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On the Nature of Identity Fusion:
Insights Into the Construct and a New Measure

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Previous research has documented the consequences of feeling fused with a group; here we examine the nature of identity fusion. Specifically, we sought to determine what fusion is and the mediating mechanisms that lead fused individuals to make extraordinary sacrifices for their group. Guided by the assumption that fusion emphasizes the extent to which people develop relational ties to the group, we developed a measure designed to capture feelings of connectedness and reciprocal strength with the group. In 10 studies, the newly developed scale displayed predicted relationships with related measures, including an earlier (pictorial) measure of fusion and a measure of group identification. Also as expected, fusion scores were independent of several measures of personality and identity. Moreover, the scale predicted endorsement of extreme progroup behaviors with greater fidelity than did an earlier pictorial measure of identity fusion, which was, in turn, superior to a measure of group identification. Earlier evidence that the personal and social selves of fused persons are functionally equivalent was replicated, and it was shown that feelings of agency and invulnerability mediated the effects of fusion on extreme behavior. Finally, Spanish- and English-language versions of the verbal fusion scale showed similar factor structure as well as evidence of convergent, discriminant, and predictive validity in samples of Spaniards and Americans, as well as immigrants from 22 different countries. This work advances a new perspective on the interplay between social and personal identity.

Keywords: identity fusion, social identity, group identification, self-verification

Although members of extremist groups have been launching suicide attacks for centuries (see e.g., Durkheim, 1897/1951; Pedahzur, 2005), such attacks continue to inspire bewilderment. Why are people willing to sacrifice themselves to injure others? Recent research has suggested that the construct of identity fusion may provide one answer to this question. That is, individuals whose responses to a pictorial measure indicate that their personal identities are "fused with" their group are especially inclined to express willingness to sacrifice themselves for their group (see e.g., Swann, Gómez, Dovidio, Hart, & Jetten, 2010; Swann, Gómez, Huici, Morales, & Hixon, 2010; Swann, Gómez, Seyle, Morales, & Huici, 2009). But if previous research has illuminated the consequences of being fused with a group, less is known about (a) the nature of identity fusion, (b) the processes that distinguish fusion from related psychological constructs, and (c) the mechanisms that mediate the effects of fusion on extreme progroup behavior. To illuminate these issues, we begin by discussing the nature of identity fusion and how it differs from a rival conceptualization of alignment with groups, identification.

Identity Fusion and Identification as Distinct Measures of Alignment With Groups

One perspective on the difference between these two forms of alignment with groups is offered by Brewer and Gardner's (1996) distinction between *relational* and *collective* group ties. Ties to relational groups are based on members' personal connections and

relationships with other group members (see Aron, Aron, Tudor, & Nelson, 1991; Markus & Kitayama, 1991). In contrast, ties to collective groups are based on members' perception of overlap between their own characteristics and prototypical properties of the ingroup (e.g., shared qualities or outcomes, commitment to a common goal). Whereas members of relational groups tend to perceive fellow members of the group as unique and hence irreplaceable members of a larger "family" (Brewer & Gardner, 1996), members of collective groups perceive fellow members as categorically undifferentiated and interchangeable (see e.g., Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987).

Although members of all societies appear to form both relational and collective ties to groups, cultures may vary in the prevalence of these two forms of group alignment (see e.g., Brewer & Chen, 2007; Nisbett, Peng, Choi, & Norenzayan, 2001; Yuki, 2003). Whereas members of East Asian cultures tend to perceive their group memberships in personal, relational terms (a "relational orientation"), members of Western individualistic cultures tend to perceive their group memberships in categorical terms (a "collective orientation"). We suggest that, complementing these cultural differences in predominant orientation to relationships, within a given culture, people's ties to their groups may reflect one or the other orientation. We argue further that just as measures of identity fusion emphasize degree of relational orientation to the group, measures of identification emphasize degree of collective orientation to the group (see also Prentice, Miller & Lightdale's, 1994, distinction between common-identity and common-bond groups).

The tendency for highly fused people to have a relational orientation to the group may have important implications. Rather than focusing on the group as a relatively abstract social category, fused persons perceive it as a "family" consisting of members who all share a common bond. Such familial attachment may give rise to two key sentiments. First, it may engender a powerful sense of connectedness wherein fused persons come to believe that they and other group members are functionally equivalent. Second, it may foster the perception of reciprocal strength: Just as they believe that they will do anything for other group members, so, too, do they believe that other group members will do the same. The result of these perceptions of connectedness and reciprocal strength may be a powerful desire to act on behalf of the group, even if extreme action is required (see e.g., Allport, 1962).

Identification with a group has very different implications. Most important, highly identified people will align themselves with the collective while perceiving their fellow group members as categorically undifferentiated and interchangeable (see e.g., Tajfel & Turner, 1979; Turner et al., 1987). Indeed, numerous investigations using the minimal-group paradigm have shown that when people are assigned to groups on the basis of trivial (even explicitly random) criteria, they become biased toward that group—despite never having encountered a single group member (see e.g., Billig & Tajfel, 1973; Turner, Sachdev, & Hogg, 1983). As such, although identified people may display solidarity with the collective, their positive sentiments will be directed to the category and not necessarily to its members. Furthermore, because highly identified individuals perceive group members as categorically interchangeable, their loyalty to the collective will not necessarily compel them to rush to the assistance of individual members of the collective when such individuals are imperiled.

Support for the distinction between fusion and identification comes from evidence that scores on measures of identity fusion are associated with endorsement of extreme behavior while controlling for group identification. For example, in one set of studies, identity-fused individuals were particularly likely to endorse fighting and dying for their country and appeared to equate threats to the group with threats to the self (see e.g., Swann et al., 2009). Moreover, in several variations of the classic trolley dilemma, fused persons endorsed saving fellow group members by plunging themselves in front of a speeding trolley (Swann, Gómez, Dovidio, et al., 2010). Fused persons appear to be especially inclined to endorse self-sacrifice when their personal or social identities have been activated (Swann et al., 2009) or when their feelings of agency are amplified by physiological arousal (Swann, Gómez, Huici, et al., 2010). In summary, researchers have recently provided a wealth of evidence that identity fusion consistently outpredicts identification in predicting the tendency for people to protect fellow group members and to endorse extreme progroup behavior.

But if identity fusion serves to "cock the progroup activity trigger," it is unclear what variables cause people to actually pull the trigger. Agency may be one such variable. That is, the high levels of connectedness and reciprocal strength that fused people feel toward their group may compel them to tether their feelings of personal agency to the group. Such feelings of agency should, in turn, predispose people to take action on behalf of the group by protecting fellow group members. In fact, recent research has demonstrated that feelings of agency mediated the relationship of fusion to progroup behavior (Swann, Gómez, Huici, et al., 2010, Studies 3–4).

Yet if agency explains why fused people translate their progroup sentiments into corresponding actions, it fails to specify why fused people are especially likely to endorse extreme behaviors, actions that most would see as risky. The perceptions of reciprocal strength engendered by fusion may be critical here. Insofar as fused persons believe that they and other group members synergistically strengthen each other, fused persons may conclude that they are invulnerable relative to actors who do not enjoy complete confidence that their fellow group members will act on their behalf. Feelings of invulnerability have been linked to the propensity to engage in dangerous behavior (see e.g., Greene, Krcmar, Walters, Rubin, & Hale, 2000; Ravert et al., 2009). Hence, fusion may foster perceptions of invulnerability, and such perceptions may, in turn, motivate extreme progroup behavior.

In short, our goal here is to provide a richer, more complete account of the causal impact of fusion by determining whether the feelings of connectedness and reciprocal strength associated with fusion give rise to feelings of agency and invulnerability that, in turn, combine to foster endorsement of extreme behaviors. To test our mediational hypotheses, we determined whether (a) fusion is related to the two mediators (agency and invulnerability), (b) the two mediators are related to endorsement of progroup action, and (c) controlling for the effects of the mediators eliminates the relationship between fusion and endorsement of progroup behavior.

To test this mediational model, we first developed a measure of fusion that directly assessed the feelings of connectedness and reciprocal strength theoretically associated with fusion. Past research relied exclusively on a pictorial measure that was derived

from a measurement device designed to assess attachment in close relationships (see e.g., Aron, Aron, & Smollan, 1992; see also Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Maner et al., 2002). Composed of a series of pictures that represent different degrees of overlap between the self and other, the Inclusion of Other in Self (IOS) scale (Aron et al., 1992) was conceptualized as a measure of the degree to which people possess a "sense of being interconnected with another" that entails a tendency to view the self as "including resources, perspectives, and characteristics of the other" (p. 598). Several group researchers (Coats, Smith, Claypool, & Banner, 2000; Smith & Henry, 1996; Tropp & Wright, 2001) adapted the IOS to capture alignment of respondents with groups. Building on this work, Schubert and Otten (2002) added an option in which the self and group were completely overlapping. Swann et al. (2009) further modified this measure by creating a scale in which participants selected from among five pictures the one that best represented their relationship with the group. Scores on the scale were distributed bimodally, with "fused" persons selecting the most extreme option in which the circle representing the "self" was completely immersed in the larger circle representing the "group" and nonfused persons selecting the other four options (for a discussion of the psychometric properties of the fusion scale, see Swann et al., 2009).

