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Child maltreatment, attachment, and the self system: Emergence of an internal state lexicon in toddlers at high social risk

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Abstract
The ability to talk about the internal states (ISs) and feelings of self and other is an age-appropriate development of late toddlerhood hypothesized to reflect toddlers' emergent self–other understanding and to be fundamental to the regulation of social interaction. This study examined the effects of child maltreatment on the emergence of low-socioeconomic status 30-month-old toddlers' IS lexicons. Children's lexicons were derived both from maternal interviews and from observations of children's spontaneous IS utterances in four laboratory contexts. Results from both data sources indicated that maltreated toddlers produced significantly fewer IS words, fewer IS word types, and proportionately fewer IS words denoting physiological states and negative affect than nonmaltreated toddlers. In addition, maltreated toddlers were more context bound in IS language use and more restricted in their attributions of internal states to self and other. Gender differences were also observed. Individual differences in children's IS language production were significantly related to general linguistic maturity in both groups but to toddlers' conversational skills only in the comparison group. In addition, a cumulative risk model describing the effects of the child's attachment relationship with the caregiver on early IS language was tested. Toddlers most severely at risk (maltreated/insecure) had the most compromised IS language. Thus, secure attachment may serve as a protective mechanism against self-dysfunction in maltreated toddlers.

The ability to talk about the feelings, emotions, and other internal states (ISs) of self and other is an age-appropriate development of late toddlerhood hypothesized to reflect toddlers' emergent self–other understanding and to be fundamental to the regulation of social interaction (Bretherton, 1991; Cicchetti, Ganiban, & Barnett, 1991; Dunn & Brown, 1991; Harris, 1989; Stern, 1985; see also Johnson-Laird, 1983). The emergence of this ability may be viewed as part of a larger developmental transformation during toddlerhood characterized not

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only by general linguistic advances (e.g., lexical growth, the ability to talk in sentences [Bates, O'Connell, & Shore, 1987; Bloom, 1991]), but also by specific developments reflecting toddlers' emerging self–other differentiation, including an increase in self-descriptive utterances (Kagan, 1981), shifting personal pronouns (Bates, 1990), a growing empathic concern for others (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992), the emergence of the ability to tease and deceive (Dunn & Brown, 1991; Lewis, Stanger, & Sullivan, 1989), the "social" emotions such as guilt and shame (Barrett & Campos, 1987; Kagan & Lamb, 1987; Lewis, Sullivan, Stanger, & Weiss, 1989), and active agency during symbolic play (Beeghly, 1993; Bretherton & Beeghly, 1989; Leslie, 1987; Piaget, 1962; Watson & Fischer, 1977).

During the past decade, a rapidly growing body of research has focused on the extent and significance of young children's ability to talk about the inner states of themselves and others in their social environments (see recent reviews by Bretherton, 1991; Dunn & Brown, 1991; Harris, 1989; Ridgeway, Waters, & Kuczaj, 1985; Smiley & Huttenlocher, 1989; Wellman, 1988). This research has demonstrated that IS words first emerge early in the 2nd year and increase dramatically during the 3rd. Not only are there marked increases in the diversity of toddlers' IS lexicons, but also the range of social agents (other persons, toys, photographs) to whom ISs are imputed proliferates and becomes increasingly decentered, abstract, and decontextualized. Moreover, age-related changes in the content of toddlers' IS utterances also have been observed. By age 2½, for example, words about sensory perceptions, physiological states, and volition are most common in children's IS lexicons, followed by words for the basic emotions such as joy, anger, sadness, fear, and disgust and words denoting moral approval ("good girl"). In contrast, utterances about social and moral obligation ("supposed to," "have to") and cognitive processes (thought, knowledge, memory, etc.) are still relatively rare. Note that the latter category has been shown to increase in frequency after 30 months (Shatz, Wellman, & Silber, 1983; Wellman, 1988).

It is important to clarify that "IS words" in this literature refer primarily to those words that have explicit reference to internal states ("mad," "happy") rather than words that have implicit connotations of emotion, motivation, or intention (Bromley, 1977). Moreover, toddlers' IS words do not yet have their full adult meaning but, rather, appear to be based on concrete, observable aspects of experience or behavior (see Beckwith, 1991; Bloom & Beckwith, 1989; Gopnik & Astington, 1988). Nevertheless, by 2½ years, toddlers appear to use IS words in appropriate contexts and to discuss the stages of nonpresent persons as well as the causes and consequences of ISs for self and other (Bretherton & Beeghly, 1982; Bretherton, Fritz, Zahn-Waxler, & Ridgeway, 1986; Dunn, Bretherton, & Munn, 1987).

Moreover, parental language to toddlers about ISs has been shown to mirror their children's abilities and becomes increasingly other oriented as children grow in linguistic and conceptual maturity (Beeghly, Bretherton, & Mervis, 1986; Dunn et al., 1987). Participating in family discussions about emotions and ISs is thought to be an important way children acquire and refine an IS lexicon, particularly if these discussions involve the child directly (Dunn et al., 1987). Moreover, such interchanges promote the establishment of close relationships by encouraging toddlers to share their experiences and feelings and to negotiate conflicts and misunderstandings. In her longitudinal home observations, for example, Dunn and her colleagues (Dunn et al., 1987; Dunn, Brown, & Beardsall, 1991a) reported that a high proportion of families' conversations involved discussions about feeling and emotions states. Notably, individual differences in the amount of this talk were stable over time and predicted children's perspective-taking abilities several years later, even when children's language skills were controlled analytically (see Denham, McKin-

ley, Couchoud, & Holt, 1990, for other correlates of early emotion language).

The purpose of the present study was to examine the impact of low social status and child maltreatment on the emergence of an IS lexicon in 30-month-old toddlers. Because the extant IS literature has focused primarily on low risk samples drawn from middle-socioeconomic status (SES) backgrounds, it was unclear whether or not maltreated and nonmaltreated toddlers from extremely low-SES homes would exhibit similar developmental progressions in their ability to use IS language. Although low SES is associated with mild developmental delays (McLloyd & Wilson, 1991) and with parenting styles hypothesized to interfere with early language learning (Barnes, Gurgreund, Satterly, & Wells, 1983; Snow, 1984), child maltreatment has been documented to place low-SES children at even greater jeopardy for compromised developmental outcomes, particularly for aspects of development relevant to the acquisition of an IS lexicon (e.g., early language and communicative development [e.g., Cicchetti & Beeghly, 1987; Coster & Cicchetti, 1993], affective communication during early social interactions [Gaensbauer & Sands, 1979], affective regulation during visual self-recognition tasks [Schneider-Rosen & Cicchetti, 1991], infant–caregiver attachment formation [Carlson, Cicchetti, Barnett, & Braunwald, 1989; Crittenden & Ainsworth, 1989; Egeland & Sroufe, 1981; Lyons-Ruth, Connell, Zoll, & Stahl, 1987]). In addition, child maltreatment has also been documented to have deleterious effects on the socioemotional and regulatory abilities of older children (e.g., Aber & Cicchetti, 1984; Alessandri, 1991; Cicchetti et al., 1991; Jaffe, Wolfe, & Wilson, 1990; Lynch & Cicchetti, 1991; Starr & Wolfe, 1991; Vondra, Barnett, & Cicchetti, 1989). For these reasons, we expected maltreated toddlers from low-SES homes to show compromised patterns of early IS language production, even when controlling for the effects of poverty.

For example, Coster, Gersten, Beeghly, and Cicchetti (1989) reported significantly delayed language and communicative skills in a sample of low-SES maltreated 2 ½-year-olds, relative to cognitively and demographically matched controls. The maltreated children's language was markedly impoverished in productivity, complexity, and content. Moreover, children were especially delayed in particular pragmatic skills that serve to initiate and sustain conversation (e.g., questions, descriptive utterances, discourse skills). Similar language deficits have also been reported for older maltreated children (e.g., Blager & Martin, 1976).

We also hypothesized that the quality of children's attachment relationships with the caregiver might serve as a moderating factor in maltreated children's IS language development, because maltreated children are significantly more likely than nonmaltreated children to be insecurely attached. From both a psychodynamic and an attachment perspective (Bowlby, 1982; Bretherton, 1987; Mahler, Pine, & Bergman, 1975), the quality of a child's early relationships with the caregiver (e.g., attachment security) should have a significant impact on multiple domains of the emerging self system, including children's ability to talk about ISs, via its hypothesized links with children's budding representational development ("internal working models"; Bowlby, 1982; Bretherton, 1987; Crittenden, 1990; Sroufe, 1990).

In support of this, attachment security has been related to individual differences in self-development such as visual self-recognition (Schneider-Rosen & Cicchetti, 1984); executive function and mastery pride (e.g., Matas, Arend, & Sroufe, 1978); prosocial behavior and empathy (e.g., Kestenbaum, Farber, & Sroufe, 1989), featural knowledge of self and mother (Pipp, Easterbrooks, & Harmon, 1992), and greater action complexity for self and mother during symbolic play (Pipp et al., 1992). In older children, attachment also has been related to affective regulation, use of emotion language, emotional awareness, and interpersonal planning skills (Greenberg, Kusche, & Speltz, 1991).

In addition, attachment security has been shown to serve as a protective factor for children's general language abilities, but only for high-risk children (Gersten, Coster, Schneider-Rosen, Carlson, & Cicchetti, 1986; Morisset, Barnard, Greenberg, Booth, & Spieker, 1990). For example, in their longitudinal high-risk sample, Morissett et al. (1990) found that children at highest risk who were classified as secure in infancy had significantly higher developmental quotients at 24 months and more advanced language skills as assessed by the Preschool Language Scale at 36 months than the highest risk insecure children. Similarly, Gersten et al. (1986) found that attachment security had a significant protective effect on low-SES, maltreated, 24-month-old toddlers' language development, even though maltreatment status was unrelated to toddlers' language at this age.

Deficits in maltreated children's IS language profiles, as well as their communicative development more generally, might also be expected in the light of the negative, disorganized affective-linguistic environments reported for maltreating families (Bronfenbrenner, 1979; Prizant & Wetherby, 1990). In striking contrast to low-risk, middle-class families (e.g., Dunn et al., 1987; Mervis, 1984; Snow, 1984), maltreating families are reported to spend less time in conversations and discussions than nonmaltreating families. For instance, Silber (1990) reported that, during a conflict negotiation task, maltreating families were less likely to engage in sustained, task-focused verbal interaction and had children who were less likely to initiate conversation than demographically matched nonmaltreating families.

