

The Five-Factor Theory of Personality

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EMPIRICAL AND CONCEPTUAL BASES OF A PERSONALITY THEORY

In a narrow sense, the five-factor model (FFM) of personality is an empirical generalization about the covariation of personality traits. As Digman and Inouye (1986) put it, “if a large number of rating scales is used and if the scope of the scales is very broad, the domain of personality descriptors is almost completely accounted for by five robust factors” (p. 116). The five factors, frequently labeled Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C), have been found not only in the peer rating scales in which they were originally discovered (Tupes & Christal, 1961/1992), but also in self-reports on trait descriptive adjectives (Saucier, 1997), in questionnaire measures of needs and motives (Costa & McCrae, 1988), in expert ratings on the California Q-Set (Lanning, 1994), and in personality disorder symptom clusters (Clark & Livesley, 2002). Much of what psychologists mean by the term “personality” is summarized by the FFM, and the model has been of great utility to the field by integrating and systematizing diverse conceptions and measures.

In a broader sense, the FFM refers to the entire body of research that it has inspired, amounting to a reinvigoration of trait psychology itself. Research associated

with the FFM has (1) included studies of diverse populations (McCrae, Terracciano, et al., 2005a), often followed over decades of the lifespan (Terracciano, Costa, & McCrae, 2006); (2) employed multiple methods of assessment (Funder, Kolar, & Blackman, 1995); and (3) even featured case studies (Costa & McCrae, 1998a; McCrae, 1993–1994). As Carlson (1984) might have predicted, these research strategies have paid off handsomely in substantive findings: The FFM “is the Christmas tree on which findings of stability, heritability, consensual validation, cross-cultural invariance, and predictive utility are hung like ornaments” (Costa & McCrae, 1993, p. 302). After decades of floundering, personality psychology has begun to make steady progress, accumulating a store of replicable findings about the origins, development, and functioning of personality traits (McCrae, 2002a).

But neither the model itself nor the body of research findings with which it is associated constitutes a theory of personality. A theory organizes findings to tell a coherent story, to bring into focus those issues and phenomena that can and should be explained. As Mayer (1998) argued, personality may be viewed as a system, and an adequate theory of personality must provide a definition of the system, a specification of its components, a model of their organization and interaction, and an account of the system’s development. Five-

factor theory (FFT; McCrae & Costa, 1996) represents an effort to construct such a theory that is consistent with current knowledge about personality. In this chapter we summarize and elaborate it.

The FFM and Trait Theory

Although the FFM is not a theory of personality, McCrae and John (1992) argued that it implicitly adopts the basic tenets of *trait theory*: that individuals can be characterized in terms of relatively enduring patterns of thoughts, feelings, and actions; that traits can be quantitatively assessed; that they show some degree of cross-situational consistency; and so on. The hundreds of studies of personality correlates that employ measures of the FFM both presume and confirm that personality traits exist.

It is therefore somewhat surprising that, in a volume on its theoretical basis (Wiggins, 1996), some of the psychologists most closely associated with the FFM explicitly disavowed a trait perspective. Saucier and Goldberg (1996) stated that their “lexical perspective is not an instance of ‘trait theory,’” which they described as “a rubric that may have no meaning outside introductory personality texts” (p. 25). They are concerned only with the phenotypic level of personality and do not even presume that trait descriptive adjectives refer to temporally stable attributes. Hogan (1996), who advocates a socioanalytic perspective, argued that personality attributes are not neuropsychic structures within the individual, but “categories that people use to evaluate one another” that “reveal the amount of status and acceptance that a person has been granted” (p. 173). Responses to personality questionnaires, according to Hogan, are not veridical self-descriptions but strategic self-presentations; socioanalytic theory does not presume that there is any “link between item endorsements and other behavior” (p. 176). Wiggins and Trapnell (1996) follow Sullivan in seeing the locus of personality not within the individual but in patterns of interpersonal relationships; their major conceptual orientation is guided by the metatheoretical concepts of agency and communion.

Perhaps these positions can be understood historically as reactions to the disrepute into which traits had fallen in the 1970s. Today, however, they seem needlessly modest:

Why restrict theoretical ambitions to the phenotypic level, especially in light of the accelerating advances in behavior genetics? Why not postulate temporal stability for traits, when stability is already well documented? Why doubt neuropsychic structures exist when many neuroscientists are explicating the biological bases of personality (Canli, 2006)? Why locate personality only in interpersonal space, as Wiggins and Trapnell did, when we can understand interpersonal behavior as a result of characteristics within the individual (Côté & Moskowitz, 1998)? FFT is unabashedly a trait theory, making full use of the empirical results of the last two decades that constitute the FFM in the broader sense.

Personality traits are recognized by laypersons, who have a rich vocabulary for describing themselves and others (e.g., *anxious, bold, curious, docile, efficient*), and traits have been studied formally by psychologists from Francis Galton to Gordon Allport to Hans Eysenck. Despite theoretical distinctions, on an empirical level other individual-difference variables (including needs, types, and folk concepts) appear to be closely related to traits (Costa & McCrae, 1988; McCrae & Costa, 1989; McCrae, Costa, & Piedmont, 1993). In fact, most psychological questionnaires measure some form of personality trait, broadly construed.

Traits (under one name or another) have proven so very interesting to personality psychologists because they explain much of what defines the individual person—the chosen focus of personologists. Universal characteristics—such as the need for oxygen or the capacity for language—tell us much about the species but nothing about the individual. Conversely, specific behaviors, transient moods, and biographical details tell us about the individual-in-context but may not permit generalizable insights. From the perspective of trait theory, these two levels appear to yield only truisms and trivia. By contrast, traits point to more-or-less consistent and recurrent patterns of acting and reacting that simultaneously characterize individuals and differentiate them from others, and they allow the discovery of empirical generalizations about how others with similar traits are likely to act and react.

As a practical matter, trait psychologists do routinely ignore the universal and the particular in their research. Except when dealing with very unusual populations, trait

researchers do not bother to remind readers that their subjects could understand the questionnaires, had self-concepts on which to base their self-reports, and continued to breathe normally for the duration of the testing session. Nor, except in the occasional case study, do they give concrete instances of how traits are expressed in specific times and circumstances.

But a theory of personality cannot afford to ignore these two levels of explanation. Part of making sense of trait findings requires putting them into a broader context and showing how they, in turn, form the context for specific behaviors and individual lives. In Mayer's (1998) terminology, the trait system must be identified in terms of its boundaries with other systems, higher and lower. These links form a recurrent theme in this chapter.

Assumptions about Human Nature

The trait perspective, like every personality theory, is based on a set of assumptions about what people are like and what a theory of personality ought to do. Most of these assumptions—for example, that explanations for behavior are to be sought in the circumstances of this life, not karma from a previous one—are implicit. FFT explicitly acknowledges four assumptions about human nature (cf. Hjelle & Siegler, 1976)—its *knowability*, *rationality*, *variability*, and *proactivity*; all of these appear to be implicit in the standard enterprise of trait research.

Knowability is the assumption that personality is a proper object of scientific study. In contrast to some humanistic and existential theories that celebrate human freedom and the irreducible uniqueness of the individual, FFT assumes that there is much to be gained from the scientific study of personality in individuals and groups.

Scientific study does not necessarily imply experimentation, nor do we agree with Eysenck (1997) that a persuasive paradigm for personality psychology must involve a unification of correlational and experimental methods. Science proceeds by many methods and works best when the method is dictated by the nature of the problem rather than academic fashion and prestige. In particular, correlational methods can capitalize on natural experiments, especially in longitudinal, twin, and cross-cultural studies. Yang,

McCrae, and Costa (1998), for example, explored the impact of China's Cultural Revolution on personality development—a quasi-experimental manipulation whose scope, intensity, and duration could never be matched in the laboratory.

