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THE HEXACO AND 5DPT MODELS OF PERSONALITY: A COMPARISON AND THEIR RELATIONSHIPS WITH PSYCHOPATHY, EGOISM, PRETENTIOUSNESS, IMMORALITY, AND MACHIAVELLIANISM

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This study describes and tests two models of personality: the HEXACO model of personality, which is derived from the lexical tradition and which is rooted in "normal" psychology, and the 5DPT model of personality, which is derived from a theoretical approach and which is rooted in clinical psychology. The HEXACO and 5DPT models are compared in the prediction of antisocial and self-benefiting personality traits in a large-scale community sample study. Relative weight analyses show that HEXACO Honesty-Humility explains most of the variance in SRP-III Psychopathy, Egoism, and IPIP Pretentiousness, Immorality, and Machiavellianism. Additionally, Honesty-Humility is able to increment the amount of variance explained by the 5DPT scales in these antisocial and self-benefiting personality scales. Consequences for the 5DPT and for the choice of a dimensional axis-II personality model in the run-up of the DSM-V are discussed.

In the run-up to the DSM-V, there is an increased interest in the optimal dimensional representation of Axis-II personality disorders that may replace the current categorical classification. At the same time, there appears to be a growing consensus that four (Livesley, 2007) or five (Clark, 2007; Widiger & Simonsen, 2005) factors underlie the main personality disorders. This consensus seems to converge well with the finding by some personality psychologists that five factors, commonly referred to as the "Big Five," capture the main dimensions of normal personality variation (Digman & Takemoto-Chock, 1981; Goldberg, 1990). Although different terms have been used, these factors are usually named Extraversion,

Agreeableness, Conscientiousness, Emotional Stability (or Neuroticism), and Openness to Experience. Except for Openness to Experience, the four higher-order personality disorder factors proposed by Livesley (2007) appear to map adequately on these five factors.

Recently, however, scholars have started to question the Big Five, arguing that there are actually more cross-culturally replicable lexical personality dimensions and that the Big Five may not be broad enough to encompass the total personality sphere (e.g., Ashton & Lee, 2005a; Ashton, Lee, Perugini, et al., 2004). Based on an extensive reanalysis of several lexical studies (Ashton, Lee, Perugini, et al., 2004; Ashton, Lee, & Goldberg, 2004), which form the basis of the Big Five, Ashton and Lee (2001, 2008) have proposed a new model, consisting of six broad personality dimensions, which they named the HEXACO model of personality. The acronym HEXACO stands for the following six personality dimensions, Honesty-Humility (H), Emotionality (E), eXtraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). Although Emotionality and Agreeableness are rotational variants of the Big Five dimensions Emotional Stability and Agreeableness (see Lee & Ashton, 2004, for a full explanation), the main distinction between the Big Five model and the HEXACO model is the addition of a sixth broad dimension of personality, Honesty-Humility. In the lexical studies (Ashton, Lee, Perugini, et al., 2004) this sixth dimension has been found to be characterized by adjectives such as sincere, fair, generous, and modest versus dishonest, unjust, greedy, and boasting, suggesting the following four main Honesty-Humility facets, Sincerity, Fairness, Greed Avoidance, and Modesty. Consequently, Honesty-Humility seems to pertain to individual differences in the tendency to be interpersonally genuine, to avoid fraud and corruption, to be uninterested in status and wealth, and to be modest and unassuming (Lee & Ashton, 2004). The addition of Honesty-Humility has been especially relevant, because it has been found to be able to explain incremental variance in important pathological and delinquent behaviors up and above Big Five measures (Ashton & Lee, 2008; Lee, Ashton, & De Vries, 2005).

