

## Fluctuating Asymmetry, Sociosexuality, and Intrasexual Competitive Tactics

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Heterosexual men and women were told they were competing with another same-sex individual for a date with an attractive opposite-sex interviewer. After answering 6 questions, participants were asked to tell the competitor why the interviewer should choose them over the competitor. Participants' videotaped behavior was coded for different behavioral tactics. Men who were more symmetrical and who had a more unrestricted sociosexual orientation were more likely to use direct competition tactics than were less symmetrical and restricted men. Restricted men accentuated their positive personal qualities, presenting themselves as "nice guys." Structural equation modeling revealed that fluctuating asymmetry (FA) was directly associated with the use of direct competition tactics. However, the link between FA and presenting oneself as a nice guy was mediated through sociosexuality. No effects were found for women.

In the past decade, researchers have begun to test evolutionary models of mating and sexual behavior in humans (see, e.g., Buss & Schmitt, 1993; Gangestad & Thornhill, 1997c; Kenrick, Groth, Trost, & Sadalla, 1993). Although most of this work has focused on sex differences in mating (e.g., Buss & Schmitt, 1993), some research has tried to explain variation in mating behaviors found within men and women (e.g., Gangestad & Simpson, 1990). Indeed, the amount of variation that exists between men and women on most mating and sociosexual behaviors is appreciably less than the variation that exists within each sex (see Simpson & Gangestad, 1991). To provide a complete portrait of mating in humans, evolutionary models must explain both modal sex differences as well as within-sex variation.

Past research has documented the attributes that men and women tend to prefer in prospective mates (Buss, 1989; Buss & Barnes, 1986) and what people with different relationship histories look for in mates (Simpson & Gangestad, 1992). Research also has revealed the strategies that men and women report using when trying to attract mates (Buss, 1988a), derogate competitors (Buss & Dedden, 1990; Schmitt & Buss, 1996), and retain mates (Buss, 1988b). Additional research has investigated the different standards that men and women apply when deciding whether to have sex in casual, short-term versus committed, long-term relationships (Kenrick, Sadalla, Groth, & Trost, 1990), along with patterned sex differences in age preferences for mates (Kenrick &

Keefe, 1992). Despite these advances, relatively little is known about what men and women actually do to compete and draw attention to themselves in heterosexual relationship initiation contexts.

### Intrasexual Competition

Intrasexual competition occurs when two or more members of the same sex vie for the attention of an opposite-sex individual in a mating context (Alexander, 1979). According to Darwin (1859, 1871), intrasexual competition is affected by two processes underlying sexual selection: *intrasexual selection* (in which members of one sex compete with each other to mate with opposite-sex individuals) and *intersexual selection* (in which members of one sex exert choice by preferentially mating with opposite-sex individuals who have certain desirable attributes). Thus, facets of both intrasexual selection (e.g., outperforming same-sex competitors for mates) and intersexual selection (e.g., successfully attracting desirable mates) should influence the development and use of intrasexual competition strategies and tactics (see Buss, 1988a).

Although intrasexual competition can involve direct confrontations between same-sex competitors (e.g., physical fights or verbal debates), it often is much more subtle (Daly & Wilson, 1983). Subtle forms of competition include tactics such as planning and facilitating contact with attractive others, acquiring resources valued by most opposite-sex individuals, and derogating the status or desirability of a potential competitor in front of opposite-sex individuals. Thornhill and Alcock (1983) have identified four stages during which different forms of intrasexual competition—much of it indirect—occur in different species. The stages are (a) locating potential mates, (b) engaging in effective mate-attracting behaviors once potential mates are found (e.g., signaling or conveying one's interest or availability), (c) acquiring and displaying

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resources valued by members of the opposite sex, and (d) changing one's appearance to attract mates more effectively. The present research focuses on the second stage: namely, what men and women do to draw attention to themselves and attract opposite-sex individuals during heterosexual relationship initiation.

Psychologists know little about what men and women actually do when competing for romantic partners. Most previous research (conducted primarily by human ethologists in field settings) has been descriptive and atheoretical (see Eibl-Eibesfeldt, 1989, for a review). Behaviors that increase the probability that an individual will successfully attract a mate are referred to as *behavioral tactics* of intrasexual competition. Nearly all of what is currently known about how men and women compete in relationship initiation settings comes from self-report studies that have identified specific acts or behaviors people claim to display to attract others. Buss (1988a), for instance, had college students list all of the acts or tactics people routinely use to make themselves more attractive to the opposite sex. Twenty-three distinct behavioral tactics emerged. They included displaying status or resources, acting provocatively, improving one's appearance, being nice, showing off, acting superior to others, being agreeable, being humorous, displaying athleticism, and bragging about past accomplishments. Focusing solely on intrasexual competition tactics rather than mate-attraction tactics in general, Walters and Crawford (1994) replicated Buss's results, identifying 26 distinct tactics that men and women say they use in competitive intrasexual situations.

The diverse array of intrasexual competition behaviors fall into two general categories of tactics. The first category, direct competition tactics, involves making direct comparisons between the self and competitors. As we discuss here, direct competition tactics ought to be valued in short-term mating contexts. Common examples include displays of athletic prowess or fighting ability, which often occur in a "contest" that directly involves one or more intrasexual rivals. Bragging about past accomplishments or showing off (particularly in group settings) also may invite direct comparisons with rivals. The second category involves displaying positive self-attributes that should be valued in long-term relationships. Examples include doing favors for others or highlighting one's positive qualities, such as kindness or agreeableness, in personal, intimate conversations. Some individuals may prefer potential mates who display direct competition tactics, whereas others may prefer those who highlight their positive personal attributes. Individuals who have had success using direct intrasexual competitive tactics in the past should tend to use direct competition tactics when they can. In contrast, individuals who have not had success using direct tactics, but who feel they have something valuable to offer relationship partners, should use the alternative tactics.

Both types of tactics convey positive impressions of the self through verbal and nonverbal signals. Direct comparisons with intrasexual competitors, for example, can reveal valuable information about an individual's health (e.g., Thornhill & Gangestad, 1993), genetic fitness (e.g., Kirkpatrick, 1996), or ability to provide physical protection to a mate (Mesnick, 1997). These comparisons should be fairly honest signals that cannot be easily faked by individuals who do not possess these characteristics. Individuals who are less healthy, less genetically fit, or physically weak do not have the phenotypic features that would allow them to succeed in direct intrasexual competitive encounters (Grafen, 1990). For

this reason, individuals who can succeed in direct encounters should be more likely to engage in tactics that encourage direct comparisons between themselves and competitors. On the other hand, advertising kindness and faithfulness can provide valuable information about an individual's willingness to invest heavily in a single relationship. Depending on how costly they are to display, however, advertisements of an individual's willingness to invest may not be honest. Although being attentive to and claiming to be committed to a mate may honestly advertise willingness to invest in the future, a person who merely says that he or she will invest may fail to do so over time. Such advertisements, therefore, may be cheap and unreliable indicators of an individual's true investment potential (Grafen, 1990; Zahavi, 1975).

### Mate Dimensions, Trade-Offs, and Fluctuating Asymmetry (FA)

Gangestad and Simpson (1997) have developed an evolutionary model that explains within-sex variation in mating behavior. According to this model, potential romantic partners vary on two basic mate-choice dimensions: (a) the degree to which partners are able and willing to invest time and resources into a mateship (including the romantic partner and any subsequent children) and (b) the degree to which partners show evidence of genetic viability (i.e., fitness-enhancing traits or characteristics that might be passed on to children, such as good health or future mate-attracting potential). Good-provider models account for variability on the first dimension, whereas good-genes models explain variability on the second one (see Gangestad & Thornhill, 1997c, for a review).<sup>1</sup> Men and women should have been selected to prefer mates who score high on both dimensions, that is, partners who can and will invest heavily in the relationship and who show signs of high viability. Few people, however, can obtain such ideal partners. Most people simply do not have the constellation of stellar attributes necessary to attract partners who are high on both dimensions. Moreover, partners with high viability are less likely to invest heavily in a single relationship (Gangestad & Thornhill, 1997a), mainly because many opposite-sex people find them attractive and, thus, they often have more or better alternative partners. As a result, the two mate-choice dimensions correlate negatively (Gangestad, 1993; Gangestad & Simpson, 1997), forcing most people to make trade-offs between the two when selecting mates.

