Family Talk about Internal States and Children’s Relative Appraisals of Self and Sibling
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Abstract
This study investigated associations between preschoolers’ conversations about internal states and their spontaneous appraisals of self and sibling. Thirty-two preschoolers (M age = 3.9 years) were observed during naturalistic home interactions with mothers and younger siblings. Various features of mothers’ and children’s internal state language were coded. Children who talked about internal states to the baby and who talked more about the baby’s perspective tended to appraise their sibling negatively relative to self. In contrast, mothers’ references to internal states, as well as their promotion and encouragement of the child’s own internal state talk, were negatively related to the differences between children’s negative appraisals of self and sibling. These results support the social-constructivist notion that the quality of children’s interactions with family members is related to how they construe themselves in comparison to their siblings.

Keywords: sibling relationships; appraisals; mother-child conversations; internal state language

Introduction
In the heat of a dispute, even adults occasionally have trouble seeing both sides of the story. It is difficult to admit to being partially responsible for a fight and that one’s own actions may not be entirely innocent. Although most people want to see the world accurately, self-enhancement can be adaptive by promoting a positive self-view and justifying our belief that we are inherently good (see Kunda, 1990, for a review). One effective way of coming to this conclusion is to construct a mental world in which our actions are justifiable and our motivations are pure. The outcome of this biased thinking is a life history that is coloured by the desire to perceive one’s own past actions in a particular way.

In addition to self-esteem maintenance, one factor that contributes to differences in our appraisals of self and other is our privileged access to our own internal states (e.g., Ross & Ward, 1996). In most situations, we tend to be aware of our own goals,
emotions, and the reasons for our actions. However, we must infer others’ internal states based on their actions and any limited information they choose to share with us. For young children, this is a particularly difficult task, due to their restricted ability to take others’ perspectives (Wellman, 1990). As a result, differences between appraisals of self and other may be most pronounced in those children who have limited insight into others’ internal states but nevertheless a strong motivation to perceive themselves positively. In a conflict context, this may lead children to focus on their opponent’s overt negative actions, failing to notice both their own transgressions and the reasons underlying the actions of the other. The current study investigated the relationship between family conversations about internal states (i.e., beliefs, emotions, goals, preferences, and traits) and children’s spontaneous appraisals of self and sibling. Social constructivist theory (Carpendale & Lewis, 2004; Dunn, 1988) postulates that children come to learn about others’ perspectives through the use of mental state terms in the context of social interaction. Consistent with this view, one important predictor of children’s social-cognitive skills is their family conversations about internal states (e.g., Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991). Thus, we examined whether the nature of these conversations in the preschool years was related concurrently to children’s differential evaluations of self and sibling.

**Family Interactions and Children's Appraisals of Self and Sibling**

The sibling relationship is long-term, affectively intense, and can be highly conflictual. It is thus a rich context in which to examine these appraisals of self and other. There are also considerable individual differences in the quality and nature of sibling relationships, such that perceptions of one’s sibling can range from cherished friend to mortal enemy. Various studies have examined appraisals of self and sibling in children’s recollections of previous conflicts (McGuire, Manke, Eftekhari, & Dunn, 2000; Ross, Smith, Spielmacher, & Recchia, 2004; Wilson, Smith, Ross, & Ross, 2004). Generally, children tend to describe themselves much less negatively and sometimes more positively than their sibling. Most relevant to the present study, Ross et al. (2004) investigated the mechanisms underlying the differences between appraisals of self and sibling and found that self-presentational effects likely play at least a partial role in children’s biased recall. That is, children’s ‘self-serving biases’ may result from conscious attempts to portray themselves positively relative to others. Indeed, young children are very capable of managing impressions by deceiving others (Dunn & Munn, 1985) and by tattling on their siblings (Den Bak & Ross, 1996).

Nevertheless, the results of Ross et al. (2004) did not rule out the possibility that unconscious memory processes may also contribute to differences in children’s appraisals of self and other. Children’s representations of events are influenced both by what makes sense to them and what they want to remember (Stein, Trabasso, & Liwag, 1994). As such, although children may be more likely to remember information that supports a positive self-view, understanding others’ internal states may also be related to their appraisals of others’ actions and character. That is, if children are better at perceiving the world from various points of view, understanding the motivations and emotions that guide action, and recognising that people can have dissimilar beliefs, they may be more likely to encode and/or report a more balanced version of past events.

The manner in which children learn to use internal state terms in their early conversations with their families is arguably an important source for this knowledge.
about the internal world (Carpendale & Lewis, 2004; Dunn, 1988). In this context, children learn that people sometimes have different perspectives (Harris, 1996), and others’ input can help to broaden their understanding of particular internal state terms (Carpendale & Lewis, 2004). Thus, children’s habitual thinking about the meaning of internal states may be guided by internalised information gleaned from conversations with more skilled partners (see Rogoff, 1990). For example, Sabbagh and Callanan (1998) showed that mothers tend to respond to children’s ambiguous utterances (e.g., ‘I don’t know’) as though they refer to true mental states. Whether young children initially understand the metarepresentational underpinnings of these words, their use of the phrases provides opportunities for mothers to respond in informative ways.