Distinct from the lexical approach on which the Big Five and HEXACO models are based, is an approach which tries to uncover basic personality factors from a purely theoretical perspective. A promising model in this respect is the 5DPT model of Van Kampen (2009; Coolidge, Segal, Cahill, & Archuleta, 2008) that can be regarded as a modified version of Eysenck's PEN model. The 5DPT model proposes five dimensions of personality, namely: Insensitivity, Extraversion, Neuroticism, Orderliness, and Absorption. The Extraversion and Neuroticism dimensions were retained from Eysenck's PEN model, whereas the Psychoticism factor was replaced on theoretical grounds by the Insensitivity, Orderliness, and Absorption dimensions (Van Kampen, 1993, 1997, 2009). The 5DPT dimensions appear to give a comprehensive account of the main vulnerability factors in schizophrenia and affective disorders, as well as in other psychopathological conditions, and are found to show modest to strong convergent correla-

tions with Five Factor Model instruments, such as the NEO-FFI (Van Kampen, 2010). Meaningful relations were also obtained with several clinical instruments, among which the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ; Livesley & Jackson, 2009), the Dissociative Experiences Scale (DES-II; Carlson & Putnam, 1993), the Schizotypic Syndrome Questionnaire (SSQ; Van Kampen, 2005, 2006), and the Horney-Coolidge Tridimensional Inventory (HCTI; Coolidge, 1998).

   Thus, while the HEXACO model originated in the lexical and normal psychology tradition, the 5DPT model has its origins in the theoretical and clinical psychology tradition. Especially given the latter origin (normal versus clinical psychology), it is of interest to find out whether antisocial and self-benefiting tendencies, which are believed to be aligned with HEXACO Honesty-Humility instead of with HEXACO Agreeableness, are better captured by the HEXACO than by the 5DPT model. Moreover, a comparison of the two models seems also worthwhile as Van Kampen (2009) argued that Honesty-Humility and Agreeableness are sub-factors of 5DPT Insensitivity, making the latter dimension interstitial. To compare both models we selected a wide array of constructs that are associated with antisocial and self-benefiting personality, i.e., Psychopathy, Egoism, Immorality, Pretentiousness, and Machiavellianism. The first construct (Psychopathy) originates in the clinical tradition.[1] Psychopathy has been conceptualized using four strongly interrelated dimensions, pertaining to interpersonal (pathological lying, conning), affective (e.g., shallowness of affect, remorselessness), impulsive lifestyle (e.g., irresponsibility, stimulus seeking, impulsivity), and externalizing, antisocial (e.g., poor behavior control) tendencies (Hare & Neumann, 2008). According to Neumann, Vitacco, Hare, and Wupperman (2005), the four-factor psychopathy model better captures the interpersonal-affective and behavioral-antisocial elements than models that exclude one or more of these features. Psychopathy, measured using the Hare's Psychopathy Checklist (Hare, 2003) has been found to be related to antisocial conduct such as recidivism, violent and nonviolent offenses, and institutional infractions (Leistico, Salekin, DeCoster, & Rogers, 2008). However, psychopathy has been found to share only a moderate amount of variance with any of the Big Five or FFM factors. It has been found to be most strongly (negatively) related to Agreeableness and somewhat positively related to Extraversion, but these relationships rarely surpass the −.40 or +.40 level (Gladden, Figueredo, & Jacobs, 2009; Lynam & Widiger, 2007; Williams & Paulhus, 2004; Williams, Paulhus, & Hare, 2007). On the basis of these and other findings, Hare and Neumann (2008, p. 237) concluded that "the empirical link between normal-range personality traits and psychopathic personality traits is modest at the measurement level, though the association may be stronger at the latent level."

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1. For a review of Psychopathy, its measurement and correlates, see Hare & Neumann (2008).

The other constructs, i.e., Egoism, Immorality, Pretentiousness, and Machiavellianism, are associated with a mix of self-enhancing, self-benefiting, and manipulative tendencies. Of these, Pretentiousness is the most introspective, consisting of self-directed thoughts of self-importance and feelings of vanity. Egoism is defined as "the excessive concern with one's own pleasure or advantage at the expense of community well-being" (Weigel, Hessing, & Elffers, 1999, p. 349) and not only includes self-benefiting thoughts and behaviors, but also behaviors that may potentially harm others. Egoism has been found to be positively related to disobedience of traffic laws, tolerance of sexual harassment, and cheating (Weigel et al., 1999). Immorality and Machiavellianism, in turn, are more explicitly antisocial, referring to manipulative and rule-breaking behaviors which are consciously used to enrich oneself.

