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" In my revised type theory, complexity occurs primarily as an emergent effect of preference complementarities and is expressed as type preference combinations plus their ordinal relationships. "

Toward an Empirically Sound and Radically Revised Type Theory

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ABSTRACT

This paper introduces an MBTI®-derived revised type theory that expands type categories and reinterprets several type constructs. It begins by revisiting classical type theory and makes several critical assessments of type related concepts that are part of this classical theory. Although critical of type theory, the view presented here is that the MBTI as a measurement instrument has many virtues and when interpreted appropriately and consistent with the empirical record, is a powerful tool that can inform both research and practice. Within this revised type theory the MBTI measure has an expanded role for understanding human personality and providing utility in the everyday lives of people. The revised theory is explicitly biological and is fundamentally rooted in evolved human biology, particularly behavior genetics, neuroscience and the psychobiology of personality. Similarly, the theory explicitly recognizes that the structure of the MBTI preferences is congruent with the structure of the Five Factor Model (FFM) of personality and accepts that this is now a firmly established fact that is widely accepted among personality researchers and theorists. The revised theory is presented as a series of nine core Principles.

Note: For the Myers-Briggs Type Indicator® (MBTI®) instrument, the eight preference categories are the following: Extraversion (E) versus Introversion (I), Sensing (S) versus Intuition (N), Thinking (T) versus Feeling (F), Judging (J) versus Perceiving (P).

In a recent series of papers critical of type dynamics (Reynierse, 2009; Reynierse & Harker; 2008a; 2008b), I showed that type dynamics is logically flawed, has little evidence to support it, and produced many contradictory effects that falsified it. These results are not new, were noted very early in the development of the MBTI instrument (e.g., Stricker & Ross, 1962; 1964a), by others (e.g., McCrae & Costa, 1989) and by many reviewers of the MBTI assessment and type theory (e.g., Coan, 1978; Devito, 1985; Mendelsohn, 1965; Pittenger, 1993). Further, misdiagnosis occurred throughout the type dynamics derived dominance hierarchy. Accordingly, the many historical claims that the MBTI instrument can accurately and reliably predict type dominance through the enabling role of J–P are not supported by these data. However, these papers also identified an alternative interpretation, i.e., preference multidimensionality, which fit the empirical results well, and was free from any contradictory effects. Viewed positively, there are practical applications of this research which practitioners should find at least promising, if not exciting. In the remainder of this paper I will present a brief overview of an MBTI based revised type theory that fits the empirical facts, is free from type dynamics induced distortions, and can inform both the researcher and practitioner. The potential benefit is an enhanced MBTI measurement instrument that promotes awareness of human diversity and individual differences, identifies situational factors or context for determining individual behavior, and provides a straightforward framework for determining type dominance.

INTRODUCTION

Classical MBTI® Type Theory. The conceptual framework of the MBTI assessment follows, with some modifications, the typology of Carl Jung (1923/1971) including the extraversion and introversion attitudes, Jung's four functions—the perceiving functions of sensation and intuition and the judging functions of thinking and feeling, the organization of these dimensions as complementary opposites, and the idea of type dominance. In general it is a positive and optimistic account of human nature that was intended to promote "understanding of both similarities and differences among human beings" (Myers & Myers, 1980, p. ix). From this perspective everyone has gifts that can be used effectively and each type is characterized by strengths and limitations.

The underlying theory (Myers, 1962; 1980; Myers & Myers, 1980) posits that personality is structured around four preference pairs that represent different uses of people's perception and judgment and has been summarized by many (e.g., Bayne, 2005; Brownsword, 1987; Quenk, 1993). According to theory, there are two fundamental ways of perceiving the world or collecting information, either by Sensing, i.e., through the use of our five senses, or by Intuition, i.e., by relationships and possibilities that occur outside of the senses. Similarly, there are two different ways of making judgments or deciding things, either by Thinking, i.e., through impersonal, objective logic, or by Feeling, i.e., through personal, subjective values. The theory includes four preference pairs—Extraversion (E) or Introversion (I), Sensing (S) or Intuition (N), Thinking (T) or Feeling (F), and Judging (J) or Perceiving (P). These preference pairs are conceived as complementary opposites that represent different options for describing human nature and are measured by the MBTI E–I, S–N, T–F, and J–P scales respectively. According to Myers and Myers (p. 9), the role of the preference pairs can be summarized as follows:

- The preference for E or I represents whether one prefers the outer world of people and things or the private world of self and ideas. Further, it identifies where the dominant (favorite or superior) function is expressed, i.e., whether it is extraverted or introverted;

- The preference for S or N represents which perceiving function is preferred and used;

- The preference for T or F represents which judging function is preferred and used;

- The preference for J or P represents whether the preferred perceiving function (either S or N) or the preferred judging function (either T or F) is extraverted, i.e., expressed in the outer world.

Note that the J–P preference pair is categorically different from the other MBTI preference pairs where E–I, S–N, and T–F are direct, straightforward measures of these preferences. By contrast, J–P is primarily a "pointer variable" that determines how someone prefers to deal with the outer world, i.e., which functions are extraverted. E–I, although measured directly at one level of analysis, is also an indicator of whether the dominant function is extraverted or introverted.

The arrangement of these four preference pairs provides for sixteen unique combinations and the resulting psychological types. Myers and Myers (1980)

described these combinations as follows:

> Each of these combinations produces a different kind of personality, characterized by the *interests, values, needs, habits of mind, and surface traits that naturally result* from the combinations. Combinations with a common preference will share some qualities, but each combination has qualities of its own arising from the *interaction* of the preferred way of looking at life and the preferred way of judging what is seen. (p. 4, italics in original)

These combinations, presented in the first column of **TABLE 1**, produce the conventional arrangement of the MBTI preferences into sixteen types, e.g., ISTJ for someone with MBTI scores that show preferences for I + S + T + J. The scores are simply *added together* in a straightforward manner to identify each 4-letter type with each individual preference contributing independently. But the theory is explicit that additional information about personality is both measured and summarized in these 4-letter types that extend well beyond the strictly additive, surface qualities of the individual preferences, a process commonly known as "type dynamics." **TABLE 1** also includes the additional type dynamics information for each type. The 3rd edition of the *MBTI® Manual* (Myers, McCaulley, Quenk, & Hammer, 1998) was explicit that "From a typological perspective, the fundamental unit of analysis is the whole type . . . . And that researchers should consider using whole types as the independent variables in their analyses . . . . as such analyses would provide better tests of theory, regardless of the fact that types are identified by the results of four separate dichotomies" (p. 201). Commitment to whole types embraced an interaction type dynamics model where each of the sixteen types was no longer additive but reflected unique, dynamic interactions, e.g., an ISTJ becomes I x S x T x J.

Type dynamics refers to the hierarchical ordering of Jung's functions (sensation, intuition, thinking, and feeling); the identification of this order as the Dominant, Auxiliary, Tertiary, and Inferior functions; and the expression of these functions in the extraverted and introverted attitudes. Explicit within type dynamics is the idea that for any individual, the four functions are

Table 1. The Sixteen Types and Their Straightforward MBTI® and Dynamical Interpretative Meanings.

MBTI® Type	Straightforward Interpretation	Dynamic Interpretation	
ESTJ	E + S + T + J	Dominant Thinking extraverted	Auxiliary Sensing introverted
ESTP	E + S + T + P	Dominant Sensing extraverted	Auxiliary Thinking introverted
ESFJ	E + S + F + J	Dominant Feeling extraverted	Auxiliary Sensing introverted
ESFP	E + S + F + P	Dominant Sensing extraverted	Auxiliary Feeling introverted
ISTJ	I + S + T + J	Dominant Sensing introverted	Auxiliary Thinking extraverted
ISTP	I + S + T + P	Dominant Thinking introverted	Auxiliary Sensing extraverted
ISFJ	I + S + F + J	Dominant Sensing introverted	Auxiliary Feeling extraverted
ISFP	I + S + F + P	Dominant Feeling introverted	Auxiliary Sensing extraverted
ENTJ	E + N + T + J	Dominant Thinking extraverted	Auxiliary Intuition introverted
ENTP	E + N + T + P	Dominant Intuition extraverted	Auxiliary Thinking introverted
ENFJ	E + N + F + J	Dominant Feeling extraverted	Auxiliary Intuition introverted
ENFP	E + N + F + P	Dominant Intuition extraverted	Auxiliary Feeling introverted
INTJ	I + N + T + J	Dominant Intuition introverted	Auxiliary Thinking extraverted
INTP	I + N + T + P	Dominant Thinking introverted	Auxiliary Intuition extraverted
INFJ	I + N + F + J	Dominant Intuition introverted	Auxiliary Feeling extraverted
INFP	I + N + F + P	Dominant Feeling introverted	Auxiliary Intuition extraverted

ordered in terms of individual preference and effectiveness—that is, they form a hierarchy where dominant > auxiliary > tertiary > inferior.

The justification for type dynamics is not based on empirical evidence but relies on exegesis of Jung's (1923/1971) identification of a principal or dominant process and a secondary or auxiliary function "whose nature is not opposed to the dominant function…. Experience shows that the secondary function is always one whose nature is different from, though not antagonistic to, the primary function." Similarly, Jung made the corresponding observation that "besides the conscious primary function there is a relatively unconscious, auxiliary function *which is in every respect different from the nature of the primary function*" (pp. 405–406, italics added). Accepting Jung's comments at face value provides a rule for determining whether the auxiliary function occurs in the extraverted or introverted attitude, i.e., since the auxiliary "is in every respect different," logically it must be opposite from the dominant or primary function. However, Spoto (1995) identified logical inconsistencies with Jung's discussion of this issue (p. 51) and Wilde (2011, p. 69) calls this the "attitude balance rule that is firmly entrenched as a hard and fast type dynamics assumption . . . based on Jung's statements that were taken out of his context of *functions and mistakenly applied to attitudes* as well" (italics added).

