

**Bias toward Self in the Perception
of Spouse's Childbearing Desires**

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2006

Acknowledgements

Supported by Grant R01 HD23900 from the National Institutes of Child Health and Human Development.

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Abstract

There is little systematic knowledge about the factors that affect how husbands and wives perceive each other's fertility motivation. We describe a theoretical framework that includes the childbearing desires and perceived spouse childbearing desires of both partners and characterizes their relationships in terms of three correspondence states and four interpersonal processes. Based on data collected from 389 married couples at five points in time during a five year period, we use hierarchical linear modeling to examine how the difference between the respondents' perceptions of their spouses' childbearing desires and their spouses' actual childbearing desires varies in relationship to the actual disagreement between the two spouses. Separate analyses are conducted on those couples who have children during the follow-up period and those who avoid having children. Results indicate that there is a tendency for these married respondents to perceive their spouses' desires either with bias toward their own desires or with little bias. The predictors of bias toward self are interpreted in terms of couple interaction and communication around the issues of childbearing.

Key words: childbearing desires/interpersonal perception bias/hierarchical linear model

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Introduction

Within marriage, the decision to have a child is by and large a joint undertaking of the husband and wife. To be sure, parents and other extended family members of both spouses may make important contributions to childbearing decisions, especially in non-Western cultures. It is also true that many births within marriage occur following an unplanned pregnancy about which the two spouses have made no antecedent decision. Nevertheless, it is axiomatic to virtually all family planning programs and healthy family initiatives that husbands and wives participate together in deciding whether and when to have children and how many to have. And in order for this to happen, it is of fundamental importance that each spouse accurately perceive what his or her partner's desires regarding childbearing actually are.

Previous research (Miller, 1994) has demonstrated that both husband and wife decisions about childbearing, that is to say their intentions to have a(nother) child, are most strongly influenced by two motivational factors. These two factors include the individuals' own childbearing desires and their perception of their spouse's childbearing desires, with the relative importance of each factor varying considerably by sex and parity. This implies that if perceptions of the partner are systematically biased, the entire decision-making process may be skewed. In this paper we examine the childbearing desires of married couples for the presence of such bias. We believe that our results, including the theoretical framework and the methodology upon which they are based, have important implications not only for the field of fertility decision-making but more generally for understanding how the individual members of a couple communicate and perceive motivation within the dyad.

Theoretical Framework

Dyads in various forms are of critical importance to all human survival and reproduction. However, dyads face a fundamental problem, namely how to unify the separate interests of each individual in a way that satisfies both of them. Put in terms of our specific focus here, the problem becomes how are the separate fertility motivations of two spouses combined to produce their conjoint behavior and, ultimately, their actual joint fertility. We address this problem with a theoretical framework (Miller, Severy, & Pasta, 2004) that integrates a model of individual fertility motivation with a theory-of-mind-based model of dyadic interaction and mutual perception.

The motivational antecedents to childbearing and the behavior that follows from it may be thought of in terms of a traits-desires-intentions-behavior (T-D-I-B) sequence. Motivational traits are enduring dispositions that direct individual behavior toward certain more or less broad goals. Miller (1995) has described two broad motivational traits relevant to fertility, namely, positive and negative childbearing motivation. Desires represent psychological states that express what an individual wants to do with respect to specific goals. They derive from motivational traits but are also influenced by attitudes, beliefs, and other trait-like factors. With respect to the domain of fertility behavior, there are three important desires, namely childbearing desires, child-number desires, and child-timing desires (Miller, 1994). Intentions represent psychological states that express what an individual actually plans to do with respect to the same specific goals. They are derived from desires and are shaped by reality constraints, in particular by partner desires. In the fertility domain, there are three types of intentions that correspond to the three types of desires. Instrumental behavior represents what the individual actually does in order to accomplish his or her specific goals. The type of behavior enacted by the individual has a major role in whether or not a particular fertility event such as pregnancy is achieved or avoided. In previous work, we showed

that child-timing intentions and childbearing intentions were the strongest predictors of proceptive behaviors (efforts to achieve conception), depending in part upon whether the behavioral outcome variable was time-ordered or not (Miller & Pasta, 1995a). In subsequent work, we showed that contraceptive behaviors (efforts to prevent conception) were also well predicted by fertility intentions (Miller & Pasta, 1996).

The T-D-I-B sequence applies to individuals but, because the fertility domain typically involves the intimate interaction of two people, it is necessary to elaborate the sequence to include both partners. We do this by incorporating into our model the theory-of-mind capability that humans possess (Premack & Woodruff, 1978), especially our ability to apprehend others' emotional and motivational states (Eisenberg & Miller, 1987). Figure 1 shows the desires-intentions-behavior part of the sequence as applied to a married couple. The intentions of each spouse are shown to be influenced by both

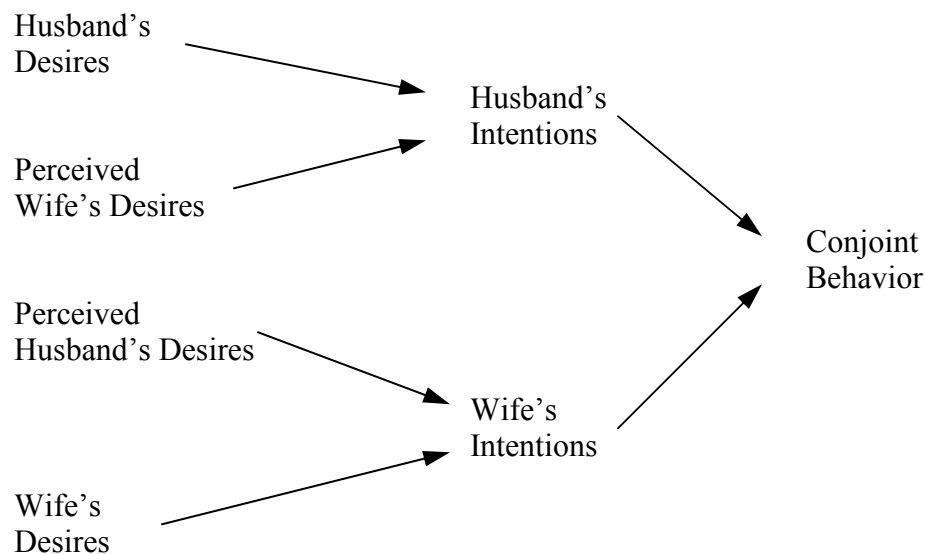


Figure 1. A Schematic Representation of the Desires-Intentions-Behavior part of the TDIB Sequence As Applied to Married Couples.

their own desires and their perception of their spouse's desires. The separate intentions of each partner are then conjoined in the course of enacting their common behavior in the form of procreation or contraception.

In this paper we are broadly interested in the desires and perceived desires of married couples, how they interact over time, and what factors affect that interaction. Because childbearing desires (i.e., the desire for a[nother] child) are in many respects the most fundamental of the three fertility desires (Miller, 1994; Miller & Pasta, 1995a), we will focus on them. In terms of Figure 1, we will limit our consideration to the desires/perceived spouse desires part of the sequence. By using only that part and rotating the figure clockwise 90°, we can visualize each spouse's childbearing desires and their perception of the other's desires in a horizontal row as shown in Figure 2.

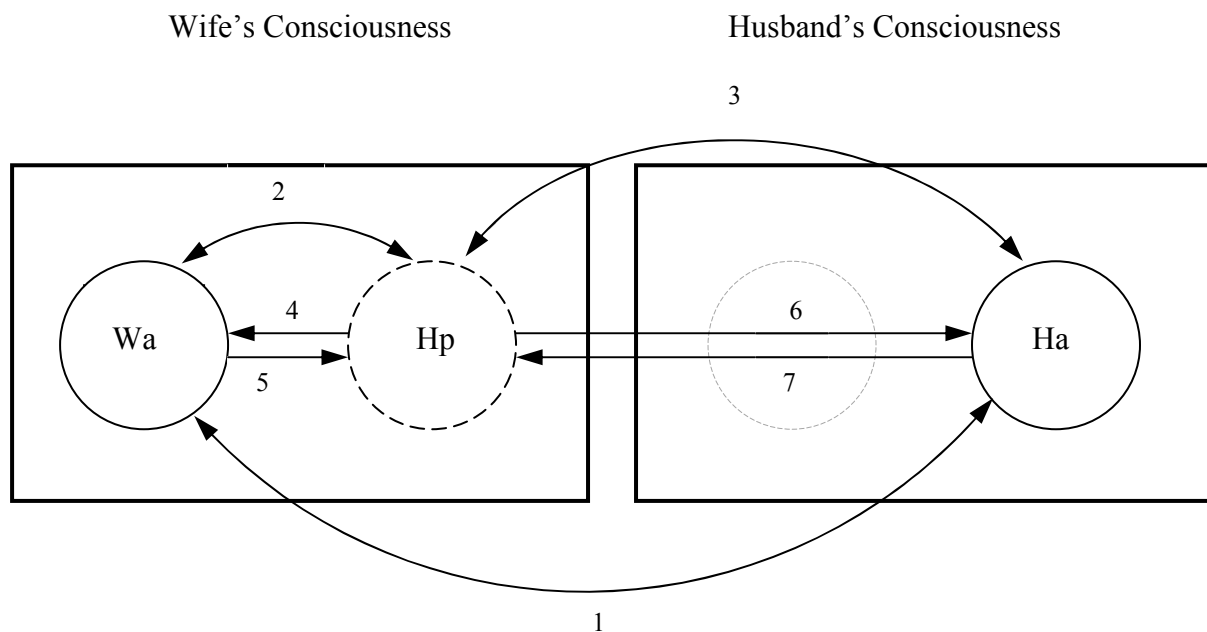


Figure 2. A Schematic Representation of Wife's and Husband's Actual Desires (Wa and Ha) and Wife's Perception of Husband's Desires (Hp), with Three Correspondence States Indicated by Double-Headed Arrows 1, 2, and 3 and Four Influence Processes Indicated by Arrows 4, 5, 6, and 7.

