Chapter 11
Language and Communication

Of all the socially acquired skills, language is arguably the most important. Once established, it serves as a major link in the Social Learning System and a gateway to more advanced social learning, so there is a tight reciprocal connection between social learning and language. Language is also among the skills whose absence is the most striking. A child who speaks but fails to join in normal play activities may be considered odd, but one who fails to speak will quickly be recognised as seriously deficient whether he plays with his peers or not.

1. The Beginnings of Language in Normal Development

As discussed earlier, language acquisition normally begins in the context of social interaction. There are two precursors to language proper. One is *nonverbal communication* using gestures and other motions. Before an infant begins to use words to communicate, there is generally a period during which he makes requests by reaching or pointing, sometimes vocalising at the same time. Although this is not communication in the mature sense, in that he is still far from conceiving of humans as thinking beings, he is aware of his caregiver's attention in a functional sense in that he knows that by his actions he can elicit a response.

The second proto-linguistic behaviour is the *imitation of sounds*. Infants often cry when they hear another infant cry. Sometimes they are quiet as long as the other one is crying and only start crying themselves when the other stops. Like the early social smile, this is not true imitation of the sort performed by older children and adults. The infant does not realise that the original sound was being made by another infant like himself, and indeed is not even aware of his own identity or that he is the producer of the new sound. The sensation of hearing the sound of crying has simply become connected through past experience to the action of crying, so it now evokes the combined crying structure. Later, as discrimination of sounds becomes more precise, the structures of hearing speech-sounds and those of the actions that produce them become connected in a similar way. Even though the infant doesn't yet know that he and the caregiver are both beings of the same sort and that both are able to produce similar sounds, he begins to reproduce some of the sounds he has heard. As earlier he cried and responded to crying, he now produces speech sounds. Having already produced the sound in the course of random babbling, the combined behaviour-sensation structure of producing it and hearing it has been formed, and hearing it now, regardless of what produced it this time, activates that structure.

Once imitation of a few sounds has been perfected, the infant discovers that these, too, can be used to bring about desirable actions of caregivers. Sometimes, indeed, the inadequacy of gestures and undifferentiated vocalisations to evoke the desired response may motivate him to learn to use specific speech sounds. But greater than the pleasure of getting food and other physical rewards is the pleasure of interaction itself, of seeing the caregiver's smile or hearing his voice. So, having acquired the skill of producing such vocalisations at will, the infant begins to use them in his interactive play with his caregivers, and the two proto-linguistic behaviours join to produce the beginning of language.

All of this can happen without any concept of meaning. The sounds are at first not symbols but purely functional. After a while, a crude symbolism begins to develop. The sounds the child has been making in social games become connected to situations, actions, and objects, and that connection itself constitutes a kind of meaning, though perhaps not an abstract or conceptual one. As those meanings are gradually becoming more refined, language knowledge begins to merge with world knowledge. The child's use of words like "bottle" and "dolly" begins to draw on the knowledge he has about the physical objects to which they have been connected.

This early use of language can be misleading. When the child uses words as adults do, he appears to understand them the way adults do too, while in fact a long course of development still lies before him during which his concepts of words and language will undergo radical changes. As in other aspects of mental development, functional ability precedes conceptual understanding. Children gain considerable functional mastery of language, producing sentences and asking questions, while their conceptional understanding is still quite crude. The meanings of words evolve gradually. At first they are simply sounds that are identified with situations, with vague combinations of sensations. After that, the child begins to realise that certain words stand for objects, actions and qualities. As significant as this step is, it is still far from mature language. The boundaries of these early definitions and the nature of their connection to the things they symbolise are very different from those of adults. It is through using them over and over again and hearing them used by others that those boundaries are gradually adjusted until the child's use and understanding of the words fall within the range of meanings of mature speakers.

