

What a Dog Can Do: Children with Autism and Therapy Dogs in Social Interaction

Olga Solomon

Abstract For almost 50 years specially trained dogs have been used in clinical and family settings to facilitate how children with autism engage in social interaction and participate in everyday activities. Yet little theoretical grounding and empirical study of this socioclinical phenomenon has been offered by social science. This article draws on interdisciplinary scholarship to situate the study of the therapeutic use of dogs for children and teens with autism. Two case studies of service and therapy dogs' mediating social engagement of children with autism in relationships, interactions, and activities illustrate how dogs support children's communication, their experience of emotional connection with others, and their participation in everyday life. Theorizing this process enriches approaches to sociality in psychological anthropology. [animal-assisted therapy, autism, engagement, sociality, intersubjectivity]

She helps me, she calms me down, she lets me know she's there when I'm about to have a meltdown. Anybody who has autism, anybody in the world would just benefit from this. She's just like a healing dog.

—Parker Weishaar, an 11-year-old boy diagnosed with Asperger's syndrome, in an interview with CBS News

Of course they had a nurse. (This) nurse was a prim Newfoundland dog called Nana. . . . Of course her kennel was in the nursery.

—J. M. Barrie, *Peter Pan and Wendy*, 1911

In an article "Finding My Son at the Zoo," Thomas Fields-Meyer (2007) writes about regularly visiting the Los Angeles zoo with his son Ezra, who is diagnosed with autism. Watching a new side of his son come to life in the presence of animals, Fields-Meyer describes the transformation: a boy who is ordinarily a hurricane of motion becomes a calm, happy, and engaged 11-year-old able to carry a conversation while watching the animals in the zoo exhibits. The question whether such an affinity to animals is shared by many individuals with autism remains open. For those who do, however, it presents an opportunity to actively restructure their social world in a way that supports their communication; and to extend the boundaries of culturally normative sociality to include their ways of being social (e.g., Grandin and Johnson 2005, 2009; Isaacson 2009; Pavlides 2008; Prince this issue; Prince-Hughes 2004).

This article considers a part of this picture. It examines the transformative power that specially trained dogs seem to hold for some children with autism and their families. It draws on interdisciplinary scholarship in anthropology, occupational science, sociology, psychology,

philosophy, ethology and consciousness studies to elucidate what a dog can do to generate an interactional ecological niche where individuals with autism are able to communicate better and to participate in everyday activities more fully.

To situate this article in such interdisciplinary scholarship, I begin with an overview of the historical and sociocultural conditions and consequences of dogs' coparticipation in human activities. The second half of this article considers dogs' mediating impact on the challenges of autism for children and their families and describes two case studies of children's interactions with dogs.¹

By placing an unusual interactional partner, a dog, in the middle of human social interaction, this article contributes to anthropological approaches to human sociality, and to understanding social potentialities of individuals with autism. First, it shifts the focus somewhat away from language use as the mediator of human sociality (e.g., Silverstein 2004) to nonlinguistic social behavior and to structure of social actions. Second, it shows that there are properties of the human "interaction engine" (Levinson 2006) that may be visible when children with autism are engaged with dogs and people. Third, it expands the notion of sociality to include human beings with and without developmental disorders (see also Ochs and Solomon 2004, this issue; and Ochs et al. 2005), and suggests that sociality is not a quality of an individual but a capacity realized through certain kinds of social interaction.

Children with Autism and Animals in Myth and History

That animals are implicated in important ways in children's and adults' experiences of autism has been both prophesied by myths and documented by historical accounts. The mythic wolf children or feral children believed to be reared by wolves were likely abandoned because of a disability (Gesell 1940; Maclean 1977; Lévi-Strauss 1949) and some of them, as Peter "the Wild Boy" who was found in Germany in 1725 (Collins 2004), and Victor of Aveyron found in France in 1795 (Itard 1962), may have been diagnosed with autism had they lived today. Hugh Blair of Borgue, a likely autistic Scottish nobleman born in 1708, was described in historical court documents as possessing an unusual, and at the time frowned upon, affinity with animals. Witnesses testifying in 1747 court hearings to annul his marriage told the jury that Hugh preferred the company of animals to people (Houston and Frith 2000). In a book *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior* Temple Grandin, professor of animal science and a well-known writer who was diagnosed with autism as a child, provides a vivid sensory-based explanation of the special affinity and connection that some individuals with autism feel with animals (Grandin and Johnson 2005).²

The wolf-child stories are embedded in a larger narrative matrix that gave us Mowgli, Amala and Kamala, Romulus and Remus, and other children "raised" by animals. In these stories the parent-child relationship fails in some way that endangers the child's life. At this critical point, animals come to the rescue, or, rather, the child finds a new, animal family by

whom to be nurtured and protected. These stories of the transformative and redeeming power of child–animal relationship have significance for theories of culture, sociality, and identity (Wolfe 2003a, 2003b). These stories propel anthropological imagination far beyond the idea of the “noble savage” that originated in Rousseau’s *Social Contract* (Rousseau 1997) and past the once-popular anthropological pursuit of “the savage in the state of nature” who would help us resolve which aspects of human social behavior are innate and which are acquired (cf. Volkmar and Klin 1993; Zingg 1940).

Rather, these stories point to an important and relatively untapped sociocultural, communicative (and communicating) resource: that dogs may help children with autism participate with their families and communities more fully, and to engage with other people more successfully. The wolf-child stories are reminiscent of what Laughlin and Throop call “a striking correspondence between mythic stories and aspects of reality” (2001:709). It may be that animal-assisted therapy interactions make visible the potentiality of some children with autism to have a heightened social, affiliative response to animals, and if this is so then the myths and the historical accounts converge in these interactions to reveal something about autism that has not been known before: namely, that like in the myths and fairytales, animals matter in important ways in how these children’s lives will unfold and what will become of them in their lifeworlds.

What Dogs Have Done Already

To understand what a dog can do to mediate the social interaction of children with autism and others, it is important to understand what dogs have done already across larger evolutionary, historical, and sociocultural dimensions of human experience. Three loci of human–dog relationships can yield this understanding: early human history, the U.S. military, and the U.S. family.

Archeological evidence suggests that dogs have shared a common evolutionary niche with humans for over 140,000 years. Neither could hunt better alone than together, and mitochondrial DNA studies show that protodogs evolved at the same time that *Homo sapiens sapiens* appeared on the evolutionary scene (Morey 1992, 1994). This suggests that humans and dogs have a long history of shared semiotic activity where dogs were attending to human social behavior in an opportunistically collaborative, reciprocal way (Lorenz 1994). This process turned dogs into students of human movement (Gladwell 2006) who are highly skilled at “ontological choreography” (Haraway 2003:50) and problem solving in coordination with humans (Hare et al. 2002; Hare and Tomasello 1999; Hearne 1986; Horowitz 2009; Marshall Thomas 1993, 2000; Smuts 2001, 2008).

During the past two decades there has been a dramatic shift in what dogs signify in human lifeworlds (Katz 2003) and how they figure socioeconomically, structurally, and semiotically in the U.S. imagination as well as in the market economy. This change has been most visible at the sites of two U.S. institutions: the military and the family.

It would not be an overstatement to say that dogs are changing the habitus (Bourdieu 1990a, 1990b) of the U.S. military. Soldiers who return from the current wars in Iraq and Afghanistan, and those who returned from the previous wars in Vietnam and Korea, tell how dogs—both military working dogs and strays adopted against military regulations—provided them with a powerful sense of security, stability, and safety in the middle of the chaos and terror of war. Moreover, an emotional connection with dogs allowed these soldiers to remain connected to their morality and humanity (Kopelman 2006, 2008; Sullivan 2007).

The institution of family has also undergone a restructuring because of dogs' shifting position within it. There are approximately 44 million pet dogs presently living in the United States, with pet-related industries collecting approximately \$36 billion each year (American Pet Product Manufacturing Association 2008; American Veterinary Medical Association 2005). Sixty percent of U.S. families now have pets, most admit speaking to them on a regular basis, 40 percent keep their photographs in their wallets and celebrate their birthdays and over half say they would take time off work to care for them (Winograd 2007).

