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CHAPTER 2

Conation, Affect, and Cognition in Personality

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During much of the 20th Century, personality psychology has been a field divided into competing schools of psychodynamic, trait, humanistic, and other perspectives, with little communication among perspectives, and no common language. Recently, however, a consensus view of the field has been developing which considers personality from a systems perspective and attends to (a) the location of personality, (b) its parts, (c) its organization, and (d) its development (Mayer, 1993; 1995a,b; Pervin, 1980; Sears, 1960). For instance, personality's location is defined in relation to such neighboring systems as biology and sociology.

Personality's parts include components that are relatively basic such as *hunger, happiness, and working memory*, and more complex components as well, including *extraversion, the self, and the ego*. Thousands of parts of personality have been proposed (Allport, 1958), and of these thousands, at least 400 parts are regularly discussed (Mayer, 1995b). Keeping 400 parts of personality in mind is a near impossibility, so one alternative strategy is to consider them in groups or classes (e.g., Barratt, 1985; Buss & Finn, 1987; Mayer, 1995a,b). Most classification systems for these components employ one or more of three categories of mind that have a centuries-old tradition: the *conative, affective, and cognitive* - what Hilgard (1980) has referred to as the *trilogy of mind*.

According to this division, conation (or motivation) includes components that propel or move the organism such as the *hunger drive*, and the *need for achievement*. The affect group, principally containing emotion, includes such basic feelings as *anger and happiness*, along with related parts such as the mental programs for *emotional facial expressions*. The cognition group, containing thought-related processes and mechanisms, includes such elements as *working memory, judgment, and reasoning*.

The division of the mind into conation, affect, and cognition is so embedded in our discipline that many of our journals are named after those parts: *Cognition, Motivation and Emotion, Cognition and Emotion*, and so on. Despite this, many of us would be hard-pressed to recall the origin of this classification system, or to describe the differences among the three

categories. Along these lines, Henle (cited in Hilgard, 1980, p. 115) remarked:

as we become absorbed in our own specialties we often become cryptosystematists, that is, our beliefs are embedded in larger systems of thought that are not explicit but may serve to perpetuate errors.

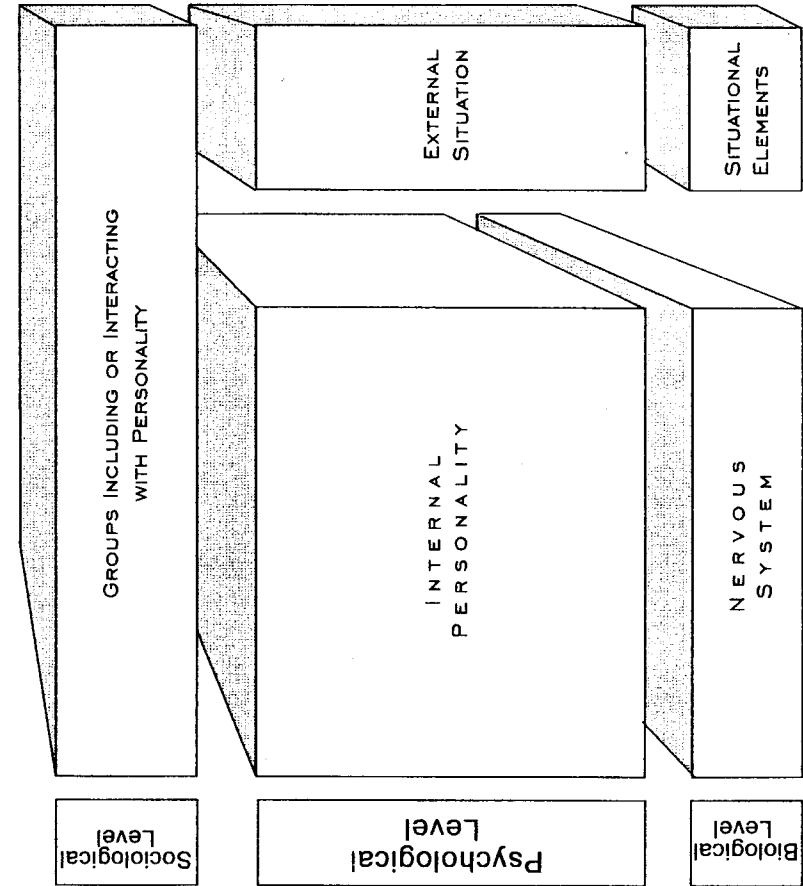
Indeed, the differences among motivation, affect, and cognition can become paper thin. A person's associations to the word "success" may reveal her need for achievement (conative), while also being influenced by her mood (affect), and memory (cognition). To accommodate such blended areas of performance, there exist blended areas of study such as "cognition and affect", and "motivation and emotion." Still, in what sense is one such class of mental process to be distinguished from the others?

In this chapter we clarify the meaning of this tripartite division. We will begin by examining a general systems model of personality (already introduced at the outset). This model's further development relies in part on the distinction among classes of conative, affective, and cognitive components. The systems model illustrates how the three spheres of conation, affect, and cognition, can be used to classify aspects of personality psychology. The usefulness of the three spheres, however, relies on a clear understanding of each one's meaning. Following description of the systems model, we focus on conation, affect, and cognition, including (a) their historical origins, (b) their changing description across time, (c) their conceptualization, and (d) a recommended update of their meaning. Finally, we return to questions of conation, affect, and cognition in personality and in contemporary research, and discuss how the trilogy may be integrated into a picture of the person as a whole.

The Relational Model of Personality

Several contemporary models of personality employ one or more classes of conation, affect, and cognition in their construction (e.g., Barratt, 1985; Buss & Finn, 1987; Mayer, 1995a,b). Examination of one such model demonstrates one way the trilogy of mind is used today, and highlights some of the issues surrounding its use. The specific model employed here is the *relational model* of personality, so-called because personality and its parts are all described in relation to one another and their neighboring

Figure 1. An view of the personality system amidst its neighboring systems, including biology, sociology, and situations. A molecular-molar dimension is represented vertically, an internal-external dimension horizontally, and an organismic dependent-constructed dimension depthwise.