This study investigates the relationships between the HEXACO Personality Inventory and the 5DPT, and it compares the amount of variance both inventories explain in the abovementioned antisocial and self-benefiting personality traits, which are assessed using the following scales: the Self Report Psychopathy checklist – III (SRP-III; Williams et al., 2007), Weigel et al.'s (1999) Egoism scale, and IPIP Immorality, Pretentiousness, and Machiavellianism (Goldberg et al., 2006).

METHOD
PARTICIPANTS AND PROCEDURE

Through a large-scale national ISO-certified and representative internet panel consisting of approximately 20,000 panel-members, 2,000 Dutch adult citizens were approached through email to participate in three questionnaire sessions, each spaced two weeks apart, in return for compensation. Provided that careful sampling and administration procedures are used, internet personality surveys have been found to yield results that are similar to traditional methods (Gosling, Vazire, Srivastava, & John, 2004). At the first wave, 68.9% of the sample (1,377 respondents; 50.2% women) responded to the call. The mean age of the participants was 47.8 (sd = 14.9) and their educational levels ranged from primary education (2.0%), lower-level secondary education (17.6%), higher-level secondary education (16.5%), lower-level tertiary education (6.4%), medium-level tertiary education (24.6%), higher-level tertiary education (20.1%), to university level education (12.7%). The questionnaire was divided in three sessions: The first session consisted of the HEXACO-PI-R and the background variables (N = 1,352 valid responses),[2] the second of the 5DPT (N = 1,196), and the third of the criterion variables (N = 1,072). In total, 1,052 respondents participated in all three sessions.

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2. Respondents with low within-person standard deviations (<.70) and long (>30) strings of the same answer were removed from the sample.

INSTRUMENTS

HEXACO-PI-R. The Revised HEXACO Personality Inventory (HEXACO-PI-R) is the questionnaire operationalization of the six HEXACO dimensions. An earlier, highly similar version of the questionnaire showed strong convergent validity with lexical personality factors (Ashton et al., 2006; Ashton, Lee, Marcus, & De Vries, 2007). The HEXACO-PI-R consists of 200 items divided among 24 facets representing the main six dimensions and one interstitial facet representing Altruism. Each of the facets contains 8 items. The items are answered on a five-point (disagree–agree) scale. In this study, Principal Component Analysis on the 24 facets representing the six dimensions revealed six main factors with eigenvalue >1. The first 10 eigenvalues, i.e., 3.9, 3.6, 2.2, 2.0, 1.9, 1.5, 0.9, 0.7, 0.7, 0.7, showed a clear break after the sixth factor. Each of the facets had its highest loading on its intended factor. All of the internal consistency reliabilities of the HEXACO-PI-R factor scales exceeded .84 and none of the absolute correlations between the factor scales exceeded .30 (see Table 1).

5DPT. The 5DPT or 5-Dimensional Personality Test (Van Kampen, 2009, 2010; Coolidge et al., 2008) consists of 100 dichotomous (yes-no) items, containing 20 items for each of the five factor scales. In this study, Principal Component Analysis on the 100 items revealed five main factors. The first 10 eigenvalues, i.e., 10.0, 6.9, 5.3, 4.5, 3.7, 1.7, 1.6, 1.5, 1.5, 1.4, showed a clear break in eigenvalues after the fifth factor. Each of the items had its highest loading on its intended factor. All of the internal consistency reliabilities of the 5DPT scales exceeded .82 and none of the absolute correlations between the scales exceeded .36 (see Table 1).