Participation in market economy as proxy consumers with humanlike needs points to dogs' structural child-proxy position in the U.S. family. A convergence of complex sociocultural and demographic processes positioned pet dogs ontologically as childlike family members. People address their dogs in baby talk or "motherese" (Hirsh-Pasek and Treman 1982; Mitchell 2001), thus locating them linguistically at the communicative level of young children and other immature interlocutors. Such practices of pet keeping generate a habitus (Bourdieu 1990a, 1990b) in which dogs are perceived as quasichildren with nurturing, therapeutic capabilities. Socioculturally, this turns them into uniquely suitable communicative partners for children, and especially for children with autism who often have difficulties communicating with others. The following section elaborates how dogs serve as therapeutic adjuncts in clinical and other specialized settings.

"What's Dog Got to Do with It?": *Canis lupis familiaris* and Human Health and Development

"I would like to explore what might possibly be meant by love in a way that disrupts various romanticisms, troubles certain kinds of certainties about the relationship that we have with this other complex species, dogs, and perhaps leads us to a place I have tried to get throughout most of my work. That is, elsewhere," Donna Haraway said in a 2002 lecture at Radcliffe Institute for Advanced Study (Harvard University Gazette 2002). Whether sniffing out explosives or sitting by a child's bedside in a hospital, dogs lead humans elsewhere, and this elsewhere is often better than where we have been before. Philosopher Natalie Depraz, a Husserlian phenomenologist, calls this kind of embodied and transformative intersubjectivity "self-alteration," a consciousness of "having been altered" that develops only retrospectively (Depraz 2001:170), and I might add, narratively. When dogs enter the lifeworlds of humans, or, rather, when humans let them into their lifeworlds—whether these humans are soldiers in Iraq or children with autism and their families—the dogs also

enter their life stories. They help these humans accomplish a new kind of “autobiographical self” (e.g., Bruner 1987; Bruner and Kalmar 1998; Thompson 1998). Jay Kopelman’s autobiography about his experience in the war in Iraq, which included rescuing and transporting a dog to the United States (Kopelman 2006) and then living with the dog in Southern California while dealing with the psychological aftermaths of war (Kopelman 2008), would have portrayed Kopelman as a very different protagonist if the dog were not part of the story. It would have likely become a possibly untellable “chaos narrative” (Frank 1997) of a man haunted by images of war and suffering from Post-Traumatic Stress disorder. The story of his dog’s rescue ordered Kopelman’s experience into a more-or-less coherent narrative structure and allowed him to maintain a sense of his own humanity that prevailed even under the most harrowing circumstances.

Such powerful consequences of human—animal bonding are not surprising. A few existing studies in child development show that animals play a vital role in children’s lifeworlds and that interaction with pets contributes to the development of the sense of self, imagination, play, empathy, and morality (e.g., Ascione 2005; Corsaro 1985; Melson 2001; Myers 1996, 1997). Moreover, animals play a role in a child’s social and communicative development that a human caregiver may not be able to provide because children and animals often interact in ways that may no longer be recognizable to adults (Melson 2001).

Animals as communicative partners give children a sense of “aliveness,” or what Daniel Stern (1985) calls “vitality affects” that are continuously and perceptually present in the animal’s actions. In the flow of child—animal interaction, the animal’s subjective presence is continuously available, confirming the child’s own sense of agency. Moreover, animal differences and discrepancies vis-à-vis human interlocutors allow children to encounter implicit self—animal clarification, informing their sense of being a human self.³ Interactions with animals provide a sense of connection across essential difference, which may be realized in pretend play when children enact animal properties and actions. In interactions with animals children have opportunities to learn that agency has a shared meaning across species, constituting a common social world (Myers 1997:82–85).

This recognition of animals’ potential as communicative partners for children with autism was perhaps the foundation of the first use of dogs as therapeutic adjuncts over 50 years ago. The first argument that playful interaction with dogs can improve sociocommunicative abilities of children with autism was made by Boris Levinson, a child psychiatrist at Yeshiva University Medical School, at a meeting of American Psychological Association in 1961. The argument was received with great skepticism, given that autism was considered to be a psychogenic disorder at the time. In his book, *Pet-Oriented Child Psychotherapy*, Levinson argued for using “Seeing Heart dogs” to help children with autism to achieve their “emotional-insightful health” (Levinson 1969:111–112). “When the child plays with the dog,” Levinson (1969:67–68) insightfully writes, “he establishes his own world, the boundaries of which he himself prescribes. The therapist, therefore, participates in a common adventure by entering into a corner of the child’s world where the child feels secure. This is where the

therapist and the child find an equal footing; this is where the doors of communication are likely to open between child and therapist.”

Family Experience of Autism and Animal-Assisted Therapy

Animal-assisted therapy addresses challenges in the lives of children with autism and their families that are not often discussed in biomedical autism research. Autism is a neurodevelopmental disorder that disrupts communication and participation in social life, and a substantial body of research has been accumulated that examines autism from neurobiological (e.g., Akshoomoff et al. 2002; Kemper and Bauman 1998; Moldin and Rubenstein 2006) and cognitive perspectives (e.g., Baron-Cohen et al. 1985; Cohen and Volkmar 1997; Frith and Hill 2003).

Autism is also a deeply political and a deeply personal disorder for families (Silverman 2004). As a diagnostic category it is cast through quasiobjective notions of affective disorder and its cognitive correlates (e.g., Hobson 1989, 1993). For families, it is a disorder that demands clarity about the role of love and its presupposed deficits in child's and family life, especially in light of early psychogenic theories (Bettelheim 1967). Autism is a ground against which interpretation and manipulation of emotions in biomedical research, diagnostic evaluations, and therapeutic interventions become visible. It is a case study of the importance of emotion in producing, stabilizing, and certifying scientific facts, expertise, and ideologies (Silverman 2004; Silverman and Brosco 2007).

The impact of autism diagnosis on the child–family relationship, however, has not been extensively examined. Even less is known about what children and family members experience at the times leading up to, when receiving, immediately after receiving a diagnosis of autism, and throughout long-term postdiagnosis. It is known, however, that receiving the diagnosis of autism is a forever-remembered event by the parents, and that raising a child with autism dramatically affects family life, leading to an increased risk of marital difficulties and divorce, illness, and depression (e.g., Bristol 1987; Dumas et al. 1991; Kozloff and Rice 2000).

The biomedical accounts of autism often receive competing interpretations in family life. The common metaphors that capture these competing theories of autism is “the body as impenetrable barrier” and affected individuals as imprisoned inside an invisible, unyielding wall, fortress, or shell, impenetrable for those who try to reach them from the outside (Duchan 1998:105–106). Such framing of autism is powerfully narrative as evidenced by a growing nonfiction genre of autobiographical writing by parents of children with autism. These parental accounts are often reminiscent of *Bildungsroman* novels of European and U.S. literature (e.g., Bakhtin 1986; Moretti 2000). Their titles, containing such words as “journey,” “overcoming,” and “adventure,” introduce narratives about children's transformation: becoming a certain kind of a human being through overcoming challenges of autism.

Both metaphorically and practically, dogs play a part in contesting biomedical accounts of autism. Metaphorically, dogs enter into parental narratives of transformation by doing the work of shepherding children into lifeworlds rich with possibilities of social interaction, increased communication, and affective connection. This shepherding is the going elsewhere of Donna Haraway, the transformative intersubjective self-alteration of Natalie Dupraz, and the sociality of 11-year-old Ezra at the Los Angeles Zoo. Practically, this shepherding brings about a social world where the sociality of children with autism and canine sociality based on nonlinguistic but highly embodied social behavior, overlap and resonate. In this social world, dogs facilitate communication of children with autism by being easily readable intentional agents and supporting children's own agency and improvisation within and beyond structurally simple social actions: child throwing and dog fetching a ball; walking together, child holding the dog's leash; giving a hand command (e.g., sit) and the dog responding by sitting. Such activities, seemingly simple, propel the children into contingent social behavior, into an "ontological choreography" (Haraway 2003:50) that they have a difficult time accomplishing with their human communicative partners. The study described in the following section examines how dogs' participation in social interaction opens new ways of supporting the sociality of children with autism.

The Study

This article is based on a pilot study of animal-assisted therapy for children with autism spectrum disorders that I carried out in 2003–05.⁴ The analysis focuses on ways in which children's interactions with dogs, trainers, and family members supports their sociality and participation in everyday activities.

