Part I

Historical, developmental, and comparative overviews

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Imaginative animals, pretending children

> Could one imagine a world in which there could be no pretence?
>
> (WITTGENSTEIN, 1949/1992, p. 37e)

This book is a delightful collection of scientific writings about pretending and imagination in animals and children. The impetus for the present volume derives not only from observations of animals' activities similar (perhaps identical) to pretense (e.g., Groos, 1898; Mitchell & Thompson, 1986; Mitchell, 1987, 1990, 1991a, 1993c, 1994a; Byrne & Whiten, 1990; Miles, 1991; Russon, 1996), but also from developing ideas about children's understanding of pretense (Harris & Kavanaugh, 1993; Lillard, 1993a,b, 2001a), philosophy of art (Walton, 1990), and the evolution of image-making (Davis, 1986), all of which concern organisms' understanding or creating reproductions of various sorts (Mitchell, 1994a). The continuing influences of Piaget (1945/1962), Guillaume (1926/1971), Bateson (1955/1972, 1956), Vygotsky (1930–1966/1978), and Leslie (1987) are also apparent. The purpose of the book is primarily to present and examine evidence for the existence and nature of pretense in animals and children, and secondarily to examine various aspects of why or how. Evidence of pretense in animals may eventually allow us to provide a "psychologically and evolutionarily plausible account of 'fictive acts of perceiving'" (Davis, 1986, p. 211; see Mitchell, 1994a; Reynolds, *PIAC14*).[1] A full appreciation of what needs to be incorporated into such an account is provided by reading chapters in this volume, in which the topics range from relatively simple simulative actions to complex fantasizing about nonexistent objects and agents.

Answering questions about animal pretense requires us to look to behavior not only of various nonhuman species, but also of those prototypical pretenders – human children. From an early age, children act "as if"

things are the case, and this "acting as if" seems present, if not always ubiquitous, in extant human cultures (Millar, 1968; Schwartzman, 1978; Roopnarine *et al.*, 1994; Kavanaugh, *PIAC6*; Smith, *PIAC9*). Because children are the prototypical pretenders, comparisons between children's and animals' pretenses are essential, and understanding children's pretense is necessary to get some idea as to the phenomenon itself and its scope. Children clearly outrank nonhuman animals as pretenders, but this does not mean that animals do not or cannot pretend. As scientists studying autistic children's pretense have learnt, failure to do something in some circumstances does not mean an inability to do it in others (Lewis & Boucher, 1988). Children's pretense builds on precursors that are themselves not pretense (Piaget, 1945/1962; Fein & Moorin, 1985), so that even nonpretending animals may exhibit precursors (Gómez & Martín-Andrade, *PIAC18*). In addition, children's pretense may not be as complex as many believe. Children may understand pretense as simply a unique type of action – "acting as if" (Fein & Moorin, 1985; Harris & Kavanaugh, 1993; Lillard, 1993a,b, 1998b; *PIAC7*; Jarrold *et al.*, 1994; Smith, *PIAC9*). Although this view is controversial (see Woolley, *PIAC8*; Taylor & Carlson, *PIAC12*), the fact that it is even plausible opens a window to explore pretense in animals.

Pretense and imaginative activities

Pretense or make-believe is a mental activity involving imagination that is intentionally projected onto something (Goldman, 1998; Lillard, *PIAC7*). More elaborately, make-believe is "the use of . . . props in imaginative activities" (Walton, 1990, p. 67), where props are "objects of imaginings" (p. 25). Props include pretenders themselves, who are simultaneously also imaginers, imagining about objects (including themselves) that they are something else. Pretense in play is called "symbolic play," but pretending also occurs outside play, and need not be "playful." Autistic children can enact pretend scenarios with little apparent pleasure (Wulff, 1985) and, in some cases of trauma, children compulsively (and unhelpfully) repeat their experiences in grim pretense (Terr, 1990; Gordon, 1993; Smith, *PIAC9*), apparently gaining new understanding about the trauma, rather than catharsis (Coates & Moore, 1997).[2]