In addition, maltreating parents, who fall at the extreme end of the continuum of caretaking casualty (Sameroff & Chandler, 1975), are reported to provide their children with chronically insensitive care (Crittenden & Ainsworth, 1989; Trickett, Aber, Carlson, & Cicchetti, 1991) and to have less optimal interactive styles than nonmaltreating caregivers. Though variable across families, these interactive styles have been described as overly controlling, hostile/punitive, neglecting, and/or inconsistent (Belsky & Vondra, 1989; Bousha & Twentyman, 1984; Grusec & Walters, 1991; Lyons-Ruth et al., 1987; Silber, Bermann, Henderson, & Lehmann, 1993; Wasserman, Green, & Allen, 1983).

In the present study, we assessed the productive IS language abilities of maltreated and nonmaltreated children from low-SES homes when children were 2½ years old, a time when IS language is rapidly increasing and significant effects of the social environment on language development have been demonstrated (Coster et al., 1989; Moriset et al., 1990). To maximize validity, child language data were derived from two sources: structured maternal interviews and direct observations of toddlers' IS language during social interaction in four laboratory contexts.

Maternal interviews were included because children's use of certain categories of IS words such as emotion words may occur less frequently in laboratory contexts as compared to other situations (Bretherton et al., 1986; Dunn et al., 1987). In addition, considerable support for the concurrent and predictive validity of maternal interviews for assessing toddlers' early lexical development (e.g., Fenson et al., 1991) and early IS vocabulary (Bretherton & Beeghly, 1982; Bretherton et al., 1986) has recently been generated, at least in low-risk samples. However, less is known about the validity of maternal interviews in extremely low-SES samples or for families at high psychological risk, such as maltreating families.

In view of the more general language delays observed for maltreated children during the 3rd year (Coster et al., 1989), we expected to find significant negative effects of maltreatment of the productivity, diversity, and decontextualization of children's IS lexicons. Decontextualized language was of interest because references to nonpresent persons and events increase in frequency during the 3rd year and reflect more advanced linguistic and conceptual development (Hood & Bloom, 1979; Sachs, 1983). Moreover, in light of the socioaffective co-

morbidities associated with child maltreatment, including disturbances in the self system (Cicchetti, 1991), we expected to find effects of maltreatment on the semantic content of their IS language as well as on their ability to use IS words for self and other.

In addition to specific effects of maltreatment, we also were interested in whether individual differences in children's IS language in both groups were related to gender differences or to children's general linguistic maturity, as has been reported for low-risk toddlers. Finally, we assessed the possible moderating effects of children's attachment relationship with the caregiver on their IS language profiles, using a cumulative risk approach (Sameroff & Seifer, 1990). We anticipated that children at the highest risk (maltreated, insecure children) would have the most compromised IS language abilities.

Methods

Subjects

Forty toddlers (17 girls and 23 boys) and their biological mothers participated in the present study (*M* toddler age = 31 months, 22 days; range = 30 months, 0 days, to 33 months, 29 days). Subjects were participants in a larger longitudinal prospective study of the developmental consequences of child maltreatment (Cicchetti & Rizley, 1981; see also Coster et al., 1989, for further description of the current sample). All toddlers were clinically normal and free of any physical impairments or brain injury. All families were from urban, English-speaking, low-income homes, with 93% receiving Aid to Families with Dependent Children (AFDC). Eighty percent of the study mothers were single parents, with no spouse or partner living in the home. Thirty-four (85%) were Caucasian, four (10%) were African American, and two (5%) were Hispanic.

Maltreated group. Fifty percent of the study toddlers (9 girls and 11 boys) had been maltreated while living with one or both of their biological parents. The mothers of these maltreated children were indicated as either the sole or coperpetrator in each case. Maltreatment was documented by a legal record filed with the Department of Social Services (DSS) and verified by a follow-up interview with the family's protective service social worker. All maltreating families were being monitored by public or private social service agencies. At the time this project was conducted (1979–1985), the families recruited in the present study were representative of the statewide population of newly confirmed maltreatment cases reported by the DSS (see Cicchetti & Manly, 1990).

Comparison group. An additional 20 toddlers (8 girls and 12 boys) and their mothers were recruited to serve as demographically matched, nonmaltreated controls. Comparison families were recruited by advertisements in welfare offices, neighborhoods, and newspapers. All comparison toddlers and families were verified as having no history of abuse or neglect as documented by legal record and corroborated by home interview. Demographic and maternal characteristics of the maltreated and nonmaltreated groups are presented in Table 1. Groups did not differ significantly on any of the following important demographic variables: (a) household prestige ratings (Nock & Rossi, 1979), a 100-point rating of SES summarizing each household member's ability to command cultural, social, and economic resources; (b) ethnicity; (c) maternal age; (d) marital status; (e) maternal educational level; (f) religion; (g) family income; (h) maternal employment status; and (i) presence or absence of a spouse or partner in the home. Only one significant group difference was observed: Maltreating families were significantly more likely to have a larger number of children living in the home relative to nonmaltreating families.

Types of maltreatment. To identify the types of maltreatment documented for each maltreated toddler and for each toddler's immediate family, a trained graduate-level research associate interviewed the social

Table 1. *Sample characteristics*

	Maltreated (N = 20)	Nonmaltreated (N = 20)
Maternal age		
M	28.33	25.66
SD	5.70	5.15
Maternal ethnicity		
Caucasian	16 (80%)	18 (90%)
African American	3 (15%)	1 (5%)
Other	1 (5%)	1 (5%)
Maternal education level (highest grade completed)		
M	10.10	11.40
SD	2.17	2.04
Partner/spouse living in home	4 (20%)	4 (20%)
Number of children in home		
M	2.50	1.65**
SD	0.89	0.93
Currently receiving Aid to Families with Dependent Children	17 (85%)	20 (100%)
Socioeconomic status (household prestige score)		
M	47.03	47.89
SD	5.64	2.76
Maternal employment status		
Unemployed/homemaker	14 (70%)	15 (75%)
Unemployed/student	2 (10%)	3 (15%)
Employed part-time	4 (20%)	2 (10%)

Note: Maltreated and nonmaltreated groups did not differ significantly on any maternal and demographic variable, with the exception of number of children in the home.
**$p < .01$.

workers of each family using a modification of Giovannoni and Becerra's (1979) 87-item checklist. This well-validated instrument tallies specific incidents and conditions of maltreatment and identifies the perpetrator for each incident. The social workers' interviews were then reviewed by two Ph.D.-level psychologists who identified the following types of maltreatment in this sample: physical abuse, physical neglect, and emotional mistreatment. No sexual abuse was documented in this sample. Interrater agreement for placement of children and families into maltreatment categories was 100%.

The majority of toddlers and their families were documented with multiple types of maltreatment; therefore, it was not feasible to test the impact of particular maltreatment types on children's IS language. Overall, 55% of the maltreated toddlers and 75% of their families were documented with two or more types of maltreatment: 7 (35%) toddlers had been physically abused, 16 (80%) had experienced physical neglect, and 12 (60%) had been emotionally abused. Somewhat higher rates of maltreatment were documented for the maltreated toddlers' families, suggesting that some study children may have been exposed to a greater variety of maltreatment than documented for them as individuals: 13 (65%) families were filed on for physically abusing their children, 17 (85%) for physically neglecting children, and 12 (60%) for emotional mistreatment.

Procedure

Children and mothers participated in two laboratory sessions spaced 2 weeks apart when children were within approximately 1 month of their 30-month birthdays. The

first laboratory session (Visit 1) included three tasks administered in the following order: (a) the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978), (b) a semistructured stranger–child play session (30 min), and (c) an Emotions Picture Book session with mother and child (5 min). The second laboratory session (Visit 2) included three contexts administered in the following order: (a) a semistructured mother–child play session (30 min); (b) the Peabody Picture Vocabulary Test—Revised (PPVT-R; Dunn & Dunn, 1981), a measure of receptive single-word vocabulary and an estimate of verbal IQ; and (c) an unstructured mother–child free-play session (20 min). In addition, mothers were interviewed about their children's current ability to produce IS words. All laboratory procedures at Visit 1 and Visit 2 except the PPVT-R and maternal interview were videotaped from behind a one-way mirror. All experimenters, interviewers, and research assistants were unaware of family diagnostic status.

Maternal interview

Mothers were interviewed about their toddlers' current use of IS words utilizing a comprehensive interview adapted from Bretherton and Beeghly (1982). From a list of 50 target words divided into the 10 semantic categories described below, mothers were asked to identify those words their children could currently produce and to indicate whether they used them for self, other persons, toys, or pictures. Only words for which verbatim examples and contextual information could be given were counted. Maternal interviews were audiotaped for later data reduction. Specific IS words targeted in the interview were derived from prior research detailing toddlers' use of IS words (e.g., Bretherton & Beeghly, 1982) and included those words that explicitly referred to the ISs of themselves and others. Words denoting affective behavior (e.g., kiss, cry) were also included, because young children commonly use these terms to refer to affective states (Bretherton et al., 1986; Smiley & Huttenlocher, 1989).

The IS categories targeted in the present study included the following: sensory perception (sight, hearing, smell, taste, touch, pain, temperature); physiology (hunger, thirst, and states of consciousness such as sleep, fatigue, and arousal); positive affect (love, affection, kindness, happiness, joy, surprise); negative affect (hate, disgust, anger, sadness, fear, distress); affective behavior (words referring to affective behavior used by many language-learning toddlers to denote emotional states: kiss, hug, cry, laugh); moral judgement (good/bad person, moral conformity and nonconformity); obligation (permission, compulsory or imperative behavior); volition (desire, need); ability (task ability, mastery); and cognition (knowledge, thought, memory, insight, uncertainty).

Data reduction. Audiotapes of the maternal IS language interviews were transcribed verbatim and scored to produce the following summary variables:

1. Diversity of IS words. The number of different IS words reported was tallied across categories.
2. Semantic content. The proportion of IS words in each semantic category, relative to total reported IS words, was also calculated.
3. Self–other differentiation. Two summary scores reflecting the range and flexibility with which toddlers use IS words for self and other social agents were derived: (a) the proportion of IS utterances used to describe a single agent only (e.g., self) relative to total IS utterances, and (b) a self–other differentiation score, calculated by summing (for each IS word reported) the number of IS words for which the child used all three categories of social agents: self, other persons, toy/pictures.

Laboratory observations

Toddlers' spontaneous production of IS utterances was also assessed during four dif-

ferent laboratory contexts, yielding a total of 80 min of videotaped interactive behavior for each child. Play contexts were included because IS language production is reported to occur frequently during pretend play (Beeghly et al., 1986; Dunn et al., 1987). The Emotions Picture Book task was included to elicit talk about emotions and other states directly. These four contexts are described below.