Although links between parent–child talk about internal states and children’s relative evaluations of self and other have not yet been examined directly, prior work on the relationship between family interaction and autobiographical memory may be informative. Parent-child conversations about past and ongoing events have been shown to influence the quantity and quality of children’s subsequent recall of these experiences (Boland, Haden, & Ornstein, 2003; Fivush, 1991). For instance, Fivush (1991) found that mothers’ use of narrative structure (referential, orienting, and evaluative information) with their preschoolers predicted children’s ability to tell unscaffolded narratives one year later. Evaluative information is most relevant to the present investigation, because internal responses to events are encapsulated by this category, and are used to mark particular parts of the events as most salient or meaningful (Bruner, 1990). Haden, Haine, and Fivush (1997) reported that mothers’ evaluative statements with their preschoolers uniquely predicted children’s use of evaluative statements at 70 months. Thus, the relationship between particular aspects of narrative structure and children’s use of these various categories in recall is quite specific (see also Peterson & McCabe, 1994). That is, the particular type of information that mothers use most frequently is also focused on by their children.

This research suggests that the content of children’s recall of life events is guided by their past conversations with parents. In helping their children to identify which aspects of their experiences are most important and meaningful, mothers model an effective way for children to access and recall their previous experiences. Thus, when mothers and children frequently discuss others’ internal states, preschoolers may be more likely to attend to this information on their own. Put another way, if mothers construe others’ perspectives as informative and meaningful, children may be more likely to also treat them as such.

In the current study, we investigated the links between mothers’ and preschoolers’ talk about internal states and how these variables were associated with children’s relative evaluations of themselves and their younger siblings. Each family was observed twice interacting naturally in their homes when the first-born sibling was between three and four years of age. Various features of family members’ internal state language were examined and children’s spontaneous evaluations of self and sibling were recorded. Each of these sets of variables will be described in turn.

**Parent-Child Talk about Internal States**

We examined both the quantity and quality of family talk about internal states, given that some forms of talk may be more likely to promote perspective-taking skills. As an initial step, we coded each maternal and child reference to internal states (i.e., goals,
beliefs, emotions, preferences, and personality traits). Based on previous research (e.g., Furrow, Moore, Davidge, & Chiasson, 1992), we expected mothers’ and children’s overall proportion of talk about internal states to be positively associated. In addition, we coded the target (i.e., who is being spoken to), referent (i.e., whose internal states are being referenced), and affective context (i.e., the emotional valence of the conversation) of both mothers’ and children’s internal state language, on the grounds that these distinctions may reflect important differences in the meaning of the conversations for the child.

Whether children’s talk about internal states is directed at their mother or their younger pre-verbal sibling may have implications for children’s understanding of their sibling. For example, Brown, Donelan-McCall, and Dunn (1996) found that internal state language with siblings was more strongly associated with secondborns’ scores on false belief measures than such talk with mothers. Children’s talk to their younger sibling may reflect children’s consideration of their brother/sister’s perspective, considering the importance of this talk in developing shared meanings in sibling interactions (Howe, LeFebvre, Petrakos, & Rinaldi, 2005). On the other hand, for firstborn children, internal state talk in conversations with mothers provides children with more frequent opportunities for informative feedback, which may be critical for the development of social understanding. Given these competing hypotheses, we included the target of speech for exploratory purposes.

The referent of the utterance distinguished between mothers’ and children’s talk about their own internal states and that pertaining to the perspective of another. In addition, this category allowed us to examine the frequency of talk about the sibling’s internal states specifically. Howe (1991) found that children’s references to their siblings’ internal states were associated with their perspective-taking skills. In addition, Howe and Ross (1990) reported that maternal speech to children about their siblings was associated with children’s positive sibling-directed behaviour. These findings suggest that family members’ other-oriented references to internal states may be associated with the nature of the sibling relationship as well as children’s social-cognitive skills. As such, we hypothesised that mothers’ and children’s references specifically about the internal states of others would be negatively related to the difference between children’s evaluations of self and sibling.

The affective context of children’s internal state language may also be important. Whether children are exposed to information about others’ perspectives primarily in a negative context such as conflict or a positive context such as play, may influence their ability to learn about others’ perspectives from these interactions. The affective salience and importance of conflicting perspectives evident during arguments may make this an excellent training ground for understanding others’ perspectives (Shantz & Hobart, 1989). In contrast, when children’s goals are at stake they may be sometimes less willing to consider others’ divergent perspectives on a situation (Stein & Bernas, 1999). On the other hand, they may be more likely to do so consistently when negotiating joint meanings in the more positive affective contexts of play or teaching (Howe et al., 2005; Recchia, Howe, & Alexander, 2005).

Finally, we examined maternal prompting of, and responses to, children’s internal state references. Mothers who encourage the child’s use of internal state language by asking more open- and closed-ended internal state questions may promote the child’s understanding of perspectives in general and their sibling’s perspective in particular. Further, in their analysis of maternal responses to children’s mental state talk, Sabbagh and Callanan (1998) found that informative parental responses were associated with
greater use of this talk in children. Thus, to the extent that mothers respond to children’s internal state talk, this may reinforce children’s consideration and use of this information. Mother’s responses were coded as supporting or acknowledging children’s references, opposing or disagreeing with them, or ignoring them altogether. Both supporting and opposing responses may be informative in different ways. Supportive responses may provide an encouraging context for children to learn about internal states, and oppositional responses may aid children in understanding conflicting perspectives (e.g., ‘You think I like chocolate, but really I don’t’). However, ignoring children’s internal state references does not provide reinforcement of any type. We hypothesised that children whose mothers were supportive or oppositional would be less likely to appraise their siblings negatively relative to themselves. Particularly, more maternal opposition may be especially helpful in teaching children about conflicting representations, and as such, the strongest relationship was expected between this response and children’s appraisals.