Yet if the strong track record of the pictorial measure of fusion seems to support the adage that "a picture is worth a thousand words," it remains unclear precisely which "words" participants have in mind when they endorse the fused option. To be sure, participants' informal accounts (Swann et al., 2009) generally supported the notion that the state of fusion truly reflects the connectedness and reciprocal strength constructs that are thought to underlie fusion. That said, the validity of retrospective reports have been challenged (see e.g., Nisbett & Wilson, 1977). A more compelling way to establish that connectedness and reciprocal strength actually do underlie the state of identity fusion would be to devise an instrument that specifically focuses on these constructs. To this end, we developed and validated a verbal measure of identity fusion.

In the process of validating our new measure of identity fusion, we addressed three shortcomings of earlier research on this topic. First, all of the research has been conducted with Spanish nationals residing in Spain, raising the possibility that fusion effects might be restricted to members of this group. Second, the pictorial measure that has been employed in earlier fusion research consists of a single item only, and single-item scales are notoriously unreliable in many applications (see e.g., Churchill, 1979; Guilford, 1954; Nunnally, 1978). Third, because scores on the pictorial measure have been distributed bimodally when completed by Spanish nationals, it was necessary to treat it as a dichotomous index. In general, dichotomous indices are less powerful than continuous ones (see e.g., Nunnally, 1978), and in the all-too-common instances in which endorsement of the fused option is low (e.g., fusion with the United States is typically in the vicinity of 20%), recruitment of sufficient numbers of fused participants is challenging (in this instance and hereafter, *fused participants* refers to endorsers of the "E" option on the pictorial measure of fusion). More generally, the bimodal distribution could be an artifact of how participants construed the layout of the pictorial options; if so, then scores on a verbal measure of identity fusion, or even the scores of non-Spaniards on the pictorial measure,

might be distributed normally. The development of a verbal measure of fusion may therefore not only add a new assessment device to the methodological toolbox of future fusion researchers but it may inform our conceptualization of fusion.

Overview of Studies

To deepen our understanding of the antecedents of extreme progroup behavior, we sought to learn more about the nature of identity fusion and simultaneously address the methodological and psychometric shortcomings associated with the pictorial measure of fusion. To these ends, we developed and validated a verbal measure of fusion. The measure was designed to tap both of the core features of identity fusion: (a) perception of connectedness with the group and (b) reciprocal strength. Upon creating an initial pool of items for the scale, we asked both American and Spanish participants to complete it and identify items that they perceived to be confusing (Studies 1a and 1b). We then had another sample of participants complete the scale to evaluate its psychometric properties (Study 1c). Factor structure and internal consistency were assessed, and items that diminished coherence of the scale were deleted. To assess temporal stability, we had another sample of participants complete the scale once and then again 6 months later (Study 2).

Two studies (Studies 3a and 3b) were conducted to assess discriminant validity. Most important, we tested the hypothesis that fusion is related to, but distinct from, group identification, the standard measure of alignment with groups. To further assess discriminant validity and examine convergent validity, in Study 4 we covaried the verbal fusion scale with the earlier pictorial measure as well as several other scales that we did, or did not, expect to be related to the newly developed verbal fusion measure.

We then conducted a series of investigations of predictive validity. In Study 5, we determined whether fusion assessed at one point in time predicted endorsement of fighting and dying 6 months later. The next two studies in this series (6a and 6b) investigated the responses of Spaniards to interpersonal variations of the trolley dilemma. Two additional studies (7a and 7b) focused on the willingness of immigrants to Spain to fight and die for their country of origin. Finally, the last study in this series (8) examined the willingness of American participants to fight and die for their country.

The last two studies focused on the nomological validity of the verbal fusion scale. In Study 9, we asked whether the relationship between fusion and extreme actions for the group might be mediated by feelings of agency and invulnerability. In Study 10, we sought to replicate evidence for the functional equivalence assumption of the identity fusion formulation (Swann et al., 2009, Experiment 1 and 2): Does challenging a personal self-view amplify endorsement of extreme behavior for the group among strongly fused individuals but not among weakly fused persons?

Scale Construction and Psychometric Analysis: Studies 1–2

In the first series of studies, independent samples of individuals responded in parallel to a series of 13 items that we believed might tap identity fusion. For each item, respondents indicated the extent to which they felt that the statement reflected their relationship

with their country on a scale ranging from 0 (*strongly disagree*) to 6 (*strongly agree*). Participants in Studies 1a, 1c, and 2 were Spanish undergraduates at the Universidad Nacional de Educación a Distancia (UNED) in Madrid, Spain, who completed the study on the web. Participants in Study 1b were Americans (predominantly nonstudents) who completed the study through the website Mechanical Turk (for a discussion of properties of this participant population, see Buhrmester, Kwang, & Gosling, in press).

Studies 1a–1c were designed to identify items to be included in the scale. Studies 1a and 1b were specifically designed to determine whether all items made sense to participants. To this end, we had participants complete the scale and indicate which, if any, of the original 13 items struck them as ambiguous or confusing. Cognizant that cultural and linguistic differences might influence perceptions, after creating and back-translating Spanish- and English-language versions of the scale, we had separate samples of 433 Spaniards (72% women; mean age = 32.45 years, *SD* = 10.28) and 357 Americans (67% women; mean age = 34.79, *SD* = 12.23) complete the scale in their native language. Each sample identified one item as confusing, leading us to designate both items for deletion from all subsequent analyses.

Study 1c was designed to prune from the scale any items that failed to capture a unitary fusion construct. To this end, 1,981 Spanish undergraduates (72% women; mean age = 31.64, *SD* = 9.51) completed the 13 original items. After deletion of the two items that were identified as confusing in Studies 1a and 1b, we conducted a principle components factor analysis on the remaining 11 items. Three factors emerged, with factor one accounting for more variance than did the other factors (Factor 1 = 40.12%, Factor 2 = 15.96%, and Factor 3 = 9.73%). We accordingly assumed that Factor 1 best captured the fusion construct and subsequently deleted four items because they failed to load above .50 on Factor 1 or loaded >.50 on one of the other two factors.

To test whether the remaining seven items captured a unitary construct, we conducted two confirmatory factor analyses (CFAs) using Analysis of Moment Structures (AMOS; Arbuckle, 1997). A one-factor model revealed a good fit, with the fit indices exceeding the .930 benchmark (comparative fit index [CFI] = .989, normed fit index [NFI] = .987, goodness-of-fit index [GFI] = .991) and the residual index falling below the .08 benchmark (root-mean-square error of approximation [RMSEA] = .053). Nevertheless, mindful that the items we designed to capture feelings of connectedness (Items 1–4) and reciprocal strength (Items 4–7) might load on different factors, we compared the fit of a one-factor model with the fit of a two-factor (connectedness and reciprocal strength) model. The fit for the one-factor model was superior to the one for a two-factor model (CFI = .971, NFI = .969, GFI = .977) and the residual index (RMSEA = .083). Note that the results of a Shapiro–Wilk test (W = .976, p < .001) indicated that scores on the measure of verbal fusion were normally distributed (this was also true of all 10 studies in the article).

In short, the final seven-item scale contained a single factor that accounted for 51.60% of the variance and had a coefficient alpha of .84. The final items and factor loadings are displayed in Table 1. Note that the correlation between the verbal and pictorial measure in Study 1c was substantial, $r(1979)$ = .58, p < .001. Nevertheless, despite this sizeable correlation, in all regression analyses the variance inflation factor was always lower than 10 (i.e., ≤2.35), ruling out concerns regarding multicollinearity, and

Table 1

Factor Loadings for Items in the Spanish- and English-Language Versions of the Verbal Fusion Scale Used in Studies 1c and 8

Item	Study 1c (Spanish sample)	Study 8 (U.S. sample)
I am one with my country.	.787	.722
I feel immersed in my country.	.696	.616
I have a deep emotional bond with my country.	.741	.794
My country is me.	.655	.778
I'll do for my country more than any of the other group members would do.	.707	.851
I am strong because of my country.	.744	.757
I make my country strong.	.690	.682

Note. These factor loadings are based on a principle-axis factor analysis with a single-factor solution specified.

in none of the studies reported in this article did the correlation between the verbal and pictorial measures of fusion exceed .68. These correlations, as well as the vital statistics for all 10 studies, can be found in Table 2.

Study 2 focused on the temporal stability of the verbal fusion scale. Spanish undergraduates (N = 652) completed indices of identity fusion measured verbally and pictorially and a measure of identification (Mael & Ashforth, 1992; items are included in Table 3). Six months later, 620 participants from the original sample (73% women; mean age = 32.64, *SD* = 9.14) completed all measures again. The test–retest correlation for the verbal fusion scale was respectable, $r(618)$ = .71, p < .001. This stability index exceeded the stability of the pictorial measure of fusion, $r(618)$ = .56, p < .001, z = 4.16, p < .001, which in turn exceeded the stability of the identification scale, $r(618)$ = .44, z = 2.82, p < .01. Moreover, alphas for the fusion scale were .82 and .87 at Time 1 and Time 2, respectively. The alphas for the identification scale were slightly lower: .78 and .76 at Time 1 and Time 2, respectively. It thus appears that the verbal fusion scale is equivalent to the identification scale in internal consistency but has higher temporal stability than both the identification and pictorial measure of fusion.