FA should be a good indicator of an individual's genetic viability (see Gangestad, 1993; Gangestad & Simpson, 1997; Gangestad & Thornhill, 1997a, 1997c, in press; Gangestad, Thornhill, & Yeo, 1994; Thornhill & Gangestad, 1993, 1994). FA reflects the degree to which individuals deviate from perfect bilateral symmetry at different points of the body (Van Valen, 1962). FA is

<sup>1</sup> It is important to emphasize that alleles that are "good genes" at one point in time are not intrinsically better than alternate alleles. Host-parasite coevolution (Hamilton, 1982; Tooby, 1982) imposes changing selection pressures on host genes, thereby maintaining heritable fitness in individuals. As a result, an allele that is a good gene today might be selected against in future generations, and an allele that is selected against now could become a good gene in the future. Thus, genes that are currently favored by host-parasite coevolution are not necessarily better genes over time.

believed to be a phenotypic marker of developmental imprecision, that is, the extent to which individuals have experienced disruptions or perturbations during their physical development. Several factors can affect the degree to which adults are asymmetrical, such as the negative effects of deleterious recessive genes (Lerner, 1954; Parsons, 1990), excessive homozygosity (Lerner, 1954), exposure to environmental toxins or pollutants (Parsons, 1990), and exposure to parasites during development (Møller & Swaddle, 1997). Individuals who are free from, endure, or resist these developmental perturbations tend to be more symmetrical as adults, whereby the size of features on the left side of their body (e.g., ankles, wrists, ear lobes) are more similar to the size of features on their right side. (For a general overview, see Møller & Swaddle, 1997.)

According to good-genes models, people with symmetrical features—particularly men—should have fared well in intersexual and intrasexual competitions during evolutionary history (see Gangestad & Thornhill, 1997c). FA should be a good marker of genetic viability for three reasons. First, greater asymmetry is associated with lower survival rates, slower growth rates, and lower rates of reproduction in many different species. Over 100 studies on the relationship between FA and fitness traits have been conducted, and both meta-analytic and qualitative reviews indicate highly reliable associations (for longevity and fecundity, see Leung & Forbes, 1996; Møller, 1997; for disease and health status, see Thornhill & Møller, 1997; for mating success, see Møller & Thornhill, 1998). Experimental studies in which the feathers of male barn swallows (Møller, 1990, 1992) were altered to be less symmetrical have shown that greater asymmetry causes males to be less attractive to females and to have less reproductive success over time (for additional empirical examples, see Møller & Thornhill, 1998). Second, FA is partly heritable. Thus, some of its variance is due to genetic variability, which is likely to be associated with greater fitness and genetic viability (Møller & Thornhill, 1997). Third, the development of symmetry cannot occur unless individuals have efficient immune systems capable of warding off pathogens, which can cause asymmetry (Møller & Swaddle, 1997). Moreover, a trade-off may exist between immunocompetence and precise development. Individuals who funnel energetic resources to somatic repair mechanisms that ensure precise development when faced with colonization by parasites may risk taxing their immune systems to the point of depletion.

Parental investment theory (Trivers, 1972), however, implies that selection for FA should have operated more strongly on men than on women. The minimum level of parental investment that a woman must expend on a child involves a 9-month gestation, parturition, and lactation that can last from several months to a few years. For men, the minimum parental investment can consist of a single sexual encounter. This drastic disparity in minimal investment should have led the more investing sex (usually women in humans) to be more selective and discriminating than the less investing sex (usually men) when deciding with whom to mate. Because women are a more limited reproductive resource than men are, competition among men for matings with women should be more intense than competition among women for matings with men (Andersson, 1994; Daly & Wilson, 1988; Trivers, 1972). Consequently, indicators of genetic viability in men should have been exposed to stronger selection pressures during evolutionary history than were indicators of viability in women. Men who displayed little evidence of viability ran the risk of not reproducing

at all, whereas nearly all fertile women probably had children in evolutionary history (for data on current traditional groups who probably live in environments similar to ancestral humans, see Chagnon, 1968; Hill & Hurtado, 1996). Although men should have preferred women whose positive genetic qualities could have been passed on to their children, selection pressures operating on viability in women should have been less intense (see Andersson, 1994). Thus, for women, associations between FA and sexually selected attributes should be somewhat weaker (see Gangestad & Thornhill, 1997c).

Although most research on FA has focused on nonhuman animals, a handful of studies have examined human beings. With regard to physical attractiveness, men (but not women) with more symmetrical bodies are rated as being more physically attractive than less symmetrical men, even when several self-reported confounds are partialled out (Gangestad et al., 1994; Thornhill & Gangestad, 1994; but also see Furlow, Gangestad, & Armijo-Prewitt, 1998; Gangestad & Thornhill, 1997b). Similarly, men and women who have more symmetrical faces are rated by opposite-sex individuals as more attractive, dominant, sexier, and healthier (Grammar & Thornhill, 1994; Shackelford & Larsen, 1997).

With regard to sexual behavior, more symmetrical men and women report more lifetime sex partners and engage in first intercourse earlier in development than do their less symmetrical counterparts, even when the effects of current age, marital status, body height, ethnicity, minor physical anomalies, and physical attractiveness (rated by others) are partialled out (Thornhill & Gangestad, 1994; Gangestad & Thornhill, 1997b). Recently, Gangestad and Thornhill (1997c) found that more symmetrical men are more physical (e.g., more muscular, robust, and vigorous) and less readily dominated by others than are less symmetrical men (on the basis of reports provided by both men and their romantic partners), and these variables partly mediate the association between men's FA scores and their self-reported number of lifetime sex partners. More symmetrical men also report that they engage in physical fights more often with other men (Furlow et al., 1998). This evidence suggests that symmetrical men may be more willing to enter the potentially costly fray of direct intrasexual competition. At the same time, more symmetrical men report providing fewer material benefits to their relationship partners in terms of devoting exclusive time and attention to them (Gangestad & Thornhill, 1997c). They also report having more sexual affairs while being involved in long-term relationships, and they are chosen as extrapair partners more often by women looking for short-term affairs. Furthermore, they are viewed by their romantic partners as less honest and less giving of time in relationships (Gangestad & Thornhill, 1997b). (For additional findings, see Furlow, Armijo-Prewitt, Gangestad, & Thornhill, 1997; Shackelford & Larsen, 1997.)<sup>2</sup>

<sup>2</sup> The effect sizes of these findings seem small (correlations average  $\pm .15-.30$ ; see Furlow et al., 1997; Furlow et al., 1998; Gangestad & Thornhill, 1997b; Thornhill & Gangestad, 1994). However, FA is an imperfect measure of developmental imprecision. Measurement modeling suggests that the FA measurements in studies involving humans correlate about .5 with developmental imprecision (Gangestad & Thornhill, in press; Leung & Forbes, 1997). Once they are disattenuated for measurement error, these correlations range from  $\pm .3-.6$ .

### Sociosexuality

Although FA should be a good marker of genetic viability, it is not a direct measure of mating behavior. Individuals who have attracted more sex partners in their lifetime should have attributes desired by many members of the opposite sex. According to parental investment theory (Trivers, 1972), this should be particularly true of the sex that initially invests less in offspring (men in humans). These desirable attributes, however, should not include long-term investment potential, because individuals with a history of multiple mates are less likely to invest in and remain involved in long-term, monogamous relationships (Simpson & Gangestad, 1991). Instead, they are more likely to pursue matings outside committed relationships.