The notation used in this figure is as follows: W_a and H_a indicate wife and husband actual childbearing desires and are surrounded by solid-line circles; H_p indicates the husband's childbearing desires as perceived by the wife and is surrounded by a dashed-line circle. W_p , the wife's childbearing desires as perceived by the husband, is omitted for the sake of simplicity but its location is shown by a faint dashed-line circle. We have drawn a rectangle around the circles representing W_a and H_p and around those representing H_a and W_p to indicate that the former two are part of the wife's consciousness and the latter two a part of the husband's consciousness.

Figure 2 also shows two sets of arrows: three curved, double-headed arrows, numbered 1, 2, and 3, and four straight, single headed arrows, numbered 4, 5, 6, and 7. The first set of arrows indicate correspondences or correlations between the two elements indicated by each arrow, at least one of which in each case is based in the wife's consciousness. Arrow 1 indicates the correspondence between wife's actual childbearing desires and husband's actual childbearing desires and thus represents actual agreement between partners. Arrow 2 indicates the correspondence between wife's actual childbearing desires and her perception of her husband's childbearing desires and thus represents the wife's perceived agreement. Arrow 3 indicates the correspondence between the wife's perception of the husband's childbearing desires and the husband's actual childbearing desires and thus represents the wife's accuracy of perception. In order to avoid crowding the figure, we have omitted the arrows representing the husband's perceived agreement and the husband's accuracy of perception.

The second set of arrows shown in Figure 2 represent influence processes that involve H_p and affect the wife's three correspondence states. The first process, represented by arrow 4, is acceptance. In it, the wife's perception of her husband's desires (H_p) influences her own desires (W_a). The second process, represented by arrow 5, is attribution. In it, the wife's desires (W_a) influence her perception of her

husband's desires (H_p). The third process, represented by arrow 6, is accommodation. In it, the wife's perception of the husband's desires (H_p) influences his actual desires (H_a). Finally, the fourth process, represented by arrow 7, is apprehension (as in "to apprehend", meaning to understand intuitively, to correctly perceive). In it, the husband's actual desires (H_a) influence the wife's perception of his desires (H_p). Again in order to avoid crowding the figure, we have omitted the four influence processes that involve W_p and affect the husband's three correspondence states. Obviously, there are a number of other influence processes at the psychological, dyadic, and social levels that may also affect childbearing desires and perceived desires. In order to avoid excessive complexity, these are also not included in the figure

We stated above that the four intra-couple influence processes just described affect the wife's three correspondence states of actual agreement, perceived agreement, and accuracy of perception. Figure 3 illustrates the action of each of these processes by showing how a change in one component of our W_a - H_p - H_a schematic along a hypothetical child-bearing dimension measured from 0 to 20 affects certain correspondence states, assuming that the other two components are held constant. We realize that in reality all components of our model, not just one, are regularly undergoing both systematic and random change and, therefore, that Figure 3 represents four simplified scenarios. However, simplification serves the heuristic purpose of demonstrating the differences among the four interactive processes and the three correspondence states, while simultaneously indicating how each process, when acting alone, affects certain states.

The first row of Figure 3 shows that when apprehension increases as H_p moves toward H_a , then accuracy of perception increases and perceived agreement decreases; and the second row shows that when attribution increases as H_p moves toward W_a ,

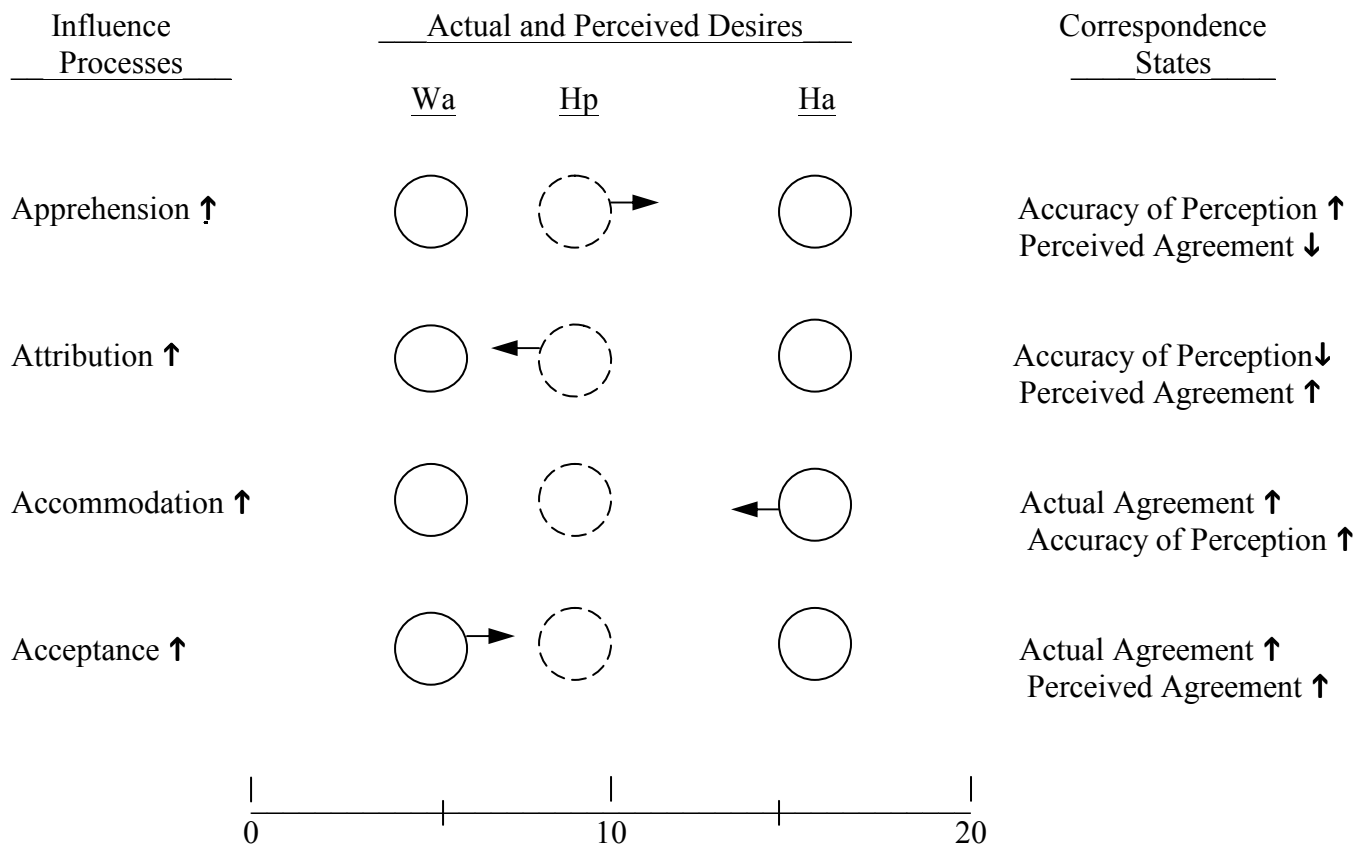


Figure 3. A Schematic Representation Showing How Each of Four Processes that Influence the Wife's Actual Childbearing Desires (W_a), the Perceived Childbearing of her Husband (H_p), and the Husband's Actual Childbearing Desires (H_a) Affect the Correspondence between them, Holding Other Factors Constant.

then accuracy of perception decreases and perceived agreement increases. In other words, everything else (specifically W_a and H_a) being constant, these two processes have exactly opposite effects. The story is not so simple, however, when it comes to the other two influence processes. The third row shows that when accommodation increases as H_a moves toward H_p , then actual agreement increases and so does accuracy of perception; and the fourth row shows that when acceptance increases as W_a

moves toward H_p , then again actual agreement increases but now so does perceived agreement. In other words, these two processes have in part the same effects and in part different (but not opposite) effects.

What happens in the real world when one of these influence processes changes? We can think about this question with the help of a specific example in which W_a , H_p , and H_a have different values on the 0-to-20 point scale of childbearing desires utilized in Figure 3. Suppose that W and H have a talk about childbearing, the first one for a few years. Suppose also that during the talk W discovers that her perception of H's childbearing desires has been quite wrong, and that whereas she thought he was a 9 before the talk, afterwards she concluded he was a 12 (still some bias here because he is actually a 16). This change in her perception might well set in motion some changes in her own desires such that over time she accepted his point of view enough that she moved from being a 5 to being an 8. In other words, her more realistic appraisal of his desires leads her to realize the magnitude of the disagreement between them, which in turn leads to a change in her desires through a greater acceptance of his point of view.

Suppose additionally that H changes jobs to one where he will be traveling less and will be able to devote more of his time to childcare. Suppose also that this generates a further increased acceptance of H's childbearing desires by W. As she moves from being a 8 toward being, say, a 12, we can imagine that the additional discussions likely to be stimulated by these changes might well alter her perception of H's childbearing desires toward greater accuracy, causing the balance between her attribution and apprehension to equilibrate in some new position, such as 14, making her perception closer to H's reality. In other words, W's increased acceptance of H's childbearing desires as a result of his greater availability for childcare leads her to a more accurate perception of his desires, although some attribution continues to affect her perception.