Rationality is the assumption that people are generally capable of understanding themselves and others (cf. Funder, 1995). This is an unpopular view. Psychoanalysts hold that people are driven by unconscious forces; their self-understanding is fundamentally self-deception. Contemporary social psychologists (and personologists; see Robins & John, 1997) document cognitive biases and errors, and Jussim (2005) noted that reading social psychology convinces most of his students that “people are fundamentally irrational” (p. 7). That perspective in social psychology can perhaps be traced back to Simon (1957), who responded to simplistic models of economic behavior that assumed pure rationality on the part of consumers by proposing the concept of *bounded rationality*—rationality limited by the imperfections of human thought processes. Perhaps it is time for the pendulum to swing back, and to describe human thought and behavior in terms of *bounded irrationality*, for if our perceptions and judgments were wholly out of touch with reality, we would not have survived as a species. Jussim cites reviews of scientific evidence of accuracy in a wide range of human judgments, and studies of cross-observer agreement (e.g., McCrae et al., 2004) show that this accuracy applies also to judgments about personality traits.

In this respect, trait psychology is an unusual science. As Kagan (2005) noted, “No biologist would use the reports of informants to decide on the basic human diseases” (p. 7). But trait psychologists routinely—and properly—ask people how sociable or competitive or irritable they are, and interpret the answers (suitably aggregated and normed) as meaning what they say. Psychologists are able to do this because with respect to personality traits, laypersons are extraordinarily sophisticated judges who employ a trait language evolved over centuries to express important social judgments (cf. Saucier & Goldberg, 1996). Kagan's objection is a reasonable basis for requiring evidence of the validity of self-reports, but he failed to point out that such evidence is abundant: The dimensions of personality revealed by analyses

of lay self-reports are confirmed in the ratings of expert observers (Lanning, 1994), reflected in behavior counts (Funder & Sneed, 1993), based on the structure of the genotype (Yamagata et al., 2006), and so on.

The assumption of rationality does not mean that FFT is merely folk psychology. Lay understanding is largely limited to a superficial level, whereas FFT attempts to account for the underlying structure and its operations. People understand whether someone is arrogant or modest, but they do not intuitively know the heritability of modesty, or its lifespan developmental course, or its evolutionary significance. To laypeople, trait psychology is thus like representational art: Viewers recognize the face or flower, although they may know nothing about the laws of perspective or the techniques of overpainting.

Variability asserts that people differ from each other in psychologically significant ways—an obvious premise for differential psychology. Note, however, that this position sets trait theories apart from all those views of human nature, philosophical and psychological, that seek a single answer to what human nature is really like. Are people basically selfish or altruistic? Creative or conventional? Purposeful or lazy? Within FFT, those are all meaningless questions; terms such as “creative” and “conventional” define opposite poles of dimensions along which people vary.

Proactivity refers to the assumption that the locus of causation of human action is to be sought in the person. It goes without saying that people are not absolute masters of their destinies, and that (consistent with the premise of variability) people differ in the extent to which they control their lives. But trait theory holds that it is worthwhile to seek the origins of behavior in characteristics of the person. People are not passive victims of their life circumstances, nor are they empty organisms programmed by histories of reinforcements. Personality is actively—and interactively—involved in shaping people’s lives (Soldz & Vaillant, 1999).

It is important to recognize that proactivity of personality is not equivalent to proactivity of the person; an individual’s proactive traits are not necessarily the same as his or her conscious goals. Failure to adhere to a diet may be as much an expression of an individual’s personality as success in dieting;

anxiety and depression may be a person’s own natural, albeit noxious, way of life.

A UNIVERSAL PERSONALITY SYSTEM

Personality traits are individual-difference variables; to understand them and how they operate, it is necessary to describe personality itself, the dynamic psychological organization that coordinates experience and action. Previously we described our account of this as a “model of the person,” but to distinguish it from the FFM, it would perhaps be better to call it the FFT *personality system* (Costa & McCrae, 1994; McCrae & Costa, 1996). This system is represented schematically in Figure 5.1.

Components of the Personality System

The personality system consists of *components* that correspond to the definitions of FFT and *dynamic processes* that indicate how these components are interrelated—the basic postulates of FFT. The definitions would probably seem reasonable to personologists from many different theoretical backgrounds; the postulates distinguish FFT from most other theories of personality and reflect interpretations of empirical data.

The core components of the personality system, indicated in rectangles in Figure 5.1, are designated as *basic tendencies*, *characteristic adaptations*, and the *self-concept*—which is actually a subcomponent of characteristic adaptations, but one of sufficient interest to warrant its own box. The elliptical peripheral components, which represent the interfaces of personality with adjoining systems, are labeled *biological bases*, *external influences*, and the *objective biography*. Figure 5.1 can be interpreted cross-sectionally as a diagram of how personality operates at any given time; in that case the external influences constitute the situation or context, and the objective biography is a specific instance of behavior, the output of the system. Figure 5.1 can also be interpreted longitudinally to indicate personality development (in basic tendencies and characteristic adaptations) and the evolution of the life course (objective biography).

It may be helpful to consider some of the substance of personality to flesh out the abstractions in Figure 5.1. Table 5.1 presents

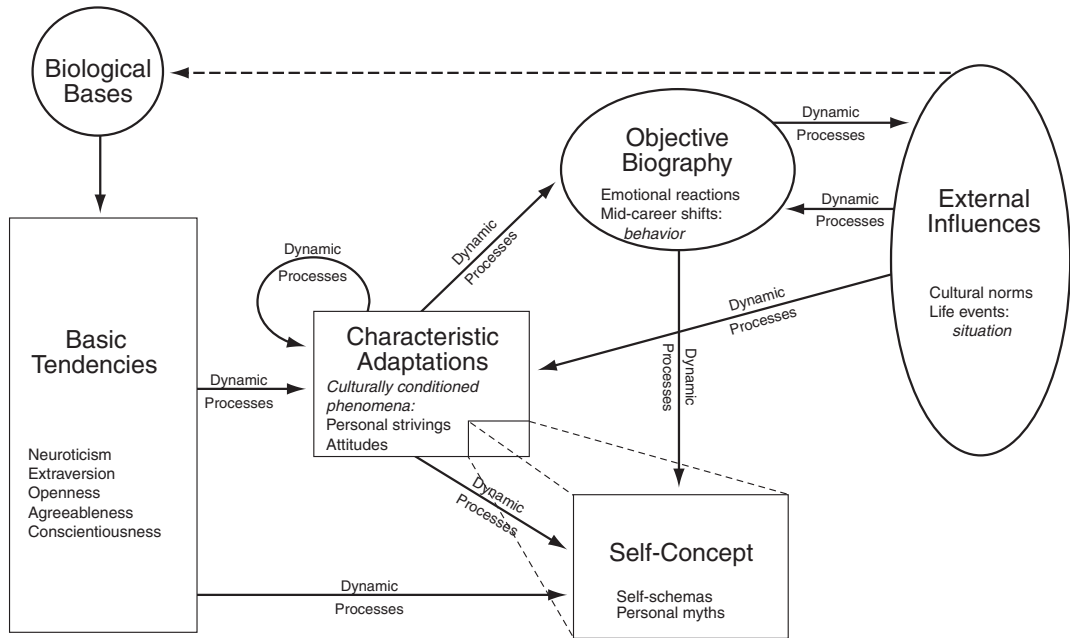


FIGURE 5.1. A representation of the five-factor theory personality system. Core components are in rectangles; interfacing components are in ellipses. From McCrae and Costa (1996).

some examples. For each of the five factors, a single facet (one of the specific traits that define the factor) is identified as a basic tendency in the first column of the table. The intrapsychic and interpersonal features that develop over time as expressions of these facet traits are illustrated as characteristic adaptations in the second column, and the third column mentions an instance of behavior—a datum from the objective biography—of an individual characterized by the high or low pole of the facet.

