



Exploring Personality with the Interpersonal Circumplex

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Abstract

The interpersonal circumplex can serve as both companion and guide for those interested in exploring the interpersonal domain of personality. This article offers a relatively nontechnical overview of the model and its various applications in the study of personality. I begin by defining the interpersonal circumplex, its structure and in what sense it is 'interpersonal'. As part of that, I will briefly consider how circumplex measures of personality, such as the Interpersonal Adjective Scales, are typically evaluated for fit to the model. I will next describe applications of the model for exploring both the idiographic (person-centered) and nomothetic (variable-centered) realms of personality. In person-centered research, the circumplex leads to useful ways of summarizing the basic interpersonal features of a given individual. In variable-centered research, the circumplex can help elucidate the essential interpersonal meaning of personality constructs such as traits, problems, and motives. To explain how the circumplex can help us explore personality – idiographically and nomothetically – I will draw on a variety of studies, including several recent studies that extend the model in new ways.

Of the various ways in which psychologists have sought to divide and define the world of personality and its constructs – the affective, the temperamental, the intrapsychic, the characterological, and so on – the interpersonal domain has a long history of attracting interest and attention (Wiggins, 1991). This is perhaps not surprising given that humans live within an interpersonal context in which our patterns of social behavior and relating – captured by words such as dependent, hostile, shy, and warm – help to define who we are as individuals.

I like to believe that the interpersonal circumplex model has played a leading role, especially in the last 30 years, in how we as personality researchers have approached the study of the interpersonal domain, and consequently in what we know about this part of the personality world. The purpose of this article is thus to provide an overview of the model and to convey some of its applications to personality psychology – more specifically, to exploring personality, idiographically and nomothetically. Idiographic explorations focus on the study of the individual and often

yield unique descriptions of the individual case; hence, they are person-focused. Nomothetic explorations are typically focused on broadly generalizable variables and on group summaries; hence, they are group focused. Both applications of personality research will be considered. The root word, 'explore', here and in the title, is deliberate, as it is intended to suggest an active form of discovery and investigation, potentiated when the circumplex serves as a guide and companion to that process (hence, the 'with' in the title).

To begin, I will address the basic question of what is the interpersonal circumplex – its substance and structure – and in what sense it is 'interpersonal'. This leads then to a consideration of how circumplex measures of personality, such as the Interpersonal Adjective Scales (IAS; Wiggins, 1979), are typically comprised and evaluated for fit to the model. The remainder of the article will be devoted to describing approaches for applying the model to both the idiographic (person-centered) and nomothetic (variable-centered) realms of personality research. In essence, then, how do we study personality 'the circular way'? Given the scope of this article, I intend to offer a relatively less technical account of the model than appears in other sources (notably, Gurtman & Pincus, 2003), but will provide appropriate references for those readers who want greater depth and detail.

What Is the Interpersonal Circumplex?

Fundamentally, the interpersonal circumplex is a two-dimensional representation of a given interpersonal space (of interpersonal needs, values, problems, traits, etc.) in which the set of variables are organized theoretically as a circle – a continuous order with no beginning or end (Horowitz, 2004; Kiesler, 1996; Wiggins, 1979). The two dimensions that define this space, and therefore serve as a kind of Cartesian coordinate system for the variables in it, are often referred to today as Agency and Communion. The terms derive from the work of Bakan (1966), who famously identified Agency and Communion as the 'fundamental modalities' of human existence – becoming individuated (Agency) and becoming connected (Communion). Interpersonally, Agency connotes ideas of dominance, power, status, and control, whereas Communion suggests love, affiliation, union, and friendliness (McAdams, Hoffman, Mansfield, & Day, 1996; Wiggins, 1991; Wiggins & Trapnell, 1996).

Circumplex models also assume that each interpersonal variable can be regarded as a particular blend of Agency and Communion, depending on that variable's location on the circle. However, because the circumplex is a circle, it is more common to reference each variable's location simply by its angular coordinates (degrees displacement from an arbitrary point set at 0°), rather than by its dimensional coordinates. Figure 1 presents an example of an interpersonal circumplex, and includes both the dimensional axes

