How Do I Love Thee? Let Me Count the Js: Implicit Egotism and Interpersonal Attraction

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From the perspective of implicit egotism people should gravitate toward others who resemble them because similar others activate people's positive, automatic associations about themselves. Four archival studies and 3 experiments supported this hypothesis. Studies 1–4 showed that people are disproportionately likely to marry others whose first or last names resemble their own. Studies 5–7 provided experimental support for implicit egotism. Participants were more attracted than usual to people (a) whose arbitrary experimental code numbers resembled their own birthday numbers, (b) whose surnames shared letters with their own surnames, and (c) whose jersey number had been paired, subliminally, with their own names. Discussion focuses on implications for implicit egotism, similarity, and interpersonal attraction.

Jesse Jefferson lives on Johnston Avenue in Jacksonville. Jennifer Jeffries lives just a few blocks away. Clearly, Jesse and Jennifer have much in common. Given each person's presumed preference for the letter J, it would not be too surprising if these neighbors developed a close relationship. However, if Jesse and Jennifer were to start dating, it would be difficult to know exactly why they had done so. One reason might be proximity. All else being equal, people are much more likely to befriend and marry others who are close at hand (Bossard, 1932; Festinger, Schacter, & Back, 1950). Another reason might be similarity. A large body of research suggests that when choosing among potential friends and lovers, people are disproportionately attracted to others whose attitudes, values, and physical characteristics resemble their own (Byrne, 1971; Newcomb, 1961; Vandenberg, 1972).

Implicit Egotism

The important roles of similarity and proximity notwithstanding, it is the thesis of this report that there is another important but underappreciated reason why Jesse and Jennifer might be attracted to one another—namely, the positive associations they have to the letter J. At first blush, the idea that important life decisions are influenced by something as arbitrary as the letters in a person's name may seem untenable. However, recent research in implicit social cognition suggests that the positive associations people have about the letters in their own names and the numbers in their own birthdays influence a wide range of important life decisions. For example, to gain insight into the role of name letters in consumer preferences, Brendl, Chattopadhyay, Pelham, and Carvallo (2004) had participants sample two cups of tea. The first three letters in the name of one of the two teas always matched the first three letters in participants' first names (e.g., a person named Sandra might receive a tea named Sanya and a tea named Larin). Importantly, each participant was yoked to another participant whose name was also used for one of the teas (e.g., a person named Larry would receive the same two teas with the same two labels). When asked to choose a tea to take home as a gift, participants preferred the tea that contained their name letters. During a funneled debriefing, the large majority of participants reported that the names of the teas played no role in their preferences. Moreover, the name-letter preference was still reliable among those who insisted that the name of the tea played absolutely no role in their decision. Brendl et al. observed similar findings in studies of people's preferences for crackers and for popular chocolate candies.

Pelham, Mirenberg, and Jones (2002) observed similar findings for much more consequential decisions. In a dozen systematic studies, they used public records (e.g., telephone directories, professional membership directories) to identify people by name, by

initials, or by birthday numbers to examine the extent to which people with specific names or birthdays gravitated toward specific cities or occupations that resembled their names or birthday numbers. They found, among other things, that people named Denise or Dennis are more likely than usual to make their living as dentists. Similarly, they found that birthday number preferences appear to influence residential choices. People born on February 2nd (02/02) are overrepresented among the inhabitants of Two Rivers, Wisconsin, whereas people born on March 3rd (03/03) are overrepresented among the inhabitants of Three Forks, Montana. These findings held for every possible day–month combination for which U.S. cities existed as potential matches (e.g., people born on June 6th were overrepresented in Six Mile, NC). Together with the recent work of Brendl et al. (2004), this work suggests that people's positive associations about their names and birthday numbers are potent enough to influence decisions as varied as where people choose to live and what foods they choose to take home to their kitchens.

Presumably, these findings reflect a form of *implicit egotism* (Greenwald & Banaji, 1995; Nuttin, 1987; Pelham et al., 2002; Pelham, Carvallo, & Jones, 2004; Staats & Staats, 1958). Implicit egotism refers to the idea that people's positive associations about themselves spill over into their evaluations of objects associated with the self. From this perspective, people gravitate toward cities, states, careers, and teas whose labels share letters or numbers with their own names or birthdays because of the positive associations people have about themselves. In the context of close relationships, implicit egotism has the potential to provide some novel insights into the role of the self-concept in interpersonal attraction. The same principle that explains why Jesse and Jennifer were drawn to Jacksonville might also explain why they would be drawn to one another. The choice of a long-term romantic partner is arguably even more important than the life decisions studied by Pelham et al. (2002). We thus wanted to see whether implicit egotism played a role in this extremely important decision.

However, we do not believe that the current work merely represents another important demonstration of implicit egotism effects. Instead, we believe this research is important for theoretical and methodological as well as for practical reasons. First, we attempt to shed light on the underlying mechanisms involved in implicit egotism. Second, we document that implicit egotism complements and extends past research on similarity and attraction. While approaching these novel theoretical goals, we also provide some of the first experimental and quasiexperimental evidence for implicit egotism.

Implicit Egotism or Similarity?

Past work on similarity and attraction has focused almost exclusively on the role of *attitudinal* similarity in attraction. In contrast, implicit egotism is posited to influence attraction on the basis of nearly any form of similarity (including similarity on arbitrary or trivial dimensions). For example, existing theories of similarity and attraction would not be likely to predict that people would be attracted to others whose earlobes, finger lengths, or name letters are similar to their own (see Buss, 1985; Diamond, 1992; for reviews). From the perspective of implicit egotism, however, even arbitrary similarities can enhance people's attrac-

tion to others because such similarities activate people's unconscious self-associations.

There are additional reasons to suspect that implicit egotism is not a mere corollary of the similarity-attraction principle. These suspicions are based on the specific reasons why similarity is thought to produce attraction. Similarity appears to lead to attraction (a) because similar others validate one's beliefs (Byrne & Clore, 1970) and (b) because similarity fosters the expectation of reciprocal liking (i.e., people expect similar others to like them; Condon & Crano, 1988). In contrast, from the perspective of implicit egotism, the link between similarity and attraction is purely associationistic (see also Heider, 1958). The mere perception of similarity (especially, perhaps, if it occurs outside of conscious awareness) should be sufficient to produce interpersonal attraction. Existing laboratory research suggests, albeit indirectly, that implicit egotism influences attraction independent of mechanisms such as self-validation or reciprocal liking. For example, Finch and Cialdini (1989) had participants read a biographical sketch of Rasputin, the notorious "Mad Monk of Russia." In this sketch, Rasputin was described in decidedly negative terms. Half of the participants were led to believe that Rasputin shared their birthday, whereas the other half was given no information about Rasputin's birth date. In the matching-birthday condition, participants made much more favorable judgments of Rasputin's character. It seems doubtful that participants felt that Rasputin validated their opinions—or that they expected this deceased Russian monk to reciprocate their liking.

In a similar vein, Miller, Downs, and Prentice (1998) found that participants cooperated more than usual with a bogus interaction partner in a prisoner's dilemma game when they believed that they and their partner shared the same birthday. Importantly, Miller et al. found that "the feelings of closeness that arise between birthday-mates do so in the absence of any strong assumptions of general similarity" (p. 479). This suggests that implicit egotism can provide insights into the similarity-attraction relation not offered by previous research. More recently, Burger, Messian, Patel, del Prado, and Anderson (2004) found that participants who believed they shared a birthday (Study 1), a first name (Study 2), or fingerprint similarities (Study 3) with a confederate were more likely to comply with the confederate's request relative to participants who did not believe the confederate shared a coincidental similarity with them. In Burger et al.'s Study 2, participants were given the impression that the person whom they resembled was unaware of this coincidental resemblance. Thus it seems unlikely that these participants expected the confederates to reciprocate their liking. These findings notwithstanding, we thought it prudent to assess directly whether the mechanisms thought to account for the association between similarity and attraction could also account for the association between implicit egotism and attraction. Studies 5–7 were designed with this consideration in mind. But first, we hoped to establish the real-world significance of implicit egotism for interpersonal attraction. We did this in Studies 1–4.

Archival Approach: Studies 1–4

We assessed the role of implicit egotism in interpersonal attraction using both an archival and an experimental approach. We began by examining archival records to determine whether people are disproportionately likely to marry other people whose names

are similar to their own. In Studies 1–4, we focused mainly, though not exclusively, on people's attraction to others who shared their first or last *initials* (Nuttin, 1987). We did so for both pragmatic and theoretical reasons. First, past research has shown that name-letter preferences are stronger for people's initials as compared with the other letters in people's names. Second, our own past research on implicit egotism raises some questions about whether implicit egotism is truly implicit (Pelham et al., 2002). That is, the strongest evidence that people are attracted to places and professions that resemble their names comes from studies in which most, if not all, of the letters in people's names resembled the things to which they were attracted. For instance, in the case of women named Virginia who moved to Virginia, it is feasible that these women *self-consciously* chose to live in a state that resembled their names. However, if people are disproportionately attracted to people who share only their first or last initials, the likelihood that this attraction effect is consciously mediated seems much more remote. Thus, one important contribution of this research is to provide rigorous evidence that name-letter preferences influence a major life decision under conditions in which people are unlikely to be aware of such an influence. A lack of awareness regarding psychological process is one of the signatures of implicit social cognition (Greenwald & Banaji, 1995; Staats & Staats, 1958).

Because people's first and last names have distinct psychological meanings, we also focused on matches *within* rather than *between* specific types of names in this research. That is, we assume that people's first and last names, respectively, are signs of people's personal (individual) versus collective (family) identities (Hetts, Sakuma, & Pelham, 1999). Just as people with detached earlobes are disproportionately attracted to other people with detached earlobes rather than detached elbows (Buss, 1985; Diamond, 1992), people with the surname Taylor should be more attracted to people with the *surname* Thomas than to people with the *forename* Thomas. Readers who find this prediction dissatisfying might be happy to learn that when it comes to people's preferences for things that do not have first and last names (cities and occupations), people's first and last names are interchangeable predictors of what they like (Pelham et al., 2002).

Are enduring romantic bonds influenced by implicit egotism? We addressed this question by asking whether people are disproportionately likely to marry others whose names resemble their own. In Studies 1–4, we used archival records to assess (a) whether people were more likely to marry others who shared their first or last initials, (b) whether people were disproportionately likely to marry or cohabitate with people who shared the first few letters of their first names, and (c) whether people were disproportionately likely to marry others who shared their full surnames. Our specific approach varied from study to study on the basis of our theoretical and methodological goals and on the nature of the data we were able to examine.

Studies 1a and 1b

Method

Studies 1a and 1b focused on marriage records available at the genealogical Web site "USGenWeb" (www.rootsweb.com/~usgenweb/ga/walker.htm). The records for several counties in Georgia and Florida are maintained in ways that make them easy to download and analyze. The Georgia marriages ($n = 11,455$) occurred in Walker County, a rural county in northwest Georgia, between 1882 and 1920. The Florida marriages ($n = 3,079$) occurred in Liberty County, a rural county in the Florida panhandle, between 1823 and 1965. Census records revealed that each of these arbitrarily sampled counties was ethnically homogeneous (e.g., in 1990, Walker County was 94.3% non-Hispanic White).

