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Food sharing and feeding another person suggest intimacy; two studies of American college students

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Abstract

Ethnographic work indicates that food transfer has social significance, but food transfer has not previously been considered as a nonverbal communication channel. We categorize social food transfer along two dimensions: nature of the behaviour in the transfer (X shares food with or feeds Y), and the state of the food transferred (Y's food never contacted by X, or Y's food previously bitten/tasted/touched by X; we call the latter food consubstantiation (shared substance)). These two dimensions generate the four conditions investigated in this study: no sharing, sharing, sharing with consubstantiation, and feeding. The social significance of these types of situations was assessed in two ways. American college students indicated in a questionnaire both the extent to which they transfer food within different relationships, and what they took to be normative among American college students. Second, a different group of students participated in an Asch impression study in which they observed a videotape of two young adults of opposite sex eating at a restaurant, with the variable across subjects being the four conditions designated above. Viewers were asked to assess the relationship between the young adults, and to rate the degree of intimacy between the adults in terms of mutual feelings and acts of intimacy (e.g. sharing drinks, touching, having sexual relations). Results from both studies are congruent, and indicate that sharing implies a positive/friendly social relationship, and feeding implies a stronger, often romantic relationship. Consubstantiation superimposed on sharing modestly increased judgments of intimacy and closeness of relationship. © *1998 John Wiley & Sons, Ltd.*

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INTRODUCTION

For the first months to years of human life, one of the major foci of nonverbal communication between mother and child has to do with the transfer of food from mother to infant. In most cultures, food transfer continues to be a frequent and significant event throughout life. Yet, in the important and expanding field of nonverbal communication, this particular channel has been neglected. For example, a thorough and representative summary of the field lists the nonverbal channels as: distance, gaze, touch, body orientation, lean, facial expressiveness, talking, duration, postural openness, head nods, and paralinguistic cues (Patterson, 1991). In this paper, we propose to add social food transfer to this list, and provide evidence that this practice has communicative significance for Americans.

Nursing is our first and most intimate feeding experience. It is a form of social food transfer which combines the three different modes of social food transfer that will be the focus of this paper. First, food which 'belongs' to the mother is offered to the child. We call this food sharing, referring to any situation in which the food of one person is offered to another. Second, the food offered by the mother is a part of herself: it contains her essence, something of the mother in both a physical and metaphorical sense is passed into the infant. We call this food consubstantiation (sharing substance; Meigs, 1984), and refer, in general, to situations in which a person consumes a food that has had physical contact with another person. Third, the mother actively participates in the direct transfer of food into the child. We call this social feeding, indicating that one person puts food or drink in the mouth of another.

Another important dimension of relationships and nonverbal communication is symmetry (Brown, 1965; Patterson, 1991). With respect to social food transfer, a minimal 'unit' is likely to be asymmetrical, being defined as A giving to B or B giving to A. However, larger and more meaningful units may be symmetrical, in that A giving to B is promptly followed by B giving to A. In this study, we consider only symmetrical relations in this larger context; we expect that asymmetrical relations would have somewhat different implications.

We believe that consubstantiation may be of social significance in America because it serves an important function in most cultures (e.g. Meigs, 1984; review in Rozin & Nemeroff, 1990). There appear to be two 'cognitions' or 'beliefs' (often unacknowledged) that lie behind the psychological significance of consubstantiation. First is the widely recognized traditional belief, 'You are what you eat' (the belief that people take on the properties of the food they eat) (see Rozin, 1990). A recent study has demonstrated that American college students behave as if they implicitly hold such a belief. That is, in an Asch impressions study, subjects reported that individuals in a boar-eating culture are more boar-like in personal characteristics than individuals in a turtle-eating culture (Nemeroff & Rozin, 1989).

'You are what you eat', by itself, has little in the way of interpersonal implications, because humans are rarely cannibalistic. However, when combined with a second cognition, belief in the law of contagion, interpersonal factors may be recruited (Rozin, 1990). The law of contagion, originally proposed as one of the laws of sympathetic magic by Tylor (1871/1974) and amplified by Frazer (1895/1922/1959) and Mauss (1902/1972), basically holds that 'once in contact, always in contact'. In the event of physical contact, there is a permanent exchange of essence, or certain marked properties, between contacted entities. Contagion has recently been shown to

be widely 'believed' in American culture (Rozin, Millman, & Nemeroff, 1986; Rozin, Nemeroff, Wane, & Sherrod, 1989; reviewed in Rozin & Nemeroff, 1990). Thus, for example, most Americans choose not to eat a piece of food that has been touched by a sanitized cockroach (transfer of cockroach essence) or has been bitten by a disliked person. Most Americans also resist wearing a laundered sweater that has been worn by an undesirable person.

