# Mapping the interpersonal domain: Translating between the Big Five, HEXACO, and Interpersonal Circumplex

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## ABSTRACT

Three different theoretical frameworks for understanding social behaviour and experience, the Big Five (B5), HEXACO, and Interpersonal Circumplex (IPC), are compared empirically by aligning them to the same circular structure. In this study (N = 206), we map the major empirically defined interpersonal dimensions of the B5 (Big Five Aspect Scales) and the HEXACO (HEXACO Personality Inventory — Revised) onto the IPC structure using Procrustean rotation. Congruence coefficients demonstrated that the assertiveness aspect of B5 extraversion and the compassion aspect of B5 agreeableness are congruent with IPC dominance and warmth, respectively, replicating recent efforts to integrate these frameworks. HEXACO agreeableness aligned closer to the politeness (versus compassion) aspect of B5 agreeableness, whereas HEXACO extraversion was rotated towards the enthusiasm (versus assertiveness) aspect of B5 extraversion. Finally, HEXACO honesty-humility was congruent with the politeness aspect of B5 agreeableness. These findings provide a means for translating more clearly between these different descriptive frameworks, which is essential for the integration of knowledge emerging from different traditions within this field.

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## 1 . Introduction

Many researchers from different traditions within psychology are interested in individual differences in interpersonal behaviour and experience. The traits accounting for variation in these social differences are known as "interpersonal traits" and collectively make up the "interpersonal domain". The purpose of this study is to facilitate the integration of different frameworks for describing the interpersonal domain, by examining convergences amongst interpersonal traits from the Interpersonal Circumplex, Big Five, and HEXACO personality frameworks. This thorough mapping provides a means for translating between different interpersonal trait frameworks, and may inform and constrain the development of theories regarding mechanisms that underlie these traits.

One way of comparing and contrasting interpersonal traits is by arranging them in a circular structure based on their relations to predefined primary dimensions of social behaviour and experience. The Interpersonal Circumplex (IPC; Wiggins, 1979) is such a structure, providing a theoretically-driven model of interpersonal traits based on their relations to two primary factors: dominance (i.e., drive for power or influence) and warmth (i.e., desire for social harmony and interconnectedness; Wiggins, 1991), which are also known as agency and communion, or status and love. Wiggins (1991) theorised that dominance and warmth correspond with evolutionarily-old goals of achieving status and maintaining social bonds, and therefore comprise the fundamental dimensions of interpersonal behaviour. Eight theoretically selected bipolar octants were developed around these two central dimensions (Markey & Markey, 2009; Wiggins, 1979): Assured-Dominant, Arrogant-Calculating, Cold-hearted, Aloof-Introverted, Unassured-Submissive, Unassuming-Ingenuous, Warm-Agreeable, and Gregarious-Extraverted (see Fig. 1), which together formed the IPC.

The IPC is a useful system for describing relations amongst other interpersonal traits, such as those from the Big Five (B5); an empirically-derived personality taxonomy consisting of five trait "domains" that represent the major dimensions of co-variation amongst trait descriptors (John, Naumann, & Soto, 2008). Of the B5 domains (Extraversion, Agreeableness, Neuroticism, Conscientiousness, and Openness), extraversion and agreeableness, are thought to represent the majority of trait variation in *interpersonal* behaviour and experience. Agreeableness reflects the tendency to be considerate, cooperative, and sympathetic (DeYoung, Quilty, & Peterson, 2007; Graziano & Eisenberg, 1997), and extraversion reflects the tendency to be talkative, assertive, and to experience positive emotions (DeYoung et al., 2007; Smillie, 2013). Several studies have now demonstrated that the IPC axes dominance and warmth are approximately 30-degree rotational variants of B5 extraversion and agreeableness (Pincus, 2002; McCrae & Costa, 1989: Wiggins & Broughton, 1991).

A recent development to the hierarchical structure of the B5 was the discovery of a level of personality description lying below the five broad domains but above several narrow "facets". These consist of two separable "aspects" of each of the five domains (DeYoung et al., 2007). At this

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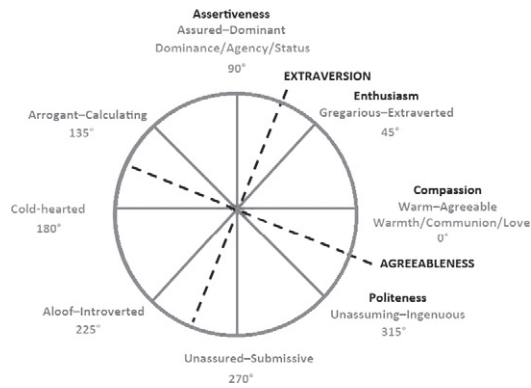
Note. Adapted from DeYoung, Weisberg, Quilty, & Peterson, 2013.

**Fig. 1.** Integrated Big Five–Interpersonal Circumplex. Note. Adapted from DeYoung et al. (2013).

level, extraversion is divided into assertiveness (bold, dominant behaviour) and enthusiasm (positive emotions and enjoyment of affiliation), and agreeableness is divided into compassion (sympathy and empathic concern for others) and politeness (respect and courtesy). DeYoung, Weisberg, Quilty, and Peterson (2013) showed that whilst extraversion and agreeableness are 30-degree rotations of dominance and warmth, the two major axes of the IPC correspond closely to the assertiveness aspect of extraversion and the compassion aspect of agreeableness. Thus, comparison of the IPC and the interpersonal B5 traits at the aspect level provided a more precise mapping of these interpersonal frameworks and their relations within the interpersonal domain.