The primary information in these marriage records is (a) the first and last names of grooms, (b) the first and maiden names of brides, and (c) the marriage date. Given the norms regarding marriage in the rural southeastern United States during the past 2 centuries, we assumed that grooms (a) typically took the lead in courting behavior and (b) often had to obtain permission from brides' fathers to proceed with a wedding. We thus expected that the key predictor of marriages in these samples would be surnames rather than forenames. This prediction is consistent with research on culture. Relative to other Americans, southerners are relatively collectivistic (Vandello & Cohen, 1999). Collectivism should promote an emphasis on one's surname rather than one's forename (Hetts et al., 1999). Furthermore, when it comes to deriving a sense of identity from group memberships, men are more collectivistic than women (Gabriel & Gardner, 1999). Nonetheless, for purposes of comparison, we also conducted analyses of forename matching.

Were people disproportionately likely to marry those whose surnames began with the same letter as their own? To test this idea, we compared (a) the proportion of couples whose surname initials matched with (b) the proportion of couples whose surname initials should have matched if people paired up randomly with regard to surname initials. The expected proportion of chance matches of this sort can be obtained by (a) computing the sample proportion of male and female surnames (forenames) that begin with each letter of the alphabet, (b) multiplying the male and female proportions for each letter of the alphabet, and (c) summing these 26 different cross-products (expected proportion of chance matches) across all of the couples in the sample. For example, 4.3% of the female maiden names and 4.4% of the male surnames in the Walker County sample began with the letter A. Thus, on the basis of chance pairings, we would expect 4.3% × 4.4% (.043 × .044, or 0.0019%) of the couples in the total sample to share the specific surname initial A. On the basis of these calculations, the expected proportion of chance matches for all possible surname initials (totaled across all 26 letters) was .0655 (6.55%) in the Georgia data and .0686 (6.86%) in the Florida data.[1]

Results and Discussion

We compared the observed proportion of surname initial matches in each sample with the expected proportion of chance matches. The chance standard in the Georgia sample was 6.55%. The percentage of observed matches was 7.51%—about 15% greater than the chance value, $\chi^2(1, N = 11,455) = 16.78$, $p < .001$. The comparable expected and observed values for the Florida sample were 6.86% and 8.70%, respectively—about 25% greater than chance, $\chi^2(1, N = 3,079) = 16.39$, $p < .001$. The positive associations people have about the letters in their surnames may facilitate enduring romantic bonds.

Analyses of first initials yielded no evidence of matching. In the Georgia data the rates for expected and observed matches were 4.86% and 4.92%, respectively, $p > .750$. In the Florida data set, the values were 5.08% and 4.55%, $p > .150$. In the southeastern United States at least, people appear to fall in love with those whose family names remind them of their own.

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[1] Expected chance values were computed in an identical fashion in Studies 1b and 3.

Creative readers have generated many alternative explanations for these findings. The most plausible alternative explanation is probably ethnic matching. As a simplified example, if our samples were composed solely of Scots and Spaniards, and if Scottish and Spanish surnames differed in their initial letter frequencies, then ethnic matching could easily masquerade as implicit egotism. Given the ethnic homogeneity of these two counties, we consider this alternative explanation rather unlikely. One might also question our sampling procedure. Although these records were presumably highly exhaustive, they were limited to two arbitrarily selected counties. Thus, to address concerns about ethnic matching and sampling, we conducted an additional study in which we (a) focused exclusively on common European American surnames and (b) sampled statewide marriage records from three different southeastern states.

Study 2

Method

Study 2 focused on marriage records available at the genealogical Web site "Ancestry.com." Paid members of this genealogical service may search birth, marriage, and death records from many different regions of the United States. However, these records vary widely in the degree to which they provide information suitable for archival research. For example, none of these records can be downloaded in their entirety, and those that come with search tools typically allow users to search for only one name at a time. However, statewide marriage records for Georgia (covering 1851–1900), Tennessee (also covering 1851–1900), and Alabama (covering 1809–1920) are exceptions to this rule, allowing users to specify the names of brides and grooms separately. Thus, for instance, one can determine the number of marriages in each state in which a groom named Smith married a bride whose maiden name was also Smith. By limiting our searches to the five most common U.S. surnames (Smith, Johnson, Williams, Jones, and Brown), we were able to minimize the possibility of ethnic matching.

For each of these three states, we created a 5 × 5 (Groom Surname × Bride Maiden Name) grid and compared expected and observed frequencies for the crucial cells involving matching surnames (e.g., Smith marrying Smith, Jones marrying Jones) relative to the remaining 20, nonmatching cells. Because we did not sample surnames exhaustively, Study 2 is a study of random rather than fixed effects (see Gallucci, 2004; Pelham, Carvallo, DeHart, & Jones, 2003). Thus, as a conservative approach to data analysis, we treated the individual cells in these three 5 × 5 matrices as individual observations in a traditional analysis of variance (ANOVA). Although this approach is not very powerful (because it yields only a single

observation for each cell in a 5 × 5 matrix), it allows for a focused hypothesis test that is sensitive to the variability in the predicted effect associated with different specific names. This means, for instance, that it is unlikely to yield a significant predicted effect on the basis of highly supportive results that occur for only one or two specific names.

To test the hypothesis that people would be disproportionately likely to marry those who shared their surname, we dummy coded the data from each row and column of these three 5 × 5 matrices to reflect four dummy-coded variables: (a) state (AL, GA, or TN), (b & c) separate five-category groom (and bride) surname effects, and (d) a match variable that reflected whether the two surnames that corresponded to a given cell in each 5 × 5 matrix happened to be the same surname. These four variables served as the independent variables in a traditional ANOVA in which the match variable reflected the surname matching effect. The state variable controlled for the fact that different numbers of records existed for the three states. The bride maiden name and groom surname variables controlled for base-rate differences in the frequencies of different surnames. Before submitting individual cell frequencies to this ANOVA, we log transformed each of the 25 frequencies from each matrix—to avoid overcontrolling for the base-rate surname frequencies (see Pelham et al., 2003).

Results and Discussion

In addition to main effects of groom surname and bride maiden name, both $Fs(4, 63) > 4.00$, both $ps < .01$, this analysis also yielded a large main effect for the match variable, $F(1, 63) = 55.62$, $p < .001$, $\eta = .68$. Because the results were highly consistent across the three states, we collapsed across state. Table 1 thus summarizes the collective results for all three states. As suggested by the elevated frequencies in each of the diagonal cells of Table 1, people were much more likely to marry other people whose surname happened to be the same as their own. Although it is impossible to guarantee that these results had nothing whatsoever to do with ethnicity, the fact that we limited these analyses to extremely common Caucasian surnames minimizes this possibility. Of course, a drawback of Study 2 is that these results may have reflected a conscious rather than an unconscious preference. In Study 3, we tried to avoid the possibility of conscious matching effects by focusing on matches based on a singe initial rather than a complete surname. Study 3 also addressed concerns regarding ethnic matching. In Study 3, we examined marriages in a state with a substantial Latino population. If the surname matching effect occurred in a Latino sample, it would be extremely difficult to attribute the effect to ethnic matching.

Table 1

Surname Matching Effects in Marriage in Three Southeastern States (AL, GA, and TN)

| Bride maiden name | Groom surname | | | | | |
	Smith	Johnson	Williams	Jones	Brown	Total
Smith	198	55	43	62	44	402
Johnson	55	91	49	49	31	275
Williams	64	54	99	63	43	323
Jones	48	40	57	125	25	295
Brown	55	24	29	29	82	219
Total	420	264	277	328	225	1,514

Note. Frequencies for each of the three states were entered separately in an analysis of variance in which each cell was treated as a single observation. Because results were consistently supportive across the three states, results are collapsed across state for simplicity.

Study 3

Method

In Study 3, we downloaded birth records from a Texas state government Web site (www.tdh.state.tx.us/bvs/registra/birthidx/birthidx.htm).[2] We analyzed birth records for 1926, the first year for which such records were available. These records included both (a) the first and last name of each child's father and (b) the first and maiden name of each child's mother. These records were extremely comprehensive, including each of the 84,117 Texas births recorded in 1926. Almost all of these records ($n = 83,713$) included the names of both parents. To address ethnic matching, we took advantage of the fact that there is virtually no overlap between Caucasian and Latino surnames. Specifically, we consulted a genealogical web site (www.infowest.com/personal/l/lplatt/catalog.html) that identifies the world's 200 most common Latino surnames (Abreu, Garcia, Peña, Zuniga, etc.). Every father with one of these 200 surnames ($n = 7,114$) was coded as Latino. Virtually all of these men were married to women whose maiden names appeared to be Latino. Our approach to data analysis in Study 3 was identical to that of Study 1.

Results and Discussion

The expected percentage of chance surname initial matches in Study 3 was 6.27%. The observed percentage of surname initial matches was 10.37%, $\chi^2(1, N = 83,713) = 2,244.30$, $p < .001$, which is about 65% greater than the chance value. To see if this effect held for Latinos, we recomputed the expected values for chance surname matches for Latinos only. As expected, the surname initial matching effect also occurred in the Latino subsample. The expected and observed match rates were 8.26% and 13.45%, respectively, $\chi^2(1, N = 7,114) = 253.10$, $p < .001$. Thus, the matching effect for Latinos was slightly *larger* than the matching effect for the rest of the sample.

Study 3 also yielded a small but highly significant first-initial matching effect. Whereas the chance value for first-initial matches was 5.42%, the observed value was 5.88%, or about 8.5% greater than chance, $\chi^2(1, N = 83,713) = 34.54$, $p < .001$. Our best guess is that there is a very weak tendency for people to be romantically attracted to others who share their first initials. Our results thus far suggest that implicit egotism plays an important role in the most important decision most people ever make. Although we obviously do not know how these couples would have explained their decision to marry, we think it is extremely unlikely that many of them would have cited a matching initial as a primary source of their affection. Although it might seem farfetched that a social contract as important as marriage is influenced by something as capricious as the letters in a person's name, we assume that many of people's judgments and decisions have unconscious components (Bargh & Ferguson, 2000; Greenwald & Banaji, 1995). Finally, it is worth noting that we obtained support for our hypotheses involving surnames despite the existence of potent taboos against marrying other people whose surnames are identical to one's own.

