

Getting back to the rough ground: deception and ‘social living’

Vasudevi Reddy*

*Department of Psychology, University of Portsmouth, King Henry Building, King Henry 1st Street,
Portsmouth PO1 2DY, UK*

At the heart of the social intelligence hypothesis is the central role of ‘social living’. But living is messy and psychologists generally seek to avoid this mess in the interests of getting clean data and cleaner logical explanations. The study of deception as intelligent action is a good example of the dangers of such avoidance. We still do not have a full picture of the development of deceptive actions in human infants and toddlers or an explanation of why it emerges. This paper applies Byrne & Whiten’s functional taxonomy of tactical deception to the social behaviour of human infants and toddlers using data from three previous studies. The data include a variety of acts, such as teasing, pretending, distracting and concealing, which are not typically considered in relation to human deception. This functional analysis shows the onset of non-verbal deceptive acts to be surprisingly early. Infants and toddlers seem to be able to communicate false information (about themselves, about shared meanings and about events) as early as true information. It is argued that the development of deception must be a fundamentally social and communicative process and that if we are to understand why deception emerges at all, the scientist needs to get ‘back to the rough ground’ as Wittgenstein called it and explore the messy social lives in which it develops.

Keywords: communication; deception; human infants; pretence; social intelligence; tactical deception

I have often thought that all philosophical debates are ultimately between the partisans of structure and the partisans of ‘goo’.... We must be aware that today, the particular academic and scientific fashion leans heavily in the direction of structure and nominalism.

Alan W. Watts 1965. *The Individual as Man/World*.

The more narrowly we examine the actual language, the sharper becomes the conflict between it and our requirement. (For the crystalline purity of logic was, of course, not a result of investigation: it was a requirement.) The conflict becomes intolerable; the requirement is now in danger of becoming empty. We have got on to slippery ice where there is no friction and so in a certain sense the conditions are ideal, but also, just owing to that, we are unable to walk. We want to walk: so we need friction. Back to the rough ground!

(Ludwig Wittgenstein 1953),
Philosophical investigations, S 107.

1. ROUGH GROUND, GOO AND SOCIAL LIVING

Social living is as rough and ‘gooey’ as you can get. By virtue of its infinite variety (because it is indeed ‘living’ and creative), it defies logical reduction, mocks at frequency counts in its celebration of the unique and the unusual, and is inherently relational even in the question of its visibility to others. Its importance was highlighted explicitly in Humphrey’s (1976/1988)

argument that the ‘complexities of social living’ must be an ‘adaptive force in the development of intelligence’. But even a century ago, Dewey (1910), Baldwin (1909), Mead (1934) and others put social ‘action’ at the heart of the matter, arguing that from a Darwinian perspective, psychology had to be a ‘social’ psychology. Sound biological reasons support these calls to focus on social living: if intelligence *matters* it can only really matter in the ‘wild’ as it were. If we are to take social intelligence on board, then, knowing and understanding the goo of social living *must* be our prime task.

There are two senses in which the complexity that surrounds social living is important for us as scientists. In one sense, the gooeyness and impurities of everyday life are often seen as impediments to the scientist trying to study his/her phenomena. They are the ‘noise’ in the recording of the data that stops us from seeing the phenomena clearly, or the uncontrollable *contextual* variations and influences that stop us from ascertaining the ‘essence’ of the phenomena with certainty, or the *rare* occurrences that defy our insistence on replicability and inferential statistics. In another sense, however, and much more importantly, goo is what makes the phenomena *happen*, and trying to circumvent it in our theories by looking for the essence or the pure forms of phenomena stops us from understanding them at all. The mess of social life, I am arguing, is precisely what is needed not only for social intelligence to show itself, but also to develop at all. Wittgenstein’s call to arms on attempts to find the pure forms and essences of language (or in this case of social intelligence) argued that when we refine and purify the logic and

*vasu.reddy@port.ac.uk

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requirements for phenomena and find them only unsatisfactorily met on the ground in action, we end up with a problem. The ‘requirements’ as he calls them, which are a result of *logic* rather than empirical *investigation*, become ‘empty’. We would have purified the conditions for the phenomena so much that they cannot actually happen (a lesson well learned in artificial intelligence). Like perfecting all the conditions for walking by removing all sources of impediment and friction, we end up actually being unable to walk because the impediments, the friction, are precisely what we need in order to walk. In both these senses, we need the goo. We need, as Wittgenstein put it, to get back to the rough ground.

While the ethological tradition has always taken goo seriously with the clear conviction that the key to making sense of behaviour lay in its function ‘in the wild’, developmental psychology, despite its avowed interest in the social, has largely gone down a different path (see Carpendale & Lewis (2004) for one recent attempt to change its direction). As someone who has been up to my neck in goo for approximately 20 years, as a participant observer of infants and mothers in everyday life, dealing with small samples and frustrating rare examples of phenomena (and coming up repeatedly against things of which infants are not ‘supposed’ to be capable), the case for prioritising real-life deception seems overwhelming. In this paper, I explore the emergence of deceptive communication in human infancy. In §§3 and 4, I report two studies presenting the empirical challenges to a ‘clean’ theory-driven approach to the emergence of verbal lies (Newton *et al.* 2000). In §5, I apply the Whiten and Byrne functional taxonomy of tactical deception (Whiten & Byrne 1988; Byrne & Whiten 1990, 1992) to data from studies on early, often non-verbal, communication, which—although not explicitly focused on deception (Dunn 1988; Reddy 1991, 1998)—show surprising results about its early manifestations. In §6, I discuss continuities and parallels between truthful and false informing, challenging the idea of an early inability to deceive. In §7, I attempt an affective and engagement-based explanation of the development of deceiving. But first, in §2, I explore why the practice of deception (rather than its theoretical logic) needs to be given primacy.

2. TAKING DECEPTION SERIOUSLY

Deception has been central to many studies in the study of social intelligence because it seemed to be the epitome of intelligent social action: the natural ‘counter intelligence’. But having started from Robert Mitchell’s beautiful descriptions of deceptive encounters between dogs and humans (Mitchell & Thompson 1986) and a spectacular corpus of reports of tactical deception in non-human primates (Whiten & Byrne 1988; Byrne & Whiten 1990), something strange happened to the study of deception. In developmental psychology, it became, one might say, hi-jacked by a very specific logical idea—false beliefs. Defined almost exclusively as an action directed at the creation of false beliefs in others, the study of deception became ‘refined’ to

the point that its rather messy occurrences in actual social life were an embarrassment rather than an objective. Today, we have not anywhere near a corpus of data as comprehensive for deceptive acts in human infants and toddlers as we do for non-human primates. Real examples of deception, far from being the *object* of our inquiries, became secondary to the theory.

The following quote captures this primacy of theory and logic in the identification of deception particularly clearly:

The *when* can a child lie question is answered by understanding the child’s mind to determine whether or not the child has the capability to lie, and at what age he or she gains this ability. If a child *can’t* lie, then the question whether he or she *will* lie becomes irrelevant. It is only at the age in which the child *can* engage in a particular kind of lie does the *will* he or she lie question become relevant.

(Frank 1992, p. 135)

The ‘when can’ question has not, however, been answered with any confidence, and the notion of false beliefs has been regularly redefined. Such a position, of course, holds to a clean distinction between competence and performance, neglecting the situatedness of intelligence. Within this approach, when real life data are discrepant in terms of the theory it becomes easier to dismiss the data and combined with the tendency to redefine the phenomena of interest (such as what is a lie) in terms of the theory, we get ‘pseudo-phenomena’. In the past hundred years, there has been quite a collection of these in developmental psychology ranging from pseudo-deception and pseudo-lies (Stern & Stern 1909, cited in Piaget 1932/1977; Perner 1991; Newton 1994) to pseudo-conversation (Kaye 1982), pseudo-repairs (Shatz & O’Reilly 1990), and so on (see Reddy & Morris 2004).

The criterion for pseudoness seems to derive not simply from a general mis-fit with theories, but from a specific assumption of dual process in intelligent action—the assumption that there is first an internal mental representational process followed by an external behavioural process (Ryle 1949; see Sharrock & Coulter (2004) for a discussion). Given this assumption, the ‘real’ criterion for intelligence necessarily shifts away from action: it is the internal process in which we become interested. However, the evidence for thinking of cognition as internal and necessarily detached and separable from action is as questionable as is the evidence for separating mental processes from the bodily (see also Barrett *et al.* 2007). The more we focus on the internal, the more blind we become to the availability of intelligence in action itself. Our touchstone becomes logical schemata rather than the *functioning* of intelligent action in real life. This must be a dysfunctional slippage, and certainly goes against the grain of the social living enquiry!