Brownsword (1987) provided a framework for conceptualizing type dynamics within the framework of the MBTI measure and identified three rules for forming type dynamics groups that preserved Jung's observation that the *auxiliary function is in every respect different from the nature of the primary or dominant function*. First, Js extravert their judging function, T or F, but introvert their perceiving function, S or N. By contrast, Ps extravert their perceiving function, S or N, but introvert their judging function, T or F. Thus, type dynamics uses J–P as a "pointer variable" in which the J–P preference pair identifies which functions are extraverted. Second, for Es the extraverted function is dominant, and the introverted function is auxiliary. By contrast, for Is the introverted function is dominant and the extraverted function is auxiliary. Third, the opposite of the dominant is the inferior, which is introverted if the dominant is extraverted, but extraverted if the dominant is introverted. Similarly, the opposite of the auxiliary is the tertiary, which is introverted if the auxiliary is extraverted, but extraverted if the auxiliary is intro-

verted. Following the attitude balance rule of type dynamics, both the dominant and the tertiary functions occur in the preferred attitude and the auxiliary and inferior functions in the less preferred attitude in an alternating fashion (E–I–E–I and I–E–I–E). The *MBTI® Manual* (Myers & McCaulley, 1985; Myers et al., 1998) outlined similar rules except that only the dominant function operates in the preferred attitude; the auxiliary, tertiary, and inferior functions occur in the less preferred, opposite attitude (E–I–I–I and I–E–E–E).

Sixteen different types are also produced when Extraversion, Introversion, and the dominant and auxiliary processes, i.e., as identified by the assignment rules of type dynamics, are combined with the four functions. However, this is based on only 8 preference combinations (pairs) *as measured by the four MBTI scales*: ES, EN, ET, EF, IS, IN, IT, and IF because the expression of type dynamics includes only the combination of Extraversion or Introversion with the individual functions (Sensing, Intuition, Thinking, or Feeling) *and does not measure the Jungian function modes, i.e., Se, Ne, Te, Fe, Si, Ni, Ti and Fi, directly*. These 8 MBTI pair combinations must be qualified by the addition of the "dominant" and "auxiliary" type dominance constructs, e.g., ET^dom for ESTJs or ET^aux for ISTJs, to obtain 16 types. The functional pairings are not used and the J–P preference is used strictly as a pointer variable. Again, only 8 preference pairs are used and the remaining possible 16 MBTI pairs are ignored. Further, the dynamical combinations summarized in **Table 1** are categorically different from the 16 straightforward MBTI types, and it is logically improper to equate them.

Critics may argue that this interpretation differs from the intended meaning of the MBTI assessment where the sixteen 4-letter types are separate forms of the eight Jungian modes, i.e., Se, Ne, Te, Fe, Si, Ni, Ti and Fi. In this sense, the intended meaning of Extraversion and Introversion is identified only with where the dominant function is expressed, e.g., Se means dominant Sensing extraverted. However, this Jungian interpretation requires two *assumptions*: first, that the sixteen 4-letter types accurately measure the contributing roles of type dynamics, a role challenged by the analyses of Reynierse (2009), Reynierse and Harker (2008a; 2008b) and historical criticism about the structural properties of the MBTI instrument (e.g., Stricker & Ross, 1962; 1964a). And second, that the attitudes are inseparable from the functions, an assumption contradicted by the fact that the MBTI assessment successfully separates the

attitudes and functions within its four measurement scales. In addition, it ignores that the MBTI instrument measures similar social extraversion as other personality measures (e.g., McCrae & Costa, 1989; Schaubhut, Herk, & Thompson, 2009; and Stricker & Ross, 1964b), and perhaps even differs from intended Jungian meaning, e.g., Meier's (1975/1989; 1977/1995) descriptors for extraversion and introversion. Even worse, it reduces an already restrictive set of sixteen 4-letter types to eight 2-letter types.

Interactions are central to the nature of psychological type and the combinations recognized by classical MBTI type theory (Hicks, 1984). Theoretically, each individual combination and type represents a unique configuration where the whole is greater than the sum of the individual parts, i.e., the effects for any combination and type reflect additional meaning beyond any additive relationship of the individual preferences. Myers et al. (1998) noted, "Each type described by Jung and Myers is *greater than the sum of its parts* because of the different interactions among the four preferences that make up a type" (p. 4). Type interactions, however, are very complicated, at every level are often distorted by statistical artifacts, and disappear or become trivial when effects are examined further (Reynierse & Harker, 2001; 2005a). Identical trends were found in several large-scale studies for ratings of personal preferences (Myers et al.), lexical descriptors (Reynierse & Harker, 2000; 2001), self-report, questionnaire scale scores (Reynierse & Harker, 2005a), business values (Reynierse, Harker, Fink & Ackerman, 2001), and personal values important for teamwork (Sundstrom, Koenigs, & Huet-Cox, 1996). Each study found many significant effects for the individual preferences and two-way interactions, few effects for the three-way interactions, and the four-way interaction occurred only rarely, effects that are difficult to reconcile with the prevailing whole type, interaction type dynamics model that emphasizes interactive 4-letter types (**TABLE 1**).

Direct analyses of the whole types, e.g., one-way ANOVAs of the sixteen MBTI types (**TABLE 1**), was the research model endorsed by the *MBTI® Manual* (Myers et al., 1998) and the approach of Pearman and Fleenor (1996; 1997). However, analyses of whole types are not sufficient to demonstrate that effects occur exclusively at the locus of the whole types, i.e., the 4-way interaction, when in fact it is more likely that the effects can be entirely explained by lower-order preferences or interactions. Unless studies employ procedures that *examine* and *exclude* the contributions of all main effects for the individual preferences and their lower-order interactions, whole type studies are uninterpretable because they cannot isolate the locus of any significant type effects—they could occur anywhere (Reynierse & Harker, 2000).

Whole type research based on the MBTI assignment rules of type dynamics are also inadequate since these rules produce a large number of contradictory results and errors of diagnosis (Reynierse, 2009; Reynierse & Harker, 2008a; 2008b). Further, their effects for Extraversion and Introversion, particularly control conditions based strictly on the E–I preference pair, uniformly tracked the E–I preferences, rather than the expression of effects in the E and I attitudes. In other words, the evidence does not support the type dynamics view that Extraverts externalize their dominant or best function, whereas Introverts internalize their dominant or best function and externalize their auxiliary or second best function. Rather, what matters is being an Extravert or Introvert, and the dominant and auxiliary status of any function had little effect (Reynierse & Harker).

In sum, the prevailing whole type, interaction type dynamics model (**TABLE 1**) is fraught with empirical and logical problems and requires revision. This model downplays the individual preference pairs, confounds the four-way interaction with all other type variables, gives special status to the four-way interaction—the weakest empirical type effect—and discards all others. Abandoning the preferences comes at a very high empirical cost, as the MBTI preferences have in fact been demonstrated frequently and have a strong empirical foundation. Further, the MBTI instrument was constructed around and validated for these individual preferences—not whole types. The evidence for the individual preferences will be discussed further in later sections.

The Five Factor Model (FFM) of Personality. There is substantial agreement that five basic elements can describe personality. This model, referred to collectively as the Five Factor Model (FFM) or Big Five, has a long history (e.g., Goldberg, 1993; John, 1990; John, Naumann, & Soto, 2008; Newman, 1995; McCrae & Costa, 2003; 2008) and provides a coherent structure for understanding the nature of both normal and abnormal personality (Markon, Krueger, & Watson, 2005). The FFM structure is an established fact (McCrae & Costa, 2008) that is probably universal since this struc-

ture was replicated in most, and recognizable in all, of the 50 cultures studied (McCrae & Costa, 1997; McCrae, et al., 2005), including cross-cultural studies (56 cultures) with alternative FFM instruments (Schmitt, Allik, McCrae, & Benet-Martinez, 2007) and all across several national, ethnic, and language groups.

The FFM is closely associated with the NEO-PI, a personality test developed by McCrea and Costa, although other assessment instruments successfully measure FFM constructs (e.g., John et al., 2008). The NEO-PI identifies five, unipolar factors—Neuroticism (Emotional Stability), Extraversion, Openness to Experience, Agreeableness, and Conscientiousness that correspond to the Comfort–Discomfort (C–D), Extraversion–Introversion (E–I), Sensing–Intuition (S–N), Thinking–Feeling (T–F), and Judging–Perceiving (J–P) scales of the MBTI Form J. There is clear convergence between the NEO-PI scales and the MBTI scales, as each NEO-PI scale correlates highly with the corresponding MBTI scales (Furnham, 1996; Johnson, 1995; McCrea & Costa, 1989), evidence that supports the validity of both the NEO-PI and MBTI

measure (Rytting & Ware, 1993) and is summarized in TABLE 2. There are, however, differences between the corresponding scales. For example, the scale facets differ and the relationships between the NEO-PI Agreeableness and Conscientiousness scales with the MBTI T–F and J–P scales are clearly lower, suggesting that these dimensions provide different solutions for the structure of personality. It is at least interesting that the correlation for the MBTI Comfort–Discomfort (C–D) scale and the NEO-PI Neuroticism scale is a respectable .65 and, if confirmed, suggests that the two scales are quite similar. More generally, however, the common forms of the MBTI (e.g., Forms F, G, and M) measure (and report) only its four core scales (E–I, S–N, T–F, and J–P) without considering the infrequently measured C–D scale, although in fact the full item pool of MBTI Form F provides a 5-factor solution that closely matches the FFM constructs (Harvey, Murry, & Markham, 1995).