Discriminant and Convergent Validity: Studies 3–4

To date, the "gold standard" measure of alignment with groups has been group identification. For this reason, it is crucial to demonstrate that the new verbal fusion scale is distinct from extant measures of identification. In selecting a measure of identification as a standard of comparison, we searched for the identification scale that seemed most likely to compete successfully with our measure of fusion. In an initial effort to identify this scale, Swann et al. (2009) correlated the pictorial fusion measure with three measures of identification from these sources: Jetten, Branscombe, Schmitt, and Spears (2001); Mael and Ashforth (1992); and Tropp and Wright (2001). The results indicated that Mael and Ashforth's scale was more strongly associated with fusion, $r(198)$ = .56, p < .01, than was Jetten et al.'s scale, $r(112)$ = .26, or Tropp and

Table 2
Summary of the Studies

Study	N	% Fused (pictorial scale)	Participants	Fusion pictorial and fusion verbal correlation	Identity fusion (verbal) M	Identity fusion (verbal) SD	Identification[a] M	Identification[a] SD	t
1a	433	35	Spaniards	.54***	2.13	1.23	3.27	1.28	13.35***
1b	357	27	Americans	.43***	2.12	1.32	3.65	1.15	15.63***
1c	1,981	27	Spaniards	.58***	2.03	1.13	3.08	1.22	16.75***
2		32	Spaniards						27.52***
Time 1	652			.61***	2.01	1.07	3.25	1.21	
Time 2	620			.62***	1.97	1.22	3.10	1.23	
3a	1,000	34	Spaniards	.55***	2.02	1.07	3.37	.97	35.92***
3b	889	33	Spaniards	.57***	2.08	1.34	3.57	1.25	35.81***
6a	92	38	Spaniards	.61***	2.70	1.52	3.56	1.34	6.06***
6b	93	33.3	Spaniards	.59***	2.63	1.67	3.48	1.37	7.06***
7a	79	19	Immigrants	.46***	2.06	1.28	3.47	1.30	10.13***
7b	37	19	Immigrants	.63***	2.10	1.21	3.50	1.24	8.11***
10	137	29	Spaniards	.68***	2.52	1.55	3.37	1.44	8.36***

Note. Studies 4, 5, 8 and 9 do not appear in the table because the data would be identical to those of the other studies that used the same sample. Specifically, Study 4 used the Study 1c sample, Study 5 used the Study 2 sample, Study 8 used the Study 1b sample, and Study 9 used the Study 1c sample.
[a] Mael & Ashforth (1992).
*** $p < .001$.

Wright's scale, $r(248) = .23$. More recently, Swann, Gómez, Huici, et al. (2010) showed that when it comes to predicting endorsement of the extreme progroup behaviors that have been the focus of fusion research, no measure of identification outperformed the fusion measure, but Mael and Ashforth's (1992) measure of group identification was a stronger predictor of progroup behavior than was a recently developed scale created by Leach et al. (2008). Considered together, these findings suggest that if there is one identification scale that is likely to compete successfully with our fusion measure in predicting progroup behavior, it is Mael and Ashforth's. We accordingly used Mael and Ashforth's scale as the representative identification scale.

Studies 3a and 3b were designed to determine whether identity fusion is distinct from identification. In Study 3a, 1,000 Spanish undergraduates (68% women; mean age = 35.33, SD = 9.73) completed the verbal fusion (α = .83) and identification (α = .88) scales. We then submitted these responses to an exploratory factor analysis. As shown in Table 3, two factors emerged, with the first factor including the seven items from the verbal fusion scale and a second factor including the six items from the identification scale.

To verify the factor structure and test our assumption that fusion and identification were distinct constructs, in Study 3b we asked 889 Spanish undergraduate students (75% women; mean age =

Table 3
Summary of Exploratory Factor Analysis for Identity Fusion and Identification for Study 3a Using Maximum Likelihood Estimation (N = 1,000)

Item	Factor loadings Identity fusion	Factor loadings Identification[a]
I am one with my country.	**.78**	.22
I feel immersed in my country.	**.59**	.23
I have a deep emotional bond with my country.	**.65**	.10
My country is me.	**.72**	.04
I'll do for my country more than any of the other group members would do.	**.64**	.38
I am strong because of my country.	**.62**	.37
I make my country strong.	**.60**	.29
When someone criticizes my country, it feels like a personal insult.	.27	**.78**
I am very interested in what citizens of others countries think about my country.	.28	**.59**
When I talk about my country, I usually say "we" rather than "they."	.38	**.65**
Successes of my country are my successes.	.25	**.80**
When someone praises my country, it feels like a personal compliment.	.32	**.83**
If a story in the media criticized my country, I would feel embarrassed.	.33	**.65**
Eigenvalues	3.97	3.43
% of variance	30.54	26.37

Note. Factors loading over .40 appear in bold, and items in italics are from Mael and Ashforth's (1992) scale.
[a] Mael & Ashforth (1992).

27.91, $SD = 7.66$) to complete the verbal fusion scale ($\alpha = .84$) and the identification index ($\alpha = .81$). We conducted a CFA using AMOS to test whether the two-factor model (seven-item fusion factor and six-item identification factor) generated by the exploratory analysis could be confirmed in a new data set. Items were permitted to load on only the components they were expected to load on, and no item errors were permitted to correlate. The two-factor model displayed in Figure 1 revealed a good fit, with the fit indices exceeding the .930 benchmark (CFI = .962, NFI = .950, GFI = .962) and the residual index falling below the .08 benchmark (RMSEA = .056). The two-factor model presents a better fit than an alternative model in which all the items load on a single latent variable (CFI = .911, NFI = .899, GFI = .919) and the residual index falling over the .08 benchmark (RMSEA = .088).

Having shown that verbal fusion is distinct from identification, in Study 4 we proceeded to examine the relationship of the fusion scale to potentially related constructs. We expected that, on the basis of the assumption that feelings of connectedness motivate fused people to tether their feelings of agency to progroup behavior, identity fusion would be associated with agency for the group. In addition, we expected that, on the basis of the assumption that fused people believe that the self and group synergistically strengthen one another, identity fusion would be associated with a perception of invulnerability. At the same time, we hoped to rule out the possibility that fusion merely tapped a personality trait, such as self-efficacy, empathy, aggressiveness, self-concept clarity, or essentialism.

To address these issues, we asked 1,981 Spaniards (whose responses to the fusion scale were also used for the factor analysis conducted in Study 1c) to complete measures of each of the potentially related constructs discussed in the foregoing paragraph. With the one exception described in the next paragraph, participants indicated their responses on 7-point scales ranging from 0 (*totally disagree*) to 6 (*totally agree*).

For the measure of *agency*, we used five items based on Haggard and Tsakiris's (2009) discussion of the agency construct (see also Swann, Gómez, Huici, et al., 2010). With reference to Spain, participants rated their agreement with the following: "I am able to control what my group does," "I am able to control what my group does in the same way that I control what I do," "I usually feel responsible for what my group does," "I am responsible for my group's actions," and "I feel as responsible for what my group does as for what I do." These items formed a cohesive scale ($\alpha = .79$).

For the measure of *invulnerability,* we developed a five-item scale. Participants indicated their degree of agreement with the following items: "In the face of danger, I am convinced that my group and I will survive," "Nothing bad can happen to me or my group," "Anything could damage me or my group" (reverse-scored), "My group is less vulnerable than most other groups," and "My group will be able to cope with any sort of threat." The scale was internally consistent ($\alpha = .73$).

We assessed *self-concept clarity* because it seemed possible that identity fusion might be especially high among people who enjoy high levels of self-concept clarity. To assess self-concept clarity, we had participants complete the seven-item scale developed by Campbell et al. (1996). Like self-concept clarity, individual differences in *self-efficacy* might also encourage people to fuse with their group. To test this possibility, we used Jerusalem and Schwarzer's (1992) six-item scale. We speculated that *empathy* might foster the strong feelings of group alignment inherent in fusion. We accordingly assessed empathy using a shortened 12-item version of Davis's (1980, 1983) measure.

Theoretically, individuals with a more essentialized view of people (e.g., one that holds that differences are rooted in biological and genetic differences) should be more sensitive to social categorization and group differences, and this could contribute to fusion. We accordingly assessed *essentialism* using a four-item scale developed by Bastian and Haslam (2006). Individual differences in aggressiveness could also be responsible for the enhanced agency and strength that characterizes fusion. For the measure of *aggressiveness*, we used the nine-item scale originally developed by Buss and Perry (1992) and later adapted to the Spanish population by Andreu, Peña, and Graña (2002).