Imagination, so central to pretense, is a tricky concept (Walton, 1990). Minimally, imagination requires that an organism has an idea which it seeks to examine in its actions or mind.[3] Most children's early pretense

seems to be imaginative in that they are acting out ideas (schemas), based on conventional experiences (e.g., eating, sleeping) or variations on these, which they are just coming to understand (Sully, 1896; Vygotsky, 1930–1966/1978; Fein & Apfel, 1979a). Imagination can also imply innovation, as when unconventional ideas are put into play. Such innovative imagination is present in some nonpretend actions, as when animals engage in "what if" scenarios, such as eye-closing games (Gómez and Martín-Andrade, *PIAC18*; Russon, Vasey & Gauthier, *PIAC17*). Imagination is present by definition in the imaginary companions of linguistically skilled children (Taylor & Carlson, *PIAC12*), referring here to the invented and fictional nature of the companions.

Although external manifestations are not essential for pretense (Lillard, *PIAC7*), outsiders need them to discern pretense. Consequently, observational definitions *require* external manifestation. Pretense often depends on imitation of activities out of context or otherwise different from the original activities (Bates *et al.*, 1979; Bretherton, 1984). Although some require that the imitation be of another's actions (Mitchell, 1987, 1990), others acknowledge that more rudimentary pretense can involve imitation of an individual's own actions (Groos, 1898; Piaget, 1945/1962; Bretherton, 1984; McCune & Agayoff, *PIAC3*). Children's earliest pretenses appear to be imitations of their own activities (self-pretenses), but this priority is questionable (Bretherton, 1984) as some research suggests a simultaneous occurrence of imitation of self and others in the earliest pretenses (Guillaume, 1926/1971; Lowe, 1975; Fein & Apfel, 1979a). Whether self-pretense occurs in animal play requires exploration (Gómez & Martín-Andrade, *PIAC18*); though it seems common in deception and teasing (Mitchell, 1994a), authors disagree as to whether these manipulations are pretense (Russon, *PIAC16*) or not (McCune & Agayoff, *PIAC3*).

Similarity and simulation

Recognizing pretense requires knowledge of the relationship between the pretend "copy" and its "model." Discerning this model (or that there is a model) often relies upon knowledge of regularities (norms) of behavior, whether the behavior is bodily action (see Gómez & Martín-Andrade, *PIAC18*), language (Veneziano, *PIAC4*), or other cultural phenomena (Fein, Darling & Groth, *PIAC10*). In some pretenses the model is purely imaginary, such that there is no externally observable model (Taylor & Carlson, *PIAC12*), and in others the model is used as only a springboard for

inventive and imaginary characterization (see discussion in Harris & Kavanaugh, 1993). Language users can talk to clarify what their pretenses are about, and in the middle of their second year children discover the need for clarification (Veneziano, *PIAC4*). With nonlinguistic organisms, pretense can be detected only if an observer can recognize an intended similarity between the pretend copy and the model (Fein & Moorin, 1985; Mitchell, 1987; McCune & Agayoff, *PIAC3*).

Concern with similarity between pretenses and their models is prominent in Bateson's (1955/1972; 1956) notion of metacommunication in play and Grice's (1982) ideas about the evolution of non-natural meaning (Mitchell, 1991a; *PIAC2*). In Bateson's conception, organisms recreate activities in such a way that simulation (something's being designed to resemble something else; Mitchell, 1991a, 1994a) is obvious as such; in Grice's conception, they produce intentional simulation for recognition as such. Grice imagines organisms producing simulations (of actions with "natural" meaning) for or as communication (thereby creating "non-natural" meaning), suggestive not only of representation, but also of understanding other minds (Mitchell, 1987, 1990, 1991a, 1994a). Metacommunication (intentional or not), implicit in orangutans' acting "nicer" than usual or being otherwise different from normal, directed Russon (*PIAC16*) to the pretend nature of these actions. Similarly, metacommunication is present in exaggerated actions by children and chimpanzees (McCune & Agayoff, *PIAC3*). Non-natural meaning occurred in metacommunicative pretenses by a chimpanzee who "offered his leg in an exaggerated way to his partner . . . and then feigned effortful attempts to run away" to instigate playchase with a playpartner who engaged in leg-pulling (Tomasello *et al.*, 1985, p. 181), by chimpanzee mothers who slowly reenacted their own nut-cracking techniques for their infants (Boesch, 1991a), and by a young bonobo who "made twisting motions toward containers . . . he needed help in opening . . . , or made hitting motions toward nuts he wanted others to crack for him" (Savage-Rumbaugh, 1986, p. 386).