Recruitment was conducted at a local chapter of a parent advocacy organization. I brought a therapy dog to the original presentation to make it more informative for the parents attending the meeting. Five children with autism, four boys and one girl ages 4–14 participated in the study. All the children had a prior diagnosis of autistic disorder from Southern California medical institutions; two of the children were high functioning and three severely affected. To gain variation in children's response and to explore challenges and potentialities of animal-assisted therapy, families with children of different ages were recruited in the study. The study was ethnographically informed and data driven. I aimed to video record and analyze details of child-dog-and another person interaction to investigate the import of canine involvement in children's participation in everyday activities and relationships with other people.

A professional animal trainer experienced in animal-assisted therapy brought one to four therapy dogs to the children's home once a week. The number of visits varied among children, with a maximum number of visits being six. The visits lasted between one and two hours, and included individual work with the focal child, and time with the focal child and the siblings in the end of the session. All the interactions were video recorded and transferred to digital format that afforded repeated access to these data at micro, frame-by-frame

level. Relevant segments were chosen for transcription and analysis when a child was engaged in a social behavior that according to the parents was rare or not present before. In-depth interviews were conducted with the parents about their children before the first visit to tailor interactions to the child's abilities and impairments, as well as to parental concerns. Approximately 65 hours of video and audio data were collected for this study.

I discuss two case studies that best illustrate two different modalities of dog participation: as therapy dogs and as service dogs.⁵ The first case study concerns a nine-year-old girl, Childone, and her interactions with several therapy dogs.⁶ The second case study involves a 13-year-old boy, Childtwo, and his interactions with his service dog.

Childone and the Australian Shepherds

Childone was nine years old attending 4th grade at the time of the study. I met her, her mother and father at the presentation that I gave at a local chapter of a parent advocacy organization. Childone immediately showed interest in the therapy dog I had with me and the family was the first to participate in the study.

In her family there are a mother and a father, and four-year-old twin sisters. Before the first dog therapy visit, I met with her mother for an interview. I learned that Childone was diagnosed with autism at age four at a large university clinic, and she had been in a special education classroom since first grade. Her Individualized Educational Plan (IEP) stated that she could not stay "on task" for longer than 15 minutes where 45 minutes was the norm for her chronological age. Certain loud noises, especially the sound of the vacuum cleaner, were distressing to her. When she was younger, she loved to line up objects on the floor. When entering the kitchen she walked only on certain parts of tiles of certain colors, and not on others. Childone did not smile and had no facial expression in family pictures.

There was a side to Childone that defied this list of familiar autistic behaviors. She had a special connection with living things of all kinds, insects, birds and mammals, and in that sense she was truly "biophilic" (Wilson 1984). She talked to and patted snails, was not afraid of bees and spiders, and especially loved dogs. She did not do as well with children. She had not made friends at school and did not know the name of the child sitting next to her in class. In her fully included kindergarten, when paired by the teacher with an outgoing and talkative classmate, Childone was overwhelmed and could not tolerate being near him.

Her typically developing younger twin sisters (I call them Twinone and Twintwo) did not know how to respond to Childone's sudden outbursts of anger or her idiosyncratic and unpredictable behaviors. They often cried when she said or did something upsetting. Because they were twins and constantly together, there was little interaction between Childone and the younger siblings. The mother told me about the challenges of raising Childone. When there was a change of any kind in her environment, Childone screamed, could become violent and hit others. Reprimanding her in a loud voice usually made the

screaming worse. Childone rewound and watched videos until she remembered them by heart. The mother's biggest concern was that one day Childone would walk out of the front door and get lost, a fear shared by many parents of children with autism.

On our first visit to Childone's family, the animal trainer, Susan Kraft, brought Crystal, the white Australian Shepherd that Childone had met at the parent advocacy meeting during my presentation. I was behind the camera, video recording. I did not know what to expect and as Childone, her sisters, and their mother came out of the house to greet us, it became clear that all three children had to meet the dog. For the first ten minutes, Susan sat with Crystal and the three girls in front of the house, showing Childone how to give Crystal commands. I then asked the mother to let us go into the back yard without the twins, who unhappily obeyed. Childone led us through her house and into the sliding glass door into the back yard. Susan found a shady place under a tree and started to work. Her first intuition was to show Childone the simplest commands that she could give to Crystal, such as "sit," "down," and "speak." "Speak" involved shaking the index finger at the dog, which produces joyful barking. The loud bark initially surprised Childone, and she moved away from the dog for a moment but "speak" became her favorite command.

With the luxury of not knowing what to expect during our first visit, we were with Childone for close to two hours in the back yard, minus ten minutes in front of the house when Childone and the twins were first interacting with Crystal. Throughout the time we were there, Childone's mother was watching behind the glass door in disbelief. Childone had never been so intensely and competently engaged in any activity for this long. When leaving, we said we would be back next week. In the meantime, we left the mother with a video camera and an assignment to record a family dinner.

When we came the following week for the second therapy dog visit, we brought the video tape of the first visit, something that we did each time, with each family. For the second visit Susan brought two dogs, Crystal, who was there at the first visit, and Phantom, another Australian Shepherd. Childone remembered every command that she learned a week before and could immediately give these commands to the new dog. Childone was attentively and competently engaged with the dogs and Susan for over an hour, and so it continued for two more visits. In the end of each visit, there was approximately 15 minutes allocated to Childone and her sisters interacting with the dogs together.

On the fourth visit, Susan brought several dogs to see what Childone would do with unfamiliar animals and whether she remembered all the commands. Childone did. Her mother was by her side, watching her face, her every move, and every word. During that fourth visit, I began to see an emerging difference in social competence when Childone interacted with her sisters and the dogs. An example of this competence is illustrated in the following excerpt. Childone, her sister (Twinone), Susan, and the dogs—Crystal, an Australian Shepherd and Lucky, a Bishon Frise—were sitting in front of the house. Childone's mother and her other sister (Twintwo), were sitting further away by the sidewalk, with another dog, Dodger, a Yorkshire Terrier. Each of the girls were engaged with a dog: Childone with

Crystal, Twinone with Lucky, and Twintwo in the background with Dodger. The transcribed interaction is as follows:

- Childone: ((*gets up and stands close to the Australian Shepherd, Crystal, looking at her*))
I (just) love Australian Shepherds!
- Susan: Yeah? Australian Shepherds, you know what they're bred for?
(0.5sec pause)
- Childone: ((*stroking Crystal's back*)) What?
- Susan: They're bred to mo:ve cattle.
- Childone: ((*goes to where a brush lies on the ground*))
- Susan: They would nip at their feet? to make them mo:ve!
- Childone: ((*carrying the brush back to Crystal*)) Yeah!
- Twinone: ((*sitting next to Lucky and stroking his coat*))
[(Unintelligible)]
- Susan: [And they would help shepherds (.) move'em from pen to pen (.)
or from one field to the other field.
[(*briefly glances at Twinone, then continues to Childone*))]
- Susan: ((*to Crystal*)) Down ((*Crystal does not move*))
((*to Crystal*)) Oh you gonna stand for her?
((*softly to Crystal*)) **You can stand while she brushes.**
- Childone: ((*sits down and begins to brush Crystal's coat*))
There is a bug on her.
((*picks up the bug off Crystal's back and looks at it*))
- Susan: ((*looks at Crystal's back*)) There is? That's okay. That's all right.
- Twinone: ((*gets up and walks around Crystal to where Childone is sitting, puts her hand on Childone's hand that is holding the brush, then on her head*))
How about- Do::dger wants to be brushed!
((*she seems to mean Lucky, the dog she was just sitting next to*))
- Susan: Dodger? Maybe.
- Childone: ((*very softly, looking down*)) He is a little dog.
- Susan: ((*misunderstanding*)) He is a little bug.
- Childone: I meant- I meant- the new dog you have.
- Susan: Oh, Do:dger.
- Childone: Do:dger.
- Twinone: ((*takes Childone's hand holding the brush*))
- Susan: ((*to Childone*)) Do you remember what breed Dodger is?
- Childone: What kind of breed?
- Twinone: ((*to Childone*)) How about- how about-
((*takes the brush from Childone's hand and pulls Childone up on her feet and walks her over to Lucky*))
- Susan: ((*looking up at Childone, articulating clearly*))
York- shire te- rrier.
- Childone: Yeah.

