Personality Trait Similarity Between Spouses in Four Cultures

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ABSTRACT We examined patterns of trait similarity (assortative mating) in married couples in four cultures, using both self-reports and spouse ratings on versions of the Revised NEO Personality Inventory. There was evidence of a subtle but pervasive perceived contrast bias in the spouse-rating data. However, there was strong agreement across methods of assessment and moderate agreement across cultures in the pattern of results. Most assortment effects were small, but correlations exceeding .40 were seen for a subset of traits, chiefly from the Openness and Agreeableness domains. Except in Russia, where more positive assortment was seen for younger couples, comparisons of younger and older cohorts showed little systematic difference. This suggested that mate selection, rather than convergence over time, accounted for similarity. Future

Robert R. McCrae and Paul T. Costa, Jr., receive royalties from the Revised NEO Personality Inventory (NEO-PI-R). This research was supported in part by the Intramural Research Program, NIH, National Institute on Aging. Czech participation is related to research plan AV0Z0250504 of the Institute of Psychology, Academy of Sciences of the Czech Republic. Dutch participation was supported by Borderline Personality Disorder in the Dutch and Australian Twin Cohorts (Borderline Personality Disorder Research Foundation); Spinozapremie (NWO/SPI 56-464-14192); CNCR (Centre Neurogenetics/Cognition Research); Center for Medical Systems Biology (NWO Genomics); Twin-family Database for Behavior Genetics and Genomics Studies (NWO 480-04-004).

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Journal of Personality 76:5, October 2008

DOI: 10.1111/j.1467-6494.2008.00517.x

research on personality similarity in dyads can utilize different designs but should assess personality at both domain and the facet levels.

Personality traits play a prominent role in romantic ideals and the preferred choice of mates (Figueredo, Sefcek, & Jones, 2006): Both men and women would prefer to marry partners characterized as *considerate, dependable, interesting to talk to,* and *loyal* (Buss & Barnes, 1986, p. 562). Unfortunately, given the competition for such desirable mates, most people are destined for disappointment in this regard, and it is sobering to find that the correlation between one's preferred traits and the actual traits of one's spouse never exceeded .09 in one study (Figueredo et al., 2006). An alternative is to seek mates with traits similar to one's own because there is much less competition for those traits. Figueredo and colleagues showed that there are positive correlations between one's own traits and the traits one prefers in a spouse, implying that people do seek mates like themselves.

Similarity of traits in married couples is known to behavior geneticists as *assortative mating*. Across generations, the effect of positive phenotypic assortment in the population is to increase variance of the trait; negative assortment (where people marry their opposites) tends to homogenize the population. Estimates of the degree of assortative mating are important for the accurate calculation of heritabilities, so there is some information on assortative mating for personality traits in the behavior genetics literature. In 1990, Eysenck summarized it by saying that "assortative mating, important in the formation of social attitudes, has little impact on personality" (p. 245), and much of the literature continues to find only modest evidence of spousal similarity in personality (Lake, Eaves, Maes, Heath, & Martin, 2000; Luo & Klohnen, 2005; Watson, Klohnen, Casillas, Simms, Haig, & Berry, 2004). To put these findings in perspective, Plomin (1999) claimed that "there is greater assortative mating for *g* [general intelligence] than for any other behavioral trait; that is, spouse correlations are only $\sim .1$ for personality and only $\sim .2$ for height or weight, but the correlation for assortative mating for *g* is $\sim .4$" (p. 1476).

The best-replicated and strongest assortment effects for personality traits have been found for sensation seeking (Farley & Mueller, 1978; Han, Weed, & Butcher, 2003). For example, Glicksohn & Golan (2001) reported cross-spouse correlations from .25 to .29 for

subscales of Zuckerman's (1979) Sensation Seeking Scales. There are also ample data showing that liberal versus conservative social and political attitudes show relatively strong assortative mating effects (McCrae, 1996). Although attitudes are usually distinguished from personality traits, they are associated with the personality dimension of O, particularly Openness to Values. That facet ought to be substantially related across spouses.

A more systematic view of assortment can be gained from studies that have examined the dimensions of the Five-Factor Model (FFM; Digman, 1990), which is thought to provide a comprehensive account of personality traits. McCrae (1996) reported significant correlations across spouses for Openness to Experience (O; $r = .33$, $N = 103$, $p < .001$) and Conscientiousness (C; $r = .21$, $N = 103$, $p < .05$), but not for the Neuroticism (N; $r = .00$), Extraversion (E; $r = .11$), or Agreeableness (A; $r = .08$). Botwin, Buss, and Shackelford (1997) found positive assortment for O and A but only when personality was assessed by interviewer ratings, not self-reports or partner ratings. Watson et al. (2004) found evidence of assortment for N, O, and A but only when latent variables were examined. These studies provide the strongest support for agreement on O and demonstrate the need for further research to resolve inconsistencies.

More research is also needed on a broader range of narrower traits, or facets. Each of the five factors is defined by a number of more discrete traits, and there is no reason to suppose that the same pattern of assortment will be found for all of them. For example, sensation or excitement seeking can be seen as a facet of E, but Excitement Seeking shows positive assortment, whereas E does not. Presumably, this means that other facets of E show zero or even negative assortment. In this article we will examine the 30 facets of the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992).

Cultural and Historical Considerations

Personality traits often demonstrate universal properties that transcend culture (McCrae et al., 2005) and history (Yang, McCrae, & Costa, 1998). Farley and Mueller (1978) were perhaps the first to report a cross-cultural replication of assortative mating patterns for

sensation seeking in American and German samples. Bratko and Butković (2003) extended that finding to a Croatian sample. There are theoretical reasons to think that marital preferences may be species-wide because mating patterns are strongly influenced by evolutionary pressures (Buss, 1989; Buss & Barnes, 1986). Perhaps there is assortment for sensation seeking because, in the ancestral human population, reproduction and survival of offspring were favored when both members of a pair opted either to stay in familiar surroundings or to venture forth to new territories.

