

# Personality, Part I

# 2

## Key Terms

biopsychological  
correlation  
dispositional approach  
factor analysis  
Five Factor Model  
Gigantic Three  
idiographic paradigm  
lexical hypothesis  
meta-analysis

neuropsychology  
nomothetic paradigm  
psychometrics  
reliability  
situational approach  
taxonomy  
trait  
validity

## Chapter Outline

- 2.1 INTRODUCTION**
- 2.2 OVERVIEW AND APPROACHES**
- 2.3 DEFINITION OF PERSONALITY TRAITS**
- 2.4 HISTORY OF PERSONALITY**
- 2.5 PERSONALITY TRAITS AND STATES: DISPOSITIONAL VS. SITUATIONAL APPROACHES**
- 2.6 EYSENCK'S GIGANTIC THREE AND THE BIOLOGICAL BASIS OF PERSONALITY TRAITS**
- 2.7 SELF-REPORT INVENTORIES**
- 2.8 THE BIOLOGICAL BASIS OF PERSONALITY**
- 2.9 GRAY'S PERSONALITY THEORY**
- 2.10 CATTELL'S 16PF AND THE LEXICAL HYPOTHESIS**
- 2.11 THE FIVE FACTOR MODEL (BIG FIVE)**
- 2.12 SUMMARY AND CONCLUSIONS**

## 2.1 INTRODUCTION

As with many topics in psychology, definitions of personality are more complex than everyday uses of the term. Psychologists are often faced with the difficult and seemingly unnecessary task of providing theoretical definitions for words that appear not to need one. And yet it would be difficult to investigate any concept with rigorous scrutiny without first defining the variable properly. Moreover, in psychology it is important to “define away” personality from lay connotations of the concept. Accordingly, a scientific approach to the study of individual differences should begin by giving a clear definition of personality, beyond the discrepancies of pre-scientific knowledge and the lay uses and misuses of what is usually understood by the term.

The Latin root of the word “personality” is *persona*, which means “mask” and is also the origin of the word “person” in several languages, such as English, Spanish, and German. Thus the classic connotation of personality is associated with the “discovery” of the real causes of individuals’ feelings and thoughts, expressed or projected through the mask of behavior.

In plain English, “personality” is used to refer to several different but often overlapping ideas. Consider, for instance, the following examples:

- a) Martin is a good friend of mine, but we have very different *personalities*.
- b) I don’t find Jade very attractive, but she has an amazing *personality*.
- c) If there is one thing I can’t stand in people, it’s their lack of *personality*.
- d) Zoe and Sarah have such different *personalities*, I sometimes wonder whether they really are sisters.
- e) Joe has such a difficult *personality*, I don’t understand how you get along with him.

Now consider the following examples, which despite not mentioning the word “personality” seem to be referring, albeit implicitly, to similar concepts:

- f) Jennifer and Paul are very different, and yet they seem so compatible.
- g) I would like you to accept me as I am.
- h) Clever people always get along with each other.
- i) Mrs. Jones is a very reliable customer. I’m very surprised she forgot to send us the check.

As can be seen, personality seems to have various connotations, some more interchangeable than others. In the first set of examples, the term is used to emphasize: (a) general styles and preferences; (b) positive internal attributes; (c) passiveness or lack of initiative, i.e., conforming to the norm; (d) genetically influenced psychological similarities; and (e) bad temper, i.e., not getting along with others.

In the second set of examples, where personality is only implicitly referred to, we can see how (f) individuals are compared on the basis of apparent preferences and styles (they can be similar or not); (g) people use implicit autobiographical descriptions, i.e., “as I am” (self-descriptors that include the word “I” are typically representative of personality characteristics; Schultz & Schultz,

1994, p. 8); (h) people can be rated as clever or not; and (i) we are surprised when people act in an unexpected or different than usual manner. But how do these uses compare with the psychological definitions of personality?

## 2.2 OVERVIEW AND APPROACHES

In psychology, “personality” has been used to refer to different and often opposite ideas. Indeed, some definitions seem to question the very idea that personality exists. Let us examine a few examples of approaches to the conceptualization of personality.

One major distinction is that between nomothetic and idiographic paradigms. The **nomothetic paradigm** assumes that individual differences can be described, explained, and predicted in terms of predefined criteria or attributes. Accordingly, each individual’s personality can be represented in terms of different

**nomothetic paradigm** assumes that individual differences can be described, explained, and predicted in terms of predefined attributes

levels of the same “vectors,” just as every city in the world can be geographically located by using the same coordinates of latitude and longitude. Conversely, the **idiographic paradigm** assumes that every individual is unique, to the extent that we cannot describe two different people by means of the same concepts or terms. Instead, different “vectors” or coordinates would be needed to account for each person’s individuality. Idiographic approaches are at the heart of psychodynamic theories, such as psychoanalysis (see chapter 4), and emphasize the unique nature of individuals’ life experiences. In this book, they will be mentioned only briefly.

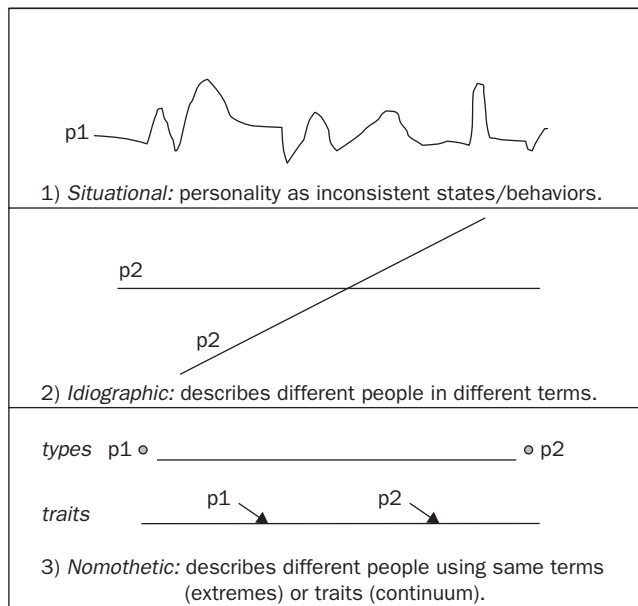
**idiographic paradigm** assumes that individuals are unique and that two different people cannot be described using the same concepts or terms

Another distinction is that between **dispositional** and **situational approaches**, which differ on the basis of whether they conceptualize personality

in terms of largely invariable and consistent *dispositions* to act, think, and feel in similar ways relatively independently of the context or, rather, in terms of a series of largely unrelated *states* that are predominantly a function of situational factors. Strictly speaking, the notion of personality as it refers to the essential and unchanging characteristics of an individual (what makes us who we are) is encompassed only by the dispositional approach to personality, whereas situational approaches are pretty much in conflict with the idea of a continuity or “essence” describing every individual. Instead, situational approaches argue that individuals behave differently in different contexts, making it impossible to capture the “core” psychological attributes of a person. (The antithesis between situational and dispositional approaches is further discussed in 2.5 below.)

**dispositional approach** views personality in terms of consistent and unchanging dispositions to act, think, and feel, regardless of context

**situational approach** views personality in terms of unrelated states or behaviors determined by situational factors



**Figure 2.1** Situational (states), idiographic, and nomothetic (types and traits) approaches to the study of personality ( $p$  = person).

Dispositional approaches are nomothetic in nature (i.e., they describe different people using the same terms), and can be further divided into *traits* and *types* according to whether they assess personality dimensions in an ordinal (traits) or categorical (types) fashion. For example, saying someone is introverted or extraverted is a *categorical* distinction, whereas saying someone's Extraversion score is 49 is an *ordinal* or *quantitative* distinction. Figure 2.1 presents a graphical depiction of the different approaches to the conceptualization of personality, which are further discussed in chapter 3.

In this chapter I shall focus on the dispositional approaches to personality, which have represented the state-of-the-art approach to the study of individual differences for the past 50 years (Hogan, Johnson, & Briggs, 1997; Matthews & Deary, 1998; Pervin, 1996). It should also be noted that in published studies researchers do not always adhere to the technical distinctions explained above, although the term “personality” is increasingly employed to refer to personality traits.

## 2.3 DEFINITION OF PERSONALITY TRAITS

Personality **traits** have been defined as a “dynamic organization, inside the person, of psychophysical systems that create a person's characteristic patterns of behavior, thoughts, and feelings” (Carver & Scheier, 2000, p. 5). Another widely quoted definition is that of “an individual's characteristic pattern of thought, emotion, and behavior, together with the psychological mechanisms

**trait** internal psychological disposition that remains largely unchanged throughout the lifespan and determines differences between individuals. Examples of traits are extraversion, neuroticism, and agreeableness.

– hidden or not – behind those patterns” (Funder, 1997, pp. 1–2). These comprehensive and up-to-date definitions refer to internal and causal processes that account for an individual's typical manifestations of behavior, emotion, and thought in everyday life.

In simple terms, then, we could define personality as that which makes a person different or similar to others. As Carver and Scheier (2000, p. 5.) note, “there are certain universal characteristics of the human race and particular features of individuals. We all for example experience stress, and the elevated cortisol that goes with it, and we all suffer the immune suppressive effects thereof. But each of us is unique too.” That means some of us may be particularly likely to experience stress during university exams, whilst others may do so when meeting new people or traveling by plane. Furthermore, some of us may perform best under pressure, whilst others may only do well under relaxed conditions. What makes you anxious?