Additional Note on Alternative Explanations for Studies 1–3

As we noted earlier, readers have suggested some extremely creative alternative explanations for these archival findings. We briefly address three of these. First, despite the fact that some of our findings appear to rule out ethnic matching, some have persisted in the argument that ethnic matching may be at the root of our findings. For instance, a reviewer of one version of this report suggested that ethnic subgroup matching might be responsible for our findings. For instance, if the base rates for different surname initials differ in different Latino groups (e.g., Cubans vs. Chicanos), ethnic matching might still be occurring in the Texas Latino data. However, we know of no strong reason to believe that the frequency of different surname initials varies widely across different Latino subgroups. We also strongly suspect that the very large majority of Latinos who lived in Texas in 1926 were Chicano. In the Texas data, at least, ethnic subgroup matching seems extremely implausible. Perhaps a more reasonable alternative explanation for our findings is proximity. That is, people are sometimes sorted into social groups (such as high school homerooms) on the basis of their surnames (Segal, 1974). It is thus possible that people have a disproportionate amount of contact with others whose last names resemble their own. We think this explanation is implausible in our data for several reasons. First, in Study 1, the surname matching effect was highly robust even for people who married in the 1800s, when the practice of sorting people by surname in high school homerooms presumably did not exist in the rural, sparsely populated counties that we studied. Proximity is probably a more plausible alternative explanation in the case of Studies 2 and 3, which made use of statewide records. However, proximity cannot explain the first-name matching effects observed in Texas. To address this concern further, we conducted a series of supplemental analyses in Study 2 (the southeastern states study). In these studies, we assessed matching effects for people's first or middle initials (we included middle initials because the search tool for these records treated middle names or initials as if they were first names). For instance, we conducted a study in which we replaced the five common surnames with the initials A, B, C, D, and E. This analysis yielded a modest but consistent, and significant, matching effect, $F(1, 63) = 9.77$, $p = .003$, $\eta = .37$. Relative to base rates, people were 8.8% more likely to marry another person when this person's first or middle initial was the same as their own first or middle initial. Our results do not appear to be an artifact of proximity.

A third alternative explanation for our findings is that reporting errors could conceivably yield erroneous surname matches in some marriage records. In regions and historical periods in which a substantial proportion of people were not skilled readers (e.g., in Alabama in the 1800s), some people might erroneously enter a bride's soon-to-be married name in place of her maiden name. Although it is difficult to assess the likelihood of this kind of error, this error seems less likely to occur in the case of modern as opposed to older marriage records. With this concern in mind, we identified a source of modern, comprehensive marriage records available from the Texas Department of Health (http://www.tdh.state.tx.us/bvs/registra/marridx/marridx.htm). The most recent marriage records available at this source identified about 165,000 marriages that took place in 2001. Using these records, we ob-

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[2] Shortly after we downloaded these data, they were taken off-line, apparently because an adopted person had used them to identify his or her biological parents. At the time of this writing, a message on the Web page where we obtained the data indicated that it was unclear whether the data would become available again for downloading.

served a clear replication of the surname matching effects observed in the much older records used in Study 2. Relative to base rates, people were about 36% more likely to marry others who shared their surname, and the same random effects ANOVA that was used to analyze the data from Study 2 revealed that this surname matching effect was highly significant, $F(4, 15) = 11.01$, $p = .005$, $\eta = .65$ (as compared with $\eta = .68$ for the three southeastern states).

Because these Texas data included the ages of brides and grooms at the time of their marriages, they also allowed us to address the issue of proximity in a more straightforward way than we were able to do in any of our other samples. The most common route through which people are placed in social groups based on their surnames is educational (e.g., by being sorted into high school homerooms on the basis of surname). The proximity perspective suggests that the surname matching effect should disappear, or at least be diminished, for couples who are far apart in age—because couples far apart in age are not likely to have been grouped together in educational settings. In the Texas data, however, the surname matching effect was slightly *larger* than usual among couples whose ages were more discrepant. For instance a dummy-coded surname-match variable correlated positively, albeit nonsignificantly, with the absolute value of the discrepancy between brides' and grooms' ages, $r(304) = .07$, $p = .233$. Taken together with our other findings, this suggests that proximity is not a good alternative explanation for implicit egotism.

A fourth alternative explanation for our archival findings is that they simply reflect sampling error. Based on our sample sizes, and the range of samples we studied, this probably qualifies as the least plausible of all conceivable explanations for our findings. To address a more pointed version of this question, we have yet to identify *any* large data sets in which we did not observe name-letter surname matching effects in marriage. This effect is highly replicable.

Having said this, it should go without saying that our evidence for a first-name matching effect in marriage is highly limited. That is, we only obtained evidence of a first-name matching effect in Studies 2 and 3, and this effect was always modest. Study 4 was designed to investigate first-name matching effects using a different analytic approach—one that might increase our power to detect an effect by examining matches based on more than one letter. Study 4 also included residents of the entire United States. Although we were unable to locate a nationwide set of marriage records, we did identify an archival data source that identified couples who appeared to be married or cohabitating. Finally, in Study 4 we hoped to gain evidence for a name-letter matching effect that (a) could not be based on alphabetical sorting by surname and (b) was not based on matching by age or ethnicity.

Study 4

Method

In Study 4, we examined joint telephone listings in a national Internet telephone directory (http://www.ancestry.com/search/rectype/directories/ustel/main.htm). We began by identifying 12 male and female first names that strongly resembled one another. We did so by examining a ranked list of male and female first name frequencies based on 1990 census records. More specifically, we searched for common female first names that shared a minimum of their first four letters with each of the most common male

first names. (We used male names as our starting point because female names are often derived from male names.) When no common (i.e., top-200 ranked) female first name matched a specific male first name (e.g., there is no match for John), we moved on to the next male name in the list. The resulting set of 12 name pairs (e.g., Eric–Erica) appears in Table 2.

After identifying the 12 name pairs, we organized them into three blocks of four pairs based on the age of the male names. This is important because (a) people typically marry others who are similar in age and (b) first name frequencies vary systematically with age. We dated the male names by examining social security death index records to tabulate population frequencies for each name for people born in 1920 and 1960. For each first name, we then created an odds ratio of the 1920 frequencies relative to the 1960 frequencies associated with that specific name. These odds ratios served as objective indicators of the age of each name. Finally, we blocked the four oldest male names together (Frank, Charles, Joseph, Carl), followed by the four "middle-aged" male names (Robert, Paul, Andrew, Stephen), followed by the four youngest male names (Patrick, Michael, Eric, and Christopher). We then paired each female first name with the specific male first name that it resembled. This procedure minimized the likelihood that people with similar first names could be disproportionately paired together based on age matching. For instance, if Joseph and Josephine both happened to be very old names, but the three male names that were grouped with Joseph were just as old as Joseph, then the disproportionate pairing of Joseph and Josephine could not easily be attributed to age matching.

Results and Discussion

The results of Study 4 are summarized in Table 2. As suggested by the frequencies in the diagonals of each 4×4 grid, people were disproportionately likely to be married to others whose first names resembled their own. The observed number of matches exceeded the chance standard for 10 of the 12 name pairs. If treated as separate replications, two of the three studies yielded significant first-name matching effects. In focused tests that compared the total expected and observed number of matches and mismatches for each 4×4 grid, the respective chi-square values for the older, middle-aged, and young male name sets were $\chi^2(1, N = 2,539) = 11.01$, $p < .001$; $\chi^2(1, N = 6,064) = 32.43$, $p < .001$; and $\chi^2(1, N = 11,385) = 3.54$, *ns*. On the whole, the effect size in this study was small. Averaging across the three replications, the total number of first name matches exceeded the chance value by only 7.6%. Nonetheless, given the arbitrary nature of people's names and prevailing wisdom about why people should marry, we consider this effect to be both theoretically and practically significant (Prentice & Miller, 1992).

These matching effects do not appear to be grounded in ethnic matching. For example, the first three female first names in Replication 1 (older male names) are all French, whereas none of the first three male names is French. Supplemental analyses also suggested that the size of the matching effect (expressed as an odds ratio) was directly proportional to (a) the strength of the match in the pronunciation of the male and female names (e.g., Carl–Carla yielded a larger effect than Frank–Frances) and (b) the objective frequency of the names (as we have seen elsewhere, name-letter effects are larger for people with less common—i.e., more distinctive—names). For instance, the name pair Michael–Michelle yielded a modest reversal in these data. These two names are very common and are pronounced quite differently. In contrast, the name pair Eric–Erica (two rare names that are pronounced very similarly) yielded an odds ratio that approached 2:1 (Pelham et al., 2002).

Table 2
First Name Matching Effects in U.S. Joint Telephone Listings

| Female first name | Oldest male first name | | | | |
	Frank	Charles	Joseph	Carl	Total
Frances	251 (252.6)	461	350	96	1,158
Charlotte	132	311 (272.5)	175	79	697
Josephine	101	89	130 (101.5)	24	344
Carla	83	155	112	50 (38.3)	400
Total	567	1,016	767	249	2,599

| | Middle-aged male first name | | | | |
	Robert	Paul	Andrew	Stephen	Total
Roberta	596 (497.9)	190	24	92	902
Paula	1,177	547 (522.8)	106	289	2,119
Andrea	680	319	125 (87.9)	170	1,294
Stephanie	894	440	157	258 (233.3)	1,749
Total	3,347	1,496	412	809	6,064

| | Youngest male first name | | | | |
	Patrick	Michael	Eric	Christopher	Total
Patricia	490 (457.9)	3,240	284	323	4,337
Michelle	436	2,754 (2,938.3)	669	397	4,256
Erica	20	158	57 (30.6)	29	264
Christine	256	1,708	309	255 (222.9)	2,528
Total	1,202	7,860	1,319	1,004	11,385

Note. Expected values in crucial cells appear in parentheses. Names are the most common male first names and female first names sharing at least their first four letters with male names, based on the 1990 U.S. census.

Critics may also note that Study 4 is based on an unrepresentative sample. To qualify for Study 4, that is, couples had to have joint telephone listings. If these couples resemble those who maintain joint rather than individual checking accounts, the available evidence suggests that they feel especially close to one another (Kurdek, 1993). This is arguably a strength rather than a weakness of Study 4. A more serious criticism of Study 4 is that couples with similar first names may *not* be disproportionately likely to marry. Instead, once they do marry, they may be disproportionately likely to request joint telephone listings (e.g., because they like alliteration). To address this concern, we replicated this first-name matching effect in a set of state-wide Colorado marriage records (the only large set of records we could find that would allow a test of the effect). For instance, for a direct replication involving the 6 name pairs that provided the best matches in Study 4, we observed 168 matches when base rates dictated there should have been only 147 (a surplus of 14.3%). Our findings appear to be based on adoration rather than alliteration. It is also worth noting that most criticisms involving reverse causality are not applicable in the present studies. Specifically, it is not plausible that people's marriages caused the names that predicted them.

A final criticism of Study 4 is that, like Study 2, Study 4 sampled a limited set of names (rather than exhaustively sampling all possible names). Thus, a more conservative approach to the analysis of Study 4 would treat individual combinations of names (e.g., individual cells in these 4 × 4 matrices) as the unit of analysis (as we did in Study 2). These more conservative analyses revealed that the first-name matching effect was only significant in Study 4 for the six name pairs whose first syllables are pronounced in the same fashion ($p = .001$). Perhaps the fairest interpretation of Study 4 is that, like Studies 2 and 3, it yielded evidence of a very modest first-name matching effect.