An alternative personality framework to the Big Five is the six-factor HEXACO model (Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, Openness to Experience). This six-factor structure of broad trait dimensions emerged from lexical studies of major European and Asian languages and has become increasingly influential in recent years (Ashton, Lee, & de Vries, 2014; Lee & Ashton, 2004). HEXACO extraversion is generally considered very similar to B5 extraversion (Lee & Ashton, 2004), whilst HEXACO agreeableness is a rotational variant of B5 agreeableness (Ashton et al., 2014). Compared to B5 agreeableness, HEXACO agreeableness does not contain the sentimentality component, which is subsumed within HEXACO emotionality. In addition, the anger component encompassed by B5 neuroticism is included within HEXACO agreeableness (Ashton et al., 2014).

The HEXACO model is most saliently distinguished from the B5 by its inclusion of the sixth factor, honesty-humility. This trait reflects the tendency to be trustworthy and fair when interacting with others, as well as modesty about one's own accomplishments (Lee & Ashton, 2004). Ashton et al. (2014) posit that HEXACO agreeableness and honesty-humility are separate traits with divergent predictive validities. Specifically, the former concerns the tendency to forgive and tolerate others despite their misgivings, whilst the latter concerns the tendency to be fair and cooperative despite the opportunity to exploit others, which together have been described as 'reactive' and 'active' forms of cooperation, respectively (Hilbig, Zettler, Leist, & Heydasch, 2013). Accordingly, Ashton et al. (2014) maintain that the B5 cannot adequately predict the interpersonal variance explained by the HEXACO. Alternatively, when characterising the aspects of the B5, DeYoung et al. (2007) suggested that the emergence of the sixth factor might reflect that B5 agreeableness can be meaningfully divided into two lower-level aspects (p. 881), and that the politeness aspect of B5 agreeableness appears conceptually similar to honesty-humility (p. 885). For example, items for both of these scales concern tendencies to be fair (e.g., politeness: *take advantage of others*; honesty-humility: *if I want something from a person I dislike, I will act very nicely toward that person in order to get it*; both reverse scored) and modest (e.g., politeness: *believe that I am better*

than others — reverse scored; honesty-humility: *I am an ordinary person who is no better than others*).

To date, no study has mapped the HEXACO interpersonal traits to the IPC dimensions, and relatively little research has examined convergences and divergences between the HEXACO and B5 frameworks. Because Ashton et al. (2014) have asserted that the sixth HEXACO factor is poorly represented by the B5, and the IPC dimensions appear congruent with B5 aspects, honesty-humility might not be well represented as a vector on the IPC (see Lee & Ashton, 2004). Others, however, have suggested that honesty-humility is subsumed within the interpersonal B5 dimensions, and therefore can be integrated with the other two interpersonal frameworks (McCrae & Costa, 2008; Van Kampen, 2012). The suggestion that honesty-humility overlaps with B5 politeness is clearly aligned with these latter perspectives (DeYoung et al., 2007).

Our aims in the present study were twofold: First, we sought to provide an independent replication of DeYoung et al.'s (2013) unification of the B5 and IPC. Replication is critical for knowledge creation, as illustrated by the current "crisis of confidence" in psychology (Pashler & Wagenmaker, 2012). We hypothesised that B5 extraversion and agreeableness, as well as the two aspects of each of these domains, would show the same alignments to the IPC as demonstrated by DeYoung et al. (2013). Second, we sought to map the interpersonal HEXACO traits onto the IPC to inform the integration of interpersonal trait frameworks. We predicted that HEX agreeableness and extraversion would correspond to the same IPC vectors as B5 agreeableness and extraversion, excepting for a slight rotation of HEX agreeableness from B5 agreeableness due to its inclusion of anger and omission of sentimentality. Finally, in line with the suggestions of DeYoung et al. (2007), we examined whether the same vector on the IPC could represent both B5 politeness and honesty-humility, providing evidence for their overlap within the interpersonal domain.

## 2. Method

### 2.1. Participants and procedure

206 first year psychology students (aged 18–46; $M = 20.00$; $SD = 4.38$; 76% female) from the Melbourne School of Psychological Sciences' Research Experience Program participated in the study in exchange for course credit. All participants completed the questionnaires detailed below in randomised order via an emailed web-link to a Qualtrics™ survey.

### 2.2. Measures

#### 2.2.1. Interpersonal Circumplex (IPC)

Originally developed from the International Personality Item Pool (IPIP; Goldberg, 1999), the IPIP-IPC is a 32-item measure of social behaviour and experience divided into 8 octants measured by 4 items each (Markey & Markey, 2009). Participants rate the accuracy of descriptive phrases (e.g., *am quiet around strangers*) on Likert scales from 1 (*very inaccurate*) to 5 (*very accurate*). The eight octants, Assured-Dominant (90°, AsDo), Arrogant-Calculating (135°, ArCa), Cold-hearted (180°, CoHe), Aloof-Introverted (225°, AlIn), Unassured-Submissive (270°, UnSu), Unassuming-Ingenuous (315°, UnIn), Warm-Agreeable (0°, WaAg), and Gregarious-Extraverted (45°, GrEx), represent blends of the two major interpersonal axes of dominance and warmth (Wiggins, 1979). In the present sample, the internal consistency of our measures of each octant ranged from moderate (AsDo, α = .76; ArCa, α = .68; AlIn, α = .76; WaAg, α = .73; GrEx, α = .77) to modest (CoHe, α = .42; UnSu, α = .56; UnIn, α = 44). This somewhat low internal consistency is potentially owing to the brevity of these scales (i.e., 4 items each); however, the IPIP-IPC's validity is supported by its convergent associations with the 64-item Interpersonal Adjectives Scale (Markey & Markey, 2009; Wiggins, 1995).