In many ways this revised type theory owes as much to the identification of MBTI types and its resemblance to the FFM of personality as to Jung and the

Table 2. Correlations of MBTI® Scale Scores with NEO-PI Scales (corresponding scale correlations in bold).

MBTI® Scales	NEO-PI Factors (Scales)				
	N	E	O	A	C
McCrae & Costa (1989) MBTI-Form G					
Men (*N*=267)					
E–I (Introversion)	.16**	**-.74*****	.03	-.03	.08
S–N (Intuition)	-.06	.10	**.72*****	.04	-.15*
T–F (Feeling)	.06	.19**	.02	**.44*****	-.15*
J–P (Perceiving)	.11	.15*	.30***	-.06	**-.49*****
Women (*N*=201)					
E–I (Introversion)	.17*	**-.69*****	-.03	-.08	.08
S–N (Intuition)	.01	.22**	**.69*****	.03	-.10
T–F (Feeling)	.28***	.10	-.02	**.46*****	-.22**
J–P (Perceiving)	.04	.20**	.26***	.05	**-.46*****
Johnson (1995) MBTI-TDI (*N*=335)					
C–D (Discomfort)ᵃ	**.65*****	.31**	-.13	.18*	.12
E–I (Introversion)	-.39***	**-.67*****	.16*	.14	.14
S–N (Intuition)	-.16*	-.22*	**.61*****	.18*	.24**
T–F (Feeling)	-.14	-.25**	.23*	**.40*****	.01
J–P (Perceiving)	-.42***	-.06	-.17*	-.21*	**-.56*****
Furnham (1996) MBTI-Form G (*N*=160)					
E–I (Introversion)	.25**	**-.70*****	-.22**	.00	.04
S–N (Intuition)	.05	.11	**.48*****	-.04	-.16
T–F (Feeling)	.19	.04	-.24***	**.47*****	-.23**
J–P (Perceiving)	.00	.02	.17**	-.06	**-.52***ᵇ**

ᵃ MBTI-TDI Comfort-Discomfort scale; ᵇ the correct value is -.52 as shown here, not .52 as shown in Furnham (1996), personal communication, Adrian Furnham;
* *p* < .05; ** *p* < .01; *** *p* < .001

Jungian types. This is the case since MBTI scales and factor structure compare favorably and conform to FFM expectations (Harvey, Murry, & Markham, 1995; Johnson & Saunders, 1990; McCrae & Costa, 1989; Tischler, 1994) and share a universal structure. But it is also the case that the MBTI measure—and because it is a measure—has a rich empirical heritage that informs its concepts *as they apply to the MBTI preferences*. The MBTI measure is problematic, however, when it steps outside of the MBTI preferences and interprets results in terms of type interactions (e.g., Reynierse & Harker, 2001), whole types (e.g., Reynierse & Harker, 2000), type dynamics (e.g., Reynierse, 2009; Reynierse & Harker, 2008a; 2008b), and strictly categorical effects without examining or considering dimensional contributions (e.g., Arnau, Green, Rosen, Gleaves, & Melancon, 2003). It is arguable then that the MBTI preferences are an alternative and defensible interpretation of the meaningfulness of FFM dimensions. Regardless, the MBTI preferences, their broader conceptual arrangement, and the implications for theory and practice represent one solution for understanding the FFM.

Evolutionary Biology. This revised type theory also owes a great deal to modern evolutionary biology and its contributions to the biology of type. Before Darwin, typological thinking was pervasive in both biology and philosophy, a tradition of thought that can be traced back to Plato's Ideas or Forms and what Thomist philosophers referred to as "essences." Within this tradition there was little appreciation of "genetic diversity . . . or individual differences" (Hirsch, 1967, p. xv). However, following the synthesis of Darwinian evolution with post-Mendelian genetics, modern biological and philosophical thought rejected typological thinking. With the emergence of a unified evolutionary theory that combined elements of genetics and systematics, population thinking replaced typological thinking (Dobzhansky, 1970; Mayr, 1963; 1982; 1988; 1991). Darwin introduced the concept of "variable populations of unique individuals" where the "variation from individual to individual within the population is the reality of nature, whereas the mean value (the 'type') is only a statistical abstraction" (Mayr, 1988, p. 15). Population genetics emphasizes the necessity of this variability in order to exploit opportunities in different environments and to maintain adaptedness over time (Dobzhansky). Thus, modern biology rejects the concept of types, emphasizing instead the uniqueness of individuals and the variability of populations.

The synthesis of Darwinian evolution with post-Mendelian genetics prompted a paradigm shift (Kuhn, 1970) within biology and taxonomy. Where previously taxonomy emphasized common characters and types, the new taxonomy emphasized descent from a common ancestor (e.g., Hull, 1988; Mayr, 1981).

People, in all their variability and uniqueness, are adapted to respond appropriately to a variable set of environmental conditions and situations. In this sense evolutionary adaptedness is functional for both survival, i.e., reproductive success, and real world activities that occur daily as part of human existence. Bouchard (1995) discussed the evolutionary model for human personality and the expression of mind and concluded that "virtually all human psychological traits are significantly influenced by genetic factors" and "follow all the rules of biology" (p. 20), a view that was developed further by Bouchard and Loehlin (2001).

From this biological perspective there are two fundamental deficiencies of a *formal* type theory as measured and practiced through the classical MBTI approach to psychological type. One problem is that traditional type theory includes only 16 individual types, either through direct combinations of the MBTI preferences (e.g., ISTJ) or type dynamics (TABLE 1), and this is simply too few types to account for human diversity and individual differences (Reynierse, 2000a; 2000b). A second is that type theory does not recognize the role of situational factors for determining individual behavior (Barbuto, 1997; Pittenger, 2005), although Salter's (1995; 2003a) emphasis on the environment and type is a notable exception. Recent research of mine (with John B. Harker) on preference multidimensionality provides potential solutions for both of these problems (Reynierse & Harker, 2008a; 2008b).

PRINCIPLES OF A REVISED TYPE THEORY

The revised theory presented here represents a synthesis of Jungian type theory, particularly the ideas of Meier (1975/1989; 1977/1995), with the FFM of personality, particularly the many contributions of McCrae and Costa (e.g., 1989; 2003; 2008). Within this revised type theory the MBTI instrument has an expanded role for understanding and interpreting human personality. At the same time, the theory recognizes that the structure of the MBTI preferences is congruent with the FFM of personality.

A primary objective of the revised theory is the

construction of a system that can account for a wide range of human personality characteristics and behavior, particularly conscious behavior patterns. In this sense, the theory recognizes both human individuality (variation) and behavioral complexity. The theory is explicitly dynamic but views this dynamic character as occurring in the Person X Situation interaction, that is, where an individual is active in a potentially infinite set of ever-changing "real world" events and experiences. How then can a model of personality account for a large array of personality characteristics and potentialities based on a limited set of theoretical principles and measured personality concepts? The model presented here is my solution to this problem. Others have addressed the problem with very different solutions. Costa and McCrae (1992; 1995) find increased complexity by the structural properties of their FFM model where 30 separate traits are organized by the model into five domains. Geldart (2010) identified increasing patterns of complexity for his emergent patterns of individual consciousness (EPIC) mathematical string theory of personality. This model, based on the eight Jungian function types and two Jamesian functions of intentionality (directed imagination and selective attention), predicts many increasingly complex scripts for these functional roles that reflect the strings of numbers generated by successive prime numbers in the mathematical model.

In my revised type theory, complexity occurs primarily as an emergent effect of preference complementarities and is expressed as type preference combinations plus their ordinal relationships. In this sense, the theory incorporates the type symmetry that naturally occurs as a function of the complementary pair structure of the MBTI assessment and Jungian type theory.

The major principles of this revised type theory are as follows:

Principle 1: **All individual human beings differ with their own personal identity and individuality formed by their own unique genetic, ontogenetic, epigenetic, and experiential background.**

Uniqueness, individuality, and diversity among individuals begin at conception and continue unmitigated throughout the remainder of life. For all individuals the forces that promote individuality are constantly present and embellish this original individuality. Everyone is different and unique. The significant psychological question is not whether or not individuals differ—that is a given—but rather to what extent are

individuals similar? In other words, what psychological dimensions are shared and include substantial commonality among many individuals? The revised type theory presented here identifies foundational elements in which individuals differ as well as foundational elements in which individuals are similar.

Explicit in this revised type theory is the idea that human personality is fundamentally rooted in evolved human biology. It is consistent with the biological basis of personality presented in the five-factor theory (FFT) of McCrae and Costa (2008) and evolved psychological mechanisms that exist today as "inherited adaptations that came into existence through natural selection because they helped to solve problems of survival or reproduction during the period of their evolution" (Buss, 2008, p. 34). To the extent that everyone shares this evolutionary ancestral history there is also a biological basis for universal adaptive mechanisms that provide commonality of structure and function that accurately describes individual personality while simultaneously recognizing individual differences and variability.

My view of "psychological types" is that they are inexact, unfixed, and probabilistic. It follows Meier (1977/1995), who noted that "The starting point for Jung's typology was the fact that people usually have a preference for one specific 'intellectual talent' and *exploit it to the full*" (p. 13, italics added). The type then is the "intellectual talent" that any individual relies on when interacting with everyday events or situations in the world. In this revised system, the types are identified with each of the eight MBTI preferences. The dominant MBTI preference for any individual is generally that "individual talent" that is "exploited to the full" and is used extensively. Ultimately situational context determines whether or not an individuals' expression of personality through their behavior is functional or dysfunctional. Each MBTI preference is functional when it is used in a situation where that preference is appropriate. But it may become dysfunctional when it is relied on too heavily, is overused, and occurs when another MBTI preference is particularly appropriate within that situation or context.