- Susan: ((*looking down at Lucky, the Bichon Frise*))
He is a terrier!
- Twinone: ((*sits down, still holding Childone by the hand, and starts to brush Lucky*))
- Childone: ((*sits down and holds on to Susan's arm*))
I wonder if he wants to be brushed
((*touches Lucky's paw*)) What's he doing with his claw?
- Susan: ((*looks at Crystal then at Lucky*))
(0.5 sec pause)
He's chewing on it.
- Childone: ((*holding Lucky with both hands around the neck*))
Here, I am holding while my sister brushes.
- Susan: ((*leans down and holds Lucky by the paw*))
What do we hold?
- Childone: ((*points to Lucky's head*)) Right here.
- Susan: Yes, the head. Very good!⁷

In this interaction, a sequence of several collaborative actions is carried out by Childone, her sister Twinone, Susan, and the dogs, Crystal, and Lucky. Looking admiringly at Crystal, Childone professed her love for Australian shepherds (“I love Australian Shepherds!”). Until this visit, she had only interacted with Australian Shepherds: Crystal, her first and favorite therapy dog, and Phantom, a younger male. These herding dogs are highly responsive to both vocal and nonvocal cues, and Childone seemed to revel in interacting with them, particularly walking Crystal on a leash and playing frisbee with Phantom. Susan confirms that Childone is correct about Crystal’s breed (Yeah, Australian Shepherds) and expands the topic by asking “You know what they are bred for?”. Childone, stroking Crystal’s back and apparently not knowing what she is bred for, requests an answer to that question (“What?”). While having a conversation about Australian Shepherds, Susan and Childone are looking at Crystal in a continuous shared joining of attention, and Childone’s embodied connection with the dog is evidenced by her stroking Crystal’s back. Susan provides the answer (“They’re bred to move cattle. They would nip at their feet to make them move!”) and Childone enthusiastically affirms her understanding (“Yeah!”). Childone’s intentions to initiate a new activity can be seen from her next move: she picks up the brush that she knows is used for Crystals’ coat. Thus, she is initiating a new activity while building on her embodied engagement with Crystal, and the conversation with Susan about Australian Shepherds.

What neither Childone nor Susan are seeing is that Twinone is intently watching them. In fact, it is apparent on the video that Twinone is imitating the way Childone strokes Crystal’s back when she pets Lucky, the dog who is sitting next to her. Until Twinone involves herself more centrally in the interaction, Susan and Childone are engaged with each other and Crystal, while Twinone is a peripheral participant. After silently watching Childone brush Crystal, Twinone gets up and walks over to Childone, takes the brush out of her hand and pulls her on her feet saying “How about- Dodger wants to be brushed” (the dog she is referring to is Lucky, the Bichon Frise she has been petting all this time). “How about-” is a practice used in this family to request an action from another member,

useful for a four-year-old child's intention to ask her sister for help. Childone gets up on her feet and following her sister's insistent lead walks with her over to Lucky. Getting down on her knees in front of the dog, Childone takes the dog's head between her hands and says, "Here, I am holding while my sister brushes." In this simple statement lies the enfolding drama of Childone's relationship with her sisters. As Twinone negotiates Childone's help with brushing Lucky, we can see how powerful and transformative the dogs' presence can be for these children's relationship. Here, in this moment of holding the dog so her younger sister can brush him, Childone repositions herself in the web of her family's relationships, enacting being a "big sister" as her mother watches from afar.

It is significant that earlier in the interaction Susan says to the dog, Crystal, "You can stand while she brushes." "Here, I am holding while my sister brushes," says Childone. Children with autism are said to be echolaliac, to repeat other's utterances verbatim, but this is not such repetition. Here, Childone's use of language is generative and, to a degree, improvised: she builds on Susan's utterance and reconfigures it to express her own meaning and her own intentions. She also builds on her own embodied experience of brushing Crystal. Childone acts agentively to make the same experience that she herself enjoys possible for her sister. Such seemingly ordinary moments of contingent discourse and embodied reciprocity serve as the loci of affective connections among the children, the trainer, and the dogs. The remarkable ordinarieness of these moments is what makes dog's contributions to social interaction so transformative.

Another similarly ordinary but significant event took place during the same visit when Childone, her mother, her sisters, Susan, and the dogs walked to the park across the street. At the park Childone initiated a demonstration for an unfamiliar girl on how to give the dog, Crystal a favorite command, "Speak."

- Childone: ((to unfamiliar Girl, shakes finger at Crystal))
Like this (.) with your finger (.) ((glances at Girl))
and say 'speak'
- Crystal: ((barks))
- Girl: ((shakes finger at Crystal, yells)) SPEAK! speak!
- Childone: ((shakes finger at Crystal)) Speak!
- Crystal: ((barks))
- Susan: GO:OD, good job ((gives Crystal a treat))
- Girl: ((sbricks loudly, laughs))
- Childone: ((pats Crystal on the head)) **It's okay, she is okay**
- Girl: ((shakes her finger next to Crystal's nose, yells)) SPEAK !
- Childone: ((shakes index finger of right hand, then reaches with left hand for Girl's right hand and looks at her))
Here, let me help
- Girl's mother: ((gets up from the bench and approaches the group))
Shake your finger she's gonna bite you!

- Childone: ((*holding Girl by the wrist, moves her hand*))
 Speak!
 ((*looks up at Girl*))
- Girl: SPEAK! SPEAK!
- Susan: Speak Crystal!
 ((*leans over toward Crystal, shakes finger*))
 Speak!
- Childone: ((*to Girl, holding her hand and moving it in a shaking gesture*))
Louder
 ((*continues to move Girl's hand, simultaneously shakes her right index finger in front of Crystal*))
- Crystal: ((*barks*))
- Girl: ((*shrieks and runs away*))

In this interaction the girl was not able to execute the command correctly and Crystal was not responding with an expected bark. Childone then offered, “Here, let me help,” took the girl’s hand, shaped it into an extended index finger configuration, and shook the girl’s hand in front of Crystal’s nose. When even holding the girl’s hand and shaking it in front of Crystal did not produce the expected bark, Childone simultaneously shook the girl’s hand with her left hand, and shook the index finger of her own right hand in front of the dog. Finally, Crystal “spoke.” Childone’s mother later observed that Childone had never initiated interactions with unfamiliar children on the playground or in any setting. Here, Childone confidently demonstrated her favorite “speak” command to a child she had never met, and generously helped this child enact the command by demonstration, and when that did not work, enacted and simulated the command for the child at the same time. In this interaction Childone competently improvised as a peer mentor with an admirable ability to make a dog “speak.”

How can we account for such social competence? How can three sessions totaling four hours of joint actions involved in giving a dog commands, walking a dog on a leash and playing frisbee generate such sophisticated, extended coordination of social action with a sibling and an unfamiliar peer?

Drawing on Bourdieu’s notion of practical logic (Bourdieu 1990a, 1990b) and with an eye for the relation between structure and agency in interaction, Ochs and Solomon (2004) examined how children with autism participate in social encounters that require fluid, contingent practical strategies and behavior. We suggested a cline of practical competence where the most accessible social fluency is located primarily in the ability to act relevantly and generatively in response to locally prior and upcoming actions. Linking predications to the propositional content of locally prior and anticipated utterances is more challenging but still quite accessible. The next gradation of difficulty is in linking one’s own and others’ actions over a more extensive span of social interaction, while the greatest difficulty is presented by coordinating actions and propositions across an extended series of utterances. This deconstruction of structural complexity in interaction accounts for autistic children’s increased practical competence in responding to the flow of actions, rather than to the flow

of propositions and their greater success in more locally circumscribed, rather than more extended, social practices.

Maynard (2005), a sociologist and father of an adult son with autism, draws on the ethnomethodology of Garfinkel (1967) and the phenomenology and social psychology of Gurwitsch (1964) to argue that social actions possess gestalt properties and that concerted embodied actions have an intrinsic gestalt structure that is collaboratively assembled by coparticipants in interaction. In such an account, social interactions such as showing concern, asking for advice, and testing involve participants' actions that are coconstitutive of the phenomenal object. Those with autism, Maynard writes, have a different kind of orientation to these gestalts that is more locally organized, and their sensibility is infused by this locally driven analysis of social information. This theory may account for Ochs and Solomon's (2004) cline of competence where more elaborated and extended structures of social action and propositions become less and less local and, thus, less and less manageable for children with autism. Interactions with dogs are located in the part of the cline most accessible for those with autism. Social interactions with therapy dogs minimally involve highly local sequences of actions that do not require speech and are usually highly repeatable and practicable.

