Chapter 12
Theory of Mind

1. Where Does Theory of Mind Come From? - The Evolution of Social Interaction and the Concept of a Human Being

We are now ready to discuss the relationship between autism and Theory of Mind. Recall, first, the background of this discussion. In the fields of Psychology and Cognitive Science, the term "Theory of Mind" was created to identify the recognition of the thoughts and feelings of another individual. Thus a child knows that other people are sometimes happy and sometimes sad, that they want things and are sometimes angry or afraid. This was called a "theory" because no human being ever directly observes the thoughts and feelings of another. He just theorises that they must be having them on the basis of their behaviour.

There followed a discussion of what other species had such theories. It was clear that flies do not, even though they fly away when you are going to swat them. They do not think "that person is going to swat me", but simply react to the motion of the air, the light, and other physical experiences. But what about dogs and apes? They certainly seem to have basic theories such as "that man likes me", "that one is angry at me", "he knows I am here". But some argued that they did not really have such thoughts, and it is just we who are imagining that they do. There was also a discussion of how human beings arrive at these ideas. Do children learn them through their interactions with other human beings, or are they endowed with them innately?

From this discussion there arose the hypothesis that autistic children are innately lacking in this normal human ability, and that this lack was the root of their condition. Early in our discussion, we showed that these hypotheses are false. Autistic children are aware of the thoughts and feeling of others, albeit to a lesser extent than other children of comparable age. Nonetheless, the recognition that deficits in understanding the thoughts and feelings of others, and in skill at using them in social interactions, are consistently found in autism, and are a significant part of the syndrome, is a valuable insight. Indeed, since these deficits are essentially social, their presence is consistent with the primarily social nature of the syndrome. Furthermore, since Theory of Mind is an important component of the Social Learning System, deficits in Theory of Mind, whatever their origin, will interfere with its proper functioning and development. Conversely, given the interdependence of its components, dysfunction of the system, for whatever reason, can be expected to result in deficits in Theory of Mind. The question is therefore to understand the nature of these deficits and their relationship to the rest of the syndrome. To answer it, we shall begin by examining Theory of Mind itself and how it develops.

1.1 Mind and Theory of Mind

As we have already explained, "having a Theory of Mind" means postulating certain unobservable entities such as *consciousness*, *volition*, *desires*, *aversions*, *feelings*, *thoughts* and *beliefs* to explain human behaviour. Thus when one sees someone laugh, one says that he is laughing because he is *happy*, and when one sees someone opening the refrigerator, one says he *feels* hungry, *wants* to eat, and *believes* there is food inside. Some of these, such as

consciousness and *volition*, are enduring qualities, while others, such as *happiness* and *sadness*, are temporary conditions, which are referred to as “mental states”.

The expression “mind” is an umbrella term used to refer to the conglomerate of all of these things taken together. It is like the expression “work force” used for the conglomerate of all the working people of a country. Such terms add nothing new to their components. They are not like the word “house”, which refers to something over and above, and therefore distinct from, its components. A house is not the same as a pile of building materials. It is not just the *totality* of bricks and wood of which the house is constructed, but also their *structure*. A mind, on the other hand, is no more than a collection of mental processes. The whole, in this case, is no greater than the sum of its parts.

The purpose of terms such as these is not to add to their components but to indicate that they share a certain common quality. Such terms are valuable because they draw our attention to those common qualities and enable us to manipulate the components more conveniently, to compare and contrast them, and to gain important insights that might not have been apparent had we only considered them separately. But, while valuable, such terms bring with them certain dangers. In particular, they are misleading because they produce the illusion of the existence of distinct and separate entities. The word “mind” leads one to believe that there is a separate entity that unites the various individual mental processes. The term “Theory of Mind”, used to refer to the act of thinking about minds and their components, reinforces that illusion and makes the imagined entity seem even more concrete and distinct. The claim that thinking about “Theory of Mind” is performed by a distinct mental module, and the claim that that module is innate, reinforce this illusion further. It is therefore of paramount importance to make clear from the outset that “mind” is not a separate or distinct entity. The mental functions themselves are separate entities, but “mind” is not. It serves only to unite them, but adds nothing. It is of practical value as the term “work force” is of practical value for economists, even though no such separate entity exists. But having accepted the use of such terms for their practical value we incur the need to explicitly expose the dangers inherent in them.

Beyond the fundamental error of imagining entities that do not exist, the term “Theory of Mind” engenders specific errors concerning the processes by which human beings recognise mental acts and think about them. The first is to conceal the true multiplicity and complexity of our concepts of mental activities by implying a single concept derived from a single source. Not only are the components of mind separate, so are our thoughts about them. Until we speak of someone as having a “Theory of Mind”, we see his idea that human beings have feelings as different from his idea that they have thoughts or his idea that they have volition. Just as the mental states and the enduring mental qualities themselves are separate from one another, so are the thoughts that he has about them. By using the term “Theory of Mind” we are led to believe that they are all aspects of a single idea and are all derived from the same source.

The second error is to make these concepts seem separate from the rest of human cognition, such as our concepts of physical objects, of space, and of motion. Like “time” and “space”, “desires” and “thoughts” are theories we use to integrate our various individual sensations. That these concern human beings does not make them separate from those that concern the physical world. All are on par with one another, interconnected yet distinct. “Volition” is a property of humans and animals just as “object permanence” is a property of physical objects. “Thoughts” and “desires” are like “colours” and “odours”. Within the broader category of physical objects

we create a special subcategory for human beings because our experience has taught us that, while they share the qualities of other physical objects, they also have these special qualities that other physical objects lack.

But the most serious error engendered by the use of the word “mind”, and especially by the expression “Theory of Mind”, is the misidentification of the unifying theory. It is true that there is a unifying concept that eventually emerges from all these individual experiences, but that theory is not of a *mind* but of a *human being*. “Human being” is the theory by which the child eventually makes sense of the individual aspects of his experience and separates this special class of physical objects from all others. It includes the body itself together with all its actions and functions, including both physical ones like eating, breathing and walking, and mental ones like wanting and thinking. The distinction, within that unifying theory, between *physical* activities and *mental* ones, is a valid one too. All, however, are performed by the same agent, the human being. The error is in the use of a special noun “mind” to refer to the human being when he is performing mental acts. It is as if one were to use a different word for the mouth when it is speaking than when it is eating.

The concept of mind is therefore a meaningful one, but not at all what the word and the way it is used make it appear to be. It is not a *thing*, a part of the human being. It is not like the hands, the feet or the nervous system - a separable part of the body that performs certain specific functions. Nor is it even a separate faculty like digestion or speech or respiration. “Mind” indicates, rather, a certain *kind of activity* that a human being performs, regardless of what part of the body performs it. It would therefore be more appropriate to describe it by an adjective such as “mental”, than by the noun “mind”. This is a description of the act, not of what performs it. Some of a human being’s acts are mental, others are not, but no part of the body can be considered “the mind”.

The use of nouns in this way is not at all uncommon. English and many other languages are replete with abstract nouns like “love”, “anger”, “insolence”, and “patience”, which appear to be referring to entities while they are really referring to ways of acting. Even to say that these are non-physical entities would not be correct. They are not things at all. They are the language-form noun being used in place of an adjective. The word “mind” is therefore not a misuse of language that needs to be corrected. Rather we must be aware, when we use such words, of what they are and what they are not, and not let them distort our thinking and our understanding of reality to think that just because the language-form is a noun, that it is referring to an object in the world.

So we see two areas of error, one about the concept of “mind”, and the other about “Theory of Mind”.

1.2 Origin of Theory of Mind

Further errors concerning the origin and development of these concepts follow from these. Were Theory of Mind a distinct mental module, it might possibly be innate, the product of a certain genetic code. The appearance of mental concepts at the proper time would then be a matter of internal biological factors, not environmental and developmental ones. When, however, we analyse it and find it to be no more than a collection of distinct concepts, acquired separately over the course of development, innate origin ceases to be a reasonable explanation. Even though they are indeed interconnected, and the development of one contributes to that of others, they are

also connected to the rest of cognition, and their development contributes reciprocally to that of other kinds of cognition having nothing to do with the mind. So we see the development of Theory of Mind as part of the overall development of cognition, not independent of it.

Observation of children as they grow and as they manifest increasing grasp of these concepts, confirms developmental origin. We can see these, like other concepts, being constructed gradually, beginning as vague approximations that then serve as a basis for further cognitive development. Rarely do children arrive at a concept all at once. They construct them slowly, committing many errors and taking many detours on the way. Each correct concept is the culmination of a long course of development and gradual adjustment.

It takes a long time for a child to recognise how radically different human beings are from other physical objects. At first, he extends many of the specifically human qualities to the broader category. Since his understanding of desires, volition and thoughts is yet vague and confused, he attributes them not only to human beings but to wind and trees as well. Errors such as this, and their gradual correction, which in many cases is never completed, indicate gradual development. So does the continual contribution of mental and non-mental concepts to one another. Together they are all part of a constantly evolving and expanding system whose development can be observed in the changing behaviour and communication of the child as he grows.

As we explained much earlier, such systems develop by means of their own activity. They are not constructed by mechanisms external to themselves. External factors influence that development only by being incorporated into that activity itself. It is the development of these systems through interaction with things outside themselves that we refer to as *learning*. We have seen that there are different kinds of interaction and therefore different kinds of learning, and that among them, social learning plays a unique role in human development. It is especially important in learning about other human beings and therefore in the development of the concepts that constitute “mind”.

The innate foundation of human mental development consists of aptitudes and dispositions. Innate interests in human features, in particular, are important motivating factors for the development of the various components that constitute Theory of Mind. They contribute to that development doubly, through their role in the Social Learning System and also by motivating observation and independent discovery. The infant’s tendency to orient himself toward human beings and attend to them therefore contributes to his development in three ways, firstly by making him interact with them and learn from them socially, secondly by focussing his attention on them so that he learns about them independently, and thirdly by evoking the social interactive behaviour of caregivers and other adults, which then increases his own interactive behaviour.

But even though observation and independent discovery contribute to the formation of Theory of Mind, they cannot take the place of social learning. It is impossible to learn about human beings and develop concepts of mental activities without interacting with them and learning from them socially. Even within the context of interaction, direct inference is secondary to adoption of the concepts that others who are more advanced in their development already have. It is not through experiences such as being scolded or beaten by angry parents and siblings that the concept of anger is developed, but by hearing expressions like “he’s angry” from others and seeing how they act when someone else is angry. Through this social learning, the various

vague concepts developed through experience receive clear definition and location in the human being himself. Thus the rough material furnished by the child's own experience is moulded by the thinking of those around him. He gradually comes to adopt, or at least approximate, the ideas that they already have.

1.21 Behaviour as a Vehicle for Learning Theory of Mind

Early in childhood, fundamental innate interests in human features are extended to secondary interest in human behaviour. That secondary interest becomes almost as strong as a primary one because it is continually reinforced by its close connection to the primary interests themselves. It becomes especially strong with respect to *intentional actions* because, unlike *accidental* ones, they are distinctly human. When a person sneezes he is not significantly different from an animal, but when he takes out his handkerchief to wipe his nose he is behaving in a way that no animal does. Part of the development of interest in human behaviour is therefore the development of the ability to distinguish between intentional and unintentional acts. The child learns to recognise subtle signs of intentionality such as the postures, muscle tension, rates and patterns of action that indicate that a person is directing his attention and is going to do something. The child therefore knows that he is about to witness one of those uniquely human and therefore interesting behaviours. This is not simply a matter of curiosity. It is very practical. For example, if a child learns to recognise signs that precede a parent's anger, he may be able to avoid the consequences.