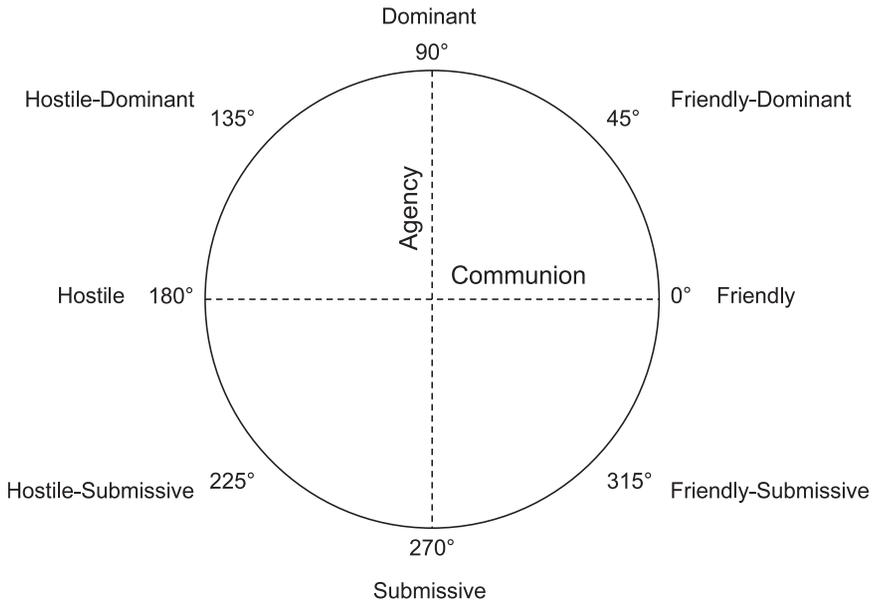


Figure 1 A generic interpersonal circumplex, including dimensions, categories, and polar coordinates.

previously discussed, and the angular coordinates of the eight generic variables depicted.

Wiggins (1996) offers an ‘informal history’ of the interpersonal circumplex tradition. The direct antecedent of today’s interpersonal circumplex models was the interpersonal circle, pioneered by the Kaiser Research Group in the 1950s as an integrative tool for interpersonal diagnosis (e.g., Leary, 1957). The term ‘circumplex’ was proposed, independently, by Guttman (1954) to signify a system of variables with a ‘circular law of order’ (p. 325). To my knowledge, the term ‘interpersonal circumplex’ was first used by Wiggins (1979), who merged the seminal work of the Kaiser Research Group with the rigorous, psychometric model proposed by Guttman. Later work by Wiggins and Broughton (1991), especially, indicated that many putative interpersonal variables from existing personality tests could be meaningfully projected into the space of the interpersonal circumplex. Finally, Wiggins (1991) was instrumental in linking the interpersonal circumplex tradition to Bakan’s (1966) meta-concepts of Agency and Communion.

Circles, of course, have a kind of intriguing simplicity. Yet, the geometric properties of the circle are powerful in their implications for understanding the proposed theoretical structure and substance of the interpersonal domain, as per Figure 1. I have discussed these properties in previous publications (e.g., Gurtman & Pincus, 2000, 2003); however, a brief recounting is useful.

To start, a circular model of the interpersonal domain would imply a two-dimensional structure – and so differences between interpersonal variables (e.g., sociability and submissiveness) are largely reducible to differences along two fundamental dimensions (here, Agency (A) and Communion(C)). In a sense, the interpersonal identity of an interpersonal trait, need, problem, etc. is given by its particular amalgamation of A and C. Second, because circles have a constant radius, another implication of a circumplex model is that each interpersonal variable in that space would be equidistant from the origin (or the assumption of ‘equal communality’). That is, *in the composite*, A and C are equally relevant to all interpersonal variables. Finally, circles are continuous curves. This implies, quite importantly, that on any point on the circle, it is possible to identify a meaningful interpersonal variation, presumably expressible as a word or description that connotes a particular interpersonal trait, need, problem, or other construct. The interpersonal circumplex implies a continuous or uniform distribution of variables around the circle (Gurtman & Pincus, 2003), with no major gaps and no regions of greater or less density or concentration. As Goldberg (1992) observed years ago, this last criterion essentially distinguishes circumplex models of personality from traditional, simple structure models such as his Big Five. Unlike circumplex models, simple structure models assume primacy for a few core categories of personality – hence, certain ‘preferred’ areas in personality space where variables tend to cluster (e.g., Agreeableness).

Wiggins (1979) also advanced the view that the circumplex serves as a kind of *circular taxonomy* for the interpersonal domain. Hence, all interpersonal traits would project onto the circle – the circle is inclusive and exhaustive of all interpersonal possibilities. However, this does not imply a fixed set of categories. As Wiggins (1979, p. 400) noted, depending on how finely we wish to ‘slice the circumplex pie’ (into 4ths, 8ths, 16ths etc.), we can derive interpersonal variables either broad (e.g., extraversion) or narrow (e.g., gregariousness, sociability, assertiveness) in their span of the interpersonal continuum.