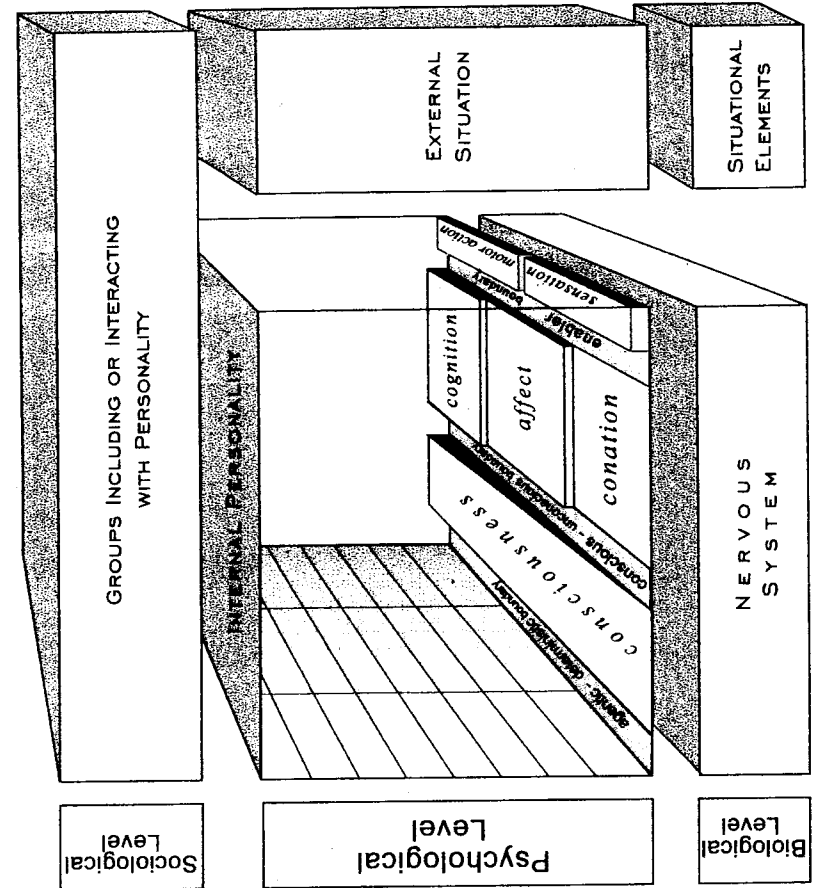
systems (Mayer, 1995a,b). This relational model is typically developed according to four systems-oriented topics: that is, according to personality's location, components, organization, and development. One aspect of the relational model that makes it particularly worth discussing is its highly integrative aspects; it contains or subsumes several models developed by others (e.g., Buss & Finn, 1987).

Certain conceptual dimensions can be employed to distinguish personality from its neighboring fields of scientific study. The most important of these include a molecular-molar dimension, that distinguishes more molecular brain sciences which underlie personality from personality itself, and also distinguishes personality from more molar social structures that "contain" it such as the family and society. A second, internal-external dimension, distinguishes inside mental processes from outside observable behavior. To this, a third, organismic-constructed dimension can be added, which distinguishes between those parts of personality that are most constrained by the biological organism (i.e. basic motivations) from those that are most independent (i.e., formal reasoning). The use of three dimensions makes possible a three dimensional pictorial representation of personality and its component parts (see Figure 1).

The purpose of this initial picture is to orient personality amidst its neighboring system in the three-dimensional space. Internal personality is contained in a box labelled "personality" on the left-hand side of the figure, mid-way between nervous system substrates beneath it, and family and social systems above it. In the picture, this vertical dimension represents the molecular-molar continuum in the sense that the lower brain sciences are more molecular than personality whereas the family and other social groups above personality are more molar. The second, horizontal dimension, represents the internal-external continuum with internal personality to the left, and personality's external manifestation (i.e., its interaction with the environment) to the right. Finally, the third, depth dimension, distinguishes more organismic parts of personality (to be added momentarily) in the foreground from more constructed parts (also to be added) in the background.

The empty personality box can now be filled with classes of personality components in a manner that is consistent with each of the three dimensions. For example, in Figure 2, conation, affect, and cognition are placed along the floor of the cube, near the biological level, with a slight rise toward the back indicating the greater molarity of cognition relative to conation. This particular placement implies that conation, affect, and cognition refer to

Figure 2. A second view of the personality system including the enablers: Conation, affect, cognition, and consciousness (modified from Mayer, 1995a, Figure 2).

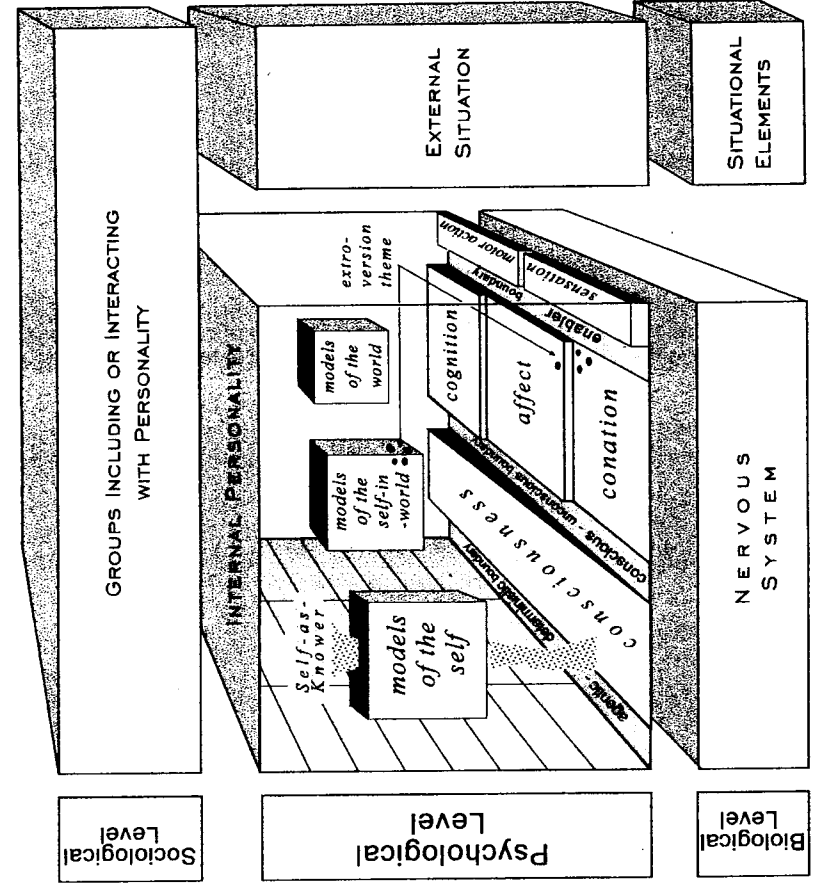


internal, more molecular components of mind - that is, close to the biological level, or, only minimally influenced by learning. Notice that toward the innermost part of personality a fourth category has been added, *consciousness*. The placement of consciousness near conation, affect, and cognition suggests that consciousness, like them, is a more molecular, biological phenomenon, which may interact with the other three. Too little is known about consciousness to place it definitively anywhere, of course. One very respectable and influential tradition views consciousness as analogous to an image in a hologram, in that it emerges from layered information within the cerebral cortex (Pribram, 1971, p. 171). This view would place consciousness at the ceiling of the personality box. But the relational model puts it to the left bottom for reasons to be developed later.

Within this relational model, conation, affect, cognition, and consciousness are subgroups of a class of personality components containing them, termed *enablers*. Enablers are mechanisms that carry out, or *enable*, the basic functions of personality. The enablers are one of four broad classifications that collectively contain all the parts of personality. The other three classes are *establishments*, *themes*, and *agencies*.