In §3, I will describe briefly the predictions about the occurrence of deception drawn from the idea of false beliefs and then describe a challenge to this idea from two studies conducted by my student Paul Newton (Newton *et al.* 2000) of deception in the home by pre-school children too young to pass false belief tasks.

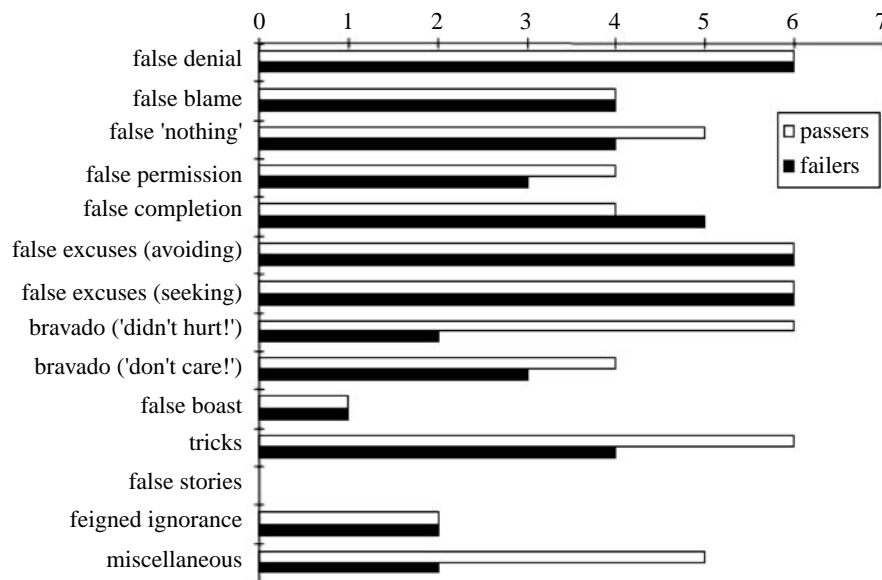


Figure 1. The prevalence of different forms of deception in 'passers' and 'failers' of false-belief tasks (number of 'passers' and 'failers': $n = 6$ in each group; secondary and primary data combined.) Reprinted from Newton *et al.* (2000), *British Journal of Developmental Psychology* 18, 297–317.

3. LIES BEFORE FALSE BELIEFS?

The theory of the theory of mind argued strongly for a fundamental cognitive transformation at around 4 years of age: 'after that, but not before, children grasp that people can entertain a counter-factual state of affairs, and mistakenly regard that as the actual state of affairs' (Sodian *et al.* 1991, p. 469), and it is only at this stage that 'tricks, secrets and lies become possible' (Olson 1988, p. 424). There were strong reasons for the claims: first, there was *a priori* logic (Flanagan 1992) and the fact that three year olds failed false belief tasks (Perner *et al.* 1987) even when administered by parents sceptical about the possibility of their failure at this task (V. Reddy 1989, personal observation); second, the finding that three year olds in experimental tasks of deception seemed *unable* to 'point out the wrong window' to an experimenter despite intense frustration at repeatedly losing the 'reward' of a chocolate trial after trial (Russell *et al.* 1991), although they were capable of physically sabotaging a competitor's success (Sodian 1991, 1994); and third, the remarkable set of findings that high functioning children with autism failed 'theory of mind' tasks (Baron-Cohen *et al.* 1985) and were reportedly unable to lie. In addition, three year olds did not seem able to understand lying in others (Coleman & Kay 1981¹) and even parents (when asked to report in general and retrospectively) reported low frequencies of different forms of lying before 4 years of age (Stouthamer-Loeber 1991), although when asked to actually observe and report on their three year olds' *current* deceptions, they did label them deceptive (Newton 1994).

In the face of all this, the 'anecdotal' evidence of verbal lies told by children too young to understand false beliefs (Dunn 1988; LaFreniere 1988; Triplett 1900; Sullivan & Winner 1993) seemed questionable. Even experimental evidence of deception in two and three year olds (Chandler *et al.* 1989; Chandler & Hala 1991) seemed dismissible on procedural grounds.

More recently, however, it has become clear that even by 2½ years of age, and despite not passing false belief tasks, children engage in a range of intentional verbal falsifications of reality. In one study, we trained parents to observe and record their children's verbal lies on dictaphone and interviews over a six-month period and compared these with success on a battery of false belief tasks; in another, we observed in more detail the lies of one two and a half-year old over a six month period (Newton *et al.* 2000).

As can be seen in figure 1, the lies of 'passers' (those who passed all four tests) did not differ in the range of verbal falsehoods from the lies of 'failers' (those who failed all four). Neither, as seen in figure 2, did the prevalence of lying differ between 'developers' (those who failed all four at start but passed all four at the end of study) before and after they passed the test battery. Passing and failing the false belief test was irrelevant to the nature or complexity or variety of lies they told. These findings were supported by a further study (Wilson *et al.* 2003) of videotaped observations of family interactions involving two siblings and at least one parent. Even on brief two hour visits, lying was observable in the home in (two-thirds of the sample of) two and a half year olds far too young to pass false belief tasks. The range of motives in these early lies are broad and not dissimilar to those of adults (Lippard 1988) with the exception of lies to protect other people's feelings (or white lies, which do not appear to emerge until approximately 5 or 6 years of age; Saarni & von Salisch 1993).

4. SIMPLICITY, RIGIDITY AND IMPLAUSIBILITY IN EARLY LIES? THE CASE OF BRAVADO

The intellectual significance of lies occurring before the understanding of false beliefs is usually challenged on three sorts of grounds: simple defensiveness and materialism of *motive*, implausibility and inappropriateness of *content*², rigidity³ and simplicity⁴ of *form*. I will

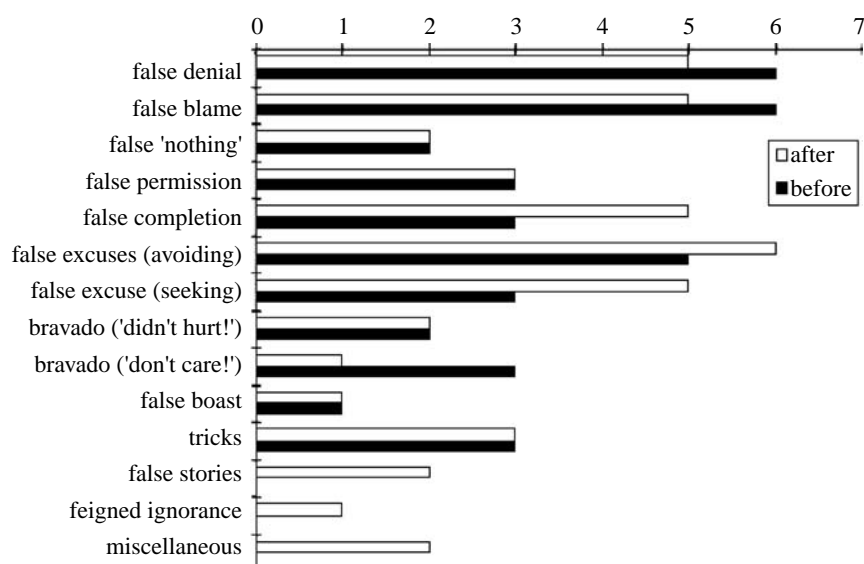


Figure 2. The prevalence of different forms of deception in 'developers' ($n=6$) before and after passing the false-belief task battery (secondary and primary data combined). Reprinted with permission from Newton *et al.* (2000), *British Journal of Developmental Psychology* 18, 297–317.

consider one category of lies—bravado or face-saving lies—to counter these challenges. These lies, occurring even in some two and a half year olds, are interesting not only owing to their non-material motive, but because they are complex and creative, and because they cannot have been learned as simple formulae or rules, rigidly applied. In fact many categories of lies in three year olds are often elaborate, and go way beyond single-word formulaic denials. Bravado can involve a verbal falsification of desire (emotion about the future), pain (current emotional/feeling state), or shared reality (past factuality). A fascinating power play is evident in these instances, where the child is either denying the experience of the pain being intentionally inflicted on him or her by a parent, or denying the desire for something that he or she has no further hope of obtaining, or re-describing a reality which was detrimental to the child's ego and image of competence. In §5, some examples from a more substantial database of early lies (Newton 1994) are described in order to illustrate and bring to life the different types of bravado or face-saving lies.