The results in Table 4 largely supported our predictions. That is, verbal fusion was independent of individual differences in self-concept clarity, self-efficacy, empathy, aggressiveness, and essentialism. This finding is important because it suggests that the temporal stability of scores on the verbal fusion measure does not reflect a tendency for one of the foregoing traits to masquerade as fusion. In contrast, the measure of verbal fusion appears to be especially effective in capturing feelings of agency and invulnerability, feelings that we believed would mediate the relationship of fusion to endorsement of extreme behavior. Before testing this possibility (see Study 9), we examine the predictive validity of the verbal fusion scale.
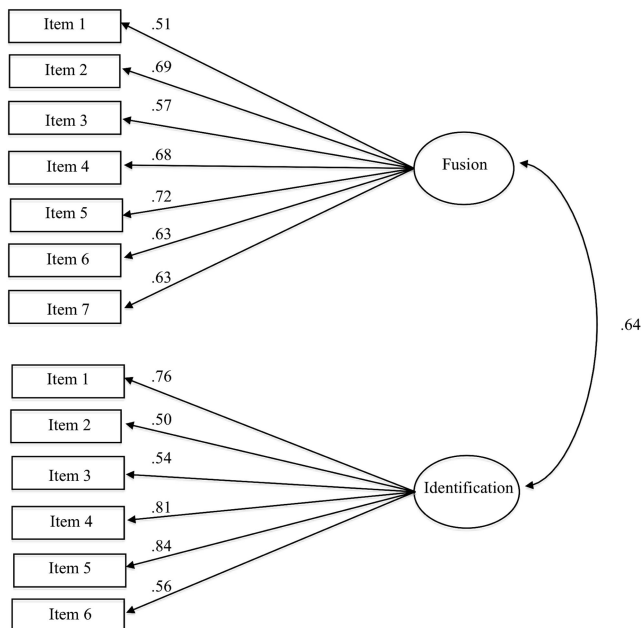

Figure 1. Confirmatory factor analysis for Study 3b, including the seven-item scale of identity fusion and the six-item scale from Mael and Ashforth (1992). The disattenuated correlation between fusion and identification is significantly lower than 1 ($p < .001$).

Table 4

Convergent and Discriminant Validity in Study 4

	Fusion		
Construct	Verbal	Pictorial	Identification[a]
Related			
Feelings of agency	.413***	.236***	.098***
Invulnerability	.393***	.265***	.102***
Unrelated			
Self-concept clarity	−.045*	.040	−.110***
Self-efficacy	.170***	.118***	.091***
Empathy	.058*	.043	.062**
Aggressiveness	.014	.064**	−.023
Essentialism	.130**	.050*	.120**

[a] Mael & Ashforth (1992).
* $p < .05$. ** $p < .01$. *** $p < .001$.

Predictive Validity: Studies 5–8

In this series of studies, we compared the predictive validity of the verbal fusion scale with that of the pictorial fusion and identification scales. The criterion variables were the ones featured in most past research on identity fusion: endorsement of extreme progroup actions (i.e., fighting and dying for the group; Swann, Gómez, Huici, et al., 2010; Swann et al., 2009) and willingness to sacrifice one's life in interpersonal variations of the trolley dilemma (see e.g., Swann, Gómez, Dovidio, et al., 2010). We began by determining whether the scale was predictive of endorsement of extreme progroup action over a 6-month period (Study 5). We then explored its capacity to predict responses to the trolley dilemma in Spain (Studies 6a and 6b). To determine whether fusion effects generalized to members of other cultures, we asked whether the scale could predict the responses of immigrants to Spain from 22 different countries both contemporaneously (Study 7a) and after a 6-month delay (Study 7b). Finally, to generalize our findings to speakers of English as well as Spanish, we assessed the factor structure, internal consistency, and convergent and discriminant validity of an English-language version of the scale and then assessed its predictive validity with American participants (Study 8).

Study 5. Does the Verbal Fusion Scale Predict Endorsement of Fighting and Dying for the Group a Half-Year Later?

To test this possibility, we asked 620 Spanish undergraduates (whose responses were also examined in Study 2) to complete measures of our three predictors. Six months later, we assessed their willingness to fight and die for their group. For the measure of *willingness to fight for the group*, on 7-point scales ranging from −3 (*totally disagree*) to 3 (*totally agree*), participants rated their agreement with five items (e.g., "I would fight someone physically threatening another Spaniard"). For the measure of *willingness to die for the group*, participants indicated their agreement with two items (e.g., "I would sacrifice my life if it saved another group member's life"). Because past research has shown that the measures of willingness to fight and die are conceptually overlapping and highly correlated (Swann et al., 2009), we combined them into

a single index dubbed *endorsement of extreme progroup behaviors* ($\alpha = .81$).

To determine how effectively each of the three predictor variables predicted endorsement of extreme behavior, we ran a multiple regression in which the predictors were pictorial fusion (effect coding: −1, 1) and verbal fusion and identification (both centered). As can be seen in the top row of Table 5, the verbal fusion measure and the pictorial fusion measure were stronger predictors than was identification ($zs > 1.84$, $ps < .05$), with more fusion leading to more endorsement of extreme behavior. No difference was produced between the pictorial and the verbal measures of fusion ($p > .22$).

One could argue that the verbal fusion scale was such a strong predictor of the outcome measure (endorsement of extreme progroup behavior) due to overlap in the content of the items in the predictor and outcome measure. Although this seems unlikely given that the fusion measure focuses on feelings about the group and the outcome measure focuses on behavioral intentions, we nevertheless put this possibility to empirical test. First, we conducted an exploratory factor analysis ($N = 889$) that included all items from the measures of verbal fusion and endorsement of extreme behavior. The results indicated that the predictor and outcome measures tapped into two different factors, the first factor including the seven items from the verbal measure (34.96% of variance), and the second factor including the seven items in the endorsement of extreme behavior index (16.09% of variance). Second, we conducted a CFA using AMOS ($N = 1,000$) to determine whether the two-factor model (seven-item fusion factor and seven-item endorsement of extreme behavior factor) generated by the exploratory analysis could be confirmed in a new data set. Items were permitted to load on only the components they were expected to load on, and no item errors were permitted to correlate. The results confirmed the two-factor model, revealing a good fit, with the fit indices exceeding the .930 benchmark (CFI = .955, NFI = .947, GFI = .936) and the residual index falling below the .08 benchmark (RMSEA = .074). The two-factor model presented a better fit than did an alternative model in which all the items loaded on a single latent variable (CFI = .857, NFI = .846, GFI = .870) and the residual index fell over the .08 benchmark (RMSEA = .108).

Studies 6a and 6b: Does the Verbal Fusion Scale Predict Endorsement of Self-Sacrifice Among Spaniards in the Trolley Dilemma?

Studies 6a and 6b are based on two distinct interpersonal variations of the "footbridge dilemma" developed by Swann, Gómez, Dovidio, et al. (2010, p. 1178). In Study 6a, Spanish undergraduates ($N = 92$; 57.6% women; mean age = 33.88, $SD = 6.88$) participated voluntarily in a study that involved responses to moral dilemmas. In counterbalanced order, participants completed the measures of pictorial fusion, verbal fusion ($\alpha = .89$), and identification ($\alpha = .80$), all with reference to the group Spain. Each participant then received a variation of the footbridge dilemma in which a runaway trolley would crush and kill five ingroup members (e.g., Spaniards) unless the participant jumped from the bridge into the trolley's path. Each participant then chose between letting the trolley crush the five ingroup members and sparing them by sacrificing her or his own life.

Table 5
Summary of Regressions, With Standardized Betas and Raw Correlations for Predictors of Endorsement of Extreme Behavior

Study	Verbal measure of fusion			Pictorial measure of fusion			Identification[a]		
	B	b	sr	B	b	sr	B	b	sr
5	0.24***	.25***	.16***	0.20***	.19***	.13***	0.10**	.11**	.09**
7a	0.38***	.46***	.39***	0.22†	.20†	.18†	−0.06	−.07	−.06
7b	0.33**	.45**	.35**	0.41*	.39*	.37*	0.01	.01	.02
8	0.41***	.48***	.33***	0.14*	.11*	.10*	0.18*	.13*	.09*
9	0.40***	.42***	.34***	0.04	.04	.03	−0.04	−.04	−.04
10	0.66***	.51**	.34**	0.22*	.15*	.13	0.13	.10	.07
		Wald	OR		Wald	OR		Wald	OR
6a	1.23**	8.08**	3.42**	0.64*	4.87*	1.90*	0.01	0.01	1.01
6b	1.47*	4.66*	4.36*	1.39*	3.99*	4.03*	−0.10	0.05	0.90

Note. B = raw regression coefficient; b = standardized regression coefficient; sr = semipartial correlation; OR = odds ratio.
[a] Mael & Ashforth (1992).
† $p < .06$.   * $p < .05$.   ** $p < .01$.   *** $p < .001$.