There may also be more purely psychological reasons for universal patterns. As McCrae (1996) argued, "Open people are bored by the predictable and intellectually undemanding amusements of closed people; closed people are bored by what they perceive to be the difficult and pretentious culture of the open. These differences surely inhibit the development of friendship" (p. 331). It is likely that these considerations would apply anywhere. People seek mates who are interesting to talk to (Buss & Barnes, 1986), and concordance with regard to O facilitates interesting conversation.

However, expectations of cross-cultural generalizability clearly have limits. In some cultures (e.g., Bangladeshi; Harris, 2001), marriages are arranged based on economic, religious, and kinship considerations rather than compatible personalities. Even when individuals choose their own spouses, factors other than personality may be more important in some cultures. It is also possible that different traits may be relevant to marital compatibility in different cultures.

In the present study we begin an examination of cultural influences on assortative mating by considering data from the the Netherlands, the United States, the Czech Republic, and Russia. Although these are all modern, Western cultures in which individuals choose their own spouses, they do differ in a number of respects. In terms of Hofstede's (2001) dimensions of culture, Russia is high on power distance (i.e., Russians accept status differences) and uncertainty avoidance (they prefer rigid rules and routines) and low on individualism (they focus on the group rather than the self). Egalitarian, spontaneous, and egoistic American and Dutch cultures show the opposite profile, and Czech culture is midway between the two. American and Dutch cultures are contrasted on masculine versus feminine work values: Americans strive to succeed; the Dutch prefer to work harmoniously with others.

The data analyzed in the present article were collected for other purposes, and so the samples are not fully comparable. Further, different versions of the personality measures, as well as different translations, were used in different cultures. As a result, any cultural differences found here would be difficult to interpret. If, however, similar results are found despite differences in language, instrument, and sampling design, it will suggest that common processes affect assortment across cultures, at least in the West.

Studies that have analyzed couple similarity as a function of length of marriage have typically found that initial choice, rather than convergence over time, is the source of similarity in personality (e.g., Caspi, Herbener, & Ozer, 1992; Mascie-Taylor, 1989).[1] But when studies include a wide age range, these choices were made during different historical eras, and that, too, may affect patterns of assortative mating. Did Russians select the same kinds of marital partners during the Stalinist era as they did after the demise of the Soviet Union? Did Americans set the same standards for mates in the conventional 1950s as in the feminist 1970s? In this article we begin to examine historical influences by comparing assortative mating in older and younger cohorts in each culture.

Methodological Issues

Because the degree of assortative mating is expected to be small for most traits, possibilities of bias need careful attention. A first source of potential bias is found in the age and gender of the spouses. Both age and gender are modestly but systematically related to personality traits: Women score higher than men on measures of N and A (Costa, Terracciano, & McCrae, 2001), and older individuals score higher on A and C and lower on N, E, and O than young adults (McCrae et al., 1999). Because couples are negatively matched on gender and positively matched on age, these variables could mask or mimic assortative effects on personality traits and should be controlled in any analyses where a wide range of ages is sampled. Spouses also tend to resemble each other in level of education, and years of education is modestly related to O (McCrae, Terracciano, et al., 2005), so it too is a candidate as a control variable. However, it

1. However, Gruber-Baldini, Schaie, and Willis (1995) reported longitudinal convergence in mental abilities.

is not clear whether education is the cause or the effect of high openness; controlling for years of education is thus a conservative way to estimate assortative mating effects for O.

A second source of bias comes from the assessments of personality. In an ideal design, each spouse would be assessed by a panel of informants who were well acquainted with that spouse but knew nothing about the other. In most studies, however, data are gathered from the spouses themselves, who know, and may be biased by the knowledge of, their partners. The most common design (e.g., Nagoshi, Johnson, & Honbo, 1992) uses the ubiquitous self-report method, correlating self-descriptions from each partner; we used this design for the Dutch data. This approach has the advantage of using different sources of data, although they cannot be considered completely independent: It is possible that spouses' self-concepts are colored by their perceptions of their partner. It is also possible that the nature of the study, of which they are likely to be aware, sensitizes them to similarities and differences. Further, like all self-report studies, it suffers from potential distortions in self-perception and -description.

An alternative design would be to correlate self-reports from the wife with her ratings of her husband, and vice-versa. Such a design has one very attractive feature: It can be carried out with a convenience sample (provided that anonymity is ensured) without the need to recruit couples as units. The possible disadvantage, which has probably deterred its use, is that both ratings have the same source and could share the same biases. Lenient raters, or those prone to socially desirable responding, might give more positive descriptions to both self and partner and thus inflate correlations. If scales are unbalanced, acquiescent responding could have the same effect. Indeed, McCrae, Stone, Fagan, and Costa (1998) reported a substantial ($r = .64$, $N = 94$, $p < .001$) correlation between acquiescent tendencies in self-reports and observer ratings from the same individual.

In addition to these familiar artifacts, however, observer ratings may be biased by assumed similarity, the tendency to assume that others resemble oneself (Kenny, 1994). Such a tendency would inflate estimates of assortative mating. Also possible is the opposite effect, perceived contrast, in which individuals would exaggerate differences they perceived between themselves and their spouses and reduce cross-spouse correlations. In principle, some traits might

show assumed similarity effects, whereas others might show contrast effects.

For three of the cultures examined, the present study employs a more complex but also more informative design, in which each partner provides both a self-report and a rating of his or her spouse. Both the approaches described above (self-report vs. self-report and self-report vs. spouse rating) can be used in analyzing these data; in addition, it is also possible to correlate the two sets of spouse ratings. The disadvantage of this last approach is that any assumed similarity or perceived contrast effects are multiplied because both assessments are observer ratings. A possible advantage in this approach is that spouse ratings may be less susceptible to self-presentational or defensive biases. Most importantly, whatever biases they have are unlikely to be shared with self-report data, and thus replication of findings across the three sets of analyses would provide particularly strong evidence of assortative mating effects. In the present study we will also examine personality assessments based on the mean of self-report and spouse rating, perhaps the best available measure of traits in this study.