The sociosexuality construct (Gangestad & Simpson, 1990) and measure (Simpson & Gangestad, 1991) were developed to assess the degree to which individuals require emotional closeness and commitment before having sex with a romantic partner. Men and women who have a more unrestricted sociosexual orientation require less closeness and commitment before having sex than do more restricted individuals. Relative to restricted individuals, unrestricted people are more likely to have sex at an earlier point in their relationships, engage in sex with more than one partner within a single time period, and have relationships characterized by less investment, less commitment, less love, and less dependency (Simpson & Gangestad, 1991). In addition, unrestricted individuals prefer and acquire romantic partners who are rated more physically attractive and who possess greater social status and visibility, whereas restricted individuals prefer and acquire partners who are kinder, more affectionate, more responsible, and more faithful (Simpson & Gangestad, 1992). These preferences appear to influence the way in which unrestricted individuals initiate relationships: Unrestricted men and women tend to display nonverbal cues signaling flirtation and interest in developing sexual intimacy quickly in relationships (Simpson, Gangestad, & Biek, 1993).

Unrestricted men (but not unrestricted women) also tend to be more symmetrical (Gangestad & Thornhill, 1998). This sex difference makes sense theoretically. During evolutionary history, members of the less investing sex (men) should have used their superior health and viability to increase their number of mates more than the sex who initially invests more (women) did (see Trivers, 1972). FA and sociosexuality, however, correlate only moderately in men (mean  $r = -.2$ ; when disattenuated for unreliability, mean  $r = -.4$ ). Thus, although several factors may influence the specific mating behaviors that an individual adopts, one prime candidate should be his or her previous mating history.

### The Present Study

FAs tend to be very small and, therefore, difficult to detect in routine interactions. Surprisingly little is known about how humans convey or advertise their relative viability in mating contexts. Honest signaling theory (e.g., Grafen, 1990; Zahavi, 1975) proposes that advertisements that are difficult to fake should become evolutionarily stable indicators of favored traits because they are costly to possess and display, particularly for individuals who do not truly have them. One such indicator should be the ability to win direct intrasexual competitions, in which traits associated with increased intrasexual competitive abilities (such as confidence, competitiveness, and vigor) are openly displayed.

In the present study, heterosexual men and women who were not

dating anyone were interviewed by an attractive opposite-sex person for a possible lunch date. Each participant was told that the interviewer would choose either the participant or another same-sex person (a "competitor") for the date. After the videotaped interview, each participant was told that the interviewer wanted to see the participant tell the competitor why the interviewer should choose the participant over the competitor. Each participant's spontaneous answers were videotaped. The behavioral tactics each participant displayed were rated by independent coders and then factor analyzed.

Our major predictions for men were:

1. Men who are more symmetrical and more unrestricted should be more likely to engage in direct intrasexual competition tactics in which they directly compare themselves with the competitor (e.g., by claiming they are superior to, or better than, the competitor).
2. Men who are less symmetrical or more restricted should prefer tactics that accentuate their positive interpersonal attributes, especially those most relevant to long-term investment (e.g., by indicating that they are nice and easy to get along with or that they want to get to know the interviewer better). Because these signals might not be honest, however, we were not sure whether more symmetrical and more unrestricted men would also use these tactics. Hence, this prediction was more speculative.
3. The relations among FA, sociosexuality, and the two types of intrasexual behavioral tactics (direct competition and long-term investment) should fit a specific causal model. In particular:
  - a. Developmental precision, as indexed by FA and being an indicator of viability, should directly affect the use of direct intrasexual competitive tactics.
  - b. Consistent with past research (Gangestad & Thornhill, 1997c), developmental precision should directly affect short-term mating opportunities and, therefore, predict an unrestricted sociosexual orientation (i.e., a willingness to engage in sex outside of long-term, committed relationships). Conversely, developmental imprecision should directly affect long-term mating and thus predict a restricted sociosexual orientation (i.e., the expectation of commitment and investment prior to having sex).
  - c. Sociosexual orientation, in turn, should directly affect the tendency to advertise qualities preferred in long-term mates, with restricted men being most likely to advertise these qualities.

According to this model, both developmental precision and sociosexuality may correlate with both behavioral tactics (direct intrasexual competition and advertising qualities of a long-term mate), but each should directly affect only one tactic. We estimated latent parameters to test the adequacy of this model as well as alternate ones.

Predictions for women are more difficult to derive. Though greater symmetry is likely to be an honest indicator of genetic viability in women, ancestral women who had greater viability should not necessarily have benefited from reduced investment in their own children and from increased mating effort outside a stable relationship (see Trivers, 1972). Hence, our evolutionary perspective does not make the same predictions about the relations between FA and intrasexual competition tactics in women that it does for men. Nonetheless, for comparison purposes, we examined both sexes.

## Method

### Participants and Requirements for Participation

Seventy-two male and 80 female undergraduates enrolled in Introductory Psychology at Texas A&M University participated in exchange for partial fulfillment of a course requirement. Mean ages were 18.8 years for men and 18.5 years for women. To ensure that participants would be motivated to perform well and be chosen for the lunch date, we required participants to be heterosexual, and they could not be dating anyone at the time of the study.

### Procedure

*Phase 1.* Participants were recruited for a study on relationship formation. When they arrived (individually) at the lab, they were led to a room that contained a swivel chair, a 16-in. (40.64-cm) color TV monitor (plugged in to a wall outlet), and a video camera (unobtrusively suspended in one corner of the room). The experimenter then read the following statement, after which he or she left the room:

We are studying how people choose dating partners. In one of the other rooms, we have a man [woman] who is going to choose either you or another person (who is also participating in this study) for a lunch date. We're interested in studying what kinds of questions he [she] asks and how he [she] decides whom to date.

The interviewer will appear on the monitor and introduce himself [herself]. The screen will go blank while you introduce yourself. The interviewer will be able to see you through that camera [*experimenter points to camera*] and hear you through the microphone in the ceiling [*experimenter points to microphone*], just as you will be able to hear and see him [her]. When you answer the questions, please look at the camera to talk to him [her].

After you've introduced yourself, the interviewer will come back on and ask you a few questions. The screen will go blank between each question so you can answer without distraction. His [her] instructions are to choose either you or the other person for the lunch date based on your introductions and the answers you give to the questions. For this portion of the study, the interviewer has been told not to answer any questions from you. The interviewer also has been told that he [she] can ask each question only one time, so please pay careful attention. We'll start in a couple of minutes. Remember, when the interviewer appears on the monitor, please answer his [her] questions as best as you can. Just relax and be yourself.

Two minutes later, the interviewer (one of two videotaped male experimental assistants for women or one of two videotaped female experimental assistants for men) appeared on the monitor and introduced himself or herself. The introduction (which lasted approximately 75 s and was scripted) depicted a relaxed, friendly, and outgoing person who enjoyed a variety of activities. After the introduction, the interviewer asked the participant the first question: (a) "Please tell me about yourself, including who you are, what you like to do, and what you don't like to do." The monitor then went blank, and the participant responded to the question for as long as she or he wished. When the participant finished, the interviewer reappeared on the screen to ask the remaining five questions in the same question-and-answer format: (b) "Think about an interesting, humorous, or fun experience that you've had in the past year, something that would give me a better idea what you are really like as a person. Describe this experience and tell me why it reveals something interesting or unique about you." (c) "Imagine that you're in a bar or restaurant and you see a man [woman] whom you find very attractive. Show me what you'd do to get his [her] attention." (d) "Imagine that you've just met a man [woman] you find very attractive and whom you want to get to know better. How would you go about striking up a conversation with him [her]? Show me exactly what

you would say and how you would say it." (e) "Imagine that you and two or three other people are all interested in dating the same person. What would you say and do to persuade this person that he [she] should date you rather than the others?" and (f) "Why should I choose you for this lunch date?" All questions were developed by the two lead authors. A second experimenter in a nearby control room synchronized the interaction between the videotaped interviewer and the participant, making sure that the interviewer reappeared on the participant's monitor immediately after the conclusion of the response to each question. This sequencing resulted in an interview that appeared to be live. Participants' answers to the interviewers' questions were videotaped.