Stranger–child semistructured play. At Visit 1, a 30-min stranger–child semistructured play session was administered in a laboratory playroom furnished with a standard set of age-appropriate toys (e.g., a dollhouse, puppets, trucks, story books, blocks, a toy piano) and a bean-bag chair for the adult situated to one side of the room. The play session was divided into three 10-min segments to allow an examination of the child's communicative and self-regulatory behavior during both structured and unstructured conditions. During the first and last 10-min segments, the stranger was asked to sit on the bean-bag chair provided for her and to refrain from initiating social interaction or directing the child's play. However, if the child initiated social interaction, the adult was asked to respond naturally. During the middle 10-min segment, the adult was asked to engage the child in playful interaction.

Emotions Picture Book task. In this task, the mother–child dyad was seated together in a large easy chair with the Emotions Picture Book and instructed to talk about the pictures together. The ensuing interchange was videotaped for 5 min from behind a one-way mirror. The Emotions Picture Book contained a series of photographs of children and adults in a variety of emotion-arousing situations (e.g., happy children at a birthday party; angry children struggling over a toy; a crying child getting an injection at the doctor's office; an adult scolding a child for breaking a potted plant).

Mother–child semistructured play. A 30-min semistructured mother–child play session was administered at Visit 2 that was identical in form and length to the stranger–child play session administered at Visit 1.

Unstructured mother–child free play. A second mother–child play session with a different set of age-appropriate toys was also included at Visit 2. During this 15-min session, mothers were given no specific directions other than "play with your child as you normally would at home."

Data reduction. Trained, reliable coders who were unaware of child diagnostic status transcribed verbatim all spontaneous child utterances containing IS words (see definition, earlier) from videotapes of adult–child interaction made during each of the four laboratory contexts. Along with each child IS utterance, relevant contextual information and any contingent adult utterances were also transcribed. Any questions that arose during transcription were resolved in conference with the first author. Reliability was assessed for 20% of the transcripts (range 88–100%). Each transcribed utterance containing a targeted IS word was further coded for semantic content and attributional focus (i.e., about self, other, toys, or pictures). Semantic content and self–other differentiation were defined and calculated exactly as for the analogous variables derived from the maternal interviews, described earlier. In addition, each observed IS utterance was further scored for decontextualization of use, that is, whether or not the child used the term to refer to nonpresent states (see later).

For analytic purposes, IS language variables were combined across contexts due to low frequencies for some categories of IS words. The following summary IS variables were derived from transcribed utterances in all four laboratory contexts:

1. Frequency and diversity of IS words. The absolute frequency of IS words as well as the number of different IS words were tallied across contexts.

2. Semantic categories. The proportion of IS words classified into each semantic category, relative to total IS words, was also calculated.

3. Self–other differentiation. Two summary scores reflecting children's flexibility in their attributions of ISs to self and other social agents were derived that are analogous to those derived from the maternal interviews: (a) the proportion of IS utterances used to describe self only, relative to total IS utterances; and (b) a total self–other differentiation score, relative to total IS utterances, calculated in the following way. For each different IS word produced, a point was scored for each different social agent that the child was reported to describe with that word (self, other person, toy, picture), resulting in a maximum self–other differentiation score of 4 per word. Word scores were then summed across lexical items and averaged (relative to the total number of different IS words).

4. Decontextualization of use. A summary score reflecting children's ability to use IS words in a decontextualized manner (i.e., in utterances referring to the inner states of nonpresent persons, or past, future, conditional, or hypothetical states, or in queries or negations about the existence of ISs). Each word was awarded 1 point for each instance of decontextualized use observed, resulting in a maximum possible decontextualization score of 6 per word. A score of 0 was also possible if children had not yet begun to discuss nonpresent states. Scores were then summed across words in each category and averaged (relative to the total number of different IS words produced). Decontextualization of IS word use was not included in the maternal interviews.

Table 2 provides brief definitions and verbatim examples of the semantic categories, self/other attribution, and decontextualized use scored in the present study.

General linguistic maturity

To determine the relationship of children's IS word production to their general linguistic maturity, indices of children's receptive and productive language ability were also derived, as follows.

Receptive language. Children's single-word receptive vocabulary and general verbal intelligence were estimated using the PPVT-R, a structured, forced-choice pictorial comprehensive test requiring no verbal output from the child. To reduce possible examiner effects on child performance, the PPVT-R was administered by the same familiar experimenter who had greeted the family and conducted the earlier play session. For analytic purposes, raw scores as well as standard scores (population $M = 100$, $SD = 15$) were included in the statistical analyses to safeguard against possible basement effects in this inner-city sample (children were at the youngest test age normed for the PPVT-R).

Expressive language. Two estimates of children's expressive language maturity were also included from data available from Coster et al. (1989). These measures were calculated from complete, reliable transcripts of consecutive, verbatim child utterances produced during the two mother–child play contexts described earlier.

1. Mean length of utterance (MLU; Brown, 1973). MLU in morphemes was calculated according to Brown's specifications as a measure of utterance complexity and an estimate of children's linguistic and syntactic maturity.

2. Mean length of episode (MLE; Brown, 1980a, 1980b). Children's ability to maintain conversation at the discourse level (conversational relatedness) was estimated using MLE. MLE refers to the average length of children's sustained conversationally relevant episodes produced during playful interaction with an adult. According to Brown, a child's utterance is judged to be conversationally

Table 2. *Semantic categories of toddlers' internal state (IS) words*

IS Category	Brief Definition	About Self or Others	Decontextualized Use
Sensory perception	Words explicitly referring to sensory perception: vision, hearing, smell, taste, or touch, including pain and tactile sensation	"Feels soft" "Lookin' at you" "See bottle" "Ouch" "Mommy smell it"	"See Grandma" (referring to future) "Don't watch me" "Hear that?"
Physiological states	Words explicitly referring to states of arousal, fatigue, sleep, hunger, thirst, or illness (feel sick)	"Baby sick" "Too tired"	"Not sleepy, Ma" "I was starving"
Positive affect	Words explicitly referring to positive affect, affection, pleasure, or sympathy (e.g., like, love, be silly, have fun, be funny)	"Love my baby" "Me havin' fun" "I like toys!"	"Having fun, Ma?" "Maggie silly" (referring to past)
Negative affect	Words explicitly referring to negative affect, dislike, displeasure, or disgust	"Yucky" "I hate it" "Mad at you"	"Bobby sad?" (referring to past) "Mommy mad?"
Affective behavior	Words explicitly referring to behavior denoting affective states (e.g., kiss, hug, cry)	"Hug dolly" "Baby kissin' Grover"	"Don't cry"
Moral judgment	Words explicitly referring to moral judgment of persons	"Bad dolly!" "Me good girl" "I being bad"	"Billy bad boy" (referring to past) "I be good" (referring to future)
Obligation	Words explicitly referring to obligation or permission	"You supposed to watch me" "Have to share"	"Don't let him" "Can I go outside?"
Volition	Words explicitly referring to volition and desire	"I want a large burger" "I need that truck"	"No wanna" "Need a tissue Ma?"
Ability	Words explicitly referring to ability and mastery	"That's easy!" "I can jump"	"I can't!" "Too hard, Mom?"
"Cognition"	Words referring to mental states or processes, even if used in routines (e.g., knowledge, thought, memory, uncertainty)	"I know" "I think it's a cat"	"I dunno" "Guess!"

relevant if it is appropriately tied semantically and pragmatically to the adult's conversational act or to the context at hand. MLE was calculated by dividing the total number of a child's conversationally relevant acts that were unbroken by a nonrelevant act by the total number of the child's communicative acts.

Quality of attachment

To evaluate the quality of the child's attachment to the caregiver, toddlers and mothers were videotaped in the Strange Situation paradigm (Ainsworth et al., 1978) as the first laboratory assessment conducted at Visit 1. The Strange Situation is a well-established, standardized procedure in which the child experiences a series of eight increasingly stressful episodes including being left alone and interacting with a stranger in an unfamiliar setting. The entire procedure lasts about 25 min and is videotaped. Attachment security was of interest in the present study because of its hypothesized role as either a protective factor or an added risk factor in the early language development of maltreated children.

Strange Situation behavior at 30 months was scored by two individuals with extensive experience in coding both infant and preschool attachment and demonstrated reliability in scoring Strange Situation behavior in both high- and low-risk samples. All discrepancies were resolved by repeated viewing of the videotapes by the coders until consensual agreement was reached. Videotapes were classified according to the MacArthur Preschool Attachment Coding System (Cassidy & Marvin, 1992). The following major classifications were analyzed: secure (Type B), insecure–avoidant (Type A), insecure–ambivalent (Type C), insecure controlling–disorganized (Type D), and insecure–other (mixed strategy—e.g., A/C). For analytic purposes, a dichotomous variable (secure/insecure) was used in the present study. Overall agreement for the major classifications was 92%.

Results

The results are presented in four sections. First, group comparisons on indices of children's general expressive and receptive linguistic maturity are presented as a background for interpreting the specific analyses of IS language that follow. Next, group differences in the diversity, semantic content, attributional focus (self–other differentiation), and decontextualization of children's IS word production are reported, as derived from both the maternal interviews and laboratory observations. Third, results of two sets of correlation analyses are presented: (a) relationships between children's IS language production and their general linguistic maturity and (b) the degree of correspondence between mothers' reports of their children's current IS language production competencies and our direct observations. Coefficients are presented for the entire sample as well as for each group separately. In the fourth and final section, results are presented that (a) demonstrate the toxic effects of maltreatment on attachment security at 30 months and (b) compare the IS language profiles of the highest risk children in this sample (maltreated, insecure) to children at moderate or low risk, using a cumulative risk approach.

Unless otherwise specified, effects of maltreatment and child gender on toddlers' IS language were tested with a series of 2 (Group) × 2 (Gender) multiple analyses of variance (MANOVAs). Gender was included as an independent variable in the model because, although the literature is inconsistent, gender has been associated both with rate of linguistic maturity (e.g., Fenson et al., 1991) and with individual differences in language about feelings and other ISs in early childhood (e.g., Dunn et al., 1987; Fivush, 1989).

General linguistic maturity

Receptive language. No significant main effects for maltreatment were observed for children's receptive abilities as estimated by the PPVT-R, using either standard scores or raw scores. Thus, there was no indication that the maltreated children showed greater receptive deficits at 30 months than their nonmaltreated counterparts. The mean standard score for the sample as a whole

was 92 (SD = 17, range = 62–138). Although this average falls below the population mean of 100, it is, nonetheless, within the normal range for this age group. Children's mean raw score on the PPVT-R was 15 (SD = 11, range = 3–54). There were no significant main effects of gender or gender by maltreatment interactions for PPVT-R scores.