Psychological types are domain general strategies for engaging real-world, domain specific events in the world at large. Both the individuals who exercise an "intellectual talent" and the many contextual arrangements of environmental situations are unique and differ widely. Success depends on matching individual skills

with environmental demands—by matching use of particular MBTI preferences with the corresponding situational demands.

The "types" themselves are conveniences that sort an otherwise chaotic arrangement of infinite variability into psychologically meaningful categories that are representative of human activity (e.g., Buss, 1990). The "types" identify psychologically meaningful order out of the chaos of individual variation and uniqueness, a view similar to Jung's (1923/1971; p. xiv).

Principle 2: The individual MBTI® preferences are the fundamental unit of analysis for type theory.

The straightforward individual preferences are the starting point for type theory, particularly significant differences that distinguish one person from another. This position is consistent with Jung's (1923/1971) four functions and what Meier (1977/1995) identified as the 1st fundamental principle, but extends Jung (and Meier) to include each of the MBTI preferences. Within this framework, each of the individual preferences—Extraversion (E), Introversion (I), Sensing (S), Intuition (N), Thinking (T), Feeling (F), Judging (J) and Perceiving (P)—has independent meaningfulness and equivalent status relative to each other. Each preference is functional, i.e., has utility when used appropriately, but can also be dysfunctional when used inappropriately or excessively. These individual preferences have primacy and are the essential building blocks for more complex type phenomena. Although the preferences can combine to produce more complex forms, all other personality forms are secondary to them.

The empirical evidence for the independence and primacy of the MBTI preferences is overwhelming. All three editions of the *MBTI® Manual* (Myers, 1962; Myers & McCaulley, 1985; Myers et al., 1998) and many *Journal of Psychological Type* articles, e.g., Harker, Reynierse, and Komisin's (1998) comprehensive research with lexical descriptors, provide substantial validation for the individual preferences. Without doubt, the eight MBTI preferences have firm empirical standing that establish their conceptual validity and meaningfulness.[1]

Conceptualization of the MBTI preferences as presented here, is in some ways radically different than traditional Jungian and MBTI interpretations of these preferences, particularly for the E–I and J–P preference pairs. Within this framework, E–I and J–P, like S–N and T–F, are viewed as fundamental structural dimensions for describing personality. Each of the preference pairs

is considered "functional" because they have utility for the expression of personality in real-world situations and events. This position rejects both the expression of type effects in the E and I attitudes and the "pointer variable" role of J–P that identifies which functions are extraverted. By contrast, in this system, each preference pair is used in a direct, straightforward way as *measured by the four MBTI scales*.

Ultimately, each preference is a part of fundamental brain structure and organization that lurks in the background at all times and is available for use to meet environmental demands when needed. In this sense the individual preferences are postulated to be generic, neurological processes that can act alone or in combination with other preferences. Similarly, in this sense only the individual preferences are "types" that describe human personality.

Principle 3: The individual preferences are arranged as sets of complementary opposites.

The postulation of complementary opposites is among the most fundamental of Jungian type concepts. Opposition occurs naturally due to the bipolar structure of the preference pairs—E–I, S–N, T–F, and J–P. They are complementary since for any preference pair, one preference fulfills (or compensates) for what the other lacks. This arrangement of opposites is the source for any individual's personal strengths and limitations when dealing with real world situations.

Meier's (1977/1995) 3rd fundamental principle of Jung's typology is that of opposition which is described as follows:

> Within the individual pair the two functions are in opposition to each other (e.g., anyone who feels cannot simultaneously think, and vice-versa). In other words, the functions are mutually exclusive. (p. 13)

There is some risk that any Jungian function or MBTI preference can be so highly differentiated that it is used indiscriminately and to the exclusion of the non-preferred preference. As noted earlier, for Meier "people usually have a *preference* for one specific 'intellectual talent' and exploit it to the full." (p. 13) Although the preferred preference is a source of psychological strength, it can be used inappropriately. Similarly, the opposite preference can be the source of significant personal weakness within any individual and the source of considerable annoyance, conflict, and misunderstanding between a person with one preference and another person with the opposite preference (Meier). Although

opposite preferences provide complementary strategies for interacting in the world, they also have the potential for exaggerating differences between individuals.

Although the theoretical system presented here accepts both the Jungian concept of complementary opposites and the MBTI nomenclature for the E–I, S–N, T–F, and J–P preference pairs, it departs from the traditional Jungian and MBTI interpretation of their meaningfulness, offering instead an interpretation of preference meaningfulness anchored in the empirical record and the FFM of personality. The MBTI preference pairs can be briefly described as follows:

- E–I represents two kinds of social orientation— outgoing and sociable (Extraverted) or private and reserved (Introverted). This is essentially the same social extraversion of the FFM and other structural models of personality. In this restricted sense E–I includes the Jungian preferences for the external and internal worlds where Es are expressive and responsive to the external world of people and things, whereas Is are outwardly less expressive but attend to their internal world of feelings and ideas. Within this framework the activities of the conscious human mind are private and internalized (Introverted) whereas the expression of the conscious mind is public and externalized (Extraverted).

- S–N represents two kinds of intellect—practical, applied and literal (Sensing) or abstract, symbolic and conceptual (Intuition) and should not be conflated with "measured intelligence." This approximates the Jungian concept of two ways of perceiving or finding things out. Ss gather factual information about situations from their sensory experiences whereas Ns see connections and relationships.

- T–F represents two kinds of orientation to others (interpersonal relations or outlook)—demanding and tough-minded, i.e., task before people (Thinking) or responsive and tender-minded, i.e., people before task (Feeling). Again, this approximates the Jungian concept of two ways of making judgments or coming to conclusions, where Ts are demanding, logical, and impersonal and Fs are responsive, sensitive, and caring.[2]

- J–P represents two kinds of life-style orientation—structured, organized living (Judging) or spontaneous, flexible living (Perceiving).

This approximates the FFM dimension of Conscientiousness but also includes two ways of dealing with authority. Js tend to accept authority, standardized work procedures, the need to conform and work comfortably within organizations whereas Ps question authority, dislike standardized routines, and are more rebellious and entrepreneurial.

Principle 4: The individual preferences are free to combine with each other and in any order.

The compound arrangements of the preferences provide for behavioral complexity, human diversity, and an expanded array of type categories. In this sense there are many type effects that are fundamentally multidimensional.

Preference multidimensional results were described by Harker et al. (1998) as many of their lexical descriptors were significant for more than one MBTI preference. Other studies have reported similar relationships, e.g., Griffin and Salter (1993) where E, T, and P were related to misbehavior in university residence halls. Historically many preference multidimensionality effects were presented—but not interpreted—in every edition of the *MBTI® Manual*. For example, the reported correlations of the MBTI preference scores with the *16 Personality Factors Questionnaire*, the *Millon Index of Personality Styles* and the *California Psychological Inventory* show that many scales were significant for multiple MBTI preferences (e.g., Myers et al., 1998). Similar effects were reported for many interest inventories including the *OAIS: Opinion, Attitude, and Interest Scales*, *Kuder Occupational Interest Survey*, and the *Strong-Campbell Interest Inventory* (e.g., Myers & McCaulley, 1985).

The rich array of potential combinations of the preferences has been described in greater detail by Reynierse (2000a) and Reynierse and Harker (2001) where these combinations applied to individual type profiles. Later, Reynierse and Harker (2008b) showed that the preferences can combine in any order, e.g., "conservative" is an SJ item whereas "structure oriented" is a JS item and "enterprising" is a TE item whereas "seeks action" is an ET item. Examples of such preference multidimensional order effects, where different orders are determined by the magnitude of the preference scores, are presented in TABLE 3. The order effects of preference multidimensionality were demonstrated repeatedly by Reynierse and Harker (2008b) and identified as a source for applying type dominance relation-

Table 3. Preference Multidimensionality Effects for Lexical Descriptors with Their Correlations and Difference Scores (p < .0001) from Reynierse & Harker (unpublished data: N = 770).