To determine whether our predictor variables were associated with responses to the trolley dilemma, we used a binary logistic regression with three predictors: pictorial fusion (effect coding: −1, 1) and verbal fusion and identification (both centered). The outcome measure was whether participants endorsed jumping to their death versus allowing the trolley to crush five ingroup members. As can be seen in Table 5, the verbal fusion measure was a stronger predictor than was either pictorial fusion or identification, with more fusion leading to more willingness to sacrifice oneself. In addition, the second row of the right column reveals that pictorial fusion was a stronger predictor than was identification. As in previous investigations of this dilemma (Swann, Gómez, Dovidio, et al., 2010), most fused persons (74%) chose to sacrifice themselves and most nonfused persons (79%) chose to let the trolley kill their fellow Spaniards.

The results therefore confirmed our hypothesis that the verbal measure of fusion would predict participants' responses to the trolley dilemma in much the same manner that the pictorial measure did. As in the earlier research, the measure of identification failed to predict participants' responses. To determine whether the effect of the verbal fusion measure would generalize to another variation of the trolley dilemma, we conducted a follow-up investigation.

In Study 6b, Spanish undergraduates (N = 93; 50.5% women; mean age = 34.09, SD = 6.83) participated voluntarily in a study that involved responses to moral dilemmas. In counterbalanced order, participants completed the measures of pictorial fusion, verbal fusion (α = .92), and identification (α = .84), all with reference to the group Spain.

Participants were asked to imagine that it was March 11, 2004, the day when terrorists detonated several bombs in the Atocha trolley station in Madrid. They were standing on a footbridge over several tracks to the station just after the bombs exploded. Suddenly they saw the terrorists running on one set of tracks below. Beside them, another Spaniard was preparing to jump down into the path of an approaching trolley. The Spaniard knew that he would die but also knew that the approaching trolley would avoid him by veering onto the track where the terrorists were running, killing them. The participant was then given the option of either

allowing the other Spaniard to jump or pushing him aside and jumping to his or her own death, causing the trolley to divert and kill the terrorists.

To determine whether our predictor variables were associated with responses to the trolley dilemma, we used a binary logistic regression to test whether pictorial fusion (effect coding: −1, 1) and verbal fusion and identification (both centered) predicted the extent to which participants endorsed allowing the other Spaniard to jump or pushing him aside and jumping. As can be seen in the third row of the left and middle columns of Table 5, the verbal fusion measure was a stronger predictor than was either pictorial fusion or identification, with more fusion leading to more willingness to sacrifice oneself. In addition, pictorial fusion was a stronger predictor than was identification. As in previous investigations of this dilemma (Swann, Gómez, Dovidio, et al., 2010), most fused persons (69%) chose to sacrifice themselves and most nonfused persons (89%) chose to let the fellow Spaniard jump.

The results therefore confirmed our hypothesis that the verbal measure of fusion would predict participants' responses to the trolley dilemma in much the same manner that the pictorial measure did. As in the earlier research, the measure of identification failed to predict participants' responses.

Study 7a: Does the Verbal Fusion Scale Display Criterion Validity Among Immigrants to Spain?

To address this question, we tested 79 students at UNED (84.8% women; mean age = 31.05, SD = 7.74) who had immigrated from 22 different countries (approximately 50% were from South America, 30% were from Eastern Europe, and 20% were from Western Europe). The students had been residing in Spain for 3–5 years. When nationality or time in Spain were entered into the analyses, no effects of either variable emerged.

All completed the three predictors (i.e., αs = .83 for the verbal measure of fusion and .67 for identification). The referent for the measures of fusion, identification, and endorsement of extreme progroup behavior (α = .77) was always their country of origin. To assess how strongly each of the three predictor variables was associated with endorsement of extreme behavior, we ran a mul-

tiple regression in which the three predictors were entered simultaneously. As can be seen in Table 5, the verbal fusion measure was a stronger predictor than was either pictorial fusion or identification ($zs > 1.81$, $ps < .05$), with more fusion leading to more endorsement of extreme behavior. In addition, pictorial fusion was a stronger predictor than was identification ($z = 1.68$, $p < .05$).

Study 7b: Does the Verbal Fusion Scale Display Predictive Validity Among Immigrants to Spain a Half-Year Later?

To test this possibility, we asked 37 immigrants (86.5% women; mean age = 30.86, $SD = 8.39$) from 16 different countries to complete measures of our three predictors.

In counterbalanced order, participants completed the measures of pictorial fusion, verbal fusion ($\alpha = .82$), and identification ($\alpha = .69$). Six months later, participants completed the measure of endorsement of extreme behavior ($\alpha = .84$).

To assess how strongly each of the three predictor variables was associated with endorsement of extreme behavior, we ran a multiple regression in which each of our predictors was entered simultaneously. As can be seen in Table 5, the verbal and the pictorial fusion measures were stronger predictors than was identification ($zs > 1.66$, $ps < .05$), with more fusion leading to more endorsement of extreme behavior.

Study 8: Does the Verbal Fusion Scale Display Sound Psychometric Properties and Predictive Validity Among American Participants?

To cross-validate our measure of verbal fusion among English speakers, we had one sample of Americans complete the English language version of the fusion scale developed in Study 1c. Participants volunteered to participate via Amazon's Mechanical Turk data collection platform for 10 cents (see Buhrmester et al., in press, for evidence of the platform's validity at low payment levels). In Study 8, we asked 357 participants (67% women; mean age = 34.79, $SD = 12.23$) to first complete the pictorial fusion item, the verbal fusion scale ($\alpha = .87$), and the measure of group identification ($\alpha = .79$) in counterbalanced order and in reference to America.

Table 1 presents the items in the verbal fusion scale and the factor loadings of each item. The verbal fusion factor accounted for 55.70% of the variance. We conducted a CFA using AMOS as we did in Study 1c to test whether the one-factor model could be confirmed. The one-factor model revealed a good fit, with the fit indices exceeding the .930 benchmark (CFI = .982, NFI = .969, GFI = .975) and the residual index falling below the .08 benchmark (RMSEA = .070). The one-factor model presented a better fit than did an alternative two-factor model (CFI = .969, NFI = .956, GFI = .964) and the residual index (RMSEA = .092). We also examined correlations between the verbal fusion scale, the pictorial fusion measure, and the measure of identification. The verbal fusion scale was more strongly related to the pictorial fusion measure than was identification, $rs(355) = .43$ and .29, respectively ($z = 2.15$, $p < .01$).

The foregoing data indicate that the English version of the verbal fusion scale is similar to the Spanish version in factor structure and in some key indices of convergent and discriminant

validity. Encouraged, we proceeded to examine the predictive validity of the English-language verbal fusion scale. To this end, we tested participants' endorsement of extreme progroup behavior using an abbreviated version of the Swann et al.'s (2009) measure that included two items assessing willingness to fight for, and die for, one's country ($\alpha = .89$).

To assess how effectively each of the three predictor variables predicted endorsement of extreme behavior, we ran a multiple regression analysis in which each of our predictors was entered simultaneously. As can be seen in Table 5, the verbal fusion measure was a stronger predictor than was either pictorial fusion or identification ($zs > 3.38$, $ps < .001$). No difference appeared between the pictorial measure of fusion and identification ($z = .55$, $p = .29$). Apparently when the pictorial and verbal measures of fusion were entered into the regression simultaneously, the verbal measure accounted for much of the variance that would otherwise have been associated with the pictorial measure.

Nomological Validity: Studies 9–10

Nomological validity is a form of construct validity that reflects the degree to which the construct behaves as it should within a system of related constructs. To assess the nomological validity of the verbal fusion scale, we conducted two studies. In the first, we asked whether the predicted relationship between fusion and endorsement of extreme behavior would be mediated by two variables: feelings of agency and invulnerability. In the second, we sought to replicate crucial evidence for the fusion construct that was first reported by Swann et al. (2009, Experiments 1 and 2). Specifically, in support of the notion that personal and social self-views are functionally equivalent among fused persons, they discovered that activating a personal self-view amplified endorsement of extreme progroup behavior among fused, but not nonfused, individuals.

Study 9. Would the Relationship Between Fusion and Endorsement of Extreme Progroup Action be Mediated by Feelings of Agency and Invulnerability?

To address this question, we asked 1,981 Spaniards (whose responses were also used in Studies 1c and 4) to complete measures of our three predictors (i.e., identity fusion measured verbally [$\alpha = .84$] and pictorially, and identification [$\alpha = .87$]), two potential mediator variables (i.e., feelings of agency and invulnerability), and Swann et al.'s (2009) measure of endorsement of extreme action (i.e., fighting and dying [$\alpha = .81$]) for the group.

We began by regressing the three predictors simultaneously on extreme behavior for the group. As shown in Table 5, only verbal measure predicted endorsement of extreme behaviors for the group.

After this, we correlated the two potential mediators with our outcome measure. Endorsement of extreme behaviors for the group was significantly and positively correlated with feelings of agency, $r(1979) = .30$, and invulnerability, $r(1979) = .33$ (all $ps < .001$).

To test whether the relationship between identity fusion and endorsement of extreme behavior for the group were mediated by two potential mediators of this effect while controlling for identification, we conducted a pair of mediational analyses. In the first

analysis, pictorial fusion was the predictor; in the second, verbal fusion was the predictor. Following Preacher and Hayes (2008), we controlled for the main effect of identification by including it as a covariate. Using the SPSS macro provided by Preacher and Hayes, we conducted a bootstrapping test (n boots $= 5,000$) for the model.