Expressive language. In contrast, maltreated toddlers had significantly poorer scores than nonmaltreated toddlers on both measures of expressive language: linguistic maturity (i.e., MLU) and conversational relatedness (i.e., MLE); Wilks's lambda for overall maltreatment effects = .68, p = .002. The average MLU in the maltreated group was 2.11 (SD = 0.48, range = 1.37–3.06) compared to an average of 2.77 (SD = 0.68, range = 1.43–3.73) in the nonmaltreated group, $F(3, 36) = 10.9$, p = .002. A noteworthy finding is that the average MLUs in both groups were lower than that typically reported for similarly aged children from the middle SES (see Bates et al., 1987). For instance, Bretherton and Beeghly (1982) reported an average MLU of 2.77 for a sample of 30 28-month-old, middle-class children who were nearly 3 months younger than the present sample. Similarly, maltreated toddlers' average MLE scores were significantly lower than those of their nonmaltreated counterparts (maltreated: M = 2.19, SD = 0.48, range = 1.41–3.44; nonmaltreated: M = 3.23, SD = 1.09, range = 1.74–6.10), $F(3, 36) = 13.06$, p = .001. Interestingly, MLE was significantly correlated with MLU (r = .56, p = .01) in the comparison group but not in the maltreated group, suggesting possible disorganization among different language domains for maltreated children. There were no significant main effects of gender or maltreatment by gender interactions for MLU or MLE.

IS word production: Maternal reports and laboratory observations

Frequency and diversity of IS words. Group means, standard deviations, and ranges for mothers' reports of the number of different IS words produced by their toddlers and for the frequency and diversity of children's IS words spontaneously produced in the laboratory are provided in Table 3.

Similar main effects of maltreatment were observed in both the reported and observed data sets. In the maternal reports, maltreated toddlers produced fewer IS word types than nonmaltreated toddlers, $F(3, 34) = 4.18$, p = .05. In the laboratory-based data, as hypothesized, maltreated toddlers produced significantly fewer IS words overall, ($F(1, 35) = 8.35$, p = .007) and fewer different IS words ($F(1, 35)$ = 9.36, p = .004) than nonmaltreated toddlers; Wilks's lambda for maltreatment effects = .77, p = .03. There were no significant gender effects or maltreatment by gender interactions for either the reported or observed data.

Semantic content of IS words. Group means, standard deviations, and ranges for the proportional semantic content variables as derived from maternal report and from direct observations are in Table 4.

Controlling for the size of the IS lexicon, significant group differences in semantic content were found in the laboratory data set; Wilks's lambda for overall maltreatment effects = .60, p = .01, Wilks's lambda for gender effects = .66, p = .04, and Wilks's lambda for maltreatment by sex effects = .63, p = .02. Univariate analyses revealed that maltreated toddlers produced proportionately fewer IS words describing physiological states ($F(3, 35)$ = 5.27, p = .03), negative affect ($F(3, 35)$ = 13.98, p = .0007), and moral obligation ($F(3, 35) = 4.80$, p = .04) than nonmaltreated toddlers. The main effect for negative affect was qualified by a significant interaction effect with gender such that maltreated girls used negative affect words less often than all other groups, $F(1, 35)$ = 15.68, p = .0004.

Two significant gender effects were also found: Girls used proportionately fewer words about negative affect ($F(1, 35)$ =

Table 3. *Frequency and diversity of toddlers' internal state (IS) words: Maternal report and laboratory observations*

	Maltreated	Nonmaltreated
Maternal report		
Number of different IS words		
M	26.00	32.17*
SD	9.45	8.73
Range	9.00–42.00	12.00–47.00
Laboratory observations		
Number of different IS words		
M	9.95	16.35**
SD	5.48	6.7
Range	3.00–26.00	7.00–28.00
Total frequency of IS words		
M	41.45	77.65**
SD	31.31	43.90
Range	6.00–122.00	26.00–207.00

*$p < .05$. **$p < .01$.

Table 4. *Semantic content of toddlers' internal state words*

	% IS Words							
	Maltreated				Nonmaltreated			
	M %	(*SD*)	Range	% 1[a]	*M* %	(*SD*)	Range	% 1[a]
Reported								
Perception	28.04	(7.85)	19.00–55.00	100	26.81	(3.99)	16.67–33.33	100
Physiology	16.16	(6.20)	0.00–25.00	95	16.14	(3.37)	12.00–25.00	100
Positive affect	15.92	(5.18)	0.00–23.81	95	17.92	(2.78)	14.29– 21.74	100
Negative affect	11.26	(4.24)	4.76–20.00	100	10.89	(2.92)	4.35–16.22	100
Affective behavior	9.03	(3.87)	3.85–20.00	100	9.94	(4.39)	5.26–25.00	100
Moral judgment	5.89	(3.05)	0.00–11.11	95	4.70	(2.49)	0.00– 9.52	94
Obligation	2.02	(3.11)	0.00–11.11	40	1.62	(1.75)	0.00– 4.35	50
Volition	5.99	(4.19)	0.00–14.29	80	7.00	(1.96)	2.90– 9.09	100
Ability	4.07	(2.37)	0.00– 8.00	80	3.02	(2.19)	0.00– 5.99	72
Cognition	1.03	(1.51)	0.00– 4.00	35	1.68	(1.43)	0.00– 4.00	61
Observed								
Perception	40.34	(23.80)	9.10–90.47	100	31.03	(13.08)	14.29–63.22	100
Physiology	2.05	(2.86)	0.00– 8.82	45	5.95**	(6.89)	0.00–29.03	85**
Positive affect	3.83	(6.41)	0.00–25.00	55	2.32	(2.07)	0.00– 7.69	80†
Negative affect	1.10	(1.99)	0.00– 7.00	35	3.69***	(2.92)	0.00–12.50	63†
Affective behavior	5.92	(8.13)	0.00– 2.69	65	6.69	(7.80)	0.00–35.71	100**
Moral judgment	3.46	(6.36)	0.00–18.52	40	2.09	(3.10)	0.00–12.62	60
Obligation	3.53	(4.73)	0.00–18.18	50	6.82*	(4.92)	0.00–15.38	80*
Volition	27.83	(19.66)	0.00–78.56	95	28.97	(14.29)	8.69–53.85	100
Ability	7.24	(9.19)	0.00–36.36	65	9.64	(8.95)	0.00–34.69	80
Cognition	4.71	(7.33)	0.00–26.08	50	3.26	(5.03)	0.00–21.43	60

[a]Percentage of toddlers reported to use at least one word from a particular category.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

3.93, $p = .005$) but more affective behavior words than boys ($F(1, 35) = 4.69$, $p = .04$). There was also a marginally significant trend for girls to use more positive affect words than boys, $F(1, 35) = 3.07$, $p = .09$.

No significant group differences were observed for the maternal report data.

Thus, during laboratory observations, maltreated toddlers were significantly less likely to talk about physiological states, negative affect, and moral obligation than their nonmaltreated counterparts but could not be distinguished on other more "task-oriented" categories of IS words (e.g., perception, volition, cognition[1]). In contrast, no significant main effects of maltreatment in the semantic content of children's IS language were found in the maternal report data.

Nonparametric (chi-square) analyses were also performed for the semantic content data. In these analyses, the percentages of toddlers in each group reported to use at least one IS word in each category were compared. Nonparametric analyses were included as an alternative to MANOVA in light of the relatively low frequencies observed for some categories of IS words at 30 months. These percentages are presented in Table 4 for both the maternal report and laboratory data.

Chi-square results largely corroborated the MANOVA results for both the maternal report and the laboratory data: Whereas no significant group differences were observed for the maternal report data, significantly fewer maltreated than nonmaltreated toddlers produced at least one word about physiological states (9 vs. 17, respectively, $\chi^2(1) = 7.03$, $p = .008$), affective behavior (13 vs. 19, respectively, $\chi^2(1) = 8.1$, $p = .004$), and moral obligation (10 vs. 16, respectively, $\chi^2(1) = 3.96$, $p = .05$). Similar albeit nonsignificant trends ($ps < .10$) were also observed for positive and negative affect.

Distribution of IS word categories. Despite group differences observed for particular categories of IS words, roughly similar distributions in toddlers' relative production of IS word types were observed within each group, as seen in Table 4. Thus, virtually 100% of toddlers produced words for perceptual and volitional states, whereas somewhat fewer produced words about affective and other feeling states and moral judgment; only a minority used words for moral obligation and cognitive processes.

Self–other attributions and decontextualization in IS word use. Group means, standard deviations, and ranges for maternal reports and for laboratory observations of the degree of self–other differentiation in toddlers' use of IS words are presented in Table 5. Toddlers' decontextualization scores derived from laboratory observations are also presented in Table 5. These variables were corrected for the size of toddlers' IS corpora.

Similar findings were observed in both the maternal report and the laboratory data. Mothers in the maltreatment group reported that their toddlers used IS words in a more restricted way, that is, were more likely to use IS words to describe a single rather than multiple social agents, $F(1, 34) = 6.59$, $p = .01$. Similarly, maltreated toddlers were less likely to use the same IS word to describe the internal states of a variety of social agents (self, others, pictures), $F(1, 34) = 7.41$, $p = .01$, Wilks's lambda for overall maltreatment effects = .81, $p = .03$. No significant gender or maltreatment by gender effects were observed for these variables.

Similarly, in the laboratory data, maltreated toddlers were more likely than their cognitively-matched controls to use IS words in a restricted manner, that is, to refer only to a single agent ($F(1, 35) = 5.28$, $p = .03$), but less likely to use the same IS word to describe the ISs of a variety of social agents (self, others, toys, pictures) ($F(1, 35) = 9.10$, $p = .005$) and less likely to decontextualize IS language ($F(1, 35) = 9.05$, $p = .005$), Wilks's lambda for overall maltreatment effects = .70, $p = .008$. As in the maternal report data, no significant overall gender effects or interaction effects were found.

Correlation analyses

IS language and general linguistic maturity. Correlations relating children's IS lan-

1. Note that toddlers' "cognitive," words at this age were almost exclusively routines (e.g., "I don't know") or used to modulate assertions ("I think it goes there") rather than references to abstract mental states (see also Shatz et al., 1983).

Table 5. *Self–other differentiation and decontextualization in use of internal state (IS) words: Maternal report and laboratory observations*

	Maltreated	Nonmaltreated
Maternal report		
% IS words used for self or one agent only		
M	41.11	21.43**
SD	21.43	16.25
Range	5.12–85.71	0.00–57.00
Self–other differentiation[a]		
M	0.24	0.45
SD	0.24	0.23
Range	0.00–0.84	0.00–0.83
Laboratory observations		
% IS words used for self only		
M	36.17	21.4*
SD	19.96	16.2
Range	8.00–75.00	0.00–57.0
Self–other differentiation[a]		
M	1.18	1.32**
SD	0.14	0.15
Range	1.00–1.40	1.00–1.62
Decontextualization in use of IS words[a]		
M	0.54	0.76**
SD	0.17	0.25
Range	0.20–0.81	0.38–1.29

Note: Mothers were not interviewed about their toddlers' decontextualized use of IS words.
[a]See text for definitions. Proportional value relative to total IS lexicon.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

guage production to their general expressive and receptive language maturity are presented in Table 6. These correlations demonstrate that, for both the maternal report and the laboratory data in both the maltreatment and comparison groups, children's overall IS word productivity was significantly related to the complexity of their expressive language in general, as measured by MLU. In addition, for the laboratory-based data, the children's flexibility in attributing internal states to self and other and their ability to use IS language in decontextualized ways were also significantly correlated with children's expressive language maturity. Moreover, the majority of the laboratory-derived IS variables were also significantly correlated with children's receptive language maturity (PPVT-R scores).