METHOD

Participants

As part of an ongoing longitudinal survey study by the Netherlands Twin Register (for a detailed description see Boomsma et al., 2002; 2006), twins and their family members receive a questionnaire booklet every 2 to 3 years. In 2004, the questionnaire booklet included the 60-item NEO Five-Factor Inventory (NEO-FFI; Hoekstra, Ormel, & De Fruyt, 1996), which was sent to twins, their parents, spouses, siblings, and children (for response rates see Distel et al., 2007). Spouse pairs in the present study could therefore consist of the father and mother of twins or of a twin and his or her spouse. Same-sex spouse pairs were excluded. Information on personality, age at the time of questionnaire completion, and educational attainment (coded as primary school; lower general and vocational education; intermediate vocational and intermediate/higher general education; higher vocational college and university) was available for 1,986 spouse pairs (3,972 individuals) in the age range of 19 to 84 (male $M = 50.4$, $SD = 13.4$; female $M = 48.2$, $SD = 13.4$). For 44 individuals, educational attainment was missing and substituted by the educational attainment of their spouse.

American data were taken from an earlier study on a new version of the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992), the NEO Personality Inventory-3 (NEO-PI-3; McCrae, Martin, & Costa, 2005). Subjects in that study were 635 adults recruited by research assistants; they were predominantly White and relatively affluent (see McCrae, Martin, et al., 2005). For the present study we examined a subset of 394 members of heterosexual couples with complete data for both self-reports and spouse ratings on the NEO-PI-3. These individuals ranged in age from 21 to 81 ($M = 47.5$, $SD = 14.2$ years; wife's *Mdn* age = 47 years), and reported from 5 to 24 years of education ($M = 14.7$, $SD = 2.6$). For 18 individuals, education was missing and replaced by the spouse's years of education.[2]

The Czech and Russian samples were derived from earlier studies of consensual validation and age differences (McCrae, Costa, Hrebícková, et al., 2004; McCrae, Costa, Martin et al., 2004). For the present study, subjects were selected who were couples with complete data from self-reports and spouse ratings on the NEO-PI-R. In the Czech sample, the 264 respondents ranged in age from 22 to 81 ($M = 43.4$, $SD = 13.2$; wife's *Mdn* age = 44 years), and reported from 9 (primary) to 17 (university) years of education ($M = 14.2$, $SD = 2.3$). In Russia, these 634 individuals ranged in age from 16 to 80 ($M = 34.5$, $SD = 11.3$; wife's *Mdn* age = 31 years); years of education was not available.

Measures

The NEO-PI-R is a 240-item inventory that assesses the dimensions of the Five-Factor Model: N, E, O, A, and C. Each factor is represented by six facets that reflect specific traits; domain scores are obtained by summing these six facet scales. Items are answered on a 5-point Likert scale from *strongly disagree* to *strongly agree*; scales are roughly balanced in keying to minimize effects of acquiescence. Both self-report (Form S) and observer rating (Form R) versions have been extensively validated (Costa & McCrae, 1992). Russian and Czech respondents completed authorized and validated translations of the NEO-PI-R (Hrebícková, 2004; Martin, Costa, Oryol, Rukavishnikov, & Senin, 2002). American respondents completed the NEO-PI-3, a revision of the NEO-PI-R in which 37 items were changed to improve readability and internal consistency. The NEO-PI-3 is essentially equivalent to the NEO-PI-R (McCrae, Martin, & Costa, 2005). Dutch participants completed the Dutch version of the 60-item NEO-FFI (Hoekstra, Ormel, & De Fruyt, 1996), a brief version

2. The correlation between years of education and spouse's years of education was $r = .52$, $p < .001$.

of the NEO-PI-R. Only the five domains are assessed with this instrument, and only self-report data were available for the present study.

Russians were not administered the standard, third-person, Form R. Instead, they were instructed to describe their spouses using the Form S items. This raises the possibility that some respondents mistakenly provided two self-reports rather than one self-report and one spouse rating. To assess the degree of error this introduced, we calculated correlations across the two forms in Czech and Russian samples. Note that if all Russian respondents had given two self-reports, these correlations would in fact be retest reliabilities and should be about .80. The median correlation in the Russian sample was much lower, $r = .33$ (McCrae, Costa, Martin, et al., 2004). However, that value is substantially larger than the median value in the Czech sample ($r = .16$), suggesting that a small proportion of Russian respondents failed to follow instructions. It seems likely that Russian estimates of assortative mating that involve spouse ratings will be somewhat inflated. However, such inflation should apply uniformly to all traits, so the Russian observer rating data still provide useful information on the relative magnitude of assortment effects across traits.

Analyses

In the Dutch data, spouse similarity was estimated by correlating husband's self-report with wife's self-report, controlling for age and education of each partner. In the other samples, four ways of assessing spouse similarity were examined: Self-reports versus self-reports (S vs. S: wife's self-report vs. husband's self-report), self-reports versus spouse ratings (S vs. R: wife's self-report vs. wife's rating of husband, and husband's self-report vs. husband's rating of wife), spouse ratings versus spouse ratings (R vs. R: husband's rating of wife vs. wife's rating of husband), and means versus means (M vs. M: mean of wife's self-report and husband's rating of wife vs. mean of husband's self-report and wife's rating of husband). For the first, third, and fourth of these analyses, Pearson correlations were based on the number of couples; for the S versus R analyses, correlations were based on the number of individuals. Except in the Russian sample, where information on education was unavailable, all correlations controlled for age and education of self and of spouse. In the S versus R analyses, gender was also controlled.[3]