Figure 2 displays the mediational analysis when the pictorial measure of fusion was considered while controlling for identification. The results of the analysis indicate that feelings of agency and invulnerability partially mediated the effect of pictorial fusion on endorsement of extreme behavior for the group (none of the confidence intervals of the bootstrapping at the 95% confidence interval for each of the potential mediators included zero, but the effect of pictorial fusion remained significant when the mediators were included in the equation). Figure 3 shows a similar pattern when verbal fusion was the predictor. In this instance, however, there was full mediation: When feelings of agency and invulnerability were entered into the equation, the effects of verbal fusion were no longer significant. With this evidence in hand, we proceeded to ask whether, using the verbal fusion scale, we could replicate crucial evidence for the functional equivalence of the personal and social self.

Study 10: Does Activating a Personal Self-View Amplify Endorsement of Extreme Behavior for the Group Among Strongly Fused Individuals but Not Among Weakly Fused Individuals?

Crucial support for the identity fusion formulation came from Swann et al.'s (2009, Experiments 1 and 2) discovery of compensatory self-verification processes (see e.g., Swann & Hill, 1982) among fused persons. To test the compensatory self-verification hypothesis, the investigators challenged the personal identities of fused persons by providing them with evaluations that contained feedback that was notably more positive than the actual self-views held by the participants (note that challenging their positive self-views with negative feedback would have diminished theoretical precision because such a challenge could trigger either self-verification of self-enhancement strivings). The results indicated that the challenge manipulation increased endorsement of extreme

progroup behaviors by fused persons but not nonfused persons. By showing that challenging the personal self-views of fused persons had effects similar to challenging their social self-views, this study demonstrated that personal and social identities were functionally equivalent among fused persons. The key goal of Study 10 was to replicate this important finding using the verbal fusion measure.

Method. Spanish high school students volunteered to participate in this research. The experiment was conducted in two waves separated by 7 months. There was relatively little attrition between the two waves, with 160 students completing Wave 1 and 137 participants (50% female; mean age $= 15.72$, $SD = 1.26$) completing Wave 2.

We altered the procedure used by Swann et al. (2009) in three important ways. First, we had participants complete the verbal as well pictorial measure of fusion. Second, we added a baseline control condition in which participants received no feedback whatsoever. Third, whereas in the earlier studies participants learned that the source of the feedback was an ingroup or outgroup member, in this study the source was a neutral expert. The design therefore included three factors: challenge of personal identities (verified, challenged, control), fusion, and identification.

During Wave 1, participants completed several personality scales and indicated how they behave when they are at school, with their friends, with their families, with unknown people, etc. During Wave 2, participants responded in counterbalanced order to the verbal measure of fusion ($\alpha = .90$), the pictorial measure of fusion, and the identification scale ($\alpha = .86$). Participants then learned that the questionnaires they had completed during Wave 1 had been evaluated by a group of psychologists who had prepared an individual report about each participant. Participants who were randomly assigned to the challenge condition learned that the psychologists had formed impressions that were more positive than the participants' self-views on four of the five dimensions that were evaluated (the five representative self-views were shy, insecure, stubborn, nervous, and distrustful). Participants in the verifying condition learned that the psychologists had formed impressions that confirmed participants' self-views on four of the five dimensions that were evaluated. Participants in the control condition received no feedback. After the experimental manipulation, participants responded to the measure of endorsement of extreme
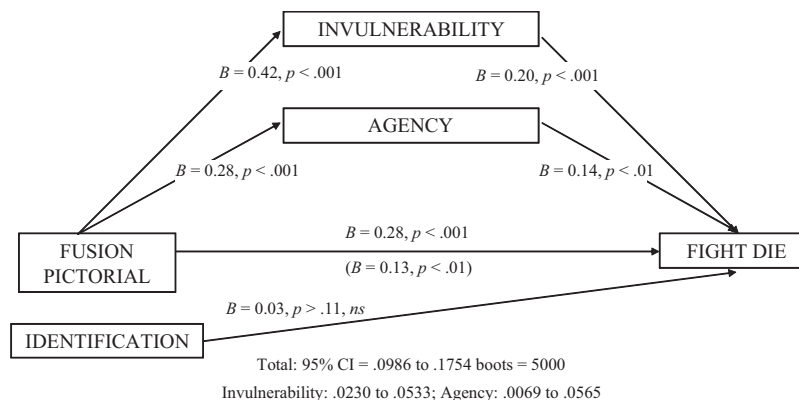

Figure 2. Study 9 reveals that agency, invulnerability, and loyalty partially mediate the effect of pictorial fusion on endorsement of extreme behavior for the group. Numbers in parentheses refer to the beta after the mediators were added to the regression equation. CI = confidence interval.

Figure 3.   Study 9 reveals that agency, invulnerability, and loyalty partially mediate the effect of verbal fusion on endorsement of extreme behavior for the group. Numbers in parentheses refer to the beta after the mediators were added to the regression equation. CI = confidence interval.
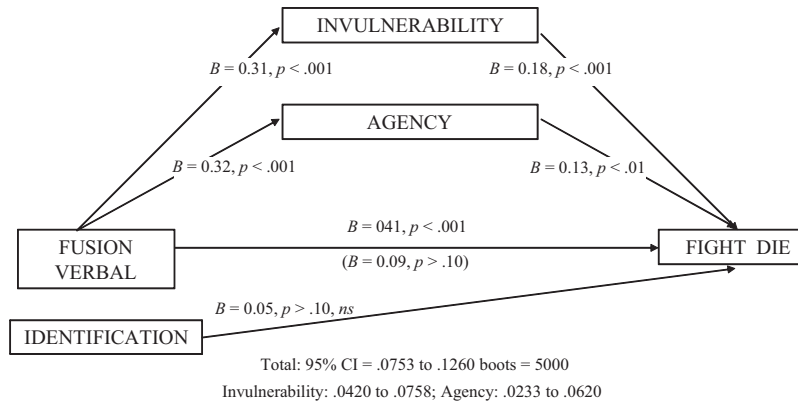
behavior for the group on a scale ranging from 0 (*totally disagree*) to 6 (*totally agree*; $\alpha = .84$).

To determine whether the challenge manipulation influenced participants' perception that the psychologists saw them as they saw themselves, we asked participants to rate the following three items on a 7-point scale ranging from 0 (*totally disagree*) to 6 (*totally agree*): "The evaluators of my questionnaire have treated me in such a way that they have made me feel understood," "The evaluators of my questionnaire understand me," and "The evaluators of my questionnaire see me as I see myself." The resulting scale was internally consistent ($\alpha = .92$).

To assess the effectiveness of the challenge manipulation, we conducted a pair of multiple regressions. We first regressed the challenge manipulation (two dummy-coded variables were created with the control condition as the reference group: Dummy Code 1 compared the verify condition with the control condition, whereas Dummy Code 2 compared the challenge condition with the control condition), pictorial fusion (effect coding: –1, 1), identification (centered), and all two-way and three-way interactions on perceptions of the evaluation; we then repeated this analysis substituting verbal fusion for pictorial fusion. The effect of Dummy Code 2 was significant for the first regression, including pictorial fusion among the predictors, $B = -1.17$, $t(125) = -2.36$, $p < .05$, as well as for the second regression, including verbal fusion among the predictors, $B = -0.99$, $t(125) = -2.14$, $p < .05$. This indicates that participants in the challenge condition ($M = 2.75$, $SD = 1.65$) felt less verified than did participants in both the control condition ($M = 3.57$, $SD = 1.73$) and the verified condition ($M = 3.66$, $SD = 1.49$; both $ps < .05$). No other main or interaction effects were significant ($ps > .11$).

Results and discussion.   To determine whether fusion and challenge interactively predicted endorsement of extreme behavior for the group and also whether the verbal measure of fusion had the same effect as did the pictorial measure of fusion, we conducted a pair of regressions, first for the pictorial measure of fusion and then for the verbal measure of fusion.

We tested our hypothesis using multiple regression analyses. Endorsement of extreme behavior for the group was regressed onto identification (centered), fusion (effect coding: –1, 1), Dummy Code 1, Dummy Code 2, and the two- and three-way interactions.

There was an interaction between fusion and the Dummy Code 2 ($B = 0.85$), $t(125) = 2.78$, $p < .01$. As shown in Figure 4A, fused participants expressed more endorsement of extreme behavior for the group in the challenge condition ($M = 4.06$, $SD = 1.11$) than did participants in the control condition ($M = 2.65$, $SD = 1.27$), $t(25) = 3.02$, $p < .01$. In contrast, among nonfused participants, those in the challenge condition ($M = 1.71$, $SD = 1.13$) were no more inclined to endorse extreme actions than were those in the control condition ($M = 1.45$, $SD = 1.67$), $t(60) = 0.95$, $p = .34$. There was no significant interaction between fusion and the Dummy Code 1, however ($B = -0.11$), $t(125) = -0.47$, $p > .63$, indicating that as shown in Figure 4A, no difference emerged between the control condition and the verification condition for either fused ($M = 2.18$, $SD = 1.35$), $t(24) = 3.83$, $p > .34$, or nonfused ($M = 1.67$, $SD = 0.81$), $t(61) = 0.10$, $p > .91$, participants. Therefore, the key prediction was confirmed: Challenging the personal self-views of fused participants amplified their endorsement of progroup behavior, but the challenge manipulation had no impact on nonfused participants.