It is apparent that the model we have elaborated here –illustrated in Figure 2 by the $W_a-H_p-H_a$ schematic with its four connecting process arrows—is highly recursive (i.e., with variable effects looping back on themselves). This is even more the case if the husband part of the model (the $H_a-W_p-W_a$ schematic) is added to make the whole framework more completely dyadic. Given the amount of model endogeneity, separation of the four processes of acceptance, accommodation, attribution, and apprehension during data analysis is certain to be extremely difficult, if not impossible. Nonetheless, with a few simplifying assumptions, some progress can be made. It will be noted in Figure 3, for example, that the two processes of apprehension and attribution are related in that both affect the position of H_p relative to W_a and H_a and the two have opposite effects on accuracy of perception and perceived agreement. On the other hand, the two processes of accommodation and acceptance are related in that both move W_a and H_a relative to each other and the two have the same effect on actual agreement. These pair-wise similarities have led us to two separate analyses. In this paper, we examine the predictors of bias in perception and interpret our findings in terms of apprehension and attribution. Although it is difficult to tease apart the effects of these two processes, we believe that the predictor variables in our analyses allow interpretations that point to one or the other of them. In a companion paper to this one (Miller & Pasta, 2004), we examine the predictors of change in actual agreement, or more precisely, in the degree of agreement/disagreement, and interpret our findings primarily in terms of accommodation and acceptance.

There is one final aspect of our theoretical framework that requires discussion. Figure 4 shows some of the ways that H_p can vary in position relative to W_a and H_a . Up to this point we have treated H_p as though it falls between W_a and H_a , assuming that W 's perception of H 's childbearing desires will to some extent be biased in the direction of her own desires by some attribution process. However, we know that is not always the case. Suppose that H_p begins at position 1. Over the course of time, it might

move to position 2, as W 's perception of her husband's desires becomes more accurate. But H_p might also move to position 3 or to position 4. Although much less common, especially if random fluctuations¹ are taken into account, these sorts of moves do occur and must be accounted for within our framework. We will consider movement such as that from position 1 to 3 to be an increase in attribution because it involves the movement of H_p in the direction of W_a from H_a .

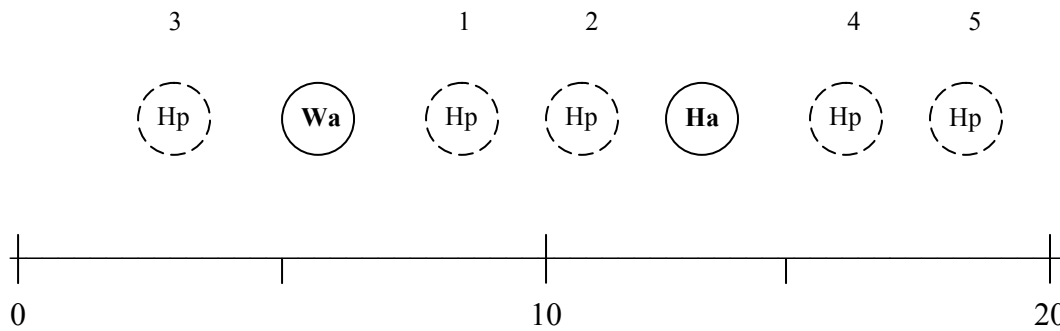


Figure 4. A Schematic Representation of Different Possible Positions of H_p Relative to W_a and H_a Along a Single Dimension of Childbearing Desires.

Similarly, we will consider movement such as that from position 1 to 4 to be an increase in apprehension because it involves the movement of H_p in the direction H_a from W_a . If these types of movements occurred frequently in an extreme form, this approach would be problematic. For example, it would be difficult to consider a movement of H_p from position 4 to position 5 as an increase in apprehension. Fortunately, as we shall indicate below, we have found these kinds of movements to be very infrequent.

¹These occur as a result of various factors, such as variations in mood (Miller, Shain & Pasta, 1990), the effects of random events, and measurement error.

Methods

Sampling, Data Collection, and Variable Construction

The data analyzed in this paper were collected during a longitudinal research project concerned with childbearing motivation and its effects on fertility in 201 married couples with no children and 200 married couples with one child at the beginning of the study. All of these couples were living in a largely urban and suburban county located in the San Francisco Bay Area. Sampling was conducted by telephone using a modified area probability technique. Eligible couples included those who were currently married with zero or one child, in which spouses spoke and read fluent English, neither spouse was sterilized, and the wife was not pregnant and was age 18 through 39. The average age of the husbands and wives was 31.6 and 29.6, respectively. Marital duration for the parity-zero couples was just over 3 years and for the parity-one couples was over four and one-half years. The average husband had 16.7 years of education; the average wife had 15.9 years. Couple income averaged \$71,000 in 1989. Additional characteristics were the following: 7% of the males, 13% of the parity-zero females and 35% of the parity-one females were not currently employed; 25% of the sample was Roman Catholic, 44% was Protestant, and 21% had no religion; and 81% of the sample was white, 7% was Asian, 5% Latin, and 2% black. Further information about sampling and social-demographic characteristics of the sample is available in other publications (Miller, 1992, 1994; Miller & Pasta, 1993).

Data were collected from this sample during five structured interviews: an initial interview and four follow-up interviews 12, 24, 42, and 60 months later. At the initial interview each husband and wife was interviewed separately and privately, either at the investigator's research offices or, more commonly, in the couple's own home. At the same time, each respondent was administered several self-report inventories. The four follow-up interviews were conducted by telephone and the

inventories were mailed to them with a return envelope, helping to maintain a low loss to follow-up. Because of the need for dyadic data in the current study, we treated couples as lost to follow-up when they separated permanently or divorced. Of the 401 original couples, 12 were lost to follow-up after the initial interview and are not included in this analysis. For the remaining 389 couples, we have two years of data from 18 couples, three years from 47 couples, four years from 31 couples, and five years from 293 couples.

In preparation for data analysis, we selected from five categories of variables that our previous research has shown to be important determinants of childbearing desires and their changes over time (Miller, 1994; Miller & Pasta, 1995b). These categories included social and demographic background variables, personality traits, motivational antecedents to childbearing, gender role variables, and couple interactions that centered around childbearing. We discuss each of these categories in turn.

Data for the following background variables relevant to the current study were collected during the initial interview: sex, age, years of education, religion, religiosity, number of marriages, marital duration, beginning gravidity, and beginning parity. At each follow-up interview we determined whether the wife had become pregnant during the previous interval and if so, how often and what the outcome(s) was (were), which for the present study we classified as a failed pregnancy, a live birth, or still (currently) pregnant. We also constructed a follow-up parity variable at each follow-up which took into account not only changes through births but changes through adoption and alterations in custody arrangements. During the four follow-up interviews, 155 women were currently pregnant at the time of the interview; 73 failed pregnancies and 291 live births were reported. Parity at the end of study was zero for 87 couples, one for 127 couples, two for 155 couples, three for 19 couples, and four for 1 couple.²

²In order to avoid a possible distorting outlier effect, the one couple with four children was excluded from the analysis at the final interview when they had had their fourth child.

Also during the initial interview five personality traits were measured, using Jackson's (1984) Personality Research Form. These traits were Achievement, Affiliation, Autonomy, Order, and Nurturance.

During each interview, we measured various aspects of the motivational antecedents to childbearing. Most important for our present purposes were Childbearing Desires (Miller, 1994). Respondents were asked to indicate on a five-point scale how certain they were about their desire to have a(nother) child and then to rate on a ten point scale how much they desired to have a(nother) child. A composite Childbearing Desires variable (range 2-20, with higher scores indicating greater childbearing desires) was constructed by adding the two scores together after recoding answers to the first question (1=1, 2=3.25, 3=5.5, 4=7.75, 5=10) in order to correct for the different range in response values. The mean score across all five years was 13.88. We then asked two similar questions about respondents' perceptions of the certainty and magnitude of their spouses' desires for a(nother) child and constructed in a similar way a Perceived Spouse Childbearing Desires variable. The mean score across all five years was 13.81. The reliability of these measures is high and the evidence for their validity is strong, as Miller has discussed elsewhere (1994).

Additionally, at each interview we measured the respondents' Child-Number Desires (Miller & Pasta, 1993), Child-Timing Desires (Miller & Pasta, 1994), and Childbearing Motivation (Miller, 1995). The latter measure includes two primary scales, Positive Childbearing Motivation (PCM) and Negative Childbearing Motivation (NCM), which are not significantly correlated with each other.

Finally, we collected data relevant to two separate but related categories of variables, gender role and couple interaction. With one exception, these variables were based on single interview questions and with two exceptions, the data were collected at every interview. The gender role variables included two questions (at the initial interview only) about which spouse had primary responsibility for making the decision

about whether to have a(nother) child and when to have it. Response categories were: 1. wife only, 2. wife mostly, 3. wife and husband equally, 4. husband mostly, and 5. husband only. The mean for both questions was about 2.8, with only a few 1s and 5s. Also considered as gender role variables were a question about current employment status and one about work satisfaction. The latter was rated on a five point scale from 1. very low to 5. very high. Those not currently employed were given their most recent rating. The mean score across five years was about 4.

The couple interaction variables included two questions about how good the communication had been "between the two of you" about whether to have a(nother) child and about when to have a(nother) child. Response categories were: 1. very good, 2. mostly good, 3. both good and bad, and 4. bad. The initial interview sample means for the two questions were 1.6 and 1.5 respectively, with 3s and 4s together constituting only about 10% of the responses. Two additional couple interaction variables were based on two questions about the amount of disagreement between the respondent and his/her spouse about whether to have a(nother) child and when to have it. Response categories were: 1. none, 2. a little, 3. a moderate amount, and 4. a great deal. The initial interview sample means for these two questions were 1.5 and 1.6 respectively. The last couple interaction variable was called Marital Problems and was based on three questions about marital satisfaction (from 1. very high to 5. very low), the presence of serious conflicts (from 1. no to 3. yes, a lot), and whether the respondent had given consideration to separation (from 1. no to 3. yes, several times). We used the first principal component of these three questions for variable construction.

