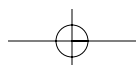
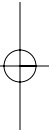
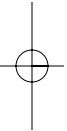
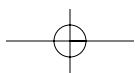
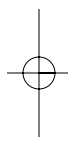
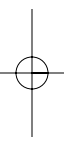
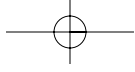


**PART ONE**  
**CONTEXTS**





## CHAPTER 1

**Evolution: A Generative Source for Conceptualizing the Attributes of Personality**

THEODORE MILLON

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In the last year of the twentieth century, voters elected a group of Kansas school board members who supported the removal of the concept of evolution from the state's science curriculum, an act that indicated the extent to which evolutionary ideas could incite intense emotional, if not irrational opposition on the part of unenlightened laymen. Retrospectively appalled by their prior action, in the following year Kansan voters rescinded their perverse judgment and chose new board members who intended to restore the concept.

The theory of evolution was reinstated not because the electors of Kansas, a most conservative and religious state, suddenly became agnostic, but because they realized that rejecting the idea would deny their children the necessity of remaining in touch with one of the fundamentals of modern science; they realized that this could, in effect, allow their children to fall behind, to be bereft of a basic science, and to be both a misinformed and misguided generation. Their children could become embarrassingly backward in a time of rapidly changing technology.

Might not the same ambivalence be true of our own field, one composed of ostensibly sophisticated and knowledgeable scientists? Might we not be so deeply mired in our own traditions (scholarly religions?) that we are unable to free ourselves from the habit of seeing our subject from no vantage point other than those to which we have become accustomed? Are we unable to recognize that behavior, cognition, the unconscious, personality—all of our traditional subjects—are merely diverse manifestations of certain common and deeper

principles of functioning, processes, and mechanisms that have evolved either randomly or adaptively through history and time? Do we psychologists have a collective phobia about laws that may represent the fundamental origins of our traditional subjects? Does the search for and application of such laws push our emotional buttons, perhaps run hard against our habitual blinders, so much so as to prevent us from recognizing their value as a potential generative source that may more fully illuminate our science?

**PERSONOLOGY'S RELATIONSHIP  
TO OTHER SCIENCES**

It is the intent of this chapter to broaden our vistas, to furnish both a context and a set of guiding ideas that may enrich our studies. I believe it may be wise and perhaps even necessary to go beyond our current conceptual boundaries in psychology, more specifically to explore carefully reasoned, as well as intuitive hypotheses that draw their laws and principles if not their substance from contextually adjacent sciences such as evolution. Not only may such steps bear new conceptual fruits, but they may also provide a foundation that can undergird and guide our own discipline's explorations. Much of personology, no less psychology as a whole, remains adrift, divorced from broader spheres of scientific knowledge; it is isolated from firmly grounded if not universal principles, leading us to continue building the patchwork quilt of

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concepts and data domains that characterize our field. Preoccupied with but a small part of the larger puzzle of nature or fearful of accusations of reductionism, we may fail to draw on the rich possibilities to be found in parallel realms of scientific pursuit. With few exceptions, cohering concepts that would connect our subject domain to those of its sister sciences in nature have not been adequately developed.

It appears to me that we have become trapped in (obsessed with?) horizontal refinements. A search for integrative schemas and cohesive constructs that link its seekers closely to relevant observations and laws developed in other scientific fields is needed. The goal—albeit a rather ambitious one—is to refashion our patchwork quilt of concepts into a well-tailored and aesthetically pleasing tapestry that interweaves the diverse forms in which nature expresses itself (E. O. Wilson, 1998).

What sphere is there within the psychological sciences more apt than personology to undertake the synthesis of nature? Persons are the only organically integrated system in the psychological domain, evolved through the millennia and inherently created from birth as natural entities rather than culture-bound and experience-derived *gestalts*. The intrinsic cohesion of nature's diverse elements that inheres in persons is not a rhetorical construction, but rather an authentic substantive unity. Personological features may often be dissonant and may be partitioned conceptually for pragmatic or scientific purposes, but they are segments of an inseparable physicochemical, biopsychosocial entity.

To take this view is not to argue that different spheres of scientific inquiry must be collapsed or even equated, but rather that there may be value in seeking a single, overarching conceptual system that interconnects ostensibly diverse subjects such as physics, biology, and psychology (Millon, 1990; E. O. Wilson, 1998). Arguing in favor of establishing explicit links between these domains calls for neither a reductionistic philosophy, nor a belief in substantive identity, nor efforts to so fashion the links by formal logic. Rather, one should aspire to their substantive concordance, empirical consistency, conceptual interfacing, convergent dialogues, and mutual enlightenment.

A few words should be said concerning the undergirding framework used to structure an evolutionary context for a personology model. Parallel schemas are almost universally present in the literature; the earliest may be traced to mid-nineteenth-century philosophers, most notably Spencer (1855) and Haeckel (1874). More modern but equally speculative systems have been proposed by keen and broadly informed observers such as Edward Wilson (1975), Cosmides and Tooby (1987, 1989) and M. Wilson and Daley (1992), as well as by empirically well-grounded methodologists, such as Symons (1979, 1992) and D. M. Buss (1989, 1994). Each of

their proposals fascinates either by virtue of its intriguing portrayals or by the compelling power of its logic or its data. Their arguments not only coordinate with but also are anchored to observations derived specifically from principles of modern physical and biological evolution. It is these underpinnings of knowledge on which the personological model presented in this chapter has been grounded and from which a deeper and clearer understanding may be obtained concerning the nature of both normal and pathological personality functioning.

#### On the Place of Theory in Personology

The following discussion is conjectural, if not overly extended in its speculative reach. In essence, it seeks to explicate the structure and styles of personality with reference to deficient, imbalanced, or conflicted modes of evolutionary survival, ecological adaptation, and reproductive strategy. Whatever one's appraisal of these conjectures, the model that follows may best be approached in the spirit in which it was formulated—an effort to provide a context for explicating the domains of personological science in the hope that it can lead to a clearer understanding of our subject. All sciences have organizing principles that not only create order but also provide the basis for generating hypotheses and stimulating new knowledge. A contextual theory not only summarizes and incorporates extant knowledge, but is heuristic—that is, it has “systematic import,” as Hempel (1965) has phrased it, in that it may originate and develop new observations and new methods.

It is unfortunate that the number of theories that have been advanced to “explain” personality is proportional to the internecine squabbling found in the literature. However, and ostensibly toward the end of pragmatic sobriety, those of an antitheory bias have sought to persuade the profession of the failings of premature formalization, warning that one cannot arrive at the desired future by lifting science by its own bootstraps. To them, there is no way to traverse the road other sciences have traveled without paying the dues of an arduous program of empirical research. Formalized axiomatics, they say, must await the accumulation of so-called hard evidence that is simply not yet in. Shortcutting the route with ill-timed systematics, they claim, will lead us down primrose paths, preoccupying attentions as we wend fruitlessly through endless detours, each of which could be averted by our holding fast to an empiricist philosophy and methodology.

No one argues against the view that theories that float, so to speak, on their own, unconcerned with the empirical domain, should be seen as the fatuous achievements they are and the travesty they make of the virtues of a truly coherent conceptual system. Formal theory should not be pushed far beyond the data, and its derivations should be linked at all points to

established observations. However, a theoretical framework can be a compelling instrument for coordinating and giving consonance to complex and diverse observations—if its concepts are linked to relevant facts in the empirical world. By probing beneath surface impressions to inner structures and processes, previously isolated facts and difficult-to-fathom data may yield new relationships and expose clearer meanings. Scientific progress occurs when observations and concepts elaborate and refine previous work. However, this progression does not advance by brute empiricism alone, by merely piling up more descriptive and more experimental data. What is elaborated and refined in theory is understanding, an ability to see relations more plainly, to conceptualize categories and dimensions more accurately, and to create greater overall coherence in a subject—to integrate its elements in a more logical, consistent, and intelligible fashion.

A problem arises when introducing theory into the study of personality. Given our intuitive ability to “sense” the correctness of a psychological insight or speculation, theoretical efforts that impose structure or formalize these insights into a scientific system will often be perceived as not only cumbersome and intrusive, but alien as well. This discomfort and resistance does not arise in fields such as particle physics, in which everyday observations are not readily available and in which innovative insights are few and far between. In such subject domains, scientists not only are quite comfortable, but also turn readily to deductive theory as a means of helping them explicate and coordinate knowledge. It is paradoxical but true and unfortunate that personologists learn their subject quite well merely by observing the ordinary events of life. As a consequence of this ease, personologists appear to shy from and hesitate placing trust in the obscure and complicating, yet often fertile and systematizing powers inherent in formal theory, especially when a theory is new or different from those learned in their student days.

Despite the shortcomings in historic and contemporary theoretical schemas, systematizing principles and abstract concepts can “facilitate a deeper seeing, a more penetrating vision that goes beyond superficial appearances to the order underlying them” (Bowers, 1977). For example, pre-Darwinian taxonomists such as Linnaeus limited themselves to apparent similarities and differences among animals as a means of constructing their categories. Darwin was not seduced by appearances. Rather, he sought to understand the principles by which overt features came about. His classifications were based not only on descriptive qualities, but also on explanatory ones.

### **On the Place of Evolutionary Theory in Personology**

It is in both the spirit and substance of Darwin's explanatory principles that the reader should approach the proposals that

follow. The principles employed are essentially the same as those that Darwin developed in seeking to explicate the origins of species. However, they are listed to derive not the origins of species, but rather the structure and style of personalities that have previously been generated on the basis of clinical observation alone. Aspects of these formulations have been published in earlier books (Millon, 1969, 1981, 1986, 1990; Millon & Davis, 1996); they are anchored here, however, explicitly to evolutionary and ecological theory. Identified in earlier writings as a biosocial learning model for personality and psychopathology, the theory we present seeks to generate the principles, mechanisms, and typologies of personality through formal processes of deduction.

To propose that fruitful ideas may be derived by applying evolutionary principles to the development and functions of personological traits has a long (if yet unfulfilled) tradition. Spencer (1870), Huxley (1870), and Haeckel (1874) offered suggestions of this nature shortly after Darwin's seminal *Origins* was published. The school of *functionalism*, popular in psychology in the early part of this century, likewise drew its impetus from evolutionary concepts as it sought to articulate a basis for individual difference typologies (McDougall, 1932).

In recent decades, numerous evolution-oriented psychologists and biologists have begun to explore how the human mind may have been shaped over the past million years to solve the problems of basic survival, ecological adaptation, and species replication and diversification. These well-crafted formulations are distinctly different from other, more traditional models employed to characterize human functioning.

The human mind is assuredly *sui generis*, but it is only the most recent phase in the long history of organic life. Moreover, there is no reason to assume that the exigencies of life have differed in their essentials among early and current species. It would be reasonable, therefore—perhaps inevitable—that the study of the functions of mind be anchored to the same principles that are universally found in evolution's progression. Using this anchor should enable us to build a bridge between the human mind and all other facets of natural science; moreover, it should provide a broad blueprint of *why* the mind engages in the functions it does, as well as what its essential *purposes* may be, such as pursuing parental affection and protection, exploring the rationale and patterns of sexual mating, and specifying the styles of social communication and abstract language.

In recent times we have also seen the emergence of sociobiology, a new science that has explored the interface between human social functioning and evolutionary biology (E. O. Wilson, 1975, 1978). The common goal among both sociobiological and personological proposals is the desire not only to apply analogous principles across diverse scientific realms, but also to reduce the enormous range of behavioral

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and trait concepts that have proliferated through modern history. This goal might be achieved by exploring the power of evolutionary theory to simplify and order previously disparate personological features. For example, all organisms seek to avoid injury, find nourishment, and reproduce their kind if they are to survive and maintain their populations. Each species displays commonalities in its adaptive or survival style. Within each species, however, there are differences in style and differences in the success with which its various members adapt to the diverse and changing environments they face. In these simplest of terms, differences among personality styles would be conceived as representing the more-or-less distinctive ways of adaptive functioning that an organism of a particular species exhibits as it relates to its typical range of environments. Disorders of personality, so formulated, would represent particular styles of maladaptive functioning that can be traced to deficiencies, imbalances, or conflicts in a species' capacity to relate to the environments it faces.

A few additional words should be said concerning analogies between evolution and ecology on the one hand and personality on the other. During its life history, an organism develops an assemblage of traits that contribute to its individual survival and reproductive success, the two essential components of fitness formulated by Darwin. Such assemblages, termed *complex adaptations* and *strategies* in the literature of evolutionary ecology, are close biological equivalents to what psychologists have conceptualized as personality styles and structures. In biology, explanations of a life history strategy of adaptations refer primarily to biogenic variations among constituent traits, their overall covariance structure, and the nature and ratio of favorable to unfavorable ecological resources that have been available for purposes of extending longevity and optimizing reproduction. Such explanations are not appreciably different from those used to account for the development of personality styles or functions.