What makes an interpersonal circumplex ‘interpersonal’? This is an important question in part because circumplex models have also been proposed for other personality domains, including those of affect (e.g., Yik & Russell, 2004), vocational interests (e.g., Tracey, 2000) and various pairings of Big Five factors (Hofstee, de Raad, & Goldberg, 1992). In considering this issue, Wiggins and Trobst (1997) cogently observed: ‘To assert that a circumplex is an *interpersonal* circumplex requires both an empirically demonstrated circumplex structure *and* a plausible substantive rationale for placing an interpersonal interpretation on the measures that gave rise to the circumplex’ (p. 58, italics in original). For most interpersonal theorists, Bakan’s (1966) abstract concepts of Agency and Communion offer an appealing formulation for framing the interpersonal world and explaining the trends and undercurrents in our transactions with others

(e.g., Kiesler, 1996; Pincus & Ansell, 2003; Wiggins & Trapnell, 1996). In Hogan's (1983) perhaps simplified terms, we seek either to 'get ahead' (Agency) or 'get along' (Communion). Thus, interpersonal is defined by the confluence of Agency and Communion. Nevertheless, as Pincus and Ansell (2003) note, the meaning of interpersonal – at least outside this tradition – is not necessarily fixed and unambiguous; indeed, 'plausible rationale' may ultimately dictate alternative interpersonal circumplex models. For example, Benjamin's (1996) SASB model, predicated on the 'dyadic perspective', also yields a circumplex structure, but is based on a somewhat different factor space, one combining Affiliation with Autonomy/Separation.

Circumplex Measures of Personality

The interpersonal circumplex model, and before it the interpersonal circle (Leary, 1957), has served as the foundation for the development of a number of personality measures designed to assess interpersonal constructs in accord with the model. As will be shown later, circumplex-based measures provide opportunity for new ways of dissecting, summarizing, and representing personality data, taking special advantage of the unique properties of the circle (Gurtman & Balakrishnan, 1998).

In a recent chapter, Locke (2006) provided an excellent overview of interpersonal circumplex measures of personality and psychopathology. As he noted, the Interpersonal Check List (ICL; e.g., Leary, 1957), developed by the Kaiser Research Group, was the first interpersonal measure predicated on the circle. An ambitious and in some ways groundbreaking measure, the ICL consisted of 16 scales, each focused on a particular segment of the interpersonal space (for a version of this system, see Leary, 1957). However, as has been observed by a number of authors (e.g., Kiesler, 1996; Wiggins, 1979), the ICL's significant shortcomings, psychometrically and conceptually, have limited its usefulness as a valid measure of the interpersonal domain.

Considering then contemporary tests, Table 1 offers a summary of the features of several popular or promising instruments, each created to assess a particular kind of interpersonal construct (values, impacts, problems, traits, social supports) within a circumplex framework. I will briefly discuss two of the more noteworthy tests.

The IAS (Wiggins, 1979, 1995) stands as the prototype of all interpersonal circumplex measures, and remains the measure of choice for the assessment of interpersonal traits from the circumplex perspective. It was designed specifically to conform to the explicit model of the circumplex (see Wiggins, 1979), and its test construction methodology has become the *de facto* template for development of almost all succeeding measures. The IAS currently consists of eight scales, or *octants* (see earlier Figure 1), each consisting of eight adjectives (e.g., *boastful*, *timid*).

Table 1 Interpersonal circumplex measures of interpersonal constructs (five measures compared)

Construct:	Interpersonal values	Impact messages	Interpersonal traits	Interpersonal problems	Social support transactions
Measure:	CSIV	IMI-C	IAS-R	IIP-C	SAS-C
Angle					
0°	Communal	Friendly	Warm-Agreeable	Overly Nurturant	Nurturant
45°	Agentic and Communal	Friendly-Dominant	Gregarious-Extraverted	Intrusive	Engaging
90°	Agentic	Dominant	Assured-Dominant	Domineering	Directive
135°	Agentic and Separate	Hostile-Dominant	Arrogant-Calculating	Vindictive	Arrogant
180°	Separate	Hostile	Cold-hearted	Cold	Critical
225°	Submissive and Separate	Hostile-Submissive	Aloof-Introverted	Socially Avoidant	Distancing
270°	Submissive	Submissive	Unassured-Submissive	Nonassertive	Avoidant
315°	Submissive and Communal	Friendly-Submissive	Unassuming-Ingenuous	Exploitable	Deferential

Legend and Source(s):

Circumplex Scales of Interpersonal Values (CSIV; Locke, 2000).

Octant Scale Impact Message Inventory (IMI-C; Schmidt, Wagner, & Kiesler, 1999).

Interpersonal Adjective Scales-Revised (IAS-R; Wiggins, 1995).

Inventory of Interpersonal Problems-Circumplex (IIP-C; Alden et al., 1990; Horowitz et al., 1988).

Support Actions Scale-Circumplex (SAS-C; Trobst, 2000).

Generally used as a self-report, the IAS requires the person to indicate how accurately each of the 64 adjectives describes his or her characteristics. Relevant information on the reliability, validity, and structure of the IAS has been presented in many sources (e.g., Gurtman & Pincus, 2000; Wiggins & Broughton, 1991; Wiggins, 2003), including the test manual (Wiggins, 1995).