At present, FFT has relatively little to say about the peripheral components of the personality system. Biological bases certainly include genes and brain structures, but the precise mechanisms—developmental, neuroanatomical, or psychophysiological—are not yet specified. Similarly, FFT does not detail types of external influences or aspects of the objective biography. Like most theories of personality, FFT presumes that “situation” and “behavior” are more or less self-evident.

What FFT does focus attention on is the distinction between *basic tendencies* (abstract psychological potentials) and *characteristic adaptations* (their concrete manifestations in the personality system). Some-

what similar distinctions have been made by others—for example, in the familiar contrast of genotypic and phenotypic traits (Wiggins, 1973/1997), and in McCAdams’s (1996) distinction between Level 1 and Level 2 personality variables. FFT, however, insists on a distinction that other theories usually make only in passing, and it assigns traits exclusively to the category of basic tendencies. In FFT, traits are not patterns of behavior (Buss & Craik, 1983), nor are they the plans, skills, and desires that lead to patterns of behavior (Johnson, 1997). They are directly accessible neither to public observation nor to private introspection. Instead, they are deeper psychological entities that can only be *inferred* from behavior and experience. Self-reports of personality traits are based on such inferences, just as observer ratings are.

Although it seems to smack of obfuscation, there are good reasons to uncouple personality traits from the more observable components of personality. Characteristic adaptations—habits, attitudes, skills, roles, relationships—are influenced both by basic tendencies and by external influences. They are *characteristic* because they reflect the enduring psychological core of the individual, and they are *adaptations* because they help

TABLE 5.1. Some Examples of FFT Personality System Components

Basic tendencies	Characteristic adaptations	Objective biography
Neuroticism N3: Depression (a tendency to experience dysphoric affect—sadness, hopelessness, guilt)	Low self-esteem, irrational perfectionistic beliefs, pessimistic attitudes	“Betty” (very high N3) feels guilty about her low-prestige job (Bruehl, 2002)
Extraversion E2: Gregariousness (a preference for companionship and social stimulation)	Social skills, numerous friendships, enterprising vocational interests, participation in team sports, club memberships	J.-J. Rousseau (very low E2) leaves Paris for the countryside (McCrae, 1996)
Openness to Experience O4: Actions (a need for variety, novelty, and change)	Interest in travel, many different hobbies, knowledge of foreign cuisine, diverse vocational interests, friends who share tastes	Diane Ackerman (high O4) cruises the Antarctic (McCrae, 1993–1994)
Agreeableness A4: Compliance (a willingness to defer to others during interpersonal conflict)	Forgiving attitudes, belief in cooperation, inoffensive language, reputation as a pushover	Case 3 (very low A4) throws things at her husband during a fight (Costa & McCrae, 1992a)
Conscientiousness C4: Achievement Striving (strong sense of purpose and high aspiration levels)	Leadership skills, long-term plans, organized support network, technical expertise	Richard Nixon (very high C4) runs for president (Costa & McCrae, 2005)

the individual fit into the ever-changing social environment. Characteristic adaptations and their configurations inevitably vary tremendously across cultures, families, and portions of the lifespan. *But personality traits do not*: The same five factors are found in all cultures studied so far (McCrae & Costa, 1997b; McCrae, Terracciano, et al., 2005a); parent-child relations have little lasting effect on personality traits (Rowe, 1994); and traits are generally stable across the vicissitudes of the adult lifespan (McCrae & Costa, 2003). These well-replicated empirical generalizations make sense only if personality traits are insulated from the direct effects of the environment. Human nature is proactive because personality traits are endogenous basic tendencies (McCrae et al., 2000).

Operation of the System

The welter of arrows in Figure 5.1 indicate some of the most important paths by which personality components interact. The plural *processes* is used because many quite distinct processes may be involved in each pathway. For example, the arrow from *objective biography* to *self-concept* implies that we learn who we are, in part, from observing what we

do. But interpreting what we have done may involve social comparison, selective attention, defensive denial, implicit learning, or any number of other cognitive-affective processes. (Evolutionary psychologists such as Buss [1991; see also Chapter 2, this volume] have also emphasized that there are likely to be a very large number of evolved psychological mechanisms for specific problems in adaptation.)

One implication is that personality theories that posit a small handful of key dynamic processes (e.g., repression, learning, self-actualization, getting ahead and getting along) are unlikely to prove adequate. Another is that psychologists who prefer to study processes instead of traits—“doing” instead of “having” (Cantor, 1990)—face the challenging prospect of identifying the most important of these many processes to study. There is as yet nothing like an adequate taxonomy of processes, and creating such a taxonomy should become a priority for personality theorists. FFT acknowledges the issue of multiple dynamic processes and specifies important categories of processes that share a common function in the organization of the personality system. It does not, however, detail the specifics. A complete theory of per-

sonality will ultimately include subtheories that elaborate on such specific topics.

Table 5.2 lists 16 postulates intended to specify how the personality system operates (McCrae & Costa, 1996, 2006b). Postulates 1b through 2b spell out the ways in which traits develop from biological bases and interact with the environment to create characteristic adaptations (or maladaptations). Postulate 5a says that behavior is a function

of the interaction of characteristic adaptations and external influences. An example of the operation of the system is provided by the need for closure (Kruglanski & Webster, 1996). This tendency to “seize” the first credible answer and to “freeze” on one’s initial decisions was shown to be strongly inversely related to Openness to Experience. It is easy to imagine the paths by which such habits of thought might develop:

TABLE 5.2. FFT Postulates

1. Basic tendencies

1a. Individuality. All adults can be characterized by their differential standing on a series of personality traits that influence patterns of thoughts, feelings, and actions.

1b. Origin. Personality traits are endogenous basic tendencies that can be altered by exogenous interventions, processes, or events that affect their biological bases.

1c. Development. The development of personality traits occurs through intrinsic maturation, mostly in the first third of life but continuing across the lifespan; and through other biological processes that alter the basis of traits.

1d. Structure. Traits are organized hierarchically from narrow and specific to broad and general dispositions; Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness constitute the highest level of the hierarchy.

2. Characteristic adaptations

2a. Adaptation. Over time, individuals react to their environments by evolving patterns of thoughts, feelings, and behaviors that are consistent with their personality traits and earlier adaptations.

2b. Maladjustment. At any one time, adaptations may not be optimal with respect to cultural values or personal goals.

2c. Plasticity. Characteristic adaptations change over time in response to biological maturation, social roles and/or expectations, and changes in the environment or deliberate interventions.

3. Objective biography

3a. Multiple determination. Action and experience at any given moment are complex functions of all those characteristic adaptations that are evoked by the situation.

3b. Life course. Individuals have plans, schedules, and goals that allow action to be organized over long time intervals in ways that are consistent with their personality traits.

4. Self-concept

4a. Self-schema. Individuals maintain a cognitive–affective view of themselves that is accessible to consciousness.

4b. Selective perception. Information is selectively represented in the self-concept in ways that (i) are consistent with personality traits; and (ii) give a sense of coherence to the individual.

5. External influences

5a. Interaction. The social and physical environment interacts with personality dispositions to shape characteristic adaptations, and with characteristic adaptations to regulate the flow of behavior.

5b. Apperception. Individuals attend to and construe the environment in ways that are consistent with their personality traits.

5c. Reciprocity. Individuals selectively influence the environment to which they respond.

6. Dynamic processes

6a. Universal dynamics. The ongoing functioning of the individual in creating adaptations and expressing them in thoughts, feelings, and behaviors is regulated in part by universal cognitive, affective, and volitional mechanisms.

6b. Differential dynamics. Some dynamic processes are differentially affected by basic tendencies of the individual, including personality traits.