Experimental Approach: Studies 5–7

Taken together, the results of Studies 1–4 strongly suggest that implicit egotism might influence interpersonal attraction. Specifically, people appear to be disproportionately likely to marry or cohabitate with other people whose names are similar to their own first or last names. However, this archival approach does not afford the kind of firm causal conclusions one might wish to draw regarding the influence of implicit egotism on interpersonal attraction. For example, whereas we sampled names using a rigorous and systematic procedure, we did not sample names randomly. To solidify the argument that implicit egotism enhances attraction it seems important to test this hypothesis experimentally. Furthermore, an experimental approach also allowed us to investigate the likely associationistic, self-relevant mechanisms responsible for implicit egotism effects. Finally, we hoped to demonstrate more convincingly that Studies 1–4 do not simply represent a mere corollary of past research on similarity and attraction. Consequently, Studies 5–7 were also designed to test the hypothesis that implicit egotism influences attraction independent of mechanisms such as self-validation or reciprocal liking.

Studies 5a and 5b

Studies 5a and 5b were designed as preliminary experimental tests of the role of implicit egotism in interpersonal attraction. Participants in Studies 5a and 5b always took part in the study along with 3 other participants. With one exception, the two studies were identical. Because of changes in laboratory-space assignments, participants in Study 5a were able to see one another easily during the study, whereas participants in Study 5b were seated in a way that minimized visual contact. Prior to their participation in a getting-acquainted conversation, female participants ostensibly exchanged background surveys with a partner. In fact, all surveys were prepared by the experimenter and contained the same nondescript background information. However, the partner's arbitrary experimental code number (e.g., 12–31) happened to be the same as or different from participants' month and day of birth. If implicit egotism influences interpersonal attraction, then participants who believe their partners' arbitrary code numbers resemble their own birthday numbers should rate their partners more favorably than usual.

Method

Participants

Participants in Studies 5a and 5b, respectively, were 52 and 110 undergraduate women enrolled in introductory psychology classes at the State University of New York at Buffalo (UB), who participated for course credit. Participants were run in groups of 4 and were seated, facing away from one another, at one of four desks. The study was described as an investigation of the acquaintance process. We studied women rather than men or mixed-sex groups because (a) women were more common in the UB participant pool and (b) we wished to investigate platonic rather than romantic attraction.

Materials and Procedure

Background survey.   After their arrival at the laboratory, participants completed a short background survey. The background survey asked each participant to report her hometown, number of siblings, college major, favorite color, and favorite pastime. Participants expected to exchange this brief survey with a randomly chosen experimental partner. More specifically, they learned that "we will be asking people to exchange a small amount of background information before they get to know one another in an actual getting acquainted conversation." Presumably, the goal of this exchange was to see "how much people can figure out about another person using only a limited amount of information." Finally, participants were told that they had each been assigned an arbitrary four-digit "personal code number," which appeared, in 36-point font, in the upper right-hand corner of their background survey. In fact, each participant received the same code number (14–34). Participants were told that the purpose of this number was to help the experimenter keep track of participants' experimental materials while maintaining their confidentiality. The actual purpose was to set the stage for our manipulation of implicit egotism. Immediately following the completion of the background survey, participants were told that the experimenter needed to step out of the room to prepare the next set of materials and randomly pair people with their partners. In the meantime, participants were asked to fill out a brief packet of personality questionnaires (Goldberg's, 1992, 20-item measure of extraversion and Rosenberg's, 1965, 10-item measure of self-esteem).

Experimental manipulation.   After about 5 min the experimenter returned and collected the questionnaire packets. At this point participants were told, "I have the packages that include your partner's background

survey ready. I will ask you to read her background information and then answer the questions that follow. These questions ask you about your impressions of your partner in today's study." In fact, the background surveys participants received were identical, with one important exception. Participants in the birthday-match condition read a background survey marked with a code number that was identical to their own day and month of birth (participants' birthdays were collected during a mass-testing procedure). For example, a participant born on September 8th received a background survey ostensibly completed by another participant whose arbitrary experimental code number was 09–08. Participants in the control condition received a background survey marked with a code number that was dissimilar to their own day and month of birth. For example, a participant born on September 8th received a background survey ostensibly completed by another participant whose code number was 03–23.

Dependent Measures

After reading their bogus partner's background survey, participants were asked to answer a few questions about their anticipated interaction. These questions included three dependent measures: (a) How much do you look forward to getting to know this person during the upcoming conversation? (1 = *not at all* to 11 = *a great deal*), (b) How much do you think you would like this person if you got to know her? (1 = *not at all* to 11 = *very much*), and (c) How well do you think you will get along with this person? (1 = *not at all* to 11 = *very well*).

It is important to note that the design of Studies 5a and 5b completely ruled out matching based on similarity. That is, participants were not led to believe that their interaction partner shared their birthday. Instead they learned that the experimenter had assigned this person an arbitrary code number that happened to resemble their birthday number. Absent actual similarity, it seems unlikely that participants would experience greater than usual anticipated liking or consensual validation from their partners. However, it is still possible, in principle, that participants irrationally felt subjectively similar to the partner whose arbitrary code number resembled their birthday number. Thus, in addition to the primary dependent measures, participants in Study 5b were asked to indicate: (a) How similar do you think this person is to you? (1 = *not at all similar* to 11 = *very similar*) and (b) How much do you think this person will like you? (1 = *not at all* to 11 = *very much*).[3]

After participants completed the partner ratings, the experimenter distributed a measure that asked them to remember as much as they could about their partner's background survey, including their partner's code number. After completing this measure, participants were thanked for their participation, carefully debriefed, and given credit for the study.

Results and Discussion

Primary Analyses

The three partner-liking measures were designed as a single, composite score of attraction. However, in both studies, the item "How well do you think you will get along with this person?" reduced scale reliability. Although this item showed a trend in the

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[3] Some readers may wonder why we assessed reciprocal liking directly but perceived validation of one's attitudes indirectly (by assessing perceived similarity). The main reason is that attitude validation is not directly relevant to studies of implicit egotism. Knowing that someone shares your attitudes, values, and personality traits may validate them. However, knowing that someone shares your birthday or your name is unlikely to validate any particular belief, attitude, or personality trait you might possess. We believe that if implicit egotism did engender consensual validation, it would do so subjectively, by virtue of perceived similarity.
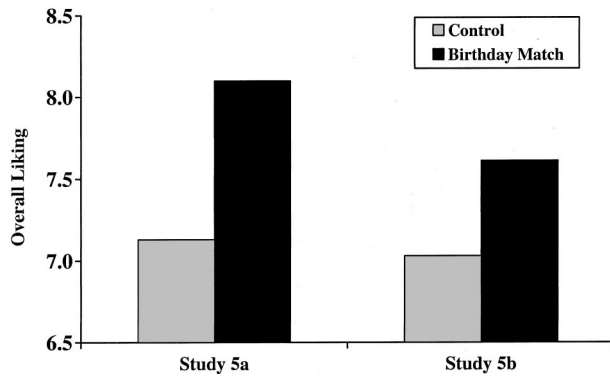
Figure 1. Liking of bogus partner as a function of experimental condition in Studies 5a and 5b. Liking scores are a composite of two liking measures: "How much do you look forward to getting to know this person during the upcoming conversation?" and "How much do you think you would like this person if you got to know her?"

predicted direction, it was nonetheless deleted, resulting in a two-item composite score of attraction (respective αs were .77 and .87). As illustrated in Figure 1, the two studies yielded similar findings. Relative to participants in the control condition, participants in the birthday-association condition reported liking their partners more, $t(50) = 2.57$; $t(108) = 2.04$, respectively, both $ps < .05$, both ηs $> .20$. Participants liked their bogus partners more when their partners were associated with their own birthday numbers, even when this association was completely arbitrary (i.e., when it had nothing to do with their partners' actual birthdays).

Secondary Analyses

Exploratory analyses were conducted to assess the potential effects of the individual difference measures. First, explicit self-esteem did not moderate implicit egotism in either Study 5a or 5b (or in Study 7, for that matter). This is not surprising given that implicit and explicit self-esteem are usually uncorrelated (Bosson, Swann, & Pennebaker, 2000; Koole, Dijksterhuis, & van Knippenberg, 2001). In contrast, in both Studies 5a and 5b, higher levels of extraversion were significantly associated with higher levels of partner liking (both $ps < .01$). Furthermore, in Study 5b, participants in the birthday-association condition reported being more extraverted than participants in the control condition, $t(108) = 2.01$, $p < .05$, $\eta = .19$. (In Study 5a, levels of extraversion were virtually identical in the two groups.) In light of this accidental confound in Study 5b, it seemed useful to try to disentangle extraversion and our experimental manipulation in Study 5b. To address this concern, we conducted an analysis of covariance in which extraversion was treated as a covariate. Although the effect of the experimental manipulation was still in the predicted direction, the birthday number effect no longer reached conventional levels of statistical significance in Study 5b, $F(1, 107) = 2.11$, $p < .15$. Nonetheless, this effect seems to be highly replicable. A meta-analysis of the original effect from Study 5a and the covariate-adjusted effect in Study 5b yielded an overall p value of .002. Descriptively, however, the effects were weaker in Study 5b than in Study 5a. On the basis of other research on implicit egotism, we suspect that Study 5b yielded somewhat weaker

results than Study 5a because of the change in seating arrangements between the two studies. Specifically, in Study 5a, participants could easily see one another. It seems likely that the more personal setting in Study 5a was slightly more involving (and slightly more threatening) than the less personal setting of Study 5b (Beggan, 1992; Jones, Pelham, Mirenberg, & Hetts, 2002).

It should also be noted that in Study 5a, birthday code numbers enhanced attraction only among majority group members (Caucasians) but had no effect on attraction among minority group members (African Americans, Asians, and Latinos). However, minority participants were the sole representatives of their ethnic group in 18 of the 20 sessions of Study 5a (and were never in the majority). Past research on similarity and attraction (Rosenbaum, 1986) has demonstrated that presumed dissimilarity leads to repulsion. It seems likely that this may have negated the usual effects of implicit egotism among minority participants in Study 5a. Nonetheless, Study 5a does raise the question of whether minority group members exhibit implicit egotism effects to the same degree as majority group members. Study 6 addressed this question more directly.

Anticipated liking and perceived similarity. Several mediational analyses were conducted to assess whether anticipated liking and/or perceived similarity mediated the association between implicit egotism and attraction (see Baron & Kenny, 1986). There was no evidence that direct perceptions of similarity served as a mediator of our observed effects. However, there was some evidence for a mediational role of anticipated (i.e., reciprocal) liking. First, the birthday-association manipulation was modestly associated with anticipated liking, $\beta = .15$, $t(107) = 1.64$, $p = .10$. Second, a multiple regression analysis showed that anticipated liking did predict partner liking, even after controlling for birthday association, $\beta = .61$, $t(107) = 8.23$, $p < .001$. Finally, the same regression analysis showed that the birthday-association effect was eliminated after controlling for anticipated liking, $\beta = .04$, $t(107) = .54$, $p > .05$. Although the reduction in the effect of birthday association on partner liking when controlling for anticipated liking did not quite reach conventional levels of significance according to a Sobel's test, $z = 1.60$, $p > .05$, it does appear that the relationship between birthday association and partner liking could be mediated by anticipated liking. Apparently, the partner's experimental code number enhanced anticipated liking, which in turn enhanced partner liking.