The 'you are what you eat' principle focuses on the importance of the mouth as the principal incorporative organ, the aperture through which the self makes material contact with the outside world. The contagion principle makes the link to other persons, because although people rarely eat other persons, they very frequently eat food which other persons have contacted (Rozin, 1990). Since, according to the contagion principle, slight contact between a person and a food can cause the person's essence to enter the food, sharing of touched food is a potentially powerful form of interpersonal communication. Hence, ingestion of food usually involves consubstantiation with another person, and the opportunity to share some of their individual properties, as well as poor or good fortune resulting from the nature of the relation between giver and receiver. So far as we know, perceived consubstantiation and the operation of the law of contagion is limited to human beings (Rozin & Nemeroff, 1990).

Within psychology there is virtually no research on the social meaning of social food transfer. Most literature on the social meaning of food exchange comes from cultural anthropology.

The hunter-gatherer Kung of South Africa have strong social constraints on food sharing (Marshall, 1961). After hunters return from a kill, the carcass is divided among all the hunters, and is subsequently subdivided a number of times. Priority is given based on social relationships.

The Moose of Burkina Faso, West Africa, also have strong social constraints on food sharing (Fiske, 1993). For the Moose, consubstantiation via eating is an intimate act that helps to define familial and sexual relations. Moose culture accepts extramarital sex unless it involves sex between a man and the wife of someone with whom the man eats.

For Hindu Indians food sharing and consubstantiation represent principal social markers, both within the family and in the larger social sphere (Appadurai, 1981). In India, accepting food prepared by another person is perceived as an homogenizing act, as well as a form of personal solidarity (Appadurai, 1981). To refuse food from a lower caste person works to sustain caste heterogeneity. Members of higher castes may give food to people of a lower caste without suffering a loss of status, but they may not receive food from them (Marriot, 1968). In India the individual is particularly vulnerable to consubstantiation because he is thought of as an 'unstable' composite of 'biomoral substance'. As such, people must constantly guard against consubstantiation with people whose pollution would lower their moral status (Appadurai, 1981).

Strong social taboos surrounding food exchange may have developed over the last 1000 years in Western Europe. Elias (1978) reports extensive sharing of touched food with strangers in Medieval Europe. He claims that as a mark of civilization (perhaps, not being animal-like), aristocrats stopped sharing food from a common pot and started using silverware; people of lower classes later followed this and related practices. We know of no study on the social meanings that contemporary Americans associate with food exchange.

Some sort of social food transfer among human adults may be universal. Most nonhuman primate adults rarely voluntarily give food to other adults (McGrew, 1975; Silk, 1978), although striking instances of sharing have recently been described for capuchins and chimpanzees (DeWaal, 1989). There is evidence that the chimpanzee sharing is part of a reciprocal exchange.

Mary Douglas (1966) claims that patterns of food sharing express the social relations in a culture. The code of food sharing reveals 'hierarchy, inclusion and exclusion, boundaries and transactions across the boundaries'. Social food transfer, as most clearly indicated by the Hindu Indian example (Appadurai, 1981), has much to do with both establishing intimacy/solidarity, and with differentiation from others. Hence it taps into the fundamental solidarity/status domain (Brown, 1965), and becomes, depending on the culture, a minor or major means of establishing and negotiating these often-conflicting relationships.

Research and theory on nonverbal communication in nonfood situations may enlighten understanding of social food transfer. In Goffman's (1971) formulation, social food transfer may constitute a 'tie-sign'. Both Goffman's (1971) and Heider's (1958) views imply that food transfer is a social symbol which can be used or understood in the same way as all other social symbols. Hall's (1966) views of interpersonal space may also be relevant to food sharing, since many types of food sharing involve some sort of intrusion into another's personal space.