Note. Adapted from McCrae and Costa (1996, 2006b).

Lacking a need for change and uncertainty, closed people come to prefer a simple, structured, familiar world. Through experience they discover that tradition, conventionality, and stereotypes offer tried-and-true answers that they can adopt without much thought. They begin to think of themselves as conservative, down-to-earth people, and they seek out like-minded friends and spouses who will not challenge their beliefs. Thus, Basic Tendencies of closedness develop into preferences, ideologies, self-construals, and social roles; these Characteristic Adaptations habitualize, legitimize, and socially support a way of thinking that expresses a high need for closure. (Costa & McCrae, 1998b, p. 117)

Revisions to FFT

The postulates in Table 5.2 are empirically testable, and in fact most of them are based on a body of empirical literature. In a few cases, recent data have suggested the need for revision or clarification of some of the original postulates, and we have proposed new versions (McCrae & Costa, 2006b).

Most of the 16 postulates are apparently not controversial. No one seems to dispute that people have a self-concept (4a) or that some characteristic adaptations may be maladaptive (2b). In fact, much research has tied maladaptive *DSM-IV* personality disorders to personality traits, consistent with FFT (Costa & Widiger, 2002). Although they did not couch it as a test of FFT, McAdams and his colleagues (2004) recently published data that support Postulate 4b, *selective perception*. McAdams believes that people come to understand themselves not by amassing a catalogue of relevant descriptors but by constructing a coherent life narrative (McAdams, 1996; see also Chapter 8, this volume). Given that interpretation of the self-concept, Postulate 4b implies that life narratives should be consistent with personality traits, and this is precisely what McAdams and colleagues found. Stories with themes of sadness and distress were associated with Neuroticism; themes of love and friendship were associated with Agreeableness; and the complexity of the narratives was strongly related to Openness to Experience.

There are, however, three postulates that have been challenged by recent literature and should be reconsidered.

Issues of Structure

Postulate 1d, *Structure*, claims that the five factors “constitute the highest level of the hierarchy.” In a major article on personality structure, Markon, Krueger, and Watson (2005) suggested that, although the five factors are most fundamental, there are even broader higher-order factors: At the higher levels, Extraversion and Openness combine to form Digman’s (1997) Personal Growth factor, β ; Agreeableness and Conscientiousness combine to form (low) Disinhibition; and Disinhibition and Neuroticism merge into Digman’s (low) Socialization factor, α . Markon and colleagues argued that each of these levels corresponds to a major model in the literature, and that all of them are useful for some purposes. Should we revise Postulate 1d?

Not yet. In 1999 we argued that Digman’s factors might well be artifacts of evaluation, specifically, that Socialization corresponded to (low) negative valence, and Personal Growth to positive valence (McCrae & Costa, 1995a). Paulhus and John (1998) argued similarly that factors such as α and β arise from moralistic and egoistic self-enhancing biases. Strong evidence in favor of an artifactual interpretation was offered by Biesanz and West (2004), who reported multitrait, multimethod confirmatory factor analyses of self-reports and peer and parent ratings. Within informant type (e.g., self-reports), where evaluative biases are shared, the five factors were intercorrelated as Digman predicted. Across informant types, however, the five factors were orthogonal. This study raises the question of whether the higher-order factor structure reported by Markon and colleagues (2005) is a product of monomethod assessment: “Theoretical frameworks that integrate [FFM factors] as facets of a broader construct may need to be reexamined” (Biesanz & West, 2004, p. 871). A lexical study that examined a two-factor solution also failed to replicate Digman’s factors (Ashton, Lee, & Goldberg, 2004). However, recent unpublished analyses suggest that the Digman structure may be the result of both within-method bias and substantive higher-order associations; if such findings are replicated, some modification of Postulate 1d would be warranted.

Other researchers dispute the claim that personality is well described by only five fac-

tors. Ashton, in particular, has energetically pushed the case for a six-factor, HEXACO, model (Ashton & Lee, 2005; Ashton, Lee, Perugini, et al., 2004). He has argued that in lexical studies, a sixth factor of Honesty-Humility is identified, and that some of the other factors are reoriented. But honesty and humility correspond conceptually and empirically to the Straightforwardness and Modesty facets of Agreeableness (Ashton & Lee, 2005), as assessed by the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992a). In natural languages there are likely to be many terms related to Agreeableness/Honesty, because these traits are so central to social interactions. In this large collection of variables, relatively subtle distinctions may be sufficient to define different factors, and in this case it appears that the more introverted aspects of Agreeableness (Honesty and Humility) are distinguished from the more extraverted aspects. Both, however, can be subsumed by the broader Agreeableness factor found in the NEO-PI-R.

Cheung has also advocated a sixth factor, which was defined by scales from the Chinese Personality Assessment Inventory (CPAI) such as Face, *Ab-Q* Mentality (Defensiveness), and Thrift vs. Extravagance, representing indigenous Chinese personality constructs. The sixth factor was initially called Chinese Tradition (Cheung & Leung, 1998). Subsequent research in non-Chinese samples showed a similar factor and led to a broader label, Interpersonal Relatedness (Cheung, Cheung, Leung, Ward, & Leong, 2003). In a joint factor analysis of the CPAI and item parcels from the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992a), a six-factor solution showed an Interpersonal Relatedness factor defined solely by scales from the CPAI. But a five-factor solution simply redistributed the Interpersonal Relatedness scales among the usual FFM factors. For example, Face loaded on the N factor, *Ab-Q* Mentality on the (low) A factor, and Thrift on the C factor. The FFM is sufficiently comprehensive to include all these indigenous Chinese constructs.

Issues of Development

The original statement of the development postulate (1c in Table 5.2) asserted that traits “reach mature form in adulthood; thereafter

they are stable.” This statement was perhaps misleading; it has apparently been interpreted to mean that traits are absolutely immutable after full adulthood is reached (Roberts, Walton, & Viechtbauer, 2006; Srivastava, John, Gosling, & Potter, 2003), which was not our intended meaning. At the time that we formulated this postulate, we did not have good evidence of normative mean-level change after age 30, but we already knew that individual differences were not perfectly stable. In 1992 we had estimated that only “about three-fifths of the variance in personality traits is stable across the full adult age range. Is there change as well as stability in individual differences?” we asked. “Yes, of course” (Costa & McCrae, 1992b, p. 182). Perhaps our postulate should have read “*relatively* stable.”

Curiously, new analyses spanning over 40 years suggest that our earlier assessment actually underestimated the long-term stability of individual differences, because the decay of stability reaches a non-zero asymptote after about 20 years (Jones, Livson, & Peskin, 2006; Terracciano et al., 2006). Perhaps four-fifths of the true-score variance is stable across the adult lifespan. But even that estimate is inconsistent with the “immutability” interpretation of Postulate 1c.

Furthermore, we now know that there are continuing mean-level changes after age 30 in all five factors (Roberts et al., 2006; Terracciano, McCrae, Brant, & Costa, 2005), although they are very gradual. The 30-year-old extravert is still likely to be an extravert at age 70, though not quite as active or keen on excitement. Finally, there appear to be a few individuals who change substantially (although such changes have not been demonstrated across methods; see McCrae, 1993; Watson & Humrichouse, 2006). We could revise Postulate 1c to say “relatively stable for most people,” or we could specify more concretely what we now think we know (e.g., “with an accelerating decline in activity and a small increase in warmth”), but the major postulates of a theory are not meant to be repositories of technical information that may need to be updated with each new study. The real point of our development postulate is that the course of personality development is determined by biological maturation, not by life experience, and the statement in Table 5.2 now reflects that view.