The Inventory of Interpersonal Problems–Circumplex (IIP-C; Alden, Wiggins, & Pincus, 1990; Horowitz, Alden, Wiggins, & Pincus, 2000) is perhaps the most widely used interpersonal circumplex measure (based on my own informal search through PsycINFO). Whereas the IAS was intended to measure normal variations in (interpersonal) personality, the IIP-C was constructed to assess those aspects of interpersonal functioning associated with personal distress or difficulty. To generate test items, Horowitz and his colleagues conducted a verbatim analysis of the presenting complaints of individuals seeking psychotherapy and identified those complaints of an interpersonal nature; this led ultimately to an inventory of 127 items cataloging a broad range of self-reported difficulties (Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). From this original item pool, Alden et al. (1990) selected items to create a 64-item version of the test (generally referred to as the IIP-C) with eight octant scales designed to meet circumplex criteria for structure. The IIP-C thus yields eight scores that parallel those of the IAS (Wiggins, Phillips, & Trapnell, 1989). The items consist of short statements (e.g., *It is hard for me to trust other people, I try to please other people too much; I am too independent*) that describe either excesses or deficits in interpersonal functioning. The recently discontinued test manual (Horowitz et al., 2000) provides a broad overview of the test; other useful sources include Horowitz (2004) and Hughes and Barkham (2005).

Each of the tests summarized in Table 1 shows good or excellent fit to the circumplex model – which is critical if the test data are to be analyzed using the kind of special techniques discussed later. How then are circumplex measures evaluated for model fit? Tracey (2000) provides perhaps the best current source on the statistical methods and approaches for evaluating circumplex models (see also Gurtman & Pincus, 2003). Here, only a brief discussion is possible.

As is evident in the literature, circumplex measures have been evaluated using both *exploratory* and *confirmatory* methods, and often in combination sequentially. Exploratory methods, such as principal components analysis (PCA; e.g., Wiggins, 1979) and multidimensional scaling (MDS; e.g., Gurtman & Pincus, 2000), are typically the first step in examining the structure of a given circumplex measure. As we have argued elsewhere (Gurtman & Pincus, 2003), the main contribution of exploratory methods is to provide a spatial representation of the data that can then be evaluated informally for fit to a circular structure. Typically, the input for such an analysis is the correlation matrix for the eight octant scores, which – if

Table 2 Circulant correlation matrix for an eight octant circumplex (as per Figure 1)

Defining parameters

Angle	0°	45°	90°	135°	180°	225°	270°	315°
0°	1							
45°	ρ_1	1						
90°	ρ_2	ρ_1	1					
135°	ρ_3	ρ_2	ρ_1	1				
180°	ρ_4	ρ_3	ρ_2	ρ_1	1			
225°	ρ_3	ρ_4	ρ_3	ρ_2	ρ_1	1		
270°	ρ_2	ρ_3	ρ_4	ρ_3	ρ_2	ρ_1	1	
315°	ρ_1	ρ_2	ρ_3	ρ_4	ρ_3	ρ_2	ρ_1	1

where $\rho_1 > \rho_2 > \rho_3 > \rho_4$.

An example in an ideal case

Angle	0°	45°	90°	135°	180°	225°	270°	315°
0°	1.000							
45°	0.707	1						
90°	0.000	0.707	1					
135°	-0.707	0.000	0.707	1				
180°	-1.000	-0.707	0.000	0.707	1			
225°	-0.707	-1.000	-0.707	0.000	0.707	1		
270°	0.000	-0.707	-1.000	-0.707	0.000	0.707	1	
315°	0.707	0.000	-0.707	-1.000	-0.707	0.000	0.707	1

the fit is good – should have the characteristic pattern of the circulant matrix (as per Guttman, 1954). Table 2 shows the pattern of the circulant matrix (top), along with an example of possible values (bottom). Applying PCA or MDS should ideally yield a two-dimensional solution, with each dimension having the same magnitude and each variable having roughly equal communality. When the variables are then plotted in two dimensions, they should assume an equally spaced circular arrangement, conforming to the circumplex. (The interested reader is invited to conduct a PCA or MDS on the matrix shown in Table 2 to verify this.)

Today, any serious evaluation of circumplex structure should also include confirmatory methods designed to provide a formal test of model fit (Gurtman & Pincus, 2003). Fabrigar, Visser, and Browne (1997) have argued for the importance of such methods and have demonstrated the use of CIRCUM (Browne, 1992), a program designed specifically to test covariance matrices for circumplex structure. CIRCUM has now been used in a variety of studies to conduct confirmatory analyses (e.g., Gurtman & Pincus, 2000; Schmidt, Wagner & Kiesler, 1999; Yik & Russell, 2004). As an alternative (or perhaps complement) to CIRCUM,

RANDALL (Tracey, 1997) is a program that tests for structure by examining the hypothesized *circular order relations* among octant inter-correlations. In a circumplex arrangement, the magnitudes of the correlations between pairs of variables should be ordered according to the variables' proximity on the circle, as per Table 2. RANDALL has been used extensively by Tracey and his colleagues to examine structure in vocational interest tests. Tracey's (2000) chapter provides a full description and examples.