Primary MBTI® Preference	MBTI® Preference Pairs r-scores and Difference Scores (d.s.)[a]			
	EI r-scores (d.s.)	SN r-scores (d.s.)	TF r-scores (d.s.)	JP r-scores (d.s.)
Extraversion (E) Primary				
Fun Loving (EFP)	.33 (.51)		-.18 (.27)	-.18 (.22)
Verbal (EN)	.33 (.56)	-.16 (.30)		
Expresses Feelings Easily (EF)	.31 (.64)		-.17 (.30)	
Stimulating (EN)	.28 (.41)	-.21 (.35)		
Seeks Action (ET)	.28 (.50)		.18 (.32)	
Introversion (I) Primary				
Reserved (IJS)	-.44 (.91)	.17 (.36)		.18 (.33)
Avoids Drawing Attention to Self (IS)	-.31 (.62)	.19 (.41)		
Timid (IF)	-.29 (.53)		-.22 (.44)	
Meek (ISF)	-.21 (.36)	.20 (.42)	-.18 (.40)	
Serious (IJ)	-.19 (.28)			.17 (.21)*
Sensing (S) Primary				
Conservative (SJ)		.28 (.49)		.17 (.31)
Likes Tested Routines (SJI)	-.15 (.29)	.28 (.54)		.28 (.45)
Likes Tried Methods (SJ)		.27 (.41)		.22 (.29)
Concrete (SJT)		.25 (.39)	.14 (.25)*	.16 (.29)
Factual (SJT)		.25 (.35)	.14 (.31)	.23 (.36)
Cautious (SJI)	-.12* (.22)*	.22 (.35)		.17 (.21)*
Traditional (SJ)		.21 (.31)		.19 (.32)
Intuition (N) Primary				
Unconventional (NP)		-.29 (.46)		-.25 (.38)
Idea Oriented (NT)		-.27 (.47)	.16 (.27)	
Conceptual Thinker (NT)		-.24 (.42)	.16 (.22)*	
Inventive (NT)		-.20 (.29)	.17 (.28)	
Thinking (T) Primary				
Competitive (TE)	.16 (.38)		.29 (.67)	
Assertive (TE)	.21 (.43)		.23 (.42)	
Enterprising (TE)	.15 (.26)		.23 (.37)	
Decisive (TJ)			.22 (.35)	.21 (.41)
Aggressive (TE)	.20 (.47)		.20 (.41)	
Industrious (TJ)			.19 (.29)	.16 (.25)
Feeling (F) Primary				
Emotional (FE)	.13 (.28)*		-.32 (.66)	
Dreamy (FP)			-.24 (.52)	-.20 (.36)
Lenient (FP)			-.25 (.35)	-.13 (.25)
Hesitant (FIS)	.18 (.34)	.11** (.25)	-.22 (.35)	
Judging (J) Primary				
Scheduled (JS)		.16 (.19)*		.44 (.77)
Structure Oriented (JST)		.23 (.34)	.16 (.33)	.39 (.70)
Organized (JS)		.16 (.27)*		.34 (.63)
Orderly (JS)		.17 (.25)*		.33 (.61)
Likes Things Settled (JS)		.24 (.34)		.27 (.45)
Thorough (JT)			.16 (.25)	.26 (.39)
Exact (JTS)		.17 (.26)*	.18 (.32)	.24 (.47)
Practical (JS)		.18 (.23)		.19 (.25)
Perceiving (P) Primary				
Spontaneous (PEN)	.24 (.45)	-.13 (.25)		-.27 (.35)
Uncomfortable with Routines (PN)		-.23 (.35)		-.26 (.44)
Impulsive (PE)	.19 (.39)			-.26 (40)

[a] Correlations are for continuous MBTI preference scale scores with independent observer ratings; positive correlations are associated with E, S, T, and J; negative correlations are associated with I, N. F, and P. Difference scores are the mean rating differences for each MBTI preference pair for each descriptor. *p < .001; **p < .01

ships at a situational or contextual level. Ultimately, how any individual responds in a particular situation depends on the MBTI preference multidimensionality composition or content of that activity, e.g., a uniquely TE "enterprising" situational demand, and the unique location of "T" and "E" on that individual's personal type dominance hierarchy. If both T and E are well developed and high on the dominance hierarchy, that person will likely participate often (and possibly well) on enterprising tasks. A more complete discussion of this topic must be deferred until Principle 8.

Principle 5: **The combination of individual preferences is additive rather than interactive.**

Although classical type theory assumes that the preferences interact to form unique types, the extent that type interactions occur are *at best* modest in scope, are subordinate to the individual preferences, and occur most often at the most basic level, i.e., at the level of the two-way interactions (Reynierse & Harker, 2000; 2001). What becomes clear when observed type interactions are analyzed further is that interactions are very complicated, uncertain, the result of statistical artifacts, and vanishingly small (Reynierse & Harker, 2001; 2005a).

By contrast, when the combination of two or more preferences is additive, the unique contribution is straightforward, often substantial, and occurs at the locus of each component MBTI preference rather than with the whole pair (or whole type). From this perspective the "whole types" are constructed through the addition of the parts, i.e., the individual preferences that describe them. The broader problem for type interactions and whole types—at any level—was discussed more fully by Reynierse & Harker (2000; 2001).

Individual personalities as illustrated by someone's MBTI scores usually reflect a range of individual scores. The whole type then, e.g., ISTJ, only incompletely describes that person since any dimensional differences among the scale scores are ignored when the 4-letter whole type is emphasized. Sometimes, however, an individual has multiple (usually two) high MBTI scores that stand out and are comparable, e.g., high N + T (NT), High T + N (TN), High E + F (EF) or high F + E (FE).[3] High pairs such as this are important for accurately describing these individuals and the pairs, again constructed through the addition of the high scale-score parts, are significant type forms for such individuals (Reynierse, 2000; 2009). Regardless, the additive nature of each type combination applies to both indi-

vidual MBTI type profiles and the preference multi-dimensionality content or composition of type-related situations. This topic will be discussed further in Principles 7 and 8.

Principle 6: **The expression of psychological type is fundamentally contextual and situational.**

Walter Mischel (1968) has long argued that many traditional personality theories, e.g., trait theory and psychodynamic theory, assume that the under-lying personality is relatively stable and produces generalized behavioral effects that are independent of the situation. However, the importance of situations for determining stable behavior patterns, i.e., the Person X Situation interaction, was empirically demonstrated repeatedly by Mischel and his associates (e.g., Mischel & Shoda, 1995; 2008; Mischel, Shoda, & Mendoza-Denton, 2002) and modeled by computer simulation (Shoda & Mischel, 1998).

Recognizing the importance of situational effects for the role of personality, Tett and Burnett (2003) presented a Person X Situation interaction model for job performance factors that was integrated with the FFM trait dimensions. One unique feature of this model is that it specifically addressed bidirectionality for the situational effects of personality on job performance. Thus, Tett and Burnett incorporated both positive and negative factors, e.g., job demands where there is an opportunity to act in a *positive* way to meet work requirements, versus distracters that are inherently *negative* and interfere with performance. By extension, since there is significant convergence between the MBTI and FFM scales, the Tett and Burnett model also applies for MBTI dimensions. Further, the complementary opposite structure of the MBTI preference pairs are naturally bipolar and bidi-rectional. At another level of analysis, the complexity of situational effects of personality on performance is apparent when the MBTI preference multidimen-sional content of situations is considered.

Pittenger's (2005) criticism that the MBTI instru-ment does not recognize situational factors occurred in the context of conventional 4-letter whole types, a practice that he finds very limiting. The problem is that traditional type theory accounts for sixteen 4-letter whole types but there are no *formal concepts* to allow any deviation from the sixteen types formed at the "cutting point" of the dichotomy, particularly if they are interpreted as whole types. More broadly, the issue is related to historical problems with test-

retest reliabilities and type stability (e.g., Pittenger, 1993; 2005) and changes with one or more letters in the 4-letter, whole types with retesting and dichotomous scoring (Howes & Carskadon, 1979; McCarley & Carskadon, 1983). Implementation of traditional type theory includes a rigid, limited assignment procedure that lumps a large range of individual scores into a small set of identical, 4-letter whole types and with considerable lost information and flexibility. Although the broader, historical problem of dichotomous scoring at the "cutting point" is beyond the scope of this paper, the remainder of this section applies type concepts to situational effects and the role of type in the Person X Situation interaction. In this revised type theory the flexibility to respond appropriately in vastly different situations occurs by the application of situational relevant MBTI preferences rather than the sixteen 4-letter, whole types.

Salter (1995) developed taxonomy of environmental types that are MBTI-related and later introduced the Salter Environmental Type Assessment (SETA) to examine the fit between environmental demands and the MBTI preferences (Salter, 2003a). The SETA measure has a 4-factor structure that parallels the MBTI preferences, and the Person X Situation interaction research with it has occurred primarily in educational settings. For example, women with an MBTI F preference report a better fit for classroom climates with SETA F scores than those with SETA T scores (Salter, 2003b; Persaud & Salter, 2003) and Feeling women were less likely to participate actively in Thinking classrooms (Persaud & Salter; Salter & Persaud, 2003). Examination of university residence halls identified an accepting social climate factor associated with MBTI E and F and a structure factor related to order and organization associated with MBTI J (Salter & Irvin, 2003).

Table 3 presents statistically significant MBTI preference relationships for several lexical descriptors based on independent observer ratings of someone they knew well. In each case the correlations were for continuous MBTI preference scale scores with the independent observer ratings, and the difference scores were the mean observer rating differences for each MBTI preference pair and an indicator of effect size or magnitude for each descriptor. At one level, this is conventional validation evidence for the MBTI measurement instrument and the relevant preferences. At another level, they identify the MBTI pref-

erence multidimensionality composition or content for each descriptor. One interpretation of this material is to view these descriptors as lower order psychological traits that are secondary to the superordinate MBTI preferences. Such traits can be viewed as characteristics of people (the individual type profiles) or as behavioral activities necessary to respond to environmental demands (the MBTI specific situational content). To the extent that each descriptor reflects an environmental demand, the MBTI content relationships provide an estimate of the situational requirements to act or respond appropriately in specific situations. Similarly, each descriptor provides context for interpreting individual performance on the MBTI measure and important information for identifying (or inferring) the MBTI content of particular situations. Preference multidimensionality complements the approach of Salter and expands both environmental demands and type forms beyond the MBTI preferences.

There is a fundamental distinction between the type effects that are descriptive of individual type profiles for people and the type conditions that are descriptive of psychological events. Human endeavor and conscious activity include an array of psychological events, each of which can be described (probably incompletely) by the sum of the *particular type effects* that are relevant for it. Preference multidimensionality identifies the specific MBTI composition or content that is *relevant* for such situational or contextual psychological events (Reynierse, 2009; Reynierse & Harker, 2008b). Each of these psychological events is situational and limited in scope, and represents just a fragment of the broader capacity of human nature and potential. Each of the lexical descriptors identified in Table 3 is an example of such situational psychological states and reflects the fact that *only some* MBTI preferences—not 4-letter whole types—are necessary to describe them. The remaining, unused preferences are idle for that particular situation (Reynierse & Harker).