But personality development is a broader topic than the development of traits. Postulate 2a acknowledges that characteristic adaptations also evolve over time, and Postulate 3b notes that the life course unfolds under the enduring influence of traits. But characteristic adaptations and the life course are also determined by the environment, in part by shared age norms and expectations (cf. Roberts, Wood, & Smith, 2005), although the influence of age norms appears to have declined in modern societies (Neugarten, 1982). The developmental psychology of characteristic adaptations is a fertile field for future research and theorizing.

Issues of Origin

Postulate 1b is even more controversial, because it denies any role to the environment in determining trait levels. Decades of personality theorizing on the role of childrearing in shaping adult personality are supported by almost no empirical data, except perhaps in extreme cases (Caspi et al., 2002). The debate on the role of adult experience in shaping personality continues. As the next section shows, the evidence for Postulate 1b is stronger now than it was in 1996. Most behavior genetic studies have continued to show little or no role for the shared environment (Bouchard & Loehlin, 2001), and ambitious attempts to pin down substantive contributions of the non-shared environment have largely failed (Reiss, Neiderhiser, Hetherington, & Plomin, 2000). However, a number of studies have reported findings that seem to imply some role for the environment:

- Living in Canada increased Openness and Agreeableness among Chinese undergraduates (McCrae, Yik, Trapnell, Bond, & Paulhus, 1998).
- Work experiences were associated with personality changes in young adults (Roberts, Caspi, & Moffit, 2003).
- Physical demands and hazardous work conditions were associated with a decline in trust over a 10-year interval (Sutin & Costa, 2008).
- General cultural changes led to changes in personality traits (Roberts & Helson, 1997).
- Large cohort differences were found in Extraversion in successive generations of college students (Twenge, 2001).

- In women, the experience of divorce was related to decreased dominance (Roberts, Helson, & Klohnen, 2002).
- In women, the experience of divorce was related to increased Extraversion (Costa, Herbst, McCrae, & Siegler, 2000).

Readers sympathetic to the environmental causation hypothesis may take this list as powerful evidence that FFT is flawed, and that there are indeed environmental influences on basic tendencies. But in fact the data do not bear close scrutiny. Dominance is strongly related to Extraversion, so why do the Roberts and colleagues' (2002) and Costa and colleagues' (2000) studies reach opposite conclusions on the effect of divorce? Twenge's (2001) dramatic cohort effects were not replicated in a study of nearly 2,000 adults assessed repeatedly over 15 years (Terracciano et al., 2005). The analyses in Roberts, Caspi, and Moffit are causally ambiguous: They showed that personality changes between ages 18 and 26 were associated with work variables at age 26, but it was not clear whether the changes preceded or followed the work experience. Finally, with the exception of McCrae and colleagues (1998), these studies relied exclusively on self-report data, so we do not know whether they reflected changes in personality or merely changes in the self-concept or reporting biases. Under certain conditions the environment may directly affect traits, but that effect has not yet been reliably or pervasively demonstrated.

However, there is one undeniable way in which the environment can affect personality traits, and that is through the mediation of biological bases. A metal rod through the brain of 19th-century railroad worker Phineas Gage created dramatic changes in his personality. More benignly, psychotropic medications can affect personality traits (Bagby, Levitan, Kennedy, Levitt, & Joffe, 1999). Psychotherapy, a nonbiological intervention, can cure depression (a brain disease; Mayberg et al., 2000) and thus lead to changes in personality trait levels (Costa, Bagby, Herbst, & McCrae, 2005). These findings suggest the rephrasing of Postulate 1b in Table 5.2 and lead to the introduction of a new arrow in Figure 5.1, dashed to indicate that it occurs outside the confines of personality proper.

New Cross-Cultural Evidence for FFT

FFT was formulated to organize and explain a body of findings; in particular, it was intended to provide an explanation for the remarkable stability of personality that longitudinal studies had revealed. How was it possible that years of experience, marriage, divorce, career changes, chronic and acute illnesses, wars and depressions, and countless hours of television viewing could have so little impact on personality traits? Combined with emerging findings on the heritability of personality traits and the general lack of evidence for common environmental influences on personality (Plomin & Daniels, 1987), these findings suggested to us that traits are categorically distinct from learned behaviors and beliefs, which certainly do change with age and which certainly are shaped by childhood experiences. FFT is really an elaboration of this basic insight, formulated in the early 1990s.

Ideally, theories go beyond a post hoc interpretation of observations and lead to testable hypotheses. Perhaps the most compelling tests of FFT have been the cross-cultural studies on the FFM that have been conducted in the past decade. Researchers around the world began to translate the NEO-PI-R (to date, into more than 40 languages) and conduct research in their own cultures. There was, of course, no guarantee that the instrument would be translatable or that the intended factors would be replicated in different cultures. Indeed, one skeptic wrote that “different cultures and different languages should give rise to other models that have little chance of being five in number nor of having any of the factors resemble those derived from the linguistic/social network of middle-class Americans” (Juni, 1996, p. 864).

That was a reasonable view if one assumed that culture dictates personality, as generations of anthropologists and personality psychologists had done. But the implications of FFT are clear: Personality traits are a function of biology, and all human beings share a common genome. Therefore, the structure of personality ought to be universal.

Lexical studies, in which the personality traits encoded in natural languages are analyzed, have now been conducted in a number of cultures. Many of them do show the FFM seen in American lexical studies (e.g., Somer

& Goldberg, 1999), but the case is less clear in other cultures (Saucier, Hampson, & Goldberg, 2000), and some researchers, as noted earlier, discern a common six-factor model (Ashton, Lee, Perugini, et al., 2004). Historically, lexical studies played a crucial role in the identification of the FFM, but it must be recalled that they are studies of personality *language* and only indirectly of personality itself. The lexical hypothesis asserts that all socially significant traits will be encoded in language, but that hypothesis may be too strong. There are, after all, languages in which the only color words are *dark* and *light* (see Kay, Berlin, Maffi, & Merrifield, 1997), but this does not mean that the speakers are color-blind.

An appropriate test of the universality of structure would need to use the same variables in each culture, and translations of a standard personality inventory provide such variables. Evidence for the universality of the FFM is clear across different instruments (McCrae & Costa, 1997b; Paunonen et al., 1996) and different methods of measurement. A large-scale observer rating study showed factor replications in 50 different cultures (McCrae, Terracciano, et al., 2005a). The traits of the FFM exist and are similarly related in all cultures so far studied. This does not preclude the possibility that there are other, indigenous personality factors unique to particular cultures, although such factors would probably be interpretable as characteristic adaptations within FFT.

Postulate 1c claims that the development of traits is guided by intrinsic maturation, and thus development too should be species-wide. There are few longitudinal studies outside Western cultures, and normally cross-sectional studies are difficult to interpret, because age differences at any given time may reflect cohort effects—that is, influences of the particular time and place in which people’s personalities developed. Education levels, for example, decline cross-sectionally, not because people become less educated with age, but because education has become more widespread in more recent times.

But according to FFT, early life experience should not matter, because experience does not shape personality traits. Trait development in the People’s Republic of China should parallel development in the United States, despite the different experiences

posed by the Cultural Revolution and the subsequent rise of capitalism. And, in fact, cross-sectional age differences in personality are very similar in these two countries (Yang et al., 1998) and in such diverse cultures as Zimbabwe and Estonia (McCrae & Costa, 2006a). Similar age trends were found in 50 cultures when observer ratings were analyzed (McCrae, Terracciano, et al., 2005a), with a reduced rate of (cross-sectional) change after age 40.

Much the same story can be told for sex differences, which are also universal (Costa, Terracciano, & McCrae, 2001; McCrae, Terracciano, et al., 2005a), despite large differences in gender roles and expectations across cultures. A curious twist, however, is that the magnitude of sex differences varies across cultures in a surprising fashion: The largest differences are found in modern, progressive nations that ostensibly emphasize equality of the sexes. Those differences are probably artifacts; for example, women in traditional cultures may assess their personality relative to other women, thus norming away gender differences. Whatever the explanation, the phenomenon is not consistent with the naive environmentalism that would expect greater sex differences in traditional cultures.