In addition, a main effect of fusion emerged ($B = 0.38$), $t(125) = 2.39$, $p < .01$, such that fused participants were more inclined to endorse extreme behavior for the group than were nonfused participants ($M = 2.90$, $SD = 1.45$, and $M = 1.61$, $SD = 1.01$, respectively). A main effect of identification also emerged ($B = 0.47$), $t(125) = 2.71$, $p < .01$, with greater identification being associated with more endorsement of extreme behavior for the group. Finally, there was a main effect of Dummy Code 2 ($B = 0.88$), $t(125) = 2.79$, $p < .01$, such that participants in the challenge condition displayed more endorsement of extreme behavior for the group ($M = 2.40$, $SD = 1.55$) than did participants in either the control condition ($M = 1.82$, $SD = 1.25$) or the verifying condition ($M = 1.82$, $SD = 1.00$). No other effects were significant ($ps > .35$).

We tested the effects of verbal fusion by regressing the two dummy codes, verbal fusion and identification (both centered), and all two-way and three-way interactions on endorsement of extreme behavior for the group. As expected, there was an interaction between fusion and Dummy Code 2 ($B = 0.50$), $t(125) = 2.21$, $p < .05$. As shown in Figure 4B, strongly fused participants in the challenge condition expressed more endorsement of extreme be-
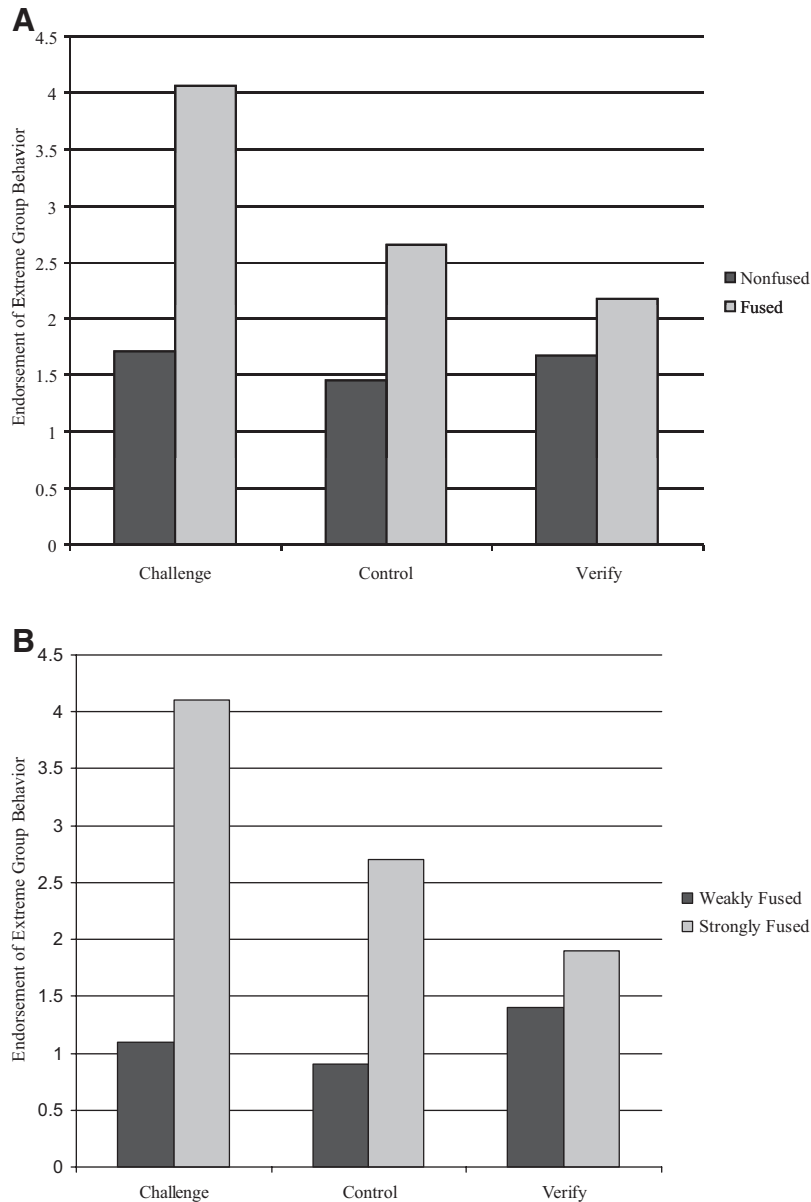
A

B

Figure 4. Endorsement of extreme behavior for the group as a function of pictorial fusion and experimental manipulation (Panel 4A) and as a function of verbal fusion and experimental manipulation (Panel 4B) in Study 10. For expositional purposes, values for weakly and strongly fused were ±1 standard deviation from the mean ($M = 2.52$, $SD = 1.55$).

havior for the group than did strongly fused participants in either the control condition ($B = 1.58$, $t(125) = 8.16$, $p < .001$, or the verification condition ($B = -0.56$, $t(125) = -2.99$, $p < .01$. In contrast, among weakly fused participants, no between-condition differences emerged ($ps > .26$). There was also a main effect of fusion ($B = 0.69$, $t(125) = 3.85$, $p < .001$, indicating that the more the participants were fused, the more they endorsed extreme actions for the group. No other main or interaction effects were significant ($ps > .20$).

A rival explanation of the results of this experiment is that challenging fused people with positive feedback emboldened them

to endorse extreme behavior for the group. Examination of the specific positive feedback in the challenge manipulation (e.g., "secure," "calm," "flexible," and "trustful"), however, suggests that the manipulation would have encouraged less rather than more extreme behavior. Moreover, nothing in this rival hypothesis indicates why the challenging feedback failed to encourage more endorsement of extreme behaviors among nonfused participants.

In summary, the results of Study 10 replicate earlier evidence that challenging the personal self-views of fused persons amplifies their endorsement of progroup behavior. This evidence that challenging the personal self-views of fused persons (but not nonfused

persons) is functionally equivalent to challenging their social self-views provides crucial support for the identity fusion formulation. Moreover, the results show that the same results emerge whether fusion is measured pictorially or verbally. This evidence that respondents who score highly on the verbal fusion scale respond to fusion-relevant manipulations much as do those who endorse the fused option on the pictorial measure bolsters the nomological as well as predictive validity of the verbal fusion scale.

General Discussion

Past research has shown that people who are fused with their group are more inclined to endorse, and actually enact, progroup behavior. Yet, the precise nature of fusion has remained unclear. In this report, we suggest that identity fusion consists of a sense of connectedness and reciprocal strength that is commonly experienced by people who develop relational ties to their group. To test this conceptualization of identity fusion, we developed a verbal measure of the construct to complement an earlier pictorial measure.

Our findings indicated that the new fusion measure was closely associated with the pictorial measure and equaled or exceeded the earlier pictorial measure on all indices of construct validity. In addition, the verbal measure of fusion was associated with two key variables: feelings of agency and invulnerability. In one study (Study 9), these variables fully mediated the relationship of verbal fusion to endorsement of extreme behavior for the group (the pictorial measure only partially mediated this relationship). A further study offered evidence for the functional equivalence of the personal and social self among fused persons: Although challenging the personal selves of highly fused persons amplified their progroup behavior, it had no such impact on low scorers on the verbal fusion measure. Here, as in earlier research on identity fusion (Swann et al., 2009), people compensated in the wake of challenges to the veracity of their personal selves in precisely the same way that they would compensate in the wake of attacks on their social selves—by amplifying their progroup behavior.

Whereas previous research has provided evidence that identity fusion predicts various outcome variables while controlling for group identification (see e.g., Swann, Gómez, Dovidio, et al., 2010; Swann, Gómez, Huici, et al., 2010; Swann et al., 2009), in this research we tested the relationship of fusion and identification more directly. Exploratory and confirmatory factor analyses, for example, revealed that fusion is not merely "identification plus" but is instead a unique construct that emphasizes synergistic, self–other influence processes: Verbal fusion items loaded on a single factor (Studies 1c and 8), whereas items designed to capture group identification loaded on a different factor (Studies 3a and 3b). These factor analytic results strongly suggest that the identity fusion scale and the group identification scale tap different constructs.

Further support for the independence of the verbal fusion and identification scales was provided by several studies of predictive validity. Over a 6-month period, the fusion scale predicted endorsement of extreme progroup behaviors (e.g., fighting and dying for one's group) with greater fidelity than did an earlier (pictorial) measure of fusion as well as a measure of identification (Studies 5 and 7b). In addition, the verbal fusion scale outstripped its rivals in predicting the likelihood that participants would endorse jumping

to their deaths in front of a speeding trolley to save a fellow group member (Study 6a) or kill terrorists who threatened the group (Study 6b). Finally, whereas the foregoing studies were conducted with Spaniards, the final series of studies validated the verbal fusion scale with two samples of immigrants from 22 different nations (Studies 7a and 7b) as well as a sample of Americans who completed an English-language version of the scale (Study 8). All of the foregoing effects emerged while controlling for identification.