Principle 7: MBTI® preference scores matter and indicate strength of preference.

The MBTI instrument and type theory are usually couched in categorical terms, e.g., individuals are sorted into each of the preference pairs or *dichotomies*, essentially ignoring individual preference scale scores. However, interpretation of MBTI preference scores may take a more graduated approach based on four degrees of preference clarity—slight, moderate, clear,

and very clear (Myers & McCaulley, 1985; Myers et al, 1998). More generally, however, we know that dichotomization of any measurement variable comes with considerable cost in lost statistical power and information contained in the *full range* of scale scores (Cohen, 1983).

It is now clear that MBTI preference scores matter a great deal and that recognition of the scale scores expands both the conceptual and statistical power of the MBTI instrument. Based on the strength (difference score from the 100 base) of their individual continuous scores, Reynierse and Harker (2005b) ranked each participant on each of the eight MBTI preferences. Anyone who completes the MBTI instrument can be ranked based on the strength of their continuous scores for each of the preferred preferences where ranks 1–4 correspond to each person's four-letter type. Because continuous scores are relative measures that reflect the difference between a preference and its opposite, ranks for the four opposite preferences can be estimated by taking the inverse of each continuous score and applying this to the non-preferred preferences. Such a procedure is justified considering the forced-choice nature of MBTI scales (Anastasi, 1976; Hicks, 1970) and as the application of an unfolding technique for determining the order of "mirror image" ranks (Coombs, 1964). Statistical analyses based on these ranks were unusually systematic and orderly, and consistently produced a general gradient of effects where the higher-ranking preferences showed the significantly stronger effects whereas the lower-ranking preferences showed the weaker effects. And, although there were almost 5,000 comparisons, the effects were decidedly unidirectional, as there were only five significant reversals among the ranks, differences that were uniformly small and between adjacent ranks.

Wilde (2009; 2011) was concerned that conventional, letter-oriented interpretations of the MBTI instrument are incomplete since the letters provide relevant information about only two Jungian mode pairs, i.e., function-attitudes. Wilde developed a formal structure for both quantifying and describing the incomplete, letter-oriented interpretation of the MBTI instrument and used a simplifying heuristic based entirely on whole number MBTI scale scores. Although Wilde was concerned with the relationship of the MBTI assessment to the Jungian modes, the broader measurement issue was identical to that of Reynierse and Harker (2005b). Both were concerned

with the information lost by considering only categorical effects and both provided solutions based on individual MBTI scale scores for exposing information that was previously hidden.

Finally, Reynierse and Harker (2008b) assigned individuals to their preference multidimensionality conditions based on the *strength of their individual preference scores* and how these scores matched-up with each preference multidimensionality study condition. Specifically, when Reynierse and Harker (2008a) assigned participants to type dynamics conditions based on the assignment rules of type dynamics, the predictions of type dynamics did not reliably occur. The predicted type dynamics hierarchy where dominant > auxiliary > tertiary > inferior occurred once (< 1%) and there were a large number of contradictory results [54 (20.0%) for the Grant-Brownsword model and 50 (18.5%) for the *MBTI® Manual* model conditions]. To illustrate, the IS item "Avoids drawing attention to self" with demonstrated I and S MBTI content (**Table 3**), had mean observer ratings (where lower rating scores indicate the greater effect) of 2.35 (Dominant Sensing), 2.43 (Auxiliary Sensing), 2.73 (Tertiary Sensing), and 2.85 (Inferior Sensing) and summarized in **Table 4**. Note that these type dynamics conditions include the following MBTI types (**Table 1**), that is for Dominant Sensing (ESTP, ESFP, ISTJ and ISFJ), for Auxiliary Sensing (ESTJ, ESFJ, ISTP and ISFP), for Tertiary Sensing (ENFJ, ENTJ, INFP and INTP), and for Inferior Sensing (ENFP, ENTP, INFJ and INTJ). Note too that only the Dominant and Auxiliary conditions include the Sensing (S) types whereas the Tertiary and Inferior conditions always include the Intuition (N) types, the opposite of Sensing. The significant effects for the IS item "Avoids drawing attention to self" does not illustrate the predicted type dynamics hierarchy but only shows that the combined effects for the Dominant + Auxiliary is superior to the combined effects for Tertiary + Inferior (dominant + auxiliary > tertiary + inferior). In other words this is a preference effect where Ss show a greater effect than Ns.

Now it is also the case that the IS item "Avoids drawing attention to self" has specific MBTI content (**Table 3**) where the I content (r -.31; $d.s.$ = .62) is greater than the S content (r .19; $d.s.$ = .41). This is the preference multidimensionality content for this item based on the effects. Preference multidimensionality includes two fundamental ideas: first, that two or more MBTI preferences are often necessary to describe significant type effects; and second, preference effects are

Table 4. Mean Independent Observer Ratings for Type Dynamics and Preference Multidimensionality Equivalent Dominance Hierarchy Conditions for the IS Item "Avoids Drawing Attention to Self".[a]					
Alternative Model	**Condition**	**Dominant**	**Auxiliary**	**Tertiary**	**Inferior**
Grant-Brownsword	S	2.35	2.43	2.73	2.85
	Se	2.72	1.94	3.01	2.54
	Si	2.22	2.77	2.46	3.07
Manual **Model**	S	2.35	2.43	2.73	2.85
	Se	2.72	1.94	2.46	2.54
	Si	2.22[b]	2.77	3.01	3.07

		MBTI® Content Conditions			
		Both I & S	**I only**	**S only**	**Neither**
Preference Multidimensionality	IS	2.13	2.50	2.75	3.05

[a] Lower rating scores indicate the greater effect.

[b] The only statistically significant effects were that dominant (Si) > auxiliary, tertiary, and inferior. Auxiliary (Si) was not significantly better than tertiary (p = .105) and was marginally better than inferior (p = .054).

proportional to their independent associations or contributions—i.e., the independently larger preference will have a greater effect than the independently smaller preference. Thus, preference multidimensionality specifically predicts order effects that are very different from the predicted order effects of type dynamics. Four MBTI content conditions can be formed based on this content, i.e., where the I content is primary because it is greater, and the S content is secondary because it is less. These content conditions include conditions in which both relevant preferences are shared (both I and S), in which only the primary preference is shared (I only), in which only the secondary preference is shared (S only) and in which neither relevant preference are shared (both E and N are shared but not I and S). Note that these four conditions include the following MBTI types (**TABLE 1**), that is Both I and S (ISTJ, ISTP, ISFJ, and ISFP), I Only Primary (INTJ, INTP, INFJ, and INFP), S Only Secondary (ESTJ, ESTP, ESFJ, and ESFP) and Neither I nor S (ENTJ, ENTP, ENFJ, and ENFP). When the data for the item "Avoids drawing attention to self" are ordered according to the preference multidimensional content for this item a perfect hierarchy occurs as the mean observer ratings (where lower rating scores indicate the greater effect) were Both (2.13) > I Primary (2.50) > S Secondary (2.75) > Neither (3.05).

It may be argued that this is a limited comparison that does not fully identify the attitude consequences—and predictions—of type dynamics. However, the type dynamics analyses (Reynierse & Harker, 2008a; 2008b) always included separate analyses for Se, Si, and the combined S conditions reported above. The results for all the type dynamics analyses for the IS item "Avoids drawing attention to self" are presented in **TABLE 4** where they are compared with the effects for preference multidimensionality. The combined S condition is the same for both the Grant-Brownsword and Manual models of type dynamics (2.35, 2.43, 2.73 & 2.85) and where (dominant = auxiliary > tertiary = inferior), an effect that identifies only a preference difference but does not contradict type dynamics. The Grant-Brownsword Se condition (2.72, 1.94, 3.01 & 2.54) and where auxiliary > dominant, tertiary, and inferior and inferior > tertiary includes two effects (auxiliary > dominant and inferior > tertiary) that contradict type dynamics. The Grant-Brownsword Si condition (2.22, 2.77, 2.46 & 3.07) and where dominant > auxiliary, tertiary, and inferior supports type dynamics but the finding that tertiary > auxiliary contradicts it. The Manual Se condition (2.72, 1.94, 2.46 & 2.54) and where auxiliary > than dominant, tertiary, and inferior contradict type dynamics. The Manual Si condition (2.22, 2.77, 3.01 & 3.07) and where dominant > auxiliary > tertiary and inferior provides support for type dynamics.

Certainly these data, and the broader data reported by Reynierse and Harker (2008a; 2008b), provide evidence that was consistent with and can be viewed as support for type dynamics. But it is the large number of contradictions to theory that are fatal for type dynamics and falsify it. This is the case since contradictory effects violate the self-evident logical principle or *law of contradiction* which states that "Nothing can both be and not be" (Russell, 1912/1959, p. 72). Colloquially, we understand this principle as "you can't have it both ways" and predictions from theory, like all logical arguments, are subject to and governed by this logical principle. At the same time, the combined S solution, the Grant-Brownsword Se and Si solutions, the Manual Se solution, and the Manual Si solution—the best solution among them—are each *inferior* to the preference multidimensionality solution where there is a perfect hierarchy and Both (2.13) > I Primary (2.50) > S Secondary (2.75) > Neither (3.05). And for the approximately 500 tests of these preference multidimensionality relationships, in every case, without exception, the effects were consistent with the predictions of preference multidimensionality and were completely free from contradiction (Reynierse, 2009). Type dynamics sometimes makes predictions that fit the empirical facts but it does so, if and only if, type dynamics conditions coincide with the conditions of preference multidimensionality and the straightforward measurement of E and I as reported by the MBTI E–I scale.