3. As in Watson et al.'s (2004) study of newlyweds, the effects of statistical correction were generally small. In the American sample, the mean corrected correlation was .09; the mean uncorrected correlation was .11. Rank-order correlations between corrected and uncorrected scores ranged from .94 to .98 across the four analyses. The only trait markedly influenced by correction was E5: Excitement Seeking. In the uncorrected analysis of mean scores, this facet showed a corre-

Table 1
Husband-Wife Correlations for Self-Reported NEO-FFI Domains Controlling for Age and Educational Attainment in Total, Younger, and Older Dutch Subsamples

Wife's NEO-FFI Domain Scale	Husband's NEO-FFI Domain Scale				
	N	E	O	A	C
Total Sample (Age 19–84, N = *1,986 pairs)*					
N: Neuroticism	.13***	−.10***	.00	−.04	−.07**
E: Extraversion	−.04	.11***	.02	.00	.09***
O: Openness	.07**	−.02	.21***	−.02	−.06*
A: Agreeableness	−.05*	.04	−.03	.11***	.06*
C: Conscientiousness	−.07**	.13***	.03	.05*	.12***
Younger Subsample (Age 19–49, N = *764 pairs)*					
N: Neuroticism	.11**	−.11**	.01	.04	−.04
E: Extraversion	−.07	.14***	.05	−.03	.10**
O: Openness	.09*	−.04	.25***	−.03	−.08*
A: Agreeableness	−.05	.01	−.05	.10**	.03
C: Conscientiousness	−.03	.11**	.03	.05	.10**
Older Subsample (Age 50–84, N = *1,222 pairs)*					
N: Neuroticism	.14***	−.10**	−.01	−.04	−.09**
E: Extraversion	−.04	.09**	−.00	.02	.09**
O: Openness	.05	.01	.17***	−.01	−.04
A: Agreeableness	−.05	.05	−.01	.11***	.07*
C: Conscientiousness	−.10**	.15***	.03	.05	.13***

*$p < .05$. **$p < .01$. ***$p < .001$.

RESULTS

NEO-FFI Domains

The Dutch study provides only self-reports on the brief NEO-FFI but offers an exceptionally large sample. Table 1 reports results for the total group and for younger and older subsamples. There is significant positive assortment for all five domains, though the magni-

lation of .37, which declined to .20 in the corrected analysis. Uncorrected self-report/self-report correlations for all four cultures are available from the first author.

tude of the correlations is small. The largest correlations are for O and do not exceed .25. These results are generally comparable to those reported previously in the literature. The similarly of findings across age groups suggests that patterns of assortment have not changed much in the Netherlands over the last half-century. They also suggest that ongoing marital interactions (the mutual influence between spouses living together; Penrose, 1944) do not contribute to similarity in personality.

To exploit the large sample size, we also examined cross-character assortment, which refers to associations between two different traits, as when "extraverted women ... mate with conscientious men" (Buss & Barnes, 1986, p. 560). This is reflected in the off-diagonal elements of Table 1. There is consistent evidence that conscientious people assort with extraverts and that women high in N are married to men low in E. These effects are, however, quite small, and provide some justification for the focus on character-specific assortment in this study.[4]

NEO-PI-R/3 Domains and Facets

In the American sample, there was strong agreement on the personality characteristics of the respondents. Cross-observer correlations, relating each partner's self-report to the spouse's rating of him or her, ranged from .34 to .68, all $p < .001$, $Mdn = .50$. In the Czech data, cross-observer correlations relating each partner's self-report to the spouse's rating of him or her ranged from .34 to .64 (all $p < .001$, $Mdn = .48$). In the Russian sample, cross-observer agreement on NEO-PI-R scores ranged from .37 to .62 (all $p < .001$, $Mdn = .44$).

Tables 2 through 6 report spouse similarity correlations for the five domains and their facets in three cultures. In each table, the first data column reports the usual comparison of husband's self-report with wife's self-report; the second reports correlations of data from a single source (e.g., wife's self-report with wife's rating of husband);

4. We also examined self-report vs. self-report correlations for each pair of NEO-PI-3 facets from different domains in the American sample. These 360 correlations ranged from $-.22$ to .21, with a median absolute magnitude of .06. Again, cross-character assortment on personality traits does not appear to be an important phenomenon.

Table 2
Estimates of Spouse Similarity From Self-Reports and Spouse Ratings of the NEO-PI-3/R Neuroticism Domain and Facets

Scale	S vs. S	S vs. R	R vs. R	*M* vs. *M*	*Mdn*
N: Neuroticism					.07
American	.14*	.12*	−.09	.09	
Czech	−.08	.07	.07	.05	
Russian	.22***	.27***	.07	.27***	
N1: Anxiety					−.01
American	.10	.08	−.11	.05	
Czech	−.12	−.01	−.04	−.09	
Russian	.20***	.21***	−.04	.20***[a]	
N2: Angry Hostility					−.05
American	−.05	−.12*	−.29***	−.21**[a]	
Czech	−.06	−.05	.10	−.00	
Russian	.11*	.19***	−.02	.16**	
N3: Depression					.13
American	.19**	.17***	−.05	.16*	
Czech	−.05	.13*	.08	.08	
Russian	.21***	.33***	.18***	.37***[a]	
N4: Self-Consciousness					.10
American	.06	.13*	−.12	.08	
Czech	.10	.20**	.00	.16	
Russian	.19***	.30***	.10*	.31***[a]	
N5: Impulsiveness					.11
American	.07	.16**	.05	.17*	
Czech	.05	.21***	.00	.19*	
Russian	.11*	.21***	.12*	.23***	
N6: Vulnerability					−.01
American	.11	.05	−.03	.06	
Czech	−.01	−.05	−.05	−.04	
Russian	.20***	.22***	.05	.23***	