Touch may provide the closest parallel to consubstantiation, since touch also involves physical contact. People who feel fondly toward each other may touch often and people who dislike each other actively avoid touching one another (Anderson & Sull, 1985). Thayer (1988) claims that different types of touch imply one of four different types of relationships in the United States: functional–professional, social-polite, friendship–warmth and love-intimacy. Different kinds of food transfer may also indicate specific types of relationships.

Research on nonverbal behaviour reveals that, 'In general, the greater the intimacy of the relationship between the partners, the higher the level of mutual involvement will be' (Patterson, 1991, p. 470). Social intimacy finds expression through a number of channels, with increased eye-contact, spatial intimacy, and touch prominent among them. We believe that social intimacy also finds expression through food transfer, and we attempt to describe the type of intimacy implied by different kinds of food sharing.

We hypothesize that for Americans (in this case, college students): (1) sharing food suggests moderate intimacy, (2) feeding suggests strong intimacy and, for appropriate dyads, is a sign of romantic involvement, (3) consubstantiation increases the degree of suggested intimacy in a food sharing context, (4) observed consubstantiation suggests that other forms of consubstantiation occur between the participants, (5) females, being generally more attuned to touch and other signs of intimacy (e.g. Patterson, 1991), will practice food transfer more frequently, and be more attentive to instances of social food transfer, and (6) in comparison to males, females will not differentiate much between genders of givers or receivers. We make this prediction because American heterosexual males are more inclined to sexualize all sorts of contacts, and show strong preferences for contact with females (Rozin, Nemeroff, Horowitz, Gordon, & Voet, 1995).

We tested the above hypotheses in two different ways. In one study, we administered a questionnaire, asking American undergraduate students about the social relationships in which they (and also, other undergraduates at their university) share

food, engage in social feeding, and consubstantiate with food. A second study employed a between-subject Asch impression design in which subjects watched a videotaped restaurant scene. The two young adults on the videotape shared food either with or without consubstantiation, or fed each other; in the control condition, they did not transfer food in any way. Although these are two separate studies, since they address the same set of issues, we describe the methods together, and consider the results from each study simultaneously, with respect to each of the hypotheses.

METHOD

Questionnaire Study

In 1992, 69 University of Pennsylvania undergraduates (34 men and 35 women) were asked to fill out a questionnaire anonymously. Subjects were recruited in two ways. Twenty-two were solicited through friendship networks, and completed the questionnaire alone. Forty-seven subjects were students in an introductory psychology class who received class credit for participation.

The questionnaire asked subjects to answer 'yes' or 'no' to three separate questions concerning whether they 'share food', 'share eaten food', or 'feed or are fed by' people with whom they have various relationships. The relationships about which they were asked fell into four categories. The category of lovers included serious lovers, casual lovers and recent lovers. The category of friends included close friends of the same sex, close friends of the other sex, as well as general friends of the same sex and of the other sex. The category of relatives covered closely related people of the same and other sex, distantly related people of the same and other sex, and mother and father. The category of nonpersonal relationships included business colleagues and landlord (listed in Table 3).

After indicating the ways in which they transferred food with various people, subjects responded to an identical set of questions, now estimating what percentage of University of Pennsylvania undergraduates would respond affirmatively to each type of transfer and target person.

Video Experiment

Subjects were 150 University of Pennsylvania undergraduates (73 male and 77 female). All were students in an introductory psychology class who were given course credit for participating in the experiment. Subjects were asked during class to sign up for one of 5 days on which the experiment was being run.

During the experiment subjects sat in a large classroom. They were instructed not to talk with each other. Subjects then saw a projected videotape of a man and a woman conversing while they ate lunch. The man and woman were professional actors in the 25–35-year age range. The videotape was identical across conditions except for a segment of tape that involved the transfer of food. The film clip was approximately 5 minutes in length and the food exchange took place about two-thirds of the way through the film. The exchange lasted about 10 seconds.

The experimental design was a variation of the Asch impressions technique. The five conditions represented various kinds of social food transfer, corresponding to the items on the questionnaire: no sharing, sharing with or without consubstantiation, and feeding (with or without consubstantiation). In all five conditions, the man orders French fries, and the woman orders soup. After some conversation, a waitress brought a bowl of French fries to the man, and a bowl of soup to the woman. In all five conditions, first the man offered some of his food to the woman, and she accepted and consumed it. After a pause the woman then offered some of her food to the man and he accepted and consumed it. In the no food-sharing condition, to control for the act of giving in general, each member of the couple first offered and then passed either the salt or the pepper shaker. The woman and man were casual about the exchange of food and made no verbal mention of it other than to offer and accept it. Otherwise, the topic of their discussion was disposal of toxic waste.