Bateson's ideas are expanded by Reynolds (*PIAC14*), who argues that primate social behaviors are based on simulation of innate behavior patterns, which are "redeployed in a symbolic manner." This simulative propensity is taken to the extreme in synchromimesis, in which individuals produce highly similar behaviors simultaneously – a phenomenon common in humans (Hatfield, Cacioppo & Rapson, 1994), but also present in other socially sophisticated animals such as dolphins (Fellner & Bauer, 1999). Like

Reynolds, Zeller (*PIAC13*) maintains that macaques engage in self-simulation and recognize the effects that repetitions of their actions have on other monkeys (particularly in deception), although she acknowledges that they provide few examples of either imitation of others or pretense.

Similarity seems to be an essential aspect of pretense for children. In now classic experiments, Lillard told children that a doll Moe is hopping like a rabbit but the doll does not know what rabbits are and is not trying to act like a rabbit. When she asked whether the hopping doll is pretending to be a rabbit or not, most children from 3 to 6 years of age claimed that he is (Lillard, 1993b). These and other data (Harris & Kavanaugh, 1993; Lillard, *PIAC7*) suggest that children for some time are unaware of mental aspects of pretense and see pretense as a form of action: "acting as if." By contrast, other studies suggest that even young children are aware of some mentalistic aspects of pretense (see discussion in Woolley, *PIAC8*; Taylor & Carlson, *PIAC12*). To my mind (and Lillard's) these studies instead suggest that children distinguish pretense from reality – a distinction which (suggest McCune and Agayoff, *PIAC3*) might not be of much concern to animals (however much distinguishing between other animals' feigned and natural actions is).

Although children show greater success on tasks similar to Lillard's "Moe task" which rely less on language and which depict mentalistic and action components more deliberately (Woolley, *PIAC8*), these changes alone cannot explain children's typical failure on the Moe task because children often succeed on Lillard's task when they themselves are the purported "pretenders." I replicated aspects of Lillard's studies but replaced Moe with the child him/herself or another person. Children (aged 4.5–6.5 years) generally succeeded at recognizing that they themselves were not pretending (even after watching their movements in a mirror) when their actions were described as looking like those of a (real or fictional) animal (e.g., a cat reaching for a ball). However, as with Moe, these children generally failed to recognize that another person was not pretending when that person's actions were described as looking like those of an animal (Mitchell, 2000). In fact, these children's attributions of pretense were directly related to their attributions of similarity between the action produced and the purportedly similar action. Children who agreed (or disagreed) that an action looked like a purported pretend action tended to agree (or disagree) that the action was pretense; the self/other difference in pretense attribution resulted because children tended to agree more that another's actions looked like an animal's actions, than that their own

actions did (Mitchell & Neal, 1999; Mitchell, 2000). Variations on Lillard's studies (Woolley, *PIAC8*) often show greater success by young children when the doll's actions are similar to two potential models (only one of which the doll knows about), and children are forced to choose which model the doll is pretending about, thereby precluding the use of similarity to detect pretense.

Young children's sensitivity to similarity is present not only in their attributions of pretense, but also in their self-simulations, imitations of others, and even the objects with which they pretend. Children initially (prior to age 3) prefer to pretend with objects that prototypically resemble real objects more than with ones that do not (El'konin, 1969; Elder & Pederson, 1978; Jackowitz & Watson, 1980; Fein, 1981; Pederson, Rook-Green & Elder, 1981; Fein & Moorin, 1985). Learning and culture influence the recognition of resemblance (see Davis, 1986; Walton, 1990; Mitchell, 1994a; Noble & Davidson, 1996), and sometimes even strong similarities are not enough for young children (or apes) to recognize resemblance outside pretense (DeLoache, 1991; Boysen & Kuhlmeier, *PIAC15*). Objects that look like other things to players stimulate them to inquisitively try out using these objects as if they were these things (Fein & Apfel, 1979a; Musatti & Mayer, 1987) – a phenomenon Lorenz (1950/1971) detected in animals' object play. While noticing similarities is widespread among animals (Guthrie, 1993; Fagot, 1999), creating resemblances is not (Mitchell, 1991a).