Bypassing the usual complications of analogies, a relevant and intriguing parallel may be drawn between the phylogenic evolution of a species' genetic composition and the ontogenic development of an individual organism's adaptive strategies (i.e., its personality style, so to speak). At any point in time, a species possesses a limited set of genes that serve as trait potentials. Over succeeding generations, the frequency distribution of these genes will likely change in their relative proportions depending on how well the traits they undergird contribute to the species' "fittedness" within its varying ecological habitats. In a similar fashion, individual organisms begin life with a limited subset of their species' genes and the trait potentials they subserve. Over time the *salience* of these trait potentials—not the proportion of the genes

themselves—will become differentially prominent as the organism interacts with its environments. It "learns" from these experiences which of its traits fit best (i.e., most optimally suit its ecosystem). In phylogenesis, then, actual gene frequencies change during the generation-to-generation adaptive process, whereas in ontogenesis it is the *salience* or prominence of gene-based traits that changes as adaptive learning takes place. Parallel evolutionary processes occur—one within the life of a species, and the other within the life of an organism. What is seen in the individual organism is a shaping of latent potentials into adaptive and manifest styles of perceiving, feeling, thinking, and acting; these distinctive ways of adaptation, engendered by the interaction of biological endowment and social experience, comprise the elements of what is termed *personality styles*. It is a formative process in a single lifetime that parallels gene redistributions among species during their evolutionary history.

Two factors beyond the intrinsic genetic trait potentials of advanced social organisms have a special significance in affecting their survival and replicability. First, other members of the species play a critical part in providing postnatal nurturing and complex role models. Second, and no less relevant, is the high level of diversity and unpredictability of their ecological habitats. This requires numerous, multifaceted, and flexible response alternatives that are either preprogrammed genetically or acquired subsequently through early learning. Humans are notable for unusual adaptive pliancy, acquiring a wide repertoire of styles or alternate modes of functioning for dealing with both predictable and novel environmental circumstances. Unfortunately, the malleability of early potentials for diverse learnings diminishes as maturation progresses. As a consequence, adaptive styles acquired in childhood and usually suitable for comparable later environments become increasingly immutable, resisting modification and relearning. Problems arise in new ecological settings when these deeply ingrained behavior patterns persist, despite their lessened appropriateness; simply stated, what was learned and was once adaptive may no longer fit. Perhaps more important than environmental diversity, then, is the divergence between the circumstances of original learning and those of later life, a schism that has become more problematic as humans have progressed from stable and traditional to fluid and inconstant modern societies.

From the viewpoint of survival logic, it is both efficient and adaptive either to preprogram or to train the young of a species with traits that fit the ecological habitats of their parents. This wisdom rests on the usually safe assumption that consistency if not identity will characterize the ecological conditions of both parents and their offspring. Evolution is spurred when this continuity assumption fails to hold—when

formerly stable environments undergo significant change. Radical shifts of this character could result in the extinction of a species. It is more typical, however, for environments to be altered gradually, resulting in modest, yet inexorable redistributions of a species' gene frequencies. Genes that subserve competencies that proved suited to the new conditions become proportionately more common; ultimately, the features they engender come to typify either a new variant of or a successor to the earlier species.

All animal species intervene in and modify their habitats in routine and repetitive ways. Contemporary humans are unique in evolutionary history, however, in that both the physical and social environment has been altered in precipitous and unpredictable ways. These interventions appear to have set in motion consequences not unlike the "equilibrium punctuations" theorized by modern paleontologists (Eldredge & Gould, 1972). This is best illustrated in the origins of our recent borderline personality epidemic (Millon, 1987):

Central to our recent culture have been the increased pace of social change and the growing pervasiveness of ambiguous and discordant customs to which children are expected to subscribe. Under the cumulative impact of rapid industrialization, immigration, urbanization, mobility, technology, and mass communication, there has been a steady erosion of traditional values and standards. Instead of a simple and coherent body of practices and beliefs, children find themselves confronted with constantly shifting styles and increasingly questioned norms whose durability is uncertain and precarious. Few times in history have so many children faced the tasks of life without the aid of accepted and durable traditions. Not only does the strain of making choices among discordant standards and goals beset them at every turn, but these competing beliefs and divergent demands prevent them from developing either internal stability or external consistency. (p. 363)

Murray has said that "life is a continuous procession of explorations . . . learnings and relearnings" (1959). Yet, among species such as humans, early adaptive potentials and pliancies may fail to crystallize because of the fluidities and inconsistencies of the environment, leading to the persistence of what some have called immature and unstable styles that fail to achieve coherence and effectiveness.

Lest the reader assume that those seeking to wed the sciences of evolution and ecology find themselves fully welcome in their respective fraternities, there are those who assert that "despite pious hopes and intellectual convictions, [these two disciplines] have so far been without issue" (Lewontin, 1979). This judgment is now both dated and overly severe, but numerous conceptual and methodological

impediments do face those who wish to bring these fields of biological inquiry into fruitful synthesis—no less employing them to construe the styles of personality. Despite such concerns, recent developments bridging ecological and evolutionary theory are well underway, and hence do offer some justification for extending their principles to human styles of adaptation.

To provide a conceptual background from these sciences and to furnish a rough model concerning the styles of personality, four domains or spheres of evolutionary and ecological principles are detailed in this chapter. They are labeled *existence*, *adaptation*, *replication*, and *abstraction*. The first relates to the serendipitous transformation of random or less organized states into those possessing distinct structures of greater organization; the second refers to homeostatic processes employed to sustain survival in open ecosystems; the third pertains to reproductive styles that maximize the diversification and selection of ecologically effective attributes; and the fourth, a distinctly human phenomenon, concerns the emergence of competencies that foster anticipatory planning and reasoned decision making.

What makes evolutionary theory and ecological theory as meritorious as I propose them to be? Are they truly coextensive with the origins of the universe and the procession of organic life, as well as human modes of adaptation? Is extrapolation to personality a conjectural fantasy? Is there justification for employing them as a basis for understanding normal and pathological behaviors?

Owing to the mathematical and deductive insights of our colleagues in physics, we have a deeper and clearer sense of the early evolution and structural relations among matter and energy. So too has knowledge progressed in our studies of physical chemistry, microbiology, evolutionary theory, population biology, ecology, and ethology. How odd it is (is it not?) that we have only now again begun to investigate—as we did at the turn of the last century—the interface between the basic building blocks of physical nature and the nature of life as we experience and live it personally. How much more is known today, yet how hesitant are people to undertake a serious rapprochement? As Barash (1982) has commented:

Like ships passing in the night, evolutionary biology and the social sciences have rarely even taken serious notice of each other, although admittedly, many introductory psychology texts give an obligatory toot of the Darwinian horn somewhere in the first chapter . . . before passing on to discuss human behavior as though it were determined only by environmental factors. (p. 7)

Commenting that serious efforts to undergird the behavioral sciences with the constructs and principles of evolutionary

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biology are as audacious as they are overdue, Barash (1982) notes further:

As with any modeling effort, we start with the simple, see how far it takes us, and then either complicate or discard it as it gets tested against reality. The data available thus far are certainly suggestive and lead to the hope that more will shortly be forthcoming, so that tests and possible falsification can be carried out. In the meanwhile, as Darwin said when he first read Malthus, at least we have something to work with! (p. 8)

The role of evolution is most clearly grasped when it is paired with the principles of ecology. So conceived, the so-called procession of evolution represents a series of serendipitous transformations in the structure of a phenomenon (e.g., elementary particle, chemical molecule, living organism) that appear to promote survival in both its current and future environments. Such processions usually stem from the consequences of either random fluctuations (such as mutations) or replicative reformations (e.g., recombinant mating) among an infinite number of possibilities—some simpler and others more complex, some more and others less organized, some increasingly specialized and others not. Evolution is defined, then, when these restructurings enable a natural entity (e.g., species) or its subsequent variants to survive within present and succeeding ecological milieus. It is the continuity through time of these fluctuations and reformations that comprises the sequence we characterize as evolutionary progression.

### THREE UNIVERSAL POLARITIES OF EVOLUTION

As noted in previous paragraphs, *existence* relates to the serendipitous transformation of states that are more ephemeral, less organized, or both into those possessing greater stability, greater organization, or both. It pertains to the formation and sustenance of discernible phenomena, to the processes of evolution that enhance and preserve life, and to the psychic polarity of *pleasure and pain*. *Adaptation* refers to homeostatic processes employed to foster survival in open ecosystems. It relates to the manner in which extant phenomena adapt to their surrounding ecosystems, to the mechanisms employed in accommodating to or in modifying these environments, and to the psychic polarity of *passivity and activity*. *Replication* pertains to reproductive styles that maximize the diversification and selection of ecologically effective attributes. It refers to the strategies utilized to replicate ephemeral organisms, to the methods of maximizing reproductive propagation and progeny nurturance, and to the psychic polarity of *self and other*. These three polarities have

forerunners in psychological theory that may be traced back to the early 1900s.

### Some Historical Notes

A number of pre–World War I theorists proposed polarities that were used as the foundation for understanding a variety of psychological processes. Although others formulated parallel schemas earlier than he, I illustrate these conceptions with reference to ideas presented by Sigmund Freud. He wrote in 1915 what many consider to be among his most seminal works, those on metapsychology and in particular, the paper entitled “The Instincts and Their Vicissitudes.” Speculations that foreshadowed several concepts developed more fully later both by himself and by others were presented in preliminary form in these papers. Particularly notable is a framework that Freud (1915/1925) advanced as central to understanding the mind; he framed these polarities as follows:

Our mental life as a whole is governed by three polarities, namely, the following antitheses:

- Subject (ego)-Object (external world)
- Pleasure-Pain
- Active-Passive

The three polarities within the mind are connected with one another in various highly significant ways.

We may sum up by saying that the essential feature in the vicissitudes undergone by instincts is their subjection to the influences of the three great polarities that govern mental life. Of these three polarities we might describe that of activity-passivity as the biological, that of the ego-external world as the real, and finally that of pleasure-pain as the economic, respectively. (pp. 76–77, 83)

Preceding Freud, however, aspects of these three polarities were conceptualized and employed by other theorists—in France, Germany, Russia, and other European nations as well as in the United States. Variations of the polarities of active-passive, subject-object, and pleasure-pain were identified by Heymans and Wiersma in Holland, McDougall in the United States, Meumann in Germany, Kollarits in Hungary, and others (Millon, 1981; Millon & Davis, 1996).

Despite the central role Freud assigned these polarities, he failed to capitalize on them as a coordinated system for understanding patterns of human functioning. Although he failed to pursue their potentials, the ingredients he formulated for his tripartite polarity schema were drawn upon by his

disciples for many decades to come, seen prominently in the progressive development from instinct or drive theory, in which pleasure and pain were the major forces, to ego psychology, in which the apparatuses of activity and passivity were central constructs, and, most recently, to self-psychology and object relations theory, in which the self-other polarity is the key issue (Pine, 1990).

Forgotten as a metapsychological speculation by most, the scaffolding comprising these polarities was fashioned anew by this author in the mid-1960s (Millon, 1969). Unacquainted with Freud's proposals at the time and employing a biosocial-learning model anchored to Skinnerian concepts, I constructed a framework similar to Freud's "great polarities that govern all of mental life." Phrased in the terminology of learning concepts, the model comprised three polar dimensions: *positive versus negative* reinforcement (pleasure-pain); *self-other* as reinforcement source; and the instrumental styles of *active-passive*. I (Millon, 1969) stated:

By framing our thinking in terms of *what* reinforcements the individual is seeking, *where* he is looking to find them and *how* he performs we may see more simply and more clearly the essential strategies which guide his coping behaviors.

These reinforcements [relate to] whether he seeks primarily to achieve positive reinforcements (pleasure) or to avoid negative reinforcements (pain).

Some patients turn to others as their source of reinforcement, whereas some turn primarily to themselves. The distinction [is] between *others* and *self* as the primary reinforcement source.

On what basis can a useful distinction be made among instrumental behaviors? A review of the literature suggests that the behavioral dimension of activity-passivity may prove useful. . . . Active patients [are] busily intent on controlling the circumstances of their environment. . . . Passive patients . . . wait for the circumstances of their environment to take their course . . . reacting to them only after they occur. (pp. 193–195)

Do we find parallels within the disciplines of psychiatry and psychology that correspond to these broad evolutionary polarities?

In addition to the forerunners noted previously, there is a growing group of contemporary scholars whose work relates to these polar dimensions, albeit indirectly and partially. For example, a modern conception anchored to biological foundations has been developed by the distinguished British psychologist Jeffrey Gray (1964, 1973). A three-part model of temperament, matching the three-part polarity model in most regards, has been formulated by the American psychologist Arnold Buss and his associates (Buss & Plomin 1975, 1984). Circumplex formats based on factor analytic studies of mood and arousal that align well with the polarity schema have been

published by Russell (1980) and Tellegen (1985). Deriving inspiration from a sophisticated analysis of neuroanatomical substrates, the highly resourceful American psychiatrist Robert Cloninger (1986, 1987) has deduced a threefold schema that is coextensive with major elements of the model's three polarities. Less oriented to biological foundations, recent advances in both interpersonal and psychoanalytic theory have likewise exhibited strong parallels to one or more of the three polar dimensions. A detailed review of these and other parallels has been presented in several recent books (e.g., Millon, 1990; Millon & Davis, 1996).