Establishments are so-called because they are established (or learned, or constructed) models of the self, the world, and the self in the world. Examples of establishments include the self-concept, self-esteem, attachment patterns, and expert knowledge. Establishments develop from experience and learning, and utilize the enablers' functions to operate. For example, the self concept's self-love or self-hatred will be generated and interpreted by emotional enablers; its self assessment will require cognitive enablers. The connection between enablers and establishments is often limited, however, to the fact that enablers support establishments. At the establishment level, for example, expert knowledge can be fairly independent of a good or bad memory at the enabler level. That is, children may construct expert knowledge about dinosaurs independent of whether they possess an impoverished or superior memory. Thus, the establishment can be defined primarily according to its specific content. Establishment models are illustrated in Figure 3, as the three floating cubes of internal personality. They are more molar than the enablers, and are more independent of the organism as they proceed back toward models of the world. Note that all parts of personality are viewed as connected to all others; no arrows or connections are drawn in, however, as such a thicket of connections would obscure the rest of the depiction.

Figure 3. A more complete view of the personality system now including all four major classes of personality components. The enablers (conation, affect, cognition, and consciousness) are on the floor of the personality box. The establishments (models of the self, world, and self-in-world) are represented as boxes floating in the inside of the cube. The themes combine features of enablers and establishments; one theme, extroversion, is illustrated toward the back center of the Figure. Finally, agencies are larger super-composites of individual components that collectively act as sub-personalities; one such agency, James' self-as-knower, is represented, as a cloud that intersects with the "Models of the Self" box (modified from Mayer, 1995a, Figure 2).



The third class of components, the themes, represent thematic connections between establishments and enablers. Themes combine features from enablers and from establishments so as to form conceptually related mixtures that reveal themselves to observers in a coherent fashion. Whereas establishments are focussed on contents, themes are focussed on common or integrated features across enablers, across establishments, or across the two combined. Thus, a need for stimulation alone is an enabler; a model of "joining friends for a party," is an establishment. But the two can be viewed as thematically related. Thus, extroversion, according to Eysenck (1982), involves both a need for stimulation, (the conative enabler), and establishment models of things such as *how to throw a party*. Extroversion is illustrated as elliptical features found in both conation and in models of the world; these features are labelled ("extroversion features") to the right of the internal personality cube.

The fourth class of components, the agencies, refer to large subdivisions of personality that carry out much of a personality's activities, but in partial independence of the whole; these include the *id*, *ego*, or *superego*. Another example of an agency is James' concept of the *self-as-knower*, which comes close to a self-conscious free spirit or free will. The self-as-knower is represented as a cloudlike column that runs through the Models of the Self.

A more comprehensive discussion of the classification of personality components into enablers, establishments, themes, and agencies, and their twenty-one subcategories can be found elsewhere (Mayer, 1995a,b). Here, we are particularly interested in conation, affect, cognition, and consciousness, the subgroups of enablers. Enablers, as already noted, are viewed as close to the biological level in the relational model. For that reason, there must be plausible biological bases for the operation of these parts, and their division. Moreover, these parts form a larger class that describe mechanisms that carry out the functions of personality. Hence, the enablers must be divided and understood foremost according to what they enable, that is, what functions they perform. Because enablers are so basic, and perform basic functions of personality, almost all other parts of personality rely on them and are influenced by them. Better defining conation, affect, and cognition, and understanding the rationale underlying these concepts, can clarify understanding of personality as a whole.

Understanding Conation, Affect, and Cognition

Conation, affect, and cognition through recent history

Hilgard's (1980) classic article *The Trilogy of Mind...* recounts the rise and fall of these three concepts from the early 1700's to early 1900's, and offers a rationale and recommendation for their resurrection. Surprisingly, Hilgard's work omits virtually any discussion of the meanings of conation, affect, or cognition, aside from their special status as a three-fold classification for the overall mind. Nonetheless, his article provides a basis for such an exploration by tracing the major figures who developed the trilogy over its history.

Faculty psychology and the trilogy of mind

Hilgard (1980, p. 108) starts with the German faculty psychologists of the 18th century. He credits, in particular, Moses Mendelssohn's *Letters on Sensation* for bringing together the three concepts for the first time. Mendelssohn distinguished conation, affect, and cognition according to the fact that they operated differently from one another and that they might even interfere with one another. For example, when reason (cognition) "laboriously investigates the origin of pleasure," he wrote, "pleasure may be destroyed" (Mendelssohn, 1755/1971, p. 66)¹. There is both a phenomenological quality to this statement, indicating a sensitivity to the inner conscious experience of cognition and affect, and also a functional notion, identifying that cognition "investigates" pleasure.

Mendelssohn also noted the independent behavior of the three components, writing that "convictions...belong in the realm of man's cognitive psychology," and that "by their very nature, [convictions] cannot be influenced by coercion or bribe" (Mendelssohn, 1983/1969, p. 44). On the other hand, will or motivation could be encouraged or discouraged by "reward and punishment" (Mendelssohn, 1983/1969, p. 44). Mendelssohn's approach is a partly functional one in the sense that he is specifying the conditions under which operations of the three spheres can be teased apart.

The faculty psychology of late 18th century Germany gradually spread

¹ Mendelssohn's work is not yet translated in English. Hans G. Hirsch was kind enough to translate fragments of the work which at least suggest some flavor of the original writings (see also Mayer, 1995b).

to England and Scotland in the early 19th century. A number of psychologists contributed to classifying aspects of the mind during this period. For example, Thomas Reid, the great Scottish faculty psychologist, divided mental faculties into the intellectual (cognitive) and the active (motivational), dropping out emotion. By the late 19th century a summary of these British works was published in Alexander Bain's two-volume English textbook on psychology. Bain was fairly critical of attempts such as Reid's to reduce the trilogy to only two categories. He wrote that Reid's "submerged department of Emotion," could not be made to disappear but rather that its parts, such as emotions, feelings, and so on, "will be found partly taken in among the Intellectual Powers...and partly treated among the Active Powers," (Bain, 1855/1977, pp. 6-7), where they did not plainly fit. "Mind," wrote Bain (1855/1977, p. 1) at the outset of *The Senses and the Intellect*,

...possesses three attributes or capacities.

- I. It has Feeling, in which term I include what is commonly called Sensation and Emotion.
- II. It can Act according to Feeling.
- III. It can Think.

Bain's trilogy, however, differs from the contemporary. For Bain, Feeling included sensation, whereas today's mental divisions typically group sensation with perception, outside the trilogy. Additional information concerning Bain's views on each member of the trilogy appear in the top portion of Table 1, which has three columns. Table 1 indicates the views of several central theorists, beginning with Bain. The three columns are divided so as to represent that theorist's view of conation, affect, and cognition. For example, in Table 1's affect column, Bain says feeling and consciousness are "one and the same;" a statement which appears untenable today given contemporary research on unfelt, unexpressed, or unconscious emotions (e.g., Taylor, 1984). At the same time, Bain successfully develops a contemporary understanding of conation as he distinguishes between mental actions, which are part of the mental sphere, and those external actions that are not (Table 1, under "conation").

Table 1. Historical and Contemporary Views of Conation, Affect, and Cognition: Direct Quotations and Brief Summaries from Key Figures.