At first blush, this finding might seem to suggest that implicit egotism constitutes a specific example of the link between similarity and liking. However, it is important to remember that participants did *not* conclude that their partner was more similar to them than usual when their partner's code number happened to resemble their birthday number. Furthermore, it is also important to remember that participants presumably realized that their partner's code number was not a property of their partner. Instead, it was merely an arbitrary label used by the experimenter to keep track of the partner's data. It is also quite possible that the mediational findings of Study 5b reflect a reverse causal effect (Kenny, Kashy, & Bolger, 1998). Specifically, participants may have first decided that they liked their partners and then decided that their partners would probably like them in return.

Implicit or explicit egotism? If the effects observed in Study 5b were truly implicit, participants should have been unaware of the influence that their partner's code number had on their ratings.

This was the case. Relative to participants in the control condition, participants in the birthday-association condition more accurately recalled their bogus partner's code number, $t(108) = 3.64$, $p < .001$, $\eta = .34$. However, when asked to describe in detail (in an open-ended measure) why they felt the way they did about their bogus partner, beginning with the things that influenced their feelings the most, only 5 of 110 participants (all in the birthday-association condition) mentioned the matching code number as a potential influence. These data suggest that while the code number was a salient stimulus for birthday-match participants, it was not perceived as the basis of their preferences. Clearly, awareness of a stimulus and awareness of that stimulus' effect are two very different things (Nisbett & Wilson, 1977).

The results of Studies 5a and 5b provide some initial support for the argument that people's preferences for their own birthday numbers are potent enough to influence people's attraction to other people who are arbitrarily associated with these numbers. Study 6 was intended to strengthen the argument that implicit egotism influences interpersonal attraction. A secondary goal of Study 6 was to identify theoretically relevant moderators of implicit egotism. Specifically, Study 6 assessed the potential moderating role of (a) self-concept threat and (b) reward sensitivity on implicit egotism.

Study 6

We suggested that the reason Study 5a yielded somewhat stronger results than Study 5b was that the physical setting of the room in Study 5a made the interpersonal situation more threatening. There is good reason to expect self-concept threat to magnify the effects of implicit egotism. Research on both implicit (Beggan, 1992; Dodgson & Wood, 1998; Jones et al., 2002) and explicit (Greenberg & Pyszczynski, 1985; Tesser, 1988) self-enhancement and self-regulation has shown that people often respond to self-threatening feedback in ways that protect or reaffirm their self-concept. For example, people compensate for failure in one area by enhancing the self in other areas (Greenberg & Pyszczynski, 1985) and automatically enhance symbols associated with the self (i.e., name letters and birthday numbers) in response to self-threatening feedback (Jones et al., 2002). Jones et al. (2002) speculated that behavioral implicit egotism effects might be especially pronounced for people faced with self-concept threat (see also Beggan, 1992). People who have just experienced self-concept threat may be especially likely to prefer people with similar names and birthdays.

Another potential moderator of implicit egotism is reward sensitivity (Carver & White, 1994; Depue & Collins, 1999; Gray, 1970). On the basis of Gray's (1970) physiological theory of personality, several authors have proposed that individual differences in the Behavioral Activation System (BAS) represent a marker of dispositional sensitivity to reward (Carver, Sutton, & Scheier, 2000; Larsen & Ketelaar, 1991). Accordingly, one might predict that those with heightened BAS sensitivity would be (a) generally efficient at encoding rewarding stimuli (Rusting & Larsen, 1998) and (b) more likely to respond positively to cues of reward (Carver & White, 1994). If implicit egotism is based on simple conditioning processes (e.g., Dijksterhuis, 2004; Staats & Staats, 1958), and if people generally find self-relevant symbols rewarding, it stands to reason that people who are more sensitive

to reward (people with heightened BAS sensitivity) may be especially likely to exhibit the behavioral effects of implicit egotism. Finally, people high in reward sensitivity are thought to be especially likely to respond to threats with active and effortful attempts to obtain reward. Thus, threat might magnify implicit egotism among those high in reward sensitivity (Avila, 2001; Patterson & Newman, 1993).

Study 6 focused on romantic attraction, which was the primary focus of Studies 1–4. First, in Study 6 participants read a personal advertisement presumably written by a stranger and then evaluated the person depicted in the advertisement. Second, in the interest of external validity, Study 6 focused on men rather than women and included participants from four different ethnic groups (Asian, African American, Latino, and Caucasian). Finally, Study 6 made use of a self-concept threat manipulation. That is, half of the participants experienced a mild self-concept threat prior to evaluating a bogus stranger.

After arriving at the laboratory, participants completed scales designed to measure BAS sensitivity (BAS Scale; Carver & White, 1994). Next, some participants wrote about a personal flaw. Participants then read the personal advertisement of a stranger and made several liking ratings of this stranger. The content of the personal advertisement was held constant with one exception; participants were led to believe that the author's online name did or did not contain the first three letters of their own surname. If implicit egotism influences interpersonal attraction, then male participants should be more attracted than usual to women whose online names include letters from their own surname. This preference might also be especially robust (a) under conditions of self-concept threat and (b) for people who are high in reward sensitivity.

Method

Participants

Participants were 86 men enrolled in introductory psychology classes at UB, who participated for course credit.

Materials and Procedure

At the beginning of the experimental sessions, we told participants that the study they were about to participate in was "designed to assess how different people process and respond to personal ads." They were further told, "The personal ad you will read was written by a real person and has been posted on a major personal ad web site. Your job is simply to read the personal ad written by this person and then make some judgments of this person based on what you read."

Reward sensitivity. After completing a brief demographic survey, participants completed the BAS Scale. This 13-item measure is thought to reflect individual differences in the sensitivity of the BAS system, the system thought to regulate the tendency to approach rewarding stimuli. BAS items include "When I want something, I usually go all out to get it" and "When I get something I want, I feel excited and energized." The BAS measure was modified by expanding the 4-point answer scale to a 6-point scale ($\alpha = .86$).

Threat manipulation. Next, participants randomly assigned to a self-threat condition were asked to write at least three lines about "what you see as your biggest drawback or weakness as a potential dating partner." Participants assigned to the no-threat condition were asked to write at least

three lines about "what you see as the typical man's biggest drawback or weakness as a potential dating partner."

Personal advertisements. Next, participants read a personal advertisement ostensibly written by a college-age woman. In the advertisement, the woman included relatively nondiagnostic information about her hometown, leisure time activities, and what she was looking for in a dating partner. Personal advertisements were ostensibly downloaded from the online-dating Web site "YahooPersonals" (www.yahoopersonals.com). Prior to viewing their advertisement, participants were told, "our research indicates that most people prefer to date other people of the same general background and ethnicity. Because of this, you will see the personal ad of a stranger whose ethnicity and general background is the same as or very similar to your own. Otherwise, the ad you evaluate has been selected at random from a large pool of personal ads." At this point, participants accessed their personal advertisement, which was displayed as a Web page (designed and controlled by the experimenter). Personal advertisements were accompanied by small, low-resolution photographs portraying a moderately attractive (as assessed in a pretest of 32 separate participants) woman of college age. The ethnicity of the depicted woman was always the same as the participant's own ethnicity. A pretest ($n = 32$) established that the four female targets used did not differ in their level of physical attractiveness.

Implicit egotism. Participants were randomly assigned to one of two experimental conditions. In the high surname resemblance condition participants read the personal advertisement of a bogus stranger whose online name included the first three letters of participants' own surnames (e.g., a participant named Larry Murray would be matched with a bogus partner whose online name was listed as "STACEY_MUR"). In the low surname resemblance condition, a participant with a different surname read the identical personal advertisement, with the only difference being that the partial surname used did not share any letters with the participant's own surname (e.g., Jason Gabriel would be matched with STACEY_PEL). The bogus stranger's first name was always Stacey. In the low surname resemblance condition, the three-letter string that presumably began the stranger's surname was always randomly sampled from a member of the PSY 101 research participant pool whose ethnicity was the same as the actual participant's (with the constraint that no letters were shared with that of the real participant; e.g., a Latino participant might be matched with a stranger whose online name was "STACEY_GAR" or "STACEY_HER").

Attractiveness ratings. Finally, participants indicated (a) the extent to which they would like to get to know the bogus stranger, (b) how likely they would be to become friends with the bogus stranger, (c) how much they would like the bogus stranger if they did get to know her, (d) how physically attractive they found the bogus stranger, and (e) how romantically attracted they were to the bogus stranger on 11-point scales (1 = *not at all* to 11 = *very much*). Participants were also asked to indicate their behavioral intentions by indicating, "If you were surfing Yahoo Personals and came across this person's ad, how likely is it that you would respond?" on an 11-point scale (1 = *not at all likely* to 11 = *very likely*). In addition to answering the primary attraction items, participants were asked to indicate: (a) "How similar do you think this person is to you?" (1 = *not at all similar* to 11 = *very similar*), (b) "If this person got to know you, how much do you think she would like you?" (1 = *not at all* to 11 = *very much*), and (c) "If this person got to know you, how likely is it that she would be romantically attracted to you?" (1 = *not at all likely* to 11 = *very likely*). Next participants encountered several open-ended questions asking them to recall specific information about the personal advertisement, including the online name of the bogus stranger. Next, participants provided an open-ended response to the question, "Why did you rate the person from the ad the way you did"? Participants were then asked to indicate, "To what extent did the person's screen name influence your liking?" on an 11-point scale (1 = *not at all* to 11 = *a great deal*). Finally, participants were asked what they thought the purpose of the experiment was, were thanked, and were fully debriefed.

Results and Discussion

Primary Analyses

For the sake of simplicity, the six attraction measures were combined to form a single composite score of attraction ($\alpha = .93$). If people were more attracted than usual to the bogus stranger when her online name resembled their surname, especially after having just experienced a self-concept threat, this would provide further support for the hypothesis that implicit egotism influences interpersonal attraction. This hypothesis was tested in a 2 (self-concept threat: low vs. high) $\times$ 2 (surname resemblance: low vs. high) ANOVA. This analysis yielded only one significant effect: the predicted Self-Concept Threat $\times$ Surname Resemblance interaction, $F(1, 82) = 3.98$, $p < .05$, $\eta = .21$. As can be seen in Figure 2, participants who had not recently experienced a mild self-concept threat reported similar levels of attraction to Stacey whether her online name did versus did not include letters from their own surname, $F < 1$, $p = .73$, $\eta = .03$. However, participants who had just written about their biggest flaw as a potential dating partner reported being significantly more attracted to Stacey when her online name happened to include a few letters from their surnames, $F(1, 82) = 6.55$, $p = .01$, $\eta = .27$.