Children’s Appraisals of Self and Sibling

Differences in children’s appraisals of self and sibling can manifest themselves in various ways, from the very blatant to the relatively subtle. Past research on sibling conflict has established that siblings are much more likely to blame their antagonists for starting fights than themselves (McGuire et al., 2000). Further, and most germane to the present investigation, when asked to supply open-ended reports of conflicts with their siblings, children tend to focus selectively on the negative behaviours of their sibling, omitting their own transgressions from their self-reports (Ross et al., 2004; Wilson et al., 2004). One study also suggests that children focus selectively on their own positive behaviours (Ross et al., 2004). However, consistent with the view that selective memory processes may be at work, children do not resort to fabricating false accusations about their sibling (Ross & Den Bak-Lammers, 1998). That is, when children ‘tattle’ on their sibling, they tend to describe events relatively accurately. As such, children may not be telling lies about their interactions, but simply reporting events as they remember them. If this is true, the features of family conversations that promote children’s unbiased recall of past experiences should be negatively associated with the magnitude of differences between children’s evaluations of self and sibling.

One competing hypothesis is possible. The results of Ross et al. (2004) suggest that children make conscious decisions to omit some incriminating information from their reports. Further, though young children generally tattle about real rather than invented transgressions, they also sometimes tell clearly self-serving lies (Wilson, Smith, & Ross, 2003). Individual differences in children’s ability to engage in these forms of impression management may be related to their experiences in conversations with their families, as evidenced by the relationship between children’s social understanding and their ability to manipulate others’ beliefs (e.g., Peskin & Ardino, 2003). That is, to the extent that family conversations about internal states promote children’s understanding of mind (Dunn et al., 1991), this may actually increase the relative differences in spontaneous appraisals of self and sibling, as children become more adept at managing the impressions of others. Thus, if this is true, children’s conversations about internal states should be positively associated with the magnitude of the differences between spontaneous appraisals of self and sibling. Thus, this alternative interpretation provides a contrast with our own hypothesis.
Summary of Predictions

In general, we predicted that children’s ability to engage in conversations about internal states would increase with age. Furthermore, we expected that mothers would act as scaffolding agents for their young children by promoting children’s ability to consider the perspectives of others. Specifically, we expected that mothers would focus on the internal states of others in their conversations, ask questions about internal states, and respond meaningfully to children’s internal state references. Related to this point, we expected mothers’ and children’s use of internal state language to be related. However, we expected these relationships to be specific rather than general. For example, to the extent that mothers supported consideration of others’ internal states, it was predicted that children’s talk would also refer to others’ internal states.

We further predicted that children would spontaneously make more positive and fewer negative appraisals of self, relative to sibling. However, we expected the magnitude of these differences to be meaningfully related to the nature of family conversations about internal states. Specifically, we expected that when mothers and children discussed others’ internal states, children would be less likely to focus selectively on negative appraisals of sibling and positive appraisals of self. Finally, we expected that the mothers who most frequently promoted internal state language by asking questions and responding in informative ways to their preschoolers’ references to internal states (i.e., by either supporting or opposing these statements), would have children who show less pronounced differences in their evaluations of self and sibling.

Method

Participants

The sample consisted of 32 pairs of siblings and their mothers from a mid-sized community in southwestern Ontario. In all cases, the younger sibling was 14 months of age (+/− two weeks). The mean age of older siblings was 3.9 years (range = 3.0–4.8 years). The sample was balanced for gender and included equal numbers of all possible dyadic gender compositions. All families consisted of two parents and two children (i.e., the participating preschooler and toddler) living in the same household. All participants were of European-Canadian descent. Job descriptions and average years of parental education (mothers = 13.6 years, range = 9–18 years; fathers = 14.2 years, range = 8–21 years) suggested that families were middle class. Thus, the sample’s ethnic composition and socioeconomic status were representative of the local population. Families were identified through birth announcements in the local newspaper; written informed consent was obtained from mothers prior to their participation.

Home Observations

Two observation sessions were conducted at the participants’ homes over a two-week period. All three family members (i.e., mother, child, and baby) were present during both observations. Naturalistic verbal exchanges between family members were audiotaped and transcribed. Further, during each 15-second interval of the interaction, an observer coded sibling-directed behaviours by the child and baby as well as interactions between the mother and each child (see Howe & Ross, 1990 for details).
Generally, the focus of attention was the interaction between the child and baby, and maternal activities were coded only when relevant to children’s behaviour. Though these observations were not the focus of this study, they were used to supplement the transcripts of family conversation. Each session lasted 40 minutes and was preceded by a 15–30-minute warm-up period (variability was related to random factors such as equipment preparation, etc). All participants were instructed to ignore the observer and mothers were asked to engage in their normal daily routines. Typically, these interactions consisted of a combination of play, conflict, snack time, and caretaking.

To establish reliability for the conversation coding, two independent raters coded 25 percent of the transcripts of the audiotaped observation sessions (16/64 transcripts). Home experimenters did not act as coders, and coders were blind to family characteristics. Cohen’s *kappas* are reported below. First, older siblings’ and mothers’ references to internal states were identified. These included references to beliefs (e.g., think, know, and pretend), goals (e.g., want, try, and need), emotions (e.g., happy, sad, and mad), preferences (e.g., like, hate, and favourite), and other inferred traits/states (e.g., lazy and tired). The coding scheme was derived from Jenkins, Turrell, Kogushi, Lollis, and Ross (2003), with three modifications. First, phrases referring to non-verbal expressions of emotion (i.e., laughing and crying) were included as emotion references. Second, references to likes and dislikes were specifically coded as preferences rather than emotions. Finally, enduring traits and other transient physiological internal states were also identified and coded as a separate category to capture references to individual perspectives not included in the other categories. Self-vocalisations and utterances directed at targets other than the mother, child, or baby (e.g., observer, father, and pets) were not coded. Percent agreement for initial identification of lines to be coded was calculated as agreements/(agreements + disagreements); inter-rater agreement was 88 percent; *kappa* for category was .98.