Conation	Emotion	Cognition
BAIN (1855/1977)		
"Action is...The putting forth of power to execute some work or perform some operation...In speaking of Action, however, as a characteristic of mind, we must render explicit the distinction between mental actions and such as are not mental...mental actions [are]...under the prompting and guidance of Feeling." (pp 2-3)	"The three terms, Feeling, Emotion, and Consciousness, will, I think be found in reality to express one and the same fact or attribute of mind..." (p. 1) "...for a notion of what feeling is, I must refer each person to their own experience. The warmth felt in sunshine, the fragrance of flowers, the sweetness of honey..." (p. 2)	"...discriminating with preference, and the performance of intermediate actions to attain an end, are the most universal aspects of intelligence, inasmuch as they pervade the whole of the animal kingdom." (p. 6) "...the intellect [is]...a distinct endowment following laws of its own, being sometimes well developed and sometimes feeble without regard to the force or degree of the other two attributes." (p. 6) Intellect is distinct from emotion and volition because it allows for sensations and ideas to be relived without the stimulus (pp. 315-316) "Reason without affect would be impotent, affect without reason would be blind." (p. 112)
MACLEAN (1990)		
"The protoreptilian formation is represented by a particular group of ganglionic structures located at the base of the	"In the evolutionary transition from reptiles to mammals, three cardinal behavioral developments were (1) nursing in	"The neocortex [can be described as]...ballooning out progressively in evolution and reaching its greatest proportions in the

Table 1 continued.

forebrain in reptiles, birds, and mammals...these ganglia must be of 'enormous significance' for otherwise they would not be found as a constant feature in the vertebrate forebrain...[It is involved in] such basic behavior as the struggle for power, adherence to routine, 'imitation,' obeisance to precedent, and deception." (pp. 15-16)	conjunction with maternal care, (2) audiovocal communication for maintaining maternal-offspring contact, and (3) play...The limbic system plays a basic role in thymogenic functions reflected as emotional behavior...Two evolutionarily older subdivisions...have proved to be involved, respectively, in oral and genital functions...The third subdivision, for which there appears to be no rudimentary counterpart in reptiles... [involves] parental care, audiovocal communication, and play behavior" (pp. 16-17)	human brain...[it] has afforded a progressive capacity for problem solving, learning, and memory of details... linguistic translation and communication of subjective states..." (p. 17)
TOMKINS (1962)		
"In the human being the drive system plays a central role in...self-maintenance and reproduction." (p. 29) The system's primary function is to provide "motivating information" - "information that drives and a drive that informs" - specific to survival. (pp. 30-31) It communicates "...where and when to do what - when the body does not know otherwise how to help itself." (p. 31)	"The affective system [possesses]...numerous invariant instigators of any particular affect...[and] numerous invariant reducers of the same affect...It is this differentiated coupling and uncoupling characteristic which permits the affect system to assume a central position in the motivation of man." (p. 23) "Affects are sets of muscle and glandular responses located in the face and also widely distributed through the	[Not compared]

Table 1 continued.

"The drive system with its relatively primitive signal and feedback mechanisms will work well enough [signalling internal changes] because of this predictable and small variability of the internal environment." (p. 124) "...a variety of materials must be regularly transported in and out of the body and thus drive signals wax and wane." (p. 125)	body, which generate sensory feedback which is either inherently 'acceptable' or 'unacceptable.'" (p. 243) Affects (associated with the reticular activating system, p. 90) such as interest, enjoyment, surprise, fear, shame, arise in response to learned or unlearned triggers (p. 22, p. 337). There is a partly invariant trigger-affect relation (p. 23). Affect is partially independent of the motivational system; it can mask motivation, or amplify the drive system so as to motivate the individual (p. 22). "This [affect] system is the primary provider of blueprints for cognition..." (p. 22) "There is here no essential rhythm as there is with respect to the drive system." (p. 125)	
PLUTCHIK (1984)		
Aroused by changing internal states of the organism" (p. 214) "Aroused by the <i>absence</i> of homeostatically significant stimuli" (p. 214) "There are specific 'natural' objects toward which motives direct the organism (e.g., food, water)" (p. 214)	"Aroused by external stimuli" (p. 214) "Aroused by the <i>presence</i> of a survival-related event" (p. 214) "There are few 'natural' objects in the environment toward which emotions are automatically directed" (p. 214)	[Not compared]

Table 1 continued.

<p>"Induced before the process of search is begun" (p. 214)</p> <p>"Tend to have a rhythmic character" (p. 214)</p>	<p>"Induced after an object is seen or evaluated" (p. 214)</p> <p>"Depend on events in environment which may occur on a random basis" (p. 214)</p>	
<hr/> <p>IZARD (1993)</p> <hr/>		
<p>"Drives such as hunger, thirst, sex...are cyclical in nature." (p. 72)</p> <p>"[Drives are] dependent upon peripheral physiological processes" (e.g., stomach growling; p. 73)</p> <p>"Drives provide specific information regarding the time and place that something needs to be done..." (p. 73)</p> <p>Drives, "cue a relatively specific set of responses..." (p. 73)</p>	<p>An emotion has no temporal cycle (p. 73)</p> <p>"...an emotion...is not dependent on peripheral physiological processes" (e.g., stomach growling) (p. 73)</p> <p>"...can be associated with a virtually limitless variety of phenomena" (p. 73)</p> <p>Emotions "can motivate an equally wide range of cognitions and actions" (p. 73)</p> <p>"the emotions system preceded the cognitive system in evolution and outpaces it in ontogeny" (p. 73)</p>	<p>"Clearly, information processing consists of several types or levels... ranging from that which leads to the color of an eye to that which produces a Mona Lisa or a theory of relativity" (p. 73)</p> <p>"I propose four differentiable sorts of information processing: cellular, organismic, biopsychological, and cognitive...the first three of the forgoing categories involve types of noncognitive information processing" (p. 70)</p> <p>Cognition is about knowledge - learning, memory, symbol manipulation, thinking, and language (p. 73)</p> <p>Emotion-cognition interactions occur in all the many coping activities that require stimulus appraisal and judgment before action (p. 73)</p>

Hilgard (1980, pp. 113-114) concludes his survey of the trilogy of mind shortly after his discussion of Bain, with the psychologists of the 1920's and 1930's. He comments:

Those in America who were proposing a new experimental or laboratory psychology rejected faculty psychology and along with it the classification of mental activity into three categories... with [the American psychologist] McDougall the history of the trilogy of mind appears to have ended, nearly two centuries after it began in Germany and Scotland. In part, the fading of such a "generally accepted" view may have coincided with the decline of a felt need for such a comprehensive classification of mental processes.

To be sure, Hilgard (1980, p. 113) wrote, "the trilogy of mind was still familiar in the vocabulary of psychology," but psychologists of the time were more interested in experimental advances than in the classification systems of the past. We believe that Hilgard's own interest in the trilogy suggests that its history was - and is - not over, although it may no longer occupy so central a place in the field. For that reason we proceed to more recent developments.