Data Analysis

We used hierarchical linear models of change (Bryk & Raudenbush, 1992) and the HLM software (Bryk, Raudenbush, Seltzer, & Congden, 1988). In our analysis, we considered how the respondent's childbearing desires (RA for Respondent Actual) was

related both to his or her spouse's childbearing desires (SA for Spouse Actual) and to his or her perception of that spouse's childbearing desires (SP for Spouse Perceived). Because we were interested in both the magnitude and the sign of the difference between SA and RA and between SA and SP, we created two variables called signed SARA (for Spouse Actual minus Respondent Actual) and signed SASP (for Spouse Actual minus Spouse Perceived). Following the discussion above, we conjectured that SP would generally lie between RA and SA (or at least "close" to RA or SA if not actually between them). This is equivalent to saying that signed SASP would have the same sign as signed SARA. If $SA > RA$, so that $SARA > 0$, then we would expect $SA > \sim SP$ ("SA greater than or approximately equal to SP"). Similarly, if $SA < RA$, so the $SARA < 0$, then we would expect $SA < \sim SP$.

In order to help the reader to visualize some of the relationships that are central to our data analysis, we have developed two figures. Consider the hypothetical time series of childbearing desires depicted in Figure 5. The top half of the figure considers childbearing desires from the wife's perspective, showing the wife's actual childbearing desires (W_a), the husband's actual childbearing desires (H_a), and the wife's perception of her husband's childbearing desires (H_p). For each of the five points in time (left side of figure), values are given for each of the three variables on a hypothetical 20-point scale of childbearing desires (bottom of figure). This hypothetical example is designed so that the value of the husband's perceived desires, H_p , lies between the wife's actual desires, W_a , and the husband's actual desires, H_a , as we proposed would generally be the case, and as was depicted in Figure 4. In addition, the example is designed so that the wife's perceptions of her husband have approximately constant accuracy (the distance between H_p and H_a is nearly constant).

The bottom half of Figure 5 shows the same data points from the husband's perspective. Because this is the same hypothetical couple, the actual values (W_a and H_a) are the same, but now instead of H_p we graph W_p , the husband's perception of the

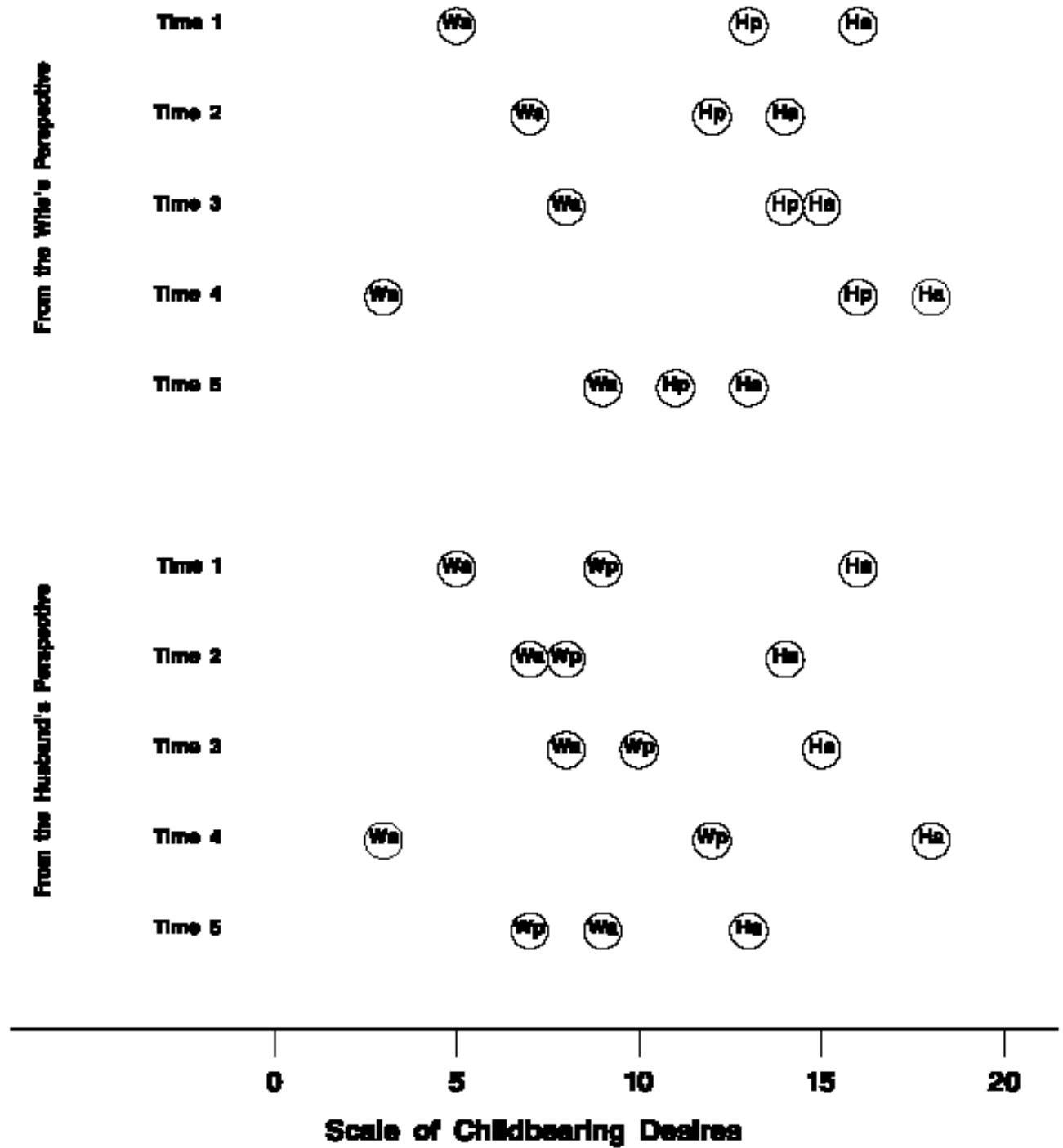


Figure 5: Hypothetical Time Series of Childbearing Desires

wife's childbearing desires. For most of the times, W_p is between W_a and H_a , as we suggested it usually would be. For Time 5, however, W_p is close to W_a but it is on the low side of W_a while H_a is on the high side. Small deviations of W_p (or H_p) in the "wrong" direction can be explained by random fluctuation analogous to measurement error. This example is designed so that the husband's perceptions of his wife show approximately constant perceived agreement (the distance between W_p and H_a is nearly constant).

In Figure 6, we show the same hypothetical data as in Figure 5 in a different way. For the wife, signed SASP corresponds to H_a minus H_p and SARA corresponds to H_a minus W_a . From the top half of Figure 5, one can see that for the wife signed SASP will be positive and approximately constant and signed SARA will also be positive but vary from around 5 to around 15. The relationships between signed SASP and signed SARA for the wife at all five times are plotted in the upper right quadrant of Figure 6 with a solid line having a slope close to zero representing the least-squares regression line for these data. Note that the time sequence of the data values, indicated by labeling the data points from 1 to 5, is not germane to the fitted line in Figure 6. This figure is designed to emphasize the relationship between signed SASP and signed SARA for the couple without considering the direction of change over time.

For the husband, the translation of the Figure 5 data to Figure 6 is somewhat more difficult because most of the differences are negative. For the husband, signed SASP corresponds to W_a minus W_p , which is generally negative. Signed SARA corresponds to W_a minus H_a , which is always negative. As previously mentioned, the data for the husband was constructed so that the distance from H_a to W_p is nearly constant; this implies that a one-unit change in signed SARA will be associated with a one-unit change in signed SASP, or a slope of approximately one. These data are plotted on the left side of Figure 6 with the dashed line showing the least-squares regression line, which indeed has a slope near one. The fact that for the husband W_p is