Charles Goodwin (in press) in his analysis of his dog's social behavior, lists the actions that the dog carries out to get her master (Goodwin) to put food into her bowl: (1) the dog draws attention to something specific, (2) the dog uses the body to manipulate objects, (3) the dog makes objects visible, and (4) the dog carries out actions at the service of building a desired next action. The dog also exhibits joint attention: she moves her gaze from the object of relevance to her master's face after noisily moving the object (her empty bowl) with her paw across the floor, a canine equivalent of protoimperative pointing. The dog is attending to two different material objects: her bowl and her master's body. The dog organizes her actions and her bodily orientation to make something happen next, and this something is a locally relevant next action: her master putting some kibble into the bowl. Goodwin's (in press) analysis of human—dog interactions contributes to understanding of reciprocity from the addressee's perspective and the role of gaze and joint attention as action in social interaction (see also Goodwin 2003, 2005; Goodwin et al. 2002; Kidwell 1997, 2005; Kidwell and Zimmerman 2006, 2007).

The contribution of dogs to social interaction involving children with autism is in providing the children the opportunity to practice nonlinguistic but highly social actions and to coordinate these actions with others, human and canine. Here is where Stephen Levinson's (2006) metaphor of a human "interaction engine" may be productively extended from humans-only interaction to the interaction of humans diagnosed with autism and specially trained dogs. For example, the first four core properties of the human "interaction engine" (Levinson 2006:44–50) can be identified in the interactions of Childone and the dogs: (1) responses to actions or intentions, not behaviors, that require theory of mind, for example, "I wonder if he wants to be brushed" says Childone of a dog about to be brushed by her sister; (2) the simulations of the other's simulation of one's self, recipient design, mutual

salience, for example, “I meant-I meant- the new dog you have” corrects Childone when Susan misunderstands her utterance “he is a little dog” to be “he is a little bug”; (3) a signaling system independent of language, for example, hand obedience commands, walking the dog on a leash and directing the dog’s movement, nonvocally indicating readiness to throw a frisbee; (4) cooperative interaction where minds are able to simulate other minds simulating your own, for example, in the interaction with a peer at the park, teaching the “speak” command Childone simulates the girl’s shaking of the finger, first by shaking the girl’s finger, then in a double simulation, she shakes the girl’s and her own finger at the same time, to get the dog to bark.

Horowitz and Bekoff’s (2007) analysis of dyadic play between humans and dogs, echo Levinson’s account of an “interaction engine.” Their four features of social interaction among human and canine communicative partners are identified as: (1) directed responses by one player to the other, (2) indications of intent, (3) mutual behaviors, and (4) contingent activity. The properties of canine social behavior identified by Goodwin (in press) and Horowitz and Bekoff (2007) are the precise characteristics of therapy dogs’ behavior when interacting with children with autism that overlap with humans-only sociality described by Levinson. For example, a dog will bring a frisbee and place it at the child’s feet, and then sit facing the child and looking from the frisbee to the child’s face and back. If no next action is forthcoming from the child, the dog will react to the relevant absence of action. The dog will move the frisbee closer to the child by picking it up with the mouth and flipping it, making it both relevant again and more visually salient, as if jump-starting the relevance of the child’s projected next action of throwing the frisbee (see also Horowitz 2002 and Smuts and Bauer 2007 on intersubjectivity and canine play).

Dogs’ highly anticipatory, unhurried, structurally simple and easy to interpret social actions may be generating a locally organized interactional ground against which the next move is easily projected and realized by children with autism. The dogs reside not only in “here and now” but also in a “here and now” that happens over and over, allowing the children to practice being intentional, intersubjective agents.

Usually children with autism joyfully engage in such interactions, and dogs do not have to work too hard to get the children engaged in play with them. The trainer elaborates and builds on the local coordination of action (see Ochs and Solomon this issue), showing children new commands, asking them to carry out a sequence of different local actions, commenting on their success and directing them in their interaction with the dogs.

In these interactions, possibly for the first time, the child with autism interacts with a communicative partner whose social dispositions match his or her own. One does not have to be affected by autism, however, to enjoy the freedom from linguistic activity. The allure of pet animals, and dogs especially, is that they are able to interact with humans in an entirely embodied way, without any need for spoken language, and dog training requires of the handler to be highly skilled in such interaction (see Hearne 1994). Interactions between a child with autism and a therapy dog generate a social universe, a habitus (Bourdieu 1990a,

1990b), where speech is not a prerequisite. But the child and the dog are not alone. The therapist or the dog trainer is speaking to the child and the dog, and, thus, there is an ebb and pull between the embodied nonlinguistic habitus where children with autism and dogs can freely engage with one another, and the human-only habitus (Bourdieu 1990a, 1990b) where language is part of the interaction.

Spoken language is used but the trainer's oblique bodily orientation, relatively muted praise, and sparse talk make these interactions qualitatively different from most "no therapy dog" social situations. This restructuring and reconfiguration of the parameters of social interaction afford the child with autism an experience of social competence and the confidence to venture more fully into an improvised, fluid social engagement with other people.

Childtwo and the Black and White Dog

Childtwo was 13 years old when he and his family participated in the study. In an interview his mother told me that they were not worried that anything was wrong until Childtwo was 18 months old. This was when she first noticed Childtwo staring, as if hypnotized, at the patterns of light moving on the carpet, and she could not get his attention back no matter what she did. "This is when I shed my first tears," she told me. At three years old, Childtwo was still not speaking, and his mother described him being "out of control." She took him to several doctors who told her that he would outgrow it. When he was a week away from his fourth birthday, an interdisciplinary team at a major university hospital gave Childtwo a diagnosis of autism.

This case study illustrates the transformation in the family narrative brought about by the presence of a service dog. Similarly to Jay Koppelman's story of rescuing a dog from Iraq, this story of a dog coming into this child's life reorganized the family narrative and repositions the child with autism as a powerful protagonist who is able to will his desire into reality.

This story has been assembled from e-mail correspondence and interviews with Childtwo's mother following the introduction of a service dog:

In the winter of 2006, when Childtwo was 13, his mother sent out an unusual e-mail message to friends and family:

If any of you have contemplated or know of any recommendation for an autism service dog, I would appreciate any leads. Thanks.

The e-mail was a response to an unusual situation. Childtwo had been asked at school by his teacher if he had a dog, and he said "yes," and that his dog was "black and white." When the teacher asked his mother about the dog, she did not know what to think: not only they did not have a black and white dog, or any dog for that matter, but also she had no intentions of getting one, given the kind of life they had taking care of Childtwo and his two younger typically developing sisters. Childtwo, however, persisted that he had a black and

white dog, to his mother's dismay. Finally, in a moment of weakness, she sent out the fateful e-mail.

At about this time, Susan Kraft, the animal trainer who was involved in this study, had an unexpected addition to her animal family: a six-month-old black and white Springer Spaniel named Simon whose elderly master had just lost his wife and decided that he could not keep the puppy. When I forwarded the e-mail message requesting information about an autism service dog to Susan, she immediately thought of training Simon as a service dog for Childtwo. When Childtwo's mother called Susan on the phone, her first question was "What color is the dog?" "Black and white," Susan said. There was a silence on the other end of the line, and then the mother said "When can we come?"

After the first visit of Childtwo and his family to meet Simon, I received an e-mail message from Childtwo's mother that included this:

To my surprise, Childtwo has asked about "Simon dog" or "Dog Simon," as he has been referring to him, and of course I am anxious to see him again too.