MacLean and the influence of psychiatry on the trilogy of mind

By the mid-20th century enough had been learned about the brain structure and function that some initial statements could be made regarding its relation to mental faculties. Of course, this had been attempted earlier. Phrenologists had attempted to connect mental faculties such as learning or feeling to specific brain areas, for the purpose of charting personality according to a shape of an individual's cranium. Thus, someone with a cranial indentation alongside the presumed brain-site for imagination would be regarded as having a stodgy, uncreative personality. But phrenology was based on pure speculation, and as a consequence, was discredited.

Brain localization became a reality, however, with the identification of some language abilities in Broca's area. And it was shortly thereafter, with the writings of Paul MacLean (e.g., 1949, 1973, 1990), that the trilogy of mind found a possible home in brain science. MacLean inferred from the structure of the human brain the existence of three partially independent sub-brains, or brain divisions, which reflected three distinct epochs in the human brain's evolutionary development. The first such brain, which was structurally innermost, was shared in all its essentials with the complete brain

of reptiles. The second brain, which corresponded to the limbic system, was shared in common with most mammals. The third brain, which corresponded to the cerebral cortex, was most highly developed in humans. MacLean (1990, p. 9) wrote:

In popular terms the three evolutionary formations might be imagined as three interconnected biological computers, with each having its own special intelligence, its own subjectivity, its own sense of time and space, and its own memory, motor, and other functions.

Although MacLean never emphasized the point, parallels exist between conation and the reptilian brain, affect and the old-mammalian brain, and cognition and the neo-mammalian brain. For example, the reptilian brain had associated with it, "such genetically constituted forms of behaviour as selecting homesites, establishing territory, engaging in various types of display, hunting, homing, mating, breeding, imprinting, forming social hierarchies, and selecting leaders." (MacLean, 1973, pp. 9-10; 1990; see also Table 1). The old mammalian brain, "plays an important role in elaborating emotional feelings that guide behaviour with respect to the two basic life principles of self-preservation and the preservation of the species..." (MacLean, 1973, pp. 12-13). The third, neomammalian brain, is concerned with higher cognitive processes.

MacLean suggests a number of innovative comparisons among the three brains. He notes that "the limbic system might be imagined as particularly designed to amplify or lower the intensity of feelings involved in guiding behavior required for self-preservation and preservation of the species." (1991, p. 17). He further notes that the different brains vary as to their external orientation, with the neomammalian (cognitive) brain most external in that it receives its information through signals conducted from the eyes, ears, and somatic receptors (MacLean, 1991, p. 19). MacLean's writings were influential in the 1950's and it is not surprising that they turned up, shortly thereafter, in psychological writings more explicitly identified with the mental trilogy.

Modern psychologists and the trilogy of mind

Silvan Tomkins, an evolutionary emotions psychologist, focussed on the function of psychological processes and may have been influenced by

MacLean's writings. Recall that MacLean saw the limbic system, which was largely emotional, as amplifying survival-related feelings; Tomkins raised this idea again, arguing that the emotion system's role was to amplify motivation. Recall also that MacLean described the neo-mammalian brain as more closely connected to the outside world than were the paleo-mammalian or reptilian brains. Tomkins was perhaps influenced by this comparison when he noted that the emotion system was directed toward the outside world whereas the conative system was directed to the internal world. Finally, Tomkins shared with MacLean and others of the time the use of an information-processing metaphor, describing conation, for example, as providing "readouts" of the organism's internal states.

For Tomkins, conation has evolutionary significance in that it "plays a central role in...self maintenance and reproduction" (Tomkins, 1962, p. 29) as well as an information-processing aspect in which "primitive signal and feedback mechanisms" provide a readout of the internal homeostatic rhythms of the organism (Tomkins, 1962, p. 124). Tomkins went on to carefully detail some of the characteristics that distinguished the conative system from the affective. For example, Tomkins noted that "internal states" trigger conation, and that conation is typically rhythmic. In contrast, "external stimuli" trigger emotion, and emotion follows no particular set timeline. These ideas have become generally accepted. For example, Robert Plutchik's (1980) side-by-side comparisons of conation and affect included those and other distinctions that had been outlined by Tomkins. Plutchik's comparisons can also be found in Table 1.

Tomkins and Plutchik both distinguish conation from emotion, with less attention paid to cognition (the cognition columns of Table 1 are essentially empty for these theorists). The conation-affect distinction was likely viewed as requiring more theoretical attention because motivation and emotion are so inextricably intertwined in behavior. There is something so different between conation and affect, on the one hand, and cognition, on the other, that the difference was often unattended to (Bain, 1855, p. 6, made this same point). Nonetheless, there are some difficulties involved in distinguishing conation and affect from cognition. A central problem is caused by the frequent use of an information-processing metaphor to describe both the functions of conation and affect. If both conation and affect are processing information, what is unique about cognition?

Tomkins' former student, Cal Izard, recently addressed this problem by distinguishing between non-cognitive and cognitive information processing. Non-cognitive information processing includes that accomplished by genetic

codes, chemical reactions, and "reflective instinctive, and biologically prepared or genetically disposed behavior" (Izard, 1993, p. 70). Cognitive processing, in contrast, "involves more general and flexible processes that operate on experience based learning and memory. Cognitive activities involves judgment, planning, problem-solving and understanding."

Trends in thinking on the trilogy across time

Considerable shifts in meaning of the trilogy's categories have taken place, even from Alexander Bain's writings in the late 19th century to the present. This progression reflects (to us) a cumulative understanding of the utility of the trilogy, and of the differences among the tripartite areas. Several trends appear to best describe this progression: a trend toward identifying the trilogy as taking place exclusively internal to personality, a trend toward localizing each member of the trilogy in one or more brain areas, a trend toward an information-processing metaphor to describe them, and a reformulation of each class so as to create a more meaningful trilogy.

The trend toward distinguishing the internal from the external. There has been a more or less constant recognition that conation, affect, and cognition are internal mental events, i.e., associated with brain function rather than with external events. Mendelssohn's comments that pleasure and pain change a person's will but not their cognition suggests that cognition is something intrinsically private, hidden and autonomous (Mendelssohn, 1755/1971, p. 66). A century later, Alexander Bain struggled to define will's internal location. Bain (1855, p. 2) referred to will as conative action that required the "putting forth of power to execute some work." Bain (1855, pp. 2-3) noted that, "In speaking of Action...as a characteristic of mind, we must render explicit the distinction between mental actions and such as are not mental." Bain's clarification that action was "a characteristic of mind," and therefore internal, was probably necessitated by his description of mental action as "putting forth power," which could readily be mis-understood as taking place externally. This metaphorical difficulty evaporated with MacLean's switch to the use of information processing metaphors for brain function, which suggested an internal computer.

The trend toward brain localization and information processing. Consistent with the internalization of these three processes was the attempt to find serious associations between the three classes and brain function. Although a non-scientific beginning to this pursuit originated with the phrenologists, serious connections awaited the works of MacLean, in

biological psychiatry, and Tomkins, in psychology. Although MacLean's work focussed on brain localization, Tomkins' work provided an interesting supplemental conception by extending localization to the larger nervous system. For example, "affects" were "sets of muscle and glandular responses closely associated with the brain's reticular activating system" (Tomkins, 1962, p. 243).