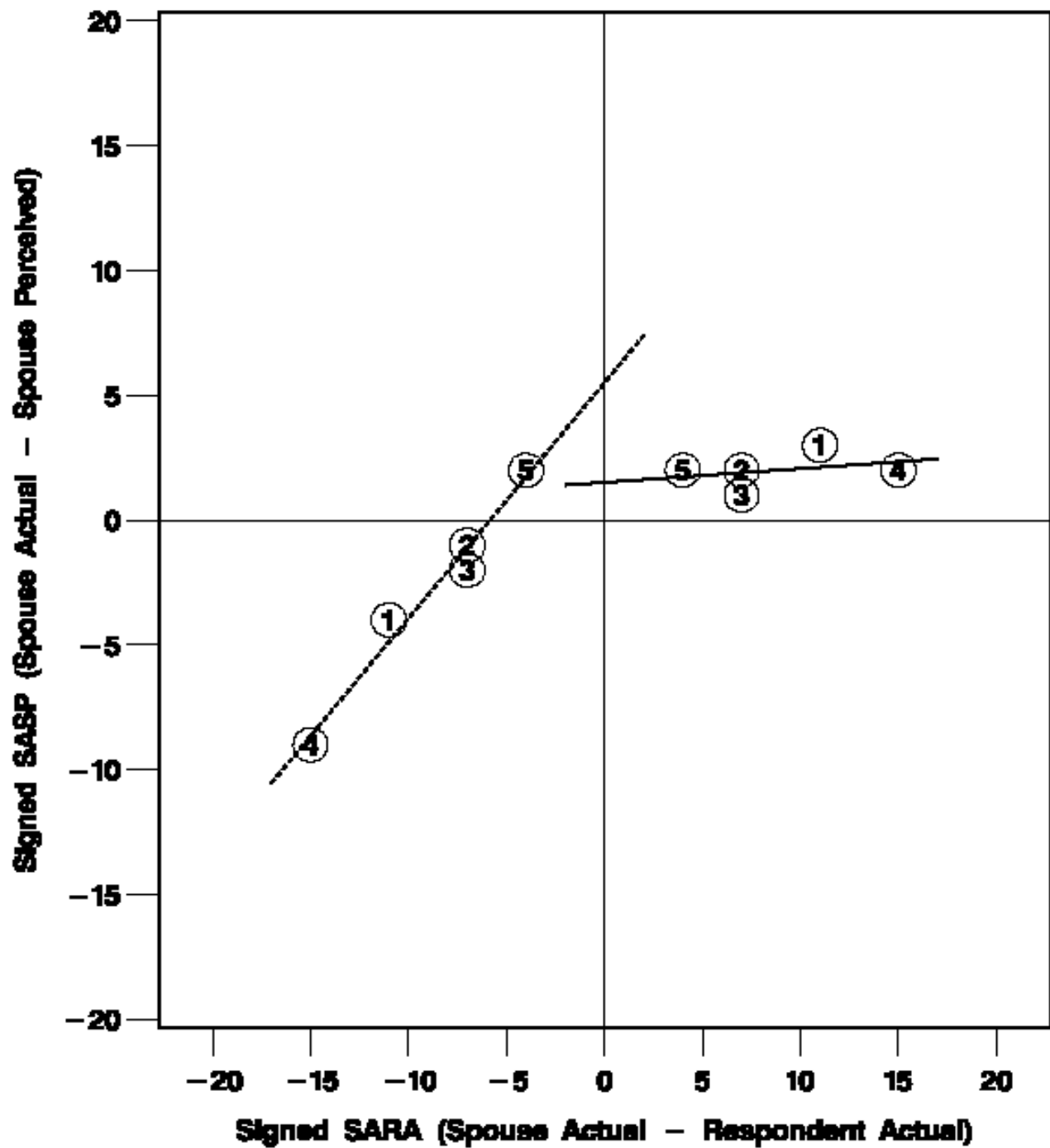


Figure 6: Hypothetical Relationships Between Signed SASP and Signed SARA

on the "wrong" side of W_a at Time 5 in Figure 5 is depicted in Figure 6 by the fact that the circled 5 has a positive value of signed SASP but a negative value of signed SARA, so that it is in the upper left quadrant.

The depiction of the data in Figure 6 leads to the formulation of our analysis. We began with the assumptions that signed SASP measured deviation of the respondent's perception of spouse's desires from the spouse's actual desires and that signed SARA measured deviation of the respondent's actual desires from the spouse's actual desires. We then reasoned that the relationship between signed SARA and signed SASP indicated the extent to which the respondent's bias was in the direction toward or away from the self. Thus we formulated a Level 1 model predicting signed SASP from signed SARA and other predictors. A key feature of the model was that we were not attempting to model changes in signed SASP over time in order to understand, say, trends in signed SASP in the course of marriage. Rather we were attempting to model changes in signed SASP in relationship to changes in signed SARA in order to understand the respondent's general disposition toward bias in the perception of spouse's desires. Of course, we used repeated observations over time for each couple in order to generate a more reliable measure of dispositional bias, but our primary focus was not on the time ordering of the data points. Nevertheless, in order for the relationship between signed SASP and signed SARA not to be distorted by changes over time or time-related events such as the birth of a child, we needed to control for these factors in the Level 1 model. Therefore, our initial Level 1 model for predicting signed SASP included both time and parity:

$$\begin{aligned} (\text{Signed SASP})_{it} = & \pi_{0i} + \pi_{1i} (\text{Signed SARA})_{it} + \pi_{2i} (\text{Time})_{it} \\ & + \pi_{3i} (\text{Parity})_{it} + e_{it} \end{aligned}$$

where i indexes the couples and t indexes the data collection time points.

The key research question addressed by our analysis was whether the relationship between signed SASP and signed SARA was different across respondents.

Do some respondents have essentially constant signed SASP without regard to signed SARA (Slope 0)? This corresponds to constant accuracy and varying amounts of perceived agreement. The accuracy may be very good (signed SASP close to zero) or it may be very bad. If signed SASP is markedly positive, it means the respondent's perception of the spouse, SP, is substantially below the value reported by the spouse, SA. Similarly, if signed SASP is markedly negative, it means the respondent's perception of the spouse is substantially above the value reported by the spouse. But under the assumption of a zero slope for signed SASP in relation to signed SARA, the inaccuracy is the same regardless of the magnitude or sign of SARA. For other respondents, their perception of their spouses' childbearing desires (SP) might move in lockstep with their own childbearing desires (RA), so that when SARA is larger by one unit so is SASP (Slope 1). For these respondents, the distance between RA and SP is constant, so that perceived agreement is constant and accuracy varies.

In these analyses, the respondent and spouse are not symmetric. Accordingly, each couple contributes two sets of (up to) five observations: one set where the husband is the respondent and we are studying his perceptions of his wife's childbearing desires as they relate to her and his actual desires, and one set where the wife is the respondent and we are studying her perceptions of her husband's childbearing desires as they relate to his and her actual desires. In our analyses, which to our knowledge are the first to address these questions in this direct way, we were primarily interested in determining whether there were systematic differences among respondents in the relationship between signed SASP and signed SARA, and if so, what the predictors of those differences were.

Construction of Analysis Variables

In preparation for the analyses, we created mean and difference variables from many of the simple (individual-based) variables already discussed. For most of the

individual independent variables we created both mean variables (average of husband and wife, or, equivalently, of respondent and spouse) and signed difference (husband minus wife or respondent minus spouse) variables. Exceptions to these procedures included the following. For background variables common to the two spouses (marital duration, beginning parity) and fertility events during the course of the study, a common couple-level variable was constructed. For personality variables, the two individuals' variables were not combined in any way and were simply designated as belonging to the "respondent" or the "spouse," as appropriate.

Model Construction Criteria

In our analysis, we began with the prediction of signed SASP using signed SARA. Once we established sufficient variance across couples in the parameters characterizing that prediction, we augmented the model with time-varying variables and reconfirmed the presence of sufficient parameter variance in the relationship between signed SASP and signed SARA. Guided largely by simple correlations between residuals from the fitted second-level models and possible explanatory variables, we systematically added variables to the second-level models for the slope and intercept of the relationship between signed SASP and signed SARA. Candidate variables were included in the base (intercept) model whenever they were included in the model for a first-level parameter (slope). Some predictor variables were added only to the base model. Because of the exploratory nature of our analyses, we elected to be broadly inclusive in our p-value for retaining predictors, setting it at a two-tailed $p=0.10$.

In the course of conducting the HLM analyses of the predictors of couple disagreement in childbearing desires for the companion paper to this one (Miller & Pasta, 2004), we made an important observation: for those couples who changed parity during the five-year follow-up period, disagreement changed considerably and it

changed across parity, whereas for those couples who did not change parity during the five years, disagreement changed only slightly across time. We therefore decided to conduct the disagreement analyses separately for the parity changers and the parity non-changers. Because these two groups had distinct motivational patterns and each generated informative models that were decidedly different, we also chose to conduct the analyses reported here separately for the same two groups.

Results

Tables 1 and 2 present descriptive statistics by sex for the parity changer and non-changer groups of all variables measured at baseline and used as predictors in the HLM analyses. When we compared these two groups by sex for all these variables, we found substantial differences, especially with respect to the motivational antecedents to childbearing. Male parity changers had a mean initial childbearing desires score of 17.50 compared to male parity non-changers who had a mean initial score of 14.68 ($p < .001$). For females the corresponding scores were 18.11 and 14.46 ($p < .001$). There were similar very large differences for both sexes on child-number and child-timing desires. Both sexes showed large differences across groups on Positive Childbearing Motivation but only females showed a significant difference ($p < .001$) on Negative Childbearing Motivation. Additionally, both sexes indicated significantly worse communication about if and when to have a child in the non-changers group. One other noteworthy difference was that the female changers had stronger initial childbearing desires than their husbands ($p = .019$), whereas female non-changers actually had weaker desires (although $p = .54$) than their husbands.

Tables 3 and 4 present descriptive statistics by sex for the two groups of actual and perceived childbearing desires and related difference variables at each of the five interviews. Again we observe important group differences. For example, husbands'

Table 1. Means and Standard Deviations for Husbands and Wives and for Husband-Wife Differences and Husband/Wife Correlations for All Predictor Variables at Baseline Among Parity Changers (N = 240).

<u>Variable</u>	<u>Husband</u>		<u>Wife</u>		<u>Husb-Wife</u>		<u>Husb/Wife</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Correl.</u>
Age	31.13	4.61	29.11	3.91	2.02	3.38	.696
Education	16.59	2.42	15.90	2.23	.69	2.05	.614
Protestant	.46	.50	.46	.50	.00	.63	.196
Roman Catholic	.33	.47	.36	.48	-.03	.60	.221
Other Religion	.07	.25	.07	.26	.00	.21	.642
No Religion	.14	.35	.10	.31	.03	.44	.102
Religiosity	4.28	1.74	4.66	1.64	-.37	1.35	.683
Number of Marriages	1.10	.31	1.08	.29	.02	.39	.145
Marital Duration	3.71	2.64	3.70	2.64	.01	.26	.995
Gravidity	.73	.88	.80	.97	-.06	.60	.793
Parity	.55	.50					
Autonomy	-1.28	2.83	-3.10	2.56			.074
Affiliation	.84	3.75	2.09	3.56			.096
Achievement	3.52	2.44	2.26	2.72			.124
Order	-.47	4.43	1.11	4.34			.127
Nurturance	1.16	2.82	3.30	2.49			.232
Childbearing Desires	17.50	3.18	18.11	2.95	-.61	3.50	.350
Child-Number Desires	2.61	.95	2.67	.97	-.06	.99	.465
Child-Timing Desires	2.70	1.69	2.55	1.59	.15	1.63	.510
Positive CB Motivation	78.99	11.55	81.78	10.90	-2.79	12.94	.336
Negative CB Motivation	49.82	7.36	46.14	7.34	3.68	9.81	.110
Responsibility, Whether	2.86	.45	2.82	.46	.03	.57	.221
Responsibility, When	2.80	.61	2.77	.63	.03	.72	.318
Employment Status	1.96	.12	1.69	.35	.28	.38	-.064
Work Satisfaction	3.89	.63	3.77	.69	.12	.88	.114
Communication, Whether	1.55	.58	1.51	.54	.04	.61	.421
Communication, When	1.44	.47	1.43	.44	.00	.47	.469
Agreement, Whether	1.41	.48	1.39	.46	.02	.50	.421
Agreement, When	1.36	.39	1.34	.38	.02	.42	.396
Marital Problems	3.45	.88	3.52	.83	-.08	.60	.756

Table 2. Means and Standard Deviations for Husbands and Wives and for Husband-Wife Differences and Husband/Wife Correlations for All Predictor Variables at Baseline Among Parity Non-Changers (N = 149).