In the sharing-food condition, soon after the woman's soup and the man's French fries arrived, the man offered the women French fries and when she assented, he pushed the untouched plate across the table to her and she ate one piece. Shortly thereafter, the situation was reversed. The man used his clean spoon to take some of the woman's untouched soup. The woman used her hand to take a single French fry from the man's untouched serving.

In the sharing with consubstantiation condition, the man offered and then handed the woman a half-eaten French fry; the woman offered and then pushed her soup bowl slightly in his direction with her used spoon left inside the bowl (she had already consumed some soup) which the man then uses to eat some of her soup. Both parties accepted and consumed the offerings of the other. In the feeding condition, both the man and the woman offered and then fed the other a portion of their uneaten food by reaching across the table. The man placed a French fry in the woman's mouth, the woman put a spoon with soup into the man's mouth. In the feeding with consubstantiation condition, the same feeding exchange occurred, but both the man and the woman had previously consumed a portion of the food to be fed, as in the share with consubstantiation condition.

After viewing the video clip, subjects were asked to describe what they had seen and to guess the relationship between the two people in the tape. These responses were coded in terms of (a) the first relationship listed, and (b) whether any note was made of the consubstantiation in describing the clip. This was followed by a series of rating scale items, about half of which were distractor items dealing with the personalities of the two protagonists. Interspersed were items about the relationships.

One set of items dealt directly with the nature of the relationships. Subjects indicated on 9-point scales how likely the man and woman were to have each of several different relationships. To illustrate the format, one item was: 'How likely are the two people to be *serious/steady lovers*?' Not at all 1—2—3—4—5—6—7—8—9 Certainly. The relationships queried (see Table 2) were to: 'have a professional relationship', 'be friends', 'be related', 'have recently become lovers', 'be casual lovers'. Following the item on friends, subjects were asked: 'If they are friends, then how close is their friendship?', on a scale of 1–9, anchored by 'not at all' and 'extremely close'. Similarly, following the 'related' item, subjects were asked: 'If they are related, then how closely related are they?', on a scale of 1–9 anchored by 'very distantly' and 'siblings'.

Three items (on 9-point scales) dealt with feelings: 'How do the people feel toward each other?' ('they dislike each other' to 'they are extremely fond of each other'); 'How

intimate are the two people?' ('they are not at all intimate' to 'they are extremely intimate'); 'If the two people are lovers, how attracted to each other are they?' ('not at all attracted' to 'extremely attracted').

Eight items (on 9-point scales) dealt with mutual activities. 'How likely are the two people to currently be having sex?'' ('impossible' to 'certain'), 'How often do the people see each other?' ('Once a month' to 'several times a day'), 'Do the two people live together?' ('impossible' to 'definitely'), 'How often do the people share clothes?' ('never share' to 'share every day'), and four additional contact items of the form: 'How likely are the people to *drink from the same glass*?' ('definitely not' to 'certainly'), with the italic segment replaced by: 'touch', 'touch on the face', and 'touch on the arm'.

After all five conditions had been run, all of the subjects were verbally debriefed about the aim of the experiment.

RESULTS

For ease of exposition, we report results in terms of each hypothesis, combining relevant results from both studies. The fifth condition ($n = 46$), feeding with consubstantiation, is excluded from the subsequent analysis. The data are not presented because of internal contradictions within the data produced by this group. The open-ended items indicated a much closer relation between subjects than did corresponding items on the rating scale, such that this group appeared closer than the feeding alone group on self-report, and less close than feeding alone on the various rating items. Since we do not have a strong prediction on the effect of consubstantiation superimposed on feeding, and since the logic of our study does not require this group, we elected to exclude it from the presentation and analysis. It is possible that in the context of the highly salient feeding exchange, consubstantiation was less influential. However, this does not explain the internal inconsistency in the feeding with consubstantiation group. For all other groups, the open-ended and rating scale data are consistent.