Along with the increased focus on the brain and nervous system was the aforementioned shift in metaphor from industrial machines to an information processing paradigm. Bain's view of conative action as the "putting forth of power to execute some work" seems embedded in his own era of mechanical engines, whereas Tomkins' (1962, p. 124) view that conation provides "signal and feedback mechanisms" of internal organismic information, seems embedded in an era of computers. Although the information processing metaphor is today dominant it is still possible that multiple metaphors can best describe the phenomenon, just as in physics, light is both described as a wave and a particle (Bohr, 1963). For example, conation seems best described by combining Bain's and Tomkins' descriptions, so that conation is said to provide "a primitive readout of the internal, more or less homeostatic rhythm of the organism", and generates "power to execute some work."

The trend toward finding more homogeneous categories at a common level of function. There has also been an important narrowing of the trilogy's members such that each category is individually more circumscribed, and so that they operate collectively at a common level of function. For example, Bain's category of affect originally included the three concepts of feeling, consciousness and sensation, whereas contemporary views have essentially restricted the category to emotions and closely related feeling states such as calmness and arousal. This narrowing of focus represented a growing recognition that consciousness, sensation, and affect are incommensurate processes that perform different functions, are localized separately, and therefore are best treated separately. In today's Introductory Psychology books, sensation has been paired off with perception, and consciousness is treated, if at all, in its own chapters. The remaining affect category retains only emotion and closely related feelings. This narrowed version of the affect category seems more parallel to the similarly narrowed categories of conation and cognition.

A similar and no less important transition occurred for conation, which originally referred to will, but with the transition from Mendelssohn to Tomkins has come to refer to more-or-less basic, unlearned motivations. The conation category now includes only basic motivations, which are, once

again, both more homogeneous, and easier to compare to the similarly revised category of affect.

The concepts of "will" and "consciousness", although excluded from the trilogy, were not plainly grouped with other parts of the mind. "Will" is perhaps covered in personality in discussing self-control and self-management. Consciousness, however, could perhaps form a fourth category added to the trilogy of conation, affect, and cognition - a possibility we examine shortly.

The trend toward emphasizing unlearned or innate qualities. As the categories of conation, affect, and cognition have been more narrowly focussed, the focus has been directed toward their unlearned or innate qualities. The effort to distinguish these three mental categories has almost always best succeeded when descriptions of them focus on their developmentally early, unlearned states. Thus, to say that motivations are "rhythmic", whereas emotions are not, is to emphasize such motivations as hunger, thirst, and sex, rather than more learned, less rhythmic motivations such as a desire for education or achievement. Similarly, to focus on the fact that emotions are triggered by external events is to emphasize their basic nature rather than more complex, learned emotions that might be triggered by reminiscence. This lower level, more mechanical conception was yet another reason to homogenize the categories and dispense with those parts, such as consciousness and will, that did not fit well. What remains in each category is a set of mechanisms, or basic functions of personality. Recall that it was their basic mechanical qualities that led to the label of *enablers* for conation, affect, cognition, because they help personality get the job done.

The reason this emphasis on innate, or minimally learned qualities of the enablers is so important, is that as learning increases, more complex structures are created that are less plainly divisible into the three categories. For, as the enablers engage together in more complex functions it is clear that they become inexorably combined and intertwined. There exist a relatively few pure psychological enablers: pure conative urges for food and water, or pure affective joy or sadness, and pure memory networks. Soon after these enablers begin work, they construct a much larger set of established thoughts that combine them. For example, a person develops models of the self, or a self concept, that includes conation (what I want), affect (what I feel about myself), and cognition (what I know about myself). But the general self-concept, which includes all three, by necessity integrates the enablers. It was sensitivity to this point that led McDougall (1923, p. 266) to say that the trilogy work cooperatively rather than individually:

We often speak of an intellectual or cognitive activity; or of an act of willing or of resolving, choosing, striving, purposing; or again of a state of feeling. But it is generally admitted that all mental activity has these three aspects, cognitive, conative, and affective; and when we apply one of these three adjectives to any phase of mental process, we mean merely that the aspect named is the most prominent of the three at that moment. Each cycle of activity has this triple aspect; though each tends to pass through these phases in which cognition, conation, and affection are in turn most prominent; as when the naturalist, catching sight of a specimen, recognizes it, captures it, and gloats over its capture.

The trend toward more limited inclusiveness. Through the time of Bain, some claim was made that the trilogy encompassed all mental function. With the increasingly focussed meaning of the three classes of mentation, it became easier to eject some concepts outside the trilogy. As has already been noted, sensation and perception were paired outside the trilogy. Similarly, will and consciousness were moved outside. The trilogy is no longer a trilogy of the entire mind, perhaps, but remains a critical trilogy operative within the more molecular, basic aspects of personality - and remains of considerable research importance.

Caveat emptor. This particular reading of the history of the trilogy of mind is, of course, our own, and alternatives are possible. The relational model of personality was constructed in part according to this reading of the evolution of the categories and employs those categories according to their outline here; alternative models are possible. Still, the relational model has very evident strengths in relation to classification models that have been developed before (see Mayer, 1995b), and it is worth, therefore, further considering how the trilogy of mind can be developed within it.

Clarifying the trilogy in an expanded quaternity of mind

Although conation, affect, and motivation have been narrowed and clarified across time, many of the original distinctions among them still apply, even more clearly. The above discussion, after all, has distinguished the three realms in several important ways. Phenomenological distinctions focus on different conscious experiences of the trilogy - that conation, affect, and motivation all "feel" differently from one another. Structural brain distinctions focus on differences in brain localization of the trilogy.

Functional distinctions focus on the different actions of the three systems, and so on. These distinctions, as well as a number of others, can be summarized across theorists in a new, enlarged format.

To create this summary, we chose the clearest statements from the Table 1, edited them, and supplemented them where necessary, in Table 2. Although Table 2 was constructed on the basis of the above discussion of the trilogy of mind, the table denotes a quaternity - consciousness has been added. Some comment is necessary on this.

As noted, Bain joined consciousness to feeling, but consciousness nowadays is just as likely to be joined to cognition (e.g., Bower, 1981), or denoted as a blackboard to represent all three (e.g., Bower & Cohen, 1982). In fact, consciousness is implicated whenever any of the three systems reach a high enough level of activation. For these reasons, it seems useful to separate consciousness from any single one of the other three and provide it with a place of its own. Because one interpretation of consciousness is that it is basic and elemental, a place among the enablers seems one possibility. Such a classification is useful from a systemic viewpoint because, just as the conative-enabler class includes urges, instincts, and mental energy, so a conscious-enabler class could include such components as the stream of consciousness, the phenomenal field, and so on. This provides a strong classificatory rationale, if nothing else, for provisionally converting the trilogy into a quaternity, with the addition of consciousness.