Following each participant's final answer, the other same-sex person (i.e., the competitor) appeared on the monitor. She or he was sitting at a table in another laboratory room and said nothing. The competitor also was a videotaped experimental assistant. After one minute, the screen went blank and the experimenter reentered the room. The experimenter then said the following:

The person you just saw on your TV screen is also being considered for the lunch date. For the next part of the study, the interviewer would like you to tell this person why he [she] should choose you over her [him]. In other words, the interviewer wants to hear why you think you'd be the better choice for the date. We've set things up so that both the interviewer and the other person will be able to see you through that camera and hear you through the microphone in the ceiling. For this portion of the study, though, you will not be able to see either of them. When you indicate to the other person why the interviewer should choose you, please look at the camera. Once the system is set up, I'll let you know through the intercom and you can make your statement.

The experimenter then began videotaping the participant and cued her or him to make the statement. This allowed each participant to make a spontaneous, open-ended response.

The experimenter then reentered the room and gave the participant a questionnaire containing the following questions:

1. In your opinion, how attractive was the person who interviewed you?
2. How much did you like the interviewer?
3. How much would you like to go on a date with the interviewer?
4. How competitive did you feel when speaking to the other person [the competitor]?
5. How anxious did you feel when speaking to the other person?
6. How awkward did you feel when speaking to the other person?
7. How confident did you feel when speaking to the other person?

Each question was answered on a 7-point Likert-type scale (1 = *not at all* and 7 = *extremely*).

The three items inquiring about the interviewer (Items 1, 2, and 3) were designed to assess the extent to which each participant was attracted to the interviewer. When we conducted principal axis factor analyses on these three items followed by varimax rotations (separately for men and women), a single factor emerged for both sexes. Hence, we aggregated these items to create a global index of attraction to the interviewer. This index was internally consistent for both men and women (Cronbach  $\alpha$  = .88 and .85, respectively). The items dealing with the same-sex competitor were developed to assess divergent reactions in the intrasexual competition situation (e.g., feelings of competition, anxiety, and personal competence). Therefore, we expected more than one factor to underlie these items. When we performed principal axis factor analyses (separately for men and women) on the four items involving the competitor (Items 4, 5, 6, and 7), followed by varimax rotations, two interpretable factors were found within each sex. For men, reported confidence (factor loading = .60), anxiety (–.65), and awkwardness (–.55) defined one factor, which we labeled *intrasexual confidence*. Competitiveness (.70) and anxiety (.65) loaded on the other factor, which we labeled *feelings of intrasexual competitiveness*. For

women, similar results emerged. One factor—on which confidence (.36), anxiety (−.36), and awkwardness (−.40) loaded—was labeled *intrasexual confidence*. The other factor—on which competitiveness (.69), anxiety (.80), and awkwardness (.56) loaded—was labeled *feelings of intrasexual competitiveness*. Factor scores based on factor score regression coefficients were calculated to measure these factors.

*Phase 2.* After the videotaping was complete, two experimenters entered the room and conducted the FA measurements (for additional information on these measures, see Furlow et al., 1997; Thornhill & Gangestad, 1994). Each participant was measured at 8 locations on both the right and left side of her or his body (for a total of 16 measurements). These points included feet (across the ball of the foot, the widest part where the knuckles are), ankles (the protruding bone on the outside to the protruding bone on the inside), index fingers (with palm turned up, the tip to the crease at the knuckle), small fingers (with palm turned up, the tip to the crease at the knuckle), wrists (with palm turned down, the protruding bone on the outside to the protruding bone on the inside), elbows (while making an L with the arm, the protruding bone on the outside to the protruding bone on the inside), ear length (the greatest length from the top to the bottom), and ear width (from the outside of the ear to the front of the ear canal). These traits have been shown to exhibit FA (Furlow et al., 1997; Gangestad & Thornhill, in press).

The experimenters took independent measurements with highly precise digital calipers. After each experimenter had completed the 16 measurements, they compared the measurements. If there was an absolute difference between the experimenters of more than 3 mm on any of the 16 measurements, the discrepant location was remeasured by both experimenters. The remeasured value became the official measure for the discrepant location. The absolute deviation scores comparing the left and the right side added across all locations correlated highly across the two measurers for men ( $r = .55, p < .0001$ ) but weakly for women ( $r = .22, p = .05$ ). Examination of agreement on individual characters revealed that intermeasurer correlations for the women's trait asymmetries of ear width, wrist width, and index finger length were not statistically significant. Elimination of these traits increased the correlation between measurers across all remaining traits to .47,  $p < .001$ —approximately the value for men. Thus, we used only five trait asymmetries for women.<sup>3</sup> Both measurers' measurements were averaged to calculate asymmetry at each body location. Absolute deviations at all locations were then added together to form a composite index of FA. Lower scores on the adjusted FA index indicated a higher degree of symmetry; higher scores reflected greater asymmetry.<sup>4</sup> According to the Spearman-Brown formula, the intermeasurer reliability of this index was .71 for men and .64 for women.

*Phase 3.* Next, participants were escorted to a private room to complete a battery of self-report measures. These included the Sociosexual Orientation Inventory (SOI; Simpson & Gangestad, 1991); the Self-Monitoring Scale (Snyder & Gangestad, 1986); the Texas Social Behavior Inventory (Helmreich, Stapp, & Ervin, 1974); the Agreeableness, Neuroticism, and Extraversion adjective scales of the Big Five personality traits (Goldberg, 1990); the Affective Communication Test (Friedman, Prince, Riggio, & DiMatteo, 1980); and the Other Impression Management Scale (Paulhus, 1984).

After completing these measures, each participant was asked whether she or he thought the interview was live. No one expressed any doubts that it was. Participants were then fully debriefed. Reasons for the covert videotaping were explained, and all participants were given an opportunity to erase their videotape if they wanted to. Only 4 participants (all women) chose to do so. Those who agreed to have their tapes coded then signed a release form.

*Phase 4.* Five trained raters (unaware of the experimental hypotheses and the self-report information provided by participants) rated the videotapes. Specifically, 5 college students (both women and men) independently evaluated each participant's answers to the interview questions relevant to intrasexual competition. In particular, they rated the last four questions asked by the interviewer along with the statement made to the same-sex competitor. These five segments included two questions about how participants sought the

Table 1  
*Descriptive Statistics for Men and Women*

Behavioral content dimension	Men		Women		<i>p</i> for sex difference
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>Intrasexual segment</i>					
Just be self	.35	.32	.28	.39	<i>ns</i>
Assert superiority	.27	.18	.11	.14	<.00001
Assert niceness	.27	.21	.04	.08	<.00001
Claim communality	.16	.24	.13	.28	<i>ns</i>
Claim to be likable	.26	.29	.33	.36	<i>ns</i>
Good conversationalist	.18	.18	.18	.20	<i>ns</i>
Ensure a good time	.49	.29	.48	.29	<i>ns</i>
<i>Intersexual segment</i>					
Direct approach	.42	.19	.21	.13	<.05
Focus on conversation	.40	.18	.40	.18	<i>ns</i>
Use humor	.11	.24	.01	.07	<.001

attention of and started a conversation with an attractive opposite-sex partner (Questions c and d above), and three questions or requests aimed more specifically at intrasexual competition techniques: the question from the interviewer asking why he or she should choose the participant for the lunch date over the competitor (Question f), the question from the interviewer asking how the participant would handle a situation in which she or he and two other friends were interested in the same person (Question e), and the statement made directly to the competitor.