The following pages summarize the rationale and characteristics of the three-part polarity model. A few paragraphs draw upon the model as a basis for establishing attributes for conceptualizing personality patterns.

### Aims of Existence

The procession of evolution is not limited just to the evolution of life on earth but extends to prelife, to matter, to the primordial elements of our local cosmos, and, in all likelihood, to the elusive properties of a more encompassing universe within which our cosmos is embedded as an incidental part. The demarcations we conceptualize to differentiate states such as nonmatter and matter, or inorganic and organic, are nominal devices that record transitions in this ongoing procession of transformations, an unbroken sequence of re-formed elements that have existed from the very first.

We may speak of the emergence of our local cosmos from some larger universe, or of life from inanimate matter, but if we were to trace the procession of evolution backward we would have difficulty identifying precise markers for each of these transitions. What we define as life would become progressively less clear as we reversed time until we could no longer discern its presence in the matter we were studying. So, too, does it appear to theoretical physicists that if we trace the evolution of our present cosmos back to its ostensive origins, we would lose its existence in the obscurity of an undifferentiated and unrecoverable past. The so-called Big Bang may in fact be merely an evolutionary transformation, one of an ongoing and never-ending series of transitions.

### *Life Preservation and Life Enhancement: The Pain-Pleasure Polarity*

The notion of open systems is of relatively recent origin (Bertalanffy, 1945; Lotka, 1924; Schrodinger, 1944), brought to bear initially to explain how the inevitable consequences of the second law of thermodynamics appear to be circumvented in the biological realm. By broadening the ecological

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field so as to encompass events and properties beyond the local and immediate, it becomes possible to understand how living organisms on earth function and thrive, despite seeming to contradict this immutable physical law (e.g., solar radiation, continuously transmitting its ultimately exhaustible supply of energy, temporarily counters the earth's inevitable thermodynamic entropy). The *open system* concept has been borrowed freely and fruitfully to illuminate processes across a wide range of subjects. In recent decades it has been extended, albeit speculatively, to account for the evolution of cosmic events. These hypotheses suggest that the cosmos as known today may represent a four-dimensional "bubble" or set of "strings" stemming either from the random fluctuations of an open meta-universe characterized primarily by entropic chaos or of transpositions from a larger set of dimensions that comprise the properties of an open mega-universe—that is, dimensions beyond those we apprehend (Millon, 1990).

By materializing new matter from fluctuations in a larger and unstable field—that is, by creating existence from non-existence (cold dark matter)—any embedded open system might not only expand, but also form entities displaying anti-entropic structure, the future survival of which is determined by the character of parallel materializations and by the fortuitous consequences of their interactions (including their ecological balance, symbiosis, etc.). Beyond fortuitous levels of reciprocal fitness, some of these anti-entropic structures may possess properties that enable them to facilitate their own self-organization; that is to say, the forms into which they have been rendered randomly may not only survive, but also be able to amplify themselves, to extend their range, or both, sometimes in replicated and sometimes in more comprehensive structures.

Recent mathematical research in both physics and chemistry has begun to elucidate processes that characterize how structures "evolve" from randomness. Whether one evaluates the character of cosmogenesis, the dynamics of open chemical systems, or repetitive patterns exhibited among weather movements, it appears that random fluctuations assume sequences that often become both self-sustaining and recurrent. In chemistry, the theory of dissipative (free energy) structures (Prigogine 1972, 1976) proposes a principle called *order through fluctuation* that relates to self-organizational dynamics; these fluctuations proceed through sequences that not only maintain the integrity of the system but are also self-renewing. According to the theory, any open system may evolve when fluctuations exceed a critical threshold, setting in motion a qualitative shift in the nature of the system's structural form. Similar shifts within evolving systems are explained in pure mathematics by what has been termed *catastrophic theory* (Thom, 1972); here, sudden switches from

one dynamic equilibrium state to another occur instantaneously with no intervening bridge. As models portraying how the dynamics of random fluctuation drive prior levels of equilibrium to reconstitute themselves into new structures, both catastrophe and dissipative theories prove fruitful in explicating self-evolving morphogenesis—the emergence of new forms of existence from prior states.

There is another equally necessary step to existence, one that maintains "being" by protecting established structures and processes. Here, the degrading effects of entropy are counteracted by a diversity of safeguarding mechanisms. Among both physical and organic substances, such as atoms and molecules, the elements comprising their nuclear structure are tightly bound, held together by the strong force that is exceptionally resistant to decomposition (hence the power necessary to split the atom). More complicated organic structures, such as plants and animals, also have mechanisms to counter entropic dissolution—that is to say, to maintain the existence of their lives.

Two intertwined strategies are required, therefore: one to achieve existence, the other to preserve it. The aim of one is the enhancement of life—creating and then strengthening ecologically survivable organisms; the aim of the other is the preservation of life—avoiding circumstances that might terminate (entropically decompose) it. Although I disagree with Freud's concept of a death instinct (Thanatos), I believe he was essentially correct in recognizing that a balanced yet fundamental biological bipolarity exists in nature, a bipolarity that has its parallel in the physical world. As he wrote in one of his last works, "The analogy of our two basic instincts extends from the sphere of living things to the pair of opposing forces—attraction and repulsion—which rule the inorganic world" (Freud, 1940, p. 72). Among humans, the former may be seen in life-enhancing acts that are attracted to what we experientially record as pleasurable events (positive reinforcers), the latter in life-preserving behaviors oriented to repel events experientially characterized as painful (negative reinforcers). More is said of these fundamental if not universal mechanisms of countering entropic disintegration in the next section.

To summarize, the aims of existence reflects a to-be or not-to-be issue. In the inorganic world, *to be* is essentially a matter of possessing qualities that distinguish a phenomenon from its surrounding field—*not* being in a state of entropy. Among organic beings, *to be* is a matter of possessing the properties of life as well as being located in ecosystems that facilitate the enhancement and preservation of that life. In the phenomenological or experiential world of sentient organisms, events that extend life and preserve it correspond largely to metaphorical terms such as pleasure and pain; that

is to say, recognizing and pursuing positive sensations and emotions, on the one hand, and recognizing and eschewing negative sensations and emotions, on the other.

Although there are many philosophical and metapsychological issues associated with the nature of pain and pleasure as constructs, it is neither our intent nor our task to inquire into them here. That they recur as a polar dimension time and again in diverse psychological domains (e.g., learned behaviors, unconscious processes, emotion, and motivation, as well as their biological substrates) has been elaborated in another publication (Millon, 1990). In this next section, I examine their role as constructs for articulating attributes that may usefully define personality.

Before we proceed, let us note that a balance must be struck between the two extremes that comprise each polarity; a measure of integration among the evolutionary polarities is an index of normality. Normal personality functioning, however, does not require equidistance between polar extremes. Balanced but unequal positions emerge as a function of temperamental dispositions, which, in their turn, are modified by the wider ecosystems within which individuals develop and function. In other words, there is no absolute or singular form of normal personality. Various polar positions and the personality attributes they subserve result in diverse *styles of normality*, just as severe or marked imbalances between the polarities manifest themselves in diverse *styles of abnormality* (Millon & Davis, 1996).

Moreover, given the diverse and changing ecological milieus that humans face in our complex modern environment, there is reason to expect that most persons will develop multiple adaptive styles, sometimes more active, sometimes less so, occasionally focused on self, occasionally on others, at times oriented to pleasure, at times oriented to the avoidance of pain. Despite the emergence of relatively enduring and characteristic styles over time, a measure of adaptive flexibility typifies most individuals: Persons are able to shift from one position on a bipolar continuum to another as the circumstances of life change.

### ***Personality Implications***

As noted, an interweaving and shifting balance between the two extremes that comprise the pain-pleasure polarity typifies normal personality functioning. Both of the following personality attributes should be met in varying degrees as life circumstances require. In essence, a synchronous and coordinated personal style would have developed to answer the question of whether the person should focus on experiencing only the enhancement of life versus concentrating his or her efforts on ensuring its preservation.

**Avoiding Danger and Threat: The Life Preservation Attribute.** One might assume that an attribute based on the avoidance of psychic or physical pain would be sufficiently self-evident not to require specification. As is well known, debates have arisen in the literature as to whether normal personality functioning represents the absence of mental disorder—that is, the reverse side of the mental illness or abnormality coin. That there is an inverse relationship between health and disease cannot be questioned; the two are intimately connected both conceptually and physically. On the other hand, to define a healthy personality solely on the basis of an absence of disorder does not suffice. As a single attribute of behavior that signifies both the lack of (e.g., anxiety, depression) and an aversion to (e.g., threats to safety and security) pain in its many and diverse forms does provide a foundation upon which other, more positively composed attributes may rest. Substantively, however, positive personal functioning must comprise elements beyond mere nonnormality or abnormality. And despite the complexities of personality, from a definitional point of view normal functioning does preclude nonnormality.

Turning to the evolutionary aspect of pain avoidance, that pertaining to a distancing from life-threatening circumstances, psychic and otherwise, we find an early historical reference in the writings of Herbert Spencer, a supportive contemporary of Darwin. In 1870 Spencer averred:

Pains are the correlative of actions injurious to the organism, while pleasures are the correlatives of actions conducive to its welfare.

Those races of beings only can have survived in which, on the average, agreeable or desired feelings went along with activities conducive to the maintenance of life, while disagreeable and habitually avoided feelings went along with activities directly or indirectly destructive of life.

Every animal habitually persists in each act which gives pleasure, so long as it does so, and desists from each act which gives pain. . . . It is manifest that in proportion as this guidance approaches completeness, the life will be long; and that the life will be short in proportion as it falls short of completeness.

We accept the inevitable corollary from the general doctrine of Evolution, that pleasures are the incentives to life-supporting acts and pains the deterrents from life-destroying acts. (pp. 279–284)

More recently, Freedman and Roe (1958) wrote:

We . . . hypothesize that psychological warning and warding-off mechanisms, if properly studied, might provide a kind of psychological-evolutionary systematics. Exposure to pain, anxiety, or danger is likely to be followed by efforts to avoid a

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repetition of the noxious stimulus situation with which the experience is associated. Obviously an animal with a more highly developed system for anticipating and avoiding the threatening circumstance is more efficiently equipped for adaptation and survival. Such unpleasant situations may arise either from within, in its simplest form as tissue deprivation, or from without, by the infliction of pain or injury. Man's psychological superstructure may be viewed, in part, as a system of highly developed warning mechanisms. (p. 458)

As for the biological substrate of pain signals, Gray (1975) suggests two systems, both of which alert the organism to possible dangers in the environment. Those mediating the behavioral effects of unconditioned (instinctive?) aversive events are termed the fight-flight system (FFS). This system elicits defensive aggression and escape and is subserved, according to Gray's pharmacological inferences, by the amygdala, the ventromedial hypothalamus, and the central gray of the midbrain; neurochemically, evidence suggests a difficult-to-unravel interaction among aminobutyric acids (for example, gamma-aminobutyric acid), serotonin, and endogenous opiates (for example, endorphins). The second major source of sensitivity and action in response to pain signals is referred to by Gray as the behavioral inhibition system (BIS), consisting of the interplay of the septal-hippocampal system, its cholinergic projections and monoamine transmissions to the hypothalamus, and then on to the cingulate and prefrontal cortex. Activated by signals of punishment or nonreward, the BIS suppresses associated behaviors, refocuses the organism's attention, and redirects activity toward alternate stimuli.

*Harm avoidance* is a concept proposed by Cloninger (1986, 1987). As he conceives the construct, it is a heritable tendency to respond intensely to signals of aversive stimuli (pain) and to learn to inhibit behaviors that might lead to punishment and frustrative nonreward. Those high on this dimension are characterized as cautious, apprehensive, and inhibited; those low on this valence would likely be confident, optimistic, and carefree. Cloninger subscribes essentially to Gray's behavioral inhibition system concept in explicating this polarity, as well as the neuroanatomical and neurochemical hypotheses Gray proposed as the substrates for its pain-avoidant mechanisms.

Shifting from biological-evolutionary concepts, we may turn to proposals of a similar cast offered by thinkers of a distinctly psychological turn of mind. Notable here are the contributions of Maslow (1968), particularly his hierarchical listing of needs. Best known are the five fundamental needs that lead ultimately to self-actualization, the first two of which relate to our evolutionary attribute of life preservation. Included in the first group are the *physio-logical needs* such as air, water, food, and sleep, qualities of the ecosystem

essential for survival. Next, and equally necessary to avoid danger and threat, are what Maslow terms the *safety needs*, including the freedom from jeopardy, the security of physical protection and psychic stability, as well as the presence of social order and interpersonal predictability.

That pathological consequences can ensue from the failure to attend to the realities that portend danger is obvious; the lack of air, water, and food are not issues of great concern in civilized societies today, although these are matters of considerable import to environmentalists of the future and to contemporary poverty-stricken nations.