Eventually this leads to the postulation of mental states as unifying and explanatory theories. Vague notice of correlations gradually coalesce to adult concepts of volition, intention and desire. At first, however, no such conceptual thought is involved. The child is not thinking about the person as having intentions or desires. He is simply attracted toward those behaviours that are uniquely human, which he recognises and to which he directs his attention on the basis of external characteristics.

1.22 Language as a Vehicle for Learning Theory of Mind

The most important vehicle by which society moulds a child's thoughts is *language*. By the use of words for emotions, such as "happy" and "sad", and for cognition, such as "think", "know", "tell" and "remember", the child is directed to conceive of human beings as having emotional qualities and as performing cognitive acts. Verbal moulding is *explicit*, in that the mental quality represented by the word is consciously recognised by the user. By imitating that usage the child, too, comes to think that there is some reality represented by the word. Although he may not know what it is, and indeed, the concept that he forms may not be the same as that of the users from whom he learnt it, the word guides him to imagine that beyond the actions that he sees a human being perform is a quality of that human being himself.

1.23 Implicit Moulding of Theory of Mind

Not all social moulding, however, is explicit. When concepts are implicit in behaviour, the child who learns that behaviour is guided to develop corresponding concepts. When the behaviour of

others around him is guided by their concepts of the mental states of others, the child that imitates them acquires those concepts on a functional level. He comes to behave as if he had them. This behaviour then proceeds to mould his thinking until he acquires the concept itself. By acting in ways that imply volition, for instance, he comes to see human beings as having control over their actions.

Implicit moulding results not only from *imitation* but also from *response*. When, in the course of interaction, the child responds to the behaviour of others, the behaviour he produces, though not a copy of anything he has ever seen, is nonetheless not entirely his own. Its source is not entirely internal. Having been guided by the behaviour of those to whom he is responding, his behaviour reflects theirs and the concepts implicit in it.

In implicit moulding too, the role of language is central. By observing and imitating verbal acts of addressing others, in which they treat one another as having emotions, volition and thoughts, the child is guided to think of them in these ways. Thus it is not only by expressions that actually use words referring to mental concepts, such as, “Don’t you *want* any more cereal? You *like* this cereal so much!”, but also by ones composed entirely of concrete words like, “Jane is such a picky eater!” and “I can’t find Billy. He must be hiding!” that the child’s thinking is guided to interpret behaviour in terms of mental states.

The social moulding of asking-behaviours and answering-behaviours are especially important in the development of concepts of thoughts and knowledge. The child comes to think of himself and others as possessing knowledge that can be shared. Without such moulding, only a very intelligent child would achieve these concepts, and not until relatively late in his development.

Of the cognitive development that takes place during the first year, through direct observation and individual reasoning, there is nothing that can be considered a true mental concept. They are at best proto-mental, rough ideas that will later form the foundation of concepts such as desires and volition. The infant learns, for example, that certain things are predictable. A toy that is covered up by a pillow will be there again when the pillow is removed. When he moves his head, the sights around him always move in the same ways. Against this background of regularity and predictability, those changes for which the infant cannot discover any pattern begin to stand out. In particular, the behaviour of human beings and animals, though by no means irregular, is less predictable than that of inanimate objects. From that lack of predictability he forms the foundation upon which he will later construct the concept of volition.

By the end of the first year, the normal infant’s thinking has begun to be moulded socially, and once he is able to talk and communicate, social influence has come to pervade his thinking. From that time on it is never again entirely independent. It is in that context that true Theory of Mind develops. Before he has a chance to infer feelings and thoughts from the behaviour of others or to identify them in himself, he has already learnt words for them and patterns of behaviour to apply to them. The normal child does not, for example, independently construct his own theory of others’ pain by observing their aversion to being hit or bitten. Rather, he is directed to construct the concept of pain by remarks like, “Does your belly *hurt*?” “Don’t *hurt* Billy!” and by being held and comforted by caregivers when he bruises himself.

2. Theory of Mind and Autism

In discussing the concept of “Theory of Mind” and the concept of “mind” itself, we are therefore confronting several levels of confusion. The first is the naive confusion engendered by the use of the word “mind”, to which anyone growing up under the influence of a culture which uses this or a comparable word is subject. Beyond that are the various philosophical confusions culminating in varieties of dualism, in which “mind” is identified as an entity distinct from the physical entity of the body, thus artificially splitting up the human being into two separate parts. Beyond these is the attribution of this separate entity to a distinct mental module, and the further claim that that module is innate. Now, having identified these points and analysed the main components of which mind is composed, and having seen how they develop during the course of childhood, the relationship between Theory of Mind and autism has already become clear. We shall therefore restrict our discussion in this section to briefly outlining main points and to explaining certain insights that might otherwise not be obvious. Important details will be discussed as they come up in later sections.

The developmental explanation of the acquisition of Theory of Mind is supported by evidence from both normal and autistic children. Infants’ behaviour during the first months after birth indicates that they lack not only awareness of thoughts and feelings, but even recognition that the separate aspects of a human body comprise an integrated whole. The infant gazes at eyes, but he does not make eye contact or coordinate with other human beings the way adults and older children do. Neither his attention to human features nor the specific interactive behaviours in which he engages indicate concepts of unifying entities. The hands, the eyes, the breasts, the voice and the odour are separate experiences for him. Most of the infant’s behaviour, moreover, indicates that he does not attach any special significance to the human beings around him. Other than the specific responses evoked by human features, his interaction with human beings is similar to his interaction with inanimate objects. During this period, therefore, the normal infant differs little from the autistic one. They are equal in their lack of innate knowledge. Yet the one small difference, interest in human features, immediately produces striking differences in behaviour, and these are soon followed by differences in development.

During the course of infancy, as behaviour becomes both more complex and more focussed, the concepts that will later underlie Theory of Mind are gradually formed. It is here that the development of the autistic infant begins to diverge. Lacking the normal attraction to human features, he learns less about them, so that even though in his initial lack of Theory of Mind he is no different from any other infant, he does not construct one as readily as other infants do, because he does not prepare the foundations the way they do. With respect to development of Theory of Mind, lack of innate interest in human features leaves the autistic child doubly impaired. Firstly, since he is not interested in human beings, he does not direct his attention toward them, so he does not learn as much about them through independent discovery. Secondly, since his Social Learning System is weak, he does not partake of the wealth of cultural knowledge that surrounds him. Indeed, since much of our knowledge of human beings can be gained from no other source than what human beings say about themselves, he is more severely handicapped in this area than in any other.

As the normal child grows, his mental concepts begin to blossom and contribute increasingly to social learning. In the meanwhile, the autistic child falls farther and farther behind. Lack of mental concepts impairs further development of the Social Learning System, and the reciprocal relationship between these and other components then further retards their

acquisition. Since they are central to so much of social interaction, their lack is particularly detrimental. Normally, awareness of the thoughts and feelings of others is a significant part of the context within which their utterances and actions are understood. Communication and other social interaction is performed with the assumption that all listeners and observers share this awareness and sensitivity. Lacking them, the autistic child sometimes finds it impossible to understand and to learn. If he cannot tell whether the speaker is happy or excited, annoyed or worried, he cannot correctly interpret what he is saying. If he does not recognise the speaker's motivations, he cannot tell the difference between an honest offer, a deceptive ploy, and an attempt to escape embarrassment.

Children who are mentally impaired but not autistic suffer from some of the same practical deficits. Like autistic children, they are easily deceived and unable to accurately interpret the emotions of others. The source of their deficits, however, is very different. What they lack is not interest in human features but global abilities in reasoning and formation of meaningful memories. And although the resultant deficits in Theory of Mind interfere with social learning for these children too, their Social Learning Systems are not as severely impaired because they are powered by normal interests in human features. So in spite of their deficits in understanding the thoughts and emotions of others, some mentally handicapped children develop relatively healthy Social Learning Systems. Since social learning is more dependent upon interest and motivation than reasoning and memory, it is less impaired than other kinds of learning. Especially those whose deficits lie only in abstract reasoning but whose concrete reasoning abilities are normal may have relatively little impairment in social learning. Since in both imitation and social interaction, the model or partner is physically present, relatively little abstract reasoning is required.

But although their social skills and mental concepts may be impressive compared to their overall mental ability, in an absolute sense they are poor. Although a mentally impaired child may be able to greet you, ask how you are, and even chat about what you've been doing recently, the moment you get beyond superficial social chatting you discover how shallow his understanding is. He can't understand when you say you're unhappy because you had a fight with your best friend or you're afraid that you might have offended someone by coming late. So, while he knows what fear and unhappiness are, and can understand direct physical experiences that cause them, he is unable to transcend the limits of his abstract reasoning ability even in familiar human and social areas. Thinking about another person's feelings or even about one's own, necessarily requires kinds of abstract reasoning that he lacks. Even a vigorous Social Learning System cannot, therefore, enable him to achieve normal grasp of Theory of Mind.

These deficits, however, are less striking in mentally impaired children than in those who are autistic but have normal intelligence, because less is expected of them. We expect the autistic child's social skills and understanding of mind to be consistent with his overall mental ability. When they are not, we wonder why. The mentally impaired child poses no such problem for us. On the contrary, we are impressed with those social abilities that he does have.

3. Discrepancies between Understanding Mental Concepts and Applying them

We have already discussed the difference between cognition and skill, and their independence of one another. Grasp of the concepts of mind does not necessarily entail skill at applying them. To

notice the emotions of others or understand their intentions requires skill that goes far beyond comprehension of theoretical concepts. It is one thing to understand the concept of deception but quite another to recognise it in action. An autistic child may understand stories in which one character deceives another, but when it happens to him he doesn't realise until it's too late.

The reason for this discrepancy between understanding and application is the extreme complexity of social skills. The apparent ease with which normal children acquire them belies the years of practice and dedicated attention to others by which they are gradually honed. Were it not for innate interest in human beings, together with the positive reinforcement that social knowledge and skills gives, few children would be able to devote themselves to this tedious work. Social moulding too plays an important role in this development. The normal child is provided with behavioural models to imitate, and his development is guided by those around him, who reinforce appropriate behaviours and discourage inappropriate ones.

Understanding of concepts plays little role in the process by which social skills are initially acquired. The course of acquisition begins with a period during which the child is able to behave more or less appropriately but cannot explain why. His competence during this period might be described as *functional understanding*. He is certainly thinking and reasoning, but his reasoning is concrete, like the reasoning a very young child uses when he opens a container to get out what is inside. Before achieving the abstract concepts of "in" and "out", he develops the functional skill of getting things from one to the other. Only after acquiring that skill does he construct the concepts implicit in it. So too in the much more complex area of social interaction, he begins with behaviour. He learns to expect pleasant responses from people who smile and unpleasant responses from those who frown. It is upon these behavioural foundations that concepts such as "happy", "friendly" and "angry" are later built.

This progression from functional to conceptual understanding is not automatic. Even though the human being has the innate disposition to construct abstractions, there are many factors that influence which ones he actually constructs. Among the most powerful is *social guidance*, especially through language. The word serves as a scaffold, directing the child to construct the concept, while behaviour provides the material from which to construct it. Thus the normal child is guided first to develop the social skills that are current in his culture, and then to construct the mental concepts that the culture recognises. Most cultures, however, also include behaviours for which they have no corresponding linguistically identified concepts, so behavioural competence typically exceeds conceptual understanding. Only a few exceptional individuals have the independent insight to recognise concepts that are implicit in cultural behaviour but not identified linguistically. For most, they remain on the functional level.

