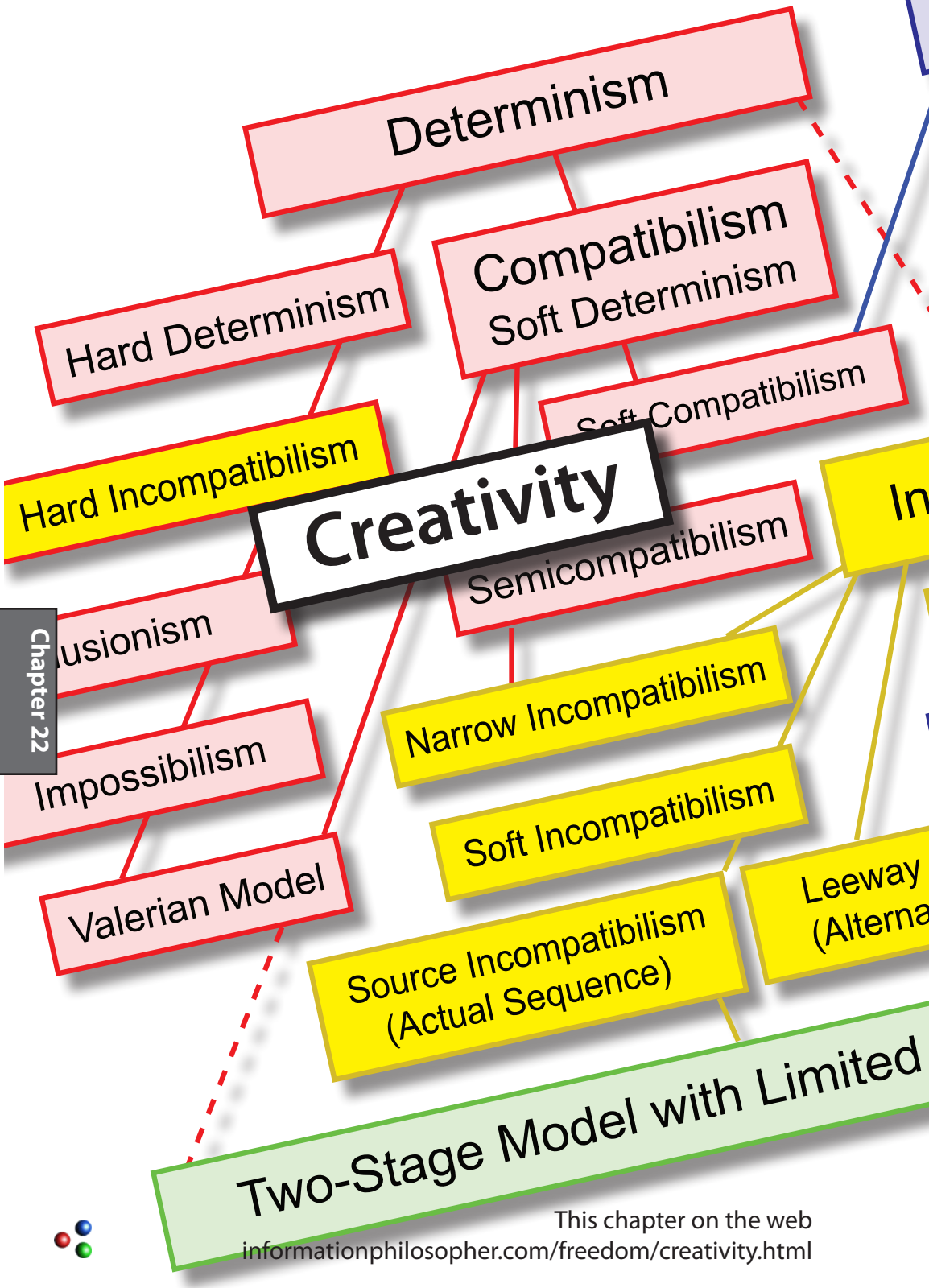

This chapter on the web
informationphilosopher.com/freedom/creativity.html

Creativity

Creativity requires that new information come into the world. It must be information that was not implicit in earlier states of the world, determined by the "fixed past and the laws of nature."

Human creativity requires the same freedom of thought and action needed for free will in my **Cogito** Model.