Parents' descriptions of what might be called 'Doesn't hurt' bravado were on occasion heart-rending. Take for instance the following:

You can smack her legs until they're red raw, and if she's in one of her wilful moods she'll go: 'Didn't hurt!'. On a couple of occasions when she's been threatened with a good hiding for misbehaviour she's even dropped her trousers for you. The other day she did this and then said 'It dun't hurt!'.

(Newton *et al.* 2000, Study 1)

Not all occurred in such emotionally charged situations. Some were in more minor conflicts such as the following:

(He) had been playing on top of a table, despite having been warned that he would hurt himself, when he fell and appeared to cause himself pain. M reminded him, 'I told you you'd get hurt' to which he 'forced' a laugh and replied 'It didn't hurt!' M could tell that it had hurt

because (he) had fallen with quite a force and was biting his lip.

(Newton *et al.* 2000, Study 1)

In addition, there was also what might be called 'Don't care' bravado. Here's a subtle one:

(She) had recently been bought a toy spider, unfortunately she hated it and wouldn't go near it. Because (she) was being particularly naughty, F threatened her 'If you don't behave I'll get that spider out!' She replied 'I don't care, I've been playing with it all day'. M (who had been with her all day) noted that she had never played with the spider and had not been near it that day, let alone played with it all day.

(Newton *et al.* 2000, Study 1)

The face-saving lies in the two and a half year old (Newton *et al.* 2000, Study 2), motivated by a desire to be seen to be right—showing what might be called 'I was right' bravado—were even more subtle. Take this attempt to alter shared memory of past reality:

It was early morning and S (sibling) had been staying overnight at a friend's. I was still in bed when R came in and asked me 'Shall we go and pick up S in a minute?' Contradicting him, I said 'No, no. Not in a minute. Later.' R exclaimed 'I said 'shall we go and pick up S later on', that's what I said. I said 'shall we go and pick up S later on?'. This incident struck me and after a few minutes I asked him again 'What did you say?' He answered 'I already said, 'shall we go and pick up S later', I said'.

(Newton *et al.* 2000, Study 2)

That there was no question of confusion about reality in this child can be seen by the fact that this example was not isolated; there were others by the same child—uniquely different—but seeking the same ego-defence (Newton 1994). In some cases, the lie was even acknowledged with a laugh when it failed.

Bravado lies were neither rigid in form (often involving several words rather than simple 'yes'/'no'/'nothing' forms), nor formulaically learned (they

were all unique examples), nor simply materialist in motive (involving in some cases, misrepresentation of feelings and desires). And, like other lies, they often extended over several conversational turns, adapting to disbelief and challenge, as in the following apparently pointless lie (from Study 1, Newton *et al.* 2000) in the face of an anxious father looking out for the postman: 'The postman's already been', 'No, he hasn't', 'I saw him go past', 'No, you didn't', 'I did, I did, he came when you were upstairs'. Just at the point when the parents were beginning to believe it, the child blew it at the last minute by adding 'He brought something for me'. Simplicity and rigidity of form was certainly not this child's problem! Although such elaborations do increase with age, an observational study by Wilson *et al.* (2003) showed that there was no difference between two and a half year olds and four year olds in their use of simple denials—in fact, these increased with age! Further, children's lies are not generally reinforced by success (Wilson *et al.* 2003), suggesting that learning formulae for tricking people cannot be as easy as all that!

Early lies do not even appear to be so implausible. Newton (1994) examined 'false blame' lies in detail for implausibility. While 9 of his 24 children did, at least once, blame a toy (implausibly) for a misdemeanour, only three children did this more than once, and except for one child, false blame was most frequently (and not implausibly) directed at siblings. The one exception was a child with no siblings, who on two occasions blamed an imaginary friend and a toy. Most interestingly, of these nine toy-blaming children, eight had passed at least two of the false belief tasks! Similarly, Wilson *et al.* (2003) found only two examples of implausible lies in their observational records: both were from the group of four year olds rather than from the two and a half year olds! One could argue that the real challenge to the claim that these are indeed lies should be inappropriateness (to the purpose) rather than implausibility. After all, plausibility depends on how much information you have about various aspects of the world rather than either your intent to deceive or the creativity of your lie. In Newton's corpus of lies which included a whole set of false excuses, most were reasonably appropriate. There was just one rather dubious one—a child trying to avoid going to bed by using the excuse 'I've got a sore throat' (similar to the now famous 'Can't go to bed because I am too tired' example from Perner 1991). Here is an example of a lie at 2 years and 5 months, completely implausible, but (potentially) perfectly 'appropriate'!

I returned home with the children as their uncle and aunt arrived for the weekend. After a brief chat the aunt asked 'Where's your daddy?' R chattily volunteered (with no evidence) 'He's upstairs'. A little later his father's voice was heard coming from the backdoor (rather than from upstairs). R said immediately 'My other daddy's upstairs'. His aunt (who had forgotten his previous statement) looked puzzled. I started laughing, realizing the purpose of his statement (and there was indeed no one else upstairs!).

(Newton *et al.* 2000, Study 2)

A preoccupation with the logic of false belief understanding has generally precluded an exploration of such everyday lying (but see Astington (2003) for a re-assessment). With the recent finding that even 15 month olds appear to pass a false belief task (Onishi & Baillargeon 2005; although see debate between Ruffman & Perner (2005) and Leslie (2005)) the possibility of genuine deception in everyday social life becomes important not only in pre-schoolers, but also in infants and toddlers.

5. DECEPTION BEFORE LYING: TEASING, CONCEALING, DISTRACTING AND PRETENDING

So what happens before two years of age? There is a distinct paucity of information. While there is an impressive corpus of data from the social lives of non-human primates, encompassing a range of deceptive encounters including what could be called teasing, pretending, concealing and distracting (Whiten & Byrne 1988; Byrne & Whiten 1990), there is no equivalent information for human infants and children. Whiten and Byrne's functional definition of tactical deception⁵ allowed them to bypass the issue of knowledge of false beliefs and take a much broader look at non-human primate deception in real social situations than has happened in studies of young children (but see Dunn (1988) and Reddy (1991)).

I attempt below to adapt this functional taxonomy of tactical deception to human infants. I use data from two studies exploring teasing and interpersonal play in infants from 7 to 12 months (Reddy 1991) and from 8 to 24 months (Reddy 1998), other observations (Dunn 1988) as well as data from the explicit studies of deception discussed above (Newton *et al.* 2000). Compared to the non-human primates, there were differences in the prevalence of different kinds of deception, necessitating the addition of one new subcategory (*creating an image of self-competence*) and the adaptation of two others (*creating an affiliative image* and *creating a threatening image*) to the rather different kinds of examples in infants than typically found among other mature primates. In addition, I included a further subcategory: *passive hiding*. In general, however, many of the infant examples found ready parallels in the Whiten & Byrne corpus and I found it remarkably easy to apply the taxonomy to infant behaviour.

In their second round of classification, Byrne & Whiten (1990) report three aspects of an interaction for inclusion as tactical deception: 'an animal being made to misinterpret the situation', 'by an agent who benefits from the misinterpretation' 'using a behaviour deployed tactically—that is, not in the normal and expected way for the species'. The different worlds that human infants live in (safe, supportive and often well resourced), their relative lack of motor skills, mobility and power to act independently, as well as the much richer information available about their behaviour (reported in detail from the recipient's and partner's perspective and including fuller developmental histories than usually available in the non-human primates, with the exception of human-reared animals) necessitated an adaptation of these criteria.

I adapted the first criterion to include *potential* misinterpretations. A parent is unlikely to be fooled for long by infant deceptiveness in the same way as might one mature animal by another. Rather than attempt to include only successful deceptions (which would create its own paradox), I included those acts where the misinterpretation was brief or at least possible according to parental report. Most importantly, this criterion ensures that the act is not merely socially manipulative or involving of 'above board' bargaining or trading. The recipient must be deceived into enabling the reward rather than merely allowing the reward. In the case of human infants if, for example, an apparently tricky or deceptive act always leads to a certain reward or outcome, there would be good reason to argue that the act is not deceptive at all. If a mother regularly kissed her baby whenever he pointed to things, there would be no deception involved in pointing for a kiss unless the pointing actually 'meant' something else (in previous interactions).