It may be of interest next to record some of the psychic pathologies that can be traced to aberrations in meeting this first attribute of personality. For example, among those termed *inhibited* and *avoidant personalities* (Millon, 1969, 1981), we see an excessive preoccupation with threats to one's psychic security—an expectation of and hyperalertness to the signs of potential rejection—that leads these persons to disengage from everyday relationships and pleasures. At the other extreme of the polarity attribute, we see those of a risk-taking attitude, a proclivity to chance hazards and to endanger one's life and liberty, a behavioral pattern characteristic of those we contemporaneously label *antisocial personalities*. Here there is little of the caution and prudence expected in the normal personality attribute of avoiding danger and threat; rather, we observe its opposite, a rash willingness to put one's safety in jeopardy, to play with fire and throw caution to the wind. Another pathological style illustrative of a failure to fulfill this evolutionary attribute is seen among those variously designated as masochistic and self-defeating personalities. Rather than avoid circumstances that may prove painful and self-endangering, these nonnormal personality styles set in motion situations in which they will come to suffer physically, psychically, or both. Either by virtue of habit or guilt absolution, these individuals induce rather than avoid pain for themselves.

**Seeking Rewarding Experiences: The Life Enhancement Attribute.** At the other end of the existence polarity are attitudes and behaviors designed to foster and enrich life, to generate joy, pleasure, contentment, fulfillment, and thereby strengthen the capacity of the individual to remain vital and competent physically and psychically. This attribute asserts that existence and survival call for more than life preservation alone—beyond pain avoidance is what we have chosen to term *pleasure enhancement*.

This attribute asks us to go at least one step further than Freud's parallel notion that life's motivation is chiefly that of "reducing tensions" (i.e., avoiding or minimizing pain), maintaining thereby a steady state, if you will, a homeostatic

balance and inner stability. In accord with my view of evolution's polarities, I would assert that normal humans are also driven by the desire to enrich their lives, to seek invigorating sensations and challenges, to venture and explore, all to the end of magnifying if not escalating the probabilities of both individual viability and species replicability.

Regarding the key instrumental role of "the pleasures," Spencer (1870) put it well more than a century ago: "Pleasures are the correlatives of actions conducive to [organismic] welfare. . . . the incentives to life-supporting acts" (pp. 279, 284). The view that there exists an organismic striving to expand one's inherent potentialities (as well as those of one's kin and species) has been implicit in the literature of all times. That the pleasures may be both sign and vehicle for this realization was recorded even in the ancient writings of the Talmud, where it states: "everyone will have to justify himself in the life hereafter for every failure to enjoy a legitimately offered pleasure in this world" (Jahoda, 1958, p. 45).

As far as contemporary psychobiological theorists are concerned, brief mention will be made again of the contributions of Gray (1975, 1981) and Cloninger (1986, 1987). Gray's neurobiological model centers heavily on activation and inhibition (active-passive polarities) as well as on signals of reward and punishment (pleasure-pain polarity). Basing his deductions primarily on pharmacological investigations of animal behavior, Gray has proposed the existence of several interrelated and neuroanatomically grounded response systems that activate various positive and negative affects. He refers to what he terms the *behavioral activation system* (BAS) as an approach system that is subserved by the reward center uncovered originally by Olds and Milner (1954). Ostensibly mediated at brain stem and cerebellar levels, it is likely to include dopaminergic projections across various striata and is defined as responding to conditioned rewarding and safety stimuli by facilitating behaviors that maximize their future recurrence (Gray, 1975). There are intricacies in the manner with which the BAS is linked to external stimuli and its anatomic substrates, but Gray currently views it as a system that subserves signals of reward, punishment relief, and pleasure.

Cloninger (1986, 1987) has generated a theoretical model composed of three dimensions, which he terms *reward dependence*, *harm avoidance*, to which I referred previously, and *novelty seeking*. Proposing that each is a heritable personality disposition, he relates them explicitly to specific monoaminergic pathways; for example, high reward dependence is connected to low noradrenergic activity, harm avoidance to high serotonergic activity, and high novelty seeking to low dopaminergic activity. Cloninger's reward dependence dimension reflects highs and lows on the positive-gratifying-

pleasure valence, whereas the harm avoidance dimension represents highs and lows on the negative-pain-displeasure valence. Reward dependence is hypothesized to be a heritable neurobiological tendency to respond to signals of reward (pleasure), particularly verbal signals of social approval, sentiment, and succor, as well as to resist events that might extinguish behaviors previously associated with these rewards. Cloninger portrays those high on reward dependence to be sociable, sympathetic, and pleasant; in contrast, those low on this polarity are characterized as detached, cool, and practical. Describing the undergirding substrate for the reward-pleasure valence as the *behavior maintenance system* (BMS), Cloninger speculates that its prime neuromodulator is likely to be norepinephrine, with its major ascending pathways arising in the pons, projecting onward to hypothalamic and limbic structures, and then branching upward to the neocortex.

Turning again to pure psychological formulations, both Rogers (1963) and Maslow (1968) have proposed concepts akin to my criterion of enhancing pleasure. In his notion of "openness to experience," Rogers asserts that the fully functioning person has no aspect of his or her nature closed off. Such individuals are not only receptive to the experiences that life offers, but they are able also to use their experiences in expanding all of life's emotions, as well as in being open to all forms of personal expression. Along a similar vein, Maslow speaks of the ability to maintain a freshness to experience, to keep up one's capacity to appreciate relationships and events. No matter how often events or persons are encountered, one is neither sated nor bored but is disposed to view them with an ongoing sense of awe and wonder.

Perhaps less dramatic than the conceptions of either Rogers and Maslow, I believe that this openness and freshness to life's transactions is an instrumental means for extending life, for strengthening one's competencies and options, and for maximizing the viability and replicability of one's species. More mundane and pragmatic in orientation than their views, this conception seems both more substantive theoretically and more consonant a rationale for explicating the role the pleasures play in undergirding reward experience and openness to experience.

As before, a note or two should be recorded on the pathological consequences of a failure to possess an attribute. These are seen most clearly in the personality disorders labeled *schizoid* and *avoidant*. In the former there is a marked hedonic deficiency, stemming either from an inherent deficit in affective substrates or the failure of stimulative experience to develop attachment behaviors, affective capacity, or both (Millon, 1981, 1990). Among those designated avoidant personalities, constitutional sensitivities or abusive

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life experiences have led to an intense attentional sensitivity to psychic pain and a consequent distrust in either the genuineness or durability of the pleasures, such that these individuals can no longer permit themselves to chance experiencing them, lest they prove again to be fickle and unreliable. Both of these personalities tend to be withdrawn and isolated, joyless and grim, neither seeking nor sharing in the rewards of life.

### Modes of Adaptation

To come into existence as an emergent particle, a local cosmos, or a living creature is but an initial phase, the serendipitous presence of a newly formed structure, the chance evolution of a phenomenon distinct from its surroundings. Although extant, such fortuitous transformations may exist only for a fleeting moment. Most emergent phenomena do not survive (i.e., possess properties that enable them to retard entropic decomposition). To maintain their unique structure, differentiated from the larger ecosystem of which they are a part, and to be sustained as a discrete entity among other phenomena that comprise their environmental field requires good fortune and the presence of effective modes of adaptation. These modes of basic survival comprise the second essential component of evolution's procession.

### *Ecological Accommodation and Ecological Modification. The Passive-Active Polarity*

The second evolutionary stage relates to what is termed the *modes of adaptation*; it is also framed as a two-part polarity. The first may best be characterized as the mode of ecological accommodation, signifying inclinations to passively fit in, to locate and remain securely anchored in a niche, subject to the vagaries and unpredictabilities of the environment, all acceded to with one crucial proviso: that the elements comprising the surroundings will furnish both the nourishment and the protection needed to sustain existence. Although based on a somewhat simplistic bifurcation among adaptive strategies, this passive and accommodating mode is one of the two fundamental methods that living organisms have evolved as a means of survival. It represents the core process employed in the evolution of what has come to be designated as the plant kingdom: a stationary, rooted, yet essentially pliant and dependent survival mode. By contrast, the second of the two major modes of adaptation is seen in the lifestyle of the animal kingdom. Here we observe a primary inclination toward ecological modification, a tendency to change or rearrange the elements comprising the larger milieu, to intrude upon otherwise quiescent settings, a versatility in shifting from one

niche to another as unpredictability arises, a mobile and interventional mode that actively stirs, maneuvers, yields, and at the human level substantially transforms the environment to meet its own survival aims.

Both modes—passive and active—have proven impressively capable to both nourishing and preserving life. Whether the polarity sketched is phrased in terms of accommodating versus modifying, passive versus active, or plant versus animal, it represents at the most basic level the two fundamental modes that organisms have evolved to sustain their existence. This second aspect of evolution differs from the first stage, which is concerned with what may be called *existential becoming*, in that it characterizes modes of being: how what has become endures.

Broadening the model to encompass human experience, the active-passive polarity means that the vast range of behaviors engaged in by humans may fundamentally be grouped in terms of whether initiative is taken in altering and shaping life's events or whether behaviors are reactive to and accommodate those events.

Much can be said for the survival value of fitting a specific niche well, but no less important are flexibilities for adapting to diverse and unpredictable environments. It is here again where a distinction, although not a hard and fast one, may be drawn between the accommodating (plant) and the modifying (animal) mode of adaptation, the former more rigidly fixed and constrained by ecological conditions, the latter more broad-ranging and more facile in its scope of maneuverability. To proceed in evolved complexity to the human species, we cannot help but recognize the almost endless variety of adaptive possibilities that may (and do) arise as secondary derivatives of a large brain possessing an open network of potential interconnections that permit the functions of self-reflection, reasoning, and abstraction. But this takes us beyond the subject of this section of the chapter. The reader is referred elsewhere (Millon 1990) for a fuller discussion of active-passive parallels in wider domains of psychological thought (for example, the "ego apparatuses" formulated by Hartmann (1939) or the distinction between classical and operant conditioning in the writings of Skinner (1938, 1953).

Normal or optimal functioning, at least among humans, appears to call for a flexible balance that interweaves both polar extremes. In the first evolutionary stage, that relating to existence, behaviors encouraging both life enhancement (pleasure) and life preservation (pain avoidance) are likely to be more successful in achieving survival than actions limited to one or the other alone. Similarly, regarding adaptation, modes of functioning that exhibit both ecological accommodation and ecological modification are likely to be more successful

than is either by itself. Nevertheless, it does appear that the two advanced forms of life on earth—plants and animals—have evolved by giving precedence to one mode rather than both.

### ***Personality Implications***

As with the pair of criteria representing the aims of existence, a balance should be achieved between the two criteria comprising modes of adaptation, those related to ecological accommodation and ecological modification, or what I have termed the passive-active polarity. Healthy personality functioning calls for a synchronous and coordinated style that weaves a balanced answer to the question of whether one should accept what the fates have brought forth or take the initiative in altering the circumstances of one's life.

**Abiding Hospitable Realities: The Ecologically Accommodating Attribute.** On first reflection, it would seem to be less than optimal to submit meekly to what life presents, to adjust obligingly to one's destiny. As described earlier, however, the evolution of plants is essentially grounded (no pun intended) in environmental accommodation, in an adaptive acquiescence to the ecosystem. Crucial to this adaptive course, however, is the capacity of these surroundings to provide the nourishment and protection requisite to the thriving of a species.

Could the same be true for the human species? Are there not circumstances of life that provide significant and assured levels of sustenance and safekeeping (both psychic and physical?) And if that were the case, would not the acquisition of an accommodating attitude and passive lifestyle be a logical consequence? The answer, it would seem, is yes. If one's upbringing has been substantially secure and nurturant, would it not be not normal to flee or overturn it?

We know that circumstances other than those in infancy and early childhood rarely persist throughout life. Autonomy and independence are almost inevitable as a stage of maturation, ultimately requiring the adoption of so-called adult responsibilities that call for a measure of initiative, decision making, and action. Nevertheless, to the extent that the events of life have been and continue to be caring and giving, is it not perhaps wisest, from an evolutionary perspective, to accept this good fortune and let matters be? This accommodating or passive life philosophy has worked extremely well in sustaining and fostering those complex organisms that comprise the plant kingdom. Hence passivity, the yielding to environmental forces, may be in itself not only unproblematic, but where events and circumstances provide the pleasures of life and protect against their pains, positively

adaptive and constructive. Accepting rather than overturning a hospitable reality seems a sound course; or as it is said, "If it ain't broke, don't fix it."

Often reflective and deliberate, those who are passively oriented manifest few overt strategies to gain their ends. They display a seeming inertness, a phlegmatic lack of ambition or persistence, a tendency toward acquiescence, a restrained attitude in which they initiate little to modify events, waiting for the circumstances of their environment to take their course before making accommodations. Some persons may be temperamentally ill-equipped to rouse or assert themselves; perhaps past experience has deprived them of opportunities to acquire a range of competencies or confidence in their ability to master the events of their environment; equally possible is a naive confidence that things will come their way with little or no effort on their part. From a variety of diverse sources, then, those at the passive end of the polarity engage in few direct instrumental activities to intercede in events or generate the effects they desire. They seem suspended, quiescent, placid, immobile, restrained, listless, waiting for things to happen and reacting to them only after they occur.