McCrae and colleagues (2004) reported cross-cultural analyses of self–other agreement on personality ratings. Some cultural psychologists (see Church, 2000) have suggested that traits are Western, individualistic phenomena, and that even if they existed in collectivistic cultures, they were likely to go unnoticed. Instead, roles and social relationships are more important in collectivistic cultures. However, Buss (1991, p. 471) used evolutionary reasoning to argue that “perceiving, attending to, and acting upon differences in others is crucial” for survival and reproduction, and thus should be built in, species-wide. In their review, McCrae and colleagues found almost identical levels of self–other agreement in North American and cross-cultural studies. These data suggest that both personality traits and the mechanisms for their perception are rooted in evolved human biology.

The fact that the same traits and the same structure are found everywhere does not mean that average trait levels need be universal. People everywhere have hair, but there are more blonds in Europe than in Asia. Comparisons of mean levels across cul-

tures is a demanding task, because apparent differences may be due to translation of the instrument, or to cultural differences in response sets, or to different sampling biases in different cultures. However, a series of studies addressing these concerns led to the conclusion that there are reliable differences in the mean levels of traits across cultures (McCrae, 2002b; McCrae, Terracciano, et al., 2005b). The clearest finding was that cultures of European descent scored higher in Extraversion than Asian and African cultures. It is not clear at this point whether that finding is attributable to shared culture or shared ancestry (or both), but in itself it is not inconsistent with FFT. A century ago, geographers subscribed to the doctrine of environmental determinism, which held that culture and character were formed by the soil, climate, and landscape in which a people lived (Mitchell, 2000). Yet generations of life in South Africa created little resemblance between blacks and whites. In personality profiles, black South Africans resembled other black Africans; white South Africans resembled Europeans.

The effects of culture and ethnicity are most easily distinguished in acculturation studies. If the personality profile of an immigrant group comes to resemble that of the host culture, then cultural influences are indicated; if not, the profile may reflect the enduring influence of the immigrants’ gene pool. Europeans living in South Africa do not offer a clear test of this hypothesis, because they did not acculturate to the indigenous culture; instead, they transported their language and culture with them. McCrae and colleagues (1998), however, examined personality profiles of Chinese undergraduates in Hong Kong and in Canada. Recent immigrants to Canada showed profiles very similar to Hong Kong undergraduates, but ethnic Chinese students born in Canada more closely resembled European Canadian students, especially with respect to levels of O and A. This is an important piece of evidence against FFT; if it is a replicable finding, some modification of the proscription of environmental influences on trait levels would be needed.

Evolutionary Explanations of the Factors

As noted in Table 5.2, Postulate 1d of FFT states that “traits are organized hierarchi-

cally from narrow and specific to broad and general dispositions; Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness constitute the highest level of the hierarchy.” This is the only postulate in which the FFM is even mentioned; otherwise the theory could just as well be adopted by proponents of a three- or seven- or *N*-factor model.

And Postulate 1d does not offer to explain the FFM, it merely asserts it. Shouldn’t a five-factor theory explain why there are five factors and not six? And why these factors and not others? That would be an impressive feat, but it is not essential to scientific understanding. The speed of light is crucial to the theory of special relativity, but that theory gives no clue as to why $c \approx 300,000$ km/sec.

Postulate 1d reflects the position of McCrae and John (1992), who explained the recurrent finding of five robust factors by saying “we believe it is an empirical fact, like the fact that there are seven continents or eight American presidents from Virginia” (p. 194). McCrae and John were not trying to make a dogmatic pronouncement about the true number of factors (although the quote seems sometimes to have been interpreted that way; see, e.g., Block, 1995). Instead, they hoped to offer an alternative to the seductive but ultimately unpersuasive notion that the number somehow reflected the information-processing capacities of human raters (Goldberg, 1983; Miller, 1956). There is nothing magic about the number 5; it is simply what the data seem to show.

Without further rationale, Postulate 1d is vulnerable to empirical falsification. The continent of Atlantis may rise again from the sea, a ninth Virginian may be elected president, and trait researchers may discover another factor or factors of personality of comparable scope to *N*, *E*, *O*, *A*, and *C*. At that point it will be time to modify FFT. Although they could not explain the number 8, historians could certainly give some reasons why natives of Virginia were disproportionately chosen as U.S. presidents, and could give very specific reasons for the selection of Washington, Jefferson, and Madison. Can personality psychologists explain why people differ in levels of *N*, *E*, *O*, *A*, or *C*?

Given that personality traits have a biological basis and that human beings are the products of evolution, it is natural to seek answers in evolutionary psychology. Buss

(1996; see also Chapter 2, this volume) made a strong case for the relevance of personality traits to social adaptation. People with different personality traits go about the tasks of survival and reproduction in different ways. For example, to retain their mates, extraverts show off, agreeable men express affection, and men low in *C* try to make their mates jealous. Personality traits influence the ability to make strategic alliances and to compete with others for resources. Personality traits, and specifically the five major factors, are of central relevance to the tasks people have evolved to solve. Because of this, people have learned to attend to individual differences in personality, and to base their choices of leaders, friends, and mates partly on inferred personality characteristics.

This perspective does not, in itself, explain the evolution of the FFM, however. Normally natural and sexual selection are invoked to explain a species-wide characteristic, not variation within the species. A number of evolutionary approaches have been taken to explain individual differences, and Figueredo and colleagues (2005) review them and the slim evidence that currently can be used to evaluate them.

Tooby and Cosmides (1990) offered what must be considered the null position: Traits exist because they are adaptively neutral; they are perpetuated as genetic noise. This is a valuable fall-back position for traits such as Openness to Aesthetics that are of dubious adaptive value (see also Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998). A step higher are models that claim that traits are the result of stabilizing selection (Bouchard & Loehlin, 2001)—that is, that extreme values may have been selected out. (This position is consistent with views of personality disorder that identify pathology with extreme scores.) Individuals who were too introverted to find a mate or too extraverted to conceal themselves from an enemy may not have survived and reproduced. But variation within the normal range may be of no evolutionary consequence.

MacDonald (1998) takes a more substantive position, arguing that the five factors represent evolved mechanisms for solving social and nonsocial problems. For example, he links Extraversion to a behavioral approach system “designed to motivate organisms to approach sources of reward” (p. 125). Individual differences in such adap-

tive traits are incidental and explainable by noting that there are alternative viable strategies associated with different levels of traits. Agreeableness makes it easier to acquire allies, but antagonism sharpens one's ability to compete with enemies; open exploration leads to new resources, but closed conventionality exploits the tried-and-true.

Figueredo and King (2001) offer a more formal explanation for individual differences. They agree that traits are adaptive but invoke the notion of frequency-dependent selection to account for individual differences. Agreeableness is usually adaptive, leading to cooperation and shared resources. But if a group consists chiefly of highly agreeable individuals, the occasional antagonist can prosper by taking advantage of them. If antagonists proliferate, however, their competition will lower the adaptive value of being antagonistic. Individual differences in an evolving population thus sustain a dynamic equilibrium.

Such theorizing illustrates the ways in which evolutionary thinking might account for the factors of the FFM, but no compelling case has yet been made. Ideally, we would begin with basic principles of evolution, such as parental investment, reciprocal altruism, and deception strategies (see Hendrick, 2005), and deduce the existence and nature of the five factors—but that seems unlikely to happen. As Buss (1991) acknowledged, “general evolutionary theory broadly outlines what is *unlikely* to have evolved . . . [but] it can rarely specify what must have evolved” (p. 465).