<u>Variable</u>	<u>Husband</u>		<u>Wife</u>		<u>Husb-Wife</u>		<u>Husb/Wife Correl.</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>	
Age	32.10	5.81	30.13	4.65	1.96	3.89	.745
Education	16.96	2.43	15.89	2.35	1.07	2.40	.498
Protestant	.49	.50	.44	.50	.05	.68	.085
Roman Catholic	.30	.46	.31	.46	-.01	.60	.141
Other Religion	.11	.31	.13	.33	-.02	.36	.387
No Religion	.11	.31	.13	.33	-.02	.43	.127
Religiosity	4.08	1.77	4.57	1.77	-.49	1.51	.639
Number of Marriages	1.10	.32	1.11	.33	-.01	.41	.213
Marital Duration	4.18	3.25	4.20	3.21	-.02	.38	.993
Gravidity	.57	.81	.61	.87	-.04	.46	.850
Parity	.42	.49					
Autonomy	-.39	2.86	-2.71	3.10			.090
Affiliation	.24	3.68	1.79	3.82			.056
Achievement	3.59	2.41	2.07	2.95			.090
Order	-.32	4.79	1.12	4.53			.094
Nurturance	1.17	2.91	2.73	2.82			.308
Childbearing Desires	14.68	4.96	14.46	5.48	.21	4.65	.607
Child-Number Desires	2.25	1.03	2.19	1.11	.06	1.02	.549
Child-Timing Desires	3.91	2.41	3.98	2.41	-.07	2.48	.471
Positive CB Motivation	73.47	14.24	73.76	15.27	-.29	14.88	.493
Negative CB Motivation	50.91	8.95	49.32	9.42	1.59	12.15	.125
Responsibility, Whether	2.83	.53	2.72	.60	.11	.62	.415
Responsibility, When	2.77	.65	2.76	.63	.01	.75	.320
Employment Status	1.95	.17	1.80	.31	.15	.34	.059
Work Satisfaction	3.87	.61	3.76	.78	.11	1.01	-.050
Communication, Whether	1.78	.73	1.81	.75	-.03	.75	.489
Communication, When	1.69	.64	1.69	.66	.01	.60	.583
Agreement, Whether	1.66	.68	1.73	.77	-.07	.61	.650
Agreement, When	1.52	.60	1.57	.63	-.05	.53	.629
Marital Problems	3.64	1.09	3.85	1.19	-.21	.81	.750

and wives' childbearing desires dropped by almost 50% over the five years in the parity changers group but by only about 10% in the non-changers group. Additionally, the latter group started off considerably lower than the parity changers and ended up considerably higher. The average signed difference between the husband's and wife's desires is consistently negative (wife higher) in the parity group and consistently positive (husband higher) in the parity non-changers group. The average absolute difference between the husbands' and wives' desires steadily increases during the five years in the parity changers group but never quite reaches the relatively constant level that characterizes the parity non-changers group. For both husbands and wives, there are small, shifting average differences between their actual desires and their spouses' perception of their desires, with no obvious pattern except perhaps for a small positive time trend for $H_a - H_p$ in the parity changers group. The same time trend is apparent in the signed SASP means in the parity changers group. The signed SARA means are all 0.0 because the use of both members of the dyad cancels out all the differences exactly.

Before conducting the HLM analysis, we examined the bivariate relationship between signed SASP and signed SARA for all of the data points contributed by all couples. The correlation coefficient was 0.483, indicating that there was a strong tendency for the respondents' childbearing desires to be perceived by the spouse with a bias that tends toward the spouses' own childbearing desires. This relationship can be appreciated visually with reference to Figure 7, which is a smoothed density graph of the data. There is a very high peak frequency centered around the 0, 0 coordinate point, as well as a tendency for the graph (especially at the higher frequencies, i.e., darker shading) to orient either along the slope = 1 line or along the slope = 0 line. In the figure we have drawn two rectangles and two triangles. The rectangles represent those cases where the perception of the spouse's desires is beyond the spouse's actual desires

Table 3. Means and Standard Deviations of Husband and Wife Actual and Perceived Childbearing Desires and Related Differences Variables in the Parity Changers Group at Each of Five Interviews.

Variable	Baseline		Follow-up 1		Follow-up 2		Follow-up 3		Follow-up 4	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
	(N = 240)		(N = 240)		(N = 236)		(N = 221)		(N = 209)	
Ha	17.50	3.18	15.55	4.94	13.87	5.93	11.06	6.57	9.10	6.36
Wp	18.08	3.01	15.92	5.18	14.47	6.12	11.56	6.76	9.53	6.22
Wa	18.11	2.95	15.90	5.08	14.32	6.15	11.66	6.61	9.61	6.23
Hp	17.66	3.48	15.57	5.42	13.63	6.41	10.79	7.01	8.66	6.42
Ha-Wa	-.61	3.50	-.35	3.80	-.45	3.92	-.60	4.73	-.51	4.83
Ha-Wa	2.23	2.76	2.53	2.85	2.59	2.97	3.13	3.59	3.31	3.54
Ha-Hp	-.16	2.40	-.01	2.95	.24	2.76	.28	3.75	.44	3.73
Wa-Wp	.03	2.21	-.02	3.00	-.16	3.14	.10	3.08	.09	3.81
	(N = 480)		(N = 480)		(N = 472)		(N = 442)		(N = 418)	
Sa-Sp	-.06	2.30	-.02	2.97	.04	2.96	.19	3.43	.27	3.77
Sa-Ra	.00	3.55	.00	3.81	.00	3.94	.00	4.77	.00	4.85

Table 4. Means and Standard Deviations of Husband and Wife Actual and Perceived Childbearing Desires and Related Differences Variables in the Parity Non-Changers Group at Each of Five Interviews.

Variable	Baseline		Follow-up 1		Follow-up 2		Follow-up 3		Follow-up 4	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
	(N = 149)		(N = 148)		(N = 132)		(N = 102)		(N = 88)	
Ha	14.68	4.96	14.23	5.26	14.07	5.40	13.76	5.41	13.02	5.90
Wp	14.68	5.12	13.99	5.39	14.13	5.50	13.09	6.12	12.67	6.24
Wa	14.46	5.48	14.09	5.70	13.85	6.12	13.41	5.97	12.80	6.46
Hp	14.32	5.57	14.16	5.57	13.78	6.07	13.30	6.15	12.98	6.52
Ha-Wa	.21	4.65	.14	4.85	.22	4.83	.35	5.43	.21	5.06
Ha-Wa	3.41	3.16	3.54	3.30	3.52	3.31	3.90	3.77	3.29	3.83
Ha-Hp	.36	3.59	.07	3.45	.29	2.99	.45	3.64	.04	3.42
Wa-Wp	-.22	3.51	.11	3.26	-.28	3.32	.32	3.07	.13	3.88
	(N = 298)		(N = 296)		(N = 264)		(N = 204)		(N = 176)	
Sa-Sp	.07	3.55	.09	3.35	.00	3.16	.39	3.36	.09	3.64
Sa-Ra	.00	4.65	.00	4.84	.00	4.83	.00	5.43	.00	5.05

in a direction away from the respondent's actual desires, allowing for one standard deviation of the score on childbearing desires for random fluctuation. (This corresponds to positions 4 and 5 in Figure 4 when the husband is the spouse.) There were two cases in the upper left rectangle and none in the lower right rectangle. The triangles represent those cases where the perception of the spouse's desires is beyond the respondent's actual desires in a direction away from the spouse's actual desires, again making the same allowance. (This corresponds to position 3 in Figure 4 when the husband is the spouse.) Which triangle a data point falls in depends upon whether the husband or wife has higher desires. There were seven cases in the lower left triangle and ten in the upper right triangle. Combined this represents about 0.7% of the total cases.

As already indicated, we conducted the HLM analyses of signed SASP separately on the parity changers and non-changers groups. This provided comparability to the two previous HLM models. It also allowed us to determine whether signed SASP had a parity-related slope in the changers group and a time slope in the non-changers group. We did discover a parity slope that was significantly different from zero in the changers group, but the time slope in the non-changers group was not significantly different from zero. Even though there was a significant amount of across-respondent parameter variance in both cases, because of our focus on predicting the Signed SARA/Signed SASP relationship, we elected to leave both slopes in their respective HLM analyses unmodeled with respect to predictors.