Research on personality traits deals with the fundamental differences and similarities between individuals. Beginning with a general classification or **taxonomy** of the stable and observable patterns of behavior, it goes on to assess the extent to which individuals differ on these variables or traits. Its goal is to predict differences in a wide range of outcomes, from simple reaction time to academic performance, stress, health, salary, and even happiness! Thus personality traits refer to an individual's description in general and provide a universal framework to compare individuals and account for everybody's individuality at the same time.

From the very first known attempts to identify major individual differences and elaborate a taxonomy of personality (usually attributed to the ancient Greek classification of temperaments discussed in 2.4 below) to the current differential and behavior-genetic approaches, personality theorists have attempted to do the same thing, namely, to identify, assess, explain, and predict systematic differences and similarities between individuals, looking for the fundamental and general causes of human behavior.

Personality psychologists have aimed to identify the main dimensions by which people differ, test that these dimensions remain relatively stable over time, and explain the etiological basis or causes of these differences between individuals (Cooper, 1998). In that sense, all they have attempted to do is to prove that personality, as defined by the stable and general attributes that explain an individual's predisposition to act in one way or another, exists (see Figure 2.2).

However, rather than asking whether personality exists or not, it is important to determine whether the concept of personality traits is useful, that is, whether it will help us predict and understand human behavior and provide any scientific knowledge about the individual. This is the aim of chapter 2.

## 2.4 HISTORY OF PERSONALITY

Like most sciences, the history of personality dates back to ancient Greece. It is generally accepted that the first theory of

**taxonomy** system of classification; in differential psychology, taxonomies identify the major personality or ability factors by which people differ

**WHAT ARE PERSONALITY TRAITS?**

- *General* descriptions of individuals.
- *Internal* characteristics of the individual.
- *Causal* determinants of repetitive behaviors.
- Explain and predict systematic *differences* as well as *similarities* between individuals.

**3 EXAMPLES**

- a) *Pete is a selfish guy.*
- b) *Lea is a happy girl.*
- c) *Sven is incredibly obsessive.*

**Figure 2.2** Personality traits as psychological determinants of consistent behaviors.

Traits	Types
<ul style="list-style-type: none"> <li>• continuous</li> <li>• degree (<i>how?</i>)</li> <li>• quantitative</li> <li>• ordinal</li> <li>• score on <i>x-y</i> factor</li> </ul> <p style="text-align: center;"><i>x</i> ————— <i>y</i></p>	<ul style="list-style-type: none"> <li>• discontinuous</li> <li>• discrete (<i>what?</i>)</li> <li>• qualitative</li> <li>• categorical</li> <li>• <i>x</i> or <i>y</i></li> </ul> <p style="text-align: center;"><i>x</i>                      <i>y</i></p>

**Figure 2.3** Dispositional approaches to personality: traits and types.

personality derived from Hippocrates (460–370 BC), a Greek philosopher who is also credited with the invention of medicine. However, it was another Greek physician, Galen (130–200 AD), who documented – and probably further developed – this theory,

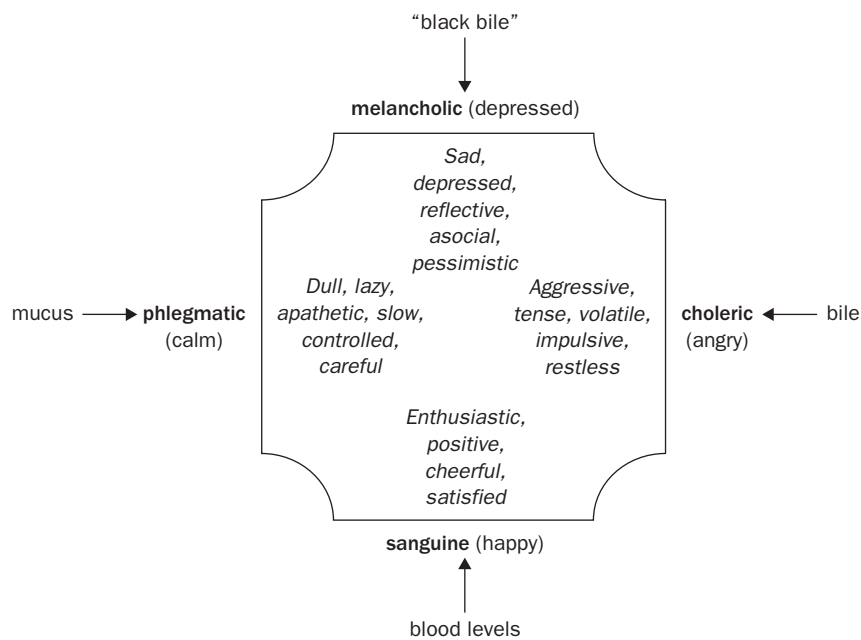
which is thus referred to as the Hippocrates/Galen personality or temperament theory.

The Hippocrates/Galen theory was based on a classification of the major types of temperament as a function of both psychological and biological differences. As seen in 2.2, traits and types represent the dispositional approach for classifying and describing individuals' patterns of behavior, thought, and emotionality. Whilst traits conceptualize personality variables in terms of a continuum, types refer to an "all-or-nothing" distinction between two opposite extremes of a bipolar variable. In terms of types, then, you are either extraverted or introverted, pretty much in the same way you are either pregnant or not.

The Greek classification of personality types assumed that biological differences (in physiological complexion) would cause behavioral differences (in psychological complexion), an idea that many centuries later would set the foundations of scientific psychology. In the late nineteenth century, William James (1842–1910), one of the founders of modern psychology, referred to this physio-psychological interaction as one of the major principles of psychology.

The four different types of temperament in Hippocrates/Galen's theory described biological differences in the level of specific fluids of the human body, or "humors," which would, in turn, determine individual differences in everyday behavior (see Figure 2.4).

The *sanguine* temperament described enthusiastic, optimistic, and cheerful individuals, satisfied with life and generally enjoying good physical and mental health. This type of temperament was believed to be related to high levels of blood supply or the "strength" of the blood itself (*sanguis* is the Latin word for blood). Sanguine people, then, are usually in a good mood, tend to be



**Figure 2.4** Ancient Greek classification of humors and temperament types (after Hippocrates and Galen).

happy, and are also fun to be with (I wish I were more sanguine sometimes!).

A second type of temperament, the *choleric* type, referred to aggressive, volatile, and temperamental individuals. This type of temperament was believed to be caused by high levels of the “yellow bile,” a chemical released by the gall bladder during digestion. Although this hypothesis no longer stands, the description of irritable, emotional, bad-tempered individuals can still be applied to many people (including myself!).

A third temperament type, the *phlegmatic* type, described calm, relaxed, and slow-paced individuals and was originally attributed to the “phlegm” or mucus of the lungs typical during ‘flu or lung infections. Again, nobody today would think that boring, static, and unenergetic people have larger quantities of mucus in the lungs, but we can probably all think of people who may be representative of a phlegmatic temperament (for obvious reasons, I will not mention any particular cases here).

The fourth type of temperament, the *melancholic* type, as you may guess from the everyday connotation of the term described sad, depressed, reflective, and pessimistic individuals. The biological origin of melancholy was believed to be the malfunctioning of an organ called “black bile,” but this idea was probably abandoned after the Middle Ages. As will be seen in chapter 4, melancholia is nowadays associated with abnormal rather than normal personality (see 4.7.2 for a modern psychopathological approach to depression). It is also important to note that, while we may all feel sad or “melancholic” at times – especially after experiencing upsetting events like a relative’s or friend’s death – melancholic individuals tend to feel sad or empty most of the time.

Despite the pre-scientific nature of the ancient Greek theory of temperament, several aspects of Hippocrates/Galen’s classification had a significant impact on eminent intellectual figures of the modern era, notably the German philosopher Immanuel Kant (1724–1804). Influenced by the Greek theory of temperament, Kant published his *Anthropology from the Pragmatic Viewpoint* (1796), echoing the classification of the four types of temperament as an accurate description of individuality.

In the early 1800s, an entire discipline that attempted to link physical and psychological traits was developed by Franz Joseph Gall (1758–1828). This discipline was called *phrenology* and studied the shape of human physical parts such as the skull. Phrenologists even modulated children’s heads in an attempt to raise their intellectual capabilities! As obscure and unethical as this technique may seem today, phrenology was a highly fashionable science in 1830s England, where there were almost 30 societies dedicated to it. Although phrenology no longer constitutes a respectable scientific discipline, modern psychophysiological research provided evidence for established links between most brain regions and specific psychological processes.

The most notable psychologist to be influenced by the Greek classification of humors was Hans Eysenck (1916–97), who developed a biologically based personality theory for the assessment of temperament dimensions that were quite similar to those proposed by Hippocrates/Galen. These dimensions are *Neuroticism* and *Extraversion*, and still persist in most personality models today, though sometimes under different labels. Figure 2.5

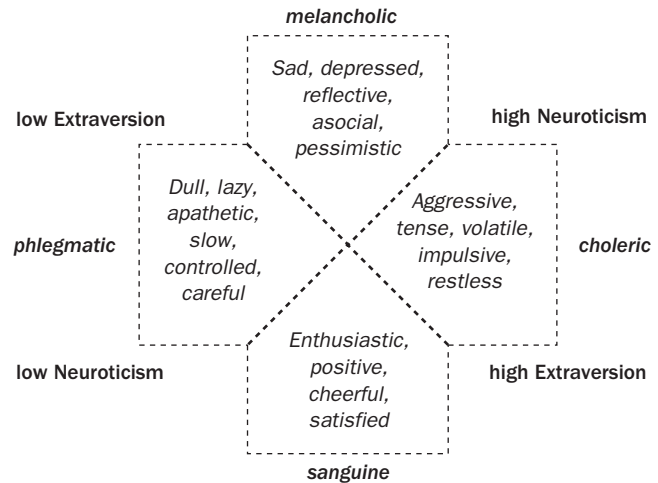


Figure 2.5 Ancient Greek and Eysenck’s early personality traits.

represents the theoretical overlap between Eysenck’s two early dimensions of temperament and the ancient classification of Hippocrates/Galen.