The fact that creating and using resemblances is common in human experience suggests that it may have had an important place in human evolution. Indeed, in his discussion of the origins of human image-making, Davis (1986) suggests that accidental recognition of resemblance and subsequent attempts to recreate or develop the resemblance induced (some) hominids to arrive at the idea that a mark (e.g., a curved slash in a cave wall) could represent something else (e.g., a horse) (see also Dowson, 1998). (A similar recognition sometimes occurs for children in their scribblings; Luquet, 1927.) This recognition of resemblance between divergent things indicates *seeing* or *experiencing* something *as* something else. Recognizing and recreating resemblance can occur with any medium – including bodily actions, gestures, and sounds (Davis, 1986) – and has considerable consequence, in that it allows organisms to *experience* something *as* something else – a doll as a baby, a stick as a horse, another's bodily actions or gestures as one's own – which is essential for pretense (Mitchell, 1994a).

Resemblances acted out bodily or affirmed for things can turn bodies and things into objects of imagining, props for games of make-believe (Walton, 1990). To know that something is a prop for an organism, that something is experienced as something else, requires some knowledge of the possibilities of what the prop could be experienced as. Specifically, we expect that organisms must have experience of real things in order to represent them in pretense. Consequently, we need to know behavioral patterns of individuals intimately before we can begin to interpret what their actions are simulating (Köhler, 1925/1976; Davis, 1986; Mitchell, 1986, 1987, 1994a). This knowledge is exactly what several authors provide given their intense involvement in the lives of their subjects (e.g., Goodall, 1973; Miles, 1986; Veneziano, *PIAC4*; Zeller, *PIAC13*; Russon, *PIAC16*; Gómez & Martín-Andrade, *PIAC18*; Matevia *et al.*, *PIAC21*).

Detecting the similarity between animals' and young children's actions and their models seems relatively easy given that the possibilities in their experiences appear limited and saliently related to recurrent experiences (Fein & Moorin, 1985; Mitchell, 1994a; Miles, Mitchell & Harper, 1996), but more is needed for evidence of pretense – the similarity must occur out of context, that is, be "decontextualized." When animals repeat their own behaviors, such as repetitively rolling down a hill, they engage in self-imitation, but self-pretense requires that they reproduce their own behavior in appearance only – usually in a new context or for a new purpose. This is why deception, in which actions are used in new contexts, seems particularly relevant to pretense, and why its usefulness might have created an evolutionary context from which skills at pretense could develop (Mitchell, 1994a; Russon, *PIAC16*). Repeating others' behaviors, by contrast with self-simulation, seems more like pretense, in that the reenactment of the behavior is immediately decontextualized. The development from recreating one's own actions to recreating another's exhibits "decentering," a movement away from oneself as the center of action (Fenson, 1984; Musatti & Mayer, 1987; Lyytinen, 1991). Recreating one's own or another's behavior in a new context may be only a preliminary stage in the development of pretense, a precursor ("re-presentation" – Bates *et al.*, 1979) necessary for eventual representation (Piaget, 1945/1962; Gómez & Martín-Andrade, *PIAC18*).

McCune & Agayoff (*PIAC3*) acknowledge pretense only when activities "evoke" other activities experienced by the pretender, rather than recreate these activities for "practical goals" (as in deception). Similarly, Harris & Kavanaugh (1993, p. 72) distinguish children's indication of something

via iconic representation from deception. In their view, "during pretense, a signifier (lying down, closing their eyes momentarily) does not signify the real act of sleeping. Even though it may be inspired by and [be] a partially accurate reproduction of the real act of sleeping, it can still be a piece of make-believe in that it stands for a fictional act of sleeping." By contrast, in deception, as when a child pretends to be asleep in hopes of seeing Santa Claus, the child is representing real sleep: "the child is pretending to be asleep in order to convey to Santa Claus that he or she is really asleep." In effect, deceiving organisms must produce an appearance closely matched to the modeled activity (avoiding metacommunication), whereas pretending organisms need only produce an aspect of the modeled activity, without regard to exact correspondence, to evoke the idea of it (which is inherently metacommunicative) (Mitchell, 1986, 1987, 1991a). Still, both pretense and deception evince abilities for simulation suggestive of an understanding of their underlying fictionality (Reddy, 1991; Mitchell, 1994a, 1996). The usefulness of pretense in deceit may constrain nonlinguistic organisms to recreate more exact, rather than more imaginative or evocative, replications, for more effective deception.