The second criterion was non-problematic other than in the determination of 'benefit'. What counts as benefit for a human infant? While the sexual and food-related struggles of the mature non-human primates were irrelevant here, there were several others that were easy to identify: being allowed to do what they want to do; eating what they want to eat; getting parental attention when they want it; avoiding being interrupted when busy; getting the emotional reactions they want from others; feeling successful or amused, and so on. The difference lay in the extent to which these 'benefits' involved play and fun rather than simply serious rewards.

The third—and most important—criterion required a judgement about what is 'normal' for the infant rather than the species, and in this case included some additional checks. Playful acts which had become normal for the infant (even though they might in other circumstances be deceptive) were excluded—such as tricks which had become routines and were part of an established game. With infants (given the different nature of the information) it was often single acts which were more convincing than the repeated use of a tactic. When considering deception in other primates, Byrne (2003) sees the latter as necessary to confirm the tacticalness of an act. In addition, given the immaturity of the infants, I needed to ensure that the deceptive act (whether gesture or word or expression) was also present in its 'straight' form in the normal repertoire of the infants—otherwise its 'mis'-use would not be meaningful. This would exclude playfighting in animals, where the serious version of the act is probably absent from the animal's experience (suggesting that the act itself is above board—a thing in itself). It would also exclude simple provocation—pulling hair, jumping on someone, biting, and some of what Adang (1984) calls 'quasi-aggressive behaviour'.

Table 1 shows the data. I discuss in the sections below, examples from four categories—*concealment*, *distraction*, *attraction* and *creating an image*—where examples were available from early in human infancy. The wealth of human infant examples in *creating an image* made it initially the most difficult category to

apply and highlights potential differences with the data from the non-human primates⁶.

(a) *Concealment*

Passive hiding of forbidden activities was the earliest type of concealment. Eight month-old P, for example, had a passion for shutting the curtain in the living room. He usually waited for his mother to go into the kitchen before approaching the curtain:

... if I just go into the kitchen to get something(he) makes a beeline for the curtain...you can see him looking over his shoulder to see if I'm watching him, and if I tell him from the kitchen 'no' he stops and looks at you and grins for a while... as soon as I've turned my back he makes another move for it.

Mother of P, 8 months, in interview (Reddy 1991)

Whiten & Byrne (1988) may not have included this as tactical deception because it involved avoidance rather than deception (and in the data they had, could have resulted from the desire not to see others rather than not be seen). I do include this category, however, because the situation and the data seem different for infants: it involved forbidden activities, it involved a deliberateness in the waiting until someone was out of visual contact before rapidly engaging in the activity (potentially overlapping with the category of creating an image of neutrality), and because other evidence of simple visual perspective taking from experimental studies at this age suggests that the mother's report—that he looks to see if he is being watched even when she has indeed gone out of the room—suggests that he is seeking to avoid visual attention. And given other evidence from mothers about infants teasing—by doing forbidden things while making sure that they are being watched—this kind of deception, as an attempt to conceal an activity, is not surprising. More *active concealment*, however, such as using the body to screen a forbidden activity from the other's view, may not happen until the second year (some isolated reports at this age; Dunn 1988). Similarly, we know too little about acoustic concealment (doing forbidden things quietly) in infancy—thus far, there are no data to make a judgement on this category.

One interesting category of concealment was the inhibition of attentional response to bids for attention—the 'feigning deafness' or 'ignoring' of social calls—especially when being called while they are doing something they are enjoying, or are doing something that they know they will be stopped from doing. In the presence of clearly audible calling, they can sit silently unreactive, with a stiffened back and rigidly held head belying the unreactiveness. In contrast to the confidence with which parents reported this type of ignoring, there are no reports, until at least the middle of the second year, of infants inhibiting attentional reactions to 'objects' which a competitor might desire. The reason for this difference might well arise from the more distal and triadic nature of acts in which attention to an object must be coordinated with the attention of another person, in contrast to the dyadic nature of ignoring another's bid. This difference is apparent also in the next category—distraction.

Table 1. Byrne & Whiten's (1990) functional taxonomy of tactical deception adapted for human infants and toddlers.

categories and subcategories (Byrne & Whiten 1990)	categories for human infants and toddlers	ages and examples from human infants and toddlers
<i>concealment</i> (of something from another)		
by silence ^a	<i>doing forbidden things quietly</i>	no clear data
by hiding	<i>passive hiding</i> from other's view: waiting until moment parent leaves room to engage in forbidden activity. <i>active hiding</i> from other's view: turning the back or using body to screen forbidden activity or object from other's view. <i>verbal denial</i> of misdeemeanour or forbidden activity or object.	8/9 months waiting until other leaves room before rushing to forbidden activity: eating cheese plant, pulling curtains, etc. (Reddy 1991, 1998) 16 months turning back so that body screens forbidden object or activity from view (V. Reddy 1992, personal observation) 18 months going behind the settee to engage in forbidden activity (pulling at stitches) (Dunn 1988) 2+ years 'What have you got behind your back?' 'Nothing'; several examples (Newton <i>et al.</i> (2000))
by inhibiting interest in object ^a	<i>ignoring other's calls</i> with stiffened and still body	9 months/11 months pretending not to hear or pretending to be deaf when called (either because they are engrossed in a toy, or because doing something forbidden), but holding the body so still and not even turning to the sound, that it looks clearly motivated (Reddy 1991, 1998)
by ignoring		11 months unexpectedly hiding the ball under own legs in a game when expected to roll it back, looking at mother and laughing: not a prior game (Reddy 1998)
by hiding an object		17.5 months calling mother to look at dog in order to repeat playful throwing of gloves (Sully 1896 in Dunn 1988)
<i>disirection</i> (of the other's attention away from a certain spatial locus thus attaining goal at that locus)		
by calling		11 months/13 months staring the other out while performing the forbidden act in surreptitious manner; two examples (Reddy 1998)
by looking ^a	<i>holding the other's eyes</i> while engaging in forbidden activity.	
by threat ^a		
by leading ^a		
by close-range behaviour		
by acquired signing ^a		
<i>attraction</i> (of the other to a certain spatial locus and thus attaining goal at that locus)		
by calling	<i>fake crying</i> (the spatial locus is the self)	8 months/9 months using cries to 'call' the other, with the cries themselves identifiable as 'fake' with non-distressed 'waiting for response'; several reports (Reddy 1991, 1998)
by looking ^a		
by leading ^a		
by close-range behaviour	<i>fake laughing</i> (the spatial locus is the self)	6 months/7+ months laughing in an 'artificial' manner when overhearing other laughing, in 'order to join in' with them, be part of a group; several reports (Reddy 1991, 1998; V. Reddy 1986, personal observation)
<i>creating an image</i> (which conceals the agent's intentions and facilitates attainment of goal: it may be): neutral (to appear of little or no significance to other, e.g. suppressing aggression or 'smiles')	<i>feigning innocence/ignorance</i>	11 months when caught approaching forbidden soil in house plant, waving/scooping hand up, as if pretending not really going to touch it; repeated several times; single report (Reddy 1998) 30 months 'What's happened to this? I don't know.' 'I don't know who messed it (the tidy room) up'; several reports (Newton <i>et al.</i> (2000)) 33 months pretending to clean paint off the TV (to be allowed to remain there) (Dunn 1988)

(Continued.)