Following this initial step, coders identified the speaker, conversational target (any combination of mother, older sibling, or baby), referent (any combination of mother, older sibling, baby, or other; *kappa* = .96) and affective context (See Table 1; *kappa* = .64) for both mothers’ and children’s references. Furthermore, to assess maternal promotion of internal state language, each of the child’s references was coded as either spontaneous, prompted by an open-ended question (i.e., ‘Which one do you want?’) or prompted by a closed-ended question (i.e., ‘Michael likes that, doesn’t he?’; *kappa* = .87). Finally, mothers’ responses to each of their older child’s internal state references were also identified and coded as supporting, opposing, or ignoring the statement (see Table 1; *kappa* = .84).

Next, the child’s evaluative statements of self and sibling were identified (kappa = .60) and coded for both referent (self or other; kappa = .97) and valence (positive or negative; kappa = .97). Positive references included statements about actual or anticipated accomplishments (‘You did it!’), abilities (‘I can count to thirty’), good behaviour (‘I will share with you’) and flattering traits (‘You’re funny!’). Negative references included statements about actual or anticipated lack of ability (‘You can’t even do it’), bad behaviour (‘She’s going to wreck the tower!’), and unflattering traits (‘You’re dirty!’). This coding thus yielded four distinct categories (i.e., positive and negative actions of self and sibling) that were used to calculate two measures of differences in relative appraisals of self and sibling. The positive appraisal difference score was calculated by subtracting the number of positive references to sibling from the number of positive references to self. The negative appraisal difference score was calculated by subtracting the number of negative references to self from the
number of negative references to sibling. Thus, in both cases, a higher score reflects a more negative view of the sibling than of the self.

Results

We first describe the characteristics of family talk about internal states and children’s appraisals of self and other. Next, we assess relationships between these two sets of variables. For all analyses, statistical significance was assessed using two-tailed tests. For correlational analyses and omnibus analyses of variance (ANOVA), the alpha level was set at $p = .05$. The Bonferroni correction was used for all post hoc tests.

Preliminary Analyses

Demographic and Gender Effects. Initial tests revealed that, with conversational turns controlled, maternal education, maternal age, and children’s gender were not significantly related to any of the major internal state language variables or to children’s appraisals, with two exceptions. When the baby was a boy and when mothers were more educated, the child made fewer positive appraisals of self ($pr = -.38$ and $-.39$, respectively). However, because 24 tests were conducted, these two significant findings should be interpreted with caution. Given the small sample size, gender and maternal demographic variables were not considered further.

Relationships between Sessions. With child age controlled, the overall number of conversational turns per session was stable for both mothers and children ($pr = .65$
and .54, respectively). Furthermore, again with both child age and conversational turns controlled, the frequency with which mothers and children referred to internal states was correlated across sessions ($prs = .51$ and .57). However, the overall frequencies of appraisals were not ($pr = -.07$). Repeated measures ANOVAs did not reveal effects of session on the frequency of internal state references for either mother or child, $Fs < 1.57, ps > .22$, nor for the frequency of appraisals, $F < 1$. Thus, although behaviour during the two sessions was not always identical, there did not seem to be a particular order effect of session. As such, all subsequent analyses collapsed data across the two sessions to obtain a general portrait of family interactions.

**Age Effects.** With conversational turns controlled, older children referred more frequently to internal states in general ($pr = .48, p < .01$). More specifically, older children referred more frequently to beliefs ($pr = .35, p = .05$), emotions ($pr = .42, p = .02$), goals ($pr = .33, p = .07$), and traits ($pr = .37, p = .04$), but not preferences ($pr = .05, NS$). Interestingly, older children talked more frequently about internal states in a positive context ($pr = .55, p = .001$) but not a negative one ($pr = .10, NS$). Children’s talk about internal states to both their mother and younger sibling increased with age (both $prs = .38, ps = .04$). Furthermore, older children were more likely to talk about their mother’s ($pr = .45, p = .01$) and the baby’s ($pr = .39, p < .03$) internal states. However, the child’s references to his/her own internal states did not increase with age ($pr = .19, NS$). Furthermore, older children were more likely to talk about internal states spontaneously ($r = .59, p < .001$) and less likely to refer to internal state because of maternal closed-ended questions ($r = -.43, p = .02$).

With maternal conversational turns controlled, the extent to which mothers referred to internal states was unrelated to the child’s age, as were each of the specific types of internal state references ($prs < .22, ps > .24$). Similarly, there were no significant associations between child age and mothers’ references to internal states specifically in positive and negative contexts ($prs < .20, ps > .29$), to specific family members ($prs < .25, ps > .18$), or about specific referents ($prs < .20, ps > .27$). Older children’s internal state references were more often ignored by mothers ($pr = -.61, p < .001$); however, at the same time, mothers of older children more frequently gave supportive ($pr = .40, p = .03$) but not oppositional responses ($pr = .09, NS$).

Finally, with conversational turns controlled, older children were more likely to provide positive appraisals of self ($pr = .36, p = .05$) and other ($pr = .38, p = .04$). Negative appraisals were unrelated to age ($prs < .24, ps > .20$). However, the difference between children’s negative appraisals of self and other was related to age ($pr = .36, p = .05$), such that older children were especially likely to focus exclusively on their sibling’s negative behaviour. The correlation for the difference between positive appraisals suggested that older children were focused on their own positive actions, though it was not significant ($pr = .29, NS$).