Exploring Personality: Person-Centered Approaches

Thus far, I have addressed some basic issues about the interpersonal circumplex, and have also linked the model to several extant personality measures designed specifically to operationalize it. Data from these kinds of circumplex measures present opportunities for exploring and studying personality in distinctly different and interesting ways – that is, in ‘the circular way’. In this section, I will present the methods and implications of circumplex-based measurement for the study of the individual, or idiographic, assessment.

Consider first, for contrast, the traditional personality test and its data – as an example, the familiar MMPI/MMPI-2. An individual's personality is typically depicted by a profile of scores, linearly arranged across the set of scales. The assortment of scales, while perhaps reasonably comprehensive of a certain domain, are typically not chosen in any systematic way to sample uniformly from that domain; consequently, both overlap and gaps in coverage may occur. Moreover, the order of the scales and which scales are nearest neighbors is not meaningful, at least psychometrically. (In the case of the MMPI and MMPI-2, the order of the clinical scales seems largely a matter of historical progression.) Sadly, with such tests and their data, the personality world seems limited, in that the information picture presented is not optimized.

In the round world of the circumplex, however, profiles are more information-rich and the key structural features are inherently meaningful. To demonstrate, Figure 2 shows two hypothetical examples of a *circular profile*, the result of a circumplex-based assessment of interpersonal traits. (For some other examples, see Horowitz, 2004; Leary, 1957; Locke, 2006; and Wiggins et al., 1989.) The circular profile presents each person's scores on the eight octants of the circumplex in a polar coordinate system rather than the traditional rectangular system. Like the circumplex itself, the profile has no beginning and no end. The order of the scales is meaningful; it reflects the theoretical arrangement of the scales on the circumplex, and hence their degree of similarity (or correlation). Moreover, each scale samples a particular region on the circumplex (an octant), and all regions of the interpersonal space are represented and in equal measure.

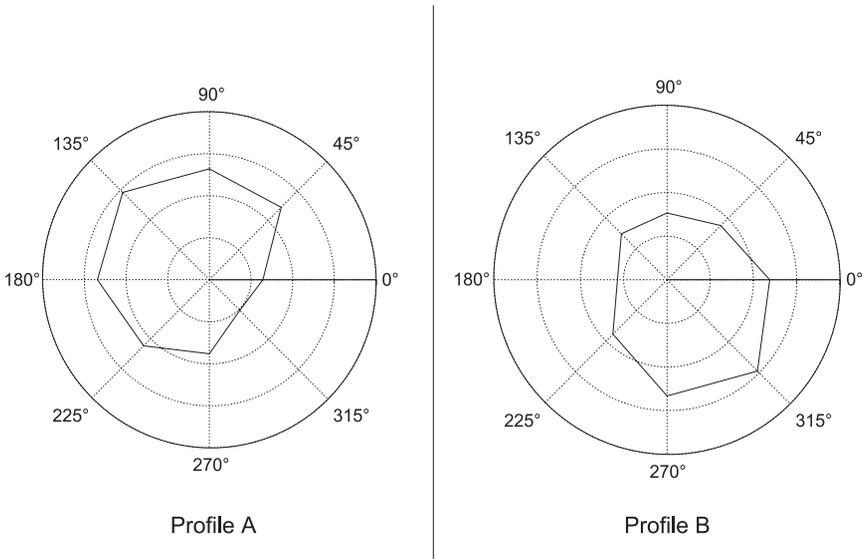


Figure 2 Two hypothetical circular plots.

With knowledge of the circumplex, the profiles are easily interpreted, in part, because of their characteristic shapes. Referred to by Wiggins et al. (1989) as ‘the interpersonal spaceship’, these profiles tend to rise to a peak value and then decline; consequently, in the circular space, the entire profile is displaced (or shifts) from the origin toward that focal region. The peak clearly indicates the predominant trend in the profile, the point of interest (visually and psychologically), and suggests the individual’s predominant interpersonal style or typology. For the first profile (A) in Figure 2, the peak is the upper-left hand quadrant which suggests a hostile-dominant style, whereas for the second profile (B) the peak in the lower-right region suggests dependency and related interpersonal features (Pincus & Gurtman, 1995). Even without the particulars being given, an individual’s standing in the given interpersonal domain is revealed.

Besides its shape, another obvious feature of the profile is its expanse – the area of the enclosed figure – which psychometrically reflects the mean level of the profile (and so is not a profile feature specific to a circumplex test result). Expanse is potentially meaningful if the circumplex measure includes a substantive general factor on which all scales load about equally. For example, the IIP, previously discussed as a measure of interpersonal problems, has a general factor which is often interpreted as interpersonal distress or dysfunction. So, the expanse of the IIP profile may indicate the person’s overall level of interpersonal difficulty (see Gurtman & Balakrishnan, 1998, for related discussion).