The Quaternity of Mind and Personality Dynamics

If the discussion until now seems removed from contemporary concerns that is one of the problems frequently encountered with discussions of classification. Contemporary research is concerned with dynamics - causal or mutual influences among different parts of personality. Another difference between the classification thus far and contemporary research is the sheer generality of the discussion. So far, we have talked of all affect as if it were a single entity, when in fact, it is divisible into many parts. The contemporary researcher, in contrast, typically is interested in more specific personality parts and their dynamics. So, whereas up-to-now we have discussed the interaction between affect and cognition, the researcher might be more interested in the influence of happiness on memory. Discussion at the global level has indisputable value, however, because it can make clear the conceptual background within which more specific research is conducted.

Table 2. Conation, Affect, Cognition, and Consciousness Compared.

Characteristic	Conation	Affect	Cognition	Consciousness
FUNCTION	To direct the organism to carry out basic acts so as to satisfy survival and reproductive needs	To organize a limited number of basic responses quickly, adaptively, and in an organized fashion; to link those responses to complex situational environments	To learn from the environment and to problem solve so as to assist with motives and emotions	To assign mental activity where needed; to intervene flexibly in conation, affect, or cognition, where new responses are called for
CONSCIOUS MANIFESTATIONS	If conscious, specific urges, e.g., to eat, to drink	If conscious, the pleasure and pain of objects and stimuli; also, specific emotions such as happiness, fear, anger, etc.	Conscious and unconscious parts; conscious examination of problem	Direct consciousness itself; also reflective awareness of existence
AGENCY	Involuntary	Partly involuntary; partly voluntary	Mostly voluntary	Partly voluntary; partly involuntary
DEVELOPMENTAL ONSET	Basic urges present immediately, including hunger, thirst, comfort..	Two or more basic emotions (e.g., pleasure, pain) present immediately; later development includes more complex emotions	Concrete reasoning early on, later the ability to reason with abstract information	Unknown; self-awareness from 18 months; continuous conscious identity from around age 3 with the end of infantile amnesia

Table 2 continued.

Characteristic	Conation	Affect	Cognition	Consciousness
INITIATION OF RESPONSE	Predominantly responsive to internal bodily states	Predominantly responsive to external environment	Responsive either to internal or external environment	Responsive to non-habituated, i.e., novel, or unusually intense, internal or external events
TEMPORAL CHARACTERISTICS	Motivations precede action; rise and fall rhythmically or cyclically	Emotions often respond to events; they possess no set timeline	Occurs any time; no set timeline	Alternates according to the sleep-wake cycle.
INFORMATIONAL SPECIFICITY	Specific as to what is lacking and what must be done	Identifies a class of possible events that must be addressed, without necessarily being specific	Either specific or general depending upon problem requirements, work accomplished, and mental capacity	Can incorporate and become aware of a wide variety of information; is very plastic in how it interprets information and proceeds
BRAIN LOCALIZATIONS	The limbic system is a subcortical structure, near the center of the cerebral hemispheres. It encircles the top of the brainstem. It is commonly divided into three tracts, or circuits, composed of different	Emotion is commonly associated with the limbic system, particularly with the amygdala, and secondarily with the hypothalamus. There is also recent evidence that the frontal cortex of the left hemisphere may	Information processing can be distinguished from higher level cognition. Although the entire brain processes information, we reserve cognition to encompass flexible processing based on learning and memory; this	May be located in the reticular activating system, or may be an emergent property of the mind as a whole

Table 2 continued.

Characteristic	Conation	Affect	Cognition	Consciousness
	structures. One mechanism of importance involves the hypothalamus which controls hormones that target various parts of the body and may regulate drives, e.g., of hunger and sex (Reeve, 1992).	specialize in processing positive emotion, the right hemisphere in negative.	includes judgment, planning, problem solving, and understanding. These are commonly viewed as dependent upon the association cortex and the cerebral cortex.	
DESCRIPTION OF QUANTITY	Unmotivated Motivated	Unemotional Emotional	Unthinking Thinking	Unconscious Conscious
SOCIALLY DESIRED AIMS	Constructive vs. Destructive Motivations	Pleasant vs. Unpleasant Emotions	Intelligent vs. Unintelligent Thinking	Spiritually conscious vs. self-conscious
OPEN VERSUS CLOSED/INACCESSIBLE	Accepting vs. Repressed	In Contact vs. Out of Contact with Feelings.	Flexible vs. Rigid	Receptive versus Unreceptive
JOINT MOLECULAR-MOLAR DEVELOPMENTAL CONTINUUM	*Basic urges, e.g., hunger, thirst, physical contact; **Learned motivations: e.g., pleasing others, achievement ***Functionally autonomous motives, e.g., doing a good job, helping others.	*Basic emotions; e.g. happiness, anger, fear **Complex emotions, e.g., shame, guilt, mixed emotions ***Sentiments (emotions attached to objects) e.g., loving one's country.	*Basic cognition: sensory motor operations, learning **Middle cognition: concrete operations, symbol learning ***Complex cognitions: formal operations, abstract thought.	*Basic consciousness **Reflective consciousness ***Higher consciousness (e.g., reflective, spiritual, etc.).

For example, such a general discussion can provide hints as to where the more important enabler-to-enabler interactions will take place. Treating conation, affect, cognition, and consciousness as equals would suggest there exist 6, i.e., $(4 \times 3)/2$, equivalently important sets of interactions to cover. An interesting alternative view, however, suggests that the central interactive areas among the classical trilogy will be more limited. Recall MacLean's triune brain that emerges in stages from conation to affect to cognition. If we assume adjoining areas (in terms of brain localization) have more interactions, greater interactions should occur between the adjoining areas of conation and affect, and affect and cognition, than between conation and cognition. This seems borne out by (our admittedly subjective impression of) today's research literature, which focusses on the former two interactions. Limitations of time and space have encouraged us to focus on the central conative-affective, and affective-cognitive interactions. The interactions between consciousness and the trilogy will be considered briefly at the end.

Conation and affect

To recap, conative phenomena concern include hunger, thirst, and reproduction. Conative functions chart homeostasis in the body and alert the organism about needs for survival and reproduction. Thus, hunger tells us we should eat; thirst tells us we should drink, and so forth. In contrast, affect is concerned with such feeling states as happiness, joy, and alertness. Its primary concern is to provide us with signals about our relations with external individuals and objects. Thus, happiness tells us we are in harmony with others, and anger that we are treated unjustly.

It is plain that conation and affect must serve the same master to some extent (e.g., overall personality). Thus, basic-level motivations provide constraints on emotions that ensure survival. Say you agree to eat your bagged lunch with someone late in the day. Then, during a walk in the woods you become hungry and think of the bagged lunch you brought along. You are likely to feel frustrated, but you won't eat immediately because you know it will make you feel guilty later. Should the motivation to eat become stronger, however, most people will eat, so as to promote their energy and clear-headedness - their likelihood for survival.