For children who are mentally impaired, however, even these scaffolds may not be sufficient to transcend the functional level. If they lack the necessary aptitude for reasoning and abstraction, they cannot grasp the concepts even though they are able to behave appropriately and have learnt the words. Some, for instance, learn to say "I'm sorry", but the meaning of the word "regret" eludes them. They are not liars or hypocrites. Their words are empty not because they choose not to fill them, but because they are unable to. Their conceptual understanding remains on the level of simpler mental words such as "happy", "sad", "want" and "hurt". Nonetheless, though lacking in conceptual understanding, their skilful social behaviour enables them to interact effectively with others, and through that interaction, to learn socially. Thus it serves them doubly, enabling them to interact in the present situation and also to develop for the

future. Within the limitations of their mental aptitude, their Social Learning Systems grow and improve. Appropriate social behaviour may be so well developed that it conceals lack of understanding. They seem to understand concepts when all they are really doing is imitating very well.

But, unlike the development of mentally impaired children, which is similar to that of normal ones though slower and more restricted, the development of the autistic child is fundamentally different. Since he participates little in social interaction and his social learning is weak, he misses much of the early behavioural development. Those who are sufficient intelligent eventually construct the mental concepts, but by a somewhat different route. They too are guided by language and other cultural factors, though less than the normal child. Basic vocabulary of mental words such as “happy”, “want” and “think” plants the seeds from which mental concepts can grow, but it takes them longer and they are more prone to error than normal children. The raw material from which they construct these concepts is relatively impoverished both because they have not developed as many interactive behaviours and because they have made less observations and have had less experiences with other human beings.

The autistic child who has attained a mental concept but still lacks appropriate behaviour for it, finds himself in a situation rarely experienced by normal children. Until now the behaviour of others was simply chaotic. It could not be understood and there was nothing that could be done about it. Now that it has begun to make sense, he finds himself confronted with the overwhelming task of dealing with it. This realisation is not, of course, attained all at once. It is the culmination of a long process, the first steps of which do not involve any recognition at all, followed by a period of vague awareness, and finally a period in which emotions and thoughts are recognised one by one. Different autistic children go through this process at different ages. In general, the more intelligent the child the sooner he makes these breakthroughs, although those who acquire language late in spite of their superior intelligence are more delayed.

The autistic child who has begun to struggle with this problem does not realise that other children are not dealing with it as he is, but are simply practising familiar behaviours they have copied from others. At this point an intelligent autistic child can greatly benefit from help and guidance. Few, however, get it. For most it is, on the contrary, a time when they are profoundly misunderstood and unfairly criticised. Those around them cannot appreciate what they are going through, never having known anything comparable. Instead of being helped to understand and learn the appropriate behaviours, they are considered perverse and obstinate. They, in turn, experience frustration and anger. For some it is also the first time they feel alienated, for until now they so fundamentally lacked awareness of others that they could not even conceive of companionship. Kindness that was done to them until now was experienced simply as physically pleasant. Now, with the new awareness, a new world of humanity has opened up to them. If that world is sympathetic and friendly, this becomes their first experience of love, help and cooperation, but if it is demanding, critical, and unsympethetic, they experience instead hatred and rejection.

As his ability to use language and to communicate improves, the child becomes able to discuss his feelings with teachers and peers. He can talk about being afraid or angry. Although he may need the extra help of formal instruction to do so, he is finally able to learn the social behaviours that other children acquired effortlessly when they were much younger. As he moves on into adulthood, he may achieve greater conceptual understanding of the human mind than that

of their normal companions, even as his skill at applying it continues to lag behind. Indeed, for many intelligent autistic adults, the constant challenge of social interaction itself makes human thought and behaviour a subject of interest and fascination. Given sufficient aptitude for abstract reasoning and opportunity for inquiry and learning, some become insightful amateur psychologists, and a few become professionals.

4. Imitation

Since imitation is such an important part of social learning, it merits our special attention and analysis. Furthermore, as have seen, imitation was one of the phenomena that was seen by proponents of nativism as evidence for both innate Theory of Mind in normal children and for its absence in those who are autistic.

4.1 Genuine and Pseudo-imitation

In the preceding chapter, we began to discuss the distinction between genuine imitation and behaviour that looks like imitation but really is not, such as an infant's crying when it hears another infant cry. We shall now refer to this as "pseudo-imitation". As we saw in the case of crying, in pseudo-imitation, the behaviour of one individual serves as a stimulus for the performance of similar behaviour by another, but without the latter's awareness of the similarity between them. The pseudo-imitator need not be aware that his action is the same as that of the other or even that he and the other are the same sort of being. Indeed, he need not have any awareness of self, of action, or of the existence of others as physical entities.

Although pseudo-imitation is distinct and essentially different from genuine imitation, there is a continuum between them. The various kinds of awareness that are necessary for genuine imitation are not acquired all at once. Awareness of one's actions, of one's self, and of similarity to others, are all cognitions that are gradually built upon behaviour, so there is no precise moment of which it can be said that everything after it is completely genuine and whatever was before it was not. From the infant's early behaviour, such as crying when he hears another infant cry, to the paradigm case of genuine imitation, in which the imitator intentionally tries to reproduce the actions of the model, are many intermediary steps. Close to the paradigm case is the child who plays with a toy the way he has seen others do, simply because he assumes that is the way it is to be done. He does not think of himself as imitating the actions of others, but simply of conforming to the requirements of the object itself. Moreover, he knows that he is playing with a toy, and that he is trying to do it the right way. Farther from genuine imitation is behaviour that, though it lacks explicit intention or awareness, includes most of the other qualities. When children reproduce the accents and mannerisms of their parents, their actions are clearly derived from observation, even though they are not aware that they are imitating them and are making no conscious effort to do so. Near the other extreme are original behaviours, especially of small children, that incorporate elements that they have observed others do. The infant who, in babbling, produces speech sounds he has heard in his surroundings, cannot be considered to be genuinely imitating, but neither is he unaware of what he is doing. He is already exercising some control and choice. When, in the course of random production of sounds, he

favours those that are familiar because he has heard them produced by others, the incipient awareness of his control over his actions differentiates it from completely pseudo-imitation.

There are many instances of pseudo-imitation in the animal world. In some species it is part of a mechanism for communicating warnings of danger. When a deer becomes frightened, it raises its tail and runs. When another deer sees the first one raise its tail it experiences a feeling of fear which causes it to raise its own tail. Soon all the deer have raised their tails and run. This is clearly a beneficial survival mechanism for the species. The source of danger need only be seen by a single deer for all the deer to be alerted. The first has, in effect, warned the others. But it did not do so with the intention of communicating or warning, nor did the others realise they were being warned, or that they in turn are warning others. Similar warning systems exist in many species of birds and animals, involving cries and other behaviours. They reside in the intelligence of the species, not of the individual.

The human behaviour of opening the mouth and extending the tongue closely resembles the feeding behaviour of birds, in which chicks open their mouths when they see the parent approaching with food. Since similar feeding behaviour exists in human beings in pre-industrial societies, in which the parent chews food for the child and puts it into the child's mouth, such innate responses can be expected to exist in human beings as well. Opening the mouth and extending the tongue in response to an open mouth and an extended tongue may therefore be part of an innate feeding behaviour in which an infant that is being weaned is fed food chewed by its caregiver. Such stimulus-response behaviours in animals certainly do not involve any innate conceptual knowledge. The baby bird does not know that it is a bird, that its mother is a bird, or even that worms and grubs are good to eat. Even the act of opening its mouth is neither intentional nor voluntary, but an innate response to the sight of the parent presenting food. Although the human infant's potential for conceptual thought is far greater than that of the bird, in this case the innate aspect of his behaviour may be essentially the same.

Smiling too, while perhaps of less immediate physical benefit, is a valuable behaviour because it attracts the attention of adults and engages their interaction, thereby eliciting their care-behaviour. Adults generally respond positively to the sight of an infant smiling and vocalising in certain ways, and become inclined to interact with it. So it is possible that smiling be an innate behaviour triggered by the sight of a human face. There is, however, no clear evidence for this, because infants' smiling can be explained in other ways, without postulating innate response mechanisms.

There may also be an innate ability to recognise and respond to the smiling faces of others. Since adults are more disposed to interacting positively when they are in a good mood, it is advantageous for the infant to recognise the signs of adults' moods. So just as the adult's open mouth is an appropriate stimulus for the infant to open its own mouth to receive food, the adult's smile is an appropriate stimulus for the infant to smile back and participate in a social-interaction session. Here too, there is no clear evidence. By the time an infant begins to smile back when smiled at, he has had enough experience of seeing smiling faces in response to his own smiles for smiling-behaviour to have become connected to the sight of others smiling.

So even if these behaviours do involve a specific innate aspect, it is neither one of knowledge nor of genuine imitation. The absence of imitation in the rest of the infant's behaviour indicates that he is unaware of any similarity between himself and others and that neither their appearance nor their behaviour have any innate significance for him. Furthermore, most early

behaviour indicates neither awareness of nor control over the body, which precludes the possibility of true imitation. So, while infants might sometimes appear to be imitating, they are, in fact, only performing behaviours from within their limited repertoire, which are coordinated, either innately or by learning, with behaviours of their caregivers.

4.2 The Role of Innate Parenting Behaviour in Early Social Interactions

In discussing the role of innate behaviours in childhood development, it is important to recognise that innate behaviours are not limited to infants. The caregiver's behaviour is also in part innate. Even though caregivers are adults who have undergone many years of development, they are not devoid of innate behaviours. Some are general feelings and behaviours of altruism and compassion. Others are specific to the parenting situation, and are evoked by the sight, sound, or odour of an infant or by the infant's own behaviour. Learnt behaviour supplements but does not replace them. Innate elements are evident in various aspects of adult behaviour. Infants' crying and smiling attract their attention and elicit responses, such as imitation of smiles and vocalisations. Not only the attraction, but even these specific responses may well be innate. Some of these behaviours, such as little girls' caregiving behaviour toward infants, are already present in childhood, where modelling and training begin to supplement and enhance innate behaviour. Others emerge in adulthood, when caregiving behaviour toward infants in evident in males as well as females, though not to the same extent, since, biologically, females bear the larger part of the burden of child-rearing. There may also be some innate behaviours that arise from biological changes in the mother after birth. Together with learnt caregiving behaviours, all of these play important roles in shaping the early development of the infant.

That parenting behaviours such as smiling at infants, looking into their eyes, cooing at them and holding them are innate is indicated by several factors. The first is *universality*. These behaviours are found in all populations and all cultures. Although universality is not a conclusive proof of innate origin, since the interplay of internal, external, physical and sociological factors can also produce certain behaviours with great consistency, it is nonetheless a strong indication.

The second is *comparison to other species*. Innate parenting behaviours exist in all species whose young require care and protection. In some cases, specific juvenile features alone trigger parenting behaviour in adults. In others there is an interplay of behaviours of adult and child, each serving as a stimulus for the other. We can therefore expect to find behaviours of this kind in the human species as well. Indeed, innate human parenting behaviours can be expected to be even more extensive than those of other species, since human infants need more care and training. Since human infants have specific needs that infants of other species do not have, even some parenting behaviours that are uniquely human may be innate.

The third is *necessity*. As we discussed earlier, the greater the necessity of an activity, the more will be the mechanisms that address it. Those activities that are essential for the survival of the species are almost always addressed by innate mechanisms of one sort or another. In humans, the resultant behaviours are generally then supplemented by social and individually developed ones. Since, like nourishment and avoidance of danger, care and training of the human infant are essential for its survival and development, innate mechanisms that guaranty their fulfilment can be expected to exist. Such an essential need would not be left entirely to behaviours that are learnt or derived from individual reasoning.

