

Values and Beliefs of Vegetarians and Omnivores

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ABSTRACT. Following the claim by some anthropologists and sociologists that 1 symbolic meaning of meat is a preference for hierarchical domination (C. J. Adams, 1990; N. Fiddes, 1989; D. D. Heisley, 1990; J. Twigg, 1983), the authors compared the values and beliefs of vegetarians and omnivores in 2 studies conducted in New Zealand. They compared the full range of vegetarians and omnivores on right-wing authoritarianism, social dominance orientation, human values, and consumption values. The participants tending toward omnivorism differed from those leaning toward veganism and vegetarianism in 2 principal ways: The omnivores (a) were more likely to endorse hierarchical domination and (b) placed less importance on emotional states. Accordingly, the acceptance or rejection of meat co-varied with the acceptance or rejection of the values associated with meat; that finding suggests that individuals consume meat and embrace its symbolism in ways consistent with their self-definitions.

TWIGG (1983) ARGUED that, in Western society, "meat is the most highly prized of food. It is the centre around which a meal is arranged. It stands in a sense of the very idea of food itself" (p. 22). However, the prominence of meat in the food system seems greater than its nutritional value; therefore, meat probably has socially constructed value. In the present studies, we compared the values and beliefs of omnivores and vegetarians to explore the ways in which the

This research was partially supported by a Victoria University IGC grant to the first author. We would like to thank James Liu and Ann Weatherall for their helpful comments.

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social values of meat may be reflected in the personal characteristics of meat eaters and abstainers.

Despite a prevalent conception that vegetarians and omnivores represent distinct social groups, previous researchers have reached inconsistent conclusions regarding the nature and extent of group differences. Some have found considerable variation between vegetarians and omnivores (Back & Glasgow, 1981; Cooper, Wise, & Mann, 1985). Cooper et al., for instance, found that vegetarians are slightly higher in hypochondriasis than the general population and have a stronger field-independent and analytical cognitive style. However, other researchers have found fewer—or, at least, less dramatic—differences between vegetarians and omnivores (Dwyer, Mayer, Dowd, Kandel, & Mayer, 1974; Freeland-Graves, Greninger, Graves, & Young, 1986; Hamilton, 1993; Lester, 1979; West, 1972). Dwyer et al. suggested that the primary difference between vegetarians and omnivores is that the “new” vegetarians (from the early 1970s to the present) are merely seeking healthful diets. Even the finding of a slightly elevated level of symptoms (Cooper et al., 1985) in vegetarians was for hypochondriasis, which could be explained as simple health concerns.

Nevertheless, the degree of health concerns may not be the sole difference between vegetarians and omnivores, inasmuch as omnivores with health concerns similar to those of vegetarians do not abstain from meat. One reason that some past researchers (Dwyer et al., 1974; Freeland-Graves et al., 1986; Hamilton, 1993; Lester, 1979; West, 1972) have found few differences between vegetarians and omnivores is that the studies were limited to psychopathological, clinical, or health-related areas. Focusing exclusively on those areas overlooks the more deeply embedded symbolic meanings and social values attached to meat. In contrast to most psychological research, anthropological and sociological researchers have given considerable attention to meat's symbolic meanings (Adams, 1990; Fiddes, 1989; Heisley, 1990; Twigg, 1983), from which psychological processes could be inferred. Specifically, one presumption is that individuals may choose to consume meat (or abstain from it) because its symbolic meaning and social values are consistent (or inconsistent) with their self-concepts. Researchers studying other consumer goods have found that individuals attend to and evaluate the symbolic meanings of products by comparing those meanings with their own self-concepts (Allen & Ng, 1999; Hong & Zinkhan, 1995; Orpen & Low, 1973; Samli & Sirgy, 1981; Sirgy, 1980).

From the foregoing perspective, the symbolic meanings of meat may be important in understanding omnivorism and vegetarianism: Omnivores may evaluate meat's symbolism positively, whereas vegetarians may evaluate it negatively. The appreciation of this process can be furthered by a range of anthropological and sociological research of the content of meat's symbolism. Fiddes (1989) concluded that meat, at least in the Western social context, symbolizes environmental control, among other meanings. By examining historical texts, modern scientific analyses, meat merchandising, and other sources, Fiddes found a con-

sistent theme of meat as a representation of human domination over nature. In other areas, researchers have found that the symbol of meat is also gendered: Meat, particularly red meat, has been associated with masculinity and power, whereas fruits, vegetables, and grains have generally been associated with femininity and weakness (Fiddes; Heisley, 1990; Twigg, 1983). Synthesizing the various associations, Adams (1990) and Fiddes suggested that the specific symbols associated with meat are part of a broader symbolism in which meat is associated with multiple forms or manifestations of hierarchical domination (e.g., males over females, humans over animals and nature). Thus, the hierarchical domination that meat symbolizes is overarching in that it transcends the specific—and perhaps more relevant—human-to-animal relationship to prescribe how human-to-human relationships should be organized. As Fiddes suggested, “What meat exemplifies, more than anything, is an attitude: the masculine world view that ubiquitously perceives, values, and legitimates hierarchical domination of nature, of women, and of other men and, as its corollary, devalues less domineering modes of interaction between humans and with the rest of nature” (p. 210).