If everything created was **pre-determined**, then all the works of Mozart would have been implicit in the first beat of an aboriginal drum. Einstein's $E=mc^2$ would have been already there at the time of the first ARISTOTLE syllogism.

Cosmological systems are creative, because atoms and molecules did not exist in the first three minutes of the universe. And the great astrophysical structures made from atoms, like galaxies, stars, and planets, did not exist in the first million years.

Biological systems are creative. Darwinian evolution accounts for the creation of new species of organisms.

Many organisms create informational structures outside of themselves, in the world, like beehives, bird nests, and beaver dams.

Humans are the most conspicuous creators and consumers of new informational structures, altering the face of planet Earth. And they create the constructed ideal world of thought, of intellect, of spirit, including the laws of nature, in which we humans play a role as co-creator.

All creative processes have the same underlying physics as the cosmic creative process.

Biological processes add the element of natural selection. This is accomplished by something JACQUES MONOD called the teleonomic information, the purposive element in all life.

> "This allows us to put forward at least the principle of a definition of a species' "teleonomic level." All teleonomic structures and performances can be regarded as corresponding to a certain quantity of information which must be transmitted for these

> structures to be realized and these performances accomplished. Let us call this quantity "teleonomic information." A given species' "teleonomic level" may then be said to correspond to the quantity of information which, on the average and per individual, must be transferred to assure the generation-to-generation transmission of the specific content of reproductive invariance." [1]

Blind Variation and Selective Retention

The best known theory of **creativity** is the two-stage model proposed by Donald Campbell, who investigated creative thought and described it as a process involving the generation of "blind" variations of ideas, followed by a selective retention of good ideas.

Campbell proposed that his Blind Variation and Selective Retention (BVSR) could also explain the development of human knowledge, including inventions and the increase in scientific knowledge. I agree that all human knowledge creation is the same two-stage process that explains human freedom.

Creativity and Free Will are two sides of the same coin.

BVSR is itself a variation on common-sense and ancient notions of trial-and-error, and, like my free will model, it seems directly inspired by the two-step process of biological evolution, but Campbell sees it as more general than these. He says BVSR is applicable to organic evolution, the learning process in individual organisms, and the social construction of knowledge.

BVSR clearly describes my two-stage **Cogito** model for free will. Other biological examples include the immune system and quality control in protein/enzyme factories.

But Dean Keith Simonton, a social psychologist who has investigated the origins of and evolution of genius, creativity, and leadership., is wary of identifying "blind" with the chance of two-stage models for free will. [2]

1 Monod (1971), Chance and Necessity, p. 14.
2 Simonton (2004)

Simonton has researched the personal, social, cultural, developmental, and cognitive factors that contribute to greatness in the arts, the humanities, and especially the sciences.

He uses the tools of historiometrics, a combination of personal histories, biographies, and psychometrics, to build theories and principles of human behavior that might account for the development of pre-eminent individuals.

But Simonton is cautious about identifying the variation principle with irreducible ontological chance, because that concept is still controversial in the social sciences. Recall that the founders of "social physics," who produced the rise of statistical thinking in the nineteenth century, did not believe that chance was real. It is merely epistemic, they maintained. [3]

Simonton hopes to establish "blindness" as the main requirement, viz., that the creative process cannot see ahead - sightedness is antithetical to creativity, he says. [4]

Then, because randomness is inherently blind, there should be no problem incorporating chance once blindness is established.

In biological evolution, the original blind variation is preserved by genetic inheritance. In learning, random variations are preserved by individual organisms memories. In social knowledge, chance variation of ideas get preserved as new inventions, new works of art, and new scientific theories. Whether any of these get selected and retained depends on their pragmatic usefulness to the species, the individual and the society.

The idea that units of cultural knowledge undergo variation and then are selected for is perhaps better known from the recent work of Richard Dawkins, who named the self-replicating unit of cultural evolution the "meme" in his 1976 book *The Selfish Gene*.

BVSR is widely used in cybernetics. For example, the "general problem solver" programs of Allan Newell and Herbert Simon involve two stages, first the blind generation of theorems and then testing of the theorems for validity.

3 See Quételet and Buckle in Chapter 7, p. 91.
4 personal communication.