Criterion Scales. To measure antisocial and self-benefiting personality, we selected the Self-Report Psychopathy checklist version III (SRP-III; Williams et al., 2007), the Egoism Scale of Weigel et al. (1999), and three IPIP scales, namely Morality, Unpretentiousness, and Machiavellianism (Goldberg et al., 2006). All of the items of these scales were answered on a five-point (disagree–agree) scale. The SRP-III is based on the Psychopathy Checklist – Revised (PCL-R; Hare, 2003), and consists of 40 items. The SRP-II, a precursor of the SRP-III, correlated .54 with the PCL-R among a sample of offenders (Hare, 1991). The internal consistency reliability of the SRP-III in this study was .88. To measure egoism, the 12-item version of the Egoism Scale reported by Weigel et al. (1999; see footnote 2 on p. 374) was used. High scores on Weigel et al.'s (1999) Egoism Scale reflect "a dismissive attitude toward any community standards for interpersonal behavior (e.g., expectations, informal norms, formal laws) that interfere with the pursuit of personal pleasure, advantage, or well-being" (p. 356). In our study, the internal consistency reliability of the Egoism Scale was .80. We also included three IPIP scales, namely, Morality, Unpretentiousness, and Machiavellianism. To be in line with the other constructs, Morality and Unpretentiousness were renamed to Immorality and Pretentiousness so that higher scores reflected higher levels of antisocial or self-benefiting personality. The IPIP Immorality scale consists of 10 items. It is based on

TABLE 1. Correlation Matrix with Reliabilities (on diagonal) and Descriptives (first two rows) of the HEXACO, 5DPT, and Criterion Scales

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mean	3.69	3.13	3.37	3.05	3.42	3.19	4.89	11.75	6.18	13.00	8.27	2.04	2.49	1.99	2.72	2.54
Sd	.49	.44	.47	.41	.39	.47	4.03	5.14	5.42	4.63	4.91	.39	.54	.50	.58	.67
HEXACO																
1. Honesty-Humility	*.91*															
2. Emotionality	.11	*.88*														
3. Extraversion	−.01	−.23	*.90*													
4. Agreeableness	.29	−.13	.17	*.88*												
5. Conscientiousness	.13	−.06	.22	.06	*.85*											
6. Openness to Experience	−.06	−.11	.23	.05	.09	*.87*										
5DPT																
7. Insensitivity	−.50	−.08	−.08	−.51	−.10	.12	*.83*									
8. Extraversion	−.06	−.09	.73	.10	.05	.12	−.08	*.88*								
9. Neuroticism	−.03	.59	−.54	−.24	−.14	−.08	.22	−.36	*.91*							
10. Orderliness	.03	.04	−.02	−.04	.66	−.17	−.06	−.05	.00	*.84*						
11. Absorption	.01	.18	.08	.05	.01	.51	.11	.14	.17	−.06	*.86*					
Criterion Scales																
12. Psychopathy	−.60	−.32	.08	−.24	−.23	.15	.48	.14	−.11	−.22	.05	*.88*				
13. Egoism	−.39	.00	−.18	−.18	−.12	−.16	.30	−.04	.20	.03	.00	.41	*.80*			
14. Immorality	−.66	−.16	.02	−.21	−.19	.07	.48	.05	.00	−.15	.01	.75	.51	*.84*		
15. Pretentiousness	−.48	.25	−.01	−.17	−.03	.10	.31	.02	.31	−.06	.09	.27	.14	.43	*.79*	
16. Machiavellianism	−.43	−.25	.40	−.11	−.03	.23	.34	.34	−.27	−.11	.12	.54	.14	.53	.30	*.80*

Notes. With $r > .06$, $p < .05$; Listwise $N = 1,052$, except for the reliabilities and descriptives: $N_{HEXACO} = 1,352$, $N_{5DPT} = 1,196$, and $N_{Criterion\ Scales} = 1,072$; All means are on a 1–5 point (disagree—agree) scale except for the means of the 5DPT scales, which are on a 0–20 (low–high) scale.