However, previous researchers have not assessed whether people actually consume or abstain from meat because of its symbolic meaning of hierarchical domination, and no research has demonstrated empirically that consumers believe that meat symbolizes hierarchical domination *per se*. Although those two concerns are important, we addressed a more basic question in the present studies: If (a) individuals consume or abstain from meat according to their favorable or unfavorable evaluations of its symbolic meanings and (b) if meat symbolizes hierarchical domination, then the endorsement or rejection of hierarchical domination should be a fundamental difference between omnivores and vegetarians. In particular, if the hierarchical domination symbolized by meat transcends human-to-animal relations to human relations in general, then the endorsement or rejection of hierarchical domination by omnivores and vegetarians should reflect basic personality differences. If these basic personality differences can be established, then future researchers may assess whether meat consumption and abstention are the results of those differences.

In Study 1, consequently, we compared vegetarians and omnivores on two personality-level indices of their endorsement of hierarchical domination: *authoritarianism* and *social dominance orientation*. The authoritarianism concept (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950) was further developed (Altemeyer, 1981) into *right-wing authoritarianism*, which comprises three elements: authoritarian submission, authoritarian aggression, and conformity. Ray (1989) argued that the primary aspect of authoritarianism is the submission–domination relationship—that is, authoritarians display submission to recognized authority and dominance and aggression to persons of lower status. Accordingly, if the maintenance of submissive–dominant relations is a major component of authoritarianism and if meat symbolizes hierarchical domination, then omnivores should endorse authoritarianism more strongly than vegetarians.

However, the place of submission–domination relations in authoritarianism is a matter of debate; therefore, we also compared vegetarians and omnivores on a more explicit measure of endorsement of hierarchical domination, social dominance orientation. Social dominance orientation is the degree to which individuals endorse antiegalitarian values and support and perpetuate hierarchical group-based systems of inequality (Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius, 1993). Social dominance orientation plays a central role in social dominance theory, which suggests that human societies are group-oriented social hierarchies and that such hierarchies function to maintain human survival over the evolutionary period. On this basis, it has been argued (Ng, 1980) that most forms of intergroup oppression and conflict serve the function of establishing and maintaining particular group-based, hierarchical social systems. The items contained in the Social Dominance Orientation Scale (Pratto et al.) tap the beliefs that some people are inherently inferior or superior to others and the approval of inequality in group relationships.

Accordingly, we examined the following hypothesis in Study 1:

Omnivores are higher in right-wing authoritarianism and social dominance orientation than vegetarians.

STUDY 1

Method

Respondents

Because the full range of vegetarians and omnivores exists in the general population, we did not undertake quota sampling. Instead, we sent the survey to a sample of 250 registered electors in a medium-sized metropolitan region in New Zealand. We had previously contacted these participants by post to request their assistance in an ongoing project on sociopolitical attitudes. A reminder 2 weeks after the initial contact was followed by a second mailing of the questionnaire to those who had not responded. Of the 250 surveys mailed, 158 were satisfactorily returned, yielding an effective response rate of 63%. Of the final sample, 49% were men, 51% were women, and 65% were of New Zealand Pakeha (i.e., European) ethnicity. The participants' median age was 46 years, and their median education level was 1 year of tertiary study. A comparison of the sample's demographic characteristics with census data indicated that, other than a slightly higher level of education and our intentional oversampling of non-European ethnic groups, the sample in Study 1 closely matched the profile of the region as a whole.

Survey

Authoritarianism. We measured authoritarian personality with Altemeyer's (1981) Right-Wing Authoritarianism Scale. In the interest of parsimony, we

selected 9 items (Items 2, 4, 6, 9, 10, 11, 12, 13, and 24) from the scale that reflect a variety of issue domains as well as the three primary dimensions of authoritarianism: authoritarian submission, authoritarian aggression, and conventionalism. Reliability analyses indicated that the 9-item Authoritarian Personality subscale was internally consistent, with a satisfactory Cronbach's alpha of .73 and an average item-total correlation of .41. Respondents rated the items on a Likert-type scale (1 = *strongly disagree*, 6 = *strongly agree*).

Social dominance orientation. We used Sidanius's 16-item balanced Social Dominance Orientation Scale (Pratto et al., 1994). Analysis of the scale showed that it was internally consistent, with a Cronbach's alpha of .84 and an average item-total correlation of .48. The respondents rated the items on a Likert-type scale (1 = *strongly disagree*, 6 = *strongly agree*).

Diet preference. Although we have, thus far, discussed vegetarianism and omnivorism as categorical and dichotomous, vegetarianism-omnivorism is more accurately described as a single continuum. Different types of vegetarians correspond to the level and kind of animal foods consumed: least strict (i.e., vegetarians who eat dairy foods, eggs, and fish), moderately strict (i.e., ovo-lactovegetarians), and most restricted (i.e., vegans). Similarly, omnivores differ in the degree to which they consider themselves prototypical of the omnivore category: The most prototypical individuals are likely those who consume the greatest amount of (red) meat. Some omnivores may consider themselves closer to vegetarians than to other omnivores in their meat consumption and personal characteristics; by the same token, the less strict vegetarians may consider themselves closer to omnivores than to vegans. Therefore, not only the amount and type of animal products consumed define vegetarianism and omnivorism but also the consumer's subjective assessment of whether he or she is prototypical of the respective category. Accordingly, the measurement of vegetarianism and omnivorism must be on a single continuum from the most prototypical vegetarians (i.e., vegans) to the most prototypical omnivores. Therefore, we measured vegetarian and omnivore diet preferences on a 10-point bipolar adjective scale, developed for the present studies, ranging from (1) *vegan* (a person who eats vegetables, fruits, and grains but no animal, seafood, or fish products) to (10) *omnivore* (a person who eats vegetables, fruits, grains, and most animal, seafood, and fish products). Although such an operationalization may yield a more precise measurement of vegetarianism and omnivorism, one limitation is that the categorical distinction between omnivores and vegetarians is lost. Therefore, firm conclusions about absolute differences between the groups cannot be drawn.