A somewhat contrasting pattern of correlation coefficients was observed for the maternal report data. Although maternal reports of children's IS language were correlated with children's MLU, they were not significantly correlated with children's PPVT-R scores in either group. In addition, a striking group difference emerged for children's reported flexibility in using the same IS words for both self and other: Whereas nonmaltreating mothers' reports of their toddlers' ability to use IS language for self and other agents was significantly correlated with their children's MLU ($r = .50$, $p = .05$), maltreating mothers' reports of the same dimensions were not.

In sum, the laboratory-derived data for both maltreated and nonmaltreated toddlers and the maternal report data for the nonmaltreating mothers (but not the maltreating mothers) are largely consistent with prior research in middle-class samples documenting significant relationships between children's IS language production and their general expressive and receptive language maturity.

Table 6. *Correlations between toddlers' general linguistic maturity and their production of internal state (IS) words (reported and observed)*

	General Linguistic Maturity			
	Expressive		Receptive	
	MLU[a]	MLE[b]	PPVT-R[c]	PPVT-R[d]
Maternal report				
Number of different IS words				
Whole sample	.63***	.43**	.23	.25
Maltreated	.55**	−.11	.03	.09
Nonmaltreated	.61**	.56**	.40	.35
Self–other differentiation score[e]				
Whole sample	.53***	.48**	.10	.11
Maltreated	.29	.13	−.08	−.08
Nonmaltreated	.50*	.49*	.23	.22
% IS words used for single agent				
Whole sample	−.40**	−.41**	.04	−.41**
Maltreated	−.20	.06	.33	.30
Nonmaltreated	−.29	−.43+	−.28	−.26
Laboratory observations				
Total frequency of IS words				
Whole sample	.75***	.49**	.42*	.42*
Maltreated	.85***	.04	.48+	.65**
Nonmaltreated	.59**	.45*	.28	.37
Number of different IS words				
Whole sample	.75***	.58***	.41*	.42*
Maltreated	.77***	−.002	.49+	.65**
Nonmaltreated	.63**	.63**	.35	.27
Self–other differentiation[e]				
Whole sample	.80***	.57**	.40*	.40*
Maltreated	.75***	−.02	.47+	.62**
Nonmaltreated	.72**	.58**	.35	.27
Decontextualization score[e]				
Whole sample	.76***	.60***	.34+	.37+
Maltreated	.69***	.01	.47+	.64+
Nonmaltreated	.68***	.55**	.29	.28

[a]MLU = mean length of utterance in morphemes. [b]MLE = mean length of episode. [c]Peabody Picture Vocabulary Test—Revised, standard score. [d]Raw score. [e]Raw score.
$+p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

Validity of maternal reports. To assess the validity of the maternal interviews in this inner-city sample and for maltreating mothers in particular, mothers' reports of their children's IS language were correlated with direct observations of toddlers' IS language produced in the laboratory. These correlation coefficients are presented in Table 7. Again, strikingly different patterns were observed for the maltreated and comparison groups. Comparison mothers' reports were significantly correlated with laboratory observations of their toddlers' IS word production, attesting to the validity of structured maternal report measures of lexical development for these extremely low-SES mothers. In contrast, maltreating mothers' reports of their toddlers' IS language were not correlated significantly with laboratory observations, especially toddlers' ability to use IS words for self and other agents. These findings suggest that it is maltreatment and its comorbidities (e.g., family dysfunction, neglect, violence), rather than poverty per se, that may have deleterious effects on the accuracy of ma-

Table 7. *Correlations between maternal reports of children's internal state (IS) words and laboratory observations of children's IS words*

	Maternal Report	
Laboratory Observations	No. different IS words	Self–other differentiation
Total frequency of IS words		
Whole sample	.45**	.45**
Maltreated	.23	.03
Nonmaltreated	.48*	.55**
Number of different IS words		
Whole sample	.64***	.61***
Maltreated	.40†	.18
Nonmaltreated	.77***	.79***
Self–other differentiation		
Whole sample	.64***	.62***
Maltreated	.38†	.14
Nonmaltreated	.77***	.80***

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

ternal reports of their toddlers' developmental skills.

Maltreatment, attachment, and IS language production

The distribution of attachment classifications in the low-SES comparison group was highly similar to that reported in the literature for low-risk samples (Spieker & Booth, 1988): 63% were secure, 16% were insecure–avoidant, 10% were insecure–ambivalent, and 11% were insecure controlling–disorganized or insecure–other. In contrast, a significantly lower rate of security and a higher rate of insecure controlling–disorganized or insecure–other (e.g., mixed strategy) classifications was observed in the maltreated group, $\chi^2(4) = 9.36, p = .05$. Only five maltreated toddlers (25%) were classified as secure, 40% were insecure controlling–disorganized or insecure–other, 25% were insecure–avoidant, and 10% were insecure–ambivalent.

To examine the possible moderating role of the quality of the child's attachment to the caregiver in either buffering or compromising their early production of IS language, three a priori groups of toddlers varying in cumulative risk were created: (a) low risk (nonmaltreated/secure toddlers, $n = 12$), (b) moderate risk (maltreated/secure toddlers or nonmaltreated, insecure toddlers, $n = 12$), and (c) high risk (maltreated/insecure toddlers, $n = 15$).

For the laboratory observations, toddlers in the highest risk group showed more compromised IS language than toddlers in either the moderate- or low-risk groups, as follows: High-risk toddlers produced fewer IS words ($F(2, 33) = 3.44, p = .04$) and fewer IS word types ($F(2, 33) = 4.39, p = .02$), Wilks's lambda for overall maltreatment effects = .71, $p = .02$. Moreover, the high-risk toddlers were more context bound in their use of IS words ($F(2, 32) = 4.56, p = .02$) and less likely to use IS words for both self and other ($F(2, 32) = 6.52, p = .02$) relative to the other groups, Wilks's lambda for overall maltreatment effects = .60, $p = .01$. Notably, the low- and moderate-risk groups did not differ significantly. No significant gender or interaction effects were seen.

Similar findings were observed for maternal reports of toddlers' flexibility in their attributions of internal states to self and other, Wilks's lambda for overall risk group

Table 8. *Cumulative risk: Effects of attachment quality on maltreated and nonmaltreated toddlers' internal state (IS) language production*

	Attachment/Maltreatment Risk Group[a]					
	Group 1: Low Risk (N = 12)		Group 2: Moderate Risk (N = 12)		Group 3: High Risk (N = 15)	
Language Variable	M	(SD)	M	(SD)	M	(SD)
General linguistic ability						
Mean length of utterance	2.66	(0.70)	2.65	(0.75)	2.08	(0.47)
Mean length of episode	2.83	(0.87)	3.12	(1.19)	2.16	(0.54)[b]
PPVT-R (standard score)	92.33	(9.66)	94.33	(25.28)	91.00	(15.94)
PPVT-R (raw score)	14.11	(5.09)	18.56	(16.50)	14.18	(8.85)
Maternal report						
Number of different IS words	29.92	(8.44)	33.10	(10.83)	25.00	(8.57)
Self–other differentiation[c]	0.37	(0.24)	0.49	(0.22)	0.20	(0.25)[b]
% IS words used for single agent only[c]	27.85	(22.80)	17.46	(12.59)	46.33	(21.38)[d]
Laboratory observation						
Total frequency of IS words	77.58	(50.16)	71.00	(36.73)	37.87	(29.86)[b]
Number of different IS words	14.67	(6.79)	16.42	(7.88)	9.20	(4.33)[b]
% IS words about self only[c]	21.58	(19.14)	28.33	(18.49)	36.69	(18.57)
Self–other differentiation[c]	1.30	(0.17)	1.33	(0.09)	1.14	(0.13)[b]
Decontextualization score[c]	0.82	(0.29)	0.63	(0.21)	0.54	(0.15)[e]

Note: PPVT-R = Peabody Picture Vocabulary Test—Revised.
[a]Group 1 = secure/nonmaltreated, Group 2 = secure/maltreated and insecure/nonmaltreated, Group 3 = insecure/maltreated toddlers. [b]Student Neuman-Keuls ($p < .05$): Groups 1, 2 > 3. [c]Relative to size of total IS corpus. [d]Student Neuman-Keuls ($p < .05$): Groups 1, 2 < 3. [e]Student Neuman-Keuls ($p < .05$): Groups 2, 3 > 1.

effects = .69, p = .03. Specifically, toddlers in the highest risk group were reported to use proportionately more IS words to refer to a single agent only ($F(2, 31) = 6.70$, p = .004) and to have significantly lower self–other differentiation scores ($F(2, 31) = 5.04$, p = .01) than toddlers in the moderate- or low-risk groups.

Discussion

Summary

In this study, the impact of child maltreatment on the emergence of an IS lexicon was examined in a sample of toddlers from extremely low-SES homes (over 90% of the study families were receiving AFDC). The effects of child gender, general linguistic maturity, and the quality of the child's attachment relationship with the caregiver on characteristics of children's IS word production were also assessed.

Our findings are consistent with a growing pool of evidence suggesting that maltreatment has toxic effects on toddlers' early self-development and sociocommunicative abilities over and above the effects attributable to poverty. Evidence from both maternal interviews and direct observations of children's spontaneous language in the laboratory confirmed our expectations that the IS lexicons of maltreated toddlers were significantly delayed, impoverished, and pragmatically restricted, relative to demographically and cognitively matched, nonmaltreated controls. Thus, maltreated toddlers produced fewer IS words and fewer IS word types than their nonmaltreated counterparts, were more restricted in their ability to attribute IS to self and other agents, and were more context bound in their IS language use. These findings are consistent with more general deficits reported for maltreated toddlers' expressive language, which were described for this sample during

maternal play contexts by Coster et al. (1989).