Circular profiles lend themselves readily to summary analyses. This was understood by members of the Kaiser Research Group, who pioneered the methods for reducing the circular interpersonal profiles of their patients to these data's summary features; indeed this was an essential part of interpersonal diagnosis (see Leary, 1957). The methods are actually quite simple. Consider, for example, the earlier profile (A) presented in Figure 2. Do the eight circularly arranged scores have a 'preferred' (or average) direction? Using simple vector arithmetic, we can easily determine this. If we weigh each score by its direction in circular space, we get a *resultant vector*. That resultant would have a certain directional orientation in the circular space of the circumplex (or *vector angle*) and a certain length or extremity (*vector length*). The first is a measure of circular central tendency, and the second of circular variability. For the present example, the profile reduces to a vector angle is 138° , and vector length of 0.88. I have not shown the calculations here, but for worked-out examples, the interested reader is referred to Gurtman and Pincus (2003, pp. 416–417) or to Wiggins et al. (1989).

What do these summary statistics tell us? Vector angle, being a measure of central tendency, informs us of the *predominant interpersonal theme* (Gurtman & Balakrishnan, 1998) that overall characterizes the individual's personality; for example, an angle of 138° would (as before) suggest a mixture or Hostile and Dominant features. But any interpretation could be qualified by vector length (VL). High VL indicates a well-defined profile, with a clear central tendency (theme); but low VL (minimum = 0) suggests less definition to the profile – and hence less confidence in any summary conclusion about the overall thematic trend in the personality. A value of 0.88 suggests a well-articulated pattern for Profile A, but this interpretation requires some additional details and discussion. The interested reader should consult Gurtman and Balakrishnan (1998) to learn how VL relates to profile patterning. That article also presents the *structural summary method* as an alternative methodology for extracting interpersonal meaning from circumplex profiles.

Locating people in interpersonal space: some extensions

The vector method implies an even more concise way of identifying a person's interpersonal stance – as simply a point or location somewhere in or on the circle (the vector without the line!). The coordinates of that point would thus signify the person's standing on the two substantive dimensions of Agency and Communion that comprise the circumplex space. If projected onto the circle, the point would place the person somewhere on the circular interpersonal continuum.

When people are represented as individual points in interpersonal space, this enables us to compare people both within and across time. For example, Moskowitz and Zuroff's (2004) concepts of *flux*, *pulse*, and *spin*

serve to extend our static coordinate system (as above) to a dynamic one. Is a person's extremity (distance from the origin in circumplex space) consistent across time or situations (pulse)? Is the person's angular orientation (spin) consistent? Are the person's dimensional coordinates (flux) consistent? Their research suggests interesting correlates of these new interpersonal variables (see, e.g., Russell, Moskowitz, Zuroff, Sookman, & Paris, 2007).

Of course, it is also possible to compare or chart two people's interpersonal positions – vis-à-vis each other – in the same space. The interpersonal principle of *complementarity* (Horowitz, 2004; Kiesler, 1996), a central tenet of interpersonal theory (Pincus & Ansell, 2003), suggests that these interpersonal positions tend to co-occur in lawful ways. Specifically, according to the complementarity principle, dyads will tend to occupy a similar position on the circumplex's horizontal dimension of Communion (i.e., their degree of mutual hostility vs. friendliness) and be opposite on the vertical dimension of Agency (degree of dominance vs. submissiveness). Two of these possibilities are illustrated and explained in Figure 3. Kiesler (1996) argued that complementary relationships are mutually reinforcing to the individual partners and therefore tend to be more stable and satisfying, because each person's interpersonal features are in harmony with the desired set of complementary reactions (and positions) from the

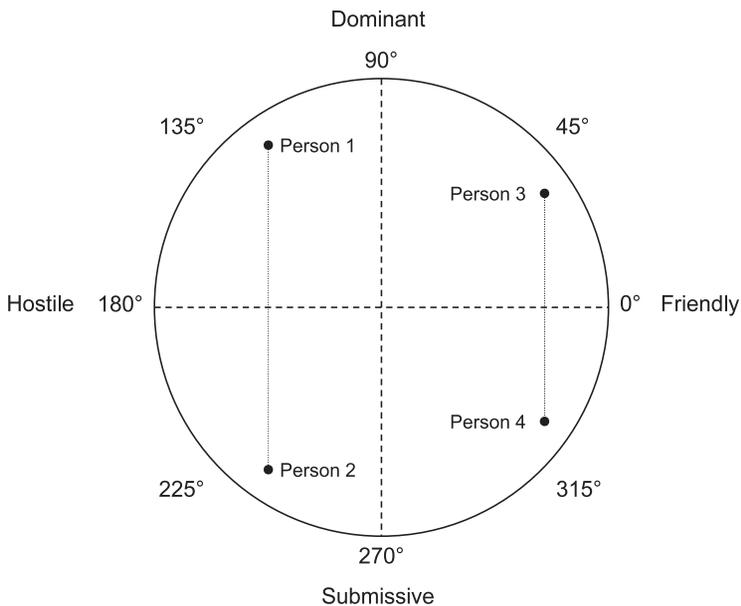


Figure 3 Illustration of complementary positions in the interpersonal circumplex for two hypothetical pairs of persons. Each pair is equal and opposite on the vertical dimension of Dominance vs. Submissiveness; each pair is equal and the same on the horizontal dimension of Hostility vs. Friendliness.