Although the 10-point Vegan-Omnivore Scale was the primary measure of vegetarianism and omnivorism, we also measured diet preference in two other ways. First, the participants indicated the total number of times that they had eaten red and white meat in the 3 days before responding to the survey. We chose

the 3-day period because it was long enough to reduce floor effects but short enough for the respondents to make accurate counts. Second, each participant described himself or herself as an omnivore (e.g., a person who eats most animal, seafood, and fish products in addition to vegetables, fruits, and grains), a dairy and fish vegetarian (e.g., a person who eats vegetables, fruits, grains, dairy products, eggs, seafood, and fish but no white or red meat), an ovo-lactovegetarian (e.g., a person who eats vegetables, fruits, grains, dairy products, and eggs but no seafood, fish, white meat, or red meat), or a vegan (e.g., a person who eats absolutely no animal products including dairy products, eggs, seafood, fish, white meat, and red meat).

Results

As expected, the participants' diet preferences varied along the full 10-point range of the Vegan–Omnivore Scale, although the scores of the sample as a whole leaned heavily toward omnivorism ($M = 8.6$, $SD = 2.0$). Given that we used the 10-point Vegan–Omnivore Scale to assess the associations between social dominance orientation (Pratto et al., 1994) and right-wing authoritarianism (Altemeyer, 1981), we established the scale's convergent validity with the other diet preference measures. The amount of red and white meat that the participants had consumed in the 3 days before responding to the survey was positively correlated with the Vegan–Omnivore Scale, $r(151) = .40$, $p < .001$, one-tailed; that correlation indicated that the tendency to describe oneself as an omnivore was associated with greater consumption of meat, whereas a preference for veganism or another form of vegetarianism was associated with lower meat consumption. The participants who categorized themselves as omnivores on the self-categorization measure of diet preference had higher scores on the Vegan–Omnivore Scale ($M = 8.7$, $SD = 1.7$; $n = 143$) than did those who categorized themselves as some form of vegetarians ($M = 5.5$, $SD = 3.2$; $n = 9$), $t(150) = -4.98$, $p < .001$, one-tailed. Thus, the participants' responses on the 10-point Vegan–Omnivore Scale were generally consistent with their responses on the other two measures of diet preference.

To assess whether social dominance orientation and right-wing authoritarianism were positively associated with omnivorism and negatively associated with vegetarianism, we first corrected the 10-point Vegan–Omnivore Scale for skewness. Then, we calculated Pearson correlations between the Vegan–Omnivore Scale and social dominance orientation and right-wing authoritarianism. Right-wing authoritarianism was positively correlated with the 10-point Vegan–Omnivore Scale, $r(126) = .17$, $p < .05$, one-tailed; that correlation indicated that greater omnivore identification was associated with slightly greater right-wing authoritarianism and that greater vegan identification was associated with lower right-wing authoritarianism. Social dominance orientation and the Vegan–Omnivore Scale, after transformation to achieve linearity, were also positively, but slightly, correlated, $r(120) = .18$, $p < .05$, one-tailed.

Scores on the Social Dominance Orientation Scale (Pratto et al., 1994) were significantly correlated with those on the Right-Wing Authoritarianism Scale (Altemeyer, 1981), $r(138) = .33$, $p < .001$, two-tailed; hence, to assess the combined influence of social dominance orientation and right-wing authoritarianism on diet preference, we regressed the 10-point Vegan–Omnivore Scale on the Social Dominance Orientation and Right-Wing Authoritarianism Scales. The regression was significant, multiple $R = .33$, $F(2, 97) = 5.7$, $p < .01$, although it was due mainly to right-wing authoritarianism: for the Right-Wing Authoritarianism Scale, $\beta = .29$, $t(97) = 3.25$, $p < .01$; for the Social Dominance Orientation Scale, $\beta = -.01$, $t(97) = -.36$, $p = .72$. Thus, although both social dominance orientation and right-wing authoritarianism were somewhat correlated with vegan and omnivore diet preferences, authoritarianism showed the greatest unique effect.

Finally, given the earlier discussion of masculine values in meat's symbolic meaning, we examined gender differences in diet preferences. In the present sample, the men had higher scores on the Vegan–Omnivore Scale ($M = 8.9$, $SD = 1.6$) than did the women ($M = 8.1$, $SD = 2.3$), $t(144) = 2.4$, $p < .05$, two-tailed.

Discussion

According to the results of Study 1, a more pronounced omnivore identity was associated with stronger social dominance orientation and right-wing authoritarianism, whereas a tendency toward veganism and vegetarianism was associated with weaker social dominance orientation and right-wing authoritarianism. However, caution is warranted because the associations were weak, particularly for social dominance orientation.