Note. *N*s = 394 for American, 264 for Czech, 634 for Russian samples. In the American and Czech samples, analyses control for gender, age, and education. In the Russian sample, analyses control for gender and age. S = Form S (self-reports). R = Form R (spouse ratings). See text for the calculation of the median correlation.
[a]Replicated ($p < .05$, one-tailed) in both younger and older subsamples.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 3
Estimates of Spouse Similarity From Self-Reports and Spouse Ratings of the NEO-PI-3/R Extraversion Domain and Facets

Scale	S vs. S	S vs. R	R vs. R	*M* vs. *M*	*Mdn*
E: Extraversion					.09
American	.16*	.09	−.05	.09	
Czech	.09	.00	−.13	−.02	
Russian	.26***	.25***	.04	.25***	
E1: Warmth					.07
American	.07	.03	−.11	.00	
Czech	.19*	.14*	.00	.14	
Russian	.29***	.32***	.14**	.36***	
E2: Gregariousness					.02
American	.09	.06	−.13	.02	
Czech	.08	−.03	−.25**	−.05	
Russian	.18***	.20***	.01	.19***	
E3: Assertiveness					−.11
American	.00	−.05	−.23***	−.11	
Czech	.00	−.12*	−.17*	−.13	
Russian	.16**	.14***	−.09	.11*	
E4: Activity					.03
American	.03	.08	−.03	.05	
Czech	.03	−.07	−.18*	−.08	
Russian	.06	.03	−.14**	.00	
E5: Excitement Seeking					.13
American	.22**	.20***	.01	.20**	
Czech	.10	.15*	−.02	.13	
Russian	.11*	.24***	.01	.22***	
E6: Positive Emotions					.18
American	.07	.15**	.18*	.20**[a]	
Czech	.08	.18**	.07	.18*	
Russian	.34***	.39***	.22***	.43***[a]	

Note. *N*s = 394 for American, 264 for Czech, 634 for Russian samples. In the American and Czech samples, analyses control for gender, age, and education. In the Russian sample, analyses control for gender and age. S = Form S (self-reports). R = Form R (spouse ratings). See text for the calculation of the median correlation.
[a]Replicated ($p < .05$, one-tailed) in both younger and older subsamples.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 4
Estimates of Spouse Similarity From Self-Reports and Spouse Ratings of the NEO-PI-3/R Openness Domain and Facets

Scale	S vs. S	S vs. R	R vs. R	*M* vs. *M*	*Mdn*
O: Openness to Experience					.20
American	.14*	.21***	.04	.20**	
Czech	.23**	.21***	.05	.22**	
Russian	.18***	.22***	.04	.22***[a]	
O1: Fantasy					.03
American	−.06	−.04	.04	−.03	
Czech	.10	.05	.01	.08	
Russian	.03	.08*	−.06	.04	
O2: Aesthetics					.25
American	.20**	.28***	.07	.26***	
Czech	.25**	.32***	.11	.34***	
Russian	.14**	.22***	.01	.20***[a]	
O3: Feelings					.09
American	.02	.11*	−.07	.06	
Czech	.15	.09	−.09	.10	
Russian	.09	.19***	.10*	.19***	
O4: Actions					.13
American	.13	.20***	−.03	.17*	
Czech	.23**	.08	−.07	.09	
Russian	.18***	.26***	.02	.27***	
O5: Ideas					.11
American	.11	.08	−.04	.07	
Czech	.16	.17**	.05	.14	
Russian	.09	.19***	−.12**	.13**	
O6: Values					.30
American	.39***	.54***	.29***	.59***[a]	
Czech	.23**	.30***	.23**	.42***[a]	
Russian	.30***	.34***	.26***	.45***[a]	

Note. *N*s = 394 for American, 264 for Czech, 634 for Russian samples. In the American and Czech samples, analyses control for gender, age, and education. In the Russian sample, analyses control for gender and age. S = Form S (self-reports). R = Form R (spouse ratings). See text for the calculation of the median correlation.
[a]Replicated ($p < .05$, one-tailed) in both younger and older subsamples.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 5
Estimates of Spouse Similarity From Self-Reports and Spouse Ratings of the NEO-PI-3/R Agreeableness Domain and Facets

Scale	S vs. S	S vs. R	R vs. R	*M* vs. *M*	*Mdn*
A: Agreeableness					.18
American	.13	.18***	.01	.16*	
Czech	.20**	.27***	.23**	.33***[a]	
Russian	.12*	.35***	.13*	.34***[a]	
A1: Trust					.11
American	.18*	.11*	−.15	.07	
Czech	.27**	.26***	−.02	.26**	
Russian	.10*	.31***	.12*	.30***[a]	
A2: Straightforwardness					.22
American	.19**	.38***	.20*	.44***[a]	
Czech	.09	.29***	.22*	.31***	
Russian	.12*	.32***	.10*	.31***[a]	
A3: Altruism					.18
American	.12	.18***	.10	.20**	
Czech	.17	.31***	.37***	.42***[a]	
Russian	.18***	.27***	.20***	.33***[a]	
A4: Compliance					−.01
American	−.07	−.01	−.14	−.09	
Czech	.16	.10	.00	.13	
Russian	−.09	.14***	−.11**	.02	
A5: Modesty					.20
American	.12	.19***	.11	.22**	
Czech	.09	.30***	.20*	.30***	
Russian	.25***	.45***	.20***	.47***[a]	
A6: Tender-Mindedness					.19
American	.17*	.26***	.01	.24***[a]	
Czech	.04	.38***	.19*	.36***[a]	
Russian	.17***	.31***	.11*	.34***[a]	

Note. *N*s = 394 for American, 264 for Czech, 634 for Russian samples. In the American and Czech samples, analyses control for gender, age, and education. In the Russian sample, analyses control for gender and age. S = Form S (self-reports). R = Form R (spouse ratings). See text for the calculation of the median correlation.
[a]Replicated ($p < .05$, one-tailed) in both younger and older subsamples.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 6
Estimates of Spouse Similarity From Self-Reports and Spouse Ratings of the NEO-PI-3/R Conscientiousness Domain and Facets