For the parity changers group, the Level 1 HLM model for predicting signed SASP was:

$$(\text{Signed SASP})_{it} = \pi_{0i} + \pi_{1i} (\text{Signed SARA})_{it} + \pi_{2i} (\text{Parity})_{it} + e_{it}$$

Preliminary modeling without the presence of explanatory variables revealed

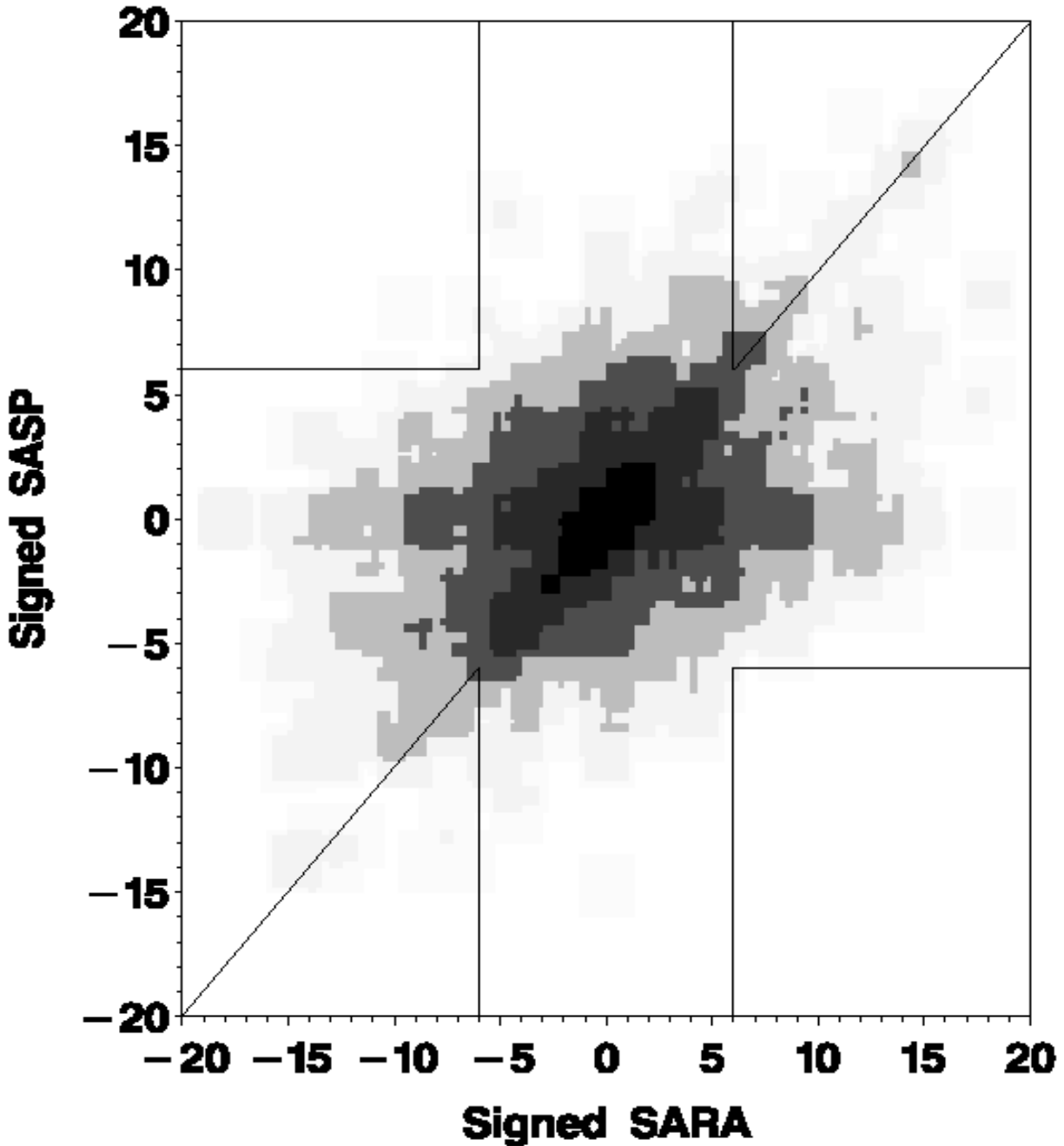


Figure 7: The Relationship Between Signed SASP and Signed SARA

substantial parameter variance and small correlations between the slope of signed SARA (π_{1i}) and the other parameters (-0.04 with intercept, 0.07 with parity slope), but a large negative correlation between intercept and the parity slope (-0.50). The Level 2 model shown in Table 5 includes predictors for the intercept of signed SASP (π_{0i}) and slope of signed SARA (π_{1i}) but not for the slope of parity (π_{2i}). There are 15 predictors of the intercept of Signed SASP. Nine of these predictors have been added because of their presence in the signed SARA slope. The following variables predict a bias towards underestimating spouse actual desires: the husband being relatively older than the wife, a high score on Positive Childbearing Motivation by the spouse, and a high score on Negative Childbearing Motivation by the respondent. The following variables predict bias toward overestimating spouse actual desires: the husband having relatively more education than the wife, the husband being relatively more religious than the spouse, a high score on Negative Childbearing Motivation by the spouse, and the husband perceiving relatively greater marital problems than the wife.

There are nine predictors of the signed SARA slope of Signed SASP. Although this slope is not one that changes progressively with time or with some variable like parity that changes progressively (with rare exceptions) with time, it is based on several measures each of which has been measured on multiple occasions across time. It, therefore, includes an important temporal dimension. The following variables predict a greater deviation of signed SASP toward signed SARA (i.e., an increase of bias in the direction of self³): a high score on Affiliation by the spouse and a high score on Positive Childbearing Motivation by the spouse. The following variables predict a lesser deviation of signed SASP toward signed SARA (i.e., a decrease of bias in the direction of Self³): the husband being Roman Catholic and the wife not being so, greater couple parity during the follow-up period, the wife being currently pregnant during the

³This may be visualized in Figure 7 as a tilting of the regression line connecting an individual's data points away from the horizontal toward slope = 1 in the case of an increase of bias in the direction of self and towards the horizontal away from slope = 1 in the case of a decrease of bias in the direction of self.

Table 5. Hierarchical Linear Model of Signed SASP in the Parity Changers Group (N = 480).

<u>Model</u>	<u>Predictor Variable</u>	<u>Gamma</u>	<u>S.E.</u>	<u>T</u>	<u>P</u>
Intercept		-0.062	0.825	-0.075	0.941
	Age – Diff.	-0.065	0.018	-3.632	0.001
	Education – Diff.	0.084	0.030	2.769	0.006
	Roman Catholic – Diff.	0.007	0.103	0.070	0.945
	Religiosity – Diff.	0.090	0.047	1.928	0.053
	Parity, Follow-up	-0.151	0.134	-1.128	0.260
	Currently Pregnant	-0.187	0.446	-0.419	0.675
	Number of Marriages – Mean	0.226	0.292	0.773	0.440
	Affiliation – Spouse	-0.014	0.017	-0.794	0.427
	Positive CB Motivation – Spouse	-0.013	0.006	-2.285	0.022
	Negative CB Motivation – Resp.	-0.023	0.008	-2.718	0.007
	Negative CB Motivation – Spouse	0.017	0.008	1.986	0.047
	Work Satisfaction – Mean	0.056	0.125	0.450	0.652
	Communication, When – Mean	0.095	0.168	0.563	0.573
	Marital Problems – Mean	0.067	0.086	0.772	0.440
	Marital Problems – Diff.	0.182	0.108	1.696	0.089
Signed SARA Slope		1.407	0.197	7.149	<0.001
	Roman Catholic – Diff.	-0.064	0.034	-1.861	0.062
	Parity, Follow-up	-0.072	0.039	-1.841	0.065
	Currently Pregnant	-0.248	0.154	-1.608	0.107
	Number of Marriages – Mean	-0.268	0.084	-3.180	0.002
	Affiliation – Spouse	0.014	0.006	2.586	0.010
	Positive CB Motivation – Spouse	0.005	0.002	2.643	0.009
	Work Satisfaction – Mean	-0.093	0.043	-2.182	0.029
	Communication, When – Mean	-0.143	0.049	-2.908	0.004
	Marital Problems – Mean	-0.067	0.025	-2.678	0.008
Parity Slope	0.216	0.087	2.485	0.013	

respondent's interview, both spouses having a greater number of marriages, both spouses having greater work satisfaction, both spouses feeling that communication about when to have a(nother) child is relatively poor, and both spouses perceiving relatively greater marital problems.

For the parity non-changers group, the Level 1 HLM model for predicting signed SASP was:

$$(\text{Signed SASP})_{it} = \pi_{0i} + \pi_{1i} (\text{Signed SARA})_{it} + \pi_{2i} (\text{Time})_{it} + e_{it}$$

The Level 2 model, shown in Table 6, includes predictors for the intercept of signed SASP (π_{0i}) and slope of signed SARA (π_{1i}) but not for the slope of time. There are ten predictors of the intercept of signed SASP and only one of these has been added from the signed SARA slope model. The following variables predict a bias in the direction of underestimating spouse actual desires: the respondent being female, the husband being Roman Catholic and the wife not being so, a high score on Positive Childbearing Motivation by the spouse, a high score on Negative Childbearing Motivation by the respondent, and the respondent feeling that communication about whether to have a(nother) child is relatively bad. The following variables predict a bias in the direction of overestimating spouse actual desires: both spouses having a greater number of marriages, a high score on Autonomy by the spouse, a high score on Positive Childbearing Motivation by the respondent, and a high score on Negative Childbearing Motivation by the spouse. The following variable predicts a lesser deviation of signed SASP toward signed SARA (i.e., a decrease of bias in the direction of self): both spouses feeling that communication about when to have a(nother) child is relatively poor.

Discussion

The theoretical approach that guides the analyses reported here rests on two models of human fertility motivation, one in which individual motivation is

Table 6. Hierarchical Linear Model of Signed SASP in the Parity Non-changers Group (N = 298).

<u>Model</u>	<u>Predictor Variable</u>	<u>Gamma</u>	<u>S.E.</u>	<u>T</u>	<u>P</u>
Intercept		0.367	1.321	0.278	0.781
	Sex ¹	-0.477	0.263	-1.813	0.069
	Roman Catholic – Diff.	-0.598	0.205	-2.918	0.004
	Number of Marriages – Mean	1.179	0.520	2.266	0.023
	Autonomy – Spouse	0.132	0.044	3.024	0.003
	Positive CB Motivation – Resp.	0.037	0.011	3.454	0.001
	Positive CB Motivation – Spouse	-0.036	0.010	-3.436	0.001
	Negative CB Motivation – Resp.	-0.036	0.014	-2.520	0.012
	Negative CB Motivation – Spouse	0.026	0.014	1.867	0.061
	Communication, Whether – Resp.	-0.373	0.204	-1.830	0.067
	Communication, When – Mean	0.284	0.258	1.101	0.271
Signed SARA Slope		0.775	0.090	8.562	<0.001
	Communication, When – Mean	-0.145	0.049	-2.980	0.003
Time Slope		0.031	0.043	0.716	0.474

¹Coded 1 = Male, 2 = Female

Note: Abbreviations include: Diff. = Difference, Resp. = Respondent, and CB = Childbearing

understood as progressing through a four step traits-desires-intentions-behavior sequence and one in which each member of the dyad apprehends the motivational sequence of his or her partner. The four processes that we have postulated to affect the respondent's own motivation and the perception of partner's motivation are broadly conceptualized in the sense that each has been addressed much more specifically by a variety of social-psychological theories. For this reason, our approach may best be characterized as a meta-theory, that is, as a general theory about how more specific

theories may be organized in their application to the motivational interaction of couples. Mindful of this, we call our approach a theoretical framework. Because our theoretical framework is neutral with respect to the exact nature of the four interaction processes, any of the many extant social-psychological theories about how these processes work may be tested within the framework and methodology described here. Thus an important goal of our analyses discussed below is to suggest directions that such testing might take in the future.