Nevertheless, the finding that authoritarianism was positively associated with omnivorism and negatively associated with veganism and vegetarianism supports the findings of Peterson, Doty, and Winter (1993), in which high authoritarians were critical of environmental activism and were more likely to agree that human beings have been given dominion over nature. Although Altemeyer (1981) argued that authoritarianism is more closely related to submission to authority, to aggression toward people in contravention of dominant ideals, and to conventionalism than to domination per se, our finding that authoritarianism was significantly correlated with social dominance orientation supports the contention that dominance and submission relationships lie close to the core of the authoritarian syndrome (Ray, 1989). The difference in authoritarianism between omnivores and vegetarians was particularly striking, given the lack of any salient threatening outgroup that characterized the attitudinal stimuli used by Peterson et al. Likewise, social dominance orientation, as conceived by Sidanius and colleagues (Pratto et al., 1994), represents the respondents' desire for domination by their social group, but this desire for dominance appears to go beyond the human sphere and into that of animals and nature.

Although the results of Study 1 indicated that vegetarians and omnivores dif-

ferred in right-wing authoritarianism and social dominance orientation, one cannot be certain whether hierarchical domination endorsement was the only, or even the most important, difference between the vegetarian and omnivore identities. Thus, the limitation in comparing vegetarians and omnivores with respect to authoritarianism and social dominance orientation is that the measures are specific to hierarchical domination endorsement and are abstract. Concerning the latter, vegetarians and omnivores might differ in more context-bound preferences, such as their attitudes toward products other than meat, which could be manifestations of more general hierarchical domination differences. Accordingly, a more comprehensive investigation was warranted to compare vegetarians and omnivores at multiple levels along the value-attitude-behavior system. Such comparisons between the two groups would assess (a) how their preferences for hierarchical domination are associated with more context-bound preferences, (b) whether other unforeseen differences exist between the groups, and (c) the pre-eminence of hierarchical domination among the total differences.

STUDY 2

Along the value-attitude-behavior system, the human-value level is best able to uncover unforeseen differences between omnivores and vegetarians and to gauge the pre-eminence of hierarchical domination among the total differences. Schwartz (1994) defined human values as "desirable trans-situational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity" (p. 21). Human values motivate the actions of individuals and social entities (e.g., institutions, groups) and serve as standards by which individuals and groups can judge themselves and others. Allen (1994) found that a power dimension (e.g., social power vs. self-direction and connectedness) was a major distinction among human values and, therefore, should emerge as an important difference between vegetarians and omnivores. Moreover, Schwartz suggested that human values comprise 10 domains (i.e., security, power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, conformity, and tradition), and previous factor analyses of human values have yielded as many as seven major factors (Crosby, Bitner, & Gill, 1990). Thus, the comparison of the human values of vegetarians and omnivores should give some indication of the major differences between the groups, as well as the position of power and dominance in those differences.

Given that meat is marketed as a consumer product, a useful guide for selecting another level along the value-attitude-behavior system on which to compare meat eaters and abstainers is the centrality-of-beliefs approach (Scott & Lamont, 1973; Vinson, Scott, & Lamont, 1977). The centrality-of-beliefs approach is founded in Rokeach's (1973) claim that human values and evaluative beliefs about objects are connected through a hierarchical network in which human values are the most abstract, are centrally held, and influence lower level elements.

One lower level element of interest in Study 2 was consumption values. Consumption values are generalized preferences in the realm of consumption choices—that is, they are characteristics of products that consumers favor across a wide range of goods and services (Scott & Lamont, 1973). Thus, we thought it possible that meaningful differences between vegetarians and omnivores would emerge in their preferences for traditional, pleasurable, safe, and healthful products; however, we made no specific hypotheses.

Method

Respondents

Although we sampled the full range of vegetarians and omnivores in Study 1, that sample consisted preponderantly of omnivores. Therefore, for Study 2, we sampled a greater proportion of vegetarians to help ensure that any between-groups differences would not be obscured. In that interest, we recruited respondents in two phases. First, we distributed the survey to 2,050 adult members of households in a metropolitan region in New Zealand; of the 381 (18.6%) returned, we were able to use 348. Of that number, 321 (92%) were omnivores, and 27 (8%) were vegetarians. Although the 8% vegetarian rate was higher than the 3% nationwide rate (Horwath et al., 1991), the number of vegetarians was still insufficient. Accordingly, we undertook a second phase in which we solicited vegetarians through the Internet and general word of mouth. We gathered 27 additional vegetarians and (unintentionally) 3 omnivores. In total, the sample comprised 324 omnivores and 54 vegetarians. Of the final sample, 45% were men, 55% were women, and 90% were of New Zealand Pakeha (i.e., European) ethnicity. The median age was about 36 years, and the median education level was 1 to 2 years of tertiary study. A comparison with census data indicated that the sample in Study 2 was generally representative of the population, with the following exceptions: Women were slightly underrepresented, and better educated people were overrepresented.

Survey

Human values. We measured human values with the Rokeach (1973) Value Survey, which consists of 18 instrumental values (i.e., beliefs about desired modes of action such as independence, ambition, or honesty) and 18 terminal values (i.e., beliefs about desired end states such as freedom, comfortable life, and mature love). We supplemented the 36 human values with 4 additional values: social justice, equity, social power, and self-determination (for definitions, see Ng et al., 1982). We used a forced-distribution response format to maximize within-subject variability and ease of use. From the 40 human values, respondents selected first the 13 most important, then the 13 least important. The val-

ues selected as most important were coded as 3, those selected as least important were coded as 1, and the remainder were coded as 2.