Scale	S vs. S	S vs. R	R vs. R	*M* vs. *M*	*Mdn*
C: Conscientiousness					.10
American	.17*	.15**	−.02	.13	
Czech	.10	−.06	−.17*	−.06	
Russian	.19***	.29***	.13*	.30***[a]	
C1: Competence					.18
American	.24***	.28***	.12	.33***[a]	
Czech	.20*	.08	−.08	.11	
Russian	.18***	.29***	.24***	.36***[a]	
C2: Order					−.17
American	.02	−.12*	−.30***	−.17*	
Czech	−.17	−.23***	−.37***	−.32***[a]	
Russian	.15**	.18***	−.10*	.12*	
C3: Dutifulness					.17
American	.22**	.30***	.14*	.33***[a]	
Czech	.17*	.06	−.08	.06	
Russian	.21***	.28***	.12*	.32***[a]	
C4: Achievement Striving					.09
American	.21**	.24***	.08	.25***[a]	
Czech	.09	−.02	−.12	.00	
Russian	.21***	.30***	.09	.32***[a]	
C5: Self-Discipline					.02
American	.09	.05	−.07	.02	
Czech	.08	−.01	−.12	−.02	
Russian	.12*	.22***	.03	.21***[a]	
C6: Deliberation					.02
American	.03	.05	−.05	.02	
Czech	.04	−.02	−.06	−.01	
Russian	.08	.11**	.02	.11*	

Note. *N*s = 394 for American, 264 for Czech, 634 for Russian samples. In the American and Czech samples, analyses control for gender, age, and education. In the Russian sample, analyses control for gender and age. S = Form S (self-reports). R = Form R (spouse ratings). See text for the calculation of the median correlation.
[a]Replicated ($p < .05$, one-tailed) in both younger and older subsamples.
*$p < .05$. **$p < .01$. ***$p < .001$.

the third reports correlations of the two sets of spouse ratings; and the fourth column shows correlations based on the mean of self-report and spouse rating.

Method effects. We first examined the median value of each of these four columns across the five tables. As suggested by the literature, they are positive but quite small, with values of .12, .18, .01, and .16, respectively. It is of particular interest that the smallest correlations are found in the third column, where the two spouse ratings are correlated; for 86 of the 105 comparisons (81.9%), these values are lower than those in the first column, where self-reports are correlated. This suggests the operation of a subtle but pervasive perceived contrast bias in spouse ratings. If so, one might expect that values in the second column would be intermediate between those of the first and third columns, because perceived contrast biases operate in one and only one of the variables correlated there. Instead, the second column shows the highest median value. However, these are correlations between two sets of ratings from the same individual, and this single-source design is subject to such biases as leniency, social desirability, and acquiescence (although the latter is limited by the balanced keying of the NEO-PI-R/3). These within-rater biases apparently balance or outweigh the perceived contrast bias.

Once these biases are discounted, results from the four approaches are in fact quite similar. Rank-order correlations among the four columns in Tables 2 to 6 ranged from .50 to .98 ($N = 105$, all $p < .001$), suggesting strong agreement across methods on the direction and magnitude of assortment effects.

Generalizability across ages and cultures. To examine effects of historical eras on assortment, we divided each sample at the median wife's age and calculated partial correlations on the mean scores within both group. As indicated by the notes in Tables 2 to 6, of the 62 significant findings for the full sample, 31 were replicated in both younger and older subsamples. Across all three cultures, the rank-order correlation between the columns of correlations for younger and older subsamples was .44, $N = 105$, $p < .001$. This suggests that spouse similarity effects replicate across historical eras, at least across the short time span examined here. When analyses were conducted separately by culture, the rank order correlation between

cohorts was .66, $N = 35$, $p < .001$, in the American sample and .39, $p < .05$, in the Czech sample, but only .12, *ns*, in the Russian sample, chiefly because younger Russians showed much stronger assortment effects on N and E facets than older Russians (*Mdn*s = .37 vs. .07); there was little difference on the O, A, and C facets (*Mdn*s = .29 vs. .26). It appears that older Russians follow the patterns in Americans and Czechs more closely than do younger Russians.

If spouse similarity were the result of a gradual convergence of personality as couples aged, correlations should be higher among older couples. However, across all traits and cultures, the median spouse similarity was .22 for younger couples and .12 for older couples (.14 and .11 if Russian data are omitted). This suggests that initial assortment, rather than gradual convergence, likely accounts for most spouse similarity.

To assess generalizability of spouse similarity patterns across cultures, we calculated rank-order correlations for each assessment method in each culture across the 35 scales; these are reported in Table 7. Of the 48 cross-culture comparisons, 47 were positive and 39 (81.3%) were significant. There were, however, cross-cultural differences in the magnitude of spouse similarity correlations. These were larger in the Russian sample (*Mdn* = .18) than in the American (.07) and Czech (.05) samples, possibly because of the problems in the Russian spouse rating data mentioned above.

Spouse similarity. Because results in general replicate across methods and cultures, it is reasonable to combine them to summarize substantive effects. The last column of Tables 2 through 6 reports the median of nine correlations: four each for American and Czech data and the self-report versus self-report data for Russian sample. Russian data using spouse ratings are omitted because they may be inflated.