As understanding improves, vocabulary and variety of uses of language are also increasing. As old familiar words are becoming better understood and more firmly and accurately connected to their meanings, new words are being learnt, many of which begin functionally as the earlier ones had, as sounds to be fit into the greater pattern of speech. Since the child now has many known words to which he can compare them, he approaches the correct meaning more rapidly than he did before. Still, he doesn't always reach it directly. The more abstract a word, the longer it takes to get the meaning right. Words that indicate relationships and thought processes rather than concrete objects or actions are especially difficult, since they cannot be learnt by pointing at something, but must be inferred by learning to recognise or reproduce a pattern of usage. For example, when the child learns the word "even", he first learns it as a sound placed before a statement and accompanied by a certain modulation of the voice. He learns to produce it the way adults do, and his skilful use gives the impression of comprehension, but for a while it is just imitation. He does not yet grasp its significance as an indicator of something beyond the norm and therefore unexpected. It is his occasional production of sentences like "I *even* had corn flakes for breakfast!" that shows that in spite of his syntactical skill, he does not yet understand its meaning. Adults, too, sometimes learn new words this way. They begin to use words like "virtual reality" and "paradigm shift" before they have a precise understanding of them. They have simply learnt to use them properly by imitating the contexts and syntactic forms in which they have been heard. Thus normal language acquisition consists of two parts, one syntactic, in which the individual learns the linguistic use of a word, and the other semantic, in which its meaning and significance with respect to the world is learnt. Both, however, are acquired through social interaction, so deficits in social interaction will be detrimental to both.

Innate interest in human features and the accompanying responses are therefore the foundation of normal language acquisition. Human beings and the sounds they make are the fundamental elements of socialisation and communication. By paying special attention to them, the child becomes familiar with them and they become part of his world. As they do, he becomes able to differentiate one sound from another, which makes them potential components of further learning. It then becomes possible to notice the correlation between one sound and another, and between these sounds and other aspects of the infant's experience. He learns to recognise which sounds are heard when he is being held, which when he is being fed, and which when he plays with his caregivers.

Interest alone, however, is not enough. The separate structures of behaviour and sensation need to be integrated for language to develop. The process of integration is performed by a complex system of aptitudes and dispositions, of which some are shared with other kinds of intelligent behaviour and some are specific to language. Although not all of them are essential, some are, and even deficits in non-essential ones can compromise the functioning of the system.

Among the dispositions that are specific to language is *spontaneous vocalisation*. The infant must be inclined to produce speech sounds so that the sensation of hearing those sounds can become connected to that of producing them. Another necessary disposition, this one shared with other areas of mental development, is *inclination to respond*. Like "imitation", the term "response" is being used here in the broad sense of *any activity evoked by an experience*. Some of these activities are specific, such as the warning cry and posture of readiness with which an animal responds to the sights, sounds or odours associated with danger. Others are general excitement, such as an infant's smiling, vocalising, and thrashing his arms and legs when he sees a familiar caregiver. Human beings have innate responses of both kinds. Some of the innately interesting human features evoke specific responses, such as smiling at the sight of a smile. Others just evoke general excitement.

It must again be emphasised that none of these innate responses are indications of awareness or innate knowledge of any kind. Even specific responses such as smiling back at a smiling face do not mean that the infant has any concept of what he sees or is aware of what he is doing. When an infant smiles back at a smiling face, it does not mean that he realises that he is a being similar to the one that is in front of him and that both are doing the same thing. He knows neither smiles nor faces, nor can he yet conceive of his own existence or identity. He is like the deer that raises its own tail when it sees the raised tail of another deer.

Response and imitation are independent of one another. Response may or may not take the form of imitation. Warning behaviours are often imitative responses, for obvious reasons. Feeding responses are generally not. A baby bird responds by opening its mouth when a parent presents food, and an infant responds by sucking when something touches its mouth. A smile can be an imitative response, a non-imitative response, or a spontaneous behaviour which is not a response at all. Conversely, behaviour can be imitative without being a response. Infants spontaneously reproduce sounds they heard much earlier, in contexts very different from those in which they originally heard them. If an infant has heard the sound combination "dog-gy" several times, and has already been producing the two component sounds "do" and "gy", he may, in the course of babbling, begin to combine them. That combination is not random. It is not an accidental juxtaposition. He already has the sensation-structure that he formed earlier by hearing the two sounds together, and now he combines it with the behaviour-structures of the separate sounds.

2. Understanding Abnormal Language Development in Autism in Terms of Lack of Interest in Human Features

Deficits in innate interests in human features can account for various of the abnormalities of language typical of autism. A child who is not attracted by the sight or sound of his caregivers will interact with them less than normal children, both quantitatively and qualitatively. If the deficits include tactile responses he will not only fail to orient himself toward them, but may also resist being held or cuddled. Such children are left with little motivation to participate in proto-linguistic social exchanges, so they lack the first proto-linguistic foundation. Furthermore, without innate interest in human voice they do not develop early familiarity with speech sounds, so they lack the second foundation as well. Even those who do not completely ignore the vocalisations of adults but attend to them occasionally, in the same way they do to other sounds in his environment, may not become sufficiently familiar with them. Lacking both foundations they fail to attain the first stage of language acquisition, so the language learning process does not begin in the normal way.