There is an extremely significant difference between innate adult parenting behaviours and the innate behaviours of infants. Since they are not performed until adulthood, they can make use of cognitions and abilities that have been acquired over the course of years of individual development. Unlike infants, adults know about their own bodies and are able to consciously control them. They also know that infants are beings similar to themselves, so they are able to recognise the infants' actions and voluntarily reproduce them. The adult can therefore have an innate behaviour without being provided with innate knowledge to enable him to perform it. Unlike the innate behaviours of the infant, those of the adult can therefore involve genuine imitation. When an adult imitates an infant, the inclination to imitate can be innate even though the behaviour that it produces draws upon developed abilities. Since every individual invariably gains certain basic skills and cognitions by the time he reaches adulthood, innate behaviours that do not emerge until then can safely assume their existence and rely upon them. Such reliance upon factors that are not internally provided is indeed found in all innate behaviour. The innate sucking-behaviour of the infant is designed to make use of the breasts with which he will be presented. So too, the caregiver's imitating-behaviour can be designed to make use of the cognitive development he will by then have achieved.

It is therefore in the innate behaviour of the caregiver that genuine imitation is found. It might be a specific inclination to imitate smiles, or just a general one to respond to the infant's activity and to incorporate imitation into that response. Among the important effects of this inclination is the cultivation of imitative behaviour in the infant, which then contributes to eventual awareness of self and others.

Thus the nativist explanation errs not only in attributing too much innate knowledge to the child but also conversely in failing to recognise the innate aspect of the adult's parenting behaviour. By doing so, it overlooks the crucial role of innate parenting behaviour in the child's development.

4.3 Secondary Pseudo-imitation

The interaction between caregiver and infant within which cognitive development takes place arises from the combination of innate behaviours of each. Each behaviour that is actualised influences what behaviours the other one will then produce, which then in turn influence the next behaviours of the first one. There is no script or set of instructions governing it, neither in the caregiver nor in the infant himself. In the first cycles, the infant's behaviour consists of innate responses and spontaneous actions, the latter including some that are evoked by general feelings such as contentment or discomfort. These then serve as stimuli for innate and developed responses of adults.

The infant's smiling and cooing evoke the adult's smiling and vocalising responses, so the infant repeatedly experiences the sight of a smiling face in conjunction with his own smiling and the sound of human vocalisations in conjunction with his own vocalisation. Through this repetition, the motor-structures of smiling and vocalising become connected to the sensory-structures of seeing a smiling face, as we described earlier, and before long the infant is smiling back at faces that smile at him. This gives the impression that he knows they are smiling, knows their smiles indicate happiness, and knows that he is returning those smiles. But that is only an illusion. For the infant, not even aware of himself as a human being, the act of smiling consists

only of muscular activity and the accompanying internal sensations, and the caregiver's smiling face is only a familiar visual configuration that also evokes the expectation of pleasurable sensations.

4.4 The Beginning of Genuine Imitation

As the infant gradually gains awareness of his body, genuine imitation becomes possible. The development of body-awareness is a process of assimilation of sensations into motor-structures. First, motor-structures become connected to the proprioceptive sensations of muscular movement. Then they become connected to the sensations coming from outside the body. The sound of the infant's own voice crying, coming in part from within his body and in part from the air outside it, becomes connected to the act of exhaling while tightening the vocal cords. Change in the visual field becomes connected to movement of the head or eyes. The proprioceptive sensation the infant feels when he moves his hand becomes connected to the visual sensation of the appearance of a hand moving in front of his face. Thus he gradually develops an awareness of his body as an entity that he can control and through which he has sensations. His hand is different from his doll or his blanket or the other things he sees around him. He is able to move it, and when something touches it he experiences a tactile sensation. Gradually, these separate structures become integrated to form a superstructure from which the concept of body and the feelings of self and identity later evolve.

At the same time, he is developing unifying theories of external sensations, including that of a human being. Similarities between human beings and self, such as hands and voices, lead gradually to the identification of the self as a human being as well. It is the recognition, however primitive, that both he and they have hands, feet and faces, and can move them in similar ways, that makes genuine imitation, the intentional replication with his own body of what he has seen others do with theirs, possible.

But, while genuine imitation requires at least a rough awareness of self and non-self, it does not require any awareness of other minds. The infant does not even need to know that the voice he hears or the moving hand he sees belong to an integrated being, and certainly not that they belong to one that has thoughts or desires. Even rough mental concepts are unnecessary. He can recognise the correspondence between those actions and his own without them. It is easy to be misled by infants' behaviour and imagine that they have the kind of awareness that is fundamental to adult imitation. Like early interest-responses that superficially resemble the interests of adults, these behaviours do not indicate innate concepts of human beings, of intention or of volition. So although by the time the infant begins genuine imitation he certainly has a complex system of unifying theories, they are still far from the mature mental concepts that will eventually evolve from them.

4.5 Gaze-coordination and the Continued Development of Metal Concepts

Gaze-following is a significant step in the evolution of coordinated behaviours. Its development follows a pattern characteristic of such behaviours, in which the burden of coordination gradually shifts from caregiver to infant. Initially, it is the caregiver who coordinates his gaze with the infant's. He looks at what the infant is holding or follows the infant's gaze to see what he is

looking at. As the infant, thanks to his innate attraction to the caregiver's eyes, becomes familiar with the caregiver's face and its various movements, he notices this eye-motion and it becomes assimilated into the infant's own motor-structures of looking at objects and manipulating them. Here again, once the combined structure has been formed it can be activated by one part or the other, so the caregiver's gaze and facial expression, especially when accompanied by sounds such as "Oh, look!", evoke the infant's attention and his own gazing behaviour in the appropriate direction. And here too, the illusion of innate knowledge is produced. The infant seems to know that the caregiver is looking at something, and even that he is thinking about it.

In the simple coordinated behaviours that develop during the first weeks after birth, as the infant learns to grab his mother's breast, the burden is initially almost entirely on the mother to adjust to the infant's position. As he gradually gains skill at finding the breast, his own role increases. The same pattern occurs over and over again in the development of more advanced behaviours such as taking turns vocalising and smiling. As the complexity of the behaviours increases, so does that of the role the infant eventually assumes in adjusting his actions to those of the caregiver.

Gaze-coordination is then augmented by pointing and talking together, contributing to the development of language as well. Still, the infant's thoughts are not like those of an adult. He does not know the significance of the caregiver's eyes and cannot infer from them that the caregiver is looking at something and thinking about it. Like imitation, the reasoning needed to learn to follow the gaze of another and even to produce appropriate vocalisations does not require mental concepts. It is simple enough to be performed by calculation of overt phenomena alone. As simple as they are, however, they serve as steps toward the gradual development of concepts such as self and non-self, volition, feelings and causality.

4.6 The Role of Imitation in the Social Learning System

Once genuine imitation is attained, the normal child's innate inclination to attend to human features, together with his tendency for response, make imitation a major part of his activity. This brings him into a period of accelerated mental development during which new behaviours are constantly being added through imitation. He continues to learn and advance as long as his environment provides him with sufficient models and sufficient opportunity to practise. His imitation skills improve too. The more he imitates, the better an imitator he becomes, and the more rewarding imitation becomes for him. Imitation thereby reinforces itself. It becomes one of the main components of the Social Learning System and, through it, of the broader systems of cognitive and behavioural development. Aside from the direct role it plays in learning, imitation reinforces the Social Learning System by increasing the similarity between the child and others around him. The more he imitates, the more his own behaviour resembles that of other members of his culture, making social interaction and social learning easier. He understands others better because he is now more similar to them and lives in a world more similar to theirs.

Understanding their behaviour and their world helps him understand their thoughts and how they reason. Conversely, it makes him more understandable and predictable for them, so they are more comfortable with him. As much as his parents and siblings loved him when he was small, he was in ways a wild animal that could not be trusted and had to be controlled. Now, as

he increasingly adopts their behaviour, he becomes a human being, and they welcome him as one of their own.

4.7 Autism and Imitation

In light of the above, it is clear why autistic children imitate less and why the quality of their imitation tends to be poor. Attention to human features is a key component in all stages of imitation - in the initial achievement of genuine imitation, in its subsequent development, and in the act of imitation itself. Deficits in attention therefore lead to deficits in imitation. If a child never attends to human features, there will never be genuine imitation at all. This is what happens in severe autism. That most autistic children whose intelligence is otherwise normal eventually learn genuine imitation and practise it to some degree attests to their development of secondary interests and subsequent attention to human beings. However, since this interest is not as strong as the normal innate interest-responses to human features, they do not imitate as much and do not develop imitation skills as well as other children.

Imitation built upon this abnormal foundation is, as would be expected, abnormal both in its nature and in the course of its development. Unlike normal children, by the time these children begin to imitate, they already know about their own bodies and the physical world around them. They know about physical objects and about that special class of physical objects, human beings. They also have some concept of self as being separate from everything else. Their first imitation is therefore radically different from the naive pseudo-imitation of the normal child. Normally, even genuine imitation is begun before the distinction between self and other have become clear. Indeed, it is one of the activities through which sense of self develops. The autistic child, by contrast, may recognise that his hands resemble those of his caregivers before it occurs to him to reproduce the actions of those hands with his own.

Recognition of one’s own identity as a human being is a significant developmental milestone for both normal and autistic children. Whether an autistic child acquires it slowly over the course of months or years, as normal children do, or whether it comes to him rapidly, like a sudden flash, it transforms him permanently. It radically changes his relationship to the world around him. Those things that move and interact with him are beings like himself! The sequential difference between the autistic and normal child, however, makes their development radically different. For the normal child, awareness of his essential humanness develops together with his basic awareness of physical reality. They proceed step by step alongside one another. For the autistic child, the separate private world has already been extensively developed before this new aspect is added to it. The evolution of concepts and the nature of the concepts he has at each step of that evolution is therefore different from those of normal children. That difference in early development is never entirely erased. There always remains a separate private world in which other human beings have no place.

For the child who is only partially lacking in innate interest in human features, as in Asperger Syndrome and other milder kinds of autism, the course of development is much closer to normal. Even slight interest in a single feature, such as human voice, is sufficient to direct his attention toward human beings from early infancy. A child who is innately attracted to the human voice orients himself towards the source of the voice and thereby develops secondary interest in the human face. Such children learn about human beings and arrive at genuine imitation at or

around the normal age and normal stage of development. However, being less interested, they imitate less. Many autistic children, though able to imitate when coerced, rarely imitate spontaneously. This then has the expected secondary effects. They get less practice, so their imitation skills do not improve as rapidly. Imitation is therefore less successful and less rewarding for them, so they get less positive feedback and remain less inclined to imitate than normal children.

So even for these children, there is a self reinforcing developmental cycle that tends to increase the differences between them and normal children. The course of mental development is radically different without imitation. For the normal child, genuine imitation, once it is established, becomes the main guiding force for mental development. Imitative behaviours come to dominate his activity. Rarely does he come up with a new behaviour or concept by himself any more. Almost all are copies of those of others. But, while originality and creativity suffer, overall mental development is accelerated. Behaviours learnt by imitation are the products of the innovations and improvements of many individuals over many generations, so they tend to be more complex, more interesting, and more successful than any the child might invent himself. Few of the original games invented by children, for example, are as good as old established ones.