The median values for the five domains range from .07 for N to .20 for O—the small positive values to be expected from the literature. More interesting are results at the facet level, which show a more differentiated pattern. N3: Depression shows some evidence of consistent assortment, whereas N1: Anxiety does not. Similarly, E6: Positive Emotions, O2: Aesthetics, A2: Straightforwardness, and C1: Competence show relatively strong effects, whereas E4: Activity, O1: Fantasy, A4: Compliance, and C6: Deliberation show no consistent effects. The largest median effect is for O6: Values, consistent with a large literature on assortment for attitudes. After controlling for age,

Table 7
Rank-Order Correlations of Similarity Coefficients Across Methods and Cultures

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
American											
1. S vs. S	*.84*	*.58*	*.83*	.40	.40	.22 *ns*	.36	.43	.63	.50	.62
2. S vs. R		*.79*	*.98*	.48	.63	.40	.62	.33	.64	.58	.66
3. R vs. R			*.86*	.38	.50	.42	.54	.26 *ns*	.47	.53	.54
4. *M* vs. *M*				.43	.63	.42	.62	.40	.66	.62	.70
Czech											
5. S vs. S					*.55*	*.24 ns*	*.62*	−.04 *ns*	.30 *ns*	.32 *ns*	.28 *ns*
6. S vs. R						*.80*	*.97*	.08 *ns*	.58	.52	.55
7. R vs. R							*.82*	.10 *ns*	.49	.40	.46
8. *M* vs. *M*								.03 *ns*	.56	.54	.54
Russian											
9. S vs. S									*.66*	*.58*	*.72*
10. S vs. R										*.84*	*.96*
11. R vs. R											*.92*
12. *M* vs. *M*											

Note. Correlations greater than .33 are significant, $p < .05$; correlations greater than .43 are significant, $p < .01$; correlations greater than .54 are significant, $p < .001$. Within-culture correlations are given in italic.

sex, and years of education, the effect for E5: Excitement Seeking is positive, but not strikingly large.

Surprisingly, given the general absence of negative assortment reported in the literature (Buss & Barnes, 1986), there are small negative correlations for N2: Angry Hostility and E3: Assertiveness and a larger negative median correlation for C2: Order. However, none of the negative correlations is significant in the self versus self correlations of the first column, so one possible interpretation is that these three traits are particularly susceptible to perceived contrast biases. Spouses who are dominant see their partners as submissive; those who are meticulous regard their spouses as sloppy.

DISCUSSION

The prevailing view among behavior geneticists is that assortative mating effects for personality traits are generally modest. The

present study supported that conclusion for the broad domains. In the large Dutch sample, domain correlations ranged from .09 to .25; in the other samples, the largest domain-level correlation was .35. Fully 283 (67.4%) of the 420 correlations in Tables 2 to 6 were less than .20 in absolute magnitude. But at the level of specific facets, substantially larger values were sometimes seen. A2: Straightforwardness in the American sample, A3: Altrusim in the Czech sample, and A5: Modesty in the Russian sample all showed cross-spouse correlations above .40, as did O6: Values in all three cultures. These values are comparable to Plomin's (1999) estimate of assortment for intelligence. Differentiation among the facets was particularly pronounced for the O domain: Fantasy and Feelings showed near-zero assortment (*Mdn r*s = .03, 09), whereas Aesthetics and Values consistently showed stronger effects (*Mdn r*s = .25, .30). At least in Western cultures, individuals seem to choose mates who resemble them in regard to a specific subset of personality traits.

If we had found uniformly modest correlations across facets, they could all be explained by the simple notion that people choose spouses who resemble themselves (or that spouses come to resemble each other over time). The differentiated pattern of assortment effects seen here suggests that there may be a variety of reasons why people assort on specific traits, and a variety of specific hypotheses may need to be formed and tested. In this study, as in most of the literature (e.g., Caspi et al., 1992), evidence suggests that assortment is not due to convergence over time, because similar effects were found in younger and older subsamples. Further, by controlling for age and educational attainment, we have ruled out the possibility that these sources of social homogamy are responsible for spouse similarity. We will therefore assume that selection is the source of assortment in framing our hypotheses.

The largest effects are seen for O6: Values. Liberals and nonconformists seek each other out and shun conservatives and traditionalists. Some of that may reflect the social worlds they inhabit; for example, people who attend fundamentalist churches are likely to meet like-minded mates there (Streyffeler & McNally, 1998). Again, differences in ideology in a dating couple may lead to conflict about politics, religion, and other values that make the prospect of marriage unattractive.

Agreeableness and four of its facets are also among the most important traits for choosing a mate. Straightforwardness, Altruism,

Modesty, and Tender-Mindedness are characteristics that most people desire in a spouse (cf. Buss, 1986), but people are most likely to find a mate with these characteristics if they have them themselves. This is an instance of the principle that people with desirable qualities have more options in seeking a desirable mate. At the same time, it seems likely that there is a sense in which disagreeable people may actually prefer the company of their own kind, like the haughty Duke in Robert Browning's "My Last Duchess," who disposed of his wife because she was too indiscriminately nice.

Of the N facets, N3: Depression ranks highest in spouse similarity; of the E facets, E6: Positive Emotions does. Perhaps these associations can be explained by the proverbial "misery loves company," an aphorism with some empirical support (Wenzlaff & Prohaska, 1989). Finally, C1: Competence also shows relatively high assortment: Efficient, capable, and knowledgeable people prefer spouses who are equally competent, or perhaps they have low tolerance for incompetence in their mates.

All of these explanations are plausible, but they are post hoc, and it is not clear why other traits failed to show evidence of assortment. Why wouldn't an active, busy individual prefer a spouse who could keep up? Why are imaginative people as likely to marry down-to-earth spouses as fellow dreamers? Why is the Compliance facet of A so much less important for selecting a mate than the Straightforwardness and Modesty facets?

It might be possible for evolutionary psychologists to explain the differential assortment of facets in terms of their effects on mate selection and reproduction. One way to address the issue empirically would be to design studies in which the consequences of mismatches are examined in discordant spouses (or couples contemplating marriage). Marital satisfaction ought to be lower in people who are mismatched on traits that show positive assortment, such as Altruism and Openness to Aesthetics; mismatches on other traits, such as Activity and Compliance, should not affect satisfaction. Qualitative studies of interaction patterns among matched and mismatched couples might give insight into how traits affect marital relationships.