Table 1. (Continued.)

categories and subcategories (Byrne & Whiten 1990)	categories for human infants and toddlers	ages and examples from human infants and toddlers
affiliative (to appear to increase affiliation with other, e.g. offer of grooming or of hand before rapid change of action)	<i>suppression of expression</i>	18 months suppression of smile in embarrassment at being seen unexpectedly by large audience or being asked to perform in front of audience (V. Reddy 1992, personal observation)
	<i>feigning offer (playful) of object or of self before withdrawing rapidly</i>	9+ months after evidence of successful offer and release skill, offering and rapid withdrawing of object; several examples around this age and later (Reddy 1991, 1998) 11 months on request to 'come to me' putting hands out to go, then backing off and laughing - a regular game, not shy, and not with new people only, also with mother, father, grandmother, 'just pretending'; single example at this age (Reddy 1998)
threatening (to appear to show a threat to the other)	<i>feigning request (playful) of object, only to refuse it on receipt, then repeating immediately</i>	11 months requesting the juice while mother doing something else, then refusing it when given, and repeated a few times until mother noticed and saw he was looking at her with half smile; single example (Reddy 1998)
	<i>pretend injury (seeking sympathy for self or privilege)</i>	18 months/24 months claiming foot injury 'hurt, hurt' following elder sibling's injury (V. Reddy 1992, personal observation); 'I've got a bellyache' 21 months 'cack' (lying down and gesturing, seeking bath (Dunn 1988) 11 months, 33 months pretend cry when told off (Dunn 1988; Reddy 1998)
self competence	<i>feigning misdemeanour/non-compliance (playful/attention seeking)</i>	9 months pretending going to touch something, not actually wanting to touch it, flicking finger on hot tea cup, etc; several examples (Reddy 1998) 11 months pretending to take bite out of cardboard box; pretending to bash TV; 'almost touching' plant in friend's house (Reddy 1998); pretending to touch cooker (V. Reddy 1992, personal observation) 3 years 'I'm going to write on the floor... only joking' (Newton <i>et al.</i> (2000))
	<i>feigning error (playful)</i>	11 months calling mother 'daddy' (Reddy 1998) 2.5 years 'I dun wee wee here on the wall.' 'It's (the bedroom) there, it's there!' (pointing to the bathroom and grinning); pointing to all the wrong drawers, asking where the pyjamas are, deliberately pretending not to know where they are, and avoiding the one mother was verbally indicating (Newton <i>et al.</i> (2000))
deflection (diverting a threat onto an innocent third-party: may include distraction but goes further to divert an attack, not just attention)	<i>'didn't hurt' bravado denial of pain following smacking for misdemeanour or injury upon doing forbidden act</i>	2.5 years 'That didn't real hurt!'; several examples (Newton <i>et al.</i> (2000))
	<i>'don't care' bravado denial of desire for (desired) object; denial of fear for threatened (frightening) object</i>	2.5 years 'I didn't want it anyway'; 'I don't care, I been playing with it all day' (Newton <i>et al.</i> (2000))
self competence	<i>false boasts claiming possession of object or skill which isn't true</i>	3 years 'I got one of them too'; several examples (Newton <i>et al.</i> (2000))
	<i>denial of error by pretending original action was different, by trying to alter current reality</i>	2.5 years 'My other Daddy's upstairs'; 'I said we'll pick her up later that's what I said'; 'That were me making the noise (not the bowl)' (Newton <i>et al.</i> (2000))
deflection (diverting a threat onto an innocent third-party: may include distraction but goes further to divert an attack, not just attention)	<i>false blame</i>	2.5 years 'Someone else, not me'; 'Carol did it'; several examples (Dunn 1988; Newton <i>et al.</i> (2000)) 3 years false accusation of third person to justify self fantasy (Dunn 1988)

(Continued.)

Table 1. (Continued.)

categories and subcategories (Byrne & Whiten 1990)	ages and examples from human infants and toddlers
using a social tool (manipulating a third-party in order to deliberately influence the other)	
tool deceived ^a	<i>false promise</i> about future act with an object (a physical rather than social tool) 2.5 years 'No...I won't do it again (if you give it to me)' (Newton <i>et al.</i> (2000))
target deceived	<i>false permission-assertion</i> (by another authority figure) 2.5 years 'Daddy said I could'; 'Dad said yes, but ask you as well'; 'Mum lets me walk here'; several examples (Newton <i>et al.</i> (2000))
tool and target deceived	'before she tricks me, I'm going to trick her'
<i>counterdeception</i> (reducing the success of the other's tactical deception; may or may not involve countering deception with deception) ^a	

^a No evidence available in this category for infants and toddlers.

(b) *Distraction*

The category of distraction which Whiten and Byrne call *close-range behaviour* was used in a fascinatingly different way by human infants in the first year⁷. There are examples from only two infants in this category, at 11 and 13 months, but reported to have occurred on a number of occasions:

If you give her toast and she doesn't want it ... she ... she's sneaky, she's very sneaky, she'll sit there looking at you and while she's got your eyes looking at her eyes, she picks it up and puts it under her arm like that [indicating with a surreptitious movement] and throws it behind her.. and she thinks you can't see it...

Mother of AL, 11 months, interview (Reddy 1998)

(These days he is still) continuing to undo the tapes on his nappy ...Although now he is much more serious about it. He lies on his changing mat...and he wants to pull the tab off...he almost sort of stares you out... And really fixes his eye onto my eye and is exceedingly serious, as though he hopes that because he is looking at you and making you look straight at him, you would not note him undoing...his nappy tab. It is really rather funny actually, but he is so dead serious about it. Doesn't go on (at) every nappy change, but has certainly happened 7 or 8 times a week.

Mother of JB, 13 months, Dictaphone (Reddy 1998)

In contrast to these examples of more proximal triangulation of attention between infant, person and object, there is to date only one example of more distal triangulation, shown in table 1 in the category distraction by calling. Sully (1896 and cited by Dunn 1988) reports an infant in the middle of the second year apparently distracting the mother by 'calling' her attention to a different location before gleefully throwing a glove once again out of the pram. Undoubtedly we have not yet got the full picture of the data, but the more distal triangulation of interests involved in this category, like that of concealment of interest in objects, may be causally linked to its late appearance.

(c) *Attraction*

In the first year, there were two kinds of apparently deceptive behaviour which might fit this category: attracting the other's attention to the self by fake crying (conceivably akin to fake 'lost calls' in the primates), and seeking to join in the other's activity/attracting attention to self by fake laughing (in a way, a sort of close-range behaviour, but only fitting this category very loosely). The control of affective expressions is known to be possible from around nine months of age (Izard & Malatesta 1987), confirming the parents' perceptions of the deliberate-ness of these expressions at this age. It is easy enough to detect the difference in sound between genuine and fake crying and the situations in which fake crying can occur are often a dead giveaway. One common situation is where the infant fakes upset at being told off:

(She) definitely knows when she is doing something she shouldn't. She headed over towards the video, looked round to see if anyone is going to tell her off and then

actually gone to touch it. When Paul [her father] told her off, she actually sat there and tried to make herself cry, but the tears just wouldn't come.

Mother of VT, 8 months, Dictaphone (Reddy 1998)

And another is where the infant wants attention and uses fake crying to get it.

Surreptitiously watching eight month-old C in the middle of the night, her mother saw her 'shout, sort of as in crying, but no tears, for about thirty seconds and she'd stop and listen to see if she could hear me coming or moving...and she'd start again.... She just lay there and she'd shout and then she'd stop and listen and when she realized I wasn't there, she'd carry on screaming but no tears, not one single tear, and she carried on and on and on...

Mother of CS, 8 months, Interview (Reddy 1991)

Fake laughing, reported in the second half of the first year by many parents, often occurs in situations where the infant is near but not involved with two or more others. Parents report that 'fake' or artificial laughter has a distinct and identifiable quality to it. Reports of such laughter often cite situational contexts of social 'exclusion' in which the infant appears to want to 'join in' with the laughing others.

he seems to have stopped that now actually [the artificial laugh]...he did have a sort of a...laugh that he would laugh almost because everyone else was laughing. But he seems to have stopped that at the moment, to be honest...I noticed it when the girls were laughing at something...and he would laugh...er...but now he's more mobile, he doesn't seem...so...I suppose because he doesn't have to sort of sit there and listen and watch them all the time, he can get off more on his own.

Mother of SS, 11 months, Interview (Reddy 1998)

Fake laughing in such a situation may not really merit the label deception: except very briefly, it does not really deceive anyone and does seem rather above board. However, it is interesting for two reasons: it illustrates that crying is not the only emotional expression that can be and is used by infants 'falsely'—that is, out of its normal expressive function, and it indicates a simple form of misuse of expression that occurs somewhat earlier than the misuse of crying.

(d) *Creating an image*

The category of creating an image seems to have been intended primarily for fairly sophisticated suppression of agonistic or pleasure expressions from a target animal in order to conceal an activity the agent is engaged in with a forbidden object or animal. Infant behaviour in the first year seems to differ from these non-human primate examples both motivationally (except in the more detailed reports of home-reared chimpanzees) and in sophistication. In addition to the three subcategories of creating a neutral, affiliative and threatening image, a fourth subcategory of creating an image of self-competence was added for human children, mostly, but not solely, including the bravado lies described earlier. This subcategory will, therefore, not be discussed further here.