As shown in Figure 2.5, Eysenck conceptualized Extraversion as a combination of choleric and sanguine temperaments (now I feel relieved as this trait also represents some of the more positive aspects of my personality!), whilst Introversion would represent both phlegmatic and melancholic types. The other major trait in Eysenck’s theory was Neuroticism/Emotional Stability, which could be represented by a combination of melancholic and choleric types, whilst Emotional Stability would represent a mix of sanguine and phlegmatic types.

Other dispositional approaches conceptualizing personality in terms of types have included William Sheldon’s (1899–1977) somatotype theory, Carl Jung’s (1875–1961) psychoanalytical types, the Type A and Type B personality theory, and Block’s (1971) personality types. Because of their relatively minor importance with regard to established trait taxonomies and wider personality theories, these alternative typologies will be discussed only briefly.

Sheldon’s *somatotype theory* associated psychological dispositions and patterns of behavior with external, that is, physical features. According to Sheldon’s theory, there were three major personality types, namely, *endomorph*, *mesomorph*, and *ectomorph*. Endomorphic individuals tend to be sociable, peaceful, tolerant, and are generally overweight. Mesomorphic individuals are assertive, proactive, vigorous, and muscular. Ectomorphic people, on the other hand, are usually insecure, sensitive, and quiet; they are delicate and have weak muscles too. Although there has been much speculation about the causal processes by which psychological features may be influenced by physical traits and vice versa, Sheldon’s typology remains largely anecdotal and is commonly regarded as a late exponent of early phrenological paradigms. Furthermore, independent researchers have failed to replicate Sheldon’s typology, suggesting his evidence was largely flawed.

A more influential theory of personality types is that of Carl Jung, a psychoanalyst and famous student of Sigmund Freud. Combining philosophical and mythological theories, Jung developed a complex psychoanalytical paradigm – second only in impact to that of Freud – to explain the personal process of individuation by which the historical events of upbringing interact with universal psychological determinants, often subconscious forces. Although Jung’s theory, as Freud’s (see 4.4.1), remained mostly untested and was rarely supported by empirical evidence beyond case studies or mythological allegories, its personality taxonomy is represented by the *Myers-Briggs Type Indicator* (MBTI), a questionnaire that assesses extraversion-introversion, intuition-sensing, thinking-feeling, and judgment-perception as the four major functions of temperament.

*Extraversion-introversion*, a trait that will be discussed as part of several systems throughout this book, refers to the extent to which individuals seek external (i.e., people) or internal (i.e., inner space/own thoughts) stimulation, respectively. *Intuition-sensing* describes the degree to which people rely on their inner judgment or empirical observation, respectively. *Thinking* refers to rational decision-making, whilst *feeling* characterizes individuals who are driven by their emotions rather than by rational thought. Finally, *judgment* refers to premeditated, organized lifestyle (planning ahead), whilst *perception* best describes individuals who avoid planning in advance, preferring spontaneity and improvisation. The MBTI has been widely used in occupational settings, notably personnel selection.

Personality types have also been conceptualized in terms of *Type A* and *Type B* personalities. Individuals classified as *Type A* tend to be proactive, driven, achievement-oriented, and very impatient. They are usually “workaholics” and are at greater risk of suffering coronary diseases such as heart attacks. Conversely, people with *Type B* personalities tend to be relaxed, calm, and easygoing; they live a slowly paced life and are rarely at risk of coronary illness. As may be noted, this classification of personality may only refer to certain aspects of the individual but has nonetheless proven important in clinical settings and health-related domains.

Finally, Block’s (1971) *personality types* assess the extent to which individuals are well adjusted (e.g., flexible and adaptable in interpersonal interactions) or maladjusted. In turn, maladjusted types can be further divided into over-controlling (uptight people who are difficult to deal with) or under-controlling (impulsive, risk-taking, and aggressive individuals who tend to lack awareness and respect for social norms). Although critics have pointed out that Block’s personality types are useful only for classifying a relatively small section of the population, notably bright and educated white males from upper-middle-class backgrounds, in recent years there has been a renewed interest in Block’s typology (particularly in the *European Journal of Personality*).

Despite their limitations and over-simplistic nature, typological theories are still useful to identify major aspects of individual differences and establish general comparisons between individuals. Furthermore, as will be seen in forthcoming sections, several of the dominant personality trait theories are compatible with the typological taxonomies discussed above, and the apparent discrepancies between categorical and ordinal variables are often merely an artifact of statistical assessment methods.

## 2.5 PERSONALITY TRAITS AND STATES: DISPOSITIONAL VS. SITUATIONAL APPROACHES

Before concerning ourselves with the salient taxonomies of personality traits, it is important to understand the rationale underlying the trait approach to personality. One way of doing this is to look at the distinction between situational and dispositional models in more detail. Traits represent implicit associations between observable behaviors and internal dispositions or preferences to act. These associations are indicative of an individual’s consistent patterns of behavior and determine differences between rather than within individuals, that is, why different people feel, think, and behave in different ways. On the other hand, differences within individuals, that is, why the same person may feel, think, and act differently in different situations, have been conceptualized in terms of states or situational approaches. States refer to sporadic or ephemeral acts or behaviors lasting perhaps no longer than a few hours, or even occasional moods such as joy or anger.

Some personality theorists, like Raymond Cattell (1957), argued that biological instincts, such as hunger, sex drive, and aggression, should also be considered part of an individual’s personality, because they motivate or cause behavior. Although the study of motivation and mood states has constituted a separate area of research in psychology, these factors are important determinants of individuals’ behavior and are thus discussed in chapter 9. Furthermore, because individuals do not always behave in the same manner, it is often essential to understand the causes of behavior in terms of states rather than traits.

For example:

- a) If you had been wandering in the heat of the Sahara desert for three days without water, it would be irrelevant to know whether you are extraverted or introverted to predict whether you would be likely to ask the first stranger you encounter if he had any water.
- b) The happiness you may express after being informed that you have won the lottery may not reflect the fact that you may be a melancholic or neurotic person.
- c) If you are a football fan and go to the stadium to support your team, you may have noticed your behavior is not the same in that situation as it is, say, when you are being interviewed for a job!

In these three cases, traits, which reflect how you generally act, may not really predict states, which determine how you will behave “there and then.” Moreover, traits are only predictive of behaviors to the extent that they can influence psychological states and predispose an individual to action. As such, traits and states are not incompatible interpretations of personality but two different conceptual levels of explanation. For many years, however, psychologists were at odds over this conceptual distinction.

The debate between dispositional and situational theories peaked in the late 1960s, notably after the publication of a

**meta-analysis** a review of previous research that involves statistical analyses combining the results of many studies

**correlation** the extent to which two variables, e.g., traits and behavior, are related; a correlation of +1 indicates a perfect positive association, a correlation of -1 a perfect negative association

correlation between two variables). If, however, we consider the 50 percent likelihood of predicting behavior by chance (e.g., will *p* do *x*, yes [50 percent] or no [50 percent]?), the 16 percent of *additional* variance accounted for by traits provides useful information for predicting behavior in a given situation. Traits may also determine the choice of a situation and are expressed across different behavioral patterns, constituting better predictors of general than specific behaviors. For example, measures of trait anxiety will be more accurate to predict whether an individual will experience stress during the next five years than during a specific exam.

Although the debate between situational and dispositional theories represents an important phase in the development of personality theory, it has been pointed out that such a debate

**psychometrics** literally, measurement of the mind; the theory and measurement of psychological variables such as IQ (intelligence quotient) and personality via tests or questionnaires

**meta-analysis** (analysis of previous studies) by Mischel (1968), which reported an aggregated **correlation** of  $r = .30$  between traits and behavior, though this value was later revised and increased to  $r = .40$  (Funder, 2001). Accordingly, personality traits would on average account for as little as 16 percent of the variance in behavior (this value is calculated by squaring the correlation between two variables). If, however, we consider the 50 percent likelihood of predicting behavior by chance (e.g., will *p* do *x*, yes [50 percent] or no [50 percent]?), the 16 percent of *additional* variance accounted for by traits provides useful information for predicting behavior in a given situation. Traits may also determine the choice of a situation and are expressed across different behavioral patterns, constituting better predictors of general than specific behaviors. For example, measures of trait anxiety will be more accurate to predict whether an individual will experience stress during the next five years than during a specific exam.

Although the debate between situational and dispositional theories represents an important phase in the development of personality theory, it has been pointed out that such a debate “can at least be declared 98 percent over” (Funder, 2001). Thus, rather than further emphasizing this point, let us briefly examine how states and traits are associated in the **psychometric** assessment of personality

traits. For those interested in the dispositional vs. situational debate, I recommend Brody’s (1988) review of the topic.