Notably, the present study, group differences in children's IS language could not be explained entirely on the basis of differences in children's general linguistic maturity. Although individual differences in children's IS language were significantly related to their overall level of language maturity in both groups (a finding consistent with those reported for middle-class children), significant group differences in the content, attributional flexibility, and decontextualization of children's IS language were found even when the size of children's IS corpora and children's receptive abilities were controlled. Moreover, when moderating effects of the child's attachment relationship with the caregiver were considered, toddlers at the highest risk (maltreated and insecure) had the worst IS language profiles. Each of these aspects of IS language will be discussed in turn below.

Semantic content

Distributions in the IS categories used by our low-SES toddlers were roughly similar to those reported for middle-class children in the literature: Perception and volition words were used proportionately most frequently by both maltreated and nonmaltreated children, followed by words about feelings and affective states (Bretherton & Beeghly, 1982). In contrast, words for cognitive processes were rarely observed. Moreover, when cognitive terms were observed, they were used primarily in routines ("dunno") or to modulate assertions ("I think it'll fit") rather than as references to abstract mental states. These latter findings are consistent with prior research documenting the relatively late emergence of mental state terms in middle-class samples (e.g., Bretherton & Beeghly, 1982; Dunn et al., 1987; Wellman, 1988).

Despite general distributional similarities in both the observed and reported data, significant main effects of maltreatment were found for particular IS categories in the laboratory data. Specifically, maltreated toddlers produced significantly fewer words denoting physiological feeling states (fatigue, hunger, thirst, illness, states of consciousness), negative affect (anger, sadness, disgust, fear), and obligation (permission, social or moral obligation). In contrast, no differences were observed for IS words more commonly produced to direct or guide behavior during task-oriented interactions, such as perception and volition.

Several possible explanations may be considered for the content differences observed for maltreated children. At a pragmatic level, maltreated children may have been trying to keep conversations with adults focused on the external and as "impersonal" as possible, an avoidant strategy that effectively minimizes intimate social interaction and, presumably, opportunities for further maltreatment or emotional injury. Characteristically, avoidant interactive styles during free play with mother (Coster et al., 1989) and during stressful conditions (e.g., separations, reunions) have been reported for maltreated toddlers (Carlson et al., 1989; Cicchetti et al., 1991; Crittenden & Ainsworth, 1989).

On a more general level, differences in the amount and content of children's IS language may be explained in part by characteristics of the affective-linguistic environment reported for maltreating families (e.g., Silber, 1990; Wolfe, 1985), which appear to be inconsistent with those hypothesized to facilitate vocabulary growth (see Mervis, 1990, and Snow, 1984, for reviews). This may be particularly true for the acquisition of terms for emotions and feeling states, because these words are thought to be acquired most readily during child-focused family discussions about emotions and negotiations of disputes and conflicting goals (Dunn & Brown, 1991). In contrast, the emotional climate of maltreating families, as reported earlier, has been characterized as highly disorganized, dysregulated, and noncontingent. Moreover, maltreating parents are reported to engage in maladaptive patterns of interactive behavior with their children that effectively preclude prolonged discussions about emotions (e.g.,

Burgess & Conger, 1978; Howes & Cicchetti, 1993). In such a climate, maltreated children may have learned that it is unacceptable, threatening, or even dangerous to talk about feelings and emotions, particularly negative ones.

A similar tendency to repress or deny negative feelings has been reported for older maltreated children. For example, Crittenden and DiLalla (1988) found that some insecurely attached/maltreated children showed a worrisome degree of "compulsive compliance"; that is, they did not express negative feelings overtly and were passively compliant with their mothers. Similarly, Vondra et al. (1989) found that maltreated school-age children were more likely to idealize their parents by exaggerating positive qualities and denying negative feelings or disturbances in the relationship (see also Lynch & Cicchetti, 1991).

An additional, and not necessarily mutually exclusive, interpretation of the emotional language data is that the use of negative emotion terms, references to the self, and the self's desires has provoked responses in the mother that generate anxiety in the child that necessitate regulation and control. Thus, maltreated children, in an attempt to control their anxiety, may modify their language (and perhaps even their thinking) to preclude the anxiety engendered by certain aspects of language and discourse in general.

Although possibly effective as a coping strategy during toddlerhood, a strategy of denying or repressing negative emotions may lead to a restricted or disorganized emotions lexicon and fewer dyadic exchanges about feeling states. Notably, these exchanges are thought to promote the acquisition of interpersonal regulatory skills and an increasingly differentiated self–other understanding (Bretherton, 1991; Cassidy, 1988). In support of this, Greenberg et al. (1991) observed that the behavior problems of deaf children, who had impoverished communicative skills, could be minimized if they were taught signs for emotions and feelings. Ultimately, these communicative and regulatory problems could contribute to future communicative, cognitive, and socioemotional problems (Cassidy & Kobak, 1988; see also Radke-Yarrow & Sherman, 1990). Although direct links between IS language and regulatory skills of maltreated children have not been established, maltreatment has, in fact, been associated with significant problems in emotion regulation later in childhood (Rieder & Cicchetti, 1989).

Gender differences

Few significant main effects of gender or interaction effects of gender with maltreatment were observed. Gender was not related to children's overall linguistic maturity, lexical diversity, attributional flexibility, or decontextualization of their IS language. However, two notable exceptions were found that deserve mention, although findings were inconsistent across the two data sets (no significant differences in content were observed via maternal report). First, girls produced more utterances about affective behavior in the laboratory than boys, a finding similar to that reported by Dunn et al. (1987) and Fivush (1989). It may be that greater talk about emotions by girls reflects a greater interest or propensity for social attunement. In support of this idea, in their studies of early prosocial behavior, Zahn-Waxler et al. (1992) reported that girls showed more concern to distress produced by others than boys and were more likely to "join in" the emotional experiences of others through imitation.

Our second gender finding—that maltreated girls were least likely to produce words about negative affect—stands in striking contrast to these gender findings but is consistent with reports of gender differences in children's coping styles under conditions of extreme or chronic stress. In their review of coping and resilience in high-risk children, for instance, Masten, Best, and Garmezy (1990) reported that an internalizing pattern of response to stressful circumstances (i.e., being disengaged but not disruptive) was more common in girls than boys. Although such a coping strategy may

have short-term adaptiveness, Masten et al. (1990) hypothesized that this response, if persistent or extreme, may be associated with vulnerability to affective or anxiety disorders, particularly during later adolescence.

Self–other differentiation

Individual differences in children's ability to use IS words for a variety of social agents, as derived from both laboratory observations and maternal reports, were positively correlated with indices of general language maturity, a developmental association similar to those reported for low-risk, middle-class toddlers (Bretherton & Beeghly, 1982; Dunn et al., 1987). Nevertheless, a significant main effect of maltreatment on children's ability to attribute ISs to self and other was also observed in both laboratory and maternal report data sets, even when controlling for the size of children's IS corpora. Specifically, maltreated toddlers were more restricted than MA-matched controls in their ability to use the same IS word for a variety of social agents, including self, other persons, toys, and photographs. To the extent that this linguistic ability reflects children's differentiating self and other understanding, this finding suggests that maltreated children may be more delayed in this domain than would be expected on the basis of their receptive language abilities.

Moreover, group differences in the correlational patterns of toddlers' linguistic abilities with self–other differentiation scores were also noted: Whereas nonmaltreated toddlers' ability to use IS words for self and other was significantly correlated with all general language indices (MLU, MLE, PPVT-R), maltreated toddlers' self–other differentiation scores were not significantly related to their discourse abilities (MLE, conversational relatedness). Interestingly, maltreated children's MLE scores were unrelated to their utterance complexity (MLU) and to every IS measure, whether observed or reported. These correlational differences suggest some degree of disorganization at the interface of maltreated children's self and sociocommunicative systems (Cicchetti, 1991).

Decontextualization in IS language

Verbal references to the inner states of nonpresent persons, to past, future, conditional, or hypothetical states, were relatively rare at 30 months and were significantly correlated with indices of toddlers' general linguistic maturity. This finding is consistent with prior research in middle-class samples reporting an age-related increase in linguistic decontextualization (Bretherton, 1991; Hood & Bloom, 1979; Wellman, 1988). Notably, maltreated toddlers were significantly more context bound than nonmaltreated toddlers, controlling for overall IS vocabulary size, suggesting an important association between socioaffective experience and language development (Bronfenbrenner, 1979; Howlin & Rutter, 1987; Prizant & Wetherby, 1990).

Moderating effects of attachment

A significantly lower rate of attachment security and higher rate of insecure controlling–disorganized and insecure–other classifications were found for maltreated children at 30 months, relative to demographically matched nonmaltreated children. This finding is consistent with other studies reported for younger toddlers in the burgeoning maltreatment literature on attachment formation (e.g., Cicchetti & Lynch, 1993). In contrast, the distribution of secure and insecure attachment classifications in the nonmaltreated group, despite their SES risk, were consistent with those reported for low-risk samples (see review by Spieker & Booth, 1988). Notably, children who were both maltreated and insecure showed more compromised IS language and conversational relatedness (MLE) that did either a moderate-risk (insecure/nonmaltreated or secure/maltreated) or a low-risk (secure/nonmaltreated) group. Again, results point to the striking effects of cumulative risk on the organization of socioemo-

tional and communicative development in this low-SES sample.

Validity of maternal reports

This study also provides at least general support for the validity of the maternal interviews in this low-SES sample, particularly the nonmaltreating mothers, based on two findings. First, similar maltreatment effects were observed for analogous IS variables in both the maternal interview and the laboratory data sets, at least for the major IS language variables (diversity, self–other differentiation). Second, mothers' reports of the diversity of their children's IS words in both the maltreatment and comparison groups were also significantly related to their children's concurrent expressive language maturity (MLU), as derived during laboratory play contexts. Thus, mothers' reports of their children's IS language abilities in this low-SES sample appear to be tapping at least general aspects of their children's language maturity. The accuracy of the maternal interviews were undoubtedly enhanced by three factors: the interviews were highly structured, information about children's *current* abilities was requested, and concrete examples were required for every lexical item (see Bretherton & Beeghly, 1982).

Our findings also suggest, however, that cumulative risk factors (poverty, maltreatment) within a low-SES sample may compromise caregivers' ability to provide accurate information about their children's developmental abilities. Thus, significant autocorrelations between maternal reports and laboratory observations were observed only for mothers in the lower risk comparison group. These findings suggest that maltreating mothers are less accurate reporters of their children's use of IS language.

In sum, our findings suggest that maltreatment has a significant compromising effect on dimensions of children's productive language that reflect their emerging understanding of self and other: IS language. These findings could not be explained entirely on the basis of demographic characteristics relevant to delayed language acquisition (Barnes et al., 1983; McLloyd & Wilson, 1991) or the maltreated children's lower general linguistic maturity. Furthermore, effects of maltreatment on IS language were exacerbated by the "double jeopardy" of a concurrent insecure attachment relationship with the caregiver.