Sharing Food

The first hypothesis is that sharing food is interpreted as a sign of social intimacy. There are four sets of measures that bear on this hypothesis: open-ended video data, video data ratings, questionnaire/self and questionnaire/other ratings.

Open-Ended Video Data

For each subject, the first interpretation of the couple's relationship was utilized. Across all conditions, over 95 percent of the subjects indicated in various terms that the relationship was either a weak form of friendship, a close friendship, or a romantic relationship (Table 1). Other responses were ignored in the analysis. Since almost all control and food-sharing responses were either weak or strong friendship, for this

Table 1. Subjects' attributions about food sharing in the open-ended responses of the video experiment (frequency distribution of free responses by condition)

	Relationship		
Group	Weak form of friendship	Close form of friendship	Romantic involvement
No sharing	26	11	0
Sharing	9	23	3
Sharing and consubstantiate	3	25	7
Feed	0	16	6

Note. Number of subjects in each group indicating relationship after viewing the video.

analysis we folded the few romantic involvement judgments into the strong friendship category, generating a 2×2 chi-square (control/sharing versus weak/strong friendship). Control subjects described the relationship as weak 70 per cent of the time, in, contrast to 26 per cent for food sharing subjects ($\chi^2 = 14.394$, $n = 72$, $df = 1$, $p < 0.001$).

Video Rating Data

As displayed in Table 2, eight of the ratings were judgments of relationship, and the remaining 11 had to do with the likelihood that specific feelings (three items) or activities (eight items) characterized the man and woman in the video presentation. For 18 of the 19 measures (first two data columns in Table 2), the sharing group's mean scores were more toward intimacy than the control group; 14 of the items showed a significant difference ($p < 0.01$, independent t-test (two-tailed); and at least one full point difference on the 9-point scale) favouring greater closeness/intimacy for the food sharers (Table 2). The largest effect, a full 3.2 points ($t = 8.94$, $p < 0.001$), had to do with sharing drinks, suggesting that the 10-second segment on sharing had a substantial direct impact. Among the four types of relationship, both groups rated 'friend' as most likely, but all relationships (lover, friend, related) except professional were rated as more likely by the food sharing group. The largest effects were for sharing drinks, touching on the face, touching, and attraction.

Questionnaires

The questionnaire results support the food sharing/intimacy hypothesis. Examination of the results in Table 3 (first data column) indicates a sharp division between minimal sharing with business colleagues or landlords (what we will call formal relations), and extensive sharing in all personal relationships. The data fall neatly into these two groups, with a difference of 48 percentage points between the highest scoring formal relation (business colleague) and the lowest personal relation (general friend, same sex).

Not surprisingly, those relationships in which subjects claim to share food are the same relationships in which subjects perceive that other undergraduate students share food. The Pearson correlation across the different relationships, between the

Table 2. Subjects' attributions about food sharing and consubstantiation in the rating means of the video experiment (9-point scale)

	Condition			
Relationship	No sharing	Sharing[a]	Sharing + consubstantiation[b]	Feed[c]
Relationship				
Professional	5.9	5.3	4.6	4.0**
Friend	6.4	7.6**	7.9	7.7
How close?	4.8	5.8**	6.9**	7.0**
Related	2.9	4.1**	4.7	4.3
How close?	3.3	4.7**	5.9*	5.9*
Lover (casual)	2.3	3.4**	4.2	4.4
Lover (recent)	2.5	3.0	3.8	4.9***
Lover (serious)	2.1	3.2**	4.1	5.2***
Feelings				
Intimacy	3.4	4.7**	5.1	5.6**
Attracted	2.8	4.2***	5.0	5.0
Liking	5.9	6.3*	6.8	6.9*
Activities				
Have sex	2.7	3.8**	4.1	5.1**
Often see	5.2	5.2	6.0	6.4**
Live together	2.2	3.0	3.8	4.3*
Share clothes	1.5	2.2*	3.2*	3.1*
Share drinks	3.4	7.6***	8.7**	8.7**
Touch	4.7	6.6***	7.7*	8.1**
Touch face	2.8	4.9***	6.6**	7.0***
Touch arm	5.2	6.8**	7.9*	8.0*

[a]Significance of difference between no sharing and sharing, independent *t*-test, two-tailed. $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.
[b]Significance of difference between sharing with and without consubstantiation.
[c]Significance of difference between feeding and sharing.

percentage of subjects who reported food sharing for themselves and the mean percentage estimate by those same subjects for undergraduates (13 pairings of percentages, each pair for one of the 13 relationships measured) was $r = 0.99$. There were no differences greater than 10 percentage points for self versus other student estimates for any relationship, with a mean absolute difference in ratings of 3.5 points.