**References to Internal States during Family Interaction**

**Characteristics of Family Talk about Internal States.** A repeated measures ANOVA with actor (mother, child) and type (belief, emotion, goal, preference, and trait) as factors revealed two significant main effects and an actor $\times$ type interaction ($Fs > 6.24, ps < .001$). Overall, mothers were more likely to discuss internal states than their children. Generally, family members spoke most frequently about goals, followed by beliefs, traits, emotions, and preferences (all differences significant at $p < .02$, except...
between emotions and preferences). Furthermore, the difference between mothers and children in the frequencies of talk about preferences was less pronounced than for the other types of internal states (see Table 2).

A second ANOVA revealed an interesting interaction between actor and referent, $F(2, 62) = 20.46, p < .001$. Interestingly, though mothers and children were equally likely to talk about the child’s internal states ($M_s = 40.31$ and $39.78$), mothers were more likely than children to refer to both their own ($M_s = 29.00$ for mother and 7.50 for child) and the baby’s internal states ($M_s = 24.72$ for mother and 9.03 for child). Thus, mothers appeared to shift the focus of conversation to perspectives other than the child’s own. Overall, mothers and children were more likely to talk to each other about the internal states than to the baby, $F(1, 31) = 68.43, p < .001, M_s = 59.98$ and 16.09, respectively. An actor by context interaction revealed that children’s and mothers’ use of internal state language were related differently to affective context, $F(1, 31) = 27.29, p < .001$; though mothers and children referred equally frequently to internal states during negative interactions ($M_s = 13.88$ and 13.06), mothers were more likely than their children to refer to internal states in a positive affective context ($M_s = 61.97$ and 33.28).

### Relationships between Mothers’ and Children’s Talk about Internal States.

A repeated measures ANOVA revealed that the majority of children’s references to internal states were spontaneous rather than as a result of maternal open- or closed-ended questions, $F(2, 62) = 78.43, p < .001, M_s = 42.84, 9.47, and 5.03$, respectively. However, the occurrences of maternal prompting and leading questions also make clear that mothers certainly promoted the use of this language to some extent. Furthermore, with child age and conversational turns controlled, children’s and mother’s overall frequencies of talk about internal states were related ($pr = .42, p = .02$). For specific types of internal states, children’s and mothers’ corresponding references to goals ($pr = .46, p = .01$) and preferences ($pr = .34, p = .07$) were related, but not beliefs, emotions, or traits ($prs < .23, ps > .23$). However, mothers’ and children’s tendencies to refer to internal states in both positive and negative affective contexts were associated ($prs < .42$ and .55, $ps < .02$). For talk about specific family members, only the relationship between mother’s and child’s talk about the child was significant ($pr = .52, p < .01$). Neither mothers’ and children’s talk about the baby nor mothers’ and children’s talk about the mother were significantly associated ($prs < .11, ps > .55$).

A repeated measures ANOVA revealed a main effect of maternal response type, $F(2, 62) = 9.17, p < .001$. Mothers were more likely to respond supportively ($M = 20.97$) or

### Table 2. Frequencies of Mothers’ and Children’s Internal State References

<table>
<thead>
<tr>
<th>Category</th>
<th>Child references</th>
<th>Maternal references</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belief</td>
<td>10.97 (5.87)</td>
<td>24.41 (16.88)</td>
</tr>
<tr>
<td>Emotion</td>
<td>3.03 (3.49)</td>
<td>8.25 (8.08)</td>
</tr>
<tr>
<td>Goal</td>
<td>35.97 (20.82)</td>
<td>47.38 (31.15)</td>
</tr>
<tr>
<td>Preference</td>
<td>2.63 (2.39)</td>
<td>3.91 (4.40)</td>
</tr>
<tr>
<td>Trait</td>
<td>4.75 (4.95)</td>
<td>10.66 (8.36)</td>
</tr>
<tr>
<td>Total</td>
<td>57.34 (28.94)</td>
<td>94.59 (59.23)</td>
</tr>
</tbody>
</table>
by ignoring the child’s reference ($M = 19.00$) than they were to oppose the child’s statement ($M = 11.44$).

**Children’s Appraisals of Self and Sibling**

To examine children’s appraisals of self and sibling, we conducted a $2 \times 2$ repeated measures ANOVA with referent (self or sibling) and valence (positive or negative) as factors. The analysis revealed a main effect of referent, $F(1, 31) = 8.71, p < .01$ and a marginal main effect of valence, $F(1, 31) = 3.95, p < .06$. However, as revealed in Table 3, these effects were qualified by the interaction of referent and valence, $F(1, 31) = 80.32, p < .001$. Consistent with past studies, though children were more likely to appraise themselves positively than negatively, this pattern was reversed for their siblings.

**Associations between Family Talk about Internal States and Children’s Appraisals of Self and Sibling**

Partial correlations (controlling for child age and conversational turns) were computed between family talk about internal states and children’s appraisals of self and other.

**Children’s Talk about Internal States and their Appraisals of Self and Sibling.** An initial analysis indicated that children’s overall use of internal state language was not significantly related to the frequencies of their appraisals ($prs < .14, ps > .47$). Furthermore, with child age and conversational turns controlled, none of the measured forms of children’s internal state talk were strongly correlated with children’s positive appraisals of either self or sibling ($prs < -.28, ps > .13$), nor were they related to the relative differences between positive appraisals of self and sibling ($prs < .26, ps > .16$). However, a number of significant associations emerged with children’s negative appraisals. When a specific type of internal state language was significantly correlated with a form of appraisal (e.g., references to emotions related to negative other appraisals), we used the Meng, Rosenthal, and Rubin (1992) procedure to determine whether it was significantly different from other related correlation coefficients. This procedure compares the magnitude of the correlations between two different predictors (i.e., types of internal state language) and an outcome (i.e., a type of appraisals) after accounting for the relationship between the predictors.