(i) *Of neutrality: ignorancelinnocence*

You can make yourself look innocent while actually doing something 'naughty' in a number of ways. The example below—the only one of its kind so far—may be better categorized as distraction (and if so, by something other than any of the subcategories that Byrne and Whiten propose). However, it seemed to fit equally here, with the perhaps simpler gloss of appearing to be doing something other than the actual activity.

We were in (...) spare room tidying up and A started playing with the rubber plant, so I told him no, and he stopped. But he obviously still fancied playing with the soil so he went over to play with it again and I said no, and he sort of scooped his hand up as though he was saying oh I wasn't really going to touch the soil Mum, I was waving at you, and he kept on doing this. If I said no, he suddenly waved at me, pretending he wasn't really going for the rubber plant at all.

Mother of AW, 11 months, Dictaphone (Reddy 1998)

There is no evidence for the intentional *suppression* of expressions (as in Whiten & Byrne's examples) in the first year. The only evidence we have is from two personal observations of the same infant at 18 and 20 months (see more detailed description in Reddy (2001)) of embarrassed smile suppression in the face of unexpected attention from visitors. The 'motive' for this smile suppression was nothing like the self-protection of the ape examples and perhaps is better classified as creating an image of self-competence.

The most interesting examples of creating an image in human infants in the first year were the subcategories of creating images of affiliation and threat. All of them were playful, but were fascinating in their creativity and richness.

(ii) *Of affiliation: offering and withdrawing/requesting and refusing*

Pretending to offer something and then rapidly taking it away (with an anticipatory cheeky half smile broadening into a broader smile or laugh indicating some degree of prior planning) has been observed from around nine months (Reddy 1991) and in the second year (Chevalier-Skolnikoff 1986). As a form of deception, sometimes but not always, motivated by more malign inclinations, offering and then withdrawal of the offer is commonplace, often among siblings, and observable even among adults in more subtle forms. But there are many variations on this. Infants can also offer and withdraw the self, as in the following example:

When you ask her to come to you, she puts her hands out to go, then backs off and laughs—a regular game. She's not shy, and doesn't do it with new people. Its with M, F, Gm. She's 'just pretending'

Mother of VTu, 11 months, Interview (Reddy 1998)

He requested juice while M was talking to the visitor, then refused it when she gave it to him, and repeated the request and refusal again a few times until M noticed that this was odd, and saw he was looking at her with a half smile

Mother of JB, 11 months, observation (Reddy 1998)

While the example above of offering the 'self' and then pulling back is questionable because it was part of a game and its history was obscure, the second example of requesting and then refusing, or the more common examples of offering and withdrawing objects were often much more clearly identifiable as isolated incidents or as games 'begun' by the infant.

(iii) *Of threat: feigning misdemeanour or error*

There were, perhaps unsurprisingly, no examples of pretend threats in the human infants! The closest was pretend misdemeanours, involving either a playful pretence at doing something forbidden or a watchful approach to the forbidden activity, but stopping short of the actual act. The earliest such examples were from nine months on and were seen even when the activity is not actually desired: appearing to touch a hot cup of tea, or putting hands close to the fire. The infant's attention is, in all cases, focused on the reactions of the parent and the 'threat' itself not followed through. Sometimes the action itself is a giveaway, involving careful flicking movements, or slow approach movements, which stop a few inches away, not actually *doing* the forbidden act. Sometimes it is only the expression on the face and the knowledge that the infant really has no desire to do the act other than as a tease, which clarifies the intention. There were many such examples: pretending to take a bite out of the cardboard box; 'almost touching' the plant; almost touching the saucepan on the stove and so on. Parents were often fooled—at least the first time such an act occurred—into thinking that it was a serious intention and then learning that it was not.

Deliberate errors, too, can be sometimes done with a play of seriousness, which can deceive the other temporarily into thinking it to be a genuine mistake. Infants from around one year can feign errors (and sometimes fool others). The earliest example was of eleven month-old Anna, who had been confidently and correctly naming herself as 'Baby' and had already been correctly naming her mother as Mummy and her father as Daddy. One day she pointed to her arm, said 'Baby', then suddenly pointing to her mother said 'Daddy'. The mother's puzzled correction led only to an insistence on the 'error' until her 'cheeky look' with 'her head on her side' gave the game away.

In both the 'threat' and 'affiliation' examples, the benefit to the infant was the emotional reactions of the parent. Although some of the examples reported here involve play and teasing, many do not. It does not seem to be the case, as has been claimed, that playful motives are the only—and earliest—deceptive contexts in human infants (LaFreniere 1988). Looking at function in the sense of the 'ultimate' function of the act, it is clear that early deceptive acts *do not* only show up in play. The 'benefits' sought by the infant under one year in these acts are varied and sometimes very serious, ranging from obtaining attention, escape from a scolding, the opportunity to engage in forbidden acts, as well as 'surprised' reactions in play.

6. EARLY ONSET TO DECEPTIVE ACTS. CONTINUITIES AND PARALLELS WITH TRUTHFUL INFORMING.

In terms of their function then, evidence of infant deceptive acts can be seen considerably earlier than we would expect from a cognitive structural analysis of deception. Not only do many of the functional categories appear to be present even by the end of the first year, but within several of the categories in table 1, we can see continuities over time in the use of the categories, albeit with increasingly complex and increasingly verbal behaviour. What is striking is that these data come from studies which have not directly targeted deception nor asked parents about deception. To fill in what are very likely to be missing data from this table we need a systematic meta-study in the manner of Whiten & Byrne (1988) as well as more direct participant observations (that is, by training parents) of infants in their natural environments in the manner of Newton *et al.* (2000).

The simplicity and very early appearance of such (usually non-verbal) data of teasing, pretending, concealing and distracting thus far suggest that the verbal lies of the two and a half year old cannot only *not* be dismissed as pseudo-lies, but are already founded on a long tradition of non-verbal manipulation and misrepresentation of shared meanings. Like the verbal lies, these non-verbal deceptions too occur in more than just a single context and are motivated by more than a simple desire to escape punishment or seek rewards. The fact that they occur in play as well as seriousness suggests that the meanings they are misrepresenting are not confused with their misrepresentation. Additionally, the interpretation of their status as manipulations of information is validated by the finding that they do seem to happen more or less simultaneously with the earliest attempts to communicate anything at all. In other words, they can occur about as early as truthful information giving.

In contrast to the great difficulty in experimental studies of getting even three year old children to suppress current reality and lie (even though they appear to badly *want* to do so; Russell *et al.* 1991), the present findings suggest that even toddlers do not have a problem in communicating false realities to others. This conclusion challenges current beliefs in developmental psychology, where, even when there is no theoretical commitment to the significance of false beliefs, there is a strong conviction that counter factuality—or at least the ability to go against current reality in one's communication—is profoundly difficult. See, for example, the recent controversy about whether children's difficulty at three years lies in grasping any sort of belief at all, whether true or false (Riggs 2005), or whether it centres around the inability to *overcome current reality* in understanding false beliefs (Russell 2005). While the tricky infants and lying toddlers discussed here may not be following the criteria for belief creation, they certainly seem to be intentionally *violating current reality*—sometimes for a self-specific advantage, sometimes in play—and *presenting this information to others* around them. It also challenges biblical assumptions of childhood innocence!