Figure 2.6 graphically represents the trait of Extraversion as derived from a set of observable and correlated states, i.e., *smile*, *touch*, *move*, and *talk*. These states can be observed across different situations and interpreted as a consequence of Extraversion, which is the common underlying or latent factor. Accordingly, traits are conceptualized or inferred from a series of related states.

Although trait models have been questioned on the basis of the poor **validity** and **reliability** of specific questionnaires (Block, 1971), studies with reliable instruments provide sufficient evidence for the invariance of major personality traits across the adult lifespan. These studies have examined not only self- but also other-reports of personality traits and concluded that there is little change in the major personality dimensions throughout an individual’s life, particularly after the age of 30. For example, Costa, McCrae, and Arenberg (1980) report correlations for males of  $r > .70$  over a 6- to 12-year period (notably for Neuroticism and Extraversion), and similar correlations have been reported for female samples, though it has also been noted that, in late adulthood, women tend to become more confident, dominant, and independent (Helson & Moane, 1987). Overall, personality traits show little change throughout the lifespan, which means that at the age of 80 (if we ever get there), we are still essentially the same person we were at the age of, say, 22 . . . just a lot older.

Further evidence for the stability of traits has been provided by behavioral-genetic studies (see chapter 7), which suggest that there is a substantial genetic influence on personality traits. This

**validity (psychometric)** the extent to which a test measures what it claims to measure

**reliability** the extent to which a given finding will be consistently reproduced on other occasions

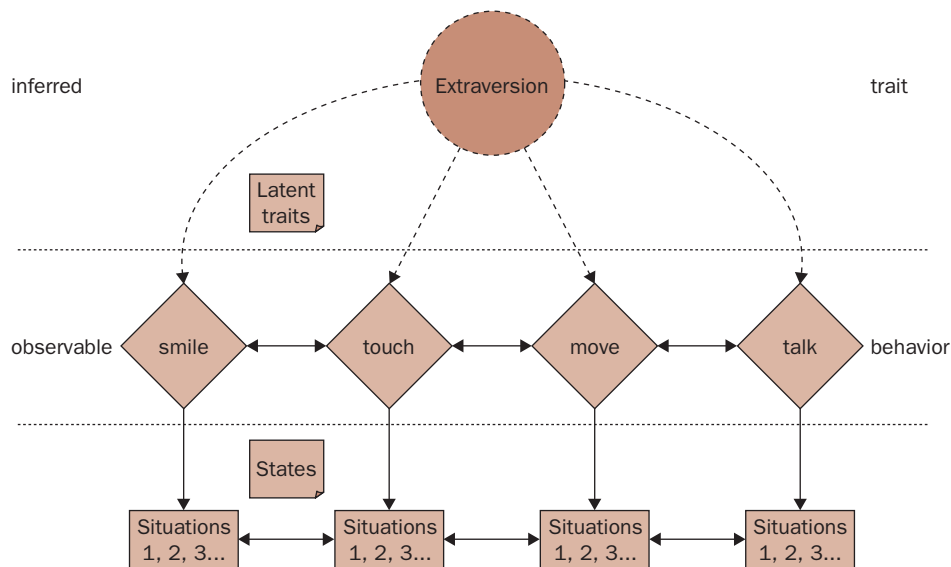


Figure 2.6 Traits and states psychometrically and conceptually represented.

influence persists even in adulthood and undermines the importance of environmental factors, which only seem to play a minor role in personality development (Cooper, 1998). Thus Costa and McCrae (1988) have argued:

Many individuals will have undergone radical changes in their life structure. They may have married, divorced, remarried. They have probably moved their residence several times. Job changes, layoffs, promotions, and retirement are all likely to have occurred for many people. Close friends and confidants will have died or moved away or become alienated. Children will have been born, grown up, married, begun a family of their own. The individual will have aged biologically, with changes in appearances, health, vigor, memory, and sensory abilities. Internationally, wars, depressions, and social movements will have come and gone. Most subjects will have read dozens of books, seen hundreds of movies, watched thousands of hours of television. And yet, most people will not have changed appreciably in any of the personality dispositions measured by these tests. (p. 61)

After decades of theoretical debate on the nature of personality structure, psychometric evidence has led most researchers to conceptualize individual differences in personality in terms of traits rather than states. As I have argued above, this does not by any means rule out the possibility of situational factors mediating or moderating the relationship between latent traits and actual states. It does, however, mean that it is more useful to predict a wider range of behaviors – irrespective of the situation – by assessing traits. Differences between individuals can therefore be encompassed by referring to a general descriptive classification of behaviors, where different individuals are expected to show different levels of traits as well as different predispositions to act.

As will be seen, the idea that latent traits are the major and most general determinants of individual differences in behavior has not produced immediate consensus on the way these traits should be assessed. Most of the debate has centered around the identification of the major personality dimensions (e.g., which ones, and how many) that may best represent general differences between individuals. Hence the reference to three, 16, or five traits, though virtually any number of personality dimensions have been proposed.

## 2.6 EYSENCK'S GIGANTIC THREE AND THE BIOLOGICAL BASIS OF PERSONALITY TRAITS

The **Gigantic Three** derives from Eysenck's systematic empirical investigations on personality and individual differences (Eysenck, 1947, 1957, 1967, 1991) and is one of the major theories and

**Gigantic Three** theory derived from Eysenck's investigations on personality and individual differences which posits three major personality dimensions – Neuroticism, Extraversion, and Psychoticism – for classifying individuals

instruments for assessing personality traits. This theory posits that there are three major dimensions according to which every individual can be classified, namely *Neuroticism*, *Extraversion*, and *Psychoticism* (only added to the taxonomy in 1976).

Eysenck provided several psychometric instruments to assess the Gigantic Three, including the original *Maudsley Medical Questionnaire* (MMQ), the *Eysenck Personality Inventory* (EPI), and the most recent *Revised Eysenck Personality Questionnaire* (EPQ-R) (Eysenck & Eysenck, 1985) and *Eysenck Personality Profiler* (EPP) (Jackson, Furnham, Forde, & Cotter, 2000), which also include a Lie scale to detect extreme responses or “faking good.” Eysenck's inventories are self-report questionnaires comprising items about typical behavior (preferences and dispositions), which are answered on a two-point Likert-type scale (yes/no). Thus people report whether they agree or not with a variety of statements, indicating whether these are representative of the way they usually behave.

Theoretically, the three dimensions assessed by the EPQ-R are *orthogonal* or independent. This means that high scores on, say, Neuroticism do not provide any information about scores on the other two traits, and vice versa. Thus, you can be stable and extraverted, or stable and introverted, and so on. Accordingly, the description of an individual would not be fulfilled unless the three personality traits are assessed. At the same time, the Gigantic Three model implies that no more than these traits are needed to describe individuals, though an increasing number of researchers have argued otherwise (see 2.10 and 2.11 below). A brief description of high and low scorers on each trait is presented in Table 2.1.

*Neuroticism* refers to an individual's level of emotionality and tendency to worry, be moody, touchy, and anxious. Thus the Neuroticism/Emotional Stability trait is a continuum of upset and distress. People high on Neuroticism are generally anxious, stressed, pessimistic, and fearful and tend to have lower self-esteem. Conversely, people low on Neuroticism are emotionally stable, calm, and optimistic.

*Extraversion* assesses the degree to which individuals show a tendency to be talkative, outgoing, and energetic. Thus the Extraversion/Introversion factor represents a continuum of sociability, liveliness, and dominance. Extraverts tend to enjoy the company of others and express their feelings and emotions; they are energetic and optimistic, outgoing and confident. Conversely, introverts (low Extraversion scorers) are resilient to interpersonal contact, reserved, and quiet; they tend to be shy and lack confidence.

**Table 2.1** Eysenck's Gigantic Three (characteristics of high and low scorers)

	<i>Neuroticism</i>	<i>Extraversion</i>	<i>Psychoticism</i>
<i>High</i>	Anxious, moody, depressed, pessimistic, tense, shy, low self-esteem	Energetic, sociable, lively, active, assertive, confident, dominant	Unempathetic, creative, sensation-seeking, aggressive, cold
<i>Low</i>	Stable, positive, calm, optimistic, confident, relaxed	Asociable, passive, slow, reflective, introspective, unconfident	Altruistic, rational, patient, conformist, organized, down-to-earth, empathic

Source: Based on Eysenck & Eysenck (1991).



*Psychoticism* refers to an individual's level of conformity, aggressiveness, and feelings for others. High Psychoticism describes emotionally cruel, risk-taking, impulsive, and sensation-seeking individuals. They are *sociopathic*, which means they show little respect for social norms, and are psychologically unattached to others. Conversely, low Psychoticism (known as tender-mindedness) describes caring, responsible, and socially driven individuals more likely to conform to given rules than to defy them.

It is important to understand that Table 2.1 describes *extreme* levels of each trait. Personality traits, like intelligence – discussed throughout chapters 5 and 6 – are normally distributed in the population. This means there are only about 10 percent of individuals who would fall into the extreme levels of scores. On the contrary, most individuals would score in the middle 50 percent of scores, implying that the majority of people are neither extremely neurotic nor extremely stable, and so forth. However, extreme cases, like case studies, are often helpful to grasp the meaning of concepts and, in this case, what personality traits represent. Let us therefore spend a few minutes on the following exercise.

► **Exercise:** Do you have any friends who are prototypically high or low on any of the three personality dimensions? How about famous people/celebrities? Actors? Musicians? Can you think of any profession that is representative of extreme scores on any of these traits (e.g., sales people may be typically extraverted, artists may tend to be more psychotic, academics seem more introverted or neurotic). Finally, do you think there are any important aspects of personality not included in the Gigantic Three classification? If so, which ones?