Because little is known about what kinds of behavioral tactics men and women exhibit in intrasexual competitions, we first had raters watch the videotapes and list all of the responses and tactics that participants displayed. All of these responses and tactics were then sorted into categories based on their content. Within the videotaped segments involving how participants sought attention and started a conversation, three major tactic categories were identified: direct approach, focus on conversation, and use humor. Within the segments relevant to intrasexual competition, seven major tactic categories were identified: just be self, assert superiority, assert niceness—promise good treatment, claim communality, claim to be likable, claim to be a good conversationalist, and ensure a good time. Raters evaluated the extent to which each participant displayed each behavioral tactic on 9-point Likert-type scales (anchored 1 = *not at all [apparent]* and 9 = *very much [apparent]*). Because interrater reliabilities were high for each of the rated items (mean  $\alpha = .90$  and .84 for men and women, respectively), we aggregated raters' ratings within each item. Then, within each category, mean item ratings were calculated.

## Results

### *Descriptive Statistics and Sex Differences*

Means and standard deviations for the behavioral tactic content dimensions for each sex are presented in Table 1. To ease inter-

<sup>3</sup> The measurements of one measurer tended to be larger on one side of participants' bodies than on the other side, resulting in inconsistent measurements. This was particularly true of ear width. Elimination of this trait increased correlations across measurers on the remaining seven traits to .45. This seven-trait index yielded results nearly identical to those for the five-trait index. Furthermore, the interrater correlations for all individual trait asymmetries measured on men were significant.

<sup>4</sup> Scores were adjusted for reported sprains or breaks at any of the eight body locations. If a participant reported that she or he had sprained or broken a feature, asymmetry for that feature was taken as the mean asymmetry if it was above the mean and as the measured value if it was below the mean (see Furlow et al., 1997).

Table 2  
*Pattern Matrix Loadings of Behavioral Content Dimensions: Men*

Behavioral content dimension	Factors		
	1. Direct Intrasexual Competitive Tactics	2. Nice-Guy Self-Presentation	3. Interest in Getting Personal
Intrasexual segment			
Just be self	-.56	.06	.42
Assert superiority	.56	-.05	-.13
Assert niceness	-.08	.57	-.05
Claim communality	-.14	-.56	-.04
Claim to be likable	-.05	.01	.34
Good conversationalist	.09	.15	.48
Ensure a good time	.04	-.39	-.11
Intersexual segment			
Direct approach	.45	.05	.14
Focus on conversation	-.18	-.24	.44
Use humor	-.31	.33	-.29

*Note.* Factors are oblimin rotated. Correlations between the factors are  $-.07$  (1 and 2),  $-.09$  (1 and 3), and  $-.04$  (2 and 3).

pretability, we transformed the means into proportions (which can range from .00 to 1.00). Several sex differences emerged. On average, men promised that they would treat their partner well,  $t(147) = 9.36, p < .00001$ , and asserted superiority,  $t(150) = 6.11, p < .00001$ , more than women did. Furthermore, men used humor,  $t(150) = 3.39, p < .001$ , and a direct approach,  $t(146) = 2.29, p < .05$ , more than women did. Despite these differences, notable similarities emerged. Both sexes indicated that they and their partner would have a good time more than anything else ( $M_s = .49$  and  $.48$ , respectively). Neither sex was likely to use humor ( $M_s = .11$  and  $.01$ ).

#### *Factor Analysis of the Observer-Rated Content Dimensions*

To reduce the behavioral tactics to a smaller set of basic dimensions, we performed factor analyses on all 10 observer-rated categories, separately within each sex. Based on scree tests and factor interpretability, three factors were extracted and rotated for men. For women, two factors were extracted and rotated.<sup>5</sup> The varimax and oblimin rotations were very similar. Thus, the pattern matrices of the oblimin rotations for men are presented in Table 2 and for women in Table 3. (Because of the minimal correlations between the factors, all  $r_s < .10$ , the structure matrices are similar.)

For men, assert superiority (.56), direct approach (.45), just be self (-.56), and use humor (-.31) loaded highest on the first factor. This factor appears to reflect the extent to which men engaged in direct intrasexual competition and used direct, bold tactics when approaching attractive women (instead of not engaging in direct intrasexual competition or using indirect means of drawing attention). We labeled this factor *Direct Intrasexual Competitive Tactics*.

Assert niceness (.57) and use humor (.33) loaded most positively on the second factor for men, whereas ensure a good time (-.39) and claim communality (-.56) loaded most negatively. This factor appears to reflect the tendency among men to convey themselves as nice, sensitive people who are respectful

of women (instead of someone who is immediately interested in having a "good time") and with whom an interaction partner might have a lot in common. We labeled this factor *Nice-Guy Self-Presentation*.

Claim to be a good conversationalist (.48), focus on conversation (.44), just be self (.42), and claim to be likable (.34) loaded most highly on the third factor for men. This factor appears to reflect an expression of interest in getting to know a woman and in presenting oneself as sincere. We labeled this factor *Interest in Getting Personal*.

For women (see Table 3), assert superiority (.52) loaded most positively on the first factor, whereas just be self (-.65) loaded most negatively. Similar to the first factor for men, this factor appears to reflect the use of direct intrasexual competitive tactics. Unlike the men's factor, however, the use of direct, bold approach tactics did not load highly on this factor, which we named *Direct Intrasexual Competitive Tactics*.

Ensure a good time (.60), claim communality (.34), and claim to be a good conversationalist (.33) loaded most positively on the second factor for women, whereas assert niceness (-.34) and direct approach (-.41) loaded most negatively. This factor appears to be somewhat similar to the second factor for men (yet reverse-keyed). Unlike the men's factor, however, direct means of approach loaded on this factor, indicating that women who treat men with respect and sensitivity also use rather direct approach tactics (e.g., by buying men drinks, asking them out, and so on). This factor may reflect a tendency to espouse nontraditional views of sex roles. We labeled this factor, which was based primarily on the highest loading variable, *Ensure Fun*. For both men and women,

<sup>5</sup> The scree test suggested that two factors accounted for most of the covariation between the 10 behavioral content dimensions for women. We tried extracting a third factor. Because the third factor was not interpretable, we used the two-factor solution. Given the sample size, we also ran principal-components analyses and conducted the same analyses on the principal-components scores instead of on the estimated factor scores. The results were very similar.

Table 3  
*Pattern Matrix Loadings of Behavioral Content Dimensions: Women*

Behavioral content dimension	Factors	
	Direct Intrasexual Competitive Tactics	Ensure Fun
Intrasexual segment		
Just be self	-.65	.01
Assert superiority	.52	.16
Assert niceness	.02	-.34
Claim communality	.03	.34
Claim to be likable	-.26	-.03
Good conversationalist	-.18	.33
Ensure a good time	.14	.60
Intersexual segment		
Direct approach	-.09	-.41
Focus on conversation	-.03	.15
Use humor	-.24	.09

Note. Factors are oblimin rotated. Correlation between the factors is  $-.03$ .

we calculated factor scores (using factor score regression coefficients) to assess each rated factor.

#### *Correlations Between FA, SOI, and Rated Behavioral Tactics*

We then calculated correlations between each participant's scores on SOI and FA with the various observer-rated content

dimensions. Age was partialled out of all correlations. The results are presented in Table 4.

For men, FA correlated very highly with factor scores for Direct Intrasexual Competitive Tactics,  $r = -.49, p < .0001$ . That is, symmetrical men were much more likely to endorse and use direct tactics than asymmetrical men were. FA did not correlate with either the Nice-Guy Self-Presentation factor or the Interest in Getting Personal factor, both  $r_s = .03, ns$ .

Six of the 10 observer-rated dimensions significantly correlated with men's FA. More symmetrical men were more likely to claim that they were superior to the competitor ( $r = -.32$ ) and were more likely to use direct, bold approach tactics ( $r = -.33$ ) than less symmetrical men were. In addition, more symmetrical men were less likely to simply be themselves ( $r = .26$ ), state that they had interests in common with the interviewer ( $r = .25$ ), indicate that they were likable ( $r = .23$ ), or use humor to start up conversations ( $r = .30$ ) than were less symmetrical men.