Table 2. Parallels and continuities in true and false informing, expressing and gesturing

age (months)	'true' informing, 'true' expressing and 'true' intentional gestures	'false' informing, 'false' expressing and 'false' intentional gestures (concealment or inhibition of 'information')
9–10	shaking head to refuse (Bates <i>et al.</i> 1976) offering objects and giving	'fake' expressions, gestures, passive hiding of actions
11–12	informative pointing (Liszkowski <i>et al.</i> 2006) giving novel object to surprised adult (Tomasello & Haberl 2003)	mis-naming, pretend misdemeanour (intentions), 'holding the eyes' to obscure actions, suppressing response
14	correcting communicative misunderstanding (Golinkoff 1983, 1986)	
16–20	distinguishing true and false statements (Pea, 1982; Hummer, Wimmer & Antes 1993) rejecting false informants (Baldwin & Moses 2001) selective informing about object existence and object features to ignorant others (Reddy & Simone 1995) correcting verbal contradictions about reality (Dunn 1988)	feigning injury, feigning dirty nappy, active hiding (turning body, going behind screen), smile suppression (in embarrassment)
30	selective giving of information about object location to ignorant others (O'Neill 1996)	false blame, false permission, false promise, ego-defensive false information, false information about reality
36	spontaneous informing when other has a false belief (Teerwogt <i>et al.</i> 1999)	

Table 2 attempts to map what we know in early communication of true informing, expressing, naming, correcting, indicating and gesturing, with false informing, expressing, naming, correcting, indicating and gesturing. What we know about these continuities and parallels seems inadequate—the data are often missing and often not directly appropriate or equivalent. But from the little we do know, two things emerge: that deliberate false communication seems to appear as early as deliberate true communication, and that the two may develop in parallel.

The manipulation of emotional expressions for obtaining a separate goal (using existing expressions in 'false' circumstances) seems to emerge around nine months of age, but the suppressing of emotional expressions does not appear to emerge until around the middle of the second year (and suppressing or manipulating these for conventional or 'caring' reasons not until the early school years). The use of gesture in both true and false contexts (in particular the offering gesture, but possibly also 'requests' and 'refusals') seems also to be possible from around nine months of age. While it could be argued that the 'mis'-use of gestures is simply a 'new' use in a new game rather than a 'mis'-use, the fact that the same gesture continues to be used to indicate both genuine intentions and false intentions (without apparent confusion) is significant and it cannot easily be dismissed as a completely different kind of activity from the truthful use of the same act. The existence of feigned misdemeanours is similarly important, because it exists simultaneously with the ability to not misbehave in the same domain. While the feigning of misdemeanours logically follows after the ability to 'behave', both do seem to emerge at roughly the same sort of age. The giving of information to others, using a conservative definition of the intentional communication of information (Camaioni 1993; Liszkowski *et al.* 2004) and even specifically to ignorant others

(Tomasello & Haberl 2003), is evident from at least the end of the first year. The earliest example available of *false* informing (false naming), is from 11 months, in which the infant is juxtaposing in the same incident, the correct naming of self and pointing to her own arm, with incorrect naming of her mother (at a time when the names for her mother and father were already convincingly established). If pointing is genuine informing at 11 months of age, then intentional mispointing must also be misinforming—unless there is every reason to believe otherwise. If offering an object with the expectation and desire that it will be taken is a truthful intentional act, then (given other evidence that it is intended from the start to be withdrawn) offering it and rapidly withdrawing it is in those terms, a false intentional act. Similarly with the 11 month olds' feigned misdemeanours. This is not to argue that these infants are engaging in some kind of meta-representational acts, but merely to argue that *if* the serious versions of the acts are to be interpreted representationally (that is, as a result of the infant's representation of the other's representations), then there is evidence that the feigned versions of the acts should be too.

7. TOWARDS AN EXPLANATION OF DEVELOPING DECEPTION

So, if a picture of real social living is necessary not only for getting a functional picture of behaviour in its developmental (or evolutionary) contexts, but also for *explaining* its development (the 'why' question) what do these data tell us about why deception emerges at all? And how would current cognitive developmental theories explain them?

(a) *Current cognitive-developmental explanations*

The dominant 'theory-theory' can neither plausibly explain the range and consistency of these infant

'tactical deceptions', nor can it easily incorporate into itself recent findings that, given a suitably non-verbal habituation method, 15 month olds (Onishi & Baillargeon 2005) and possibly even 13 and 14 month olds (Song 2006; Surian *et al.* 2006) can pass false-belief tasks. 'Theory-theorists' (e.g. see Ruffman & Perner 2005) argue that these (experimental) findings can be explained by the learning of complex triadic associations by the infants rather than by inference about 'hidden' concepts such as false beliefs, and therefore without invoking any need for a theory of mind. Whether or not we accept this challenge, there is indeed a problem with retaining the theory-theory version of the infants' actions in these experimental tasks and in the tactical deceptions in the present paper.

A simple assimilation of the findings by shifting of the age of acquisition from 4 years or so to early in the second year might seem possible (given the many other developments at this age such as naming, pretending, referencing, helping, and so on; Leslie 1987; Baldwin & Moses 2001; Warneken *et al.* 2006). However, it would take a seriously acontextual logic for any theory to survive such a mauling without damage to its conception of the nature and implications of the landmark skill. How can the concept, the thing that is supposedly understood, be the same or nearly the same, barring local conditions, at such diverse ages? Further, even a simple lowering of watershed age would not suffice. If these skills are indeed dependent on theoretical 'realizations' or conceptual 'discoveries' we would need to invoke a new realization or theory at different levels—at eight months (avoiding detection by seeking private situations), at 9–10 months (deceptive use of gesture to mean *X* when they intend it as *Y*), at 11 months (distracting or distorting others' view of reality by 'holding' the eyes), at 11–12 months (false misdemeanours or false naming for provoking a reaction), at 18 months (false claims to injury for obtaining sympathy or deflecting criticism), at 24 and 30 months (false statements about the self and about reality), and so on. It certainly does not seem very parsimonious to seek such a series of realizations to explain early deception and informing. Nor does it really deal with the question of why deceiving emerges, relying on an individualistic idea of 'it happens because it *can*'.

Leslie's (1987) version of the 'theory-theory' positing the ability at 18 months to de-couple 'primary' from 'meta' representations, more easily allows for the much earlier emergence of knowledge of others' mental states. It could be argued that Leslie's theory of mind mechanism (ToMM)—an innate language acquisition device (LAD)-like 'learning mechanism'—could explain not only 15 month olds passing false-belief tasks, but also the earlier tactical deceptions of the not-yet-one-year-old. Such a mechanism offers an age-free theory to explain any phenomena relevant to the domain of minds and to deceiving them. However, like Chomsky's LAD (Chomsky 1965), Leslie's ToMM too is an insistently nativist theory, in this case applying to the knowledge of minds and beliefs. Bruner's famous challenge to the LAD from the social and interactive language acquisition support system (LASS; Bruner 1983) applies to ToMM as it applies to any theory which posits pre-determined

and pre-experiential knowledge. Although Leslie *et al.* (2004) argue intriguingly for ToMM as a *learning* mechanism, the role of engagement and dialogue in this mechanism seems secondary to its 'native' conceptual inclinations: engagement is a mere provider of information for the conceptual machinery. The similarity to Chomskian preconceptions is strong and the explanation does not really seem to *explain* the emergence of the skills.

(b) An affectivedialogic alternative: perceiving and experiencing deceivedness

I suggest an experience-based alternative to explaining the emergence of deceiving which seeks to avoid the dualist emphasis on conception (of false beliefs) at the expense of action (deceiving). The search for deception, which begins by looking for an awareness of false beliefs, necessarily goes down a meta-representational route. And meta-representation to explain these early phenomena must either come from an early theorizing of false beliefs or an innate module; in both, the process of its emergence and the 'why' question are left hanging unsatisfactorily. An alternative route is to look within infants' interactions with others, at its origins in dialogue⁸ and the effective perception and experience of *deceivedness*.

Deceiving, like any other form of communication, is first of all, communication. And like any communication, it needs an intentional partner: to occur at all and to *mean* something. Unless the deception is morphological or a fixed pattern of response (which none of these infants' deceptions are), they cannot be done outside of the engagement with another person. And second, like any other communicative action, deceiving is born within the unscripted openness offered in dialogic engagement. Rather than be pre-scripted or planned alone as an insightful but individual act, deceiving must be drawn out in dialogue by the intentional partner—by their reactions, their invitations and their encouragement and tolerance. Whether the communication is informationally 'true' or 'false' depends, not only on the possibly separate motives affecting each partner, but also on the immediate demands and invitations in the other person's acts. Both truth and falsehood must not only be invited by the context and the partner's act, but be defined by them too. Deception is not a single head achievement.