## 2.7 SELF-REPORT INVENTORIES

The logic underlying the assessment of individual differences in personality traits follows an approach that blends common sense with probabilistic inference. The first two assumptions are that (1) we know ourselves relatively well (certainly better than we know others and, consequently, better than others know us) and (2) different people behave in different ways. These are commonsense assumptions, though psychoanalysts, for instance, have long claimed that the major determinants of individuals' behavior are unconscious or unknown.

Instead of asking people direct questions about themselves, such as whether they are neurotic, extraverted, or psychotic, self-report inventories comprise indirect questions, namely, items about different preferences, tendencies, and behaviors (see Table 2.2).

Self-report items such as those in the EPQ-R refer to preferences or behaviors that individuals can evaluate straightforwardly, without much analysis of the motives or theories underlying their personalities. Once sufficient statements are

**Table 2.2** Sample items for the Gigantic Three personality traits (EPQ-R)

Trait	Sample items
Neuroticism	<p>“Does your mood often go up and down?”</p> <p>“Are you often troubled about feelings of guilt?”</p> <p>“Are you a worrier?”</p>
Extraversion	<p>“Do you tend to keep in the background on social occasions?”</p> <p>“Can you usually let yourself go and enjoy yourself at a lively party?”</p> <p>“Do you enjoy meeting new people?”</p>
Psychoticism	<p>“Would you take drugs which may have strange or dangerous effects?”</p> <p>“Do you enjoy hurting people you love?”</p> <p>“Have you ever taken advantage of someone?”</p>

Source: Based on Eysenck & Eysenck (1985).

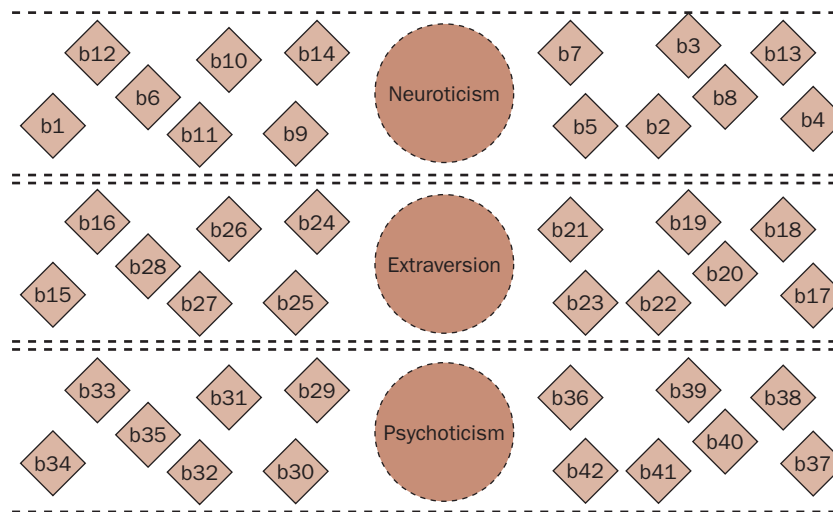
answered, the data are analyzed or “reduced” through a statistical technique called **factor analysis**. This technique, which nowadays can be applied in seconds using computer software packages like SPSS, determines which questions tend to be answered in similar ways. Factor analysis requires a large number of respondents to answer a large number of questions. There are in fact predefined rules of thumb that determine the number of participants per question needed, usually about five, though samples should always exceed  $N = 100$ . Let us exemplify this technique through the following simple scenario.

Suppose you want to find out whether someone likes classical music. There are several ways you could do this, for instance:

- You could ask the person whether she likes classical music.
- You could ask the person how much she likes classical music.
- You could ask friends or relatives of the person whether she likes classical music.
- You could hide in the person's house and observe how often she listens to classical music.
- You could phone the person's credit card company to ask for a balance showing how much she spends on CDs and opera tickets.
- You could test how much the person knows about classical music.

We can rapidly spot complications with each of the assessment techniques proposed above. Asking the person whether she likes classical music would be problematic if she decides to lie, and in certain circumstances there may be motives for the person to lie – for instance, if the question is being asked by a potential employer who happens to love classical music! Asking how much the person loves classical music would not only expose the same problem (faking/lying), but also different levels of subjective

**factor analysis** data reduction technique where relationships between a large number of variables can be reduced to a relationship among fewer underlying factors



**Figure 2.7** Eysenck's Gigantic Three psychometrically assessed.

Each of the diamonds b1 . . . b42 represents self-reported behaviors or preferences (e.g., “do you enjoy loud parties?”). Correlated behaviors are located within the same psychometric space (i.e., Neuroticism, Extraversion, or Psychoticism, the three independent/orthogonal traits).

interpretation by which different people assess their preferences: “a lot” may represent more to some individuals than to others. Asking friends and relatives may overcome the problems of impression management, faking, and lying, though equally there is no reason to suppose that the person's friends and relatives are more likely to tell the truth, particularly if the person has managed to “fool” them. Hiding in the person's house to observe how often she listens to classical music may be more effective, but also illegal. Phoning the person's bank to enquire about her spending would also require legal authorization, and even so the bank or credit card company is unlikely to have details about the products she purchased. Testing the person's knowledge of classical music may only be an indirect measure of how much she likes classical music: the person could be extensively trained in classical music, but prefer to listen to R&B, pop, or jazz.

Another more practical and reliable option can be found in the psychometric approach, which consists of asking different, supposedly related questions to the person or anyone who knows her well. In the case of preference for classical music, we could, for instance, ask the following questions:

- a) Do you like Bach?
- b) Do you often listen to Beethoven?
- c) Do you regularly buy classical music CDs?
- d) Would you find it difficult to spend more than a week without listening to classical music?
- e) Do you usually go to the opera?
- f) Do you think young people should spend more time listening to Chopin than Eminem?

Once these questions have been answered (and I should emphasize that the choice of questions is entirely subjective in this case), not by one but by, say, 100 individuals, factor analytical techniques such as principal components analysis can be used to determine whether these questions have something in common.

If they do, we should be able to identify an underlying factor or component, which explains general patterns of responses. Depending on the meaning of the questions, we can then label the factor accordingly. In this case “preference for classical music” seems to be an obvious choice, though labeling will always remain more or less subjective.

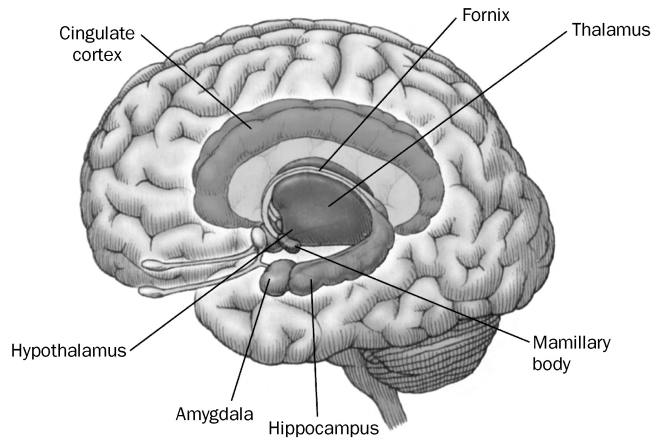
Despite relying on self-reported information, the psychometric method “produces” on the other hand more variability between individuals' levels of preferences. On the other hand, the use of multiple items allows us to assess different aspects of preference for classical music through simple and specific questions.

Thus, the statistical technique of data reduction provides a robust indicator of whether different behaviors or preferences we enquire about are related to a common underlying dimension. If so, it is also possible to ask others to rate the person and calculate an overall score for each individual to represent their level of preference for classical music. That score can also be compared with other information, for example, number of classical CDs owned, amount of money spent on opera tickets, and knowledge of classical music. Personality inventories (see Figure 2.7) follow essentially the same principles as in our music example.

## 2.8 THE BIOLOGICAL BASIS OF PERSONALITY

Another central element in Eysenck's theory is that it explains individual differences in personality in *biological* terms. Thus, different levels of Neuroticism, Extraversion, and Psychoticism are thought to be caused by genetic factors, which explains why personality remains largely unchanged throughout the lifespan (see chapter 7). In particular, differences in temperament would be a consequence of individuals' level of cerebral arousability or the extent to which their brain is sensitive to stimulation.

According to Eysenck (1967; Eysenck & Eysenck, 1985), there are two major systems accounting for physiological and



**Figure 2.8** Reticular activating system.

Source: H. Gleitman, A. J. Fridlund, and D. Reisburg, *Psychology, Fifth Edition* (New York: W. W. Norton, 1999), p. 27, Fig. 2.13.

psychological differences between individuals, namely, the *reticulo-cortical*, located in the brain-stem reticular formation, and *reticulo-lymbic*, situated in the visceral area, composed of the amygdala, hippocampus, septum, cingulum, and hypothalamus (see Figure 2.8). Whereas the former is in charge of controlling the cortical arousal produced by each incoming stimulus, the latter regulates responses to emotional stimuli.

Eysenck argued that Extraversion is the psychological consequence of physiological differences in the reticulo-cortical system, which determines levels of motivation, emotion, and conditioning according to either inhibitions or excitations of the cerebral cortex. These consistent patterns of arousability would also determine the extent to which an individual is extraverted or introverted; specifically, introverts would have a greater tendency to be cortically aroused than their extraverted counterparts, and vice versa. Thus, under equal conditions of external stimulation (i.e., in exactly the same situation), introverts will generate greater arousal than extraverts (Gale, 1973).