An Interpersonal Circumplex Perspective

It is of interest to consider these data also from the perspective of the interpersonal circumplex, a circular ordering of traits related to

E and A. As Tracey, Ryan, and Jaschik-Herman (2001) noted, there is a long tradition in interpersonal theory which holds that behavior elicits complementary behavior, which is similar with respect to affiliation and opposite with respect to control (Carson, 1969). Tracey and colleagues argued that "for relationships to continue over time, at least a modicum of complementarity at the trait or stylistic level ... would be required" (p. 786). In studies in which college students described the interpersonal traits of their parents or of themselves and their friends, they found the strongest support for an orientation of the circumplex that identified affiliation with A and control with E. The implication is that there should be positive assortment for A and negative assortment for E: Dominant, energetic, and fun-loving people should attract submissive, passive, and somber mates.

That pattern was not found in our data. Agreement between spouses on mean ratings was found for A in all four cultures, especially in Czech and Russian samples, but assortment on E was never significantly negative and was significantly positive in Russian and Dutch samples. In fact, however, the great majority (81.2%) of correlations reported by Tracey and colleagues (2001) were also positive, and their data could be interpreted as support for the complementarity hypothesis only because correlations for traits related to A were somewhat larger in magnitude than those for traits related to E. One interpretation is that the principle of complementarity operates in conjunction with a general positive assortment bias, which reinforces the complementarity effect in the case of A, but outweighs it in the case of E.

An alternative interpretation is that the complementarity principle does not operate in married couples, and the illusory belief that it does is based on perceived contrasts with respect to traits related to E. If perceived contrast is operationalized as the difference between S versus S and R versus R correlations in Tables 2 to 6, then the largest domain effect is for E ($Mdn = .19$) and the smallest is for A ($Mdn = .02$). Such biases might also explain the findings of Tracey and colleagues: Students rating the personalities of their parents may tend to perceive contrasts with respect to E, but not with respect to A. Future research on complementarity in interpersonal traits should examine this hypothesis, perhaps by obtaining trait ratings of the spouses from raters who know only one member of the dyad. These ratings would not be susceptible to perceived contrast effects.

Cultural, Historical, and Attrition Effects

The present study was designed to explore the generalizability of assortative mating patterns across cultures and age cohorts. As Table 7 shows, there is general agreement on the relative degree of assortment across the three cultures. Culturally, the Czech Republic is in many respects intermediate between Russia and the United States (e.g., Hofstede, 2001), so one might expect that it would show stronger correlations with the United States (*Mdn r* = .43; see Table 4) and Russia (*Mdn r* = .43) than Russia does with the United States. In fact, however, Russia and the United States show strikingly parallel profiles across the 35 scales (*Mdn r* = .56).

There do appear to be some subtle cultural differences: Similarity in regard to A is somewhat more important for Czechs and Russians than for Americans; similarity in regard to C is more important for Russians and Americans than for Czechs in these samples. But there are also differences in the instruments, sampling strategies, and statistical controls (education was not measured in Russia), so it is premature to conclude that these are true cultural differences. Variations in the correlations for a given facet in Tables 2 through 6 are also attributable to method of measurement and simple measurement error, so it is clearly advisable to focus on the similarities.

Given the substantial agreement across cultures, it is not surprising that there is generally good agreement across generations within cultures. The only marked exception is that, among Russians, young couples show similarity on N and E as well as the other factors. It is possible that there is more freedom of choice in marriage partners since the end of the Soviet Union, but it is not clear why that would lead to greater assortment for N and E. Americans have long had free choice of partners, and they show very little evidence of positive assortment on these factors.

It is noteworthy that the Russian sample was about 10 years younger than the American and Czech samples. This may mean that it included a larger proportion of newly married couples whose marriages were destined to end in divorce. Perhaps assortment on N and E is common in young couples in many cultures, but it bodes ill for the survival of the marriage. It is easy to imagine that relationships in which both partners were emotionally unstable might be particularly prone to divorce (cf. Kelly & Conley, 1987). Such couples would have been largely selected out in the American and Czech samples by

a kind of attrition. However, Watson and colleagues (2004) studied newlyweds and found little evidence for assortment on either E or N.

The possibility that there are patterns of assortative mating that do not survive past early adulthood deserves further research, particularly in view of the fact that early adulthood is the time in which most children are conceived. From the perspective of behavior genetics and evolutionary psychology, it is assortment during this portion of the lifespan that chiefly matters.

Personality Assessment in Research on Dyads

With some notable exceptions (e.g., Buss & Shackelford, 1997; Watson et al., 2004), most research on personality in couples has relied exclusively on self-reports. In this study we compared results based on self-reports and spouse ratings. One striking finding was that there appears to be a pervasive perceived contrast effect: In all three cultures where spouse ratings were examined, spouses tended to exaggerate the differences when they rated each other. When this effect is compounded by relating spouse ratings to spouse ratings, coefficients for assortment are systematically lowered. It is not clear whether these biases led to the negative assortment seen for Assertiveness, Angry Hostility, and Order; different designs, perhaps employing independent peer ratings of each spouse, would be needed to resolve that issue. Other, within-rater biases (such as leniency effects) occur when a single partner provides assessments of both self and spouse; these biases tend to neutralize the perceived contrast effects. However, all the approaches used in this study gave similar results, suggesting that all are useful for research.

One lesson for the study of personality similarity in couples is that personality should be assessed at the level of facets. Domain-level analyses conceal important differences in the magnitude—and perhaps the direction of—assortment effects and lead to the mistaken conclusion that traits have a very limited effect on mate selection. Some traits, such as Openness to Values, have a surprisingly large effect. It will be of interest to see if this conclusion holds as well for the study of other dyads, such as friends or clinicians/clients.

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