, as we have seen, we grasp the world abstractly. Our concepts identify particular existents that are essentially similar. When we form propositions out of our concepts, we can identify and express whole facts at any level of abstraction, from simple identifications such as "The sky is blue," to *principles* such as "Man needs freedom." Principles are propositions of a special kind: propositions that identify facts of importance, and that unify our understanding of an issue or subject. To do this, as Ayn Rand noted, a principle must be "a fundamental, primary, or general truth, on which other truths depend."[14] Principles identify key, overarching facts about a subject, and they are thus always related to a goal or purpose, although this purpose is often simply the comprehension and explanation of interesting phenomena. The principles of biology, for instance, are for the purpose of understanding the nature of life. The principles of auto-repair are for the purpose of fixing cars. It is only through principles that we can have a unified and consistent overall grasp of a subject. This is valuable both as the means of grasping a disparate set of facts as a single thought, i.e. as a means of exploiting the unit-economy of concepts, and as a means of ensuring the consistency of our conclusions.

Diagram 3.5 examines both these aspects of our need to think in principles. **Premise 1** summarizes our findings, which constitute the principal conclusion of this chapter: **in order to achieve values, one needs to use conceptual knowledge.** This covers the general need for conceptual knowledge, as the source of unit-economy, in the pursuit of any values, as well as the role that various functions of conceptual knowledge play specifically in production. **Premise 2** adds the relevant fact about principles: **principles are abstractions that integrate conceptual knowledge of a given domain.** A principle is thus a means of gasping, as a whole, a fundamental fact about many disparate concretes. Take the principle that rent controls cause shortages of housing, which we discussed briefly in the introduction. This means that rent controls on this house, that house, and the apartment down the street are all fundamentally similar, and the same goes for rent control in this city and that city, this country and that country, this century and another century. The principle thus unites our

grasp of the features of rent control in the many places, times and forms in which it can be found, and allows us to hold that unified understanding in mind. This is the sense in which principles fulfill the function of unit-economy: they allow us to reach and understand conclusions at a high level of abstraction, packing a great deal of information into a unit as small as a sentence.

Diagram 3.5: Principles



One needs principles that integrate one's knowledge within a domain.

We can therefore conclude from premises 1 and 2 that, in virtue of the unit-economy that principles provide, **one needs principles that integrate one's knowledge of a domain.** Because one's principles integrate knowledge of something fundamental, they are powerful means of understanding the world.

In addition to unit-economy, principles also are our means of ensuring the consistency of our knowledge of a given subject. **Premises 3a** and **3b** are statements about conceptual knowledge that we discussed in Chapter 1. The first asserts that **any item of knowledge must be logically consistent with all other knowledge.** This is something we established in Diagram 1.4; it is an obvious implication of the axiomatic law of non-contradiction. **Premise 3b** asserts that **reason is fallible**, a conclusion established in Diagram 1.5. When we apply these two generalizations to our grasp of any specific area of knowledge, we can see that our knowledge of that particular area a) must be logically consistent, but that b) such consistency must be *achieved*; given our fallibility, it cannot be taken for granted. In other words, if we have beliefs that are not consistent, at least one of them must be in error, and therefore is not knowledge. So we can infer **Premise 3** from premises 3a and 3b: **conceptual knowledge within a domain must be made consistent with other knowledge within that domain.**

Because principles integrate knowledge of given domain (premise 2), it is by means of principles that we can check the consistency of our knowledge. Simply having principles does not banish contradictions from one's thoughts. But the process of integrating one's understanding into principles, of determining the fundamental characteristics of a subject, involves seeing how one's various conclusions on more concrete matters square with each other. For example, an economist studying grain markets may come to the conclusion that price controls lead to market distortions, while finding that interest-rate regulation assures social harmony. By attempting to form a principle that addresses the effects of price controls generally, he will find himself needing to square his conclusion on interest rates with his conclusion regarding grain markets. The apparent contradiction —interest rates are prices, too, after all— implies that he has made an error somewhere, though perhaps it may lie in seeing a fundamental similarity between credit and grain markets. It is only by seeking out fundamental principles that he will be able to sort this out.