Consumption values. The measure of consumption values (Scott & Lamont, 1973) contains a list of 34 items. Modifications for the present study were the addition of items collected from Mittal (1988) and Tse and Wong (1988) and the deletion of items not explicitly referring to products or services. The respondents indicated the importance of the consumption values with the forced-distribution format already described. The respondents rated the following list of items, each preceded by "A product should be . . .":

a new experience for me	modern
an expression of my personality	new on the market
beautiful	of highest reputation
comfortable/secure	of minimal environmental impact
common/widely used	pleasant to my senses
compatible with how I like to	pleasurable
think of myself	popular
consistent with what friends and	practical/functional
family want	prestigious
dependable	quiet
durable/long lasting	safe to use
easy to use	setting me in a good mood when
efficient	I use it
exciting	simple
familiar	sophisticated
healthy	stylish
in a wide variety	traditional
inexpensive	unique
innovative	

Diet preference. We obtained vegetarian and omnivore diet preferences through the same three measures as in Study 1. The first, and principal, measure of diet preference was the 10-point bipolar adjective scale, on which respondents indicated the extent they were vegans or omnivores. Second, the participants indicated the total number of times they had eaten red meat and white meat in the 3 days before responding to the survey; and third, they described themselves as either omnivores, dairy-and-fish vegetarians, ovo-lactovegetarians, or vegans.

Results

Because of our intentional oversampling of vegetarians, the mean score on the 10-point Vegan-Omnivore Scale was less in the omnivore direction than it

had been in Study 1 ($M = 7.5$, $SD = 2.6$). To establish whether the responses on the Vegan–Omnivore Scale were consistent with the other two diet preference measures, we correlated the amount of red and white meat consumed in the previous 3 days with scores on the Vegan–Omnivore Scale, $r(376) = .57$, $p < .001$, one-tailed. Regarding the self-categorization measure, the participants who identified themselves as omnivores also scored higher on the Vegan–Omnivore Scale ($M = 8.2$, $n = 324$) than did those who identified themselves as some form of vegetarian ($M = 3.4$, $n = 54$), $t(376) = -5.7$, $p < .000$, one-tailed.

To assess how human values and consumption values were associated with vegetarian and omnivore diet preferences, we carried out two regressions. In the first, we regressed scores on the 10-point Vegan–Omnivore Scale on the participants' ratings of human values; in the second, we regressed scores on Vegan–Omnivore Scale onto the participants' ratings of consumption values. However, the large number of independent variables—40 in the human-values regression and 34 in the consumption-values regression—raised the possibility of multicollinearity and substantial loss of degrees of freedom. Therefore, we grouped human values and consumption values through factor analysis (principal components extraction and varimax rotation).

In the factor analysis of human values, the scree plot indicated that the human values were best represented by seven factors that accounted for 39% of the variance. On Factor 1, *self-control* values (e.g., national security, .50; honesty, .49; politeness, .49; cleanliness, .35; self-control, .31) loaded most strongly in the positive direction, and *intellectualism and excitement* values (e.g., imagination, -.59; an exciting life, -.52; intellect, -.34) loaded most strongly in the negative direction. On Factor 2, *salvation and conformity* (.58 and .54, respectively) loaded most strongly in the positive direction, and *freedom and open-mindedness* values (e.g., freedom, -.54; broad-mindedness, -.47; independence, -.40; self-respect, -.39) loaded most strongly in the negative direction. On Factor 3, *wisdom and courage* (.53 and .42, respectively) loaded most strongly in the positive direction, and *comfort* values (e.g., a comfortable life, -.68; a pleasurable life, -.61) loaded most strongly in the negative direction. On Factor 4, *responsible* values (e.g., capableness, .45; responsibility, .41; family security, .40) loaded most strongly in the positive direction, and *love and growth* values (e.g., inner harmony, -.60; mature love, -.54; self-determination, -.38) loaded most strongly in the negative direction. On Factor 5, *love and happiness* values (e.g., love, .56; happiness, .43; true friendship, .37) loaded most strongly in the positive direction, and *logic and equity* (-.46 and -.38, respectively) loaded most strongly in the negative direction. On Factor 6, *peace and equality* values (e.g., a world at peace, -.74; equality, -.56; a world of beauty, -.56) loaded most strongly in the negative direction. Finally, on Factor 7, *social power* values (e.g., recognition, .79; social power, .41) loaded most strongly in the positive direction, and *social justice* (-.76) loaded most strongly in the negative direction.

In the factor analysis of consumption values, the scree plot indicated that

the consumption values were best represented by four factors that accounted for 38% of the variance. On Factor 1, *practicality* values (e.g., durability, .76; efficiency, .75; safety, .75; inexpensiveness, .58; simplicity, .50; dependability, .49; healthfulness, .44; comfortable/secure, .40) loaded most strongly in the positive direction, and *image* concerns (e.g., prestige, -.74; popularity, -.72; desires of family, -.68; newness, -.68; sophistication, -.53; commonness, -.48; modernity, -.41) loaded most strongly in the negative direction. On Factor 2, *familiarity* values (e.g., familiarity, .55; ease of use, .49; tradition, .47) loaded most strongly in the positive direction, and *style* concerns (e.g., style, -.59; beauty, -.41) loaded most strongly in the negative direction. On Factor 3, somewhat incongruously, *reputation and practicality* loaded most strongly in the positive direction (.44 and .35, respectively), and *expressiveness and affectivity* values (e.g., conducive to a good mood when I use it, -.56; compatible with how I think of myself, -.55; expressive of my personality, -.54; pleasant to my senses, -.34) loaded most strongly in the negative direction. Finally, on Factor 4, *minimal environmental impact* loaded most strongly in the positive direction (.32), and *pleasurable and new* values (e.g., uniqueness, -.63; pleasurable, -.47; innovation, -.47; excitement, -.43; a new experience for me, -.38) loaded most strongly in the negative direction.