One complication in formulating evolutionary hypotheses is that we do not yet know to which evolutionary era they must be pegged. Buss (1991) sought to analyze personality by identifying “*adaptive problems confronted by ancestral human populations*” (p. 476; original emphasis), but evidence shows that the FFM can also be glimpsed in chimpanzees (King, Weiss, & Farmer, 2005). This finding suggests that precursors of these personality factors may have evolved in ancestors common to some or all primates. Indeed, for all we know, Extraversion evolved when fish first formed schools. Identifying the relevant adaptive problems may require much more data from comparative personality psychology.

Another problem concerns the adaptive core of each factor. MacDonald (1998) identifies Extraversion with excitement seek-

ing and reward sensitivity; Ashton and Lee (2001) more narrowly focus on “behaviours that tend to attract social attention” (p. 342). Other theorists might emphasize the element of dominance in Extraversion and seek an explanation based on adaptive variations in dominance versus submission. MacDonald cautions that “there is no reason to suppose that the dimensions revealed by factor analysis map in a 1:1 manner with biological adaptations” (p. 127), which, if true, effectively undermines the search for evolutionary explanations for the factors in the FFM.

Nevertheless, Figueredo and colleagues (2005) concluded that there is “a modicum of evidence supporting each of the major evolutionary theories explaining . . . individual differences” (p. 873). The problem of defining the adaptive core of each factor might be obviated by proposing theories on the evolution of facet-level traits, which are more narrowly defined. And it must be recalled that different evolutionary explanations may apply to different traits. Openness to Aesthetics may be a matter of genetic noise; Depression may reflect stabilizing selection; Compliance may result from frequency-dependent selection. Evolutionary explanation, like evolution itself, may be a convoluted process.

Subtheories of the Five Factors

The postulates of FFT deal uniformly with all five factors and thus must offer quite general propositions. It would be entirely possible to construct more specific subtheories to deal with each of the five factors separately. Conceptual analyses of the individual factors have been offered in several articles (Costa & McCrae, 1998a; Costa, McCrae, & Dembroski, 1989; McCrae & Costa, 1997a; Watson & Clark, 1997); formal theorizing could be guided by Figure 5.1. The agenda might be as follows:

1. Define the basic tendencies involved for the factor and its defining facet traits.
2. Identify specific biological bases, from genes to brain structures and functions.
3. Identify dynamic processes, such as defenses, cognitive styles, or planning and scheduling, that are differentially affected by the factor (see Postulate 6b).
4. Catalogue the characteristic adaptations—interests, roles, skills, self-image, psychiatric symptoms—associated with the fac-

tor and explain how they reflect common basic tendencies.

5. Account for the lifespan development of the factor, its objective reflection in the life course, and its subjective representation in life narratives.

Different parts of this agenda appeal to different psychologists. Factor analysts are concerned with identifying the facet traits and interpreting the resulting factors (Hofstee, Kiers, De Raad, Goldberg, & Ostendorf, 1997). Psychobiologists emphasize the identification of underlying biological mechanisms (Eysenck, 1967). Clinicians might be most concerned with problematic characteristic adaptations (see Postulate 2b), which they might be able to modify (Harkness & Lilienfeld, 1997).

Perhaps because they ground psychology in a more basic science, theories that offer biological explanations for traits seem particularly desirable, and we encourage research on which such theories could be based. In our present state of relative ignorance, however, theories of biological mechanisms may be premature. For example, Cloninger's neurohormonal theory of personality, which staked so much on the initial findings in the molecular genetics of personality (Cloninger, Adolfsson, & Svrakic, 1996), was surely shaken by subsequent failures to replicate (Herbst, Zonderman, McCrae, & Costa, 2000; Malhotra et al., 1996).

Steps 1 through 3 of the above agenda are presumably universal to all human beings. Steps 4 and 5, however, deal with the interaction of the person and the environment and speak only to particular contexts. How Conscientiousness is expressed in Italy is likely to be very different from how it is expressed in Iran. Ethnographic methods might be needed to identify the culturally prescribed forms in which personality factors are manifested, and comparative cross-cultural studies could illuminate links between personality and culture (McCrae, 2000).

Alternatives to FFT

In our first full statement of FFT we suggested that it was likely to be only one of a new generation of personality theories informed by research findings (McCrae & Costa, 1996). Alternative theories have, in fact, been proposed, and some comparisons to FFT seem warranted.

Roberts and colleagues (e.g., Roberts, Wood, & Smith, 2005) have offered a midlevel theory concerned with trait development. Their social investment perspective offers a reinterpretation of the cross-cultural consistency of age differences and changes. Specifically, they propose that life tasks such as finding a mate and raising children are universal, and that cultures everywhere promote traits, such as increased A and C, that assist in these tasks. The mechanism for these changes is the individual's internalized investment in social roles such as work or parenting. Actually occupying the role does not matter; this explains (within social investment theory) why people who become parents do not become more conscientious than those who remain childless (Neyer & Asendorpf, 2001)—although one might have guessed that, on average, people who have children would be more invested in the parenting role.

FFT does not dispute that the maturational changes typically seen between adolescence and adulthood are useful for perpetuating the next generation, or that societies generally reward such changes. But the rewards cannot (according to FFT) be the cause of the changes. Instead, one might argue that they have evolved biologically because individuals whose A and C levels increased after adolescence successfully raised more children. Perhaps the most informative tests of these competing theories will come from longitudinal studies in developing countries: Is psychological maturity hastened by the earlier life responsibilities often found there?

On a larger scale, the most extensive theoretical work has been done by McAdams and his colleagues. In 1992 (in the same symposium in which we introduced FFT) McAdams proposed that personality might be conceived as occupying three levels: Level 1 consisted of relatively stable traits, Level 2 of personal concerns, and Level 3 of life stories. Levels 2 and 3 were more plastic than Level 1 and should show change across the lifespan (see McAdams, Chapter 8, this volume). There are obvious parallels between this model and FFT: Basic tendencies, characteristic adaptations, and the self-concept are clearly related to the Levels 1, 2, and 3, respectively. In next few years, the chief difference between the two theories was McAdams' (1996) insistence that the three levels were essentially independent, requiring their own methods

of investigation and their own explanations. This stance was apparently motivated by the fear that higher levels of personality might be reduced to mere expressions of traits.

In 2002, Hooker began to link McAdams's levels to each other and to dynamic processes, and soon McAdams had endorsed this revision (Hooker & McAdams, 2003). The major innovation was the pairing of levels with processes: For example, traits were paired with states (phenomena that FFT would class not as processes but as outcomes—the subjective side of the objective biography). Most recently, McAdams and Pals (2006) have offered a new formulation, based not on components of a personality system, but on five principles that relate and set in context the three Levels, now called “dispositional traits,” “characteristic adaptations,” and “integrative life narratives.” In place of biological bases, McAdams and Pals put “evolved human nature,” and in place of external influences they specify “culture,” plus a residual box of the “social ecology of everyday life.” The objective biography is what is to be explained, so it is not identified as a separate principle, but the arrow joining *characteristic adaptations* and *social ecology* is labeled “most daily behavior.”

Perhaps the most important difference between McAdams and Pals's (2006) model and that in Figure 5.1 is that most of their arrows are two-headed, suggesting reciprocal influence. Even that aspect is not quite as different as it appears. They acknowledge that culture's effects on traits may be limited, but argue that “culture does provide demand characteristics and display rules for the behavioral expression of traits” (p. 211), and it is this feature that accounts for the arrow from *culture* to *dispositional traits*. Yet that interpretation is entirely consistent with FFT, which regards trait expression as a function of culturally conditioned characteristic adaptations.