Simon went home with Childtwo to be his autism service dog in late September 2006. Limitations of space do not allow me to describe in greater details the training that Childtwo, Simon, and the family received so Simon could become Childtwo's service dog. When it did happen, the lives of every member of the family had been changed. After the first month, Childtwo's mother wrote me an e-mail about their life with the dog:

I'm so sorry for the long delay in updating you on Childtwo and Simon. I can now report on their first month together . . . where to begin! The pictures attached are from the first day of school. Childtwo objected at first that Simon wasn't coming to school (and Simon consistently tried to board the bus), but now he accepts that Simon stays home. So here's a typical day for the two boys: Childtwo wakes up, showers and dresses, then gets Simon out of the crate at 6:30am. Childtwo gets Simon fresh water, takes him to the trees, and runs him around the cul-de-sac 3 times, some point at which Simon will poop and Childtwo will show Dad where to pick up. Childtwo gets Simon breakfast, and then they eat together. Childtwo walks Simon out to the bus, where he hands Daddy the leash. When Childtwo gets home, he comes straight in and checks on Simon. Simon is always on his pillow in the kitchen, and he always barks "hello." Every afternoon, they head off on a 2.5 mile walk to Juice Zone (one of his afternoon therapists takes them—they understand the rules for curbs and also how to behave in the Juice store). When they get back Simon pillows next to Childtwo in the play room, and Childtwo does homework. Then at dinner time, Childtwo brings Simon down and gives him dinner, and he eats in the kitchen while we're eating then pillows down. After dinner, Childtwo, Dad, and sometimes the girls go with Simon outside and do retrieving. Then Childtwo takes Simon with him to the computer, then to his room to watch TV. At 9:30pm, about half the time Childtwo will bring Simon out of his room and indicate it's time for "Simon sleepy time"—which means Childtwo is falling asleep, and he knows the routine is Simon in the crate. The other half the time, they both fall asleep. On the weekend, Simon goes everywhere with Childtwo, including church, breakfast after church, Home Depot, Costco, girls' soccer games, dinner out on Saturday, wherever we go—Childtwo insists on it, no exceptions.⁸

Childtwo's perspective on his life with Simon can be glimpsed from a story that he wrote at school. The prompt for the story was "I like to. . . ." It is reproduced here exactly as Childtwo typed it.

I like to named Simon. I like to play with Simon. I like to feed with Simon. I like to Simon sleep in her kennel. I like to Simon a boy. I like to Simon play with ball. I like to Simon swimming pool. I like to eat Simon food. I like to walk Simon. I like to black and white dog. I like to puppy. He has a tail, ears, nose, mouth, ears and paws. I like to sleep in bed with Simon. I like to play with the catch the ball with Simon. I like to living a house. I like to Simon with bath outside. I like to go outside. I like to go in the car with Simon. Mom go in the car. I like to sister play with Simon. I like to eat dog food. I like to dog drink water. Mom buy with dog food. I like to dog food in your kitchen. Mom feed Simon. I like to Simon big. I like to brown eyes. I like to black nose.

The richness of Childtwo's life with a service dog, and the multiple activities that he is purposefully and competently engaged in with Simon and with his family, can be glimpsed from his mother's and his stories. The story of "black and white dog," however, also has a metaphorical quality. Childtwo's stubborn willing the black and white dog into reality transformed what his family members believed about his limitations. Moreover, the story of a black and white dog quickly spread across the parent advocacy community as further evidence that children with autism have extraordinary abilities.

The changes in this child's and this family's life, and their family narrative have been dramatic. In the 2007 school year Childtwo's mother secured the school's permission for Simon to accompany him in the classroom. From then on, when Childtwo went to school, Simon went with him.

Childtwo's mother reported that they went out more often as a family—for dinner, to visit friends, to movies—much more often than "before Simon," and they never left Childtwo home anymore.

For Christmas 2007, I received a postcard with a family picture:

Wishing you a White (and Black) Christmas,
Love,
the Lastname Family

The picture portrayed five smiling people, two adults and three children, all wearing black and white clothes sitting on the steps of their house. A black and white Springer Spaniel was intently looking at the camera. Childtwo's hand rested on Simon's back. Not only their Christmas had undergone a transformation and became "White (and Black)," like Childtwo's dog, but also they themselves also changed: Childtwo was no longer standing out in the family. Having the dog in the family restructured this child's interactional ecology in a way that enables Childtwo's communication and participation in his family's life much more fully than before.

Haraway writes: “We are, constitutively, companion species. We make each other up, in flesh. Significantly other to each other, in specific difference, we signify in the flesh a nasty developmental infection called love” (2003:2–3). Once again, love, the emotional connection with a dog, takes us elsewhere, and we can glimpse from Childtwo’s own story his understanding of how his life has changed. Childtwo’s story has a new temporal horizon: “I like to Simon big,” he writes. The dog had brought a possibility of not only a shared present but also of a shared future.

Conclusion

On the basis of a historical and sociocultural perspective on how dogs mediate human activity and two case studies, I present an argument that children with autism socially benefit from interactions in which service and therapy dogs are included, and that specially trained dogs powerfully reorganize interactional habitus (Bourdieu 1990a, 1990b) to make it more adaptable to the challenges imposed by autism. My goal was to explore autism to understand the sociocultural, practical, and symbolic meaning that specially trained dogs hold for children with autism and their families. I offered my analysis of video-recorded social interactions and family interviews to articulate ways in which therapy and service dogs mediate social engagement of the children and their families. This analysis demonstrates that child—dog interactions afford an experience of emotional connection between an autistic child and family members, as well as between the child and the dogs.

It is important to acknowledge that in the case of dog therapy, as in the case of other therapies, it is the mothers who counteract the view of autism as “a disorder of affect” (Silverman 2004) with a search for innovations that offer hope and alternative stories for their children’s lives and possible futures (see also Kaufman this issue). Thus, the story I tell here stands in exact opposition to the wolf-child stories. In the stories of children with autism and therapy and service dogs, it is the mothers who, out of love for their children, are inviting the “wolves” into the family to contribute their animal sensibility to the complicated activity of rearing a child with autism.

Research on specific dynamics of this process and the contributions of all participants, human and canine, to its realization, holds the potential to advance not only an understanding of autism but also a theory of sociality in psychological anthropology and the larger discipline. The contribution of this research is in focusing new attention on the fundamentals and the distributed nature of human sociality and on the social structuring of human experience that supports participation in family and community life.

Notes

Acknowledgments. I wish to express my gratitude to the children and their families who participated in this research, and to Susan Kraft, the professional animal trainer of The Learning Center for Dogs. I am deeply grateful to the following colleagues for their encouragement and feedback regarding this research: Nancy Bagatell, Shirley Brice Heath, Justine Cassell, Florence Clark, Kate Crawley, Alessandro Duranti, Linda Garro, Daniel Gillette, Charles Goodwin, Marjorie Harness Goodwin, Portia Iversen, Connie Kasari, Mary Lawlor, Joan Maltese, Maja Mataric, Elinor Ochs, Albert (Skip) Rizzo, and Janiece Turnbull. The author gratefully acknowledges the University of Southern California Center for Excellence in Research for the James H. Zumberge Faculty Research and Innovation award and the Cure Autism Now Innovative Technology for Autism Bridge grant that supported this research. The study “Animal-Assisted Therapy as Socially Assistive Technology: Implications for Autism” was approved by the Institutional Review Board of the University of Southern California, Health Science Campus. A version of this article was presented as a paper at the 2007 Society for Psychological Anthropology Biennial Meeting in Manhattan Beach, California, on March 9, 2007, as part of the panel “Families in Pain: Illness, Suffering, and (Inter)subjectivity” organized by Mara Buchbinder and Ignasi Clemente. I am grateful to the organizers and to Cindy Dell Clark who offered insightful and helpful feedback.

1. The two case studies examine children’s interactions with therapy and service dogs. The difference between a therapy dog and a service dog lies in two distinct ways in which children with autism can engage with dogs that are not their pets. Therapy dogs, like adjunct therapists, engage with children during a clinical session or a home visit while assisting a professional who works with the child. Service dogs live with children and their families and assist children to participate in everyday activities. They also may prevent children with autism from potentially dangerous behavior, such as running into traffic or running away from home.

2. In her book *Animals Make Us Human: Creating the Best Life for Animals* (Grandin and Johnson 2009), Grandin argues that only through an engagement with animals that involves their humane treatment can people become fully human. This argument is powerfully made by another writer with autism, Dawn Prince-Hughes, in her autobiographical book, *Songs of the Gorilla nation: My Journey Through Autism* (2004; see also Prince this issue). What is at stake in these accounts of human–animal relationships written by authors on the autism spectrum appears to go beyond concerns for animal welfare; their own wellbeing is intrinsically connected to the wellbeing of the animals.

3. Much has been written about the origins of human social cognition in the “Like Me” principle (e.g., Meltzoff 2007), which allows the child to recognize the self—other equivalence. In interactions with animals, the “Not Like Me” principle seems to be generating opportunities for the development of empathy, imagination, and morality.

4. The study was motivated by a single experience that I had in 1997: my dog, a border collie, carefully placing a frisbee at the feet of a 5-year-old girl at the park, the girl picking it up and throwing it, the two playing together, the girl laughing. An ordinary event until the girl’s father asked me, tears in his eyes, to sell him the dog for any price because his daughter had autism and had never played with anyone before. Six years later I wanted to know if this event could be reproduced and better understood so more children with autism could have such experiences. My experience of doing research on autism, and my experience with dogs, gave me the initial hypothesis that there is something about canine social behavior and characteristics that engages children with autism in way that humans can’t.