The complex deceptions among wild apes suggest that human enculturation is not essential for the expression of complex cognition in apes (Russon, *PIAC16*, citing Whiten & Byrne, 1991). However, even those rare cases of deception by apes which strongly suggest "higher" cognition (Whiten & Byrne, 1988; Byrne & Whiten, 1990) offer ambiguous evidence of it (Mitchell, 1988, 1993c, 1997c). I suggest that, instead of complex metarepresentational abilities, knowledge structures concerning action–reaction regularities in their experience ("scripts") explain almost all deceptions by apes, whether human-reared or wild, as well as nonlinguistic deceptions by young children (Mitchell, 1999a). Indeed, highly complex deceptions show integration among various scripts in much the same way that complex pretenses do (Nicolich, 1977; Fenson, 1984; McCune & Agayoff, *PIAC3*). As Russon (*PIAC16*) shows, little exposure to action–reaction sequences is necessary for orangutans to recognize which of their own actions they must repeat to deceive. For apes and young children, sometimes one experience is enough to recreate it, indicating rapid script development (Mitchell, 1999a). Adult human deceptions also depend upon scripts, but their more elaborate deceits require extensive use of props and numerous steps in their planning, a pretending perhaps beyond that of apes (Mitchell, 1996, 1999a). Even by 2.5 years of age children, enabled by their elaborate linguistic skills, begin to have deceptions

"too complex to be merely behavioural routines" (Newton, Reddy & Bull, 2000, p. 313). Likewise, in pretend play development, children at this age and older appear to be examining more and more elaborate possibilities inherent in scripts and invented plans (Fein & Moorin, 1985; McCune & Agayoff, *PIAC3*).

Deceiving animals clearly recognize the usefulness of enacting a script in a never-experienced-before context, which implies attentiveness to the possibilities of their current situation (Russon, *PIAC16*). Such "decontextualization" suggests that their behavior is "detached" from its typical real-life supports (Fein & Moorin, 1985). Still, deceiving animals (and young children) may initially learn the action–reaction regularities embodied in scripts without attention to other contextual specifics, such that any contextual novelty may be in the eye of the observer, not the deceiver (Miles, 1986; Mitchell, 1986). In effect, the deceptive act may be experienced as identical to the "real" act for the deceiver, who does not think that the deceptive act *represents* the real act. Similarly, young children may be able to find a hidden object in a room from its location in a photograph of the room (because the photograph is "identical" with the room), but have trouble finding the hidden object when shown its location using a miniature replica of the object in a scale model *representing* the room (DeLoache, 1987; see Boysen & Kuhlmeier, *PIAC15*). Actions used to deceive, and photographs used to show an object's location, can be viewed as "the same thing," not as representations. (Indeed, children and apes sometimes attempt to listen for sounds from photographs of sound-producing objects; see Mitchell, *PIAC2*.) Describing deceptions (or pretenses) as symbolic or complexly representational requires knowing that animals recognize that their actions stand for other actions, not only recreate them in hopes of their having similar consequences. For such knowledge, one needs to look at the development of an organism's simulations (Fein & Moorin, 1985; Davis, 1986; Mitchell, 1986, 1993c, 1997c).

Development: symbols and language

> A child must have developed far before it can pretend, must have learned a lot before it can simulate.
>
> (WITTGENSTEIN, 1949/1992, p. 42e)

In Piaget's (1945/1962) view, symbolic pretense derives initially from imitation of self which extends to others over the course of sensorimotor development. McCune & Agayoff (*PIAC3*) elaborate this view for the