It follows that introverts need more time and effort to adapt to external stimuli and benefit from quiet environments. Conversely, extraverts, who have a greater need to compensate for their lower levels of arousal, tend to seek external stimulation and are more comfortable and able to deal with distracting environments or arousing activities. Studies on sensory deprivation, where extraverts seem to compensate for the lack of stimulation by moving around the room, appear to illustrate the interplay of physiological and psychological processes with external stimuli (Eysenck & Eysenck, 1985). Thus introverts' and extraverts' arousability levels would lead the former to avoid stimulus intensity and the latter to seek it. This search or avoidance would in turn enhance or reduce extraverts' and introverts' innate levels of habituation to stimuli, resulting in a **biopsychological** feedback.

On the other hand, Eysenck explained individual differences in

**biopsychological** interaction between biological factors and psychological factors

Neuroticism in terms of the arousability of the limbic system, which generates activation perceived as arousal. Levels of arousability are

induced by emotional stimuli, and the arousing activities in the brain of neurotic individuals can be translated into a predisposition to experience intense emotions, notably anxiety. Thus Neuroticism is explained by the relationship between an individual's level of excitability and emotional responsiveness, reflected in the autonomic activation of the neurotic system. Just as differences in Extraversion/Introversion are more evident in stimulus-intense environments, differences in autonomic activation leading to Neuroticism are more clearly observed under stressful or anxiety-evoking conditions (Matthews & Gilliland, 1999). In fact, Eysenck (1967, p. 3) noticed that "the concept of fatigue in relation to extraversion-introversion takes the place of the concept of emotion in relation to neuroticism-stability."

Because neurotic individuals are characterized by a hyper-arousable visceral system (the area of the brain involved in emotional regulation), they are more sensitive to reproducing emotional reactions than are stable/low Neuroticism individuals. Accordingly, the same event may elicit an intense emotional reaction in neurotic but not stable individuals, and observable indicators such as sweat or galvanic skin response, as the experience of intense negative emotions, are believed to be the consequence of the visceral-brain activation and its consequent activation of the nervous system.

Although Eysenck did not provide a detailed account of the biological basis of Psychoticism, he suggested that individual differences in Psychoticism may be caused by the dopamine neurotransmitter, a chemical brain messenger associated with the experience and regulation of emotionality. Despite the wide replication of Neuroticism and Extraversion as major dimensions of personality, Psychoticism remained the focus of a largely unresolved psychometric dispute that opened the field to other important taxonomies (see 2.10 and 2.11 below).

Other problems with Eysenck's psychobiological theory were its complexity, the physiological interdependence of the processes underlying the two supposedly unrelated traits of Neuroticism and Extraversion, and the lack of sufficient technological instruments – especially at the time – to test his hypotheses. Because of fast-paced technological advances in **neuropsychology**, several of the concepts underlying Eysenck's theory seem now as outdated as those used by Hippocrates and Galen at the time of Eysenck's preliminary theoretical developments. Some interesting research in this line is still being conducted, and there are some, notably Robinson (1996), who are concerned with reinterpreting and reexamining Eysenck's biological theory of temperament with state-of-the-art neuropsychological equipment. Yet the physiological part of Eysenck's theory is by and large disconfirmed, and most personality research has since been based on questionnaire rather than biological models.

**neuropsychology** the area of psychology that studies how the brain relates to specific psychological processes

## 2.9 GRAY'S PERSONALITY THEORY

Another influential personality theory, largely based on Eysenck's theory though pioneering in many aspects, was developed by

**Table 2.3** Gray's BAS/BIS personality theory

BAS (Behavioral activation system)	BIS (Behavioral inhibition system)
<b>Activates</b>	<b>Inhibits</b>
Reward-seeking	Punishment-avoiding
Positive emotions (e.g., hope, joy)	Negative emotions (e.g., fear, anxiety)
Anticipation of positive event	Anticipation of negative event
High = impulsivity (sociopathy)	High = trait anxiety (anxiety disorders)
Low = low impulsivity	Low = emotional stability
Under-sensitive = depression	Over-sensitive = depression

Jeffrey Gray (1934–2004) and is known as the *behavioral activation system (BAS)/behavioral inhibition system (BIS)* personality theory. Gray's model was initially put forward as a variation of the Gigantic Three (see 2.6 and 2.8 above), though once developed the theory was soon regarded as an alternative to Eysenck's. Because the BAS/BIS theory is also useful for understanding motivation and emotion, it will also be discussed in chapter 9.

Gray developed his model on the basis of animal experiments – notably rats – though it applies largely to individuals. Like other animals, humans may respond to threatening stimuli in an active or passive way, in other words, by (actively) fighting or (passively) flying or running away. This system of response was conceptualized at three biological levels, each corresponding to parts of the brain, namely, the amygdala, the ventromedial hypothalamus, and the central gray of the midbrain. Table 2.3 summarizes the characteristics of the BAS and the BIS.

Gray's (1981) personality theory is based on the behavioral principles of *conditioning*, i.e., reward and punishment, and their long-term effects on the brain. Like Eysenck, then, Gray developed a biologically based personality theory, though Gray emphasized the developmental effects of conditioning and focused mainly on anxiety. Thus the personality theories of Eysenck and Gray often work at different explanatory levels of the same phenomena, with Gray's model offering a more fine-grained description of the neuropsychological processes underlying individual differences in personality.

According to Gray (1982), the BAS motivates behavior towards obtaining a reward by making the individual aware of the reward and giving the “go-ahead” signal that triggers behavior. Whether the target is a box of chocolates, a pack of cigarettes, or a beautiful woman is theoretically indifferent as the BAS causes the person to desire and act in the direction of the target. The BIS, on the other hand, is an anxiety system that inhibits behaviors associated with potential punishment or lack of reward. Thus the BIS encourages an individual to stop a particular behavior by increasing his/her level of awareness of the negative outcomes of a given behavior. A classic example is fear of a snake, followed by the inhibition against touching it and, in turn, the act of running

away. BIS activity is psychologically expressed in terms of neurotic anxiety and depression (Gray, 1987).

Gray argued that individuals are biologically compelled to increase activity in the rewarding system, prompted by the BAS. Any rewarded behavior feeds back positively onto the BAS. On the other hand, individuals are also “programmed” to reduce activity in the BIS, which is achieved through stopping behaviors that may lead to punishment or fail to be rewarded (leading to frustration). Failure to inhibit these behaviors will increase the activity of the BIS. Both BIS and BAS are related through the mechanism of arousal, located in the reticular formation, conceived by Gray in terms of the dorsal noradrenergic bundle and as a separate system.

The most significant implication of Gray's theory with regard to personality taxonomy is the differentiation between the two distinct dimensions of *anxiety* and *impulsivity*, comparable – yet not equivalent – to Neuroticism and Extraversion, respectively. Interestingly, correlations between Gray's and Eysenck's models indicate that anxiety is negatively, albeit modestly, associated with both Extraversion and Psychoticism, suggesting that (1) there is a conceptual overlap between Extraversion and Psychoticism, namely impulsivity (both extravert and psychotic individuals tend to be impulsive), and (2) Psychoticism is characterized by risk-taking, whilst Neuroticism, at the opposite end of the scale, may be characterized by risk-avoiding (Gray, 1987). This idea is in line with a longstanding tradition in psychiatry that distinguishes between neuroses and psychoses, echoed, for instance, by Freud's psychoanalytic theory.

At the same time, Gray was generally in agreement with Eysenck about the inclusion of Psychoticism as a third major personality trait, and hypothesized this trait to be associated with the fight/flight system (Gray, 1991).

Despite the influence of Gray's theory, particularly in providing an empirically based theoretical framework for experimental research into the processes accounting for individual differences in major personality dimensions, dispositional approaches to personality have tended to focus on other taxonomies. However, Gray's theory has, perhaps like no other personality model, encouraged psychologists to combine psychometric/correlational with cognitive/experimental designs to explore the unaccounted processes underlying trait differences, a combination that has progressively undermined conceptual differences between state and trait approaches to personality. Hence the advantage of Gray's model, which works at both dispositional and situational levels.

## 2.10 CATTELL'S 16PF AND THE LEXICAL HYPOTHESIS

Another salient personality model is that developed by Raymond Cattell (1905–98), who argued that there are 16 major dimensions of personality (Cattell, Eber, & Tatsuoka, 1970). Cattell's personality model derived from an exhaustive and systematic analysis of the English language and was based on the assumption that every aspect of an individual's personality can be described by

**lexical hypothesis** the idea that the major dimensions of personality can be derived from the total number of descriptors in any language system

existing words. This assumption is known as the **lexical hypothesis**.

The first documented lexical study was conducted by Allport and Odbert (1936), who found as many as 17,953

words to describe psychological aspects by which individuals may be compared. These words may be thought of as personality adjectives, for instance “happy,” “shy,” “quiet,” “stupid,” “aggressive,” and so on. Because there are often different words to describe the same trait or aspect of personality, the total number of descriptors can be reduced substantially. Starting from a list of 4,500 words, Cattell obtained 180, then between 42 and 46, and eventually 16 personality traits. Factors from Cattell’s taxonomy, the 16PF, are presented in Table 2.4.