5. See N. 1 for the distinction between a therapy dog and a service dog.

6. Because of IRB requirements the children are called “Child 1” (Childone) and “Child 2” (Childtwo).

7. Transcription Conventions (adapted from Atkinson and Heritage 1984)

- . The period indicates a falling, or final, intonation contour.
- ? The question mark indicates rising intonation as a syllable or word ends
- , The comma indicates “continuing” intonation, not necessarily a clause boundary.
- ::: Colons indicate stretching of the preceding sound, proportional to the number of colons.

•	A hyphen after a word or a part of a word indicates a cut-off or self interruption.
<u>word</u>	Underlining indicates some form of stress or emphasis on the underlined item.
(())	Double parentheses and italicized notes enclose transcriber's comments.
(1.2 sec. pause)	Numbers in parentheses indicate pauses in tenths of a second.
	[Separate left square brackets, one above the other on two successive lines with utterances by different speakers indicates a point of overlap onset; also, simultaneous verbal and nonverbal behavior of one speaker
WORD	indicates increased voice volume (loudness)
Word	Boldface indicates relevance to the discussion—

8. Childtwo's morning before Simon came to live with him was described by his mother as follows in response to my question "what Childtwo's school day is like": "A school day? He gets up about six o'clock, showers. And he can do it himself but (. . .) dad still helps him. Then they- dad makes breakfast and lunch, it's kind of dad time, that's when they hang out together from six to seven and the bus picks him up at seven o'clock."

References Cited

- Akshoomoff, Natacha, Karen Pierce, and Eric Courchesne
2002 The Neurobiological Basis of Autism from a Developmental Perspective. *Development and Psychopathology* 14(3): 613–634.
- American Pet Product Manufacturing Association
2008 National Survey 2006/2007. Electronic document, <http://www.aprma.org>, accessed May 23, 2008.
- American Veterinary Medical Association
2005 Statistics Reveal Strength of Human-Animal Bond. Electronic document, <http://www.avma.org/onlnews/javma/jul05/050701k.asp>, accessed May 23, 2008.
- Ascione, Frank R.
2005 *Children and Animals: Exploring the Roots of Kindness and Cruelty*. West Lafayette: Purdue University Press.
- Atkinson, John M., and John Heritage, eds.
1984 *Structures of Social Action*. Cambridge: Cambridge University Press.
- Bakhtin, Michail M.
1986 *The Bildungsroman* and its Significance in the History of Realism (Toward a Historical Typology of the Novel). In *Speech Genres and Other Late Essays*. Caryl Emerson and Michael Holquist eds. Vern W. McGee, trans. Pp. 10–59. Austin: University of Texas Press.
- Baron-Cohen, Simon, Alan Leslie, and Uta Frith
1985 Does the Autistic Child Have a "Theory of Mind"? *Cognition* 21(1): 37–46.
- Bettelheim, Bruno
1967 *The Empty Fortress: Autism and the Birth of the Self*. New York: Free Press.
- Bourdieu, Pierre
1990a *In Other Words: Essays Towards a Reflexive Sociology*. Stanford: Stanford University Press.
1990b *The Logic of Practice*. Stanford: Stanford University Press.
- Bristol, Marie M.
1987 Mothers of Children with Autism or Communication Disorders: Successful Adaptation and the Double ABCX model. *Journal of Autism and Developmental Disorders* 17(4): 469–486.
- Bruner, Jerome S.
1987 Life as Narrative. *Social Research* 54(1): 11–32.
- Bruner, Jerome, and David A. Kalmar
1998 Narrative and Metanarrative in the Construction of Self. In *Self-Awareness: Its Nature and Development*. Michel Ferrari and Robert J. Sternberg, eds. Pp. 308–331. New York: Guilford.
- Cohen, Donald J., and Fred R. Volkmar
1997 *Handbook of Autism and Pervasive Developmental Disorders*. New York: Wiley.
- Collins, Paul
2004 *Not Even Wrong: Adventures in Autism*. New York: Bloomsbury.
- Corsaro, William A.
1985 *Friendship and Peer Culture in the Early Years*. Norwood: Ablex.

- Depraz, Natalie
2001 Husserlian Theory of Intersubjectivity as Alterity. Special issue, "Between Ourselves: Second Person Issues in the Study of Consciousness," *Journal of Consciousness Studies* 8(5-7): 169-178.
- Duchan, Judith F.
1998 Describing the Unusual Behavior of Children with Autism. *Journal of Communication Disorders* 31(2): 93-112.
- Dumas, Jean, Lucille C. Wolf, Sandra N. Fisman, and Annie Culligan
1991 Parenting Stress, Child Behavior Problems and Dysphoria in Parents of Children with Autism, Down Syndrome, Behavior Disorders, and Normal Development. *Exceptionality* 2(2): 97-110.
- Fields-Meyer, Thomas
2007 Finding My Son at the Zoo. *People Magazine*, April 23: 98-104.
- Frank, Arthur R.
1997 *The Wounded Storyteller: Body, Illness, and Ethics*. Chicago: University of Chicago Press.
- Frith, Uta, and Elizabeth Hill
2003 *Autism: Mind and Brain*. Oxford: Oxford University Press.
- Garfinkel, Harold
1967 *Studies in Ethnomethodology*. New Jersey: Prentice Hall.
- Gesell, Arnold
1940 *Wolf Child and Human Child*. New York: Harper.
- Gladwell, Malcolm
2006 Dog Whisperer. *New Yorker*, May 22: 48-53.
- Goodwin, Charles
2003 *Body in Action*. In *Discourses of the Body*. Justine Coupland and Richard Gwyn, eds. Pp. 19-42. New York: Palgrave Macmillan.
2005 *Object, Gesture and Talk: Rethinking Multimodality*. Paper presented at the 9th International Pragmatics Conference, Riva del Garda, Italy, July.
In press *Things, Bodies and Language*. In *A Festschrift in Celebration of Jacob Mey's 80th Birthday*. Bruce Fraser and Kenneth Turner, eds. Bingly: Emerald.
- Goodwin, Charles, Marjorie H. Goodwin, and David Olsher
2002 Producing Sense with Nonsense Syllables. Turn and Sequence in Conversation with a Man with Severe Aphasia. In *The Language of Turn and Sequence*. Cecilia E. Ford, Barbara A. Fox, and Sandra A. Thompson, eds. Pp. 55-80. New York: Oxford University Press.
- Grandin, Temple, and Catherine Johnson
2005 *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior*. New York: Scribner.
2009 *Animals Make Us Human: Creating the Best Life for Animals*. Orlando: Houghton Mifflin Harcourt.
- Gurwitsch, Aron
1964 *The Field of Consciousness*. Pittsburgh: Duquesne University Press.
- Haraway, Donna
2003 *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Chicago: Prickly Paradigm Press.
- Hare, Brian, Michelle Brown, Christina Williamson, and Michael Tomasello
2002 The Domestication of Social Cognition in Dogs. *Science* 298(5598): 1634-1636.
- Hare, Brian, and Michael Tomasello
1999 Domestic Dogs (*Canis familiaris*) Use Human and Conspecific Social Cues to Locate Hidden Food. *Journal of Comparative Psychology* 113(2): 173-177.
- Harvard University Gazette
2002 When Nature and Culture Intersect: Talk Explores Links between Humans and Canine Companion Species, May 2. Electronic document, <http://www.news.harvard.edu/gazette/2002/05.02/15-haraway.html>, accessed June 5, 2006.
- Hearne, Vicki
1986 *Adam's Task: Calling Animals by Name*. New York: Knopf.
1994 *Animal Happiness: A Moving Exploration of Animals and their Emotions*. New York: HarperCollins.
- Hirsh-Pasek, Kathy, and Rebecca Treman
1982 Doggerel: Motherese in a New Context. *Journal of Child Language* 9(1): 229-237.
- Hobson, Peter R.
1989 Beyond Cognition: A Theory of Autism. In *Autism: New Perspectives on Diagnosis, Nature, and Treatment*. Geraldine Dawson, ed. Pp. 22-48. New York: Guilford.
1993 *Autism and the Development of Mind*. Hillsdale: Erlbaum.