The results of the regression of the Vegan–Omnivore Scale on the human value factors are reported in Table 1. As can be seen by the multiple *R*, human values, particularly Factors 1, 4, 5, 6, and 7, had relatively strong associations with vegetarianism as opposed to omnivorism. Factor 1 had a positive beta weight, indicating that stronger identification as an omnivore was associated with greater emphasis on self-control, whereas stronger vegan or vegetarian preference was associated with the increased importance of intellectualism and excitement. Factor 4 also significantly predicted vegan–omnivore preferences: The participants with stronger omnivore identities valued responsibility, whereas those with stronger vegan and vegetarian identities emphasized love and growth. Factor 5 had a negative relationship: The omnivores emphasized logic and equity, and the participants tending toward veganism and vegetarianism valued love and happiness. Finally, Factors 6 and 7 were also associated with diet preference: The omnivores valued social power, whereas the vegetarians and vegans emphasized peace, equality, and social justice.

As reported in Table 2, the regression of the Vegan–Omnivore Scale on consumption values was extremely modest in size. Only Factor 3 for consumption values predicted diet preference—specifically, a greater omnivore preference was associated with an emphasis on reputation and practicality, whereas a tendency toward veganism and vegetarianism was associated with expressiveness and affectivity.

Finally, in contrast to Study 1, the scores of the men ($M = 7.5$, $SD = 2.8$) and the women ($M = 7.5$, $SD = 2.5$) did not differ on the 10-point Vegan–Omnivore Scale, $t(376) = .30$, $p = .77$, one-tailed.

TABLE 1
 β and Multiple R From Regression of Diet Preference (Vegan–Omnivore)
on Human-Values Factors

Factor/Loadings	β
Factor 1	.26***
Self-control (+)	
Intellectualism and excitement (–)	
Factor 2	.02
Salvation and conformity (+)	
Freedom and open-mindedness (–)	
Factor 3	.04
Wisdom and courage (+)	
Comfort (–)	
Factor 4	.12*
Responsibility (+)	
Love and growth (–)	
Factor 5	–.12*
Love and happiness (+)	
Logic and equity (–)	
Factor 6	.22***
Peace and equality (–)	
Factor 7	.10*
Social power (+)	
Social justice (–)	
Multiple R for human-values model	.30***

Note. (+) = positive loading. (–) = negative loading. df from human-values regression = 7, 339.

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

Discussion

Consistent with Study 1, the results of Study 2 showed that vegan–omnivore identity co-varied with the endorsement or rejection of hierarchical domination. In the human-values regression, the participants identifying themselves as omnivores placed greater emphasis on social power (Factor 6), whereas those tending toward veganism or vegetarianism valued equality, peace, and social justice (Factors 6 and 7). The human-values dimensions of social power versus social justice (Factor 7) and peace and equality (Factor 6) are not concepts identical to right-wing authoritarianism (Altemeyer, 1981) and social dominance orientation, respectively (Pratto et al., 1994), but the human values do come close to meat's symbolism of hierarchical domination as described by Adams (1990) and Fiddes (1989). Specifically, the endorsement of social power and the rejection of equality, social justice, and peace indicate, on the one hand, a preference for a hierarchically organized social structure (i.e., the devaluing of equality) and, on the other, the desire

TABLE 2
 β and Multiple R From Regression of Diet Preference (Vegan–Omnivore)
on Consumption-Values Factors

Factor/Loadings	β
Factor 1	.02
Practicality (+)	
Image (–)	
Factor 2	.05
Familiarity (+)	
Style (–)	
Factor 3	.15**
Reputation and practicality (+)	
Expressiveness and affectivity (–)	
Factor 4	.02
Minimal environmental impact (+)	
Pleasurableness and newness (–)	
Multiple R for consumption-values model	.17*

Note. (+) = positive loading. (–) = negative loading. *df* from consumption-values regression = 4, 354.
 * $p < .05$. ** $p < .01$.

to be in the dominant position (i.e., an emphasis on social power). Taken together, the omnivores' stronger tendency toward social dominance orientation, right-wing authoritarianism, and emphasis on social power, as contrasted with the vegetarians' and vegans' weaker tendency toward social dominance orientation and right-wing authoritarianism and their greater emphasis on equality and social justice, reveals a robust and multifaceted hierarchical domination concept.

In this respect, it is noteworthy that the hierarchical-domination human values and personality constructs that distinguished vegetarians and omnivores (i.e., social dominance orientation, right-wing authoritarianism, social power, equality, peace, social justice) do not address how human beings should interact with animals; rather, they specifically concern human-to-human relationships. If one assumes, for illustrative purposes, that eating animals is a form of human-over-animal domination, then it follows that those participants who most strongly endorsed hierarchical domination in human-to-human relations (i.e., those tending toward omnivorism) would also engage in a greater degree of human-to-animal domination (eating animals), whereas the group that less strongly endorsed human-to-human domination (vegetarians and vegans) would also engage in less human-to-animal domination (eating fewer or no animals). Overall, the pattern of meat consumption and endorsement of human values was consistent with Adams's (1990, 1994) and Fiddes's (1989) suggestion that the symbolism of meat not only prescribes dominance in human-to-animal relationships but in human-to-human relationships as well.