Despite the wide range of behaviors covered by Cattell’s 16 factors, moderate and high intercorrelations between several of these dimensions make it possible to reduce the taxonomy to fewer, higher-order factors, namely QI, QII, and QVIII. This can be achieved through *oblique rotation*, a technique championed by Cattell that allows different factors to be correlated. Despite the technical jargon, the idea underlying oblique rotation is rather simple. Many variables that refer to everyday events happen to be oblique or related. For instance, alcohol and drug consumption in adolescents refer to different but related behaviors; another example is religious and political views.

QI (exvia-vs.-invia) and QII (adjustment-vs.-anxiety) are comparable to Extraversion and Neuroticism, respectively, whilst QVIII (superego) seems to overlap with Eysenck’s Psychoticism trait, referring to levels of ego-strengths, discipline, and self-

concepts. However, several researchers – including Cattell himself – failed to replicate both the primary and secondary traits of the 16PF. Besides, Cattell argued that intelligence should be conceptualized as part of personality and assessed through self-report inventories, though most intelligence theories demand that abilities are measured through objective performance tests (see chapters 5 and 6).

## 2.11 THE FIVE FACTOR MODEL (BIG FIVE)

If personality psychology were to advance from a preliminary classification of traits to the prediction of real-life outcomes and other psychological constructs, it would be essential to establish a consensus concerning the number and nature of traits that are necessary to describe the basic psychological differences between individuals. The system that appears to have won the vote of most differential psychologists (including mine and, I hope, yours by the time you finish reading this book) is the **Five Factor Model**, also referred to as the **Big Five** personality traits.

Like Cattell’s 16PF, the Big Five personality framework originated from the lexical hypothesis, that is, the assumption that the major dimensions of individual differences can be derived from the total number of descriptors in any language system. After Cattell’s initial version

**Five Factor Model** a trait theory of personality which posits that there are five major and universal factors of personality, namely, Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness (also known as the **Big Five**)

of a lexical-based personality model, Norman (1967) – based on Tupes and Christal (1961/1992) – identified 1,431 major descriptors, which could be collapsed into a more fundamental list of 75 adjectives. Thus the Big Five model of personality is the result of statistical rather than theoretical or experimental research, and offers a descriptive rather than causal classification of individual differences, although in recent years behavioral-genetic studies have provided evidence for the biological influences of the Big Five personality dimensions (discussed in chapter 7).

Despite the lack of theoretical rationale for the etiology or origin of traits identified by the Five Factor model, and some isolated but persistent opposition (notably Block, 1995, 2001), there has been a good deal of consensus and empirical evidence to support the identification of the Big Five as the major dimensions of personality (Funder, 2001). Differential psychologists have also seemed to agree on the psychometrical advantages of the Big Five taxonomy proposed by Costa and McCrae (1985, 1992), often concluding that the Five Factor Model is “universal.”

According to the Five Factor taxonomy, there are five major personality traits or factors, namely, Neuroticism, Extraversion (as we have seen, these two dimensions are also present in Eysenck’s, Gray’s, and Cattell’s systems), Openness to Experience (added by Costa & McCrae, 1978), Agreeableness, and Conscientiousness. Hence the widely used abbreviations of NEOAC or OCEAN. Table 2.5 presents the complete supertraits and primary traits (facets) of the Revised NEO Personality Inventory

**Table 2.4** Factors in Cattell’s 16PF

No.	Factor
1	Factor A Warmth (Reserved vs. Warm)
2	Factor B Reasoning (Concrete vs. Abstract)
3	Factor C Emotional Stability (Reactive vs. Emotionally Stable)
4	Factor E Dominance (Deferential vs. Dominant)
5	Factor F Liveliness (Serious vs. Lively)
6	Factor G Rule-Consciousness (Expedient vs. Rule-Conscious)
7	Factor H Social Boldness (Shy vs. Socially Bold)
8	Factor I Sensitivity (Utilitarian vs. Sensitive)
9	Factor L Vigilance (Trusting vs. Vigilant)
10	Factor M Abstractedness (Grounded/Practical vs. Abstracted/Imaginative)
11	Factor N Privatness (Forthright vs. Private)
12	Factor O Apprehension (Self-Assured vs. Apprehensive)
13	Factor Q1 Openness to Change (Traditional vs. Open to Change)
14	Factor Q2 Self-Reliance (Group-Oriented vs. Self-Reliant)
15	Factor Q3 Perfectionism (Tolerates Disorder vs. Perfectionistic)
16	Factor Q4 Tension (Relaxed vs. Tense)

Source: Cattell, Eber, & Tatsuoka (1970).

**Table 2.5** NEO-PI-R supertraits and primary traits (facets) with checklist items

<i>Traits (facets)</i>	<i>Checklist items</i>
N1: anxiety	anxious, fearful, worrying, tense, nervous, – confident, – optimistic
N2: angry hostility	anxious, irritable, impatient, excitable, moody, – gentle, tense
N3: depression	worrying, – contented, – confident, – self-confident, pessimistic, moody, anxious
N4: self-consciousness	shy, – self-confident, timid, – confident, defensive, inhibited, anxious
N5: impulsiveness	moody, irritable, sarcastic, self-centered, loud, hasty, excitable
N6: vulnerability	clear-thinking, – self-confident, – confident, anxious, – efficient, – alert, careless
E1: warmth	friendly, warm, sociable, cheerful, – aloof, affectionate, outgoing
E2: gregariousness	sociable, outgoing, pleasure-seeking, – aloof, talkative, spontaneous, – withdrawn
E3: assertiveness	aggressive, – shy, assertive, self-confident, forceful, enthusiastic, confident
E4: activity	energetic, hurried, quick, determined, enthusiastic, aggressive, active
E5: excitement-seeking	pleasure-seeking, daring, adventurous, charming, handsome, spunky, clever
E6: positive emotions	enthusiastic, humorous, praising, spontaneous, pleasure-seeking, optimistic, jolly
O1: fantasy	dreamy, imaginative, humorous, mischievous, idealistic, artistic, complicated
O2: aesthetics	imaginative, artistic, original, enthusiastic, inventive, idealistic, versatile
O3: feelings	excitable, spontaneous, insightful, imaginative, affectionate, talkative, outgoing
O4: actions	interests wide, imaginative, adventurous, optimistic, – mild, talkative, versatile
O5: ideas	idealistic, interests wide, inventive, curious, original, imaginative, insightful
O6: values	conservative, unconventional, – cautious, flirtatious
A1: trust	forgiving, trusting, – suspicious, – wary, pessimistic, peaceable, – hard-hearted
A2: straightforwardness	complicated, – demanding, – clever, – flirtatious, – charming, – shrewd, – autocratic
A3: altruism	warm, soft-hearted, gentle, generous, kind, tolerant, – selfish
A4: compliance	stubborn, – demanding, – headstrong, – impatient, – intolerant, – outspoken, – hard-hearted
A5: modesty	show-off, – clever, – assertive, – argumentative, – self-confident, – aggressive, – idealistic
A6: tender-mindedness	friendly, warm, sympathetic, soft-hearted, gentle, – unstable, kind
C1: competence	efficient, self-confident, thorough, resourceful, confident, – confused, intelligent
C2: order	organized, thorough, efficient, precise, methodological, – absent-minded, – careless
C3: dutifulness	defensive, – distractible, – careless, – lazy, thorough, – absent-minded, – fault-finding
C4: achievement-striving	thorough, ambitious, industrious, enterprising, determined, confident, persistent
C5: self-discipline	organized, – lazy, efficient, – absent-minded, energetic, thorough, industrious
C6: deliberation	hasty, – impulsive, – careless, – impatient, – immature, thorough, – moody

N = Neuroticism, E = Extraversion, O = Openness, A = Agreeableness, C = Conscientiousness.

Source: Adapted from Costa & McCrae (1992).

(NEO-PI-R) (Costa & McCrae, 1992) with their respective checklist. Sample items for each primary facet are presented in Table 2.6.

The first major personality trait is Neuroticism and can be described as the tendency to experience negative emotions, notably anxiety, depression, and anger. Neurotic individuals can be characterized by their tendency to experience anxiety, as opposed to the typically calm, relaxed personalities of low Neuroticism or emotionally stable individuals. The primary facets of Neuroticism are *anxiety*, *angry hostility*, *depression*, *self-consciousness*, *impulsiveness* and *vulnerability*. Are you more stable or neurotic?

The second major personality dimension is Extraversion and refers to high activity, the experience of positive emotions, impulsiveness, assertiveness, and a tendency towards social behavior. Conversely, low Extraversion or Introversion is characterized by rather quiet, restrained, and withdrawn behavioral patterns. The primary facets of Extraversion are *warmth*, *gregariousness*, *assertiveness*, *activity*, *excitement-seeking*, and *positive emotions*. Are you more extraverted or introverted?

A third dimension, Openness to Experience, is derived from the ideas of Coan (1974) and represents the tendency to engage in intellectual activities and experience new sensations and ideas.