the II-III- versus II+III+ facets in the Abridged Big Five Circumplex (AB5C; Hofstee, De Raad, & Goldberg, 1992) and reflects rule-breaking behaviors. The IPIP Pretentiousness scale consists of nine items and is based on the Individualism facet of the Independence scale in the Six-Factor Personality Questionnaire (6FPQ; Jackson, Paunonen, & Tremblay, 2000); it reflects self-promotional and status-oriented behaviors. The original 6FPQ scale, on which the IPIP Pretentiousness scale is based, has been found to be marginally related to FFM Neuroticism and Extraversion, and virtually unrelated to the other FFM scales (Jackson et al., 2000). The IPIP Machiavellianism scale consists of six items. It is based on the Social Astuteness scale of the Jackson Personality Inventory (JPI; Jackson, 1994) and reflects manipulative behaviors. The original JPI scale, on which the IPIP Machiavellianism scale is based, has been found to be most strongly related to Bentler Psychological Inventory (BPI; Bentler, Jackson, & Huba, 1978) Thriftiness ($r = -.35$, $p < .01$), Liberalism ($r = -.33$, $p < .01$), and Trustfulness ($r = -.28$, $p < .01$) (Jackson, 1994). The IPIP site (Goldberg et al., 2006) lists the following reliabilities of the three IPIP scales, i.e., 73 for Morality, .74 for Unpretentiousness, and .79 for Machiavellianism. Slightly better internal consistency reliabilities were found in this study, i.e., .84 for Immorality, .79 for Pretentiousness, and .80 for Machiavellianism.[3]

ANALYSES

To explore the relations between the criterion variables in our study and the HEXACO and 5DPT variables, we used correlational, partial correlational, and relative weight analyses. Of these three analyses, relative weight analysis (Johnson, 2000; LeBreton & Tonidandel, 2008) is a relatively new type of analysis. It is used to determine the proportionate contribution of each one of multiple independent variables in the explanation of a dependent variable. Especially when multicollinearity between independent variables occurs, relative weight analysis offers a more accurate estimation of the relative importance of each independent variable. The relative weights procedure consists of three steps to determine the proportionate contribution of the independent variables. In step one, the loadings of k independent variables on k independent factors derived from these independent variables are determined. In step two, the dependent variable

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3. Note that although the criterion variables and HEXACO-PI-R Honesty-Humility are hypothesized to share a common personality domain, the actual variables that are measured come from different traditions. The HEXACO-PI-R is rooted in the lexical tradition and is based on an analysis of the content of the adjectives that form the main six personality dimensions. The SRP-III is based in a clinical tradition and does not have any a priori links to any lexical dimensions. Except for IPIP Morality, which is written based on an Agreeableness–Conscientiousness circumplex solution, the other two IPIP scales are based on older, nonlexical, personality scales; like the SRP-III and the Egoism scale they are not rooted in the lexical tradition.

is regressed on these k independent factors. In step three, for each of the independent variables all proportions of variance, i.e., the multiplication of squared loadings (λ's) and squared regression coefficients (β's), are summed to arrive at the relative weight of each of the independent variables in the explanation of the dependent variable (see LeBreton & Tonidandel, 2008, for further explanation of relative weight analysis).