Is passivity a natural part of the repertoire of the human species, does agreeableness serve useful functions, and where and how is it exhibited? A few words in response to these questions may demonstrate that passivity is not mere inactivity but a stance or process that achieves useful gains. For example, universal among mammalian species are two basic modes of learning: the *respondent* or *conditioned* type and the *operant* or *instrumental* type. The former is essentially a *passive* process, the simple pairing of an innate or reflexive response to a stimulus that previously did not elicit that response. In like passive fashion, environmental elements that occur either simultaneously or in close temporal order become connected to each other in the organism's repertoire of learning, such that if one of these elements recurs in the future, the expectation is that the others will follow or be elicited. The organisms do not have to do anything active to achieve this learning; inborn reflexive responses and environmental events are merely associated by contiguity.

Operant or instrumental learning, in contrast, represents the outcome of an active process on the part of the organism, one that requires an effort and execution on its part that has the effect of altering the environment. Whereas respondent conditioning occurs as a result of the passive observation of a conjoining of events, operant conditioning occurs only as a result of an active modification by the organism of its surroundings, a performance usually followed by a positive reinforcer (pleasure) or the successful avoidance of a negative one (pain). Unconditioned reflexes, such as a leg jerk in reaction to a knee tap, will become a passively acquired

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conditioned respondent if a bell is regularly sounded prior to the tap, as will the shrinking reflex of an eye pupil passively become conditioned to that bell if it regularly preceded exposure to a shining light.

The passive-active polarity is central to formulations of psychoanalytic theory. Prior to the impressively burgeoning literature on self and object relations theory of the past two decades, the passive-active antithesis had a major role in both classical instinct and post-World War II ego schools of analytic thought. The contemporary focus on self and object is considered in discussions of the third polarity, that of self-other. However, we should not overlook the once key and now less popular constructs of both instinct theory and ego theory. It may be worth noting, as well as of special interest to the evolutionary model presented in this chapter, that the beginnings of psychoanalytic metapsychology were oriented initially to instinctual derivatives (in which pleasure and pain were given prominence), and then progressed subsequently to the apparatuses of the ego (Hartmann, 1939; Rapaport, 1953)—where passivity and activity were centrally involved.

The model of activity, as Rapaport puts it, is a dual one: First, the ego is strong enough to defend against or control the intensity of the id's drive tensions; or second, through the competence and energy of its apparatuses, the ego is successful in uncovering or creating in reality the object of the id's instinctual drives. Rapaport conceives the model of passivity also to be a dual one: First, either the ego gradually modulates or indirectly discharges the instinctual energies of the id; or second, lacking an adequately controlling apparatus, the ego is rendered powerless and subject thereby to instinctual forces. Translating these formulations into evolutionary terms, effective actions by the ego will successfully manage the internal forces of the id, whereas passivity will result either in accommodations or exposure to the internal demands of the id.

Turning to contemporary theorists more directly concerned with normal or healthy personality functioning, the humanistic psychologist Maslow (1968) states that "self-actualized" individuals accept their nature as it is, despite personal weaknesses and imperfections; comfortable with themselves and with the world around them, they do not seek to change "the water because it is wet, or the rocks because they are hard" (p. 153). They have learned to accept the natural order of things. Passively accepting nature, they need not hide behind false masks or transform others to fit distorted needs. Accepting themselves without shame or apology, they are equally at peace with the shortcomings of those with whom they live and relate.

Where do we find clinical states of personality functioning that reflect failures to meet the accommodating-agreeable attribute?

One example of an inability to leave things as they are is seen in what is classified as the histrionic personality disorder. These individuals achieve their goals of maximizing protection, nurturance, and reproductive success by engaging busily in a series of manipulative, seductive, gregarious, and attention-getting maneuvers. Their persistent and unrelenting manipulation of events is designed to maximize the receipt of attention and favors, as well as to avoid social disinterest and disapproval. They show an insatiable if not indiscriminate search for stimulation and approval. Their clever and often artful social behaviors may give the appearance of an inner confidence and self-assurance; beneath this guise, however, lies a fear that a failure on their part to ensure the receipt of attention will in short order result in indifference or rejection—hence their desperate need for reassurance and repeated signs of approval. Tribute and affection must constantly be replenished and are sought from every interpersonal source. As they are quickly bored and sated, they keep stirring up things, becoming enthusiastic about one activity and then another. There is a restless stimulus-seeking quality in which they cannot leave well enough alone.

At the other end of the polarity are personality maladaptations that exhibit an excess of passivity, failing thereby to give direction to their own lives. Several personality disorders demonstrate this passive style, although their passivity derives from and is expressed in appreciably different ways. Schizoid personalities, for example, are passive owing to their relative incapacity to experience pleasure and pain; without the rewards these emotional valences normally activate, they are devoid of the drive to acquire rewards, leading them to become apathetically passive observers of the ongoing scene. Dependent personality styles typically are average on the pleasure-pain polarity, yet they are usually as passive as schizoids. Strongly oriented to others, they are notably weak with regard to self. Passivity for them stems from deficits in self-confidence and competence, leading to deficits in initiative and autonomous skills, as well as a tendency to wait passively while others assume leadership and guide them. Passivity among so-called obsessive-compulsive personalities stems from their fear of acting independently, owing to intrapsychic resolutions they have made to quell hidden thoughts and emotions generated by their intense self-other ambivalence. Dreading the possibility of making mistakes or engaging in disapproved behaviors, they became indecisive, immobilized, restrained, and thereby passive. High on pain and low on both pleasure and self, individuals

with masochistic personality styles operate on the assumption that they dare not expect nor deserve to have life go their way; giving up any efforts to achieve a life that accords with their true desires, they passively submit to others' wishes, acquiescently accepting their fate. Finally, narcissistic personality styles, especially high on self and low on others, benignly assume that good things will come their way with little or no effort on their part; this passive exploitation of others is a consequence of the unexplored confidence that underlies their self-centered presumptions.

**Mastering One's Environment: The Ecologically Modifying Attribute.** The active end of the adaptational polarity signifies the taking of initiative in altering and shaping life's events. Such persons are best characterized by their alertness, vigilance, liveliness, vigor, forcefulness, stimulus-seeking energy, and drive. Some plan strategies and scan alternatives to circumvent obstacles or avoid the distress of punishment, rejection, and anxiety. Others are impulsive, precipitate, excitable, rash, and hasty, seeking to elicit pleasures and rewards. Although specific goals vary and change from time to time, actively aroused individuals intrude on passing events and energetically and busily modify the circumstances of their environment.

Neurobiological research has proven to be highly supportive of the activity or arousal construct ever since Papez (1937), Moruzzi and Magnum (1949), and MacLean (1949, 1952) assigned what were to be termed the reticular and limbic systems' both energizing and expressive roles in the central nervous system.

First among historic figures to pursue this theme was Ivan Pavlov. In speaking of the basic properties of the nervous system, Pavlov referred to the strength of the processes of excitation and inhibition, the equilibrium between their respective strengths, and the mobility of these processes. Although Pavlov's (1927) theoretical formulations dealt with what Donald Hebb (1955) termed a *conceptual nervous system*, his experiments and those of his students led to innumerable direct investigations of brain activity. Central to Pavlov's thesis was the distinction between strong and weak types of nervous systems.

Closely aligned to Pavlovian theory, Gray (1964) has asserted that those with weak nervous systems are easily aroused, non-sensation-seeking introverts who prefer to experience low rather than high levels of stimulation. Conversely, those with strong nervous systems would arouse slowly and be likely to be sensation-seeking extroverts who find low stimulation levels to be boring and find high levels to be both exciting and pleasant.

Akin also to the active modality are the more recent views of Cloninger (1986, 1987). To him, novelty-seeking is a heritable tendency toward excitement in response to novel stimuli or cues for reward (pleasure) or punishment relief (pain), both of which leading to exploratory activity. Consonant with its correspondence to the activity polarity, individuals who are assumed to be high in novelty-seeking may be characterized in their personality attributes as impulsive, excitable, and quickly distracted or bored. Conversely, those at the passive polarity or the low end of the novelty-seeking dimension may be portrayed as reflective, stoic, slow-tempered, orderly, and only slowly engaged in new interests.

Turning from ostensive biological substrates to speculative psychological constructs, de Charms (1968) has proposed that "man's primary motivational propensity is to be effective in producing changes in his environment" (p. 269). A similar view has been conveyed by White (1959) in his concept of *effectance*, an intrinsic motive, as he views it, that activates persons to impose their desires upon environments. De Charms (1968) elaborates his theme with reference to man as *Origin* and as *Pawn*, constructs akin to the active polarity on the one hand and to the passive polarity on the other; he states this distinction as follows:

That man is the origin of his behavior means that he is constantly struggling against being confined and constrained by external forces, against being moved like a pawn into situations not of his own choosing. . . . An Origin is a person who perceives his behavior as determined by his own choosing; a Pawn is a person who perceives his behavior as determined by external forces beyond his control. . . . An Origin has strong feelings of personal causation, a feeling that the locus for causation of effects in his environment lies within himself. The feedback that reinforces this feeling comes from changes in his environment that are attributable to personal behavior. This is the crux of personal causation, and it is a powerful motivational force directing future behavior. (pp. 273-274)

Allport (1955) argued that history records many individuals who were not content with an existence that offered them little variety, a lack of psychic tension, and minimal challenge. Allport considers it normal to be pulled forward by a vision of the future that awakened within persons their drive to alter the course of their lives. He suggests that people possess a need to invent motives and purposes that would consume their inner energies. In a similar vein, Fromm (1955) proposed a need on the part of humans to rise above the roles of passive creatures in an accidental if not random world. To him, humans are driven to transcend the state of merely having been created; instead, humans seek to become the

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creators, the active shapers of their own destiny. Rising above the passive and accidental nature of existence, humans generate their own purposes and thereby provide themselves with a true basis of freedom.

### Strategies of Replication

In their mature stage, organisms possess the requisite competencies to maintain entropic stability. When these competencies can no longer adapt and sustain existence, organisms succumb inexorably to death and decomposition. This fate does not signify finality, however. Prior to their demise, all ephemeral species create duplicates that circumvent their extinction, engaging in acts that enable them to transcend the entropic dissolution of their members' individual existences.

If an organism merely duplicates itself prior to death, then its replica is doomed to repeat the same fate it suffered. However, if new potentials for extending existence can be fashioned by chance or routine events, then the possibility of achieving a different and conceivably superior outcome may be increased. And it is this co-occurrence of random and recombinant processes that does lead to the prolongation of a species' existence. This third hallmark of evolution's procession also undergirds another of nature's fundamental polarities, that between self and other.

### *Reproductive Nurturance and Reproductive Propagation: The Other-Self Polarity*

At its most basic and universal level, the manifold varieties of organisms living today have evolved, as Mayr (1964) has phrased it, to cope with the challenge of continuously changing and immensely diversified environments, the resources of which are not inexhaustible. The means by which organisms cope with environmental change and diversity are well known. Inorganic structures survive for extended periods of time by virtue of the extraordinary strength of their bonding. This contrasts with the very earliest forerunners of organic life. Until they could replicate themselves, their distinctive assemblages existed precariously, subject to events that could put a swift end to the discrete and unique qualities that characterized their composition, leaving them essentially as transient and ephemeral phenomena. After replicative procedures were perfected, the chemical machinery for copying organismic life, the DNA double helix, became so precise that it could produce perfect clones—if nothing interfered with its structure or its mechanisms of execution. But the patterning and processes of complex molecular change are not immune to accident. High temperatures and radiation dislodge and rearrange atomic structures, producing what are termed

mutations, alterations in the controlling and directing DNA configuration that undergirds the replication of organismic morphology.

Despite the deleterious impact of most mutations, it is the genetic variations to which they give rise that have served as one of the primary means by which *simple* organisms acquire traits making them capable of adapting to diverse and changing environments. But isomorphic replication, aided by an occasional beneficent mutation, is a most inefficient if not hazardous means of surmounting ecological crises faced by complex and slowly reproducing organisms. Advantageous mutations do not appear in sufficient numbers and with sufficient dependability to generate the novel capabilities required to adapt to frequent or marked shifts in the ecosystem. How then did the more intricate and intermittently reproducing organisms evolve the means to resolve the diverse hazards of unpredictable environments?

The answer to this daunting task was the evolution of a recombinant mechanism, one in which a pair of organisms exchange their genetic resources: They develop what we term *sexual mating*. Here, the potentials and traits each partner possesses are sorted into new configurations that differ in their composition from those of their origins, generating thereby new variants and capabilities, of which some may prove more adaptive (and others less so) in changing environments than were their antecedents. Great advantages accrue by the occasional favorable combinations that occur through this random shuffling of genes.