What is significant is that individual preference scores are highly variable and that high scale scores reflect a "higher strength of preference" than lower scores. Scale scores matter, provide relevant information for interpreting individual type profiles, and are relevant for the analysis of aggregated research type data. In other words, there is a quantitative, dimensional component to MBTI preference scores that informs type research, theory, and practice *and comes at considerable cost when ignored.*

Principle 8: **Type dominance is a function of strength of preference and the dominant preference is simply the independently high-value preference.**

The generality and lawfulness of type dominance. The falsification of type dynamics (Reynierse, 2009; Reynierse & Harker, 2008a; 2008b) identified significant problems with the long-standing, objective MBTI procedure for identifying type dominance with individuals. It is noteworthy that our criticisms of type dynamics were restricted to the type dynamics assignment rules and that we were explicit in recognizing the utility of the type dominance concept. Reynierse and Harker (2008b) made the following distinction:

> This research does not invalidate or even challenge the traditional Jungian theory that identifies the dominant, auxiliary, tertiary, and inferior functions (e.g., Harris, 1996). The hierarchy of the four functions can be accepted as a legitimate and useful construct based strictly on clinical experience and evidence. However, this research casts considerable doubt on the MBTI-derived rules for forming type dynamics groups in which the J–P preference pair is a "pointer variable" for determining which functions are extraverted and which functions are introverted. Simply put, applying the Grant-Brownsword (Brownsword, 1987, 1988), *MBTI® Manual* (Myers & McCaulley, 1985; Myers et al., 1998) or Beebe (Beebe, 1984) rules for determining type dynamics relationships was neither necessary nor sufficient for reliably obtaining type dynamics effects . . . . Although this research casts considerable doubt on the MBTI-derived rules for forming type dynamics groups, it is equally clear that MBTI-derived concepts successfully organized the data of this research in ways that were unusually orderly, systematic, and predictable. Consequently, although the MBTI-derived rules of type dynamics can and should be discarded, the concept of type dominance almost certainly remains valid but in a revised and radically different form than its current typological use. (p. 131)

We expanded on this discussion later in the paper where we observed:

> What then is the status of type dominance and the dominant process? The results of this research and other research of ours (Reynierse & Harker, 2005b) suggest that the dominant preference is simply the *independently high-value preference*, particularly when that preference stands out and is markedly higher than any other contributing preference. It is also clear that this dominance is dependent on the individual situation and varies from one psychological state to another. Such an interpretation of type dominance enjoys the theo-

retical advantage that any preference may in fact be dominant—not just the functions. The equivalent status of E–I and J–P with S–N and T–F also confers on them the possibility that they too may be dominant. (p. 134)

This section then is intended to preserve the importance of type dominance conceptually within type theory, show that the MBTI® assessment provides a reliable *estimate* of type dominance information that is relevant for understanding individual personality and behavior, and discuss the role of type dominance more fully, particularly in a revised and radically different form than its historical typological role as identified by type dynamics.

The empirical evidence and rationale for this revised MBTI-derived interpretation of type dominance rests with a reinterpretation of the taxon research of Reynierse and Harker (2005b).[4] It is also based on the premise that MBTI preference scores matter and indicate strength of preference, i.e., that there is a quantitative, dimensional character to type effects (Principle 7), and the earlier discussion of the Reynierse and Harker methodology and results as related to this principle. The outcome from applying their procedures is that the eight preferences are ranked 1–8 for each individual where each preference has a rank relative to all other preferences. Accordingly, Reynierse and Harker were able to examine eight separate levels of each individual preference, i.e., when a particular preference was ranked 1, 2, 3, . . . 8, and then analyze performance on different dependent variables across these ranks, e.g., an F item such as "Sympathetic" for individuals where the F preference was ranked 1, 2, 3, . . . or 8.

Statistical analyses based on ranks were unusually systematic and orderly as they consistently produced a general gradient of effects. The higher-ranking preferences showed the significantly stronger effects whereas the lower-ranking preferences showed the weaker effects, results that have particular significance for understanding type dominance. This research (Reynierse & Harker, 2005b) showed that the dominant preference is simply the *independently high-value preference*, particularly when that preference stands out and is markedly higher than any other preference in someone's four-letter type. In other words, in the aggregate, each individual's MBTI preference scores represent a reliable estimate of the strength or rank order of each of the preferences. This interpretation of type dominance has the theoretical advantage that any MBTI preference may be dominant—not just the functions. From this per-

spective, type dominance includes eight—not four—possible positions.

The Jungian type dominance construct is ordinarily applied to individual people rather than aggregated research data. However, the same assignment rules apply for individual type profiles as apply for the aggregated research. The individual type profiles provide an estimate of the 8-position type dominance hierarchy for that individual; by contrast, the aggregated data provide information about the general effect and lawfulness of type dominance conceptually. In this sense the aggregated research provides empirical support for the general principle that "type dominance is a function of strength of preference and the dominant preference is simply the independently high-value preference" while the formation of individual type dominance hierarchies is derived from this core principle. Thus for any individual, all eight preferences can be arranged according to these quantitative scores (Reynierse & Harker, 2005b) and can inform the aggregated data of the researcher or the type profile of an individual. The conventional 4-letter MBTI types (Table 1) include many type variants and hide considerable valuable type information about everyone. The objective of formatting types as 8-letter types is intended to break with tradition and make visible (and useful) this hidden information. Depending upon context and the strength of the individual preferences, this is the source of significant differences within each person's behavioral repertoire.

Application to individual type profiles. The dominance hierarchy and its potential for identifying alternative hierarchies can be illustrated by some examples. Keep in mind that the individual MBTI preference scores are *estimates*, are subject to error (or variability) due to limitations of the measurement instrument and transitory events that influence individual behavior, and should be verified by the practitioner examiner. In other words, like all clinical observations, these dominance *estimates* should ideally generate hypotheses about human behavior that are subject to confirmation or disconfirmation based on cumulative *objective* observations and judgments made by the clinician or other practitioner observers in the course of their interaction with any individual in other contexts.

Consider the following cases. Note too that each of these cases illustrates the general approach to determining type dominance, but each case is different and illustrates sub-principles or derivatives of the system's core principles.

The first individual is an ESFJ preacher with MBTI continuous scores of E = 59, S = 41, F = 125, and J = 63 with preference ranks of S (1st), E (2nd), J (3rd) and F (4th); the inverse of these scores is T (5th), P (6th), I (7th), and N (8th). The dominance hierarchy for this person can be summarized as SEJFtpin (with the preferred and non-preferred preferences in upper and lower case respectively and the dominant preference underlined). This is a relatively straightforward profile for someone who is both a practical realist anchored in the here and now (i.e., an S) and is outgoing, gregarious, and enjoys talking (and mixing) with people (i.e., an E). By contrast, this individual is neither particularly reserved nor conceptual and is unlikely to express I or N-related traits or activities. This is an individual who is most comfortable with established ways of doing things that are of practical importance, and include the opportunity to socialize with other people. In general, as a pastor and preacher, he enjoyed talking—both "small talk" in casual conversations or serious matters —and he made others feel comfortable when talking with him about personal problems. He was well-suited for his start-up church and congregation in a high growth community. But as a pastor he was more successful dealing with the lives of his congregation than as a preacher from his pulpit.

Subprinciple illustrated: Jobs, like people, are multifaceted and one's personality can be a good match for some facets but a poor match for others. There is rarely a perfect fit.

The second example is an INFP college administrator with MBTI continuous scores of I = 125, N = 145, F =119, and P =145 with preference ranks of N (1st), P (1st), I (3rd), and F (4th); the inverse of these scores is T (5th), E (6th), J (8th), and S (8th). Note that both N and P are essentially equivalent and primary preferences for this individual and which preference is in fact dominant will be determined by the situation. The dominance hierarchy for this individual can be summarized as NPIFtejs for "N situations" but PNIFtesj is an equally accurate description for "P situations." The dominant preference is situational and will depend on circumstances. In general, both N and P are well developed for this individual and are equivalent dominant preferences. This is the profile of a big-picture, conceptual and flexible person, who works effectively with people, has a relatively low-key and easy-going interpersonal style, and who is only rarely judgmental. In his professional role as a college administrator

he played a key, public relations role in his community and delegated many administrative details to his staff.

Subprinciple illustrated: Although everyone is characterized by strengths and weaknesses as illustrated by their personal MBTI type dominance hierarchy, success occurs when we can allocate work activities by matching work duties with the individual strengths found within the team. Take advantage of "the gifts differing" to get the job done.

The third example is an ISTJ school teacher with MBTI continuous scores of I = 111,   S = 73, T = 63, and J =47 with preference ranks of J (1st), T (2nd), S (3rd), and I (4th); the inverse of these scores is E (5th), N (6th), F (7th), and P (8th). In general this is a relatively moderate MBTI profile for someone that otherwise shows a clear preference for J. The dominance hierarchy for this individual can be summarized as JTSIenfp. This too is a relatively straightforward profile for someone who is naturally organized, planful, efficient, and as a teacher provides a structured classroom environment. This is the profile of a sensible person who provides order for every situation and is frustrated when others are overly casual with their commitments and responsibilities. Although this individual is a clear introvert who values her privacy and "quiet time," within her personal dominance hierarchy I is a lower-order preference and, although unlikely to be a social initiator, she can be outgoing, sociable and comfortable within social situations. In other words, although a clear I, depending on the situation, her I and E preferences are relatively interchangeable on her dominance hierarchy.

Subprinciple illustrated: The 4th ranked preference is usually the preference that is interchangeable with its opposite and where the opposite preference is most likely to be used effectively in the appropriate situation.