Because IS language is critical to the regulation of social interaction and an early index of self–other understanding, our data bode poorly for later self-development in maltreated children. Due to the hierarchical organization of ontogenesis within and across psychological and biological domains, the early self-dysfunction manifested by maltreated toddlers is likely to eventuate in further disruptions in the development of the self.

To end on a more positive note, not all maltreated toddlers evidenced perturbations in self-development. Securely attached maltreated toddlers did not exhibit the dysfunctions revealed by the insecurely attached maltreated children. Thus, secure attachment may be a protective mechanism (Rutter, 1987) ameliorating the link between maltreatment and self-disturbances. In the future, researchers must continue to elucidate the processes whereby maltreated children develop competent outcomes despite the experience of adversity (Cicchetti & Garmezy, 1993; Cicchetti, Rogosch, Lynch, & Holt, 1993).

References

Aber, J. L., & Cicchetti, D. (1984). The socio-emotional development of maltreated children: An empirical and theoretical analysis. In H. Fitzgerald, B. Lester, & M. W. Yogman (Eds.), *Theory and research in behavioral pediatrics* (Vol. 2, pp. 147–205). New York: Plenum Press.

Ainsworth, M. D. S., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment*. Hillsdale, NJ: Erlbaum.

Alessandri, S. M. (1991). Play and social behavior in maltreated preschoolers. *Development and Psychopathology, 3*, 191–205.

Barnes, S., Gurgreund, M., Satterly, D., & Wells, G. (1983). Characteristics of adult speech which predict children's language development. *Journal of Child Language, 10*, 65–84.

Barrett, K. C., & Campos, J. J. (1987). Perspectives on emotional development II: A functionalist approach to emotions. In J. D. Osofsky (Ed.), *Handbook of infant development* (pp. 555–578). New York: Wiley.

Bates, E. (1990). Language about me and you. Pronominal references and the emerging concept of self. In D. Cicchetti & M. Beeghly (Eds.), *The self in transition* (pp. 165–182). Chicago: University of Chicago Press.

Bates, E., O'Connell, B., & Shore, C. (1987). Language and communication in infancy. In J. Osofsky (Ed.), *Handbook of infant development* (2nd ed.). New York: Wiley.

Beckwith, R. T. (1991). The language of emotion, the emotions, and nominalist bootstrapping. In D. Fry & C. Moore (Eds.), *Children's theories of mind: Mental states and social understanding* (pp. 77–96). Hillsdale, NJ: Erlbaum.

Beeghly, M. (1993). Parent–child play as a window on infant competence. In K. MacDonald (Ed.), *Parent–child play: Descriptions and implications* (pp. 71–112). New York: State University of New York Press.

Beeghly, M., Bretherton, I., & Mervis, C. (1986). Mothers' internal state language to toddlers. *British Journal of Developmental Psychology, 4*, 247–260.

Belsky, J., & Vondra, J. (1989). Lessons from child abuse: The determinants of parenting. In D. Cicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 153–202). New York: Cambridge University Press.

Blager, F., & Martin, H. (1976). Speech and language of abused children. In H. P. Martin (Ed.), *The abused child* (pp. 83–92). Cambridge, MA: Ballinger.

Bloom, L. (1991). *Language development: From two to three*. New York: Cambridge University Press.

Bloom, L., & Beckwith, R. (1989). Talking with feeling: Integrating affective and linguistic expression in early language development. *Cognition and Emotion, 3*, 313–342.

Bousha, D., & Twentyman, C. (1984). Mother–child interactional style in abuse, neglect, and control groups: Naturalistic observations in the home. *Journal of Abnormal Psychology, 93*, 106–114.

Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). New York: Basic Books.

Bretherton, I. (1987). New perspectives on attachment relations: Security, communication, and internal state working models. In J. D. Osofsky (Ed.), *Handbook of infant development* (pp. 1059–1100). New York: Wiley.

Bretherton, I. (1991). Intentional communication and the development of an understanding of mind. In D. Frye & C. Moore (Eds.), *Children's theories of mind: Mental states and social understanding* (pp. 49–75). Hillsdale, NJ: Erlbaum.

Bretherton, I., & Beeghly, M. (1982). Talking about internal states: The acquisition of an explicit theory of mind. *Developmental Psychology, 18*, 906–921.

Bretherton, I., & Beeghly M. (1989). Pretense: Acting "as if." In J. J. Bridges & N. H. Hazen (Eds.), *Action in social context: Perspectives on early development* (pp. 239–271). New York: Plenum Press.

Bretherton, I., Fritz, J., Zahn-Waxler, C., & Ridgeway, D. (1986). Learning to talk about emotions: A functionalist perspective. *Child Development, 55*, 529–548.

Bretherton, I., McNew, S., & Beeghly-Smith, M. (1981). Early person knowledge as expressed in gestural communication: When do infants acquire a "theory of mind"? In M. E. Lamb & L. R. Sherrod (Eds.), *Infant social cognition* (pp. 333–373). Hillsdale, NJ: Erlbaum.

Bromley, D. B. (1977). Natural language and the development of self. In C. B. Keasey (Ed.), *Nebraska Symposium on Motivation* (pp. 117–167). Lincoln: University of Nebraska Press.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Brown, R. (1973). *A first language: The early stages*. Cambridge, MA: Harvard University Press.

Brown, R. (1980a). *Coding child utterances for conversational relevance*. Unpublished coding manual, Harvard University, Cambridge, MA.

Brown, R. (1980b). The maintenance of conversation. In D. R. Olson (Ed.), *The social foundations of language and thought*. New York: Norton.

Burgess, R., & Conger, R. (1978). Family interaction in abusive, neglectful, and normal families. *Child Development, 49*, 1163–1173.

Carlson, V., Cicchetti, D., Barnett, D., & Braunwald, K. (1989). Disorganized/disoriented attachment relationships in maltreated infants. *Developmental Psychology, 25*, 525–531.

Cassidy, J. (1988). Child–mother attachment and the self at age six. *Child Development, 57*, 331–337.

Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relationship to other defensive processes. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 300–323). Hillsdale, NJ: Erlbaum.

Cassidy, J., & Marvin, R., with the MacArthur Working Group on Attachment Beyond Infancy. (1992). *Attachment organization in preschool children: Procedure and coding manual*. Unpublished manuscript, University of Virginia, Charlottesville.

Cicchetti, D. (1984). The emergence of developmental psychopathology. *Child Development, 55*, 1–7.

Cicchetti, D. (1991). Fractures in the crystal: Developmental psychopathology and the emergence of self. *Developmental Review, 11*, 271–287.

Cicchetti, D., & Beeghly, M. (1987). Symbolic development in maltreated youngsters: An organizational perspective. *New Directions in Child Development, 36*, 47–68.

Cicchetti, D., & Carlson, V. (Eds.). (1989). *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect*. New York: Cambridge University Press.

Cicchetti, D., Carlson, V., Braunwald, K., & Aber, J. L. (1987). The Harvard child maltreatment project: A context for research on the sequelae of child maltreatment. In R. Gelles & J. Lancaster (Eds.), *Research in child abuse: Biosocial perspectives* (pp. 277–298). Chicago: Aldine Press.

Cicchetti, D., Ganiban, J., & Barnett, D. (1991). Contributions from the study of high risk populations to understanding the development of emotion regulation. In J. Garber & K. Dodge (Eds.), *The devel-*

opment of emotion regulation and dysregulation (pp. 15–49). New York: Cambridge University Press.

Cicchetti, D., & Garmezy, N. (Eds.). (1993). Milestones in the development of resilience [Special issue]. *Development and Psychopathology, 5*(4), 497–502.

Cicchetti, D., & Lynch, M. (1993). Toward an ecological/transactional model of community violence and child maltreatment: Consequences for children's development. *Psychiatry, 56*, 96–118.

Cicchetti, D., & Manly, J. T. (1990). A personal perspective on conducting research with maltreating families: Problems and solutions. In G. Brody & I. Sigel (Eds.), *Methods of family research: Vol. 2. Families at risk* (pp. 87–133). Hillsdale, NJ: Erlbaum.

Cicchetti, D., & Rizley, R. (1981). Developmental perspectives on the etiology, intergenerational transmission, and sequelae of child maltreatment. In R. Rizley & D. Cicchetti (Eds.), *Developmental perspectives on child maltreatment* (Vol. 11, pp. 31–57). San Francisco: Jossey-Bass.

Cicchetti, D., Rogosch, F. A., Lynch, M., & Holt, K. D. (1993). Resilence in maltreated children: Processes leading to adaptive outcome. *Development and Psychopathology, 5*(4), 629–647.

Coster, W., & Cicchetti, D. (1993). Research on the communicative development of maltreated children: Clinical implications. *Topics in Language Disorders, 13*, 25–38.

Coster, W., Gersten, M. S., Beeghly, M., & Cicchetti, D. (1989). Communicative functioning in maltreated toddlers. *Developmental Psychology, 25*, 1020–1029.

Crittenden, P. M. (1988). Relationships at risk. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 136–174). Hillsdale, NJ: Erlbaum.

Crittenden, P. M. (1990). Internal representational models of attachment relationships. *Infant Mental Health Journal, 11*, 259–277.

Crittenden, P. M., & Ainsworth, M. (1989). Attachment and child abuse. In D. Cicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 432–463). New York: Cambridge University Press.

Crittenden, P. M., & DiLalla, D. L. (1988). Compulsive compliance: The development of an inhibitory coping strategy in infancy. *Journal of Abnormal Child Psychology, 16*, 585–599.

Denham, S., McKinley, M., Couchoud, E., & Holt, R. (1990). Emotional and behavioral predictors of peer status in young preschoolers. *Child Development, 61*, 1145–1152.

Dunn, J., Bretherton, I., & Munn, P. (1987). Conversations about feeling states between mothers and their young children. *Developmental Psychology, 23*, 132–139.

Dunn, J., & Brown, J. (1991). Relationships, talk about feelings, and the development of affect regulation in early childhood. In J. Garber & K. A. Dodge (Eds.), *The development of emotion regulation and dysregulation* (pp. 89–108). New York: Cambridge University Press.

Dunn, J., Brown, J., & Beardsall, L. (1991a). Family talk about feeling states and children's later understanding of others' emotions. *Developmental Psychology, 27*, 448–455.

Dunn, J., Brown, J., Slomkowski, C., Tesla, C., & Youngblade, L. (1991b). Young children's understanding of other peoples' feelings and beliefs: Individual differences and their antecedents. *Child Development, 62*, 1352–1366.

Dunn, L. M., & Dunn, L. (1981). *The Peabody Picture Vocabulary Test—Revised*. Circle Pines, MN: American Guidance Service.

Egeland, B., & Sroufe, L. A. (1981). Developmental sequelae of maltreatment in infancy. *New Directions for Child Development, 11*, 77–92.