After the initial delay, however, most of these children do begin to learn language as part of the secondary interest in human beings and the activities that they acquire as they come to recognise the importance of human beings in their world. As this secondary interest develops, they begin to attend to the sounds humans produce and after a while to become familiar with them. We may assume that from this point, much of the process of gradual comprehension of the meaning and

structure of language is similar to that of normal children even though, missing the social aspect, it is expressed very differently.

In both normal and autistic children, this stage of language learning involves a combination of independent discovery and social training. Although the proportion differs vastly, neither is ever entirely absent. On the one hand, both observe how language is used, experiment with it, and construct implicit rules. On the other, both are aided by their caregivers' training. Even though the autistic child misses the language priming other children receive in social games, his language development is not completely independent of social influence. In particular, he too benefits from the simplified form of language, sometimes referred to as "motherese", that they use when they speak to him, which also involves exaggeration of voice modulation to draw attention to certain words, making language easier to understand. Since this does not depend upon innate interest in human beings or enjoyment of social interaction, it can be effective for autistic children too.

The existence of a course of language development so radically different from the normal one is highly significant for the understanding of the human aptitude for language and the processes by which it can be acquired. That autistic children can proceed directly to the second stage in which sounds begin to acquire semantic value without ever passing through the first one in which they are tools of social interaction alone, shows that this order is not an absolute necessity. This observation leads us to consider the possibility that there may be many routes to mature language competence, and indeed, several alternative routes can be found in autism. Some autistic children begin with a stage in which they listen but never speak. They observe language use and learn about it as one might about any other natural phenomenon. As they do, their understanding increases, but they remain silent. When they finally begin speaking, it is sudden and sometimes in complete sentences.

One is tempted to think that these children could have spoken long before, but were afraid to or simply chose not to, or that although they understood language, they didn't realise that they could produce it. Unlike normal children who begin speech naively before developing concepts of personal identity or even grasping the separateness of their bodies from the rest of the world, these children might have been aware of others and what they were accomplishing with language without realising that they too could obtain comparable effects with it. They might even have been aware that they were physically able to produce it, but might have thought of it as something belonging to others and not for them. But while all of these are theoretical possibilities, it is more likely that in spite of their comprehension, these children were incapable of speech until shortly before they uttered their first words. The behaviour-structures of language production had not yet developed, and they could not have spoken even if they had chosen to.

Sudden competent production, however, is the exception rather than the rule. More often, language production develops gradually, beginning with a small repertoire of differentiated vocalisations used to make requests. These are rarely understood by any but the child's caregivers. Gradually they evolve into fair approximations of words, though often only with the help of speech therapy. This is followed by a stage of telegraphic speech in which words are strung together to make requests or statements.

Perhaps the most radical difference between these and the normal first stages of language development is that they are primarily functional rather than social. While language normally begins as a social activity and functional application only evolves later, here it is the opposite. Initially it is entirely functional, and social language use, if it develops at all, may not begin for several years. This is not a matter of going through the same stages but in a different order. The stages themselves are essentially different.

Other autistic children arrive at language from an entirely different direction. They begin by focussing on sound patterns alone, developing rote echolalic speech without awareness of meaning. They have begun to recognise language sounds as a familiar part of their experience, and have also discovered that they have the ability to produce them themselves, but, since their attention is not drawn to the social context, they have not become aware of any communicative function. Some

have a vague sense of word-meaning, in that certain sounds are associated with certain situations, but it is not sufficiently clear for them to derive any practical use from it. Many of those who are mentally impaired never get beyond this stage. They have language, of a sort, but not communication. For those whose intelligence is otherwise normal, however, the correlation between words and meaning is eventually grasped, leading to the development of communicative language.