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**Table 3. Children’s Spontaneous Appraisals of Self and Sibling**

<table>
<thead>
<tr>
<th></th>
<th>Self</th>
<th>Sibling</th>
<th>Difference between self and sibling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>8.91 (4.85)</td>
<td>1.09 (1.30)</td>
<td>7.81 (4.56)</td>
</tr>
<tr>
<td>Negative</td>
<td>4.81 (3.98)</td>
<td>8.34 (5.68)</td>
<td>3.53 (6.21)</td>
</tr>
</tbody>
</table>

*Note: Difference between self and sibling is computed such that a more positive value always reflects a more favourable view of self than of sibling.*

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As indicated in Table 4, only trait references were related to children’s negative appraisals of others, perhaps because these two types of statements were often synonymous (e.g., ‘He’s lazy’). This association was more positive than the associations with beliefs, goals, and preferences. Trait references were also positively related to a relative emphasis on negative sibling appraisals compared with negative self-appraisals. This association was more positive than those for beliefs and preferences. Further, children’s talk specifically to the baby as opposed to the mother was more positively associated with negative appraisals of sibling and the difference between negative appraisals of self and other. Finally, children’s talk about the baby’s internal states was positively related to both negative appraisals of sibling and a relative focus on negative appraisals of the baby as compared with the self. In both cases, the effect for child references about the baby was more strongly positive than that for references about the child him/herself. Finally, the child’s references to his/her own internal states were positively associated with negative appraisals of self. This association was more positive than that for either baby’s or mother’s internal states.

Mothers’ Contributions to Conversations about Internal States and Children’s Appraisals of Self and Sibling. With child age and conversational turns controlled,
mothers’ overall use of internal state language was negatively related to both children’s negative appraisals of other (pr = −.37, p = .04) and the child’s selective focus on negative appraisals of sibling (pr = −.36, p = .05). Similar to the child’s internal state language, relationships with positive appraisals were generally weak. Analyses revealed a trend between maternal talk about beliefs and the child’s positive self-appraisals (pr = −.34, p = .07). Other than this one effect, none of the other 37 possible relationships approached significance (prs < −.30, ps > .11). Furthermore, none of the maternal variables predicted the difference score between children’s positive appraisals of self and sibling. Again, the strongest association was between maternal talk about beliefs and children’s enhancement of self relative to sibling (pr = −.31, p = .10; other prs < −.27, ps > .16).

On the other hand, maternal contributions to conversations about internal states were related in interesting ways to children’s negative appraisals (see Table 5). An examination of maternal prompting revealed that when mothers asked more closed-ended internal state questions, children made fewer negative appraisals of sibling. As above, when significant relationships were found, we used the Meng et al. (1992) procedure to determine whether the link with appraisals was significantly different than the associations for related predictors. This analysis revealed that the correlation between closed-ended internal state questions and children’s negative sibling appraisals was more negative than that for children’s spontaneous internal state references. Furthermore, children’s use of internal state language prompted by either open-ended or closed-ended maternal questions negatively predicted the child’s relative focus on negative appraisals of sibling rather than self. Both of these relationships were more strongly negative than that for the child’s spontaneous internal state language use.

When mothers made more references to beliefs and preferences, the child was less likely to make negative appraisals of sibling; these relationships were more strongly negative than that for emotion references. Conversely, when mothers talked more about emotions, children made more negative self-appraisals, a relationship more strongly positive than that for beliefs and preferences. Further, when mothers used internal state language in a negative affective context, children made more negative appraisals of self; this relationship was more strongly positive than that for references in a positive context.

Maternal responses to children’s internal state language were also related differently to children’s appraisals. When mothers responded oppositionally to children’s internal state talk, children were more likely to appraise themselves negatively. This correlation was more positive than those for both supportive responses and non-responses. Interestingly, when mothers did not respond to children’s references to internal states, children were more likely to focus selectively on negative appraisals of sibling rather than self. This correlation was more strongly positive than those for both supportive and oppositional responses.

Discussion

Generally, as discussed below, the results of this study replicated previous research examining both family talk about internal states (Dunn, 2000) and children’s appraisals of self and sibling (McGuire et al., 2000; Ross et al., 2004; Wilson et al., 2004). Further, results support the notion that specific features of family conversations about internal states are related in meaningful ways to children’s appraisals of self and sibling. Each of these sets of associations will be considered in turn.
Family Conversations about Internal States

As expected based on past research (e.g., Bartsch & Wellman, 1995), children’s references to internal states increased with age. This was true for all forms of internal state language except preferences. Beyond simply the low frequency of this type of talk, past research shows that children begin to use the words ‘like’ and ‘dislike’ appropriately from a very early age (Bartsch & Wellman, 1995), so the lack of age effects in late preschool is not surprising. However, older children talked more frequently about internal states in a positive affective context, suggesting that they were beginning to use this talk for goals beyond achieving their own ends in conflict. Furthermore, older children talked more about others’ internal states but not their own.