An alternative set of simple-effects analyses revealed that the threat manipulation had a significant negative influence on participants' attraction when the advertisement featured a person with a dissimilar name, $F(1, 82) = 4.03$, $p < .05$, $\eta = .22$, but not when the advertisement featured a person with a similar name, $F < 1$, $p = .42$, $\eta = .09$. Not surprisingly, thinking about one's personal flaws typically reduces one's attraction to others. However, this effect is completely eliminated when the others under consideration happen to remind people of their surnames. From this perspective, implicit egotism may sometimes constitute a nonconscious safety signal that enhances people's connections to objects and to other people who resemble the self. In short, the least self-threatening person most people know is themself. People who resemble the self may, by association, be deemed nonthreatening as well.

Some readers may find it troubling that there was no effect of surname matching in the absence of self-concept threat. Bear in mind, however, that many if not most situations in which people
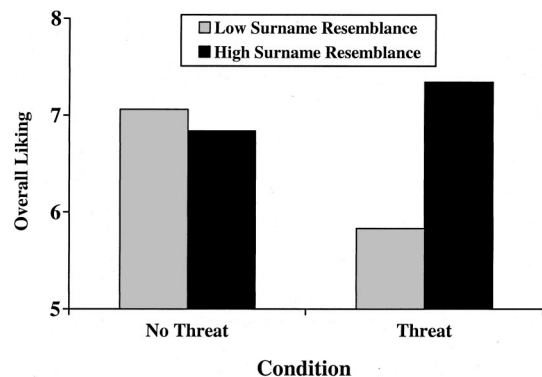

Figure 2. Means for overall liking as a function of self-concept threat and surname resemblance in Study 6. Results represent the average of the six liking measures.

are introduced to a potential mate are inherently threatening. Among other things, this threat may be the result of a concern with creating a certain impression on others or the result of the fear of rejection (for reviews, see Baldwin, 1992; Schlenker & Leary, 1982). Furthermore, past research has shown that effects such as implicit egotism are attenuated after positive feedback or mild self-affirmations (Jones et al., 2002). It seems plausible that men in the control condition, who were asked to think about the flaws of other men, were feeling particularly good about themselves and thus were not susceptible to implicit egotism.

Supplemental Analyses

A secondary aim of Study 6 was to examine the relation between implicit egotism and reward sensitivity. If implicit egotism becomes exaggerated for people high in reward sensitivity who are exposed to self-concept threats, then this would suggest that implicit egotism may indeed be the result of self-relevant classical conditioning processes. To test this hypothesis, we conducted supplemental analyses that assessed the effects of BAS sensitivity (a continuous variable), the surname resemblance manipulation (a categorical variable: high or low), and threat condition (a categorical variable: threat or no threat) on liking. Based on the prescriptions of Aiken and West (1991), we used multiple regression analyses to examine interactions between the categorical and continuous variables. In these analyses, the BAS variable was centered by subtracting the sample mean from each BAS score. For all of the analyses the predictor variables in the regression equation were (a) BAS (reward sensitivity), (b) surname resemblance condition, (c) threat condition, (d–f) the three two-way interaction terms, and (g) the three-way (BAS $\times$ Threat $\times$ Surname Resemblance) interaction term.

We expected that relative to participants low in reward sensitivity, participants high in reward sensitivity would find the woman from the advertisement particularly attractive when (a) they had seen an advertisement that featured letters from their own surnames and (b) they had recently written about a personal flaw. This was very nearly the case. The BAS $\times$ Surname Resemblance $\times$ Threat interaction approached significance, $\beta = .35$, $t(81) = 1.89$, $p = .06$. To examine the nature of this trend, we focused on the potential two-way interaction between self-concept threat and surname resemblance for low- and high-BAS participants separately. As expected, the two-way interaction was not evident for low-BAS participants, $\beta = -.09$, $t(81) = -.31$, $p = .76$, but was significant for high-BAS participants, $\beta = .66$, $t(81) = 2.50$, $p < .02$.

The predicted scores associated with these findings appear in Figure 3. An examination of these predicted scores confirms that high-BAS participants reacted to surname resemblance under conditions of threat quite differently than did their low-BAS peers. Faced with both self-concept threat and a person with a similar surname, high-BAS participants were significantly more attracted to Stacey, whereas low-BAS participants were slightly less attracted to her. Specifically, focusing on the effects among high-BAS participants only, simple slopes revealed that those in the threat condition found Stacey more appealing when she had a similar name, relative to when she had a dissimilar name, $\beta = .31$, $t(81) = 2.03$, $p < .05$. In contrast, if anything, low-BAS partici-
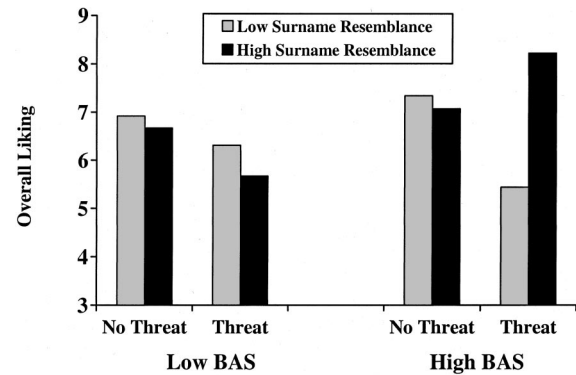

Figure 3. Predicted means for overall liking reported by low and high Behavioral Activation System (BAS) participants as a function of self-concept threat and surname resemblance in Study 6.

pants faced with self-concept threat found Stacey slightly less appealing when she had a similar name.

Taken together, these results suggest that the extent to which people with similar names are a source of reward depends on both self-concept threat and dispositional sensitivity to reward. In short, relative to people low in reward sensitivity, people high in reward sensitivity are especially likely to gravitate toward people with similar names when faced with self-concept threat.

Perceived similarity and reciprocal liking. Was the implicit egotism effect observed in Study 6 a function of anticipated liking or perceived similarity? Apparently not. A 2 (self-concept threat: low vs. high) $\times$ 2 (surname resemblance: low vs. high) ANOVA conducted on the anticipated liking and perceived similarity items revealed that, relative to participants in the control condition, participants in the surname resemblance condition did not expect the woman from the advertisement to like them more, $F(1, 82) = 0.46$, $p = .50$, $\eta = .08$, and did not perceive her to be more similar to themselves, $F(1, 82) = 1.31$, $p = .26$, $\eta = .13$ (all remaining ps > .36). These findings suggest that implicit egotism influences attraction independent of perceived similarity and anticipated liking.

Implicit or explicit egotism? If the effects observed in Study 6 were truly implicit, participants should have been unaware of the influence that Stacey's screen name had on their ratings. This was the case. First, when participants were asked to indicate (in an open-ended measure) why they rated Stacey the way they did, none of the 86 participants listed screen name as a potential influence. As a more conservative test of this assumption, responses to the question, "To what extent did the person's screen name influence your liking?" were analyzed in a 2 (self-concept threat: low vs. high) $\times$ 2 (surname resemblance: low vs. high) ANOVA. The ANOVA revealed that screen name was considered equally unimportant across all experimental conditions (all ps > .40; overall $M = 1.95$ on an 11-point scale). Taken together, these data suggest that implicit egotism is indeed implicit.

A matter of ethnicity? To see if these effects held for minority participants ($n = 32$), we computed separate analyses focusing on the effects of surname matching, self-concept threat, and reward sensitivity for minority participants only (African American, $n = 8$; Asian American, $n = 20$; Latino, $n = 4$). The results for these analyses closely mirrored the results for the sample as a whole. In

fact, consistent with the results of Study 3, the effects for minority participants were slightly larger than the effects for the rest of the sample. For example, the expected BAS × Surname Resemblance × Threat interaction for minority participants was significant, $\beta = .69$, $t(27) = 2.02$, $p < .05$. Taken together with the results of Study 3, these results strongly suggest that ethnic minorities show effects of implicit egotism that are equal to, if not stronger than, those shown by their Caucasian peers.

Together with the results of Study 5, the results of Study 6 provide experimental support for the idea that implicit egotism influences interpersonal attraction. Apparently, people do prefer other people who are arbitrarily associated with the self. However, two major issues require further investigation.

First, despite the evidence suggesting that implicit egotism is indeed implicit, it is not completely inconceivable that explicit egotism may have been at work in Studies 5 and 6. For instance, it is possible, in principle, that participants were unwilling to report the true basis of their judgments. Furthermore, it seems likely that at least some participants were at least minimally aware of the association between features of the stimuli they judged and the self. For instance, it is possible that in Study 5 some participants were aware that their partner had an arbitrary code number that matched their birthday number. It is also likely that in Study 6 many participants guessed that Stacey had a surname that was similar to their own. Of course, as noted previously, being aware of a stimulus and being aware of the effect of a stimulus on one's judgments are two very different things (Greenwald & Banaji, 1995; Nisbett & Wilson, 1977). Nonetheless, it would be useful to know if people ever prefer self-associated stimuli even when people remain completely unaware of the self-relevant nature of the stimuli. Study 7 was designed as a test of this strict view of implicit egotism.

Second, a basic assumption of this report is that implicit egotism is grounded in a simple conditioning process—one in which the positive associations people have about themselves spill over to enhance their attraction to nearly anything associated with the self. In short, people gravitate toward other people who resemble them because similar others activate the positive associations people have about themselves. Whereas the results of Studies 1–6 are consistent with this assumption, it seems useful to investigate more directly the associationistic basis of implicit egotism. Study 7 was designed with this goal in mind.

Study 7

Study 7 was designed to provide some further insights into the associationistic basis of implicit egotism. Study 7 thus built on both classic and contemporary research on conditioning, more specifically research on *evaluative conditioning* (Dijksterhuis, 2004; see De Houwer, Thomas, & Baeyens, 2001, for a review). Evaluative conditioning is obtained when a conditional stimulus (CS) is repeatedly paired with a positively or negatively valenced unconditional stimulus (US). Over time the CS takes on the valence of the US. In a classic demonstration of this procedure, Pavlov (1927/1960) repeatedly displayed a circle (the neutral CS) just before placing meat powder (the positively valenced US) in dogs' mouths to produce salivation. After several pairings of the circle and the meat powder, the dogs began salivating at the sight of the circle alone. Since Pavlov's day, this effect has been shown repeatedly with a large number of positive and negative stimuli. As a recent example, Baldwin and Main (2001) showed that computer tones repeatedly paired with thoughts of social rejection could later be used to induce social anxiety.

The evaluative conditioning procedure used in Study 7 was adapted from Dijksterhuis (2004), who repeatedly paired the word "I" (the CS) with positively valenced trait terms such as "nice" and "smart" (the US). In several studies he found a reliable tendency for this conditioning procedure to elicit enhanced scores on both a name-letter liking measure (Nuttin, 1987) and the Implicit Association Test (Greenwald & Farnham, 2000) of implicit self-esteem. Interestingly, he found that this evaluative conditioning procedure enhanced self-esteem even when both the CS and US were presented subliminally (Dijksterhuis, 2004).