RESULTS

The correlation matrix and descriptives of the variables are shown in Table 1. The means and standard deviations in this sample were highly similar to the means and standard deviations in previous samples (see for instance Table 1 in De Vries et al., 2008; the means differed by not more than .15 and the standard deviations by not more than .05). There were substantial convergent correlations between the HEXACO factor scales and the 5DPT scales. HEXACO Extraversion was most strongly related to 5DPT Extraversion ($r = .73$, $p < .001$), HEXACO Conscientiousness was most strongly related to 5DPT Orderliness ($r = .66$, $p < .001$), and HEXACO Openness to Experience was most strongly related to 5DPT Absorption ($r = .51$, $p < .001$). 5DPT Insensitivity was interstitial in the HEXACO Agreeableness and Honesty-Humility space; that is, 5DPT Insensitivity was related to both HEXACO Agreeableness ($r = -.51$, $p < .001$) and Honesty-Humility ($r = -.50$, $p < .001$). 5DPT Neuroticism was interstitial in the HEXACO Emotionality and Extraversion space; that is, 5DPT Neuroticism was related to both HEXACO Emotionality ($r = .59$, $p < .001$) and HEXACO Extraversion ($r = -.54$, $p < .001$). To find out whether the 5DPT personality space was well-covered by the HEXACO personality space and vice versa, we conducted a series of multiple regressions. Regression analyses of each 5DPT factor scale on the six HEXACO factor scales produced the following multiple R's in the 5DPT (from high to low): .75 for Extraversion, .73 for Neuroticism, .72 for Orderliness, .65 for Insensitivity, and .57 for Absorption. Conversely, regression analyses of each HEXACO-PI-R factor scale on the five 5DPT factor scales produced the following multiple R's in the HEXACO-PI-R (from high to low): .79 for Extraversion, .69 for Conscientiousness, .64 for Emotionality, .57 for Openness to Experience, .54 for Agreeableness, and .52 for Honesty-Humility. Apparently, HEXACO Honesty-Humility and Agreeableness were least well-covered by the 5DPT personality space. Somewhat better, but still marginally covered were HEXACO Openness to Experience and 5DPT Absorption, HEXACO Emotionality and 5DPT Insensitivity.

  Subsequently, we computed the semipartial correlations of the HEXACO and the 5DPT variables with the criterion variables (Table 2). Because we expected HEXACO Honesty-Humility to add additional variance both beyond the other HEXACO factor scales and beyond the 5DPT scales, we entered all HEXACO variables except Honesty-Humility in the first step and entered Honesty-Humility in the second step (upper part of Table 2)

TABLE 2. Semipartial Correlations and Relative Weights in Analyses Using the HEXACO-PI-R, the 5DPT, and the Criterion Variables (*N* = 1,052)

	Psychopathy			Egoism			Immorality			Pretentiousness			Machiavellianism		
	semipartial *r*		*rw*	semipartial *r*		*rw*	semipartial *r*		*rw*	semipartial *r*		*rw*	semipartial *r*		*rw*
HEXACO-PI-R															
Emotionality	−.33**	−.26**	17.8%	−.06	−.01	0.5%	−.18**	−.10**	4.0%	.24**	.31**	23.0%	−.17**	−.12**	9.5%
eXtraversion	.07*	.05	1.3%	−.12**	−.14**	11.8%	.04	.01	0.2%	.05	.02	0.4%	.36**	.35**	37.0%
Agreeableness	−.28**	−.12**	8.3%	−.15**	−.03	6.8%	−.23**	−.04	5.5%	−.14**	.01	3.5%	−.20**	−.08*	3.7%
Conscientiousness	−.26**	−.19**	9.4%	−.08	−.03	2.9%	−.19**	−.11**	5.3%	−.03	.04	0.3%	−.12**	−.07*	1.3%
Openness to Experience	.13**	.11**	3.3%	−.12**	−.15**	11.3%	.07	.04	0.8%	.13**	.10	3.3%	.14**	.12**	8.0%
Honesty-Humility		−.46**	59.8%		−.36**	66.8%		−.58**	84.2%		−.48**	69.5%		−.35**	40.4%
R^2/% of total R^2	.27**	.48**	100%	.08**	.21**	100%	.12**	.46**	100%	.10**	.34**	100%	.26**	.38**	100%
5DPT															
Insensitivity	.51**	.24**	31.5%	.27**	.09*	23.1%	.49**	.18**	27.0%	.25**	.01	12.1%	.39**	.21**	22.2%
Extraversion	.10**	.06	2.5%	.05	.02	0.7%	.05	−.00	0.3%	.14**	.09**	2.1%	.23**	.20**	20.6%
Neuroticism	−.17**	−.15**	4.4%	.15**	.16**	15.6%	−.08*	−.06*	0.6%	.28**	.29**	26.5%	−.25**	−.24**	18.5%
Orderliness	−.18**	−.18**	8.4%	.05	.05	0.9%	−.12**	−.12**	3.6%	−.05	−.04	0.7%	−.07*	−.07*	2.0%
Absorption	−.01	.02	0.3%	−.06	−.04	0.4%	−.04	−.01	0.1%	−.01	.02	1.3%	.08*	.10**	3.3%
HEXACO Honesty-Humility		−.38**	52.8%		−.29**	59.3%		−.47**	68.4%		−.39**	57.3%		−.26**	33.3%
R^2/% of total R^2	.33**	.48**	100%	.12**	.20**	100%	.26**	.48**	100%	.18**	.33**	100%	.31**	.38**	100%