Besides showing that the endorsement or rejection of hierarchical domination is an important difference between those identifying themselves as omnivores and those tending toward veganism and vegetarianism, the results of Study 2 suggest one other relation: The vegetarians tended to value their emotional states, whereas the omnivores emphasized self-control and rationality. In the human-values regression, for instance, a higher omnivore identification was associated with emphases on self-control (Factor 1), responsibility (Factor 4), and logic and equity (Factor 5). A tendency toward veganism and vegetarianism, on the other hand, was associated with valuing intellectualism and excitement (Factor 1), love and growth (Factor 4), and love and happiness (Factor 5). In the consumption-values regression as well, this rationality versus emotionality distinction can be seen in Factor 3, in which the omnivores emphasized the reputation and practicality of products; the vegetarians, expressiveness and affectivity. The expressiveness and affectivity end of the factor contains items indicating that a product should "put me in a good mood when I use it," "be compatible with how I like to think of myself," and "be pleasant to my senses."

Though not readily apparent, the contrasting importance that vegetarians and omnivores placed on their emotions is also related to meat's symbolic meaning. Heisley (1990) and others (Adams, 1990, 1994; Fiddes, 1989; Twigg, 1983) have suggested that meat, especially red meat, is associated with masculinity; moreover, theorists (e.g., Fox Keller, 1985) have argued that one component of masculinity is "emotional distance," which devalues emotional messages in favor of objectivity, rationality, and control over one's feelings. How emotional distance may affect meat consumption can perhaps be understood by Plous's (1993) finding that harming animals caused a physiological response (of presumably negative emotional valence) in the witnesses. If vegetarians view their emotions as legitimate sources of decision-making criteria, as the results of Studies 1 and 2 as well as those of Cooper et al. (1985) suggest, and if eating meat (i.e., harming animals) produces emotional discomfort, then vegetarians would probably view the eating of animals as inappropriate. Omnivores, endorsing the masculine value of emotional distance, might not be so affected. It is important to note that gender differences in diet preference were inconsistent: In Study 1, the men were more omnivorous than the women, which would be expected in light of the preceding argument; in Study 2, however, there was no gender difference. This inconsistency, or weak gender effect, suggests that the differences in emotionality and endorsement of hierarchical domination between omnivores and vegetarians in the present studies may stem more from the value socialization than from gender per se, though more definitive examinations are needed.

In sum, the results of Studies 1 and 2 showed that the vegetarians and omnivores in both studies differed in two principal ways—in their preference for hierarchical domination and in the importance of their emotions—both of which are consistent with the suspected symbolic meaning and social value of meat. Traditional investigations of the symbolism of objects generally involve an analysis of

the "source" of the objects' meanings (e.g., advertisements, institutional messages), but the present surveys of the values and beliefs of the recipients or holders of the meanings also yielded insights. Nevertheless, although the differences in the vegetarians' and the omnivores' values and beliefs paralleled the symbolism of meat, one cannot be certain whether those value differences were the cause of meat consumption and abstention. Future research is needed to associate more definitively the symbolic meaning of meat with its consumption.

Finally, on a more speculative level, the ways in which vegetarians and omnivores differed in the present studies are, as some theorists have suggested, mutually supported by objectification. Adams (1990, 1994), Collard and Contrucci (1989), Noske (1989), and Vialles (1994) have asserted that food animals are objectified and "de-animalized": Their specificity, uniqueness, and relationships with other animals are not represented in the language and imagery of meat or in the living animals directly. As Barthes (1957) suggested, meat is anonymous. The finding in the present studies (i.e., that vegetarians were less likely than omnivores to endorse hierarchical domination) suggests that vegetarians have the will to "reconnect" meat to living animals. Moreover, the finding that vegetarians emphasized intellectualism (human-value Factor 1), in conjunction with the conclusion that vegetarians have a field-independent, analytical cognitive style (Cooper et al., 1985), suggests that vegetarians have the cognitive tools necessary to make such a connection. Omnivores, who are more likely to subscribe to hierarchical domination, may be more prone to objectification, and one effect—or, at a minimum, co-variation—of objectification is increased emotional distance similar to that shown by omnivores. Emotional distance, in turn, would enable the continued domination. Therefore, emotional distance is congruent with the endorsement of hierarchical domination and could be subsumed under a meat-dominance ideology in which emotional distance, anti-intellectualism, as well as other features, are but some of meat's many conceptual and representational frames.

REFERENCES

- Adams, C. J. (1990). *The sexual politics of meat: A feminist-vegetarian critical theory*. New York: Continuum.
- Adams, C. J. (1994). *Neither man nor beast: Feminism and the defense of animals*. New York: Continuum.
- Adorno, T. W., Frenkel-Brunswick, E., Levinson, D. J., & Sanford, R. N. (1950). *The authoritarian personality*. New York: Harper & Row.
- Allen, M. W. (1994). Personal values of Wellingtonians: A multidimensional scaling analysis. *New Zealand Journal of Psychology*, 23, 71-76.
- Allen, M. W., & Ng, S. H. (1999). The direct and indirect influences of human values on product ownership. *Journal of Economic Psychology*, 20(1), 5-39.
- Altemeyer, B. (1981). *Right-wing authoritarianism*. Winnipeg: University of Manitoba Press.
- Back, K. W., & Glasgow, M. (1981). Social networks and psychological conditions in diet