The approach a child takes to language is partly a function of his innate interest in *sound*. Both normal and autistic children vary widely in how strongly they are interested in sound, in which specific qualities and aspects of sound attract their attention, and in their inclination to respond. Some infants babble more than others, some are more attracted to music. For those whose interest in sound is strong, words may become interesting purely as sounds to be played with. An autistic child who lacks normal interests in human features may nonetheless acquire language at an early age if both his interest in sound and his inclination to respond are strong. For such children, language may then lead to further social learning. Even language that is limited to requests and statements is nonetheless social in that it involves communicating and interacting with other human beings. It is therefore a kernel from which a broader Social Learning System can expand. So, while for a normal child interest in sound plays only a secondary role in the acquisition of language, for the child who lacks the normal interest in human features, strength of interest in sound itself may make a crucial difference in how and even whether language is acquired.

3. Training the Autistic Child who Doesn't Speak

When language is not attained spontaneously, intervention can sometimes be helpful to compensate for lack of motivational factors. For some children, behavioural training using classical conditioning methods that force them to attend, respond and imitate is sufficient to prime the Social Learning System. Even the fundamental realisation that sounds are different from one another and that those differences can have practical implications may be sufficient to arouse their interest in sounds so that they pay attention to them and learn more about them. It may then also contribute to the development of secondary interest in human beings. If what the child lacks is the primary interest that would normally direct his attention to the humans around him, external motivation of this sort can be an effective substitute.

For many children, however, this kind of behavioural training is of little value. They learn to perform a limited number of behaviours and produce a small repertoire of words and phrases, but do not thereby develop true communicative language, nor in any significant way transcend their basic autistic aloneness. Only outward behaviour is being moulded, but the Social Learning System is not being effectively motivated because the underlying dispositions and abilities that are the root of the problem remain unchanged.

Behavioural training can only be effective when there already exists an underlying basis that is prepared to accept it. For children who are not autistic, superficial imitation of other children and adults is an effective learning method because, being similar to their models, they have similar underlying abilities and dispositions to which the behaviour can relate and which can be modified by it. When they imitate a behaviour, these many underlying structures are evoked and activated, so the imitation is deep and multi-faceted, in accordance with their multi-faceted interest in the model and his behaviour. Through this activity, multiple structures are strengthened and expanded, and development is both deep and broad. Even when the normal child does not understand the behaviour he is imitating or recognise what its purpose is, this complex activation tends to guide the imitation in the correct direction.

But when an autistic child is trained this way, there may be few underlying structures to be activated, so the imitation and the resultant learning remain superficial. Neither cognition nor even additional areas of behaviour develop. This is an important limitation of the efficacy of behavioural

training to produce cognitive development. Behaviour and cognition develop by small steps. If the goal is too far removed from the current state, it cannot be attained without passing through an appropriate sequence of intermediate ones. Even if the superficial behaviour is successfully learnt, cognition may remain unchanged. Sometimes, lacking the related behaviours or cognitions that are its context, the child cannot even understand the superficial behaviour itself and so is unable to reproduce it.

For a normal child, being trained to say “Please pass the ....” when one wants something at the table, becomes a kernel from which politeness and other meaningful adult behaviour gradually develop. Being trained in polite behaviour draws his attention to the needs and feelings of others and cultivates genuine concern and consideration. But this only happens because he already has an underlying awareness of others and of their feelings. For an autistic child who lacks that awareness, it is an arbitrary and meaningless ritual. He performs it only because he has been trained to, and it leads nowhere. Lacking those basic underlying feelings, there are no structures from which the structures of care and concern can develop.

When conditioning methods are used to teach language to autistic children who lack the foundation of communication, what is achieved is not the beginning of normal language but a poor simulation thereof. Even the meagre repertoire of rote and mechanical speech, consisting of stock phrases to be produced in specific situations, is frequently used incorrectly. Lack of comprehension is evident the moment the child is presented with questions or situations varying slightly from the pattern he has learnt. A child who has been trained in the sequence:

“What’s your name?”
“John”
“How are you?”
“I’m fine, thank you.”
“How old are you?”
“Ten years old.”

if asked “Where do you live?”, may respond: “I’m fine, thank you.”

Teaching the nonverbal autistic child must therefore begin with the recognition that what is missing is not just ability to speak, but appreciation of communication. It is not because he cannot speak that the autistic child does not communicate, but on the contrary, it is because he has not entered into a social structure, of which communication is but one aspect, and speech but one form of communication. Training must be directed toward development of patterns of social interaction, so that he learns not only the skills of language production but also how to use them.