Note. *p* < .01; **p* < .001; *rw* = relative weights; for each dependent variable, the first column contains the semipartial *r*'s and the total R^2 of all variables *without* Honesty-Humility, the second column contains the semipartial *r*'s and the total R^2 of all variables *including* Honesty-Humility, and the third column contains the relative weights of all variables (i.e., *including* Honesty-Humility) and the percentage of the total R^2 (100% in all cases) explained by the *rw*'s.

and followed a similar procedure for the 5DPT; that is, we entered the 5DPT scales in the first step and HEXACO Honesty-Humility in the second step (lower part of Table 2). Of all the other HEXACO and 5DPT scales, HEXACO Honesty-Humility explained most of the variance in all of the criterion variables. In all cases Honesty-Humility added a significant amount of variance both to the other HEXACO scales and to the 5DPT scales. The amount of variance explained by all HEXACO scales (including Honesty-Humility) combined was comparable to the amount of variance explained by the 5DPT scales plus Honesty-Humility.

Apart from the semipartial r's, we also calculated the relative weights of each of the independent variables in the explanation of the dependent variables. The percentages in the relative weights (rw) column in Table 2 pertain to the percentage of total variance (R^2) in the dependent variables explained by each of the independent variables. Relative weights take into account the multicollinearity between predictors and provide a more accurate estimation of the relative importance of each of the independent variables than zero-order correlations, (semi-)partial correlations, or regression coefficients. The results show that of all the HEXACO and 5DPT variables in the equations, Honesty-Humility was the most important contributor to the explanation of variance in Psychopathy, Egoism, Immorality, Pretentiousness, and Machiavellianism. Except for Machiavellianism, Honesty-Humility explained more than 50% of the total explained variance in each of the criterion variables, both when entered together with the other HEXACO variables and when entered together with the 5DPT variables.[4]

DISCUSSION

Scholars advocating a dimensional model of Axis-II personality disorders seem to converge on four or five factors of personality. At the same time, reanalyses of lexical studies have shown that instead of four or five there are six cross-cultural replicable personality dimensions (Ashton, Lee, Perugini, et al., 2004; Ashton, Lee, & Goldberg, 2004), of which Honesty-Humility is the most important addition. In this study, we compared the HEXACO-PI-R, the questionnaire operationalization of these six dimensions, with the 5DPT in the prediction of Psychopathy, Egoism, Immorality, Pretentiousness, and Machiavellianism. In all cases, Honesty-Humility of the HEXACO-PI-R was found to explain most of the variance in these important antisocial and self-benefiting personality traits. The results are in line with earlier findings, which have shown that the HEXACO model is

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4. Because the HEXACO-PI-R is twice as long as the 5DPT, we redid all analyses using the short HEXACO-PI-R, which consists of 100 items and which has 16 items for each of the six main factor scales. The findings with the short HEXACO-PI-R were highly similar to the findings with the long version. In all cases, the relative weights associated with Honesty-Humility were higher than those of the other HEXACO or 5DPT variables.