**Table 2.6** NEO-PI-R primary traits (facets) with sample items

Primary traits (facets)	Sample items
N1: anxiety	"I am not a worrier."
N2: angry hostility	"I often get angry at the way people treat me."
N3: depression	"I rarely feel lonely or blue."
N4: self-consciousness	"In dealing with other people, I always dread making a social blunder."
N5: impulsiveness	"I rarely overindulge in anything."
N6: vulnerability	"I often feel helpless and want someone else to solve my problems."
E1: warmth	"I really like most people I meet."
E2: gregariousness	"I shy away from crowds of people."
E3: assertiveness	"I am dominant, forceful, and assertive."
E4: activity	"I have a leisurely style in work and play."
E5: excitement-seeking	"I often crave excitement."
E6: positive emotions	"I have never literally jumped for joy."
O1: fantasy	"I have a very active imagination."
O2: aesthetics	"Aesthetic and artistic concerns aren't very important to me."
O3: feelings	"Without strong emotions, life would be uninteresting to me."
O4: actions	"I'm pretty set in my ways."
O5: ideas	"I often enjoy playing with theories or abstract ideas."
O6: values	"I believe letting students hear controversial speakers can only confuse and mislead them."
A1: trust	"I tend to be cynical and skeptical of others' intentions."
A2: straightforwardness	"I am not crafty or sly."
A3: altruism	"Some people think I am selfish and egotistical."
A4: compliance	"I would rather cooperate with others than compete with them."
A5: modesty	"I don't mind bragging about my talents and accomplishments."
A6: tender-mindedness	"I think political leaders need to be more aware of the human side of their policies."
C1: competence	"I am known for my prudence and common sense."
C2: order	"I would rather keep my options open than plan everything in advance."
C3: dutifulness	"I try to perform all the tasks assigned to me conscientiously."
C4: achievement-striving	"I am easy-going and lackadaisical."
C5: self-discipline	"I am pretty good about pacing myself so as to get things done on time."
C6: deliberation	"Over the years I have done some pretty stupid things."

N = Neuroticism, E = Extraversion, O = Openness, A = Agreeableness, C = Conscientiousness.

Source: Adapted from Costa & McCrae (1992).

This factor is also referred to as Creativity (see chapter 10), Intellect, and Culture (Goldberg, 1993). It comprises the primary facets of *fantasy*, *aesthetics*, *feelings*, *actions*, *ideas*, and *values*. In a general sense, Openness to Experience is associated with intellectual curiosity, aesthetic sensitivity, vivid imagination, behavioral flexibility, and unconventional attitudes. People high on Openness to Experience tend to be dreamy, imaginative, inventive, and non-conservative in their thoughts and opinions. Poets and artists (and, to some extent, psychologists and psychology students too!) may be regarded as typical examples of high Openness scorers.

A fourth factor, Agreeableness (also known as Sociability), refers to friendly, considerate, and modest behavior. Thus Agreeableness is associated with a tendency towards friendliness and nurturance and comprises the primary facets of *trust*, *straightforwardness*, *altruism*, *compliance*, *modesty*, and *tender-mindedness*. Agreeable people can thus be described as caring, friendly, warm, and tolerant, and have a general predisposition for prosocial behavior.

Finally, Conscientiousness is associated with proactivity, responsibility, and self-discipline (does this apply to you? If you're reading this textbook just before your exam, perhaps not!). This

**Table 2.7** Correlations between the Gigantic Three and Big Five personality traits

	Neuroticism	Extraversion	Psychoticism
Neuroticism	.75	-.05	.25
Extraversion	-.18	.69	-.04
Openness	.01	.15	.05
Agreeableness	-.18	.04	-.45
Conscientiousness	-.21	-.03	-.31

Source: Based on Costa & McCrae (1985).

factor includes the primary facets of *competence, order, dutifulness, achievement-striving, self-discipline, and deliberation*. Conscientious individuals are best identified for their efficiency, organization, determination, and productivity. No wonder, then, that this personality dimension has been reported to be significantly associated with various types of performance (Chamorro-Premuzic & Furnham, 2005).

Thus there are three novel personality traits identified and included in the Big Five taxonomy that are not present – although arguably represented – in the Eysenckian model. Specifically, Eysenck's idea of Psychoticism would be conceptualized in terms of low Agreeableness, high Openness to Experience, and low Conscientiousness (Digman & Inouye, 1986; Goldberg, 1982; McCrae, 1987), but Eysenck considered Openness as an indicator of intelligence or the cognitive aspect of personality rather than of temperament. On the other hand, Eysenck and Eysenck (1985) conceptualized Agreeableness as a combination of low Psychoticism, low Neuroticism, and high Extraversion rather than as a personality dimension in its own right.

Table 2.7 reports a psychometric comparison between the Gigantic Three and Five Factor taxonomies. As shown, Neuroticism and Extraversion are overlapping dimensions in both systems, suggesting that the Big Five and Gigantic Three are assessing two pairs of almost identical traits. However, Agreeableness and Conscientiousness are only moderately correlated with Psychoticism ( $r = -.45$  and  $r = -.31$ , respectively), and Openness is uncorrelated with Psychoticism ( $r = .05$ ). Thus both systems seem to differ in their assessment of traits other than Neuroticism and Extraversion.

As mentioned, the Five Factor Model has been criticized for its lack of theoretical explanations for the development and nature of the processes underlying some of its personality factors, in particular Openness, Agreeableness, and Conscientiousness (see Matthews & Deary, 1998, for a detailed discussion on this topic). This means that, even if the Big Five factors represent an accurate description of individuals, it is not known where differences in these traits arise from.

Another more recent criticism regards the relationship among the Big Five traits. Although the five factors are meant to be orthogonal or unrelated, when Neuroticism is reversed and scored in terms of Emotional Stability several studies reported all five traits to be positively and significantly intercorrelated. Although these intercorrelations are usually modest, they may suggest that personality could be further simplified to more

“basic” underlying traits, perhaps even one general factor. On the other hand, differential psychologists (such as Digman, 1997) have speculated on the possibility that these positive intercorrelations among the Big Five factors may be a reflection of socially agreeable responding (or “faking good”), as high scores on the Big Five, at least in the United States and Western European countries, are more “desirable” than low scores (remember, this rule only applies when Neuroticism is reversed).

However, the Five Factor Model has shown good validity and reliability, leading most researchers to agree on the existence of five major personality dimensions as well as the advantages of assessing these dimensions through the NEO-PI-R (Costa & McCrae, 1985, 1992). Perhaps the most obvious advantage of this consensus is the agreement itself, which allows researchers to compare and replicate studies on personality and other variables, providing a shared or common instrument to assess personality. Thus the Big Five are the “latitude and longitude” (Ozer & Reise, 1994, p. 361) along which any behavioral aspects can be sensually mapped.

In that sense, the choice of a unique instrument to assess individual differences in personality may be compared to that of a single and universal currency, software, or language, which provides a common ground for the trading and decoding of goods, information, or knowledge. Besides, the advantage of the NEO-PI-R Five Factor Model is that it accounts not only for a lay taxonomy of personality (based on the lexical hypothesis), but also for other established systems, which can be somehow “translated” into the Five Factor system. Thus findings on other scales may be interpreted in terms of the Big Five personality traits, just as other currencies can be converted into dollars or euros according to a given exchange rate. For example, self-monitoring, or the extent to which an individual evaluates his/her behavior and the way this may be perceived by others (Snyder, 1987), could be largely explained in terms of high Agreeableness, Extraversion, and Neuroticism. On the other hand, authoritarianism (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950) may be partly understood as a combination of low Openness and Agreeableness.

## 2.12 SUMMARY AND CONCLUSIONS

In this chapter I have introduced the concept of personality, reviewing definitions, historical roots, and dominant classifications of personality types and traits. As noted:

1. The idea that there are consistent patterns of thought, emotion, and behavior that may be ascribed to latent variables or traits is as old as medicine, though modern psychology has provided reliable and empirical methods to investigate such variables in a scientific manner.
2. Although some personality theorists have questioned the very idea of internal traits, this concept represents the essence of personality research and differential psychology as a robust empirical discipline is grounded upon it. Furthermore, without the notion of traits it would be difficult to understand and predict human behavior across a



- variety of contexts. Thus Funder (2001, p. 213) has noted that: "Someday a comprehensive history will be written of the permanent damage to the infrastructure of personality psychology wreaked by the person-situation debate of the 1970s and 1980s."
3. Debate on the number of personality traits that are needed to classify individual differences has dominated research since the early days of Eysenck and Cattell, two major figures in the field whose contributions to personality theory and research are unmatched. Eysenck's biological theory of personality comprised three main dimensions, Neuroticism, Extraversion, and Psychoticism, and is still widely used in differential research, although the biological aspects of the theory seem outdated and the conceptualization of Psychoticism remains contested. Cattell's approach, based on the lexical hypothesis (the assumption that all aspects of personality can be mapped onto existing words and language), was abandoned on psychometric grounds, but gave birth to the current reigning taxonomy, the Five Factor or Big Five model.
  4. Despite the lack of explanatory power of the Big Five framework (in particular compared to Eysenck's more causal theory), the robust psychometric properties of self-report inventories such as the NEO-PI-R (Costa & McCrae, 1985,

1992) have persuaded most differential psychologists to conceptualize personality in terms of five supertraits, Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness, as well as their underlying primary facets.

However, are personality traits useful for predicting and explaining different psychologically relevant constructs such as cognitive performance, health, and happiness? Chapter 3 will attempt to answer this question.

## KEY READINGS

- Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin*, *117*, 187–215.
- Costa, P. T., Jr., & McCrae, R. R. (1988). Personality in adulthood: A six-year longitudinal study of self-reports and spouse ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology*, *54*, 853–863.
- Eysenck, H. J. (1991). Dimensions of personality: 16, 5, or 3? Criteria for a taxonomic paradigm. *Personality and Individual Differences*, *12*, 773–790.
- Funder, D. C. (2001). Personality. *Annual Review of Psychology*, *52*, 197–221.