Recombinant replication, with its consequential benefits of selective diversification, requires the partnership of two parents, each contributing its genetic resources in a distinctive and species-characteristic manner. Similarly, the attention and care given the offspring of a species' matings are also distinctive. Worthy of note is the difference between the mating parents in the degree to which they protect and nourish their joint offspring. Although the investment of energy devoted to upbringing is balanced and complementary, rarely is it identical or even comparable in either devotion or determination. This disparity in reproductive investment strategies, especially evident among nonhuman animal species (e.g., insects, reptiles, birds, mammals), underlies the evolution of the male and female genders, the foundation for the third cardinal polarity I propose to account for evolution's procession.

Somewhat less profound than that of the first polarity, which represents the line separating the enhancement of order (existence-life) from the prevention of disorder (nonexistence-death), or that of the second polarity, differentiating the adaptive modes of accommodation (passive-plant) from those of modification (active-animal), the third polarity,

based on distinctions in replication strategies, is no less fundamental in that it contrasts the maximization of reproductive propagation (self-male) from that of the maximization of reproductive nurturance (other-female).

Evolutionary biologists (Cole, 1954; Trivers, 1974; E. O. Wilson, 1975) have recorded marked differences among species in both the cycle and pattern of their reproductive behaviors. Of special interest is the extreme diversity among *and* within species in the number of offspring spawned and the consequent nurturing and protective investment the parents make in the survival of their progeny. Designated the *r-strategy* and *K-strategy* in population biology, the former represents a pattern of propagating a vast number of offspring but exhibiting minimal attention to their survival; the latter is typified by the production of few progeny followed by considerable effort to assure their survival. Exemplifying the *r-strategy* are oysters, which generate some 500 million eggs annually; the *K-strategy* is found among the great apes, which produce a single offspring every 5 to 6 years.

Not only do species differ in where they fall on the *r-* to *K-strategy* continuum, but *within* most animal species an important distinction may be drawn between male and female genders. It is this latter differentiation that undergirds what has been termed the self- versus other-oriented polarity, implications of which are briefly elaborated in the following discussion.

Human females typically produce about four hundred eggs in a lifetime, of which no more than twenty to twenty-five can mature into healthy infants. The energy investment expended in gestation, nurturing, and caring for each child, both before and during the years following birth, is extraordinary. Not only is the female required to devote much of her energies to bring the fetus to full term, but during this period she cannot be fertilized again; in contrast, the male is free to mate with numerous females. And should her child fail to survive, the waste in physical and emotional exertion not only is enormous, but also amounts to a substantial portion of the mother's lifetime reproductive potential. There appears to be good reason, therefore, to encourage a protective and caring inclination on the part of the female, as evident in a sensitivity to cues of distress and a willingness to persist in attending to the needs and nurturing of her offspring.

Although the male discharges tens of millions of sperm on mating, this is but a small investment, given the ease and frequency with which he can repeat the act. On fertilization, his physical and emotional commitment can end with minimal consequences. Although the protective and food-gathering efforts of the male may be lost by an early abandonment of a mother and an offspring or two, much more may be gained by investing energies in pursuits that achieve the wide

reproductive spread of his genes. Relative to the female of the species, whose best strategy appears to be the care and comfort of child and kin—that is, the *K-strategy*—the male is likely to be reproductively more prolific by maximizing self-propagation—that is, adopting the *r-strategy*. To focus primarily on self-replication may diminish the survival probabilities of a few of a male's progeny, but this occasional reproductive loss may be well compensated for by mating with multiple females and thereby producing multiple offspring.

In sum, males lean toward being self-oriented because competitive advantages that inhere within themselves maximize the replication of their genes. Conversely, females lean toward being other-oriented because their competence in nurturing and protecting their limited progeny maximizes the replication of their genes.

The consequences of the male's *r-strategy* are a broad range of what may be seen as self- as opposed to other-oriented behaviors, such as acting in an egotistical, insensitive, inconsiderate, uncaring, and minimally communicative manner. In contrast, females are more disposed to be other-oriented, affiliative, intimate, empathic, protective, communicative, and solicitous (Gilligan, 1982; Rushton, 1985; E. O. Wilson, 1978).

### **Personality Implications**

As before, I consider both of the following criteria necessary to the definition and determination of a full personality characterization. I see no necessary antithesis between the two. Humans can be both self-actualizing and other-encouraging, although most persons are likely to lean toward one or the other side. A balance that coordinates the two provides a satisfactory answer to the question of whether one should be devoted to the support and welfare of others (the underlying philosophy of the "Democrats") or fashion one's life in accord with one's own needs and desires (the underlying philosophy of the "Republicans").

#### **Constructive Loving: The Other-Nurturing Attribute.**

As described earlier, recombinant replication achieved by sexual mating entails a balanced although asymmetrical parental investment in both the genesis and the nurturance of offspring. By virtue of her small number of eggs and extended pregnancy, the female strategy for replicative success among most mammals is characterized by the intensive care and protection of a limited number of offspring. Oriented to reproductive nurturance rather than reproductive propagation, most adult females, at least until recent decades in Western society, bred close to the limit of their capacity, attaining a reproductive ceiling of approximately 20 viable births.

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By contrast, not only are males free of the unproductive pregnancy interlude for mating, but they may substantially increase their reproductive output by engaging in repetitive matings with as many available females as possible.

The other-versus-self antithesis follows from additional aspects of evolution's asymmetric replication strategy. Not only must the female be oriented to and vigilant in identifying the needs of and dangers that may face each of her few offspring, but it is reproductively advantageous for her to be sensitive to and discriminating in her assessment of potential mates. A bad mating—one that issues a defective or weak offspring—has graver consequences for the female than for the male. Not only will such an event appreciably reduce her limited reproductive possibilities and cause her to forego a better mate for a period of time, but she may exhaust much of her nurturing and protective energies in attempting to revitalize an inviable or infertile offspring. By contrast, if a male indulges in a bad mating, all he has lost are some quickly replaceable sperm, a loss that does little to diminish his future reproductive potentials and activities.

Before we turn to other indexes and views of the self-other polarity, let us be mindful that these conceptually derived extremes do not evince themselves in sharp and distinct gender differences. Such proclivities are matters of degree, not absolutes, owing not only to the consequences of recombinant “shuffling” and gene “crossing over,” but also to the influential effects of cultural values and social learning. Consequently, most normal individuals exhibit intermediate characteristics on this as well as on the other two polarity sets.

The reasoning behind different replication strategies derives from the concept of inclusive fitness, the logic of which we owe to the theoretical biologist W. D. Hamilton (1964). The concept's rationale is well articulated in the following quote (Daly & Wilson, 1978):

Suppose a particular gene somehow disposes its bearers to help their siblings. Any child of a parent that has this gene has a one-half of probability of carrying that same gene by virtue of common descent from the same parent bearer. . . . From the gene's point of view, it is as useful to help a brother or sister as it is to help the child.

When we assess the fitness of a . . . bit of behavior, we must consider more than the reproductive consequences for the individual animal. We must also consider whether the reproductive prospects of any kin are in any way altered. *Inclusive fitness is a sum of the consequences for one's own reproduction plus the consequences for the reproduction of kin multiplied by the degree of relatedness of those kin* [italics added].

An animal's behavior can therefore be said to serve a strategy whose goal is the maximization of inclusive fitness. (pp. 30–31)

Mutual support and encouragement represents efforts leading to reciprocal fitness—a behavioral pattern consonant with Darwin's fundamental notions. Altruism, however, is a form of behavior in which there is denial of self for the benefit of others, a behavioral pattern acknowledged by Darwin himself as seemingly inconsistent with his theory (1871, p. 130). A simple extrapolation from natural selection suggests that those disposed to engage in self-sacrifice would ultimately leave fewer and fewer descendants; as a consequence, organisms motivated by self-benefiting genes would prevail over those motivated by other-benefiting genes, a result leading to the eventual extinction of genes oriented to the welfare of others. The distinguished sociobiologist E. O. Wilson states the problem directly: “How then does altruism persist?” (1978, p. 153). An entomologist of note, Wilson had no hesitation in claiming that altruism not only persists, but also is of paramount significance in the lives of social insects. In accord with his sociobiological thesis, he illustrates the presence of altruism in animals as diverse as birds, deer, porpoises, and chimpanzees, which share food and provide mutual defense—for example, to protect the colony's hives, bees enact behaviors that lead invariably to their deaths.

Two underlying mechanisms have been proposed to account for cooperative behaviors such as altruism. One derives from the concept of inclusive fitness, briefly described in preceding paragraphs; E. O. Wilson (1978) terms this form of cooperative behavior *hard-core altruism*, by which he means that the act is “unilaterally directed” for the benefit of others and that the bestower neither expects nor expresses a desire for a comparable return. Following the line of reasoning originally formulated by Hamilton (1964), J. P. Rushton (1984), a controversial Canadian researcher who has carried out illuminating r-K studies of human behavior, explicates this mechanism as follows:

Individuals behave so as to maximize their inclusive fitness rather than only their individual fitness; they maximize the production of successful offspring by both themselves and their relatives. . . . Social ants, for example, are one of the most altruistic species so far discovered. The self-sacrificing, sterile worker and soldier ants . . . share 75% of their genes with their sisters and so by devoting their entire existence to the needs of others . . . they help to propagate their own genes. (p. 6)

The second rationale proposed as the mechanism underlying other-oriented and cooperative behaviors Wilson terms *soft-core altruism* to represent his belief that the bestower's actions are ultimately self-serving. The original line of reasoning here stems from Trivers's (1971) notion of reciprocity, a thesis suggesting that genetically based dispositions to

cooperative behavior can be explained without requiring the assumption of kinship relatedness. All that is necessary is that the performance of cooperative acts be mutual—that is, result in concurrent or subsequent behaviors that are comparably beneficial in terms of enhancing the original bestower's survivability, reproductive fertility, or both.

E. O. Wilson's (1978) conclusion that the self-other dimension is a bedrock of evolutionary theory is worth quoting:

In order to understand this idea more clearly, return with me for a moment to the basic theory of evolution. Imagine a spectrum of self-serving behavior. At one extreme only the individual is meant to benefit, then the nuclear family, next the extended family (including cousins, grandparents, and others who might play a role in kin selection), then the band, the tribe, chiefdoms, and finally, at the other extreme, the highest sociopolitical units. (p. 158)

Intriguing data and ideas have been proposed by several researchers seeking to identify specific substrates that may relate to the other-oriented polarities. In what has been termed the *affiliation-attachment drive*, Everly (1988), for example, provides evidence favoring an anatomical role for the cingulate gyrus. Referring to the work of Henry and Stephens (1977), MacLean (1985), and Steklis and Kling (1985), Everly concludes that the ablation of the cingulate eliminates both affiliative and grooming behaviors. The proximal physiology of this drive has been hypothesized as including serotonergic, noradrenergic, and opioid neurotransmission systems (Everly, 1988; Redmond, Maas, & Kling, 1971). MacLean (1985) has argued that the affiliative drive may be phylogenically coded in the limbic system and may undergird the concept of family in primates. The drive toward other-oriented behaviors, such as attachment, nurturing, affection, reliability, and collaborative play, has been referred to as the "cement of society" by Henry and Stevens (1977).

Let us move now to the realm of psychological and social proposals. Dorothy Conrad (1952) specified a straightforward list of constructive behaviors that manifest "reproductive nurturance" in the interpersonal sphere. She records them as follows:

*Has positive affective relationship:* The person who is able to relate affectively to even one person demonstrates that he is potentially able to relate to other persons and to society.

*Promotes another's welfare:* Affective relationships make it possible for the person to enlarge his world and to act for the benefit of another, even though that person may profit only remotely.

*Works with another for mutual benefit:* The person is largely formed through social interaction. Perhaps he is most completely a person when he participates in a mutually beneficial relationship. (pp. 456–457)

More eloquent proposals of a similar prosocial character have been formulated by the noted psychologists Maslow, Allport, and Fromm.

According to Maslow, after humans' basic safety and security needs are met, they next turn to satisfy the belonging and love needs. Here we establish intimate and caring relationships with significant others in which it is just as important to give love as it is to receive it. Noting the difficulty in satisfying these needs in our unstable and changing modern world, Maslow sees the basis here for the immense popularity of communes and family therapy. These settings are ways to escape the isolation and loneliness that result from our failures to achieve love and belonging.

One of Allport's criteria of the *mature personality*, which he terms a warm relating of self to others, refers to the capability of displaying intimacy and love for a parent, child, spouse, or close friend. Here the person manifests an authentic oneness with the other and a deep concern for his or her welfare. Beyond one's intimate family and friends, there is an extension of warmth in the mature person to humankind at large, an understanding of the human condition, and a kinship with all peoples.

To Fromm, humans are aware of the growing loss of their ties with nature as well as with each other, feeling increasingly separate and alone. Fromm believes humans must pursue new ties with others to replace those that have been lost or can no longer be depended upon. To counter the loss of communion with nature, he feels that health requires that we fulfill our need by a brotherliness with mankind and a sense of involvement, concern, and relatedness with the world. And with those with whom ties have been maintained or reestablished, humans must fulfill their other-oriented needs by being vitally concerned with their well-being as well as fostering their growth and productivity.