Men's SOI significantly correlated with two factors. Unrestricted men were more likely to endorse or use Direct Intrasexual Competitive Tactics,  $r = .34, p < .01$ . However, they were less likely to use a Nice-Guy Self-Presentation,  $r = -.31, p < .01$ . Sociosexuality did not correlate with Interest in Getting Personal,  $r = -.01, ns$ . Two of the 10 individual content dimensions significantly correlated with men's SOI. Compared with restricted men, unrestricted men were less likely to claim they were nice ( $r = -.31$ ) and less inclined to use humor ( $r = -.31$ ).

Previous studies have shown that men's FA is associated with their sexual history, most notably their lifetime number of sex partners (mean  $r = -.2, p < .001$ ; Gangestad & Thornhill, 1997c; Thornhill & Gangestad, 1994). In the current sample, men's FA

Table 4  
*Correlations Between Fluctuating Asymmetry (FA), Sociosexuality (SOI), and Behavioral Content Dimensions*

Content dimension	Men		Women	
	FA	SOI	FA	SOI
Men's factor scores				
Direct intrasexual competitive tactics	-.49***	.34**		
Nice-Guy Self-Presentation	.03	-.31**		
Interest in Getting Personal	.03	-.01		
Women's factor scores				
Direct Intrasexual Competitive Tactics			-.08	.06
Ensure Fun			.01	.07
Individual dimensions				
Intrasexual segment				
Just be self	.26*	-.20†	.19	-.06
Assert superiority	-.32**	.20†	-.07	-.01
Assert niceness	.03	-.31**	-.01	-.03
Claim communality	.25*	.09	.03	.15
Claim to be likable	.23*	.11	.25*	.03
Good conversationalist	.02	.03	.06	-.19†
Ensure a good time	-.14	.12	-.02	.11
Intersexual segment				
Direct approach	-.33**	.20†	-.17	-.06
Focus on conversation	.09	-.09	-.24*	.13
Use humor	.30**	-.31**	-.15	-.08

Note.  $N = 152$  (72 men, 80 women).

†  $p < .10$  (marginally significant). \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



and SOI correlated negatively, but not significantly,  $r = -.14, ns$ . When men's SOI was partialled out, FA still correlated significantly with Direct Intrasexual Competitive Tactics, partial  $r = -.47, p < .0001$ . Similarly, SOI correlated significantly with Direct Intrasexual Competitive Tactics and Nice-Guy Self-Presentation with FA controlled, partial  $r_s = .32$  and  $-.31$ , both  $p_s < .01$ , respectively. Thus, for men, both FA and SOI predict intrasexual behavioral tactics independently of one another.

As anticipated women's scores on FA and SOI did not significantly covary with either set of behavioral factors. In particular, FA correlated  $-.08$  and  $.01$  with Direct Intrasexual Competitive Tactics and Ensure Fun, respectively,  $ns$ . Moreover, SOI correlated  $.06$  and  $.07$  with these components, respectively,  $ns$ . Of the 20 correlations involving FA and SOI with the 10 behavioral content dimensions, only 2 were statistically significant (what one would expect by chance). More symmetrical women were less likely to claim that they were liked by others,  $r = .25, p < .05$ , yet they were more likely to start a conversation when approaching an attractive man,  $r = -.24, p < .05$ . Women's FA and SOI were not significantly correlated,  $r = -.12, ns$ .

Tests for sex differences revealed that the correlation between FA and Direct Intrasexual Competitive Tactics was significantly smaller for women ( $-.08$ ) than it was for men ( $-.49$ ),  $z = 2.76, p < .01$ . In addition, the correlation between SOI and Direct Intrasexual Competitive Tactics was marginally smaller for women ( $.06$ ) than it was for men ( $.34$ ),  $z = 1.77, p < .08$ .

*Correlations With Participants' Self-Reports About the Interaction*

As shown in Table 5, men's self-reported attraction to the female interviewer correlated negatively with their use of direct intrasexual competitive tactics,  $r = -.26, p < .05$ . Neither FA nor SOI correlated significantly with men's attraction to the interviewer, however. Thus, attraction to the female interviewer did not mediate the relation between either FA or SOI and men's use of direct tactics. Moreover, men's reported feelings about interacting with the male competitor did not significantly correlate with FA, SOI, or any of the content dimensions.

Women who were more likely to ensure fun also were more likely to feel competitive with the female competitor,  $r = .29, p < .01$ , and were more attracted to the male interviewer,  $r = .24, p < .05$  (see Table 5). Furthermore, women who displayed more direct intrasexual competitive tactics were more likely to feel competitive with the competitor,  $r = .23, p < .05$ . Women's reported feelings about interacting with either the male interviewer or the female competitor did not correlate significantly with their scores on either FA or SOI.

*Structural Equation Modeling*

Next, we estimated latent parameters for FA and SOI to test the theoretical model for men outlined in the introduction. Specifically, FA was assumed to be a negatively correlating marker of developmental precision, which was assumed to affect sociosexual orientation, as measured by the SOI. Developmental precision was assumed to directly affect Direct Intrasexual Competitive Tactics. Sociosexual orientation, being a more direct measure of mating orientation, was assumed to negatively impact Nice-Guy Self-Presentation, which captures the degree to which men advertised positive qualities desired in long-term mates (see Figure 1). In this model, therefore, sociosexual orientation could correlate with Direct Intrasexual Competitive Tactics through the direct effects of developmental precision on both sociosexual orientation and Direct Intrasexual Competitive Tactics. Moreover, developmental precision could indirectly affect Nice-Guy Self-Presentation through its effects on sociosexual orientation. The reliabilities of FA and SOI (estimated by Cronbach's alpha) were used to calculate the correlation between these markers and the latent variables they tap. Maximum likelihood procedures in LISREL 7 (Jöreskog & Sörbom, 1988) were applied to the variance-covariance matrix to estimate the parameters.

The results are presented in Figure 1. As can be seen, all parameters in the model were significant. Developmental precision directly affects both sociosexuality  $\beta = .42, p < .05$ , and Direct Intrasexual Competitive Tactics,  $\beta = .98, p < .05$ . Sociosexuality, in turn, directly and negatively affects Nice-Guy Self-Presentation,  $\beta = -.37, p < .05$ . The model fit the data very well,  $\chi^2(3, N =$

Table 5  
*Correlations Between Participants' Reports About the Interaction and Behavioral Content Dimensions, Fluctuating Asymmetry (FA), and Sociosexuality (SOI)*

Variable	Intersexual attraction	Intrasexual	
		Confidence	Competitiveness
<b>Men</b>			
Direct Intrasexual Competitive Tactics	-.26*	-.11	-.01
Nice-Guy Self-Presentation	.14	-.12	-.01
Interest in Getting Personal	.06	-.09	.07
Fluctuating asymmetry	.16	-.14	.09
Sociosexuality	-.14	.01	.09
<b>Women</b>			
Direct Intrasexual Competitive Tactics	.15	-.01	.23*
Ensure Fun	.24*	.01	.29**
Fluctuating asymmetry	.15	.09	-.08
Sociosexuality	-.10	-.03	-.07

Note.  $N = 152$  (72 men, 80 women).  
\*  $p < .05$ . \*\*  $p < .01$ .

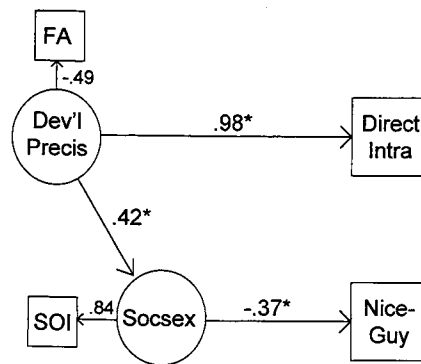


Figure 1. Fully standardized LISREL estimates of men's intrasexual tactics.  $\chi^2(3, N = 72) = .32$ , *ns*, goodness-of-fit index = .997, adjusted goodness-of-fit index = .992. FA = fluctuating asymmetry; Dev'l Precis = developmental precision; Socsex = sociosexual orientation; Direct Intra = Direct Intrasexual Competitive Tactics; Nice-Guy = Nice-Guy Self-Presentation; SOI = sociosexuality. \* $p < .05$ .