The current study was an attempt to create implicit egotism by repeatedly pairing an arbitrary number (e.g., 16) with participants' own full names (e.g., Mimi Jones). If people truly have positive associations to their own names, and if implicit egotism is a product of classically conditioned preferences, then it should be possible to condition people to be attracted to an arbitrary number (and to anyone associated with this number) that becomes associated with one's name. Moreover, this should be the case even when people are completely unaware of having been exposed to the numbers and names used to create this association.

Method

Participants

Participants were 24 undergraduates enrolled in introductory psychology classes at UB, who participated for course credit. Participants were run in groups of 1 to 4. Data from 2 participants were discarded due to failure to comply with instructions. The final sample consisted of 15 men and 7 women.

Materials and Procedure

Upon their arrival at the laboratory, participants were introduced to a study designed to investigate the relation between "personality and interpersonal judgment" and were seated in front of a personal computer. After completing a short demographic survey, participants completed the Rosenberg (1965) Self-Esteem Scale and the BAS Scales used in Study 6.

Immediately following the completion of the personality measures, participants began the evaluative conditioning procedure (adapted from Dijksterhuis, 2004). Participants were told that this task was a measure of response time. This procedure consisted of a primed-letter categorization task with 30 trials presented in random order. Each trial began with the presentation of a row of Xs presented for 300 ms in the center of the computer screen. On 15 of the 30 trials, the row of Xs was immediately followed by either the number 16 or the number 24 for 13.7 ms.[4] This number was immediately followed by the presentation of the participant's own first and last name, also for 13.7 ms. On the 15 other trials the row of Xs was followed by the presentation of whichever number (16 or 24) was *not* paired with the participant's own name for 13.7 ms, followed by the presentation of 1 of 15 arbitrary filler names, also for 13.7 ms. Filler names consisted of random pairings of the five most common male and female first names and the 10 most common surnames among UB psychology subject pool participants ($n = 1,375$). On all 30 trials, names were followed

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[4] The numbers 16 and 24 were liked equally in a pretest of 146 separate participants.

immediately by one of 30 random letter strings, which served as the targets in the letter categorization task. Participants had to respond to these target letter strings by indicating as quickly as possible whether the string began with a vowel or a consonant—by pressing one of two keys. As soon as participants pressed a key, the next trial began.

After completion of the evaluative conditioning procedure, participants were told "you will now see a picture of a stranger that has been randomly selected from a large pool of pictures. This picture will be displayed for 10 seconds. You should look the picture over and then answer the questions that follow." All participants saw one of two photographs of a 19-year-old Caucasian woman wearing a jersey with a number clearly visible on the front. These photographs were identical with one important exception; the number on the front was 16 in one of the photographs and 24 in the other. For participants randomly assigned to the own name number condition, the number on the woman's jersey was the same number (16 or 24) that had been recently paired with their own name during the evaluative conditioning procedure. For participants randomly assigned to the filler name number condition, the number on the woman's jersey was the same as the number paired with the filler names (e.g., participants whose name was paired with the number 16 saw the woman wearing jersey number 24).

Dependent measures. Next participants were asked to answer six questions about the woman in the photograph: (a) How much do you think you would like this person if you got to know her? (1 = *not at all* to 11 = *very much*), (b) How happy do you think this person is? (1 = *not at all happy* to 11 = *very happy*), (c) How smart do you think this person is? (1 = *not at all smart* to 11 = *very smart*), (d) How honest do you think this person is? (1 = *not at all honest* to 11 = *very honest*), (e) How nice do you think this person is? (1 = *not at all nice* to 11 = *very nice*), and (f) How friendly do you think this person is? (1 = *not at all friendly* to 11 = *very friendly*).

Participants also rated their liking for the numbers 1–33 and the 26 letters of the English alphabet. This measure asked participants to rate their preferences for several "visual stimuli." Presumably, these ratings would be used to develop stimuli for future studies of linguistic and pictorial preferences. The 26 capital letters used in the letter-rating task were presented in a random (e.g., nonalphabetical) order in a 7 × 4 table. Participants evaluated each letter on a 5-point scale (*dislike very much* to *like very much*). The instructions indicated that participants should work quickly, basing their rating on their "gut feelings." The number-liking measure and the measure assessing participants' judgments of the woman from the photograph were counterbalanced. Collectively, however, these two measures always followed the letter-rating measure. In addition to completing the primary dependent measures, participants were asked to indicate: "How similar do you think this person is to you?" (1 = *not at all similar* to 11 = *very similar*) and "If this person got to know you, how much do you think she would like you?" (1 = *not at all* to 11 = *very much*).

Questions regarding awareness. Next participants were asked to "describe how you made your judgments about this person. Please describe in detail why you feel the way you do about this person, beginning with the things that influenced you the most." Participants were then asked to indicate to what extent several specific factors influenced their judgments, including (a) how the woman wore her hair, (b) her facial expression, (c) the way she was dressed, (d) the color of her shirt, and (e) and the number on her shirt, all on 11-point scales (1 = *not at all* to 11 = *a great deal*). Next, participants were asked whether they had seen any names or numbers flashing on the screen during the evaluative conditioning procedure, and if so, what names or numbers had they seen. On completion of this measure, participants were thanked for their participation, carefully debriefed, and given credit for the study.

Results and Discussion

In response to the open-ended item asking participants to indicate what factors influenced their judgments of the person, none of the 22 participants mentioned the number on the woman's shirt. Furthermore, when rating the six specific factors that may have influenced their judgments, the number on the woman's shirt was said to have had the least impact (M = 3.4 on the 11-point scale). Independent samples t tests conducted on the basis of this item failed to reveal any significant differences across the two experimental conditions. Finally, 3 participants reported seeing names during the conditioning procedure but none could report what name(s) they had seen. Furthermore, 4 different participants reported seeing numbers flashed during the conditioning procedure but none reported seeing the numbers 16 or 24, the only two numbers presented.

The six judgment measures were combined to form a single composite judgment score (α = .90). For the sake of simplicity, initial analyses were also collapsed across the two arbitrary number conditions (16 vs. 24). Did people provide more positive evaluations of the woman from the photograph when the number on her jersey had been paired (subliminally) with their own names? They did. Relative to participants in the filler name number condition (M = 6.02, SD = 1.54) participants in the own name number condition (M = 7.47, SD = 1.64) provided more favorable judgments of the woman, $t(20) = 2.14$, $p < .05$, $\eta = .43$. It appears that the positive feelings most people have about themselves spill over to enhance their liking for people associated with numbers that have been associated with their own names. It is worth noting that the results of Study 7 did not vary according to gender or ethnicity. It is also worth noting that these effects were not moderated by either explicit self-esteem or BAS. This is not surprising given the absence of self-concept threat in Study 7.

Did participants also show enhanced preferences for the number paired with their own names? That depends. Relative to participants for whom 16 was the filler number, participants whose names had been paired with the number 16 found this number slightly more appealing, $F(1, 20) = 2.49$, $p = .13$, $\eta = .33$. However, relative to participants for whom 24 was the filler number, participants whose names had been paired with the number 24 were not more enamored of this number, $F(1, 20) = .018$, $p = .90$, $\eta = .03$.

It should be noted that by chance alone, participants conditioned to like the number 24 more often than not made their ratings of the stranger and then made their ratings of the numbers 1–33. Perhaps this order of events made some participants suspicious that the stranger and number evaluation were related, a suspicion not triggered when number ratings were made first. Consequently, this awareness may have suppressed participants' implicit preferences for the number 24. This finding would be consistent with research showing that implicit effects are often attenuated when people consider the basis for their judgments (e.g., Greenwald & Banaji, 1995; Koole et al., 2001; Murphy & Zajonc, 1993; Schwarz & Clore, 1983). This finding is also consistent with our own pilot data suggesting that implicit preferences expressed on one specific measure are typically attenuated on subsequent, alternative preference measures (which we typically interpret as an implicit self-affirmation effect).

Was the effect observed in Study 7 based on anticipated liking or perceived similarity? Mediational analyses similar to those reported in Study 5b confirmed that name-number association did have a significant effect on partner liking in Study 7, $\beta = .43$, $t(20) = 2.14$, $p < .05$. However, name-number association had no

effect on anticipated liking, $\beta = .31$, $t(20) = 1.45$, $p = .16$, nor was it related to perceived similarity, $\beta = .20$, $t(20) = 0.89$, $p = .38$. Furthermore, a Sobel's test that took into account the full pattern of associations between all of the relevant variables revealed, for instance, that the reduction in the effect of name-number association on partner liking—when controlled for anticipated liking—was not significant, $z = 1.17$, $p > .05$. Apparently neither perceived similarity nor anticipated liking is a necessary condition for implicit egotism. Nonetheless, we suspect that, in the absence of explicit negative feedback from another person, it is rare for anyone to like another person without assuming that this person would reciprocate his or her affection.

The results of Study 7 strongly suggest that implicit egotism can influence interpersonal attraction even when participants are completely oblivious to the basis of their preferences. The results of Study 7 are also consistent with our assumption that self-relevant conditioning mechanisms lie at the heart of implicit egotism. Finally, the findings for participants' liking for the woman were somewhat stronger than the findings for their simple liking for the numbers to which they were conditioned. This suggests that implicit egotism applies at least as well to meaningful social judgments as it does to more esoteric judgments involving numbers.

General Discussion

This research provides consistent support for the idea that implicit egotism influences interpersonal attraction. People do seem to prefer other people who are arbitrarily associated with the self. This hypothesis was supported in both archival and experimental research using a wide range of research participants, and it generalized to a very wide variety of dependent measures and to historical periods covering more than 180 years. Studies 1–4 showed that people are disproportionately likely to marry people whose names are similar to their own. Studies 5–7 provided insight into the underpinnings of implicit egotism. Study 5 showed that women liked another woman more than usual when her arbitrary experimental code number resembled their own birthday numbers. Study 6 showed that among men who had just experienced a self-concept threat, those who thought a woman's online name shared a few letters with their surname found the woman more attractive than usual. Study 6 also suggested that the tendency for self-concept threat to promote implicit egotism was stronger for people high in reward sensitivity. Finally, Study 7 showed that men and women of various ethnic backgrounds made more favorable judgments of a stranger when the number on her shirt had recently been paired, by means of a subliminal conditioning procedure, with their own names. Thus, Study 7 provided direct evidence that implicit egotism is indeed implicit and is likely to have much of its basis in classical conditioning.

In addition to the obvious implications of this research for the validity of implicit egotism, this research also has implications for research on similarity and interpersonal attraction. As noted previously, most research on similarity and attraction has assumed that people are attracted to similar others for one of two main reasons. First, people assume that similar others will like them. From this perspective, the relation between similarity and attraction is mediated by expected positive evaluations from others (Aronson & Worchel, 1966; Condon & Crano, 1988). Second, people are attracted to similar others because similar others validate people's own beliefs and attitudes. According to this perspective, similarity to others provides people with consensual validation for their own attitudes (Byrne & Clore, 1970).