In a lovely coda to a paper on the role of evolution in human behavior, Freedman and Roe (1958) wrote:

Since his neolithic days, in spite of his murders and wars, his robberies and rapes, man has become a man-binding and a time-binding creature. He has maintained the biological continuity of his family and the social continuity of aggregates of families. He has related his own life experiences with the social traditions of those who have preceded him, and has anticipated those of his progeny. He has accumulated and transmitted his acquired goods and values through his family and through his organizations. He has become bound to other men by feelings of identity and by

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shared emotions, by what clinicians call empathy. His sexual nature may yet lead him to widening ambits of human affection, his acquisitive propensities to an optimum balance of work and leisure, and his aggressive drives to heightened social efficiency through attacks on perils common to all men. (p. 457)

The pathological consequences of a failure to embrace the polarity criterion of *others* are seen most clearly in the personality maladaptations termed *antisocial* and *narcissistic* disorders. Both personalities exhibit an imbalance in their replication strategy; in this case, however, there is a primary reliance on self rather than others. They have learned that reproductive success as well as maximum pleasure and minimum pain is achieved by turning exclusively to themselves. The tendency to focus on self follows two major lines of development.

In the narcissistic personality maladaptive style, development reflects the acquisition of a self-image of superior worth. Providing self-rewards is highly gratifying if one values oneself or possesses either a real or inflated sense of self-worth. Displaying manifest confidence, arrogance, and an exploitive egocentricity in social contexts, this individual believes he or she already has all that is important—him- or herself.

Narcissistic individuals are noted for their egotistical self-involvement, experiencing primary pleasure simply by passively being or attending to themselves. Early experience has taught them to overvalue their self-worth; this confidence and superiority may be founded on false premises, however—it may be unsustainable by real or mature achievements. Nevertheless, they blithely assume that others will recognize their special-ness. Hence they maintain an air of arrogant self-assurance, and without much thought or even conscious intent, benignly exploit others to their own advantage. Although the tributes of others are both welcome and encouraged, their air of snobbish and pretentious superiority requires little confirmation either through genuine accomplishment or social approval. Their sublime confidence that things will work out well provides them with little incentive to engage in the reciprocal give and take of social life.

Those clinically designated as antisocial personalities counter the indifference or the expectation of pain from others; this is done by actively engaging in duplicitous or illegal behaviors in which they seek to exploit others for self-gain. Skeptical regarding the motives of others, they desire autonomy and wish revenge for what are felt as past injustices. Many are irresponsible and impulsive, behaviors they see as justified because they judge others to be unreliable and disloyal. Insensitivity and ruthlessness with others are the primary means they have learned to head off abuse and victimization.

In contrast to the narcissistic form of maladaptation, the antisocial pattern of self-orientation develops as a form of protection and counteraction. These styles turn to themselves first to avoid the depredation they anticipate, and second to compensate by furnishing self-generated rewards in their stead. Learning that they cannot depend on others, individuals with these personality styles counterbalance loss not only by trusting themselves alone, but also by actively seeking retribution for what they see as past humiliations. Turning to self and seeking actively to gain strength, power, and revenge, they act irresponsibly, exploiting and usurping what others possess as just reprisals. Their security is never fully assured, however, even when they have aggrandized themselves beyond their lesser origins.

In both narcissistic and antisocial personality styles, we see maladaptations arising from an inability to experience a constructive love for others. For the one, there is an excessive self-centeredness; for the other, there is the acquisition of a compensatory destructiveness driven by a desire for social retribution and self-aggrandizement.

**Realizing One's Potentials: The Self-Actualizing Attribute.** The converse of other-nurturance is not self-propagation, but rather the lack of other-nurturance. Thus, to fail to love others constructively does not assure the actualization of one's potentials. Both may and should exist in normal, healthy individuals. Although the dimension of self-other is arranged to highlight its polar extremes, it should be evident that many if not most behaviors are employed to achieve the goals of both self- and kin reproduction. Both ends are often simultaneously achieved; at other times one may predominate. The behaviors comprising these strategies are driven, so to speak, by a blend of activation and affect—that is, combinations arising from intermediary positions reflecting both the life enhancement and life preservation polarity of pleasure-pain, interwoven with similar intermediary positions on the ecological accommodation and ecological modification polarity of activity-passivity. Phrasing replication in terms of the abstruse and metaphorical constructs does not obscure it, but rather sets this third polarity on the deeper foundations of existence and adaptation, foundations composed of the first two polarities previously described.

At the self-oriented pole, Everly (1988) proposes an autonomy-aggression biological substrate that manifests itself in a strong need for control and domination as well as in hierarchical status striving. According to MacLean (1986), it appears that the amygdaloid complex may play a key role in driving organisms into self-oriented behaviors. Early studies of animals with ablated amygdalas showed a notable increase in their docility (Kluver & Bucy, 1939), just as nonhuman

primates have exhibited significant decreases in social hierarchy status (Pribram, 1962). Although the evidence remains somewhat equivocal, norepinephrine and dopamine seem to be the prime neurotransmitters of this drive; the testosterone hormone appears similarly implicated (Feldman & Quenzar, 1984).

Regarding psychological constructs that parallel the notion of self-actualization, their earliest equivalent was in the writings of Spinoza (1677/1986), who viewed development as that of becoming what one was intended to be and nothing other than that, no matter how exalted the alternative might appear to be.

Carl Jung's (1961) concept of individuation shares important features with that of actualization in that any deterrent to becoming the individual one may have become would be detrimental to life. Any imposed "collective standard is a serious check to individuality," injurious to the vitality of the person, a form of "artificial stunting."

Perhaps it was my own early mentor, Kurt Goldstein (1939), who first coined the concept under review with the self-actualization designation. As he phrased it, "There is only one motive by which human activity is set going: the tendency to actualize oneself" (1939, p. 196).

The early views of Jung and Goldstein have been enriched by later theorists, notably Fromm, Perls, Rogers, and Maslow.

Focusing on what he terms the sense of identity, Fromm (1955) spoke of the need to establish oneself as a unique individual, a state that places the person apart from others. Further—and it is here where Fromm makes a distinct self-oriented commitment—the extent to which this sense of identity emerges depends on how successful the person is in breaking "incestuous ties" to one's family or clan. Persons with well-developed feelings of identity experience a feeling of control over their lives rather than a feeling of being controlled by the lives of others.

Perls (1969) enlarged on this theme by contrasting self-regulation versus external regulation. Normal, healthy persons do their own regulating, with no external interference, be it the needs and demands of others or the strictures of a social code. What we must actualize is the true inner self, not an image we have of what our ideal selves should be. That is the "curse of the ideal." To Perls, each must be what he or she really is.

Following the views of his forerunners, Maslow (1968) stated that self-actualization is the supreme development and use of all our abilities, ultimately becoming what we have the potential to become. Noting that self-actualists often require detachment and solitude, Maslow asserted that such persons are strongly self-centered and self-directed, make up their own minds, and reach their own decisions without the need to gain social approval.

In like manner, Rogers (1963) posited a single, overreaching motive for the normal, healthy person—maintaining, actualizing, and enhancing one's potential. The goal is not that of maintaining a homeostatic balance or a high degree of ease and comfort, but rather to move forward in becoming what is intrinsic to self and to enhance further that which one has already become. Believing that humans have an innate urge to create, Rogers stated that the most creative product of all is one's own self.

Where do we see failures in the achievement of self-actualization, a giving up of self to gain the approbation of others? Two maladaptive personality styles can be drawn upon to illustrate forms of self-denial.

Those with *dependent personalities* have learned that feeling good, secure, confident, and so on—that is, those feelings associated with pleasure or the avoidance of pain—is provided almost exclusively in their relationship with others. Behaviorally, these persons display a strong need for external support and attention; should they be deprived of affection and nurturance, they will experience marked discomfort, if not sadness and anxiety. Any number of early experiences may set the stage for this other-oriented imbalance. Dependent individuals often include those who have been exposed to an overprotective training regimen and who thereby fail to acquire competencies for autonomy and initiative; experiencing peer failures and low self-esteem leads them to forego attempts at self-assertion and self-gratification. They learn early that they themselves do not readily achieve rewarding experiences; these experiences are secured better by leaning on others. They learn not only to turn to others as their source of nurturance and security, but also to wait passively for others to take the initiative in providing safety and sustenance. Clinically, most are characterized as searching for relationships in which others will reliably furnish affection, protection, and leadership. Lacking both initiative and autonomy, they assume a dependent role in interpersonal relations, accepting what kindness and support they may find and willingly submitting to the wishes of others in order to maintain nurturance and security.

A less benign but equally problematic centering on the wishes of others and the denial of self is seen in what is termed clinically as the obsessive-compulsive personality. These persons display a picture of distinct other-directedness—a consistency in social compliance and interpersonal respect. Their histories usually indicate having been subjected to constraint and discipline when they transgressed parental strictures and expectations. Beneath the conforming other-oriented veneer, they exhibit intense desires to rebel and assert their own self-oriented feelings and impulses. They are trapped in an ambivalence; to avoid intimidation and punishment they have

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learned to deny the validity of their own wishes and emotions and instead have adopted as true the values and precepts set forth by others. The disparity they sense between their own urges and the behaviors they must display to avoid condemnation often leads to omnipresent physical tensions and rigid psychological controls.

Readers who have reached this final paragraph on the basic three polarities that undergird all physical forms and organic species should have a foundation to move onto our next series of polarities, those which are distinctly human—that is, these polarities relate to personality attributes found almost exclusively in the human species that set us off from all earlier forms of evolution and that pertain to the higher powers and adaptive functions of *abstraction* and their constituent cognitive modes.

### THE DISTINCTLY HUMAN POLARITIES OF EVOLUTION

This group of personality attributes incorporates the sources employed to gather knowledge about the experience of life and the manner in which this information is registered and transformed. Here, we are looking at *styles of cognizing*—differences (first) in what people attend to in order to learn about life, and (second) how they process information: what they do to record this knowledge and make it useful to themselves.

#### Predilections of Abstraction

The cognitive features of intelligence are judged by me to be central elements in personological derivations. Comprising the fourth and most recent stage of evolution, they comprise the reflective capacity to transcend the immediate and concrete, they interrelate and synthesize the diversity of experience, they represent events and processes symbolically, they weigh, reason, and anticipate; in essence, they signify a quantum leap in evolution's potential for change and adaptation.

Cognitive differences among individuals and the manner in which they are expressed have been much overlooked in generating and appraising personality attributes. With an occasional notable exception or two, little of the recent so-called revolution in cognitive science that has profoundly affected contemporary psychology has impacted the study of personology. Historically, the realms of intellect, aptitude, and ability have not been considered to be personality-related spheres of study.

In my view, personology should be broadened to encompass the *whole person*, an organically unified and unsegmented totality. Consequently, cognitive dimensions and

their various styles not only should be included, but also may have a significance equal to that of other functions as a source of personality attributes (Millon, 1990). Unfortunately, the various features comprising cognitive abstraction have only rarely been included as components in personality-oriented concepts and appraisals.

Emancipated from the real and present, unanticipated possibilities and novel constructions may routinely be created cognitively. The capacity to sort, to recompose, to coordinate, and to arrange the symbolic representations of experience into new configurations is in certain ways analogous to the random processes of recombinant replication, but processes enabling manipulation of abstractions are more focused and intentional. To extend this rhetorical liberty, replication is the recombinant mechanism underlying the adaptive progression of phylogeny, whereas abstraction is the recombinant mechanism underlying the adaptive progression of ontogeny. The powers of replication are limited, constrained by the finite potentials inherent in parental genes. In contrast, experiences, abstracted and recombined, are infinite.

Over one lifetime, innumerable events of a random, logical, or irrational character transpire, are construed, and are reformulated time and again—some of which prove more and others less adaptive than their originating circumstances may have called forth. Whereas the actions of most nonhuman species derive from successfully evolved genetic programs, activating behaviors of a relatively fixed nature suitable for a modest range of environmental settings, the capabilities of both implicit and intentional abstraction that characterize humans give rise to adaptive competencies that are suited to radically divergent ecological circumstances, circumstances that themselves may be the result of far-reaching acts of symbolic and technological creativity.

Although what underlies our self- versus other-oriented attributes stems from differential replication strategies, the conscious state of knowing self as distinct from others is a product of the power of abstraction, the most recent phase of evolution's procession. The reflective process of turning inward and recognizing self as an object—no less to know oneself, and further, to know that one knows—is a uniqueness found only among humans. Doubling back on oneself, so to speak, creates a new level of reality, consciousness that imbues self and others with properties far richer and more subtle than those that derive from strategies of reproductive propagation and nurturance alone.

The abstracting mind may mirror outer realities but reconstructs them in the process, reflectively transforming them into subjective modes of phenomenological reality, making external events into a plastic mold subject to creative designs. Not only are images of self and others emancipated from

direct sensory realities, becoming entities possessing a life of their own, but contemporaneous time may also lose its immediacy and impact. The abstracting mind brings the past effectively into the present, and its power of anticipation brings the future into the present as well. With past and future embedded in the here and now, humans can encompass at once not only the totality of our cosmos, but also its origins and nature, its evolution, and how they have come to pass. Most impressive of all are the many visions humans have of life's indeterminate future, where no reality as yet exists.