other. Thus, the interpersonal position is not simply a description of interpersonal tendencies, but part of a dynamic ‘field-regulatory’ system (Pincus & Gurtman, 2006).

Complementarity and its derivative predictions have now been tested in a large number of studies (Kiesler, 1996). For example, Ansell, Kurtz, and Markey (2008) examined gender differences in complementarity and its impact on relationship cohesion. Studying college roommate pairs, they discovered that women, but not men, tended to be complementary, based on their ratings of each other on the IAS. However, for both men and women dyads, complementarity on dominance specifically was predictive of greater cohesion in their relationships. For some other recent applications to personality research, the interested reader should consult the work of Horowitz (2004), Markey, Funder, and Ozer (2003), and Sadler and Woody (2003).

Exploring Personality: Group Summary and Variable-Centered Approaches

Thus far, I have focused on the individual case, consistent with the idiographic aims of personality research. In this section, I will consider how the circumplex could also be used to explore the nomothetic world of groups and construct variables, by expanding the methods of analysis previously described.

Summarizing group tendencies

I will begin with a very basic issue relevant to any descriptive analysis of a measured personality variable – how to summarize a group tendency. Consider, for example, a (hypothetical) group of individuals who have been diagnosed as having a social phobia, and who have also completed an interpersonal circumplex measure of interpersonal problems (e.g., Alden & Phillips, 1990). Using the circumplex, how could we characterize the group? As illustrated in Figure 4, a *circular distribution* is a helpful device; here each of the 100 cases is represented by his or her location on the circular continuum. It is clear from the figure that the group is concentrated around a focal point on the circumplex – that is, the group has a central tendency as well as some degree of dispersion around that point. Using circular statistics (e.g., Upton & Fingleton, 1989), we can calculate the *circular mean* for this group and the *circular standard deviation*; these are direct analogues to the familiar mean and standard deviation taught in introductory statistics courses. In this example, the circular mean is 224° and the circular standard deviation is 18° (calculated from formulas presented in Gurtman & Pincus, 2003, p. 419). Given these statistics, it could be assumed that most individuals in this sample fall between 206° and 242° on the circumplex continuum ($224^\circ \pm 18^\circ$) – and this is confirmed

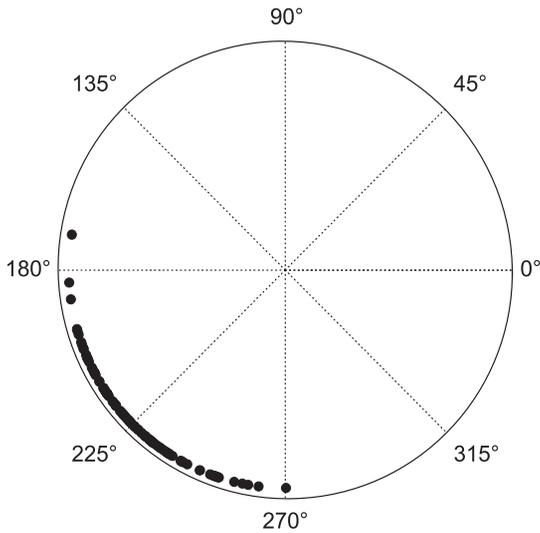


Figure 4 An example of a hypothetical circular distribution of 100 individuals diagnosed with social phobia.

by Figure 4. The interpersonal theme most closely related to this grouping variable is hostile–submissiveness. The dispersion in this hypothetical example is relatively small, but other variables (e.g., depression; see Alden & Phillips, 1990) may have greater (or less) breadth in their circular distributions – suggesting either a narrower or broader kind of interpersonal construct.

Beyond the mean and standard deviation, other kinds of circular statistics are certainly possible and may have application to a particular research problem. For example, confidence intervals can be constructed on the basis of a standard error, and different groups or their subtypes (e.g., social phobic vs. depressed individuals) can be compared using circular equivalents to our standard significance tests. These and other methods are presented in a comprehensive chapter by Upton and Fingleton (1989).