Feeding

We proposed that feeding is a stronger sign of intimacy than sharing, and will incline observers to the assumption of romantic involvement, in an appropriate context.

Open-Ended Video Data

While 27 per cent of the feeding subjects scored the relationship as romantic, only 9 percent of the sharing subjects did so (χ^2 based on the 3×2 matrix extracted from Table 1) (three levels of relationship by two conditions) $= 8.746$ ($df = 2$, $n = 57$, $p < 0.05$).

Table 3. Subjects self reports and estimates of food sharing in the questionnaire results (percentage of subjects who report a relationship (columns) as occurring in a particular form of food sharing by report of subjects' own behaviour and report of most other students' behaviour)

	Form of food sharing[a]					
	Share food		Share eaten food		Feed or be fed	
Relationship	Self	Other	Self	Other	Self	Other
Personal						
Serious lover	87	97	83	94	80	90
Recent lover	81	85	55	71	51	60
Casual lover	78	85	64	76	51	68
Mother	97	97	86	88	54	54
Father	94	94	83	85	38	47
Close friend (other sex)	88	90	74	76	42	38
Close friend (same sex)	87	91	74	72	23	25
Relative (other sex)	87	91	65	78	29	29
Relative (same sex)	90	96	71	82	29	36
General friend (other sex)	74	68	39	40	13	9
General friend (same sex)	72	71	38	40	13	9
Formal						
Business colleague	23	24	3	0	0	1
Landlord	10	10	0	1	0	0

[a] $n = 69$.

Video Rating Data

For all 19 scale rating measures, the feeding group shows a higher intimacy score (including a lower rating for professional relationship) than the sharing group. Fifteen of these relations are statistically significant (Table 2). The largest differences have to do with the likelihood of a romantic relationship, and the associated behaviours (touching, sex) (Table 2).

Questionnaires

Whereas the major substantial break for self reports about food sharing was between business colleague/landlord and all 'personal' relations, there is a much more gradual decline in feeding across relations, with serious lover standing out as the only case reporting a clear majority (Table 3). A substantial middle group (51–54 per cent affirming feeding) emerges, for casual or recent lover, and mother, trailing off to a response of zero for business colleagues and landlords.

Results are very similar for subject ratings of undergraduate student norms. The mean absolute difference in ratings (Table 3) is 5.2, and the Pearson correlation across the 13 pairs of relations is 0.98.

Consubstantiation

We hypothesized that consubstantiation would enhance the intimacy judgments in the context of food sharing.

Open-Ended Video Data

Consubstantiation in the sharing context increased judgments of close friendship or romantic, from 74 percent to 91 per cent (3×2 $\chi^2 = 4.683$, $df = 2$, $n = 70$, $p < 0.05$, Table 1).

Video Rating Data

On all 19 measures, sharing of eaten food enhanced intimacy judgments in comparison to sharing. The eight statistically significant differences centre on measures of closeness, such as the two items on closeness of relation and friendship, and what might be called degree of consubstantiation (touching, sharing clothes or drinks) (Table 2). The sizes of the effects on these sharing activities indicate that the two brief instances of consubstantiation were noted by many subjects.

Questionnaire

As would be expected, according to either subjects' own judgments or their judgments about undergraduates, sharing of eaten food is always less likely than sharing uneaten food, in any of the 13 relationships probed. The natural 'break' in the data occurs between relatives and general friends (Table 3). While sharing occurs frequently with general friends, consubstantiation is much less frequent. As in other cases, the rank order of appropriateness for own and norm is almost identical, with a Pearson r of 0.98 across the 13 relationships.

Gender Differences

The questionnaire results have a sufficient n to allow us to determine whether there are gender differences in readiness/appropriateness to share or feed, in accordance with the prediction that (a) this will be more common in females, and (b) this will be most clear with same sex relatives and friends. Examination of sex differences supports a general trend for more food sharing/feeding/consubstantiation among women, but as predicted, the major effect is greater sharing with consubstantiation and feeding with same-sex friends for females ($p < 0.01$, χ^2 for both consubstantiation and feeding).