Four polarities constitute this distinctly human abstraction function. The first two pairs refer to the information sources that provide cognitions. One set of contrasting polarities addresses the orientation either to look outward, or external-to-self, in seeking information, inspiration, and guidance, versus the orientation to turn inward, or internal-to-self. The second set of abstraction polarities contrasts predilections for either direct observational experiences of a tangible, material, and concrete nature with those geared more toward intangible, ambiguous, and inchoate phenomena.

The third and fourth set of abstraction polarities relate to cognitive processing—that is, the ways in which people evaluate and mentally reconstruct information and experiences after they have been apprehended and incorporated. The first of these sets of cognitive polarities differentiates processes based essentially on ideation, logic, reason, and objectivity from those that depend on emotional empathy, personal values, sentiment, and subjective judgments. The second set of these polarities reflects either a tendency to make new information conform to preconceived knowledge, in the form of tradition-bound, standardized, and conventionally structured schemas, versus the opposing inclination to bypass preconceptions by distancing from what is already known and instead to create innovative ideas in an informal, open-minded, spontaneous, individualistic, and often imaginative manner.

Cognitive functions are consonant with our earlier biosocial formulations concerning the architecture of human functioning (Millon, 1990) because we see cognitive processes to be an essential component of our fourfold model regarding how organisms approach their environments. Beyond the driving motivational elements of personality style (as in my formulation of the personality disorders), or the factorial structure of personality (e.g., as explicated in the Big Five model), we seek to conjoin all components of personality style by linking and integrating the various expressions and functions of personality into an overarching and coherent whole.

Several polar dimensions have been proposed through the years as the basis for a schema of cognitive styles. Contrasting terms such as *leveling* versus *sharpening*, *narrow* versus

*broad*, *analytic* versus *synthetic*, *constricted* versus *flexible*, *inductive* versus *deductive*, *abstract* versus *concrete*, and *convergent* versus *divergent* have been used to illustrate the stylistic differences among cognitive functions. Although each of these pairs contributes to distinctions of importance in describing cognitive processes, few were conceptualized with *personality* differences in mind, although some may prove productive in that regard.

As noted above, the model formulated by the author separates cognitive activities into two superordinate functions. The first pertains to the contrasting origins from which cognitive data are gathered, or what may be termed *information sources*; the second pertains to the methods by which these data are reconstructed by the individual, or what we label *transformational processes*. These two functions—the initial gathering and subsequent reconstruction of information—are further subdivided into two polarities each. As is elaborated later in this chapter, the sources of information are separated into (a) *external* versus *internal* and (b) *tangible* versus *intangible*. Transformational processes are divided into (a) *ideational* versus *emotional* and (b) *integrative* versus *imaginative*. The resulting four personality attributes are by no means exhaustive. Rather surprisingly, they turn out to be consonant with a model formulated in the 1920s by Jung (1971a).

### Sources of Information

Information may be seen as the opposite of entropy. What energy or nutrients are to physical systems, information is to cognitive systems. A physical system sustains itself by sucking order, so to speak, from its environs, taking in energy or nutrients and transforming them to meet tissue needs; a cognitive system does something similar by sucking information from its environs—that is, taking in data and transforming them to meet its cognitive needs. In much the same way as any other open system, a cognitive structure needs to maintain itself as an integrated and cohesive entity. In the physical world, the integrity of a system is achieved by making adaptations that preserve and enhance the physical structure, thereby precluding the entropic dissipation of its ordered elements. Similarly, a cognitive system achieves its integrity through a variety of preserving and enhancing adaptations that reduce the likelihood of events that may diminish the order and coherence of its knowledge base.

Moreover, an open cognitive system is purposefully focused, as is a physical system. Just as a physical system must be selective about its nutrition sources in order to find those suitable to meet its tissue needs, so, too, must a cognitive system be selective about information sources, choosing and processing particular raw inputs according to specific

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cognitive goals. A cognitive system can no more process random input than a physical system can ingest random material. Hence, information (negative entropy) must be acquired selectively rather than randomly or diffusely; some sources of information will be heeded and others ignored or suppressed.

Coherence may be optimized by adopting and maintaining a preferred and regular information source, thereby ensuring a consistent confirmatory bias in favor of a cognitive structure's world view and organizational architecture. Conversely, a cognitive structure that is exposed to dissonant or contradictory sources or that heeds diverse or multitudinous sources ultimately may be challenged successfully or may be exhausted beyond its ability to maintain coherence. In other words, burdensome processing and discordant sources are likely to result in increasing cognitive entropy. A more structured and coherent focus that strengthens and confirms prior sources of information becomes useful in ensuring optimal cognitive survivability.

**External Versus Internal Orientation Polarity: The Extrareceptive and Intrareceptive Attributes.** In light of the preceding argument, we see two primary stimulative sources of information, that which originates external to the self and that which originates internally. Whether this polar cognitive orientation is termed external versus internal, extrareceptive versus intrareceptive, or extraverting versus introverting, each polarity provides a replicable reservoir for cognitive information—a selectively narrowed wellspring of knowledge to which the person will continue to be exposed.

A few lines paraphrasing Jung, the originator of the extraverting-introverting dimension, may be of value in highlighting core features of the externally oriented preference. Extraversion, from Jung's view, was centered in an interest in the external object noted by a ready acceptance of external happenings, a desire to influence and be influenced by external events, a need to join in, and the capacity not only to endure the bustle and noise of every kind, but actually find them enjoyable (Jung, 1971a).

Similarly, Jung clearly states a view paralleling ours in what we have termed the internal orientation. To Jung, the introverted person is "not forthcoming"; he or she "retreats before the external object." Such an individual is aloof from external happenings and does not join in. Self-communings are a pleasure and the introverted individual experiences his or her own world as a safe harbor, a "carefully tended and walked-in garden, closed to the public and hidden from prying eyes." The internally oriented person's own company is best. One who is internally oriented feels at home in one's own world, a place where changes are made only by oneself. Most significantly, the best work of such individuals is done

with their own resources, on their own initiative, and in their own way (Jung, 1971b).

**Tangible Versus Intangible Disposition Polarity: The Realistic and Intuitive Attributes.** Information, whether its source is internal or external to the self, can be classified in numerous ways. A core distinction can be drawn between information that is tangible versus that which is intangible. By *tangible* we mean identifiable by human sensory capacities, well-defined, distinctive, recognizable, and knowable—referring to phenomena that are concrete, factual, material, realistic, or self-evident. In contrast, information that is termed *intangible* takes in phenomena that lack an intrinsically distinctive order and structural clarity; they are inherently ambiguous, abstract, insubstantial, vague, mysterious, and obscure. Such phenomena usually can be fathomed only by means that are unknown, unconscious, and percipient, or by glimmerings into their diffuse and elusive nature that are materially tenuous or psychical in form.

The readiness of some individuals to be receptive to information that is well-structured and tangible, and of others to receive information that is obscure and intangible, constitutes, in our view, a fundamental difference in cognitive style that is of appreciable personological significance. Although Jung's language is only tangentially formulated in cognitive terms, close parallels can be seen between the polarity presented here and that offered by Jung in his distinction between Sensing and Intuiting. As Jung (1933) wrote decades ago:

Here we should speak of sensation when sense impressions are involved, and of intuition if we are dealing with a kind of perception which cannot be traced back directly to conscious sensory experience. Hence, I define sensation as perception via conscious sensory functions, and intuition as perception via the unconscious. (pp. 538–539)

Favoring tangible, structured, and well-defined sources of information that call upon one's five senses will no doubt correlate with a wide range of associated behaviors, such as choosing actions of a pragmatic and realistic nature, preferring events in the here and now, and attending to matters calling for facts and quantitative precision.

Jung conceived what we would term the *tangible disposition* as the fact-minded men in whom intuition is "driven into the background by actual facts." In contrast, those preferring the intangible, unstructured, and ambiguous world of information are likely to be inspired by possibilities, by challenges, and potentials of an abstract, connotative, and symbolic character, as well as by matters that depend on mystery and speculation. In Jung's words, "for these persons, actual reality

counts only insofar as it harbors possibilities, regardless of the way things are in the actual present” (Jung, 1971b, p. 539).

### ***Transformational Processes***

The first two pairs of cognitive functions were grouped according to attributes that signify choices among the sources and styles of *gathering* information. These next two pairs of attribute polarities represent amplification preferences and transformational processes, referring to what is done to information after it has been received. Cognitive science has articulated a number of concepts related to the registering, encoding, and organizing of life experiences. These concepts pertain to various questions, such as *Through what cognitive mode will information be received and amplified—intellective or affective?* and *How shall information be organized; will it be assimilated into preformed memory systems or will it be recast through imagination into novel schemas?* Although individuals may be positioned on several other continua or polarities—for example, convergent versus divergent, serial versus hierarchical, primary versus secondary, verbal versus visual—it is the author’s view that the most fruitful cognitive distinctions relevant to personality are the pairs selected in this and the following section.

**Ideational Versus Emotional Preference Polarity: The Intellective and Affective Attributes.** Stated simply, there are essentially two pathways through which experiences pass once recorded by our consciousness or by our senses, if they are of sufficient magnitude to activate an encoded response. The first pathway accentuates information that is conceptual and logical, eliciting a reasoned judgment that signifies in an articulate and organized way that the registered experience makes sense—that is, it is rationally consistent and coherent. The second pathway resonates an emotional response, a subjective feeling reaction, signaling in a somewhat diffuse and global way that the registered event was experienced either as affectively neutral, clearly positive, or distinctly negative.

The ideational pole indicates a preference and elaboration of experience in light of reason and logic. Although life events may derive from internal or external sources and may be of a tangible or intangible nature, the interpretive and evaluative process is inclined toward and augments the objective and impersonal, as events are amplified by means of critical reason and intensified by the application of rational and judicious thought. By diminishing affective engagements—reducing the unruly emotional input of others or the upsetting effects of one’s own affective state—the preference is to sustain and strengthen a high degree of cognitive logic and cohesion. Objective analysis and affective detachment

protect against unwanted incursions upon intellectual rationality, but often at the price of promoting processes that tend to be rigid, overcontrolled, and unyielding.

In contrast, experiences processed and amplified emotionally activate subjective states, such as liking versus disliking, feeling good versus feeling bad, comfort versus discomfort, attracted versus repelled, valuing versus devaluing, and so on. Through empathic resonance, the route of enhanced affectivity inclines the individual to record not so much what other people think but rather how they feel. The individual who inclines toward the affective attribute uses *feeling vibrations* to learn more from the melodic tone that words convey than from their content or logic. The usual modality for those who exhibit an affective bent is that of a subjective reality, a series of more-or-less gut reactions composed of either global or differentiated positive or negative moods. For the most part, the affective amplification style indicates individuals who evince modest introspective analyses, who show an open and direct empathic response to others, and who have a subconscious susceptibility to the emotional facets of experience in as pure a manner as possible.

**Integrating Versus Innovating Bias Polarity: The Assimilative and Imaginative Attributes.** The second cognitive transformational polarity addresses the question of whether new information is shaped to fit preformed memory schemas (integrated within preexisting cognitive systems), or is organized through the imagination to be cast into innovative and creative forms. Evolutionary theory suggests that the best course may be to reinforce (cognitive) systems that have proved stable and useful. On the other hand, progress will not be made unless promising new possibilities are explored. A beneficial tension in evolution clearly exists between conservation and change, between that of adhering to the habitual and that of unleashing the creative. These two contrasting cognitive biases demonstrate the two options—integrating experiences into already established systems versus exploring innovative ways to structure them.

Assimilators are akin in certain features to persons with well-structured memory systems to which they routinely attach new cognitive experiences. Disposed to operate within established perspectives, assimilators integrate new information to fit previous points of view, exhibiting thereby a high degree of dependability and consistency, if not rigidity, in their functioning. Typically, such people are predictable, conventional, orderly, systematic, decisive, methodical, exacting, formal, disciplined, conscientious, faithful, loyal, and devoted. Hence, in evolutionary terms, the integrating polarity leads to continuity and tradition, or to the maintenance of existing levels of cognitive entropy; this cognitive style

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promotes an architectural cohesion that remains unchallenged by variations that could be risky (i.e., potentially diminish established levels of order).

In contrast, those functioning at the innovating pole are characterized by an openness to forming new and imaginative cognitive constructions of a more-or-less impromptu character. They are inclined to search for and enjoy creative ideas and solutions, to find novel ways to order information and to accumulate negative entropy, so to speak, by stepping outside of what is known and given in order to establish a new and potentially higher level of cognitive organization. Innovators stretch beyond confirmed perspectives, seek to broaden interpretations of experience, and are not concerned with demonstrating their reliability. The imaginative attribute is typically associated with being open-minded, spontaneous, extemporaneous, informal, adaptable, flexible, resilient, impressionable, creative, inventive, and resourceful.

It is to those who combine these latter two persuasions that the present chapter is heartily addressed.

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