Deficits in imitation in autism therefore have far-reaching effects on development, weakening the entire Social Learning System and retarding most learning processes. By making the autistic child's behaviour less like that of others, they separate him even more from those around him. In all the ways that imitation strengthens the Social Learning System in normal children, deficits in imitation weaken it in the autistic child, reciprocally weakening imitation itself.

Poor quality of imitation is not only a matter of what the autistic child is able to do but also what he is trying to achieve. Many autistic children aspire only to a rough approximation of the model. In speech, they are satisfied with reproducing the broad outlines of words and sentences without paying attention to the finer details. Their poor imitation is therefore not an error due to lack of skill, but a failure to correctly understand the goal. In some cases, that misunderstanding may be fundamental. When the model plays dominoes, for instance, the autistic child watches and then lines them up neatly, counting the dots on each, but without matching the number of dots on adjacent pieces. He has missed the basic idea of the game. In other cases, however, the error is only in degree of similarity. Consider language production. Normal speakers do not all pronounce words exactly the same as one another, but in every language there is a range of difference that is tolerated. Pronunciations within that range are considered correct, those outside are not. The autistic child who omits or exchanges sounds in words has misunderstood the range of tolerance, taking it to be much broader than it actually is. And since, according to his standards, he is within the range, he is not even aware of how his speech differs from that of others. Here again, what he has failed to learn is social convention, in this case the conventionally defined range of tolerance of variation. People understand one another even though no two speak exactly alike because they keep within the cultural standards. As long as they come from the same culture and therefore use the same accent, they consider each other's speech normal and acceptable. The autistic child, not having learnt the conventional range of tolerance, has evolved one of his own. Since he does not pay attention to how others speak, he may not become aware of this until he goes to school, where, unlike home, others are not used to his idiosyncratic pronunciation and cannot understand him. He soon finds himself in

speech therapy where he learns not so much the skill of correctly producing speech sounds as what the conventional limits are and how to keep within them.

5. Play Patterns and Pretence

Among the traits of autism that were not identified by early researchers and were only noticed much later are abnormal patterns of play. In particular, while for most children a large portion of play involves pretence, for autistic children pretend play is much more limited. Some do not engage in it at all. Most do some pretend play, but less than other children of their age. Furthermore, the nature of their pretend play is more limited. Proponents of nativist theories took this as evidence of lack of Theory of Mind, as we discussed earlier, but we shall soon see that it can be explained more simply by the principles that we have already laid out.

5.1 A Developmental Account of Pretence

Pretence is closely related to imitation. They develop together, each contributing to the other. Pretence involves imitating behaviours that the child has observed, so it is based on imitation. It also contributes to improved imitation, because in pretend play, the behaviour being imitated is applied and practised. Pretend play first appears in the child's second year, after genuine imitation has become established through early social games. At this point, as games become more complex, simple kinds of pretence begin to appear in them. The caregiver holds a banana to his ear and talks into it. Eventually, the child does the same. He imitates it as he imitates other behaviours.

Does he find it strange? Perhaps. By now he certainly knows that bananas are generally for eating, not talking. But in the child's experience, now and for a long while to come, there are many strange things. Many of the things adults do don't make sense, many of the words they utter have no meaning. Indeed, he lacks the very idea of things making sense. The child does not live in a world of consistency in which everything fits together understandably. Contrary to the nativist assumption, the child does not expect new things to be consistent with what he already knows, so he doesn't question them when they are not. He lives in a world that is full of surprises. Though he is like a scientist in that he is constantly creating theories and adjusting them as he encounters new facts, he is unlike a scientist, or any adult for that matter, in that he lacks fundamental concepts of *rules*, *consistency* and *necessity*. His theories are correlations and patterns, not reasons. Nor does he question what he sees or intentionally search for answers. He has not yet reached the stage of asking why-questions or even of thinking about them to himself. If he wonders about things, it is not the way an adult or older child wonders.

True pretence cannot, therefore, yet exist, because it can only exist within a framework of rules and consistency. Without such a framework, all actions are equal. There cannot be a distinction between those that are real and those that are only pretend. Since at the time the child learns pretend play he has not yet constructed such a framework, play acts cannot have that significance for him. He cannot yet think of them as pretence. When the caregiver engages in pretence, the child simply accepts his actions for what they are and imitates them like other actions. He does not see them as either agreeing or disagreeing with reality. People do whatever they do, and under the appropriate circumstances he imitates them and does it too.

Here, as in other areas of mental development, behaviour precedes cognition. It is by imitating and acquiring the behaviour that the child eventually develops the cognition. The act of pretence, performed first by the caregiver and then imitated by the child, creates the situation from which he constructs the thought, "It is a banana, and I treat it like a telephone." The conjunction is simply "and", not "but". There is no perception of contradiction between them, so there is no need for resolution, no need for "but". After several such pretence situations have been learnt, he constructs the pattern, "I can treat an X like a Y." This is the pretend-play structure.

There are also behaviours that appear to be pretence, when in fact they are simply extensions of behaviours from one object to another, that is, assimilation of a new object into an existing behaviour scheme. Thus some children simply extend the holding-to-the-ear-and-talking behaviour from telephones to blocks or bananas or whatever is handy at the moment without any thought of pretence. The pattern for this is "I want to do behaviour A, which I generally do with a Y, but there aren't any Y's around, so I'll do it with an X".

Some early imitation may seem to adults to involve an element of pretence, when for the child it does not. He sees an adult doing something and tries to do it himself. Not only does he not realise that he is incapable of it, he does not even realise that his imitation has not been successful, that the adult's actions have a result that his do not. He sees an adult write, so he takes a pencil and scribbles; he sees an adult play the piano, so he bangs on the keys. He does not realise that there is any more to writing than making marks, any more to music than making sound, so he doesn't think of himself as pretending to do what the adult does, but of actually doing it. For some children, talking on the telephone is at first in this category too. They do not know what a telephone is and do not realise that anyone is listening to them, or that the sounds coming from the phone are someone talking to them. To them, talking on the telephone is simply holding it in a certain way and making sounds, so they think of themselves as doing the same thing that adults do.

The cognitive mechanism that brings about the change from "It's an X *and* I treat it like a Y" to "It's an X *but* I treat it like a Y" is *expectation*. Expectations are much simpler than rules and consistency. Indeed, they need not even be cognitive. Early expectations are just behavioural. When a person reaches out for something and grabs it, the act of grabbing is based on the expectation that the visual experience of seeing something there will be accompanied by the tactile experience of feeling it. Expectation can therefore serve as a link between early simple interactive behaviours and later more complex ones. Long before the infant becomes aware of others' thoughts, or of the essential similarities between them and himself, he begins to have expectations about their actions. When he engages in social interaction, he knows that he can expect certain actions of his caregiver to follow certain of his own. Fulfilment and non-fulfilment of these expectations becomes an important part of his experience of social interaction.

At first, non-fulfilment is frightening. The infant is frightened by unfamiliar faces because he expects the faces he has become accustomed to seeing, and is upset when that expectation is violated. Soon, however, a very different reaction begins to appear. Failure of expectations, at least in come cases, ceases to be threatening and the tension of uncertainty becomes exciting. The child begins to enjoy social games of surprise. The pleasure he derives from the resolution of uncertainty is evident from his smiles and laughter. This sort of pleasure seems indeed to be innate, though it is not clear how specifically social that innate pleasure is.

Infants smile and laugh similarly when they hit hanging toys in their cribs and watch them swing back and forth. This is an early form of the pleasure experienced from relief of tension, when one waits anxiously to see what will happen next. The infant experiences them in these situations because for him the causal pattern is not yet certain. He expects a certain result from his action, but is not confident that it will really happen. When it does, he experiences a feeling of relief.

A different though also positive feeling sometimes results from failure of fulfilment. The central feature of a joke is that the punch line is a surprise. If the listener had no expectation whatsoever, he would not find the joke funny. Tickling causes laughter because one is always in suspense, never knowing with certainty what the next tickle will be. Tickling oneself therefore has no such effect, because there can be no surprise in it. Enjoyment of surprise in both social and non-social situations appears at this point, in playing surprise games with caregivers and in waiting for the jack-in-the-box to pop up.

The non-fulfilment of expectations contributes to the development of pretence too, though in a different way. When the child first observes and imitates pretence, expectations affect the way cognitive structures are formed around the pretence-behaviour. He expects objects to be treated as they had been in the past. He expects the banana to be eaten. It is because they are not that his attention is attracted and the formation of a new structure is evoked. The new structure is, "It is an X *but* I treat it like a Y" with the immediate implication "I *can* treat an X like a Y even though it is not a Y." Thus at this stage, expectations play the role that rules and consistency will play later. Because of expectations, he sees that there is something wrong with this behaviour. Even though he does not yet conceive of the world as a consistent place in which certain rules are obeyed, his expectations mould his thinking so that he constructs a primitive structure from which genuine pretence will later develop.

Thoughts and the difference between thought and reality are implicit even in this primitive structure. If it is not a telephone, by virtue of what is it being treated as one? But the child is not ready to construct these concepts, because he does not yet have the cognitive material, the simpler cognitive structures from which to construct them. Instead, he expands the behavioural structures, so that the totality of actions becomes divided into "real" actions, those that have results, like talking into a telephone or eating a banana, and "pretend" ones that do not, like talking into a banana or "eating" plastic fruit from doll plates. Later, when, through the rest of his experience with other human beings, he begins to construct mental concepts such as "thoughts" and "intentions", these behavioural structures join with them to produce concepts such as the independence of thought and reality.

So the course of development indicates that the origin of pretence is in social interaction, not in the innate abilities or dispositions of the individual, as proponents of nativism claimed. Pretend play is never initially spontaneous. Children do not begin playing this way until they have seen it done by others and learnt it from them. Initially, all new games are introduced by the caregiver. Only after being trained in pretend play by his caregivers does the child begin to practise pretence on his own. So too, mental concepts. There is no evidence in early pretence behaviour that the child is interpreting pretence in terms of mental states. It is not until long after pretend play has been established that the child learns mental words from his caregivers, and only then does his pretence begin to include mental concepts. Both steps, behavioural and cognitive, are achieved through social guidance.

5.2 The Social Nature of Pretence

From its first appearance early in childhood and thereafter throughout life, pretence is a social activity. It is social in its *origin*, its *context*, and also in its *purpose*. It is an important component of the Social Learning System, evolving with it into new forms such as symbolism and social ritual, which are much more complex and subtle than the original pretend play of children's games. Through cognitive structures of symbolism, of one thing being used in place of another, it contributes to the development of symbolic language. Since pretence is found in all cultures, no individual ever needs to invent it himself, nor is there need for specific innate mechanisms to produce it. The social environment is sufficient to guarantee its development in every normal child.

For normal children, pretence, once established, becomes one of the favoured modes of play. By the time they reach the early school years, girls are playing house and boys are playing warriors and pirates. All along, it remains essentially social.

Pretence also has the unique potential to transform a non-social situation into a social one. The normal child craves social interaction, and he uses pretence to simulate a social situation when none is available. When he plays by himself, he creates a pseudo-social setting by providing himself with imaginary playmates or observers. Thus when a child plays alone with dolls and invisible friends, he is playing socially even though his companions are imaginary rather than real. Solitary pretend play is therefore unlike other kinds of solitary play, such as building with blocks or doing puzzles. It is solitary in fact, but social in nature. For the normal child, pretence that does not involve other participants, real or imagined, is the exception rather than the rule.