In the above instance, motivation (conation) and emotion work together, assessing different necessities, and balancing one against another. In that example, whether motivation or emotion "wins" is a matter of which signal (i.e., hunger or guilt) is the strongest. Often, however, more sophisticated

interactions may take place. For example, the emotion system (which is the more flexible) may "filter" motivations by allowing expression of those that are adaptive in a given situation, and by (at least temporarily) disallowing or suppressing those needs that are inappropriate. For example, if one is hungry, and there are people around who are eating, but none offer food, the original sense of hunger may be replaced by a feeling of injustice. An angry injustice might be a motivator for requesting food even though the act could be viewed as impolite or even improper (making a request might be suppressed by guilt). Say that, in this instance, the anger does replace the original hunger motivation and redirects the individual to ask for food. This is in part what Tomkins (1962, p. 22) meant when he wrote that "Affect...can mask motivation, or amplify the drive system so as to motivate the individual." Similarly, Oatley and Johnson-Laird (1987) view emotions as coordinating motivational urges and plans.

Finally, motivation and emotion may contribute to one another more directly. Say you become happy because you have accomplished an important goal. You may need companionship as a consequence, and the motivational system may provide urges - phenomenological bursts of energy - to assist you to pursue social companionship. As another example, you may suddenly become sad; motivationally you may need to return to your own territory, or as the present idiom has it, you "need space." Helpful or harmful though this motivational accompaniment may be that moment, it is hard to change its directional quality.

Research on the interaction between motivation and affect often reflects explorations in physiological, non-verbal communication, and evolutionary psychology. A review of such literature can be found in the chapter, "Motivation and Emotion," in Mook's (1996) textbook, *Motivation*. Because this area has been reviewed so recently, and because a large portion of it lies outside our own areas of expertise, we will move ahead to the relation between affect and cognition.

Affect and cognition

We have already recapped the affect system, focussing on its depiction of relationships between oneself and the external world. The cognitive system, on the other hand, is useful for more flexible understandings of the world and the events in it. One of affect's most important contributions to cognition is to prioritize it (Mandler, 1984). Thus, when working on a project, a fear of something going on at home, although distracting at first,

may turn one's attention to what is, ultimately, a higher priority to one's survival.

Not only do affects interrupt cognitions, but they can also change them in ways that may promote better judgment and creativity. One of the major influences of affect on cognition is through that of the mood-congruent cognition effect. Modified slightly from Mayer, Gaschke, Braverman, & Evans (1992, p. 129), the mood-congruent cognition effect:

...states that people's cognitions are sensitive to the correspondence between the pleasant-unpleasant quality of their mood and the pleasant-unpleasant connotations of their ideas. An affective match between a person's moods and ideas increases both the memorability and the judged merit, broadly defined, of those ideas. For example, mood-congruent concepts will be more readily learned and recalled. In addition, mood-congruent ideas will be judged richer in their associations, mood-congruent attributes will be judged as more applicable, mood-congruent examples of categories will be judged as more typical, and mood-congruent causes and outcomes will be judged more plausible.

It is possible to read into this effect another way mood facilitates cognition: As a person's moods shift, the shift will force changes in a person's perspective on the surrounding world. Changing perspectives, in turn, allows for creative thinking about a problem, and the construction of a greater number of alternative courses of action. Such mood shifts drag the cognitive system along with them, forcing alterations in thinking and motivating changes in perception, and potentially enhancing planning and creativity (see Mayer, 1986, or discussion in Mayer, McCormick, & Strong, 1995).

At a still broader level, cognitions seem to keep affects tolerable. That is, much thinking involves doing something for the emotion system, and consequently, for the motives those feelings relate to. This is what Tomkins (1962, p. 22) meant when he wrote that, "...this [affect] system is the primary provider of blueprints for cognition..." It is also at least loosely related to Freud's notion that the ego derives its energy from the id. The more one's emotions are satisfied, the less directive they are and the more chance the cognitive system has to operate well according to its own rules of logic, propositions, and formalism.

Although cognition follows the blueprint of affect, it can also turn around and change affect where affect (or motivation) seems

counterproductive. For example, cognitions can help manage affects when they get out of hand, and separate good or useful affects, from misleading ones. So-called meta- or reflective experiences of mood (e.g., "This mood is clear to me," "This feeling is unacceptable," etc.) involve cognitive attempts to evaluate and regulate moods so as to improve their responsiveness beyond a simple reflexive attempt at survival (e.g., Mayer & Gaschke, 1988; Mayer & Stevens, 1994; Salovey et al., 1995).

The recently developed concept of emotional intelligence (e.g., Mayer & Geher, 1996; Mayer & Salovey, in press; 1993; Salovey & Mayer, 1990) is basically a compendium of the areas in which emotion facilitates thought, and thought improves emotion. One recent definition of emotional intelligence (Mayer & Salovey, in press) describes it as including four broad classes of abilities:

...the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth.

The role of consciousness

It is hard to resist a mention of consciousness' function at this point. To us, consciousness plays a role similar to that of a family bulletin board upon which messages are placed (cf., Bower & Cohen, 1982, pp. 309-310). The consciousness "bulletin board," more specifically, receives messages from conation, affect, and motivation: urges, such as "need water," emotions, such as "anxiety", and thoughts, such as "I should talk more at my upcoming meeting to appear more assertive." Just as in a family, each member has different handwriting, so too, conation, affect, and cognition, have their own individually recognizable modalities, their signature phenomenology. An integrated personality recognizes messages from each source because it experiences each differently, and evaluates each system on its own terms, much as one evaluates messages from family members on the basis of their recognizable styles. That is, an adult personality uses consciousness to recognize that an urge is an urge, and as such, has a different status than a logical proposition. Ideally, it weighs the urge ("I am increasingly hungry") with the thought ("This project would best be finished before I eat") and wisely chooses which to follow depending on circumstances.

Conclusions and Other Considerations

The four enablers of conation, affect, cognition, and consciousness represent only the lower level portions of personality. Emerging from them are *establishments*, including models of the self, the world, and the self-in-the-world, and *themes*, coherent collections of features drawn from enablers and establishments that are expressed as behavioral traits. Conation, affect, and cognition work closely together to support these more complex structures. For example, research on cognition and affect as they extend into a person's models of the self and world (i.e., *establishments*) are being conducted by Fiske and her colleagues on affect-triggered schemata (Fiske, 1982); by Higgins and his colleagues on self-schema and affect (Higgins, 1987), and by Petty and his colleagues on attitudes (e.g., Priester & Petty, 1996).

Summary. Researchers in the area of cognition and affect are, by virtue of their interdisciplinary interest, unusually broad in the problems they pursue. Successful research across affect and cognition may be facilitated by better understanding the scope of affect and cognition, the distinctions between them, and their relationship to personality. To better understand cognition and affect, their original grouping: *conation, affect, and cognition* - the so-called trilogy of mind - was examined in considerable detail. We provided a historical review of the trilogy of mind and attempted to discover some trends in their evolving meaning. The definitions of conation, affect, cognition, were refined and updated. An alteration of the trilogy to a quaternity was recommended so as to include consciousness. This quaternity/trilogy was located within one possible contemporary model of personality, the *relational* model. Finally, the relevance of the quaternity and the interactions among its members were briefly applied to a discussion of some contemporary research in cognition and affect.

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