- preferences: Gourmets and vegetarians. *Basic and Applied Social Psychology*, 2(1), 1-9.
- Barthes, R. (1957). *Mythologies*. Paris: Le Seuil.
- Collard, A., & Contrucci, J. (1989). *Rape of the wild: Man's violence against animals and the earth*. Bloomington, IN: Indiana University Press.
- Cooper, C. K., Wise, T. N., & Mann, L. S. (1985). Psychological and cognitive characteristics of vegetarians. *Psychosomatics*, 26, 521-527.
- Crosby, L. A., Bitner, M. J., & Gill, J. D. (1990). Organizational structure of values. *Journal of Business Research*, 20(2), 123-134.
- Dwyer, J. T., Mayer, L. D., Dowd, K., Kandel, R. F., & Mayer, J. (1974). The "new" vegetarians. *Journal of the American Dietetic Association*, 65, 529-534.
- Fiddes, N. (1989). *Meat: A natural symbol*. New York: Routledge.
- Fox Keller, E. (1985). *Reflections on gender and science*. New Haven, CT: Yale University Press.
- Freeland-Graves, J. H., Greninger, S. A., Graves, G. R., & Young, R. K. (1986). Health practices, attitudes, and beliefs of vegetarians and nonvegetarians. *Journal of the American Dietetic Association*, 86, 913-918.
- Hamilton, M. B. (1993). Wholefoods and healthfoods: Beliefs and attitudes. *Appetite*, 20, 223-228.
- Heisley, D. D. (1990). *Gender symbolism in food*. Unpublished doctoral dissertation, Northwestern University, Evanston, IL.
- Hong, J. W., & Zinkhan, G. M. (1995). Self-concept and advertising effectiveness: The influence of congruency, conspicuousness, and response mode. *Psychology & Marketing*, 12, 53-77.
- Horwath, C., Parnell, W., Birkbeck, J., Wilson, N., Russell, D., & Herbison, P. (1991). *Life in New Zealand: Vol. 6. Nutrition* (Commission report). Wellington, New Zealand: Hillary Commission.
- Lester, D. (1979). Food fads and psychological health. *Psychological Reports*, 44, 222.
- Mittal, B. (1988). The role of affective choice mode in the consumer purchase of expressive products. *Journal of Economic Psychology*, 9, 499-524.
- Ng, S. H. (1980). *The social psychology of power*. London, UK: Academic Press.
- Ng, S. H., Hossain, A., Ball, P., Bond, M. H., Hayaski, K., Lim, S. P., O'Driscoll, M. P., Sinha, D., & Yang, K. S. (1982). Human values in nine countries. In R. Rath, H. S. Asthana, D. Sinha, & J. B. P. Sinha (Eds.), *Diversity and unity in cross-cultural psychology* (pp. 196-205). Lisse, Holland: Swets & Zeitlinger.
- Noske, B. (1989). *Humans and other animals*. London: Pluto.
- Orpen, C., & Low, A. (1973). The influence of image congruence on brand preference: An empirical investigation. *Psychology*, 10(3), 4-6.
- Peterson, B. E., Doty, R. M., & Winter, D. G. (1993). Authoritarianism and attitudes toward contemporary social issues. *Personality and Social Psychology Bulletin*, 19, 174-184.
- Plous, S. (1993). Psychological mechanisms in the human use of animals. *Journal of Social Issues*, 49, 11-52.
- Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology*, 67, 741-763.
- Ray, J. J. (1989). Authoritarianism research is alive and well in Australia: A review. *The Psychological Record*, 39, 555-561.
- Rokeach, M. (1973). *The nature of human values*. New York: The Free Press.
- Samli, A. C., & Sirgy, M. J. (1981). A multi-dimensional approach to analyzing store loyalty: A predictive model. In K. Bernhardt & B. Kehoe (Eds.), *The changing marketing*

- environment: New theories and applications* (pp. 113–116). Chicago, IL: American Marketing Association.
- Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues*, 50(4), 19–46.
- Scott, J. E., & Lamont, L. M. (1973). Relating consumer values to consumer behavior: A model and method for investigation. In T. W. Greer (Ed.), *Increasing marketing productivity* (pp. 283–288). Chicago, IL: American Marketing Association.
- Sidanius, J. (1993). The psychology of group conflict and the dynamics of oppression: A social dominance perspective. In S. Iyengar & W. J. McGuire (Eds.), *Explorations in political psychology* (pp. 183–219). Durham, NC: Duke University Press.
- Sirgy, M. J. (1980). Self-concept in relation to product preference and purchase intention. *Developments in Marketing Science*, 3, 350–354.
- Tse, D. K., & Wong, J. K. (1988). Towards some standardized cross-cultural consumption values. *Advances in Consumer Research*, 15, 387–394.
- Twigg, J. (1983). Vegetarianism and the meanings in meat. In A. Murcott (Ed.), *The sociology of food and eating: Essays on the sociological significance of food* (pp. 18–30). Hants, UK: Grower.
- Vialles, N. (1994). *Animal to edible*. Cambridge, UK: Cambridge University Press.
- Vinson, D. E., Scott, J. E., & Lamont, L. M. (1977). The role of personal values in marketing and consumer behavior. *Journal of Marketing*, 41(April), 44–50.
- West, E. D. (1972). The psychological health of vegans compared to two other groups. *Plant Foods Human Nutrition*, 2, 147.

Received May 8, 1998

Accepted March 22, 1999