5.3 Pretence and Autism

In autism, imitation and pretence develop in a different way and serve different purposes. Firstly, they begin later and develop more slowly. Normal infants play by themselves only until they have developed social interactive behaviour. The first stage, in which play consists of moving their limbs, vocalising, exploring their surroundings with their various senses and observing the results of their actions, as when they hit a hanging object and watch it move, is soon transcended. As interaction with human beings increases, this solitary play gives way to social play, and occupies a smaller and smaller portion of their time. Not so the autistic infant. He continues to play by himself, and his solitary play evolves in scope and complexity, while social play, if it is present at all, remains minimal. Given suitable circumstances, an intelligent autistic child can achieve impressive skill through his solitary play. He may be able to put together thousand-piece jigsaw puzzles or play Mozart piano sonatas by heart. But when other children are playing ball or pretending to go on an adventure, he has no interest in joining them.

Without the normal interest responses and without social interaction, the autistic child does not go through the early stage in which other infants develop imitation and pretence by playing social interaction games with their caregivers. Those who are only mildly autistic do some minimal imitation during this period and perhaps some pretence, but since these make up only a small part of their activity, they have little influence on their mental development. It is only after a fair amount of knowledge and world skills have been acquired and they develop

secondary interests in human beings that they show any enthusiasm for imitation. By then, given the reciprocal nature of developmental systems, absence of these central elements of normal cognitive development has caused radical differences not only in imitation and pretence themselves but also in the rest of cognition.

All autistic children whose intelligence is normal eventually learn to imitate and most practise some pretence. At what age this begins is primarily a function of intelligence and secondarily of education. Appropriate help and encouragement at the right time can accelerate this development, but no amount of training can make an autistic child imitate before he is ready to - that is, before the necessary prerequisite development is complete. The beginning of imitation in autism is therefore radically different from the naive imitation of the normal infant. It is genuine imitation from the start, emerging in the context of knowledge and voluntary control over behaviour.

With the acquisition of imitation and pretence, overall behaviour generally becomes less abnormal. Just by looking at other human beings and trying to do the things they do, the child behaves less idiosyncratically. Even more important, this feeds into the Social Learning System. Some children now enter a new level of awareness of others and learning from them. They learn not only specific behaviours but concepts and skills. While in no case does the child cease to be autistic, his autism becomes so much less obvious and his connection to others so much stronger and deeper that for those who have known him he seems to have become almost normal.

It would be, however, a mistake to attribute all of this to imitation. In most cases imitation is just one of several behaviours that have been acquired around the same time which contribute reciprocally to one another to produce a period of accelerated development. It may not even be meaningful to ask which came first. It is the system itself that has been progressing slowly until, several of its components having all reached points of readiness, a small increase in one of them sets it into motion.

Though generally less significant than imitation, for some intelligent autistic children pretence opens up new worlds of activity and becomes an opportunity for originality and creativity. They compose complex stories and some even invent countries and worlds replete with their own languages and laws. For most, however, neither imitation nor pretence become favoured behaviours. Since social interaction is both the main motivation and the main context for pretence, autistic children practise pretence less than other children even after they have acquired it, so pretence and imitation skills do not develop as rapidly or as consistently.

Even for those who adopt pretence enthusiastically, its significance and purpose are not at all the same as they are for other children. The social aspect and social context is still largely missing. If they incorporate others in their creations, it is as pawns, as actors to perform the plays they have composed. While for normal children the social significance is primary and the act of pretence itself is just a means to that end, for autistic children it is more often the internal structure that is interesting, the act of treating something as something that it is not. It is the play-object itself and what is done with it that are of interest. Autistic children who play with electric trains typically enjoy making configurations of track and running the trains on them, but do not make up stories about the trains and the towns through which they pass. If others happen to be playing with them, they are secondary to the play-objects and to the play-activity itself. When they play alone, they do not make up imaginary friends or activities to play with them. They have no desire for companions, and might, indeed, prefer to play by themselves.

Later in their development, however, many autistic children begin to crave companionship, and some then use pretence along with other normal play activities to achieve socialisation. Some do not actually enjoy pretence at all, but engage in it when they play with other children because they want to be liked and accepted by them. They realise that other children are part of their world whether they like it or not, and what those children think of them and how they treat them are important factors in how pleasant or unpleasant that world is.

6. Concepts of Self and Others

Social interaction also plays an important role in the development of the three reciprocally related concepts of *self*, *others*, and *identity*. We therefore find various abnormalities in the development of these concepts in autism.

An infant has no concept of self nor even a concept of his body as being distinct from the rest of the world. Only gradually, as he grows and interacts with his surroundings, does he construct them. Like other concepts, they begin with behaviour. First he learns and develops certain behaviour patterns in which the distinction between self and non-self is significant. Then he forms concepts corresponding to them and integrating them. Certain of these can develop through physical interaction with the world alone, but there are others whose development is difficult and perhaps even impossible without interaction with other human beings.

Eyes and seeing, for instance, are not in themselves social entities, but social interaction normally plays a central role in learning about them. Small children, in playing with their caregivers at hiding things, sometimes cover their own eyes to prevent the other from seeing. They imagine that when their own eyes are covered, others cannot see them. The error here is much more basic than confusion about whose eyes do the seeing for whom. The child does not yet know that a person sees through his eyes. All he knows is that the act of covering the eyes, *his eyes*, that is, makes things disappear. It is like turning out the light. Lacking the concept of relative points of view, he thinks that in an absolute sense everything has become invisible. It is only in the course of gradually becoming aware of others as beings similar to himself yet separate from him that he becomes able to notice that when others cover their own eyes they are unable to find things, but when he covers his they can. Eventually he realises that while turning out the light makes things disappear for everyone, covering his eyes only makes them disappear for him alone.

6.1 Personal Identity

Personal identity, the concept of *self*, is a complex concept derived from the combination of many specific concepts such as this. It involves both experience, being the one who feels a sensation, and agency, the sense of being the doer of an action. It is closely related to Theory of Mind, which, as we have said, is the concept of a *human being* as an entity having *thoughts*, *feelings* and *desires*. These two concepts develop side by side, sharing many of the same foundations and contributing to one another over the course of their development. Although neither is essentially social, social interaction is instrumental in their acquisition. Autistic children who do not pay attention to other human beings, do not observe their behaviour, and do

not interact with them, therefore do not develop these concepts as quickly or with the same regularity as other children do.

Personal Identity, however, has received less attention than Theory of Mind. When degree of innate knowledge of mind became a pivotal question in cognitive science, its role in autism attracted interest, while personal identity, about which no comparable controversy revolved, was largely ignored. That, however, has no bearing on its actual significance in autism. In fact, it is extremely significant both in development and in functioning. Many aspects of autistic behaviour can be explained by deficits in understanding of self.

Deficits in Personal Identity are found in all kinds of autism. Autistic children who are mentally impaired have deficits even in basic concepts of self. For some, existence may be a continuum of sensations without any clear divisions or boundaries, as it is for an infant. Others attain the kind of sense of self characteristic of small children, in which "me" means their physical body. They understand "He hit me", "I'm hungry", "I climbed up the tree", but they do not understand thoughts and beliefs, commitments and responsibility.

The aptitudes needed to achieve a concept of self go beyond those necessary for language. There are children who have considerable comprehension of language and may be able to speak, yet are incapable of this basic structuring of existence. So, while for the normal child language plays a central role in the development of personal identity, neither the capacity to recognise words nor even the ability to produce them is sufficient for the construction of the concept of self. Personal pronouns, which serve as scaffolds to help normal children construct this concept, are of no use for them, for a scaffold is only effective when the capacity for the structure exists. It is a guide for the creation of the structure. Without the capacity, no guide can help.

Deficits in personal identity among autistic children who are not mentally handicapped are of an entirely different nature. All autistic children who have normal or superior intelligence are capable of the concept of self, and eventually construct it. That construction, however, does not proceed in the way it does in other children, because they participate less in social interaction. Indeed, some aspects of the self-concept are difficult or impossible to attain in any other way, so until they develop secondary interests in human beings and learn to interact with them, their sense of self is incomplete.

So, ironically, although most autistic children with normal or superior intelligence have a very strong sense of being separate and different from other people, their identity, their sense of who and what they are, remains weak. It takes them longer to recognise the borderlines between themselves and others. Since they view those borderlines from only one direction, from the inside outward, there are important aspects that they cannot see. For the normal child, learning about the identity of others goes along with learning about his own. He learns "Mummy's nose, baby's nose." The autistic child, whose recognition of such similarities is much weaker, lacks the normal child's perspective and therefore develops a radically different sense of self. His sense of separateness is one of ignorance rather than of knowledge. He does not know what the outside world is like, only that it is different from his own.

Weak sense of identity and of lack of firm borderlines between self and other can have unexpected effects. Sometimes they result in a primitive kind of empathy. An autistic child, witnessing another person undergoing an emotion-evoking experience, may feel the emotion as if he were experiencing it himself. The separation between himself and the other is temporarily

forgotten. This may seem surprising given the lack of empathy characteristic of autism. It is however, essentially different from normal empathy, in which one feels for the other while at the same time remaining aware of their separate identities. This primitive contagion of emotion is not, however, unique to autism. The normal adult who identifies with a character in a novel or film is having a similar experience. That he does not generally have such feelings in real life is perhaps because when the other is a real individual rather than a fictional character, the solidity of the other's identity prevents him from transcending the separation between them. If so, it may be the weakness of his sense of the identity of others that permits the autistic child to loose sight of the distinction between him and them, and feel the other's excitement or pain as it were happening to him.

6.2 Identity and Sources of Knowledge

Another area affected by weak sense of identity is grasp of what people know and how they come to know it. The autistic child has difficulty telling which part of his own knowledge is shared by others and which is not. He tends to assume that whatever he knows is known by everyone else, and what he does not know they don't know either. Even when he finds out something new, and can remember that not long ago he did not know it, now that he knows it is true, he assumes that everyone else knows it too. It does not occur to him that other people might be ignorant just as he once was. The nativist explanation is that normal children are hardwired to know that thoughts are independent of reality, and autistic children lack this innately provided module. But again, evidence does not support this claim. Once it is pointed out to him, the intelligent autistic child understands that others might be ignorant of things he now knows, so just because he knows something is true doesn't mean that everyone else knows it too. The tendency to assume that whatever he knows is known be everyone else is not due to failure to grasp the existence of independent minds, but to lack of attention to other children and what think and do. If you aren't particularly interested in other people, it's much easier to just apply the general principle that whatever one person knows, others know as well.

The difference between the autistic child and the normal one is therefore not in ability to understand opacity of thought, nor in innate ability to understand sources of knowledge, but in the learning process. The normal child, by constantly paying attention to others, passes through several stages until he finally arrives at these concepts. As in other areas of cognition, he begins with *functional understanding* in which, for instance, by imitating patterns of hiding-behaviour he learns to successfully hide things from others. Since he enjoys social interaction, he participates in hiding games in which he gets both training and practice. He learns how to cover things up and which kinds of covering are effective. Functional understanding is supplemented by language. Words and expressions like "know" "tell me" "find out" are scaffolds for understanding the behaviour of others and then for forming the corresponding concepts. So although few normal children have ever stated explicitly that what a human being has not seen or otherwise learnt he does not know, most realise it, so they don't make the sort of mistakes autistic children do.

The autistic child misses these things because he does not pay attention to others and does not participate in those games. Even though physically he lives in the same world as the normal child, his experience of that world is different. Human beings and what they do are so

much less interesting for him that he just doesn't notice certain things about them. Noticing some things and learning about them while failing to notice and learn about others is not in itself abnormal. No one notices everything. Few city-dwellers can tell you when and how the trees bud in the spring or where the sun sets in different seasons, the way farmers can. So too, the difference between the autistic and the normal child lies in which things they notice and which they ignore.