better able to incorporate variance associated with Psychopathy, Machia-vellianism, Narcissism, and other antisocial or self-beneficial behaviors through its incorporation of Honesty-Humility than are other instruments based on the Big Five factors of personality (Ashton & Lee, 2008; De Vries, Lee, & Ashton, 2008; Lee & Ashton, 2005). Although this study has been conducted in a normal instead of a clinical population, recent studies seem to suggest that both the factor structure (Livesley, Jang, & Vernon, 1998) and the relations between personality disorder scales and normal personality scales (O'Connor, 2005) are unaffected by the nature of the sample (i.e., from a normal or clinical population). Consequently, there is strong reason to believe that the same results will hold in a clinical popula-tion as well. However, future research would be welcome to address the relations between the HEXACO-PI-R and the 5DPT on the one hand and personality disorders such as psychopathy on the other in a clinical sample.

With respect to the latter difference, the 5DPT Insensitivity scale seems to occupy a similar position in the HEXACO plane as the NEO-PI-R Agree-ableness factor scale does (Ashton & Lee, 2005b). Combined factor analy-sis of the NEO-PI-R and HEXACO variables has revealed that in a six-factor solution, the NEO-PI-R Agreeableness factor splits in two, with the NEO-PI-R Agreeableness facets Straightforwardness and Modesty loading on a Honesty-Humility factor and NEO-PI-R Agreeableness facets Trust, Altruism, Compliance, and Tender-Mindedness loading on an Agreeable-ness factor (Ashton & Lee, 2005b). Further analysis of the Insensitivity factor reveals that a similar split occurs in the 5DPT. Two factor scales derived from a two-factor solution of 5DPT Insensitivity are differentially related to HEXACO Agreeableness and Honesty-Humility, i.e., the scale from the first 5DPT Insensitivity factor is more strongly related to HEXACO Agreeableness ($r = -.56$) than to HEXACO Honesty-Humility ($r = -.36$), while the scale from the second 5DPT Insensitivity factor is more strongly related to HEXACO Honesty-Humility ($r = -.55$) than to HEXACO Agree-ableness ($r = -.30$). The findings suggest that personality traits associated with hostility and anger are better aligned with HEXACO Agreeableness, while personality traits associated with psychopathy are better aligned with HEXACO Honesty-Humility. In line with theoretical and clinical rea-sons (Van Kampen, 1993, 2009), another possibility would be to retain

There are some notable similarities and differences between the HEXACO-PI-R and the 5DPT. The 5DPT measures five theoretically derived factors of personality, which have shown modest to strong convergence with the five factor scales of the NEO-FFI (Van Kampen, 2010). The HEXACO-PI-R and 5DPT show strong convergence on the Extraversion and Conscien-tiousness/Orderliness scales and a somewhat weaker convergence on Openness to Experience/Absorption. 5DPT Neuroticism appears to be in-terstitial to HEXACO Emotionality and Extraversion, and 5DPT Insensi-tivity appears to be interstitial to HEXACO Agreeableness and Honesty-Humility.

the 5DPT Insensitivity factor and to add to the 5DPT model a sixth orthogonal dimension that refers to personality traits that have a positive loading on HEXACO Agreeableness in combination with a negative loading on HEXACO Honesty-Humility and vice versa.

Consequently, although most of the discussion about the main dimensions of personality disorders nowadays focus on four or five dimensions, lexical studies suggest that there are actually six main dimensions of personality variation. In this study we have shown that the additional dimension of Honesty-Humility is able to explain significant incremental variance in psychopathological important behaviors related to psychopathy up and above the 5DPT, an instrument which is theoretically derived and well-aligned with the Five Factor Model. Apart from the possibility to construct a 6DPT, the results suggest, in line with the HEXACO model, that it may be clinically useful to complement the main personality disorder dimensions associated with Extraversion, Neuroticism, Conscientiousness/Orderliness, and Openness to Experience/Absorption with both a Honesty-Humility or Psychopathy personality disorder dimension and an Agreeableness or Anger/Hostility personality disorder dimension in future editions of the DSM.

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