In the interpretation of our results, we will emphasize how two of the four motivation-related processes of couples –apprehension and attribution- affect two correspondence states: accuracy of perception and perceived agreement. We leave for the companion paper (Miller & Pasta, 2004) a consideration of how the two remaining processes –acceptance and accommodation- affect the remaining correspondence state: actual agreement between partners. That does not mean that acceptance and accommodation play no role in accuracy of perception and perceived agreement. Clearly they do. For example, the real world illustration we described in the theoretical framework section showed how acceptance might effect a new equilibration between attribution and apprehension. What it does mean is that we consider attribution and apprehension to be the ultimate determinants of changes in couple accuracy of perception and perceived agreement.

We conducted our analyses separately on two reproductively meaningful groups, those who had (additional) children during the five year follow-up period and those who delayed any (further) childbearing during that period. What is so interesting about these two groups is how different they are motivationally, both with respect to their baseline state and how they change during the five-year follow-up period. In the parity changers group (see Table 3), both husbands and wives show a relatively rapid decline in childbearing desires, with wives on average always having stronger desires than husbands by a relatively constant amount. For the two sexes together, desires

decline from a very high mean of 17.80 to one of 9.35 or by almost one-half (47.5%). While this decline is occurring, the absolute difference between husbands' and wives' desires is increasing steadily from 2.23 to 3.31 or by almost one-half (48.4%). In contrast, in the parity non-changers group (see Table 4), both husbands and wives show a relatively slow decline in childbearing desires, with husbands on average always having stronger desires by a relatively constant amount. For the two sexes together, desires decline from a moderately high mean of 14.57 to one of 12.91 or by only 11.4%. While this slight decline is occurring, the absolute difference between husbands' and wives' desires is not changing materially.

These differences suggest that among couples who have children during the five year study period, it is typically the wife who is leading the way motivationally. These couples' primary decisions are more likely to be when to have (additional) children and then how many to have. As they have children, their desires decrease steadily and their disagreement increases, approaching the level of disagreement in the parity non-changers. The increased disagreement that occurs with pregnancy and then follows with each birth probably reflects, among other things, differences within couples over the desired timing of additional children and over the desired number of children to have. Among couples who do not have children during the five years of study, it is the husband who tends to be more motivated. These couples' primary decisions appear to be whether to have (additional) children and then when to have them. As times passes, their desires decrease only slightly and they maintain high levels of disagreement, which probably reflects continuing disagreement over whether and when to have children.

These comments set the stage for consideration of the HLM results. In discussing these, we concentrate on the slope rather than the intercept components of the models. We do this both because of space considerations and because our greatest interest lies in the dynamic changes that the slopes represent. There are, however, two important

features of the intercept components of these models that deserve emphasis. First, the relationships between predictor variables and a given slope are adjusted by the variables present in the intercept component of each model. Second, the variables that predict the intercepts represent "good bets" for additional variables that might predict the slopes, given a little more power or a slightly different sample.

A central feature of our dyadic level framework involves interpersonal perception. We know that spouses' perceptions of each other's childbearing desires are reasonably accurate, with correlation coefficients around .80 (Miller, 1994). We assume that these perceptions play a fundamental part in the interactions and influence that help shape each spouse's own childbearing desires and that their accuracy is affected primarily by processes of attribution and apprehension. The questions we have addressed during data analysis have to do with what characteristics of each spouse and of the marital dyad itself have affected this accuracy.

In our analyses, we are not using HLM in the usual way to study change over time, but rather to study a perceptual disposition by examining the extent to which spouses' biases in their perception of each other's childbearing desires are in the direction of, and therefore presumably influenced by, their own desires. Because we have multiple measurements for each couple over time, assuming that spouses interact and experience life events together in ways that change both their own desires and their perceptions of each other, and further assuming that apprehension and attribution equilibrate after each of these changes, then our data should provide a good indication of each spouse's overall tendency to bias perceptions in the direction of self. As we showed in Figure 7 and its related analysis, if we allow for a reasonable amount of random fluctuation, this kind of bias rarely falls at the two extremes, that is, substantially beyond the respondent who perceives and beyond the spouse being perceived. As we also showed in Figure 7, there is a definite tendency for the perceiving spouse to be either highly accurate or highly biased toward self.

In the parity changers group there are nine variables that predict more or less bias in the direction of self. Most of these suggest a common theme, namely that events or situations that foster or reflect intense or conflicted interaction and efforts at communication about childbearing predict less bias in the direction of self. Thus we would expect both being pregnant and an increase in parity during the follow-up to be associated with greater spousal discussion about childbearing. This, in turn, should lead to less bias in the direction of self. Further, if communication about when to have a child is poor and if marital problems are great, spouses are likely to be working harder at apprehending each other accurately and not making unwarranted attributions. Similarly when a couple has more combined previous marriages, they probably have a greater wariness about childbearing and make an effort to communicate clearly about it.

Two other variables seem to reflect this same theme of intense or conflicted interaction and efforts at communication around childbearing. When the husband is Roman Catholic and the wife is not, there is less bias in the direction of self. In the companion paper to this one (Miller & Pasta, 2004), we observed that this particular difference in religion predicted greater disagreement. In this case it appears that the greater disagreement resulting from that difference, much like bad communication or marital problems, increases the efforts and opportunity of spouses to accurately apprehend each other. Also, when the work satisfaction of both spouses is high, there is less bias in the direction of self. It seems likely that when both spouses are enjoying their work, more communication about childbearing would be made necessary by the inherent conflicts between both spouses working and the demands of childcare and family life.

Whereas the seven predictors just discussed seem to be related primarily to greater efforts at communication and, therefore, more accurate apprehension, the two remaining variables seem to be related to attribution. Most obviously, more positive motivation for childbearing by the spouse who is the perceiver predicts greater bias in

the direction of self. There would seem to be two steps to this process. First, the spouse's own positive childbearing motivation, which is a major antecedent of childbearing desires (Miller, 1994), produces high desires. Then, both these desires and the antecedent positive motivation color his/her perceptions of the respondent in the direction of his/her own desires. This would seem to be a rather pure example of attribution. Similarly, a highly affiliative spouse, who is the one being perceived, predicts greater bias in the direction of self for the perceiver. High Affiliation is associated with high friendliness and geniality, qualities that probably promote attribution both by 1. reducing the perceiver's likelihood of being aware of disagreement and by 2. increasing the perceiver's belief that the other is similar to the self. Thus this finding may represent attribution based not on a quality of the perceiver, as with the positive childbearing motivation variable, but rather based on a quality of the one perceived. Interestingly, that quality seems to work not only by increasing attribution (2 above) but also by decreasing apprehension (1 above).

In the parity non-changers group, there is only one variable that predicts more or less bias in the direction of self. As in the changers group, poor communication about when to have a child predicts more self-directed bias. This is again consistent with the theme that conflicted interaction about childbearing increases accurate apprehension of desires. What is also interesting in the results for this group is that no other variables are predictive in spite of the fact that there is ample parameter variance remaining to be explained. In keeping with the intense/conflicted interaction interpretation of low bias toward self, it may be that the parity non-changer group's high and steady conflict about childbearing tends to keep their bias relatively low. Or perhaps the couple dynamics affecting apprehension and attribution among those not having children for a prolonged period is substantially different from those among couples having children, and we have not measured variables that fully capture that difference. On the other hand, because several of the predictors of slope in the parity changers group appear in

the intercept model in the changers group, part of what may be limiting the number of predictors of the latter group's slope may be its smaller n and, therefore, lower statistical power.

In conclusion, we have answered a number of basic questions. There are systematic differences in the relationship between signed SASP and signed SARA for different respondents. Indeed, there is evidence in Figure 7 that some respondents tend to have constant accuracy of perception regardless of perceived agreement and some others tend to have constant perceived agreement regardless of accuracy. We have found a number of variables that are predictive of differences in the intercept and slope of the signed SASP/signed SARA relationship. Our interpretation of these variables is that bias toward self is reduced under conditions of intense and/or conflicted couple interaction about childbearing. This conclusion dovetails nicely with conclusions drawn from the study of actual disagreement in childbearing desires reported in the companion paper to this one (Miller & Pasta, 2004). With respect to a broader application of this study to the understanding of all couple-related motivated behavior, this conclusion also implies that the theory-of-mind based image of a partner's motivational structure that is maintained by everyone who participates in a dyad is profoundly influenced by the level of motivational intensity and conflict within that dyad.

In future work, now that we have established the existence of systematic variation across respondents in biased perception of partner, it might be informative to relate not just "male respondents" and "female respondents" in general but the individual members of married couples. It would, for example, be instructive to compare a husband's relationship between signed SASP and signed SARA with that of his wife. We might ask if "Slope 0 men" tend to be married to "Slope 0 women" or if they tend to be married to "Slope 1 women". This could be accomplished by using the Raudenbush, Brennan, and Barnett (1995) methodology, creating dummy variables for

men and women and relating the SASP to SARA slope for husbands with the SASP to SARA slope for their wives, as well as relating the other Level 1 coefficients between the husband and wife. Another extension would be to add explanatory variables to the Parity and Time parts of the Level 2 model.

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