This inclination to attend is behavioural, not conceptual. The normal child does not appreciate the importance of human beings any more than the autistic child does. He attends to human beings not because he knows they are important, but simply because they evoke an innate behavioural response.

Those autistic children who are sufficiently intelligent eventually come to understand these things. As experience relentlessly forces them to attend to other human beings, they learn about them and acquire insights, and as they do, their overall behaviour becomes less autistic. They become better both in communicating information to others and in knowing when and how to hide it from them. To the extent that the primary interest in human beings is still lacking, however, they still pay less attention to them and interact with them less, so relative to their general intelligence, their social knowledge and skills remain below normal.

6.3 The Role of Language in the Development of Concepts of Self

There are various kinds of social interaction that contribute to the construction of a concept of self. Paramount among them is *language*. While certain aspects of the self-concept can develop without language, there are others that are absolutely dependent upon it. The infant does not need language to learn that his hand is different from his bottle. He can make his hand move and he can feel things that touch it, neither of which are true of his bottle or of other physical objects. This experience, however, is not sufficient to enable him to identify the borderline sharply. Rather than becoming clearly defined, self and non-self form a continuum. By bouncing up and down, he can make the hanging toys in his crib move. Are the toys part of him? When his bell falls out of the crib and hits the floor, he experiences an auditory sensation, but when his teddy bear falls out he does not. Is the bell part of him but not the bear? For the normal child, it is language that steps in to clarify the borderline. Personal pronouns, in particular, give him a framework into which to put these experiences, a structure within which self and non-self are clearly differentiated.

The significance of self is then enhanced by words for feelings and thoughts. Earlier, we discussed the role of social learning in the moulding of emotion. By learning to use names for emotions such as "happy", "sad", "angry" and "surprised" the child learns to recognise how he feels. The moulding of the concept of self, however, is even more profound. Words like "think" and "want" give him an awareness of his cognition and volition. By learning to say "I like carrots" rather than "More carrots!" or "Yummy carrots!" he comes to see the feeling as part of himself rather than just a property of carrots, that is, of the outside world. The words mould his thinking. All this contributes to his concept of himself as a being separate from the rest of the world. Thus awareness of emotions and sense of self are closely related. In both, language plays a central role, and each affects the development of the other.

The roles language and self-knowledge play during early childhood, while they are in the process of being formed, are fundamentally different from those they play in later childhood and adulthood, after they have been established. The adult and older child learn about others from what they know about themselves. The child understands his mother when she says, “Don’t hit Tommy. How do you feel when someone hits you?” But for the infant and the very young child, that is not yet possible. He has not yet grasped the similarity between himself and others, nor does he understand himself well enough to be able to introspect and think about how he feels. For him, it is the opposite. It is from others that he must learn about himself. Emotion words contribute to both cognitive and emotional development, serving as scaffolds for the internal development of concepts such as feelings and thoughts. Conceptually, this process consists of several steps, although actually they may happen at the same time. In the first step, words such as “sad”, “happy” and “afraid” are learnt, and indeed defined, through outward manifestations of the other person’s feelings, such as crying, laughing and running away. It is necessarily through these outward manifestations that they are learnt, not through actual experience of them, since one never actually experiences another person’s feelings.

In the second step, having learnt them, the child’s attention is directed toward his own inner feelings. He becomes aware of them, knows they are happening and that they belong to him. This also helps him differentiate between one feeling and other. When Mother sees the child crying, she says, “What are you *sad* about?” and when she sees him excited about getting a gift she says, “Tell Grandma how *happy* you are that she got that for you!” Without this verbal guidance, he might have seen the difference as being entirely outside of himself. Without the words “happy” and “sad” he might simply think of getting an ice-cream as *good* and dropping it as *bad*, and never realise that he, too, was different in the two situations. Even if he became aware of feelings, without the guidance of language he might not realise that they are inside him. He might think, rather, that pain and excitement were properties of the outside world.

6.4 Self and Emotions in Autism

Since autism involves deficits in exactly those things that are central to the development of the concept of self and to self-understanding, *language*, *social interaction*, and *attention to others*, the autistic child’s acquisition of these concepts suffers multiple impairment. In some ways, development of the concept of self may be even more severely impaired than development of emotions, because the physical basis for the concept of self is weaker. The separateness of the body from the rest of the physical world, which is the basis of self, is not a physical experience the way feelings, which are the bases of emotions, are. Self is essentially a cognitive construct. The infant has a longer way to go and more work to do to get from the physical experience of his body to the concepts of self, volition and consciousness, than he does to get from feelings such as cold and hunger to emotions such as happiness and sadness.

For the autistic child whose intelligence is otherwise normal, lack of guidance and assistance of social learning slows down the development of these concepts so much that he is significantly out of step with other children. At the age when other children are learning emotion and identity words and are eagerly participating in social interactions, he has barely begun to notice human beings. Given the abnormal course of language development that we have already discussed, even when he learns the relevant words he does not incorporate them into as many

cognitive structures as normal children do. Since many of the structures other children have involve social context, the autistic child does not form them until he is older and has become more aware of others. In the meanwhile, many of the words he learns remain relatively empty for him. So while his understanding of the physical world is progressing at a normal pace, his sense of what he is and how he feels remains weak and confused. Later, as language and awareness of other human beings improve, sense of self and identity develop along with them. Even then, however, it may never become completely normal because idiosyncratic concepts of self that formed during the pre-social period may resist being altered to conform to the new socially acquired ones.

Since emotions and sense of self are components of the Social Learning System and bear reciprocal relationships with the rest, failure of emotions and sense of self to be moulded socially then affects the rest of development. It increases the difference between the autistic child and his normal companions, contributing to further alienation and deviance.

6.4 Identity as a Member of a Group

Identity is one of the central concepts of human cognition, and among the most complex. There are several distinct kinds of identity. The first is *personal identity*, the sense of being distinct from the rest of the world. This is the concept of *self* that we have just discussed. Second is *type-identity*, the sense of being a certain sort of thing. The most important type-identity is that of being *human*, of being a thing similar to other human beings, which implies the broader type-identities of *living creature* and *physical object*. Third, there is *group identity*, being a member of a group, belonging to a certain subset of human beings distinct from all others. Each of these kinds of identity plays a crucial role in cognitive development during childhood, and continues to affect thought and behaviour throughout life.

It is obvious that personal identity is a fundamental component of both behaviour and cognition. Without at least a primitive concept of self, there can be no concept of an outside world, of objects, of reality. Though perhaps not as obvious, the type-identity of being similar to other human beings is important in many aspects of development, including those of emotions and imitation, as has already been discussed. We have also already discussed the reciprocal relationships between these kinds of identity and other components of the Social Learning System, as well as how they differ in autism. Now we shall consider the third kind of identity.

The normal human being, from his second or third year and henceforth for the rest of his life, identifies not only as a human being, but as a certain kind of human being: a boy, a girl, a child, an adult, a German, an American, a worker, a liberal, a conservative. Some of the criteria for belonging to a group are objective, others are conventional. Some are established by the group itself, some by other groups or by a larger group of which it is a subgroup. Many of them are arbitrary and unrelated to any meaningful differences between human beings. In some groups one must eat garlic to belong, in some one must drink alcohol or smoke. In others, drinking or eating garlic are optional and have no relevance for identity. In almost all groups there is some sort of dress code, though they vary in precision and rigidity.

Members of broader groups generally know which behaviours define their various subgroups, though not as well as members of the subgroups themselves do. Among the most important things that an individual learns in becoming a member of a group are which things are

requirements and which are not. Some criteria are within an individual's control, others are not. One cannot change his race, his family, or his place of birth. His behaviour is at least theoretically changeable, although in practice changing it may be difficult.

Unlike the first kind of identity, which by definition can never be multiple, the second and third are not exclusive. An individual can have several group identities and several type identities simultaneously. He can be both a boy and a child, a Catholic and a Mexican. One cannot, however, be both a boy and a girl or both a Catholic and a Protestant, because some of the essential properties by which they are defined are incompatible.

There is some overlap between type and group identity. Identity as a child or as an adult is sometimes a type identity and sometimes a group identity. An eight year old is a child not only because he identifies as a child, but because his physical qualities define him as one. So too, a twenty year old is an adult. These are type identities. But during the period of transition in adolescence, which group one identifies with is more a matter of how he and others see him. During this period these may therefore be considered more as group identities than type identities.

For the normal adult, group identity is a very powerful force and one of the main factors in many of his life choices. His thought and his behaviour have their roots less in his own personal nature and life experiences than in the preferences of the group with which he identifies. The work he does, the kind of food and music he likes, the kind of games he enjoys playing, the clothes he wears, his morality, political opinions, even his accent, his posture and his facial expressions, are all influenced by his group-identity. Group-identity drives him to do unpleasant and dangerous things such as drinking alcohol, smoking tobacco and climbing mountains. The more central an individual considers a particular behaviour to the essence of a group with which he identifies, the greater the discomfort he feels if he violates it, because by violating a central behaviour not only may he incur the condemnation of other group members, he feels himself less a member of the group and therefore less himself.

More subtle but no less profound is its influence on the knowledge and skills he acquires. Not only is he motivated to acquire knowledge and skills that his group considers valuable and worthwhile, and to neglect those that it does not, he also limits himself by believing himself incapable of those that his group considers beyond the grasp of its members or of human beings in general. In cultures in which children are expected to learn long passages and even entire volumes by heart, most live up to the cultural expectations, while in those in which such feats of memory are considered to be beyond the grasp of all but an unusually talented minority, few, in fact, attain them. Even those who are aware of cultures other than their own in which such achievements are commonplace, and therefore realise that it is not an essentially human limitation, nonetheless conduct themselves as if they were incapable of them.

The relationship between group identity and behaviour is reciprocal. An individual's current behaviour and way of thinking influence both how he sees himself and how others see him, and therefore which groups accept him and with which he himself identifies.

Group-identities are not only less mutually exclusive than the other kinds of identity, but also more amenable to change. Personal-identity is stable for most of an individual's life. The sense of self that begins to develop during the first year becomes sharper and more detailed during childhood, but although it evolves and changes, it is never negated. So too, most type-identity is stable. Once a child realises that he is the same sort of being as other humans, his most

important type-identity has been fixed. When type-identities do change, it is generally in fairly predictable ways, for instance, through growth or ageing. Thus identity as a child, which has been firmly established by the age of five, must eventually change. Whether that transition is gradual or sudden, by the time adolescence is over it has been replaced by identity as an adult. Lesser kinds of type identity too, such as those of student, professional, criminal or citizen, since they are dependent upon objective criteria, are relatively resistant to change. Like moves in chess, only a few type-identity changes are open to an individual at any moment of his life. Group identity, by contrast, follows no such regular course. It can change many times and in many ways.

But while always essentially open to change, for most individuals group identity becomes fixed during adolescence and rarely changes thereafter. This stabilisation is the culmination of an extended process. During childhood, group identity is in a state of flux. The child learns to identify with the groups of his family and his peers, but those identities are never deeply internalised. If he is taken from one group and moved into another, he soon assumes the new identity. A child who moves to a new country not only learns to speak the language with a native accent, but sees himself as belonging to that nation. Even in adolescence, a child of a working-class family can enter a course of study leading to a profession and thereafter see himself no longer as a worker but as a professional. Not only does his type-identity change, since he is now indeed a professional, but his group-identity as well. By adulthood, however, an individual has already established his identity as a member of a certain nationality and economic class, so even if he later moves to another country or enters a new profession, rarely does he completely adopt it as his new group-identity. He remains a German who lives in America, a farmer who practises law. The adult has come to see his group-identity as part of his essence, giving it a strong internal resistance to change. He may be accepted by the new group but still feel that he belongs to the old one. He persists in the old behaviours and mannerisms because he feels that is who he is and therefore how it is appropriate for him to act. If he retains his old accent, the reason may not be because he is incapable of imitating the accent of the new group, but because he feels he is not himself when he uses it.