Together, these studies highlight the influential role of a highly agentic, proactive personal self in group-related activity. This emphasis on the impact of the personal self on progroup behavior represents a key difference between the fusion formulation and some versions of the dominant model of group relations, social identity theory.

Links to Social Identity Theory

Most contemporary analyses of group processes have been guided by either social identity theory (see e.g., Tajfel & Turner, 1979) or self-categorization theory (see e.g., Turner, Oakes, Haslam, & McGarty, 1994). Both formulations assume that group identification is an influential determinant of the tendency to band together with other group members in derogating members of outgroups (see e.g., Branscombe, Ellemers, Spears, & Doosje, 1999; Brewer, 1999) and viewing fellow ingroup members through rose-colored glasses (see e.g., Hewstone, Rubin, & Willis, 2002; Klar & Giladi, 1997; Voci, 2006). Nevertheless, in our research and in several previous investigations of identity fusion (Swann, Gómez, Dovidio, et al., 2010; Swann, Gómez, Huici, et al., 2010; Swann et al., 2009), identification was a weak predictor of endorsement of extreme progroup activity. The predictive frailty of the identification measure in past work does not seem to reflect the use of any particular scale, such as the widely used Mael and Ashforth (1992) scale. Indeed, recent evidence (Swann, Gómez, Huici, et al., 2010) suggests that Leach et al.'s (2008) recently developed measure of identification is an even weaker predictor of endorsement of extreme behavior than is Mael and Ashforth's scale.

Why are fusion measures more powerful predictors of endorsement of extreme behavior than are measures of identification? When people endorse items on identification scales such as "My group's successes are my successes," they acknowledge shared fate with a category but do not necessarily communicate a deep connection with the members of that category. Indeed, according to social identity theory, identification encourages people to view various ingroup members as categorically interchangeable with other members of the category. As a result, although identified individuals may know what they can do for the group, they hesitate to make extreme sacrifices for other group members. In contrast, in the tradition of self-verification theory's emphasis on a highly agentic personal self (see e.g., Swann, 1983, in press), the fusion construct is based on the assumption that when fused people enter groups, they do not lose sight of their personal self but instead add group-related action as a potential mode of personal self-expression. The fusion measure is accordingly designed to tap familial sentiments toward the group—connectedness and reciprocal strength—that emphasize the synergistic relationship of the person to the group. For this reason, fused persons do not merely

know what they can do for other group members, they are highly motivated to *do* it (Swann, Gómez, Huici, et al., 2010, Studies 3 and 4, respectively). The powerful motivating force of identity fusion is especially evident when devotion to the group undergoes an acid test: that is, when progroup activity involves serious sacrifice (for a related discussion in the context of leadership, see Reicher, Hopkins, Levine, & Rath, 2005).

Issues of measurement and predictive validity aside, the fusion formulation's conceptualization of what happens to the personal self when people become closely aligned with groups is fundamentally different from the one advanced in the original statements of social identity and self-categorization theory. For example, Turner et al.'s (1987) principle of functional antagonism posits a zero-sum relationship between personal and social identities in which the salience of one diminishes the salience of the other. Our evidence that activating the personal identities of fused people increased their endorsement of extreme group-related behavior suggests that personal and social identities can be activated simultaneously and synergistically reinforce one another (see e.g., Simon, 2004). Similarly, earlier evidence that activating the social identities of fused people increased the certainty of their personal identities (Swann et al., 2009, Experiment 3) provides additional evidence that personal and social identities may cooperate rather than compete with one another.

Our findings therefore provide further evidence for the emerging conviction that functional antagonism should not be a default assumption in social identity approaches (see e.g., Abrams, 1994; Baray, Postmes, & Jetten, 2009; Pickett, Silver, & Brewer, 2002; Postmes & Jetten, 2006; Reid & Deaux, 1996; Stephenson, 1981; Turner, Reynolds, Haslam, & Veenstra, 2006). With this assumption invalidated, the way is clear for developing a new, broader understanding of the interplay of personal and social identities. We believe that the fusion construct is of particular interest here, because it highlights the ways in which personal and social identities may combine to create a whole that is greater than the sum of its parts.

From this perspective, the main contribution of this report is not a methodological one centered on the development of a verbal measure of identity fusion. Instead, our primary contribution is conceptual: Whereas previous work on identity fusion has focused on the capacity of fusion measures to predict extreme progroup behavior, we have focused on explicating the nature and mediators of the identity fusion construct. Importantly, we have clearly distinguished the fusion construct from group identification, the dominant measure of alignment with the group. Whereas fusion emphasizes the tendency for people to develop feelings of connectedness and reciprocal strength with other group members, identification emphasizes the tendency for group members to ally themselves with a common group identity. Similarly, we have distinguished our account from past treatments of the interplay of personal and social identities based on social identity approaches (Tajfel & Turner, 1979; Turner et al., 1987). Whereas these earlier accounts have historically argued that personal and group identities are functionally antagonistic, the fusion construct assumes that personal and social identities may combine synergistically to complement and reinforce one another. Finally, we have explicated the psychological mechanisms that mediate the relationship between fusion and endorsement of extreme group behavior. Specifically, previous evidence that feelings of agency mediate the relationship

of fusion to extreme progroup behavior (Swann, Gómez, Huici, et al., 2010) could not fully account for why fused persons endorse extreme behaviors. Our evidence of the mediational role of invulnerability, together with independent evidence that invulnerability is associated with diminished perception of risk (see e.g., Greene et al., 2000; Ravert et al., 2009), suggests that fused persons endorse extreme behaviors because they systematically underestimate the risks associated with such behaviors.

Limitations and Future Questions

Skeptics might ask how we can be certain that connectedness and reciprocal strength are the crucial elements involved in identity fusion as measured by the pictorial scale. In answering, we begin by noting that when both the verbal scale and pictorial scale were entered into regressions predicting endorsement of extreme action, the verbal scale tended to eliminate the effects of the pictorial scale. This suggests that the verbal scale does indeed capture the construct measured by the pictorial scale. More generally, when it came to predicting endorsement of extreme behavior, the verbal measure performed extremely well—consistently better than did rival predictors. Hence, even if there is more to fusion than connectedness and reciprocal strength, from a practical standpoint it matters that the scale we have developed was strongly predictive of our outcome variables.

Critics could point out that, whereas earlier articles on identity fusion proposed that it is a dichotomous state, the findings we report here indicate that it is distributed continuously. Apparently, the earlier evidence that fusion was dichotomous was an artifact of the pictorial scale used in that research. For example, it may be that had we used a pictorial scale with a larger number of gradations, scores would have been distributed normally. In any event, it is fortuitous that the fusion construct is continuous because we have found that, for many groups (e.g., political, religious, and even ethnic groups), the percentage of people who endorse the fused option on our pictorial measure is quite low. The development of a continuous measure of fusion opens the door for examining the effects of fusion within domains that have heretofore been impractical to investigate due to a paucity of fused participants.

Although our findings provide solid evidence of the consequences of fusion as well as insight into the mechanisms underlying the effects of fusion, there is still much more to be learned about the construct. For example, little is known about the origins of fusion, specifically why some people become fused with a particular group whereas others do not, as well as what factors determine why some people are fused and others are merely strongly identified with a group. Another intriguing question is the impact of context on fusion; although our evidence of test–retest stability indicates that fusion has a temporally stable component, context surely influences people's feelings of fusion at any given moment. Furthermore, our evidence of the mediational role of agency and invulnerability in fusion effects represents a first step toward the construction of more elaborate causal models of the antecedents and consequences of identity fusion. A logical next step will be to test whether manipulating the mediators produces corresponding changes in the outcome variables that fusion has been shown to predict.

Still another issue is the influence of culture on fusion and its manifestations. To be sure, the verbal fusion scale predicted im-

portant outcomes among Spaniards, among immigrants to Spain, and among Americans. Nevertheless, it is likely that culture plays an important role in the levels of fusion present in any given society. We suspect, for example, that relationally oriented societies such as those found in Asia cultivate higher levels of fusion than do those in the West (see e.g., Brewer & Chen, 2007; Nisbett et al., 2001; Yuki, 2003). Similarly, it will be useful to systematically test our assumption that, within cultures, fusion is associated with relational orientation and identification is associated with collective orientation. Finally, although we believe that one of the important features of the studies we report here is illuminating the psychological antecedents of extreme behaviors such as suicide killing, future research might extend this work to positive behaviors that presumably emerge when people become fused with groups that are designed to pursue prosocial goals.

Clearly, a wide array of important and exciting questions regarding the antecedents, nature, and consequences of identity fusion await investigation. It is hoped that our theorizing regarding the nature of identity fusion, in conjunction with our new measure, will facilitate future efforts to answer these questions.

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