72) = .32, *ns*, goodness-of-fit index (GFI) = .997, adjusted goodness-of-fit index (AGFI) = .992.<sup>6</sup>

#### Physical Attractiveness as a Potential Mediator

Two studies have shown that men with more symmetrical bodies are judged to be more physically attractive (Gangestad et al., 1994; Thornhill & Gangestad, 1994). However, this relation has not been found consistently. Gangestad and Thornhill (1997c), for example, reported that intrasexual competitive traits (e.g., physicality and social dominance) mediate the relation between symmetry and number of lifetime sex partners, whereas physical attractiveness does not. In fact, attractiveness did not correlate with the number of lifetime partners, whereas symmetry did (see also Gangestad & Thornhill, 1997a). In addition, Furlow et al. (1998) found that symmetry predicts the number of fights in which men engage after facial physical attractiveness is partialled out, and symmetry did not predict attractiveness. Nonetheless, in the present study, one might question whether attractiveness mediates the relation between symmetry and either direct intrasexual competitive tactics or sociosexual orientation.

To test this possibility, we had 12–15 women rate the attractiveness of each man in the present study (from the videotapes, with the sound turned off). The mean rating for each man served as our measure of rated physical attractiveness ( $\alpha = .88$ ). Physical attractiveness did not correlate with either FA or SOI,  $r_s = .00$  and  $.04$ , respectively, *ns*. Physical attractiveness also did not covary with either Direct Intrasexual Competitive Tactics or Nice-Guy Self-Presentation,  $r_s = -.04$  and  $-.18$ , respectively, *ns*. Not surprisingly, then, a structural equation model that included physical attractiveness as a mediator of the effects of developmental precision on Direct Intrasexual Competitive Tactics and sociosexual orientation fit the data poorly,  $\chi^2(6, N = 72) = 25.56$ ,  $p < .001$ ; GFI = .87, AGFI = .67. Rated physical attractiveness, therefore, did not mediate the relations between men's symmetry and other major variables in this study. This evidence suggests that body symmetry may have less to do with facial attractiveness than

has been implied in earlier reports (e.g., Gangestad et al., 1994; Thornhill & Gangestad, 1994).

#### Correlations With Personality Markers

Finally, as exploratory analyses, we correlated all of the personality and individual difference measures collected in Phase 3 with FA scores and the rated behavioral tactics displayed by men and women. FA significantly correlated with only one of these measures for either sex: Women who were more symmetrical scored higher on Goldberg's adjective measure of Neuroticism,  $r = -.24$ ,  $p < .05$ . Thus, of the 35 correlations calculated, only 1 was significantly at the .05 level, fewer than expected by chance.

#### Discussion

In this study, women and men competed with a same-sex person for a possible date with an attractive opposite-sex interviewer. The interviewer (actually a videotaped experimental assistant) asked each participant a standard set of questions. After the interview, participants were asked to tell the competitor why the interviewer should choose her or him instead of the competitor for the date. The videotaped behavioral tactics displayed by women and men during the interview and in response to the competitor were evaluated by raters. The ratings were then factor analyzed to identify the principal behavioral tactics exhibited by women and men in this intrasexual competitive situation.

The results supported our predictions. More symmetrical men (i.e., those with lower FA scores) engaged in more direct intrasexual-competitive tactics. However, FA did not correlate with the other two behavioral tactics for men (presenting oneself as a nice guy and expressing an interest in getting personal). As conjectured, neither of the behavioral tactics identified for women (engaging in direct intrasexual competition and ensuring fun) correlated significantly with FA. In terms of sociosexuality, all of the effects also were confined to men. Men with a more unrestricted sociosexual orientation displayed more direct intrasexual competition tactics, and they were less inclined to present themselves as nice guys.

<sup>6</sup> Although the estimated correlation between developmental imprecision and Direct Intrasexual Competitive Tactics is nearly 1.0, the standard error around this effect size is large,  $SE = .44$ . The large standard error is due to two conditions: (a) limited sample size and (b) FA being an imperfect measure of underlying developmental precision. We also ran LISREL analyses on another model that might have accounted for the pattern of correlational findings. In addition to all paths shown in Figure 1, this model included a direct path between sociosexual orientation and Direct Intrasexual Competitive Tactics. This model provided a negligible and nonsignificant improvement in fit over the model presented in Figure 1,  $\chi^2(1, N = 72) = .20$ , *ns*. The added parameter was small and nonsignificant. All other parameter estimates were very similar to those presented in Figure 1. Thus, the data are consistent with the significant correlation between SOI and Direct Intrasexual Competitive Tactics, suggesting that developmental imprecision affects both measures. Finally, we ran a model in which the Interest in Getting Personal tactic also was treated as being directly affected by sociosexual orientation. Although the model fit was similar to the model shown in Figure 1, the parameter estimate of the added effect was small and nonsignificant. All other estimated parameters were very similar to those reported in Figure 1. Thus, we excluded Interest in Getting Personal from our final model.

Similar to FA, no effects were found for sociosexuality among women.

Structural equation modeling indicated that the data were consistent with a straightforward interpretation. Men's developmental precision, as indexed by FA, increases their ability to engage in direct intrasexual competition with other men and, therefore, their willingness to make direct comparisons between themselves and competitors. Because developmental precision is associated with more opportunities for short-term mating (Gangestad & Thornhill, 1997b), it also leads to a more unrestricted sociosexual orientation. Men who are more unrestricted, in turn, are less likely to advertise qualities relevant to long-term mating. Hence, unlike their restricted counterparts, unrestricted men do not present themselves as nice guys. One possible implication of this model is that direct competitive tactics may be the first competition strategy that most men attempt to use. If direct tactics fail, men then shift to secondary tactics that involve showing interest in long-term investment.

### FA

Male participants who were more symmetrical used more direct tactics to attract the interviewer and compete for the date. In particular, they asserted their superiority over the competitor by directly comparing themselves with him, they were less likely to use humor, they did not claim to be particularly likable or communal, and they engaged in some pretense (by not trying to just be themselves). When one considers that FA and the ratings of direct intrasexual competitive tactics share no method variance, the correlation of  $-.49$  between these two measures is remarkably high (as is the large estimated effect of latent developmental precision on direct tactics, shown in Figure 1). The size of this correlation did not diminish when participants' scores on the SOI were partialled out. This finding indicates that the relation between FA and direct tactics is not attributable to either participants' amount of prior sexual experience or their tendency to pursue short-term versus long-term sexual relationships (see Simpson & Gangestad, 1991). The use of investment-based tactics (e.g., presenting oneself as a nice guy) did not directly correlate with FA for men. Nevertheless, the results of the structural model indicate that developmental precision exerted a small, indirect effect on nice-guy self-presentation, which was mediated through sociosexual orientation (the model-based estimate of the standardized effect was  $-.12$ ).

These results are consistent with Gangestad and Simpson's (1997) evolutionary model of within-sex variation in mating behavior. This model proposes that parental investment and genetic viability represent two basic sets of attributes that individuals can offer to potential mates. Although people cannot control or easily alter their actual genetic viability, people do have considerable control over the amount of time, energy, loyalty, and commitment they invest in a relationship. Direct intrasexual tactics may be successful only if an individual has (a) the genetic viability necessary to compete with other men and (b) the relevant physical and personal attributes needed to back up a direct approach. As noted earlier, the relation between FA and the number of lifetime sexual partners for men is partly mediated through their physicality and social dominance (Gangestad & Thornhill, 1997c). That is, more symmetrical men tend to be larger, more physical, and less easily dominated than less symmetrical men, and these variables, in turn,

directly predict their greater mating success. More symmetrical men are also more likely to engage in physical confrontations with other men (Furlow et al., 1998). This recent evidence suggests that more symmetrical men do, in fact, have the physical and personal attributes necessary to pull off direct competition tactics in initial heterosexual encounters.