Table 5. Partial Correlations between Mothers’ Prompting, Use, and Responses to Internal State Language and Children’s Appraisals of Self and Sibling (Child Age and Conversational Turns Controlled)

<table>
<thead>
<tr>
<th>Prompting of child’s internal state language</th>
<th>Negative appraisals of sibling</th>
<th>Negative appraisals of self</th>
<th>Difference between negative appraisals of sibling and self</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed-ended questions</td>
<td>-.51**</td>
<td>-.22</td>
<td>-.38**</td>
</tr>
<tr>
<td>Open-ended questions</td>
<td>-.23</td>
<td>.21</td>
<td>-.36**</td>
</tr>
<tr>
<td>Spontaneous</td>
<td>.28b</td>
<td>.10</td>
<td>.22</td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belief</td>
<td>-.36**</td>
<td>-.02b</td>
<td>-.35†</td>
</tr>
<tr>
<td>Emotion</td>
<td>.18b</td>
<td>.38**</td>
<td>-.41*</td>
</tr>
<tr>
<td>Goal</td>
<td>-.28</td>
<td>.15</td>
<td>-.37*</td>
</tr>
<tr>
<td>Preference</td>
<td>-.41**</td>
<td>-.18b</td>
<td>-.31†</td>
</tr>
<tr>
<td>Trait</td>
<td>-.24</td>
<td>.06</td>
<td>-.28</td>
</tr>
<tr>
<td>Affective context</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>.04</td>
<td>.59**</td>
<td>-.31†</td>
</tr>
<tr>
<td>Positive</td>
<td>-.35</td>
<td>.19b</td>
<td>-.46**</td>
</tr>
<tr>
<td>Target</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baby</td>
<td>-.25</td>
<td>.23</td>
<td>-.39*</td>
</tr>
<tr>
<td>Child</td>
<td>-.40*</td>
<td>.06</td>
<td>-.43*</td>
</tr>
<tr>
<td>Referent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baby</td>
<td>-.23</td>
<td>.19</td>
<td>-.34†</td>
</tr>
<tr>
<td>Child</td>
<td>-.28</td>
<td>.31†</td>
<td>-.47**</td>
</tr>
<tr>
<td>Mother</td>
<td>-.38*</td>
<td>-.12</td>
<td>-.31†</td>
</tr>
<tr>
<td>Maternal response to child’s internal state language</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response</td>
<td>.31†</td>
<td>-.09b</td>
<td>.36**</td>
</tr>
<tr>
<td>Oppose</td>
<td>.20</td>
<td>.49**</td>
<td>-.10b</td>
</tr>
<tr>
<td>Support</td>
<td>-.24</td>
<td>-.04b</td>
<td>-.22b</td>
</tr>
</tbody>
</table>

† p < .10, * p < .05, ** p < .01.

Note: Dissimilar alphabetic superscripts represent significant differences between two correlations within a related set, zs > 1.96, ps < .05.

Family Conversations about Internal States

As expected based on past research (e.g., Bartsch & Wellman, 1995), children’s references to internal states increased with age. This was true for all forms of internal state language except preferences. Beyond simply the low frequency of this type of talk, past research shows that children begin to use the words ‘like’ and ‘dislike’ appropriately from a very early age (Bartsch & Wellman, 1995), so the lack of age effects in late preschool is not surprising. However, older children talked more frequently about internal states in a positive affective context, suggesting that they were beginning to use this talk for goals beyond achieving their own ends in conflict. Furthermore, older children talked more about others’ internal states but not their own,
again suggesting that this talk not only became more frequent with age but also more sophisticated. Finally, children’s internal state talk became more spontaneous and less prompted with age, suggesting that they depended less on conversational support by their mothers. The decrease in the frequency of maternal responses to children’s references may also reflect this general trend.

An examination of the pattern of relationships between mothers’ and children’s talk about internal states is consistent with the notion that mothers are an important resource for children’s learning about their social worlds (Dunn, 2000). As compared with their children, mothers focused relatively frequently on the internal states of the baby and herself, providing the child with rich input about the perspectives of familiar others. Furthermore, mothers were comparatively likely to discuss internal states in positive affective situations, giving their children access to information about others’ internal states when the context was non-combative, less emotionally charged, and perhaps the children were more open to divergent perspectives. Mothers also promoted children’s internal state references by asking open- and closed-ended questions that resulted in the child’s use of this language and often responded supportively to their children’s statements. Furthermore, virtually all mothers occasionally responded by opposing children’s references to internal states. These responses served a valuable purpose by helping the child to understand that his/her own perspective is not always reasonable, correct, or appropriate. As such, they were yet another resource for the child to learn about the internal worlds of others (Sabbagh & Callanan, 1998).

In addition, we found that the overall frequencies of mothers’ and children’s talk about internal states were related, as were their corresponding references to specific types of internal state information (i.e., goals and preferences). These results are consistent with research suggesting that the frequency of mothers’ internal state language may influence the amount of children’s talk (e.g., Jenkins et al., 2003), although we are unable to examine longitudinal associations or make causal claims. Furthermore, the degree to which mothers and children talked about the child him/herself were associated. Thus, mothers’ particular focus in conversation may have some influence on children’s topic choices (e.g., Haden et al., 1997) or mothers may be responsive to children’s tendency to focus on their own perspective.