- Horowitz, Alexandra C.
 2002 The Behaviors of Theories of Mind, and a Case Study of Dogs at Play. Ph.D. dissertation, Department of Cognitive Science, University of California, San Diego.
 2009 *Inside of a Dog: What Dogs See, Smell and Know*. New York: Scribner.
- Horowitz, Alexandra C., and Marc Bekoff
 2007 Naturalizing Anthropomorphism: Behavioral Prompts to Our Humanizing of Animals. *Anthrozoos* 20(1): 23–35.
- Houston, Rab, and Uta Frith
 2000 *Autism in History: The Case of Hugh Blaire of Borgue*. Oxford: Blackwell.
- Isaacson, Rupert
 2009 *The Horse Boy: A Father's Quest to Heal His Son*. New York: Little, Brown.
- Itard, Jean Marc Gaspard
 1962[1801] *The Wild Boy of Aveyron*. London: Appleton and Lange.
- Katz, Jon
 2003 *The New Work of Dogs: Tending to Life, Love, and Family*. New York: Villard.
- Kemper, Thomas L., and Margaret Bauman
 1998 Neuropathology of Infantile Autism. *Journal of Neuropathology and Experimental Neurology* 57(7): 645–652.
- Kidwell, Mardi
 1997 Demonstrating Reciprocity: Knowledge Displays as a Resource for an Unaddressed Participant. *Issues in Applied Linguistics* 8(2): 85–96.
 2005 Gaze as Social Control: How Very Young Children Differentiate “The Look” From a “Mere Look” by Their Adult Caregivers. *Research on Language and Social Interaction* 38(4): 417–449.
- Kidwell, Mardi, and Don H. Zimmerman
 2006 “Observability” in the Interactions of Very Young Children. *Communication Monographs* 73(1): 128.
 2007 Joint Attention as Action. *Journal of Pragmatics* 39(3): 592–611.
- Kopelman, Jay
 2006 *From Baghdad, with Love: A Marine, the War, and a Dog named Lava*. Lyons: Guilford.
 2008 *From Baghdad to America: Life Lessons from a Dog Named Lava*. New York: Skyhorse.
- Kozloff, Martin, and John Rice
 2000 Parent and Family Issues: Stress and Knowledge. In *Clinical and Research Issues*. Pasquale Accardo, Christy Magnusen, and Arnold Capute, eds. Pp. 303–325. Baltimore: York.
- Laughlin, Charles D., and C. Jason Throop
 2001 Imagination and Reality: On the Relations between Myth, Consciousness and the Quantum Sea. *Zygon* 36(4): 709–736.
- Levinson, Boris
 1969 *Pet-Oriented Child Psychotherapy*. Springfield, IL: Charles C. Thomas.
- Levinson, Stephen C.
 2006 On the Human “Interaction Engine.” In *Roots of Human Sociality: Culture, Cognition and Interaction*. Nick J. Enfield and Stephen C. Levinson, eds. Pp. 39–69. New York: Berg.
- Lévi-Strauss, Claude
 1949 *Les Structures Elementaires de la Parente*. Paris: Presses Universitaires de France.
- Lorenz, Konrad
 1994[1953] *Man Meets Dog*. New York: Kodansha.
- Maclean, Charles
 1977 *The Wolf Children*. London: Macmillan.
- Marshall Thomas, Elizabeth
 1993 *The Hidden Life of Dogs*. New York: Houghton Mifflin.
 2000 *The Social Life of Dogs: The Grace of Canine Company*. New York: Simon and Schuster.
- Maynard, Douglas W.
 2005 Social Actions, Gestalt Coherence, and Designations of Disability: Lessons from and about Autism. *Social Problems* 52(4): 499–524.
- Melson, Gail F.
 2001 *Why the Wild Things Are: Animals in the Lives of Children*. Cambridge, MA: Harvard University Press.
- Meltzoff, Andrew N.
 2007 “Like Me”: A Foundation for Social Cognition. *Developmental Science* 10(1): 126–134.
- Mitchell, Robert
 2001 Americans’ Talk to Dogs: Similarities and Differences with Talk to Infants. *Research on Language and Social Interaction* 34(2): 183–210.
- Moldin, Steven R., and John L. R. Rubenstein
 2006 *Understanding Autism: From Basic Neuroscience to Treatment*. Boca Raton, FL: Taylor and Francis.

- Moretti, Franco
2000 *The Way of the World: The Bildungsroman in European Culture*. London: Verso.
- Morey, Darcy F.
1992 Size, Shape, and Development in the Evolution of the Domestic Dog. *Journal of Archaeological Science* 19(2): 181–204.
1994 The Early Evolution of the Domestic Dog. *American Scientist* 82(4): 336–347.
- Myers, Eugene O.
1996 Child-Animal Interaction: Non-Verbal Dimensions. *Society and Animals* 4(1): 19–35.
1997 *Children and Animals: Social Development and Our Connections to Other Species*. Boulder, CO: Westview.
- Ochs, Elinor, and Olga Solomon
2004 Practical Logic and Autism. In *A Companion to Psychological Anthropology: Modernity and Psychocultural Change*. Robert Edgerton and Connerly Casey, eds. Pp. 140–167. Oxford: Blackwell.
- Ochs, Elinor, Olga Solomon, and Laura Sterponi
2005 Limitations and Transformations of Habitus in Child-Directed Communication. *Discourse Studies*. Special Issue, “Theories and Models of Language, Interaction and Culture” 7(4–5): 547–583.
- Pavlidis, Merope
2008 *Animal-Assisted Interventions for Individuals with Autism*. London: Jessica Kingsley.
- Prince-Hughes, Dawn
2004 *Songs of the Gorilla Nation: My Journey through Autism*. New York: Three Rivers.
- Rousseau, Jean Jacques
1997[1762] *The Social Contract and other Late Political Writings*. Cambridge: Cambridge University Press.
- Silverman, Chloe.
2004 *A Disorder of Affect: Love, Tragedy, Biomedicine and Citizenship in American Autism Research, 1943–2003*. Ph.D. dissertation, Department of History and Sociology of Science, University of Pennsylvania.
- Silverman, Chloe, and Jeffrey P. Brosco
2007 Understanding Autism: Parents and Pediatricians in Historical Perspective. *Archives of Pediatric and Adolescent Medicine* 161(4): 392–398.
- Silverstein, Michael
2004 “Cultural” Concepts and the Language–Culture Nexus. *Current Anthropology* 45(5): 621–652.
- Smuts, Barbara B.
2001 Encounters with Animal Minds. *Journal of Consciousness Studies* 8(5–7): 293–309.
2008 Embodied Communication in Non-Human Animals. In *Human Development in the 21st Century: Visionary Ideas from Systems Scientists*. Alan Fogel, Barbara J. King, and Stuart G. Shanker, eds. Pp. 136–146. Cambridge: Cambridge University Press.
- Smuts, Barbara B., and Erika B. Bauer
2007 Cooperation and Competition during Dyadic Play in Domestic Dogs, *Canis familiaris*. *Animal Behaviour* 73(3): 489–499.
- Stern, Daniel
1985 *The Interpersonal World of the Infant: A View from Psychoanalysis and Developmental Psychology*. New York: Basic.
- Sullivan, Christine
2007 *44 Days Out of Kandahar: The Amazing Journey of a Missing Military Puppy and the Desperate Search to Find Her*. Indianapolis: IBJ.
- Thompson, Charles P.
1998 *Eyewitness Memory: Theoretical and Applied Perspectives*. Hillsdale, NJ: Erlbaum.
- Volkmar, Fred R., and Ami Klin
1993 Social Development in Autism: Historical and Clinical Perspectives. In *Understanding other Minds: Perspectives from Autism*. Simon Baron-Cohen, Helen Tager-Flusberg, and Donald J. Cohen, eds. Pp. 40–55. Oxford: Oxford University Press.
- Wilson, Edward O.
1984 *Biophilia*. Cambridge, MA: Harvard University Press.
- Winograd, Nathan J.
2007 *Redemption: The Myth of Pet Overpopulation and the No Kill Revolution in America*. Los Angeles: Almaden.
- Wolfe, Cary
2003a *Animal Rites: American Culture, the Discourse of Species, and Posthumanistic Theory*. Chicago: University of Chicago Press.
2003b *Zoontologies: The Question of the Animal*. Minneapolis: University of Minnesota Press.
- Zingg, Robert M.
1940 Feral Man and Extreme Case of Isolation. *American Journal of Psychology* 53(4): 487–517.