Validating personality constructs

Turning now to personality constructs, much of our nomothetic work is aimed at gaining understanding of the essential meaning of our constructs and their measures, in large part by relating these to other constructs of interest. Indeed, this is at the core of construct validation, as formulated by Cronbach and Meehl (1955) and expressed in their concept of the *nomological net*. In Gurtman (1992), I argued that the interpersonal circumplex could serve as a kind of nomological net for elucidating the interpersonal meaning of our personality constructs and measures. By projecting our measured variables onto the circumplex (more on how

later), we are able to relate these constructs to a broader system of variables that give objective meaning to what we are measuring.

There are now many examples of using the interpersonal circumplex in precisely this way. As noted earlier, Wiggins and Broughton (1991) were instrumental in developing and demonstrating the potential of this approach. In their research program, they administered a large number of personality tests and measures together with the IAS circumplex; by correlating each scale with the two dimensions of the circumplex, they were able to establish the scale's interpersonal coordinates in interpersonal space. Their work suggested that the name of the test is not necessarily a good indicator of its specific interpersonal content, nor of its degree of 'interpersonalness'. Used in this way, the circumplex becomes a kind of 'geometric taxonomy' for classifying personality measures and their related constructs. In similar studies, I have also found the circumplex useful for studying and differentiating between a variety of putatively interpersonal constructs – for example, dependency, empathy, and narcissism (Gurtman, 1992); and social skills and social competencies (Gurtman, 1999). My colleague, Aaron Pincus, has done similar work in his exploratory analyses of dependency (e.g., Pincus & Gurtman, 1995), autonomy (Hmel & Pincus, 2002), perfectionism (Slaney, Pincus, Uliaszek, & Wang, 2006), and other constructs of relevance to personality and psychopathology. Finally, as one last interesting extension, Gifford (1991) has shown that the interpersonal circumplex could also be used to chart the interpersonal features of various kinds of nonverbal behaviors, such as head orientation, nodding, and object manipulation. When used as a 'behavioral map', the circumplex links behavior to specific aspects of personality.

Item analyses of personality tests

New measures of personality are often evaluated from the inside out. That is, to understand what a test measures – and to make inferences about the construct itself (the latent variable) – we typically focus first on the items. Through factor analysis and related item-focused analyses, we learn about what a test measures, its substance and structure.

I have found that, when exploring a test or group of tests with the circumplex, taking an *item-centric approach* (Gurtman & Pincus, 2003) often yields important insights – not only about the test(s) but about the underlying construct as it is typically conceptualized. As an illustration, Pincus and Gurtman (1995) examined the multifaceted construct of dependency (or, as we described it, 'the three faces of dependency') by administering a standard set of dependency measures and then projecting the item's (rather than scale's) locations, collectively, onto the circumplex (see, p. 749). (Projections are based on the item's correlations with the two circumplex dimensions, extended to the surface of the circle.) We found that these dependency items were widely dispersed on

the interpersonal continuum, but were mainly concentrated in the Friendly Submissive quadrant of the circle (non-Agentive and Communal). Some items seemed to reflect more submissive forms of dependency (at 270° on the circle), some more exploitable forms (at 315°), and some more pure communal forms (at 0°). Similarly, dependency scales also varied considerably in their interpersonal features, based on how their items were distributed on the circle. The circumplex thus provided an objective way of characterizing the test – specifically, what form of dependency was measured, how broad was its coverage, and even how ‘interpersonal’ was the test itself.

Final Thoughts

Years ago, in writing about the interpersonal circumplex, I described it as a ‘genuinely useful tool’ for exploring the interpersonal world of personality. In retrospect, ‘genuinely useful’ seemed an earnest attempt to forestall disbelief – that a seemingly simple model (a circle) could be so powerful and so rich with implications for our descriptive and research agendas in personality. In this paper, I have tried to convey some of the potential of that model for illuminating the interpersonal domain of personality.

Together, the interpersonal circle and interpersonal circumplex have a long history in personality and clinical psychology. If a current search in PsycINFO is any indication, the circumplex model continues to intrigue, with new research applications and directions appearing in the literature each year (for an excellent example, see Fournier, Moskowitz, & Zuroff, 2008). For those who wish to take the next step in exploring personality ‘the circular way’, I recommend the chapter by Pincus and Ansell (2003), the encyclopedic works of Horowitz (2004) and Kiesler (1996), and anything – at all – by Jerry Wiggins.

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Short Biography

Michael B. Gurtman is Professor of Psychology at the University of Wisconsin-Parkside, where he has taught since 1982. For most of his professional career, he has been interested in the interpersonal world of personality and psychopathology. His work on the interpersonal circumplex model has appeared in numerous journals, including the *Journal of Personality*

and *Social Psychology*, *Personality and Social Psychology Bulletin*, *Psychological Assessment*, *Journal of Counseling Psychology*, *Journal of Personality*, and the *European Journal of Psychological Assessment*, as well as in several integrative book chapters. He received his undergraduate degree from the University of Pennsylvania, and his doctorate degree in clinical psychology from the University of Connecticut. He currently serves on two editorial boards, and is a co-founder and past president of the Society for Interpersonal Theory and Research.

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