DISCUSSION

Both studies strongly support the hypotheses that: (1) American students associate food sharing with a relationship that is personal, as opposed to strictly professional;

(2) they associate feeding with a romantic and/or sexual relationship; (3) consubstantiation indicates greater closeness in personal relationships; (4) consubstantiation in one domain suggests consubstantiation in others; (5) as compared to women, men are more inclined to restrict feeding and consubstantiation to members of the opposite sex; (6) females differentiate less between genders of givers and receivers.

The gender findings suggest that feeding (and to some extent, consubstantiation) has a broader meaning for women than for men. We propose two explanations of this gender effect. First, heterosexual United States men have a negative attitude towards bodily intimacy with other men. Second, for women, feeding may more strongly imply caretaking; while for men feeding may more strongly imply romantic involvement. A greater caretaking orientation to feeding would explain the equal number of female subjects who claim to feed their same and other sex close friends. In accord with this idea, female subjects report engaging in social feeding with their mother and their father more than male subjects. A stronger romantic orientation to feeding would explain the far greater number of male subjects who claim to feed their other sex over their same sex close friends.

There is yet another aspect of gender with respect to social food transfer. As stated in the Introduction, eating is an incorporative act, involving taking an outside substance that contains potential 'residues' of other people, into the body. This may exaggerate gender differences in attitudes to contact by same-sex others. Rozin *et al.* (1995) have studied, for American students, the pattern of response to intrusion into various body apertures, by objects contaminated by other (unfamiliar) males, females, or cockroaches. The results indicate that for females, other unfamiliar males and females are just like cockroaches. However, for males, while other males are like cockroaches, other females have a certain attraction, which alters the pattern of sense of intrusion as a function of aperture. (For males, mouth and genital apertures are relatively less sensitive to opposite-sex contact than to same-sex or cockroach contact, in comparison to females.) These results suggest that a full analysis of social food transfer, and other forms of nonverbal exchange, would have to take into account gender differences in sexual proclivities and caretaking.

Food consubstantiation occurs in a major way outside of direct food transfer interactions. Those who obtain and prepare food add 'something' of themselves to food, a consequence of major significance for many peoples of the world. For example, who obtained or prepared a food is a major aspect of the appropriateness of a food in Hindu India (Appadurai, 1981; Marriott, 1968) and among the Hua of New Guinea (Meigs, 1984). In modern American culture, and perhaps in most other Western-developed countries, the interpersonal history of foods may be less important. Surely, this history is less salient in the impersonal, 'sterile' presentation of foods in supermarkets.

Feeding between lovers may imply caretaking. Lovers sometimes wish to express affection through acts of caretaking, so they may appropriate feeding from its mother–child context. Hazan and Shaver (1987) draw explicit parallels between parent–child attachment and the attachment of lovers; this could easily extend into the social food transfer domain. That feeding may be a sign of affection is consistent with the authors' impression of the American tendency to treat romance in the context of parent–child relations (e.g. baby talk and little nicknames). However, these behaviours do not characterize romance throughout the world.

This study reveals that social food transfer has a strong meaning for college students. Our findings suggest that in this cultural context the occurrence of sharing or feeding carries more social implications than the existence of consubstantiation. Future work will be needed to determine how the social meaning of food exchange varies across age, social class and ethnic groups of actors and observers. Furthermore, the dyadic context (e.g. two opposite-sex young adults, woman of 50 years with man of 20 years, woman of 30 years and a child of 2 years) will have a strong influence on the meaning of sharing (e.g. friend, romantic, family or parent–child link). In light of the cultural anthropological evidence reviewed in the introduction, we have every reason to believe that the events in social food transfer are much more salient and socially significant in many cultures (e.g. Hindu India) than they are in the United States.

We hope that we have accomplished at least three things in this study. First, we have called attention to a common domain of socially significant, nonverbal interaction that has previously escaped the attention of psychologists. Second, we have indicated the significance of three different aspects of social food transfer: sharing, feeding and consubstantiation. Third, we have used a combination of a relatively novel Asch impressions experiment and more standard questionnaire results to converge on some basic features of the meaning of a type of social interaction in Americans.

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