What we know from the data presented in this paper is that long before infants can plausibly be said to infer and represent complex conceptual entities, they are engaging in subtle manipulations of their own and others' actions, which succeed in deceiving others at least temporarily. These acts are so varied that simple formula-based explanations become clumsy and unconvincing. The alternative I suggest is that the crucial feature explaining the emergence of deception is the *deceivedness* which is manifested in these engagements. Beginning from a motivation to engage and a reciprocal emotional responsiveness (both evolutionary givens for humans at least), infants get drawn into deceiving others within engagement. Engagement—or emotional dialogue—often involves acts which are unexpected by the other; dialogue which is totally predictable is hardly dialogue. The other's *deceivedness* is evident in emotional reactions, responsive actions

and situational consequences. These, of course, need not only be inferred by the infant as casual relations between conceptual entities but can be *perceived* in actions, and much more importantly, *felt* by the infant in his or her own emotional responses to the other's reactions (such as delight that the other has been surprised or discomfited). Infants engage in deceiving owing to a motivation to engage with others in emotional dialogue. The infant's deceiving develops in complexity with age—a development which is evident in the content of the deceptive acts. It is the perceiving and experiencing of deceivedness, however, which provides the crucial explanation of the development of deception (see also Clayton *et al.* 2007).

Let me draw a parallel between explanations of the ability to deceive and explanations of the awareness of attention. As in the study of the emergence of deceiving, the emergence of the awareness of attention too has been bedevilled by attempts to pin it down to a point in time where the other's representation of the world (attention) can be represented by the infant. The onset of triangular attentional engagements involving spatially distal objects at 9 or 10 months, or joint attention, is the commonly identified point for the infant's discovery of attention (Bates *et al.* 1976; Tomasello 1999). However, the infant's attentional engagements from the first few months of life show emotional responses to others' attention (initially only to the self; Trevarthen 1977; Adamson & Bakeman 1991) and initiatives to seek other's attention, which are similar in range and variety to those found at the middle or end of the first year (when the other's attention is perceived when directed to more complex and distal objects and events). Elsewhere (Reddy 2003, 2005), I have argued that these earlier attentional engagements do two things: they allow the infant to *feel* the other's attention in real engagements when it is directed to the self to parts of the self's body, to the self's actions, to objects in the self's hand and so on (gradually expanding outwards), and they draw the infant into further and more complex attentional engagements. In the face of evidence that the same sorts of emotional responses and the same sorts of initiation of actions to obtain attention exist through the first year, developing primarily in relation to different 'objects' or 'topics' (Reddy 2003, 2005), positing a single and belated age for a representational awareness of attention is unhelpful (even obstructive).

In the same way, early deceptive engagements may achieve two things: first, they allow the infant to *feel* the other's deceivedness to the infant's acts (with the content of the infant's deceiving act becoming more complex and distal over time) and second, they draw the infant into developing more complex deceptive acts. The infant in actual deceptive engagements in the first year must *feel* an emotional reaction to the other's reactions of surprise, disruption, alarm, amusement, misaction, etc., especially when these reactions are in response to the infant's own acts and when they matter to the infant. And these early engagements involving affective expressions, gestures and information must inevitably draw the infant into further exploration of their violation and manipulation, and allow the expansion of deception. The evidence presented in

this paper, showing a shift with age from more dyadic (or 'close-range' forms) to more distal 'triadic' forms (as in concealment of interest in object, distraction by calling to distal location, etc.) supports this conclusion and the parallel with developments in the awareness of attention. Deceivedness involves both a feeling and a misrepresentation of information. Deceiving others and understanding that they are deceived must begin with perceiving and feeling this feeling in others, in everyday engagements. And in the same way as with awareness of attention, the awareness of deceivedness cannot sensibly be pinned to a single and belated age of onset.

As in the case of attention (Reddy 2003), a prediction could be made here, that the development of the ability to deceive another person depends upon the ability to *feel* in the self, the process of true and false close-range communication with the other. Perhaps if the infant cannot deceive in a dyadic situation, more distal deceptions become impaired and, in some formulaic or other way, 'inappropriate'. Emotional engagement provides the fuel both for the emergence of deceiving and for the developing complexity of the objects or topics of deceiving. Such an explanation is distinctly nonlinear (see Suddendorf & Whiten (2001) for a subtle critique of linear developmental explanations in evolutionary as well as ontogenetic developmental domains), possibly avoiding, among other things, the 'developmental fallacy' (Costall 1994), where we treat infants and other animals as preparing to live social lives when they 'grow up', rather than already living such lives now. The social lives they do live hold the answer to the 'why' of social intelligence—an answer that stage models of one type or the other will not yield—whether dealing with infant development or the bigger evolutionary picture. The challenge that we face is that we cannot really understand social living without getting in there and living too, engaging both with the children we study and with the parents they engage with.

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ENDNOTES

¹Whereas adults, in judging a lie, were reported to take into account not only the factuality of the utterance, but also the speaker's belief in its factuality and the speaker's intention to deceive (Coleman & Kay 1981), three year olds don't appear to; they are either unsystematic in their responses or barely respond to questions in an experimental scenario about whether someone was telling a lie, the truth or something else (Strichartz & Burton 1990). However, there is a recent and replicated finding in (Lillard 2002; Mitchell & Neal 2005) that not until about 6 years of age do children answer similar questions about—and therefore understand—pretending in other people. There is no doubt amongst psychologists, however, that children do pretend from around 18 months of age. The understanding of the complex acts (of pretending, or in our case, of deceiving) in another person may be evident later than its intelligent use by the self.

²Cover stories are as likely to be ridiculous as plausible. The teddy bear may be accused of the act as often as the sibling' (Morton 1988, p. 36); also the oft cited 'I didn't break the lamp and I won't do it again' from Vasek (1986)

³It is exactly the rigidity with which these early 'lies' are used that reveals them as no more than previously successful strategies for avoiding the undesirable, rather than genuine cases of deception designed to manipulate the other person's belief' (Permer 1991, p. 193).

⁴Four year olds' lies typically take the form of simple denial ('No') or misleading confirmation ('Yes') rather than the more sophisticated elaborations of older children and adults' lies' (Bussey 1992, p. 99).

⁵acts from the normal repertoire of the agent, deployed such that another individual is likely to misinterpret what the acts signify, to the advantage of the agent' (Whiten & Byrne 1988)

⁶Teasing: Two subcategories of Creating an Image (Affiliation and Threat) involve instances of playful teasing by human infants. Not all teasing involves deception: jumping on someone, biting them, pulling hair, trying to get any reaction, are all non-serious and in some sense, 'play' or 'quasi-aggressive' behaviour (Adang 1984), but involve deception only if there is some attempt to disguise the act or the acts leading up to it. The openly smiling 'silent scream' produced by a 12 month-old when told not to scream (JB, in Reddy 1998), was a sophisticated provocation but not deceptive. In contrast to such quasi-aggression or to playfighting where 'real' fighting may not yet be in the animal's repertoire, playful teasing may often have embedded in its sequence, some false information (see Chevalier-Skolnikoff 1986). Evidence of the false use of an action (as in deliberate misnaming, misdemeanours and non-compliance) can be obtained by establishing the presence of their 'proper' usage at the same point in time: evidence that they are not coincidental or accidental can be obtained through the shift or change in actions and demeanour and evidence that they are not a 'change of mind' can be obtained from facial expressions as well as from information allowing the discounting of the infant's desire for the forbidden object or activity. Teasing may not meet the 'self advantage' criterion of W&B other than in the sense of getting a reaction that you want through a feigned act. However, we would not use that criterion in adults or older children (or even in animals—e.g. see example 172 of teasing by C-S in Byrne & Whiten 1990 corpus).

⁷Example 20 in *Cebus apella* by Collinge (1990, in the Byrne & Whiten 1990 corpus) (jumping on to shoulder and playing with hair for the first time ever 'in order to' pull out the stop watch newly hidden inside the jumper: this example is much more sophisticated than the distraction by 'holding the eyes', of the one year old human infants, involving a more complex set of deceptive behaviours and prior planning (see also Example 170 in gorillas, C-S) and probably a more complex understanding of the mechanics of vision (i.e., cannot see behind - develops around 18 months in humans, Butterworth & Jarrett 1991).

⁸Mitchell (2002) suggests that non-verbal deception in most of the higher apes and human children can be explained as 'script-violation' rather than in terms of complex meta-representational abilities. Script theory allows complex learning of social contingencies and routines and effects, and complex variations and violations on themes, without having to invoke meta-representation and meta-communication. However, while, representation may be a bit of a red herring for understanding deception, script theory is not necessarily the answer. It still does not explain the why, the motive.

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