Sheldon (2004) offered an ambitious synthesis of contemporary research in the social and biological sciences, combined with prescriptions for optimizing human functioning. At the level of personality, situated between the brain and culture, four levels are identified: organismic characteristics, personality traits, goals and intentions, and selves and life stories. Sheldon's chief criticism of FFT is that it is reductionistic, apparently granting primacy to basic tendencies instead of postu-

lating the reciprocal influences among levels that Sheldon favors.

FFT acknowledges that some characteristic adaptations are maladaptive but says nothing about why; it is a very meager theory of psychopathology and says nothing about positive mental health (but see McCrae, Löckenhoff, & Costa, 2005, for an elaboration of personality psychopathology based on FFT). By contrast, Sheldon hopes to offer a comprehensive theory of optimal human being. His intention is to articulate general principles that reflect what is known about human nature, such as “Satisfy your basic bodily needs,” “Try to develop more positive personality traits,” “Set and pursue goals, as effectively as possible,” and “Adapt to one's culture's norms and prescriptions” (pp. 184–185). Stated so baldly, these may seem mere platitudes, but they do offer a systematic survey of what may be considered desirable at many of the levels identified in this new generation of personality theories, and they are worth serious consideration by anyone concerned with positive psychology.

FFT AND THE INDIVIDUAL

Although it is doubtless true that every person is, in some respects, like no other person (Kluckhohn & Murray, 1953), FFT (like most personality theories) has nothing to say about this aspect of the person. It is, from a trait perspective, error variance. However, this most emphatically does not mean that personality is irrelevant to understanding the individual.

In the typical application in clinical or personnel psychology, the individual case is understood by inferring personality traits from one set of indicators and using the resulting personality profile to interpret a life history or predict future adjustment. This is not circular reasoning, because if valid personality measures are used, the traits identified carry surplus meaning that allows the interpreter to go beyond the information given (McCrae & Costa, 1995b). If respondents tell us that they are cheerful and high-spirited, we detect Extraversion and can guess with better-than-chance accuracy that they will be interested in managerial and sales positions. However, it would be much harder to predict their current occupation: Just as the theory of evolution is better at explaining how ex-

isting species function than it is at predicting which species will evolve, so personality profiles are more useful in understanding a life than in making specific predictions about what a person will do. This is not a limitation of FFT; it is an intrinsic feature of complex and chaotic systems.

Postulate 3a, multiple determination, points out that there is rarely a one-to-one correspondence between characteristic adaptations and behaviors; the same is, of course, equally true for the traits that underlie characteristic adaptations. Consequently, interpreting individual behaviors even when the personality profile is well known is a somewhat speculative art. Consider the case of Horatio, Lord Nelson (Costa & McCrae, 1998a; Southey, 1813/1922). In the course of his campaigns against Napoleon's France, he spent many months defending the woefully corrupt court of Naples against a democratic insurrection that had been encouraged by the French. Why would so heroic a figure take on so shabby a task?

We know from a lifetime of instances that Nelson was a paragon of dutifulness, and we might suspect that he was simply following orders—certainly he would have rationalized his conduct as devotion to the war against France. But we also know that Nelson was fiercely independent in his views of what constituted his duty: "I always act as I feel right, without regard to custom" (Southey, 1813/1922, p. 94). He might equally well have supported the insurrection and won its allegiance to the English cause.

We should also consider another trait Nelson possessed: He was excessively low in modesty. Great as his naval achievements were, he never failed to remind people of them. His sympathies were thus with the aristocracy, and he was flattered by the court of Naples, which ultimately named him Duke Di Bronte. Together, diligence (C), independence (O), and vanity (low A) go far to explain this episode of behavior.

To be sure, there are other factors, including Nelson's relationship to the English ambassador's wife, Lady Hamilton (Simpson, 1983). That notorious affair itself reflects Nelson's independence and vanity but seems strikingly incongruent with his dutifulness. At the level of the individual, the operations of personality traits are complex and often inconsistent (a phenomenon Mischel & Shoda, 1995, have tried to explain).

The Subjective Experience of Personality

A number of writers (e.g., Hogan, 1996) have suggested that the FFM does not accurately represent personality as it is subjectively experienced by the individual. Daniel Levinson dismissed the whole enterprise of trait psychology as a concern for trivial and peripheral aspects of the person (Rubin, 1981). McAdams (1996) has referred to it as the "psychology of the stranger," because standing on the five factors is the sort of thing one would want to know about a stranger to whom one has just been introduced. Ozer (1996) claimed that traits are personality as seen from the standpoint of the other, not the self.

We believe this last position represents a slight confusion. Individuals, who have access to their own private thoughts, feelings, and desires, and who generally have a more extensive knowledge of their own history of behavior, have a quite different perspective on their own traits than do external observers. What they nonetheless share with others is the need to infer the nature of their own traits and to express their inference in the comparative language of traits. We have no direct intuition of our trait profile; we can only guess at it from its manifestations in our actions and experience. (One possible reason for the increasing stability of personality as assessed by self-reports from ages 12 to 30—see McCrae et al., 2002; Siegler et al., 1990—is that we continue to learn about ourselves in this time period.)

The fact that traits must be inferred does not, however, mean that they are or seem foreign. When adults were asked to give 20 different answers to the question "Who am I?", about a quarter of the responses were worded as personality traits, and many others combined trait and role characteristics (e.g., "a loving mother"). Traits seem to form an important component of the spontaneous self-concept (McCrae & Costa, 1988); even children use trait terms to describe themselves (Donahue, 1994).

Sheldon, Ryan, Rawsthorne, and Ilardi (1997) brought a humanistic perspective to this issue by assessing sense of authenticity in individuals as they occupied different social roles. They also asked for context-specific self-reports of personality (e.g., how extraverted respondents were as students and as romantic partners). They found that indi-

viduals who described themselves most consistently across roles also claimed the highest feelings of authenticity. They concluded that “more often than not, one’s true self and one’s trait self are one and the same” (p. 1392).

CONCLUSION

FFT is an attempt to make sense of the explosion of findings that researchers have reported in the wake of the FFM. FFT is a contemporary version of trait theory, based on the assumptions that people are knowable, rational, variable, and proactive. FFT explains personality functioning as the operation of a universal personality system, with defined categories of variables and classes of dynamic processes that indicate the main causal pathways. The five personality factors—Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness—form the substantive nucleus of the system; FFT traces their ramifications throughout the personality system. FFT provides a framework in which to understand the development and operation of psychological mechanisms (such as need for closure) and the behavior and experience of individual men and women.

FFT is a Grand Theory in the sense that it attempts to provide an overview of the functioning of the whole person across the complete lifespan. To do so it necessarily omits many specifics that a complete theory of personality would include. We have described in some detail the need for, and possible form of, subtheories of each of the individual factors. Also needed are subtheories that catalogue the contents of characteristic adaptations and systematize dynamic processes; more formal treatment of the self-concept; theories of psychopathology and psychotherapy (see Widiger, Costa, & McCrae, 2002); theories of personality perception and assessment; and an account of the basic executive mechanism—the operating system—that coordinates the ongoing flow of behavior and experience. Much is already known about all these topics; the theorist’s task is to organize the information and integrate it into the overall scheme of FFT.

Historically, personality psychology has been characterized by elaborate and ambi-

tious theories with only the most tenuous links to empirical findings, and theorists have often been considered profound to the extent that their visions of human nature departed from common sense. Freud’s glorification of the taboo, Jung’s obscure mysticism, Skinner’s denial of that most basic experience of having a mind—such esoteric ideas set personality theorists apart from normal human beings and suggested that they were privy to secret knowledge. By contrast, FFT is closely and strongly tied to the empirical findings it summarizes, and its vision of human nature, at least at the phenotypic level, is not far removed from folk psychology. If that makes it a rather prosaic Grand Theory, so be it. What matters is how far it takes us in understanding that endlessly fascinating phenomenon, personality.

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