There are also certain objective factors that make group-identity more difficult to change as an individual gets older. One is his past history, which, like race or social origin, may be a basis for rejection by members of certain other groups. They refuse to forget his past, so no matter how much he has changed and what he has become, they will never look upon him as one of their own. The past in question may involve a specific phase in life, such as the schools he attended during his late teens or twenties, or the violation of a taboo which they consider unforgivable, such as being imprisoned for having committed a crime.

Achieving a new group-identity in adulthood is difficult also because he lacks the skills and knowledge expected of a mature member of the group. He has developed the skills and knowledge of his old group, but not of theirs. Even if they are willing to accept him, he is unable to behave like one of them. This is an obstacle that a child, whose cognition and behaviour are less fully developed, does not have, since adult proficiency is not expected of him.

Proficiency, however, is sometimes more a psychological obstacle than a real one. Adult proficiency is not always as hard to attain as it seems. Sometimes the only thing that prevents him from attaining a certain skill is his own belief that he cannot. Furthermore, competence is not always a prerequisite for membership. Many groups are open to accept those who choose to

identify with them even if their actual competence is low. The potential member may be surprised to find them eager to help him, and also how quickly, with their guidance, he improves.

The pattern of formation and fixation of group identity during adolescence serves a vital function for the human species. Group identity solidifies the primitive fighting group so that members defend each other and the rest of their tribe, and have no compunctions about attacking and killing outsiders. They neither pity nor sympathise with them because they look upon them as a different kind of creature that can be killed and otherwise exploited. It is specifically at this age that formation of permanent group-identity is most advantageous for the species, because until this age the individual is not yet strong enough to be a valuable member of the fighting group. Since, under normal conditions, the group with which an individual forms his identity during adolescence is the one that he will need to defend later on, earlier formation would indeed be detrimental. Were permanent identity fixed earlier, those individuals who moved from one group to another during childhood would not identify with the new group and would not be effective fighters. Nature therefore leaves it flexible until this age is reached, and then fixes it upon the current group.

The mechanism of group identification evolves through several stages. It begins with the structure of “familiar and unfamiliar people” that the infant develops during his first year. This early structure is not in itself actual group-identity, but it is a precursor of the primitive group-identity that will develop in the next few years. The infant who responds differently to familiar and unfamiliar people has no concepts of friends or strangers. He has neither conceptual categories nor even functional ones. All he has are expectations. Certain faces, voices and odours have become familiar to him, and he has therefore come to expect them. They have become comfortable and pleasurable for him because he is accustomed to their being accompanied by pleasurable experiences, so he is happy when his expectation of seeing them is fulfilled. When it is not, however, and instead he sees an unfamiliar face, he is surprised and frightened.

This lays the foundation for the “us-and-them” structure, which can be considered the beginning of true group-identity. The definition of “us” is broader, including not only those that are familiar but also all those that are similar to the child by some defining criteria. Moreover, unlike the infant’s familiarity-structure, the “us-and-them” structure is conceptual.

The “us-and-them” structure is among the universal cognitive structures of normal childhood. There is another group-identity structure that is acquired in childhood, that is also universal, but very different from the “us-and-them” structure. That is team membership. In all cultures, children play games in which they form teams and compete against one another. Since team membership is only temporary, the child develops the structure of changing identity. He learns that group-identity is not an intrinsic permanent quality of an individual, as “us” seems to the younger child, but an association that he makes with others. Gradually these two types of identity are synthesised, so that the adult is able to form multiple group-identities that have varying degrees of strength and permanence.

Although the primary function of group-identity is the preservation of the group itself, and as such it can even be detrimental to the interests of the individual, sometimes even to the extent of causing him to sacrifice his own life for the benefit of others, it also serves important secondary functions for the individual. It is a stabilising force that tells him who and what he is, thereby giving him a frame of reference for his actions and for his understanding of the world. The attitudes, values and modes of conduct of the group are more stable and resistant to change

than any he might have as an individual, because they are maintained by the group as a whole. The stable perspective it gives him, in turn makes the world around him appear more stable, and therefore easier to understand and to function in.

6.5 Group-Identity in Autism

In autism, group-identity is generally weaker than normal, but there is great variation among individuals, and there are many factors that affect how it develops in any one. Each successive kind of identity requires greater intelligence. Children who are severely mentally impaired cannot develop the second two kinds of identity at all. Even the first kind, the sense of being an entity separate from the rest of the world, is incomplete. With increasing intelligence, varying degrees of type and group identity become possible, sometimes coexisting with mild deficits in personal identity. Even moderate mental handicap significantly limits the degree of group identity a child can achieve, and therefore the extent to which it can contribute to his mental development.

Certain mental aptitudes limit formation of group-identity more than others. On the one hand, the aptitudes needed for group-identity go beyond those needed to learn language or to perform most ordinary life skills, including those needed to be trained to recite statements of group-identity. That a child learns to say “I am an Australian” does not mean that he has group-identity. He says the words, but they are just meaningless sounds to him. He does not understand them to indicate a collection of people of whom he is one, or that those to whom these sounds apply are in some ways more similar to one another than to those to whom they do not. On the other hand, however, group identity does not require comprehension of abstract concepts of class and class membership. All that is needed is the functional ability to sort into groups on the basis of criteria that are not apparent to the senses. This is a kind of concrete, not abstract, intelligence. But it is beyond the more basic concrete intelligence sufficient to separate things that are good to eat from those that are not. Mentally handicapped autistic children who are unable to form group-identity are lacking even this fundamental concrete intelligence.

While the limitations of aptitude are aspects of mental handicap, and are therefore shared by other similarly handicapped children who are not autistic, autistic children may fail to develop even within these limitations. They do not achieve their mental aptitude. In those things that involve human relations, children who are not autistic ordinarily develop up to their potential because their interest in human beings motivates them to continually interact with them. A mildly mentally impaired child who is not autistic develops a functional group identity because among the behaviours of other children and adults that he imitates is their negative stance toward members of other groups. Even if he cannot recognise abstract categories, he is able to reason by analogy. He thinks, “They are like me, I am like them”, so their behaviour becomes a model for his own. Although the effect of group-identity is certainly not as profound as it is on more intelligent children, even this limited influence is significant for his development. But a comparable child who is autistic does not play with other children, so he doesn’t acquire group-identity behaviours, doesn’t see himself as part of the children’s group, and develops little or no conceptual group-identity.

For those autistic children whose intelligence is normal or above, however, the situation is very different. Almost all eventually develop some kind of group-identity, though generally at

a later age than other children, and not through the normal pattern of development. Among the abnormal kinds of group-identity found in autism, there are some who consciously reject group-identity, not identifying with any group at all. Others, feeling alienated from their own group, attempt to identify with an opposing group. This is not a true group-identity, because the child does not actually interact with members of the opposing group. He imagines that he is somehow connected with them, and sometimes even approaches them and may be accepted by them in some ways, but never interacts normally or adopts their characteristic behaviours.

Most autistic children of normal intelligence, however, do see their family as a group to which they belong, so they achieve at least a rudimentary genuine group-identity. The significance of that group-identity and how it evolves depends upon factors such as the size of the family, its structure, cohesion, and its relationship to those outside it, as well as internal factors of the child's own personality. Most also identify with their country and social class. The effect of those identities, however, is much weaker than for comparable children who are not autistic. Their actual behaviour may deviate from that of the group without their feeling any internal pressure to conform or even awareness that they do not.

Lack of sense of identity with the group has various secondary effects. Most significantly, it deprives mental development of an important source of guidance and stabilisation. As described earlier, the normal child is aided in his acquisition of values, judgement and common sense by both type and group identity. By seeing himself as a certain sort of person, he has certain expectations of himself. He looks around at others that he considers like himself, sees what they know and do, and believes himself capable of that knowledge and those activities too. That confidence encourages him to strive for and actually achieve them. As he grows and identifies with older and more capable types of people, he is guided in the acquisition of new abilities. For the autistic child, failure to develop these kinds of identity can result in failure to actualise potential. He functions on a lower mental level than a normal child of comparable aptitude. This can then have the reciprocal effect of making it more difficult in future to identify with the appropriate group as it progresses, interfering further with social learning.

By guiding them to standardise their feelings and emotions, group-identity helps normal individuals socialise. Knowing that the feelings of others are similar to his own, the normal individual is comfortable interacting with them. He knows what to expect of them and they of him. For the autistic individual it is just the opposite. The less he behaves like the rest of the group, the less he identifies as a member and the less they see him as one. This then has the expected reciprocal effects. He emulates their behaviour less and they treat him more like an outsider. They understand him less, so they are hesitant to interact with him.

The behaviour and cognition of the normal individual are always interconnected with those of the group. Like the dog who walks in front of his master but looks back from time to time to check which way the master is going, the normal person continually checks the opinions of society and adjusts his own accordingly when they diverge. The autistic individual lacks this dynamic connection. Even though much of his behaviour and thought was ultimately derived from society, it soon passed from the social to the internal realm. He treats what he learns from them much as one does vegetables that one brings home from the market and then prepares however he wants. They are now his own, and he does not look back to their source to see what to do with them. Thus, while it is from others that an autistic child learns how to speak, he

proceeds to make language his own, creating neologisms without considering whether others understand them.

Surprisingly, lack of dynamic connection to the group can also have the opposite effect, producing an artificially narrow conformity. Some autistic children rigidly adopt the officially stated rules of grammar and usage and demand that others do the same. Their pedantic approach to language is due not only to desire for regularity and resistance to change, as described earlier, but also to lack of the normal live connection to the actual usage of society. Thus strict adherence to official rules is not, in fact, an extreme of genuine conformity, but on the contrary, lack of true connection to the living culture. Here again we see how very dissimilar phenomena can be manifestations of the same underlying condition.

7. Recapitulation: Nativist and Developmental Explanations of Theory of Mind

The nativist explanations of these phenomena are based upon a combination of false assumptions, some explicitly stated, others not. One is the dependency of behaviour on cognition. In this case it is the assumption that a human being cannot interact appropriately with other human beings without using unifying theories such as concepts of desires and beliefs. Another is that human beings are not capable of constructing these concepts from the information provided by their experience, so the existence of concepts, whether implicit in behaviour or explicit in language, is proof of innate origin. Third is the assumption that children's thought resembles that of adults, and fourth, that adult thought is consistent and rational. Fifthly, the infant is assumed not only to be rational and consistent himself, but also to believe that the behaviour of those around him is rational and consistent. As absurd as these last assumptions sound when stated explicitly, they are implicit in the nativist claim that the infant innately considers thought to be separate from reality and uses opacity of thought to reconcile the behaviour of his caregivers with what he knows about the world.

The developmental approach that we have presented explains all observed behaviour without recourse to any of these assumptions. It rests upon two foundations. The first is that concepts are derived from behaviour, not behaviour from concepts. The second is that behaviour and cognition are embodied in a system that develops cyclically by positive feedback, proceeding gradually by small increments, within which they develop together, each contributing to the other. Thus an organism like a human being can begin with simple behaviours and construct increasingly complex behaviours and cognitions. In particular, the developmental explanation of autism presented in these chapters accounts for all the observed deficits in Theory of Mind without the need for additional hypotheses.