Emde, R., Johnson, W., & Easterbrooks, M. A. (1987). The do's and don'ts of early moral development: Psychoanalytic tradition and current research. In J. Kagan & S. Lamb (Eds.), *The emergence of morality in young children* (pp. 245–276). Chicago: University of Chicago Press.

Fenson, L., Dale, P. S., Reznick, J. S., Thal, D., Bates, E., Hartung, J. P., Pethick, S., & Reilly, J. S. (1991). *Technical manual for the MacArthur Communicative Development Inventories*. San Diego: San Diego State University.

Fivush, R. (1989). Exploring sex differences in the emotional content of mother-child conversations about the past. *Sex Roles, 20*, 675–691.

Gaensbauer, T. J., & Sands, S. K. (1979). Distorted affective communications in abused/neglected infants and their potential impact on caretakers. *Journal of the American Academy of Child Psychiatry, 18*, 236–250.

Gersten, M., Coster, W., Schneider-Rosen, K., Carlson, V., & Cicchetti, D. (1986). The socio-emotional bases of communicative functioning: Quality of attachment, language development, and early maltreatment. In M. E. Lamb, A. L. Brown, & B. Rogoff (Eds.), *Advances in developmental psychology* (Vol. 4, pp. 105–151). Hillsdale, NJ: Erlbaum.

Giovannoni, J., & Becerra, R. M. (1979). *Defining child abuse*. New York: The Free Press.

Gopnik, A., & Astington, J. (1988). Children's understanding of representational change and its relation to the understanding of false-belief and the appearance-reality distinction. *Child Development, 59*, 26–37.

Greenberg, M. T., Kusche, C. A., & Speltz, M. (1991). Emotional regulation, self-control, and psychopathology: The role of relationships in early childhood. In D. Cicchetti & S. Toth (Eds.), *Rochester Symposium on Developmental Psychopathology: Vol. 2. Internalizing and externalizing expressions of dysfunction* (pp. 21–55). Hillsdale, NJ: Erlbaum.

Grusec, J. E., & Walters, G. E. (1991). Psychological abuse and childrearing belief systems. In R. H. Starr & D. A. Wolfe (Eds.), *The effects of child abuse and neglect: Issues and research* (pp. 186–202). New York: Guilford Press.

Harris, P. L. (1989). *Children and emotion: The development of psychological understanding*. New York: Basil Blackwell.

Hood, L., & Bloom, L. (1979). What, when, and how about why: A longitudinal study of early expressions in causality. *Monographs of the Society for Research in Child Development, 44*(2, Serial No. 181).

Howlin, P., & Rutter, M. (1987). The consequences of

language delay for other aspects of development. In W. Yule & M. Rutter (Eds.), *Language development and language disorders* (pp. 271–294). Philadelphia: Lippincott.

Jaffe, P. G., Wolfe, D. A., & Wilson, S. K. (1990). *Children of battered women: Vol. 21. Developmental clinical psychology and psychiatry*. Newbury Park, CA: Sage.

Johnson-Laird, P. N. (1983). *Mental models: Towards a cognitive science of language, inference, and consciousness*. Cambridge, MA: Harvard University Press.

Kagan, J. (1981). *The second year: The emergence of self awareness*. Cambridge, MA: Harvard University Press.

Kagan, J., & Lamb, S. (1987). *The emergence of morality in young children*. Chicago: University of Chicago Press.

Kestenbaum, R., Farber, E. A., & Sroufe, L. A. (1989). Individual differences in empathy among preschoolers: Relation to attachment history. In N. Eisenberg (Ed.), *Empathy and related emotional responses* (pp. 51–56). San Francisco: Jossey-Bass.

Leslie, A. M. (1987). Pretense and representation: The origins of "theory of mind." *Psychological Review, 94*, 412–426.

Lewis, M., Stanger, C., & Sullivan, M. W. (1989). Deception in three year olds. *Developmental Psychology, 25*, 439–443.

Lewis, M. Sullivan, M. W., Stanger, C., & Weiss, M. (1989). Self-development and self-conscious emotions. *Child Development, 59*, 146–156.

Lynch, M., & Cicchetti, D. (1991). Patterns of relatedness in maltreated and nonmaltreated children: Connections among multiple representation models. *Development and Psychopathology, 3*, 207–226.

Lyons-Ruth, K., Connell, D. B., Zoll, D., & Stahl, J. (1987). Infants at social risk: Relations among infant maltreatment, maternal behavior, and infant attachment behavior. *Developmental Psychology, 23*, 223–232.

Mahler, M., Pine, F., & Bergman, A. (1975). *The psychological birth of the infant*. New York: Basic Books.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research (pp. 66–104). *Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209).

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 121–160). Chicago: University of Chicago Press.

Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology, 2*, 425–444.

Matas, L., Arend, R., & Sroufe, L. A. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competent functioning. *Child Development, 49*, 547–555.

McLloyd, V. C., & Wilson, L. (1991). The strain of living poor: Parenting, social support, and child mental health. In A. C. Huston (Ed.), *Children in poverty: Child development and public policy* (pp. 105–135). New York: Cambridge University Press.

Mervis, C. B. (1984). Early lexical development: The contributions of mother and child. In C. Sophian (Ed.), *Origins of cognitive skills* (pp. 339–370). Hillsdale, NJ: Erlbaum.

Morrisset, C., Barnard, K. E., Greenberg, M. T., Booth, C. L., & Spieker, S. J. (1990). Environmental influences on early language development: The context of social risk. *Development and Psychopathology, 2*, 127–149.

Nock, S., & Rossi, P. (1979). Household types and social standing. *Social Forces, 57*, 1325–1345.

Oates, R. K., Peacock, A., & Forrest, D. (1984). The development of abused children. *Developmental Medicine and Child Neurology, 26*, 649–656.

Piaget, J. (1962). *Play, dreams, and imitation in childhood*. New York: Norton.

Pipp, S., Easterbrooks, M. A., & Harmon, R. (1992). The relation between attachment and knowledge of self and mother in one- to three-year-old infants. *Child Development, 63*, 738–750.

Prizant, B. M., & Wetherby, A. M. (1990). Toward an integrated view of early language and communication development and socioemotional development. *Topics in Language Disorders, 10*, 1–16.

Radke-Yarrow, M., & Sherman, T. (1990). Hard growing: Children who survive. In J. Rolf, A. S. Masten, D. Cicchetti, K. H. Nuechterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 97–119). New York: Cambridge University Press.

Ridgeway, D., Waters, E., & Kuczaj, S. (1985). Acquisition of emotion-descriptive language: Receptive and productive vocabulary norms for ages 18 months to 6 years. *Developmental Psychology, 21*, 901–908.

Rieder, C., & Cicchetti, D. (1989). Organizational perspective on cognitive control functioning and cognitive-affective balances in maltreated children. *Developmental Psychology, 25*, 382–393.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*, 316–331.

Sachs, J. (1983). Talking about the there and then: The emergence of displaced reference in parent–child discourse. In K. E. Nelson (Ed.), *Child language* (Vol. 4, pp. 1–28). New York: Gardner Press.

Sameroff, A., & Chandler, M. (1975). Reproductive risk and the continuum of caretaking casualty. In F. Horowitz (Ed.), *Review of child development research* (Vol. 4, pp. 187–244). Chicago: University of Chicago Press.

Sameroff, A. J., & Seifer, R. (1990). Early contributors to developmental risk. In J. Rolf, A. S. Masten, D. Cicchetti, K. H. Nuechterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 52–66). New York: Cambridge University Press.

Schneider-Rosen, K., & Cicchetti, D. (1984). The relationship between affect and cognition in maltreated infants: Quality of attachment and the development of visual self-recognition. *Child Development, 55*, 648–658.

Schneider-Rosen, K., & Cicchetti, D. (1991). Early self-knowledge and emotional development: Visual

self-recognition and affective reactions to mirror self-images in maltreated and nonmaltreated toddlers. *Developmental Psychology, 27*, 471–478.

Shatz, M., Wellman, H. M., & Silber, S. (1983). The acquisition of mental verbs: A systematic investigation of the first reference to mental state. *Cognition, 14*, 301–321.

Silber, S. (1990). Conflict negotiation in child abusing and nonabusing families. *Journal of Family Psychology, 3*, 368–384.

Silber, S., Bermann, E., Henderson, M., & Lehman, A. (1993). Patterns of influence and response in abusing and nonabusing families. *Journal of Family Violence, 8*, 27–38.

Smiley, P., & Huttenlocher, J. (1989). Young children's acquisition of emotion concepts. In C. Saarni & P. L. Harris (Eds.), *Children's understanding of emotions* (pp. 27–49). New York: Cambridge University Press.

Snow, C. E. (1984). Parent–child interaction and the development of communicative ability. In R. L. Schiefelbusch & J. Pickar (Eds.), *The acquisition of communicative competence*. Baltimore, MD: University Park Press.

Spieker, S. J., & Booth, C. L. (1988). Maternal antecedents of attachment quality. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment*. Hillsdale, NJ: Erlbaum.

Sroufe, L. A. (1990). An organizational perspective on the self. In D. Cicchetti & M. Beeghly (Eds.), *The self in transition: Infancy to childhood* (pp. 281–308). Chicago: University of Chicago Press.

Starr, R., & Wolfe, D. (Eds.). (1991). *The effects of child abuse and neglect: Issues and research*. New York: Guilford Press.

Stern, D. N. (1985). *The interpersonal world of the infant*. New York: Basic Books.

Trickett, P., Aber, J. L., Carlson, V., & Cicchetti, D. (1991). Child rearing characteristics and child development in two samples of physically abusive families. *Developmental Psychology, 27*, 148–158.

Tronick, E. (1989). Emotions and emotions communication in infants. *American Psychologist, 44*, 112–119.

Vondra, J., Barnett, D., & Cicchetti, D. (1989). Perceived and actual competence among maltreated and comparison school children. *Development and Psychopathology, 1*, 237–255.

Wasserman, G., Green, A., & Allen, R. (1983). Going beyond abuse: Maladaptive patterns of interaction in abusing mother–infant pairs. *Journal of the American Academy of Child Psychiatry, 22*, 245–252.

Watson, M., & Fischer, K. (1977). A developmental sequence of agent use in late infancy. *Child Development, 48*, 828–836.

Wellman, H. M. (1988). First steps in the child's theorizing about the mind. In J. W. Astington, P. L. Harris, & D. R. Olson (Eds.), *Developing theories of mind* (pp. 64–92). New York: Cambridge University Press.

Wolfe, D. A. (1985). Child abusive parents: An empirical review and analysis. *Psychological Bulletin, 97*, 462–482.

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology, 28*, 126–136.