Children’s Relative Appraisals of Self and Sibling

As expected, children made more negative appraisals of their younger siblings and more positive appraisals of themselves. Although our sample consisted only of older siblings who are indeed bigger, stronger, and more cognitively sophisticated than their younger brothers or sisters, past research suggests that this pattern is not limited to firstborns (Ross et al., 2004; Wilson et al., 2004). Interestingly, the eldest children in our sample were especially likely to make spontaneous positive appraisals of themselves and their sibling, though negative appraisals were unrelated to age. Thus, this may reflect a general tendency for older children to be more focused on positive behaviour and attributes. On the other hand, older children may refer more to positive appraisals of self and other for different reasons. With regard to self, older children may see the value of espousing their own qualities, and may also develop a greater sense of competency with age. Regarding their 14-month-old sibling, older firstborn children may simply feel less competitive and more maternal/paternal towards their younger siblings (Garner, Jones, & Miner, 1994; Howe & Rinaldi, 2004) and as such may be more likely to evaluate them positively. However, at the same time, for older firstborns,
the difference between negative appraisals of sibling and self became more extreme. Again, this may reflect older children’s greater impression management skills, but also real differences in the relative abilities of themselves and their toddler-age siblings.

Relationships between Family Conversations about Internal States and Children’s Appraisals

Results suggest that relationships with family conversations about internal states were much stronger with negative than with positive appraisals. One potential explanation for this finding is that negative behaviour may be especially salient for children given that overall, children focused more on negative behaviour than positive behaviour. Further, there may simply be greater individual differences in children’s negative evaluations of self and sibling than in their positive evaluations, and thus more variance to explain. Regardless, it is not surprising that negative and positive appraisals of self and sibling are not simply mirror images of one another, as past research has shown that these tend to be independent dimensions of the sibling relationship. That is, children who are most irritated by their brother/sister may also be the individuals who are fondest of their younger sibling (Dunn, 1983).

In general, we found that children who talked more frequently to the baby about internal states and who talked about the baby’s internal states were more likely to appraise themselves less negatively than their sibling. One potential explanation for this finding is that these children were simply more focused on their sibling’s behaviour than their own. Indeed, because these children were frequently engaged in interaction with their younger sibling, the baby may simply have had more opportunity for gaffes and transgressions. However, given that the opposite effect was not found for positive appraisals, this cannot entirely explain these data. It may be that children who place a selective focus on the baby’s perspective are more sophisticated in their social-cognitive skills relative to their agemates. As such, these children may also see the value of presenting oneself in a positive light relative to others.

Mothers’ promotion, use, and responses to internal state language were all related to children’s relative appraisals of self and sibling in intriguing ways. First, when mothers prompted their children to talk about and thus consider internal states, children were less likely to negatively appraise their siblings relative to themselves. This finding suggests a didactic model in which mothers may scaffold their children’s understanding of perspectives, thus promoting a more balanced evaluation of sibling relative to self. Also consistent with this interpretation is the finding that when mothers did not respond to children’s internal state references, children were more likely to emphasise their sibling’s negative behaviour and character as compared with their own. Thus, there seems to be a clear value to maternal prompting of, and responses to, children’s internal state language. Indeed, past research suggests that the manner in which mothers structure their conversations with their children may influence how children narrate their experiences (Haden et al., 1997). Thus, mothers’ informative prompting and feedback may help children to achieve a more comprehensive understanding of different perspectives on the world.

Overall, mothers’ use of internal state language was negatively related to the magnitude of the difference between children’s appraisals of self and sibling. This suggests a general association with mothers’ talk about perspectives rather than a specific relationship with talk in certain contexts. It has been found previously that maternal ‘mindmindedness’ is related to both children’s attachment security to their parents and
their later social-cognitive skills (Meins, Fernyhough, Russell & Clark-Carter, 1998). As such, it is possible that the tendency of some mothers to focus on family members’ perspectives may promote both children’s social understanding and the quality of their sibling relationship.

Limitations

Clearly, the small sample size limits the generalisability and power of the study. Nevertheless, the observed effects were relatively robust in this population, given their statistical significance in a small sample. In addition, the non-significant correlations were generally near zero, suggesting that lack of power may not have obscured many meaningful effects. The small sample size also precluded analyses involving complex interactions between independent variables (e.g., child references about the baby’s perspective directed to the mother). These additional tests would potentially have disambiguated the meaning of some results. However, these initial findings may be an adequate impetus to examine these questions further in a more refined and powerful way.

The exclusive focus on older siblings did not allow us to examine birth order effects, and thus our results may not apply to laterborns. However, this was a preliminary exploration of the correlates of children’s appraisals, and birth order was not of central concern. In fact because older siblings may play a central role as socialisation agents for younger children (Dunn, 2002), limiting the sample in this way ensured that maternal and sibling socialisation effects were not confounded. Furthermore, our monocultural sample precluded us from looking at cultural differences and findings may be limited to a European-Canadian population. Regardless, birth order and cultural differences are important considerations for future research.

Implications

Generally, the results of this study are consistent with the notion that children’s experiences with family members are associated with their understanding (Dunn, 1988) and recall (Haden et al., 1997) of shared events, as well as how they construe their relationships with others. In particular, although some forms of internal state talk by the child positively predicted the differences in negative evaluations of self and sibling, the opposite was true of maternal prompting, use, and responses to the child’s internal state talk. Although the pattern of relationships suggests that children’s conversations may be linked to their appraisals via their influences on sibling relationship quality, social understanding, and the coherence of their representations of past events, we cannot determine the mechanisms underlying these associations.

Yet these results suggest a number of avenues to guide future research. Specifically, will children’s theories of mind and/or quality of their sibling relationship mediate the associations between their internal state conversations and relative appraisals of self and sibling? Can these conversations about internal states predict changes in appraisals over time? If so, do these processes lead to changes in the magnitude of differences between self and other evaluations via their influences on memory, or simply by influencing the extent to which children attempt to manage impressions on their listener? Overall, this area of research may offer us new insights into the dynamics underlying children’s recall of shared experiences, as well as the processes leading to positive vs. negative interactions between siblings.
References


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