The fourth example is that of an ENTP accountant and entrepreneur with MBTI continuous scores of E = 83, N = 143, T = 57, and P = 149 with preference ranks of P (1st), N (1st), T (1st), and E (4th); the inverse of these scores is I (5th), F (8th), S (8th) and J (8th). This profile shows three clear preferences where N, T, and P are each potentially dominant and three preferences, S, F, and J, that are low and are potentially significant weaknesses. The high preference for P is characteristic of someone who is unstructured, spontaneous, and whose personal habits can be disorderly and undisciplined. This is someone who benefits when structure is imposed upon him from someone else. As an accountant this individual is creative and comprehensive in his approach,

particularly for challenging assignments. As an entrepreneur he has started several new enterprises, has been a visionary for future trends, but has been preoccupied with the conceptual aspects of the new business and neglected practical, operational procedures and getting things done in a timely manner. The dominance hierarchy for this individual can be summarized as PNTEifsj or any combination of the equivalent high-score P, N, and T preferences depending on the situation. Previously self-employed, he now works in an organizational structure, has a boss that provides direction, but remains easily distracted.

Subprinciple illustrated: Someone with a high and dominant P score is easily distracted, and is unlikely to impose structure or discipline upon his own activities. But a "J" boss, can impose structure by "building a fence" around this dominant P, i.e., by providing clearly defined duties, deadlines, and direct monitoring of progress.

Formulating type dominance based on "preference strength" of MBTI scores provides considerable type information about individuals that is usually hidden in conventional type scoring procedures. First, the conventional order of traditional MBTI types (**TABLE 1**) identifies too few types and hides considerable useful information. Second, the order of the individual preferences is important and also provides useful information, e.g., an SEJT type is different than an ESTJ type. Third, this revised type theory gives E, I, J, and P equal status with the Jungian functions and places them too within the dominance hierarchy. Finally, the use of an 8-letter designation—with various orders—provides greater detail about the MBTI preference profile for any individual.[5]

Principle 9: **These principles are not cast in concrete but are subject to change.**

These principles, like all forms of scientific knowledge, are provisional and with new research and a different set of cumulative, *empirical* knowledge can be refined, revised, or abandoned. Jung's typology and the MBTI application are not immutable and change is inevitable. Although the application of new ideas and empirical findings may be uncomfortable or even painful (see Hull, 1988), growth, change, and lively debate indicate that the enterprise is alive, current, and enduring. Neither scientific inquiry nor clinical practice can flourish when there is reluctance to incorporate new conceptual insights or inconvenient empirical facts into revisions of prevailing theory or practice.

SOME CONCLUDING COMMENTS

The current, revised type theory is explicitly biological and accepts the idea that human personality is fundamentally rooted in evolved human biology. A key premise of this theory is the idea that the MBTI preferences as expressed in human personality today evolved as successful adaptations to environmental selection forces that shaped personality in an earlier time (e.g., Bouchard & Loehlin, 2001). The functionality of the MBTI preferences rests with this premise. This premise is also consistent with the biological basis of personality presented in the FFT of McCrae and Costa (2008). There are two corollary ideas that flow from this broad biological premise and that correspond to the interest in behavior genetics and neuroscience as strategies for contemporary personality research and theory. Consequently, there should be evidence for the heritability of the MBTI (and FFM) dimensions as well as the localized brain structure and organization necessary for the brain activity and function that coevolved with this personality structure.

Bouchard and Hur (1998) demonstrated genetic influences on personality for the four MBTI continuous scales for 61 monozygotic twins reared apart (MZA) and 49 dizygotic twins reared apart (DZA). The MZA correlations, which are direct estimates of genetic influence, ranged from .40 to .60, estimates that are similar to those found for other personality measures including broad heritabilities of the FFM dimensions (Bouchard & Loehlin, 2001). This is the only behavior genetics study I know of that has examined the MBTI preference scales.

Fortunately, however, there is an extensive literature on the behavior genetics of behavioral traits, including the FFM personality traits, and robust heritabilities have been routinely reported for them (e.g., Bouchard, & Loehlin, 2001; Clark & Watson, 2008; Krueger & Johnson, 2008). The empirical facts are so reliable and robust that they now have the status of "Law." And three laws of behavior genetics have been stated formally by Turkheimer (2000, p. 160) as follows:

First Law: All human behavioral traits are heritable.

Second Law: The effect of being raised in the same family is smaller than the effect of genes.

Third Law: A substantial portion of the variation in complex human behavioral traits is not accounted for by the effects of genes or families.

Our interest here is primarily with heritability and the "First Law," but it is worth noting that twin studies of the FFM traits have consistently found minimal shared environmental variance (the Second Law) but substantial nonshared environmental variance (the Third Law). Bouchard and Hur (1998) were unable to estimate the contribution of the shared and nonshared environment for the MBTI preferences but recognized that this would be desirable information. In view of the established correspondence between the MBTI preferences and FFM factors, and the ubiquity of trait heritability, it is probable that there is a foundational biological and hereditary basis for the expression (the behavioral phenotype) of each of the MBTI preferences.

There is less clarity for the psychophysiology and neuroscience of personality. One reason for this is that so little psychophysiology research has been completed that is based on the MBTI measure. Newman (1995) briefly presented his own model of cortical specialization based on the Jungian model of the four functions and presented inconclusive EEG trends which he admittedly described as "sketchy." Wilson and Languis (1989) found higher arousal and cognitive related brain activity for Introverts compared to Extraverts across a number of cognitive tests. Myers et al. (1998) presented the amplitude differences and topographic maps of Introverts and Extraverts from a related study by Wilson and Languis (1990) that found similar effects. By contrast, there is abundant psychophysiological confirmation of the structural dimensions of personality, particularly for the superfactor or superordinate models of personality (e.g., Clark & Watson, 2008; Markon et al., 2005). One reason for this is that researchers within this superfactor tradition have emphasized the neurobiology of these superfactors, whereas FFM researchers have emphasized phenotypic descriptions of personality (Clark & Watson). Zuckerman (2005) presented considerable evidence from psychophysiology, neurobiology, and genetic studies that provided support for the superfactor dimensions of Extraversion, Neuroticism,

and Psychoticism, and some limited evidence supporting the FFM dimension of Conscientiousness.[6] In addition, Zuckerman presented considerable psychophysiological support for the FFM dimension of Agreeableness. In general, with the possible exception of Openness, the psychobiology of personality is consistent with the FFM and structural organization of this factor structure.

A related assumption of this theory is that each MBTI preference is functional and is a part of fundamental brain structure and organization that lurks in the background at all times and is available for use to meet environmental demands when needed. Currently there is little evidence based on the MBTI to either support or discredit this biological premise and therefore it does not yet have the status of a Principle. Within this theoretical framework, however, behavioral manifestation of MBTI-related effects must fit comfortably with emerging insights about both behavior genetics and brain structure and its organization. The expectation is that there should be parallel and complementary relationships between behavioral MBTI events and the biology of these events, and in particular with both the heritability of personality and the neurological foundation of personality.

Finally, additional research is needed in many areas. At one level of analysis, it is necessary for researchers to provide routinely information about the quantitative scores for MBTI preferences and not just assume that they are categorical and the scores do not matter. Minimally, quantitative measures for dependent variables should provide sufficient quantitative information to evaluate score effects. At another level of analysis, many of the research strategies employed by Reynierse and Harker, e.g., preference multidimensionality, are unique to their investigations. It is desirable that their empirical studies be replicated by other investigators and extended to include additional variables. The cumulative knowledge of any discipline is best served when this knowledge is consistent with the converging operations from many sources

NOTES

[1] The J–P preference pair as used here is conceptually different than its historical use in MBTI type theory. However, I use the symbols "J" and "P" because they are universally part of MBTI nomenclature and are widely known and accepted.

[2] I was tempted to use the term "agreeable" here since it appears to be compatible with both Jung and the FFM. Thus, Beebe (2004, p.89) cited Jung (1957/1977, p. 306), who indicated that another term used to describe Feeling is "whether it is agreeable or not," usage that coincides with the FFM term and dimension of Agreeableness. However, there are unresolved differences between the MBTI T–F scale and the NEO-PI Agreeableness scale and from an empirical perspective it seems premature to make this connection.

[3] In the Harker-Reynierse database ($N = 770$) there are 177 cases (23 %) where there are two or more high continuous scale scores and where "high" is defined as 141 or greater for I, N, F, and P and 59 or less for E, S, T, and J.

[4] The type dominance interpretation of the Reynierse and Harker (2005b) paper departs from and is in addition to the original purpose—a direct comparison of dimensional trait and categorical type effects for each of the MBTI scale preferences. The type dominance interpretation was introduced earlier by Reynierse and Harker (2008b) and Reynierse (2009).

[5] The 8-letter designation is one way of presenting the MBTI types and for the objectives of this paper has the advantage of emphasizing that the dominance hierarchy provides information about all eight MBTI preferences. Note that each of these 8-letter types is restricted to the ordinal preference relationships, i.e., which MBTI preference is dominant and ranked 1st in the dominant hierarchy, etc. And that is the general principle that I introduce here. I recognize that this 8-letter designation is new and therefore unfamiliar and perhaps even confusing to most readers. There are other ways of presenting this information based on type domains, where the conventional 16 types with their straightforward interpretation (TABLE 1) are general domains (e.g., ESTJ, ENTP, etc.) that have many variants (Reynierse, 2000a) and the source of considerable type diversity. However, from the perspective of this revised type theory, type domains are organized as variants of the 8 MBTI preferences rather than as variants of the sixteen 4-letter types. Further discussion of type domains, however, is beyond the scope of this paper.

[6] Zuckerman did not include Openness in his alternative system or discussion.

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