From the need to ensure that our knowledge is consistent —i.e. from premises 1, 2 and 3 together— we can again infer the **conclusion** that **one needs principles that integrate one's knowledge within a domain.**

What the diagram shows, to summarize, is that one needs to think in principles in order both to achieve the benefits of unit-economy and to ensure the consistency of one's conclusions. Both aspects of principles are essential to the use of conceptual knowledge and thus to the pursuit of all the values that depend on such knowledge. As Ayn Rand wrote: "It is only by means of prin-

ciples that one can set one's long-range goals and evaluate the concrete alternatives of any given moment."[15]

Thinking in principles does not mean ignoring concrete details, or clinging to one's abstract conclusions in the face of contrary perceptual evidence. But it does mean integrating one's discoveries with one's other knowledge, and formulating one's conclusions about significant subjects in clear terms, so that one can easily grasp and employ that knowledge. As we will see in chapter 5 when we discuss integrity, it also means relying on one's principles when one is unable to take account of every minute detail in a situation, as is often the case.

We will revisit the theme of thinking in principles in future chapters, as when we discuss reason as a cardinal value, or our need for philosophy as our most abstract and universal body of principles. Of course, it also a key to the method of this book, since we are surveying the vast content of a philosophy by means of a relatively small number of principles and diagrams.

Conclusion

The pattern of reasoning in this chapter has been that reason is man's primary means of survival because reason is necessary to production, and thus to all the material values we can produce. We have also seen why, in virtue of unit-economy and the use of principles, reason is a necessary means of achieving all the other values we pursue—a conclusion that will be reinforced in later chapters as we discuss the other categories of value. It is because reason is essential to the pursuit of life and happiness that we will be able, in the chapters ahead, to determine the further values and virtues of Objectivism by reference to the rational faculty and its needs. The first category of nonmaterial values we will consider are the *spiritual* values, which follow directly from the nature and needs of reason.

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1 By contrast to the Objectivist position, the character in Madonna's hit song "Material Girl" (which did spring to mind when this section was being composed) considers the logical structure of values to be her value hierarchy. She doesn't merely think material values are fundamental, but that they are also the values of greatest personal importance.

2 This view is typical of Classical philosophy, for instance, from Plato and Aristotle to Plotinus.(*cite?)

3 Sir Francis Bacon "De Heresibus (Of Heresies)" in *Meditationes Sacrae.*

4 Even most hunting or gathering involves the use of some tools, but without

effects nearly as significant as open-ended production. Admittedly, however, few Homo Sapiens have ever been pure hunter-gatherers in the way a lion or monkey is.

5 If this would seem to endorse a "prudent predator" life strategy (one of producing when one must and taking when one can) please recall that this argument is only intended to prove that production is our most effective means of getting values. There is a more developed argument in favor of production as against both forms of taking, but that depends on the relationship between reason and production, and such virtues as independence and justice, all topics that would be premature at this point in the logical structure of the ethics.

6 In addition, in hunter/gatherer societies, with people so spread out, it is very hard for relationships based on trust to develop. See e.g. Jared Diamond, *Guns, Germs and Steel* chapter 14 for a discussion of these societies.

7 Cite: Rand on discovery of oil in Arabia. In Reisman?*

8 See Julian Simon, *The Ultimate Resource 2 (*Princeton, NJ: Princeton University Press, 1996) for a thorough theoretical and empirical discussion the capabilities of production.

9 Sir Francis Bacon *Novum Organum* Book 1, Aphorism 129.

10 Ernest Lovell Becker, editor, *International Dictionary of Medicine and Biology, Volume III* (New York: Wiley, 1986) 2559.

11 The three conceptual aspects of production in Diagram 3.3 are not simply necessary to the invention of new productive means, but to any production. Consider the most rote job in a factory: the worker would still have to understand that he would only be paid if he did the work (understand causal connections), he would have to understand what would happen if he did not get paid (project an alternative) and he would have to understand that he must show up for work regularly everyday (undertake a long-term course of action). Any economic exchange has these characteristics, and a similar analysis can be applied to the actions of the most humble peasant farmer.

12 Rand, *Introduction to Objectivist Epistemology*, *Expanded Second Edition* 63.

13 A classic formulation of the psychological point is George Miller, "The Magical Number Seven, Plus or Minus Two; some Limits on Our Capacity for Processing Information," *Psychological Review* 63 (1956), 81-96.

14 Rand, "The Anatomy of Compromise," in *Capitalism: the Unknown Ideal*; 144

15 *ibid.*.