The fact that FA did not correlate with women's intrasexual tactics is not surprising given previous theory and research. From a theoretical standpoint, selection pressures favoring costly advertisements in intrasexual competition should have operated less strongly on women (Andersson, 1994; Daly & Wilson, 1988; Trivers, 1972) than on men. From an empirical standpoint, the strategies that women use to attract men often involve structuring situations to meet desirable men (Stage 1 of Thornhill & Alcock's, 1983, model; see Eibl-Eibesfeldt, 1989) or altering their physical appearance (Stage 4 of Thornhill & Alcock's, 1983, model; see Buss, 1988a; Walters & Crawford, 1994). As suggested by this study, women tend to use more subtle, indirect tactics to attract men, ones that may occur in different stages of intrasexual competition. Direct, bold tactics may be less familiar to, and possibly deemed less useful by, most women. Furthermore, social norms may preclude women from displaying direct approach tactics, at least during first encounters. If women show too much initial interest in a man, they may be labeled loose or indiscriminating, whereas social norms often reinforce attempted direct tactics by men, especially if they are routinely successful. Thus, countervailing social norms, many of which may reinforce behavior in the same direction as certain sex-differentiating selection pressures, might also account for some of the sex differences in the use of behavioral tactics.

The results for men fit nicely with recent findings reported by Shackelford and Larsen (1997). They found that men with less symmetrical faces felt less self-admiration and inferior to others. Men who feel inferior should be less likely to use direct competitive tactics during relationship initiation because negative self-perceptions should fuel beliefs that direct competition will end in failure.

### Sociosexuality

The findings for sociosexuality were also confined to men. Men with an unrestricted sociosexual orientation were more likely to use direct competition tactics, whereas restricted men were more likely to present themselves as nice or kind people. The regular use of these different tactics should facilitate the different relationship orientations and goals held by restricted and unrestricted men.

Compared with restricted men, unrestricted men tend to score higher on Extraversion and erotophilia, and lower on Agreeableness (Wright & Reise, 1997). They also describe themselves as being more assertive, irresponsible, and unproductive, along with being less warm and not prone to anxiety (Reise & Wright, 1996). When selecting romantic partners, unrestricted men place greater weight on a partner's attractiveness and social visibility than on her personal and parenting qualities (Simpson & Gangestad, 1992). When asked to describe their ideal romantic partner, unrestricted individuals focus less on an ideal partner's capacity for warmth and trustworthiness and less on an ideal relationship's potential for intimacy and loyalty (Fletcher, Simpson, Thomas, & Giles, in press) than restricted individuals do. When initiating

romantic relationships, unrestricted men display nonverbal behaviors that convey great flirtation, greater dominance or social engagement, and more phoniness, whereas restricted men engage in less pretense (Simpson et al., 1993).

Viewed together, these results support the premise that unrestricted individuals tend to adopt a short-term mating orientation (cf. Buss & Schmitt, 1993). In particular, they deemphasize the importance of a romantic partner's interpersonal qualities, which should serve as a good barometer of a partner's long-term compatibility. Restricted individuals, in contrast, adopt a long-term mating orientation that accentuates the importance of these qualities. The present study reveals how restricted and unrestricted men actually behave to facilitate their different interpersonal orientations during competitive heterosexual interactions. Restricted men present themselves as nice and kind; unrestricted men adopt a direct approach to express interest in a woman. Each tactic should attract the kind of person restricted and unrestricted men ideally desire.

Sociosexual orientation did not predict the use of all tactics that could advertise long-term relationship potential (e.g., claiming to be likable or expressing a strong interest in getting to know one better). Of course, the mere display of these tactics need not imply a genuine interest in developing a long-term relationship. Women who have sex earlier in relationships tend to develop intimacy more rapidly (Snyder & Simpson, 1984; Snyder, Simpson, & Gangestad, 1986), and they may expect a reasonable amount of intimacy and self-disclosure before having sex. Alternatively, statements about wanting to know another person better might be easily feigned and thus be unreliable signals of true interest in a long-term relationship. Future research must identify what kinds of statements reliably and validly signal long-term interest in relationship initiation settings.

Measures of Extraversion, Neuroticism, Agreeableness, self-monitoring, social self-esteem, impression management, and acting ability did not correlate with the intrasexual competition tactics. Personality and individual difference scales are useful broadband measures that often correlate with diverse kinds of social behavior, particularly when behaviors are aggregated across time, situations, and content domains. This study, of course, sampled a small slice of social behavior in a very specific setting. Nevertheless, FA and sociosexuality did strongly predict the behavioral tactics exhibited by men, whereas the aforementioned personality and individual difference measures did not. These results suggest that the global, traitlike measures used in this study may lack the precision and specificity necessary to predict intrasexual competitive tactics.

### *Sex Differences*

The sex differences that emerged are fairly consistent with previous research. The tendency for men to assert their superiority and use direct approach tactics more than women do corroborates previous research showing that men are more likely to display their resources, strength, and athleticism when trying to impress members of the opposite sex (Buss, 1988a; Walters & Crawford, 1994). Indeed, tactics involving displays of resources and strength are rated more effective when they are used by men (Buss, 1988a). The tendency of men to display more kindness or niceness than women do when vying for the attention of an opposite-sex indi-

vidual also is consistent with some, but not all, past research. For example, Buss (1988a) found mixed results for sex differences involving the use of kindness or niceness as a mate-attracting tactic. Although college women reported using niceness as a deliberate tactic more than college men did (Study 1), no sex differences were found in newlywed couples (Study 2), and niceness was viewed as a more effective tactic when used by men (Study 3). At present, there is some ambiguity concerning when, how, and why niceness is used by both sexes in the service of attracting romantic partners. Men in the present study also used humor more often than women did (although neither sex used it much). The use of humor was associated with wanting a long-term relationship, and humor was used more by men with a restricted sociosexual orientation. These results suggest that, when it is used, humor may facilitate the display of long-term mating tactics more than short-term ones (see Eibl-Eibesfeldt, 1989), at least during initial competitive encounters.

Although men often make the first direct overture in most heterosexual encounters, women usually position themselves to be approached by men whom they find attractive (Eibl-Eibesfeldt, 1989). Not only do women alter their appearance to enhance their attractiveness, but during initial encounters with men, they often emit verbal and nonverbal cues indicating contact readiness (Givens, 1978). Women who are unsuccessful at using these subtle, indirect tactics may have to resort to more direct tactics. However, men—especially those who are extremely direct themselves—may reject women who use direct tactics for being too forward and masculine. Consistent with this interpretation, women's interest in the male interviewer (along with how competitive they felt toward the female competitor) predicted the extent to which women claimed they would have fun on the lunch date. The factor structure of the behavioral tactics revealed that women who ensured fun were less likely to use bold tactics. Thus, women who found the interviewer highly attractive might have been cautious not to present themselves as being too forward or "easy to get."

### *Conclusions*

The tactics that men and women use to attract mates should be functional. Because different tactics may be most effective for individuals with different kinds of attributes, it is reasonable to expect that individuals, guided by their past relationship histories, come to use different tactics. On the basis of evolutionary principles, we predicted that men who have experienced little developmental imprecision would engage in direct intrasexual competition in which they directly compare themselves with potential competitors. Men interested in establishing long-term relationships, as evidenced by their more restricted sociosexual orientation, would accentuate attributes valued in long-term partners. We found evidence supporting these predictions. In addition, our results fit nicely within a specific and highly interpretable structural model.

If the behavioral tactics individuals use to attract mates are functionally shaped and tuned to showcase different attributes, targets who view these displays should interpret them in predictably different ways. A major research question that remains unanswered is whether restricted and unrestricted women do, in fact, differentially interpret and react to the tactics that different kinds of men display during intrasexual competition.

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