Whereas anticipated reciprocal liking did appear to mediate the effects of implicit egotism in Study 5b, and to a much lesser degree in Study 7, it was unrelated to attraction in Study 6. Further, perceived similarity was completely independent of implicit egotism in all three studies, and thus, it seems unlikely that implicit egotism is merely a specific example of how similarity promotes attraction.[5] It is also worth noting that in Study 5 implicit egotism operated in the complete absence of objective similarity, because our bogus participant did not appear to share her actual birthday with any of our real participants. Along similar lines, in Study 6, implicit egotism influenced people's attraction to a target whose baseline level of similarity to the self was always relatively high. That is, these men always learned that they had been paired with a woman whose "ethnicity and general background" was highly similar to their own. Finally, like Study 5, Study 7 ruled out similarity experimentally—in this case by engineering conditioned associations to the self that were independent of traits people may have shared with the woman they evaluated. Taken together, our results suggest that an important but previously overlooked predictor of human attraction is the positive associations people have about themselves (Beggan, 1992; Greenwald & Banaji, 1995; Paulhus & Levitt, 1987; Pelham et al., 2002; Perdue, Dovidio, Gurtman, & Tyler, 1990).

Implicit Egotism as Self-Regulation

The current studies further establish the connection between implicit egotism and self-regulation (Beggan, 1992; Jones et al., 2002; Kitayama & Karasawa, 1997; Koole et al., 2001; Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999; Nuttin, 1987; Pelham et al., 2002; Steele, 1988). The fact that name letters had such a strong buffering effect among people exposed to self-concept threat in Study 6 suggests that such preferences represent a form of unconscious self-affirmation or self-regulation. Specifically, these findings suggest that one way in which people affirm their sense of self-worth in the face of threat is by automatically enhancing the value of symbols associated with the self, and by extension, other people associated with these symbols (Steele, 1988; see also Brendl et al., 2004; Jones et al., 2002).

Taken in isolation, the results of Study 6 might seem to suggest that implicit egotism *only* emerges under conditions of self-concept threat. After all, name matching only promoted attraction under conditions of self-concept threat. Nonetheless, it seems unlikely that threat is a necessary condition for implicit egotism. First, Studies 5 and 7 showed that implicit egotism enhanced attraction independent of any potent self-concept threats. On the other hand, one could argue that the mere prospect of interacting with a stranger was mildly self-threatening for participants in Study 5. Consistent with the results of Study 6, this threat could have reduced participants' attraction to the stranger, unless she

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[5] Clearly, anticipated liking and consensual validation are well-established predictors of attraction. It is not our intention to suggest otherwise. Instead, we are suggesting that similarity can lead to attraction through other means.

happened to be associated with the participants' birthday numbers. One way to address this possibility would be to use a paradigm in which participants do not expect to interact with their bogus partners. Study 7 provided exactly this kind of evidence, suggesting that threat is not required for implicit egotism to influence attraction. That is, the participants of Study 7 had no expectation of interacting with the woman from the photograph. Furthermore, they were never provided with negative feedback, nor were they required to contemplate their own potential shortcomings. In fact, the experimenter made it clear during the letter categorization task that performance on the task was not diagnostic of any underlying abilities (see also Finch & Cialdini, 1989).

Nonetheless, it is worth reiterating that some form of self-concept threat is an inherent part of the kind of major life decisions that have been the focus of both past and current archival research (see Pelham et al., 2002). For example, choosing whom to marry is a major decision in the sense that making the wrong choice can have costly repercussions (e.g., divorce, a lifetime of misery). From this perspective, implicit egotism may often constitute a nonconscious safety signal that enhances people's attraction to objects and other people who resemble the self. Presumably, the least self-threatening person most people know is themselves. People who resemble the self may, by association, be deemed nonthreatening as well. One goal of future research should be to examine more carefully this potential threat-buffering function of implicit egotism.

Implicit Egotism as Conditioned Positive Associations

An important assumption of research on implicit egotism is that the positive associations people have about themselves spill over to enhance their attraction to nearly anything associated with the self. This assumption is grounded in basic principles of classical conditioning. Although critics have been extremely reluctant to accept the idea that people's self-relevant associations can influence major life decisions, the notion that classically conditioned associations influence people's preferences is consistent with several well-established lines of research. For example, advertisers often rely on the "soft sell" by repeatedly associating a product with a desirable person, place, or thing (including a desirable mood; see Janis, Kaye, & Kirschner, 1965; Martineau, 1957). The impact of raw associations on social perception is also demonstrated by the phenomenon of basking in reflected glory (Cialdini & de Nicholas, 1989). That is, people often associate themselves with successful others in an attempt to elicit positive evaluations. Finally, research on the spontaneous trait-transference effect (Skowronski, Carlston, Mae, & Crawford, 1998) shows that unintentional associations are often formed between communicators and the favorability of their descriptions of other people's behaviors. Implicit egotism is highly consistent with these well-accepted associationistic phenomena. Specifically, people's positive associations about themselves presumably become activated in the presence of self-relevant stimuli, including name letters and birthday numbers. It is only a small step from there to posit that these now-activated positive thoughts and feelings spill over into people's reactions to the source of the self-relevant stimuli—a person with a similar name or birthday.

Perhaps some skeptics will find it helpful to think of implicit egotism as a close cousin of some of these less controversial phenomena. Like the results of Study 7, the results of Study 6 also support the idea that implicit egotism is a fundamental associationistic phenomenon. Recall that implicit egotism appears to have been more pronounced among people who scored high on a measure of reward sensitivity (BAS). Because BAS is activated by conditioned signals of reward and nonpunishment (Gable, Reis, & Elliot, 2000; Rusting & Larsen, 1998), increases in partner evaluation in Study 6 may be interpreted as resulting from BAS activation by reward-relevant inputs. In this context, these reward-relevant inputs were the letters in people's names.

Of course, Study 7 provided the clearest support for the notion that the mechanism responsible for implicit egotism is associationistic. Presumably, Study 7 represents the first time that people's own names have been used as conditioning stimuli to enhance people's evaluations of anything. The manipulation used in this study suggests that people's names are imbued with positive affect. This positive affect enhanced the evaluation of an arbitrary number associated with people's names. In turn, the positive affect now associated with the number changed the evaluation of a person associated with that number. Apparently, this entire process occurs outside of conscious awareness. It seems reasonable to suggest that self-relevant symbols (i.e., name letters and birthday numbers) are rewarding in a very fundamental way. People's names appear to be the rough psychological equivalent of meat powder to a hungry puppy.

One major premise of implicit egotism is that people's positive associations about themselves spill over to enhance their evaluation of anything associated with the self. To the extent that the name-letter preferences reflect positive associations about the self, it seems reasonable to expect people high in name letter liking to be especially prone to the effects of implicit egotism demonstrated in this report. Recall, however, that the implicit egotism effects reported in Study 7 were unrelated to individual differences in name-letter preferences. Does this mean that implicit egotism does not represent people's positive associations about themselves? We do not think so. Past research has demonstrated that different indicators of implicit, self-relevant preferences do not usually correlate well with one another (Bosson et al., 2000). In part this may be because there are different kinds of implicit self-associations, including different kinds of associations to the letters in one's name. For example, Wentura, Kulfanek, and Greve (in press) recently documented that the favorability of some kinds of implicit associations to one's name letters are reliably associated with explicit self-esteem. In contrast, they showed that other kinds of associations are completely independent of explicit self-esteem. More specifically, only implicit associations between one's name letters and traits that are *other-relevant* (loosely speaking, interpersonal) appear to be related to explicit self-esteem. Future research should more thoroughly address the role of both implicit and explicit self-esteem in implicit egotism.

Alternative Explanations for Implicit Egotism

Although we believe that the present findings provide strong evidence for implicit egotism, competing theories might appear to account for our data at least as well as implicit egotism. For instance, people are exposed to the letters in their own names, and the numbers in their own birthdays, much more often than they are exposed to other letters or numbers. Thus, the well-documented

mere exposure effect (Bornstein, 1989; Monahan, Murphy, & Zajonc, 2000; Zajonc, 1968) would seem to account well for many examples of implicit egotism. Although we do not believe that mere exposure has nothing to do with implicit egotism, mere exposure cannot account for close cousins of implicit egotism, such as the mere ownership effect. The fact that people evaluate the same items more favorably after having just been given the items would not seem to be grounded in mere exposure. Mere exposure also cannot explain the finding that implicit egotism tends to be stronger for more unique (i.e., less common) names (Pelham et al., 2002), nor can it account for the finding that most people like the letters in their own names even more than they like the most common letters in the English alphabet (Jones et al., 2002). Finally, the fact that implicit egotism becomes stronger in the face of threat is more consistent with our perspective than it is with the perspective offered by mere exposure (Beggan, 1992; Jones et al., 2002). Nonetheless, we do not argue that implicit egotism has nothing to do with mere exposure. Instead, we maintain that implicit egotism is not exclusively based on mere exposure.

Some critics have also suggested that attentional or memorial mechanisms, rather than positive self-associations, may serve as the underlying mechanism for implicit egotism. It has been shown that people are more likely to notice and remember self-relevant as opposed to self-irrelevant stimuli, including one's own name (Cherry, 1953; Dion, 1983; Rogers, Kuiper, & Kirker, 1977). We suspect that memorial and attentional mechanisms do, in fact, play a role in some cases of implicit egotism. For example, if Khanh meets a stranger who happens to share her first name, she will presumably be more likely than usual to remember the stranger's name (and perhaps to remember the stranger's phone number). It is easy to imagine that this kind of phenomenon could facilitate the development of a meaningful relationship. Although this kind of process can help explain some cases of implicit egotism, it does not explain why people should take an instant liking to a stranger whose name or birthday happens to resemble their own. Presumably, the participants in Studies 5–7 had no trouble remembering the targets that they were evaluating on the spot. Moreover, in cases in which a person remembers a stranger better because that stranger happens to resemble the self, one might ask why this might be the case in the first place. It seems likely that part of the reason why people readily remember people, places, and things that are associated with the self is that associations to the self generate the kind of positive mood that facilitates at least some forms of remembering (Bower, 1981). Although we agree that people pay special attention to and remember self-relevant stimuli particularly well, we do not believe that implicit egotism is grounded solely in attentional or memorial processes.

Implicit Social Cognition in the Real World

The research reported here also complements research suggesting that people's feelings, judgments, and behaviors are influenced by a wide variety of unconscious processes (Banaji & Greenwald, 1995; Bargh, Chen, & Burroughs, 1996; Bargh & Ferguson, 2000). For example, people's intellectual performance appears to be influenced by whether they were recently primed to think about professors or soccer hooligans (Dijksterhuis & van Knippenberg, 1998). Although highly intriguing, laboratory findings such as

these are open to the criticism that they may have little to do with real-world judgments and decisions. Taken together with the findings of Pelham et al. (2002) the present findings suggest that implicit social cognition influences human behavior both inside and outside the laboratory. That is, the sum total of our evidence suggests that implicit egotism is a valid and replicable phenomenon that influences people's choice of a lifelong romantic partner in much the same way that it influences their evaluations of a stranger on a semantic differential. A wedding for Jesse Jefferson and Jennifer Jeffries may be just around the corner.

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