4. Abnormalities of Language Use

Most autistic children whose intelligence is not otherwise impaired eventually develop language. As long as they are inclined to attend to their surroundings, even though not specifically to the human beings, and as long as they are also inclined toward some kind of response and activity, mental development will proceed. There will be interaction and learning, which will generally include recognition of speech sounds and their eventual connection to aspects of experience that occur together with them. This alone will constitute a degree of meaning. By the age of four or five, they can generally understand some of what is being said around them and have also begun to speak. Within a few years, vocabulary and syntax may reach age level.

But by whatever route the autistic child acquires language, the course of his language development is different from that of normal children, and those differences in development, together with his underlying autistic nature, leave their marks on how language is used. Moreover, his life experience, the way the world looks to him, the activities he enjoys, his feelings and his

desires, are different from those of other children. All these affect how he uses language and what he uses it for. So even after his vocabulary and syntax have reached age level, he does not use language the same way other children do.

Typically, autistic language use is not as broad and varied as normal. Since language was designed to provide for the needs of normal people, it includes all the sorts of things they might want to express. To the extent that an autistic child does not share those fundamental inclinations and desires, he has no use for those aspects of language. His own unique individual needs and feelings, on the other hand, find no expression in language, because language was not created by people who share them. So whether or not his own world is as rich and varied as theirs, his language use will be less.

There are two areas in which autistic children are generally deficient, *expression of emotion* and *narrative*.

4.1 Expression of Emotion

Autistic children generally do not use language to express their emotions, to share their emotions with others, or to form social bonds. This is consistent with their lack of social awareness and of attraction to other human beings. Most striking is the child who uses language skilfully for practical purposes, but never to express emotion. He knows emotion words and can use them correctly, but his use is completely detached and objective. His statement that someone is sad is like his statement that a flower is red. He may even be able to describe his own emotions, but it is essentially unlike normal expression of emotion. A normal person does not say, “I am excited.” He says, “Hurray! Terrific!” These are *expressions* of emotion, not *descriptions*. Expression and description are two distinct functions of language. In expression, a person *shows* how he feels. He is not *telling* about it. It is more akin to nonverbal expressions of emotion such as laughing or jumping up and down than to verbal descriptions. Indeed, this aspect of language evolves as a replacement for natural expression of emotions and feelings. The ability to learn to replace natural expressions with artificial ones is a significant aspect of the flexibility of human behaviour. The adult says, “It hurts!” instead of crying and, “Oh, how nice!” instead of clapping his hands and screaming. These are behaviours produced by the feelings themselves, not objective descriptions of them. That they are done by means of language does not change their basic nature. It is this use of language, above all, that tends to be lacking in autism.

For a normal child, expression of emotion is both a *personal* and a *social* act. As a personal act, crying when he bruises his finger is similar to the swelling of the finger itself, a physical reaction to experience. He would do it even if there were no one around to hear him. But crying or screaming, “Oh, my finger, my finger!” is also a social act, because by means of it he communicates his feeling to others. This communication serves two purposes. The first is to summon their help, which is essentially practical. The second is psychological. The normal human being derives comfort from the knowledge that others love him and care about him, so he communicates his feeling to others in order to *share* them. Similarly, he derives pleasure from sharing his happiness. Whether the desire to share feelings is innate or whether it is derived entirely from the knowledge, itself derived from past experience, that when others are aware of his pain they may help him, the result is that he likes sharing his feelings with others, so he is inclined to express his feelings so that others can share them. And since he wants to share his emotions, he is motivated to express them as others do, by replacing natural expressions by conventional ones.

For the normal child, development of language and of emotion-sharing both begin in infancy, and they proceed together, contributing to one another all along. When the infant laughs or cries, his caregivers respond, and he learns to expect their responses. By the time he is able to replace crying with the words “Mummy, my finger!” the pattern of behaviours, expectations and feelings has already become well established. Use of language to express emotions is therefore not an

additional skill that is added on after descriptive language has already been mastered. It is part and parcel of language as it develops.

In autism, however, whether or not language development is delayed, the fundamental social behaviour of sharing emotion is usually absent or weak, so the expressive function of language does not develop. Even after becoming aware that others have feelings and becoming able to introspect and think about his own, an autistic child may not think of one person's feelings as having anything to do with those of another. He may be aware that he is having fun playing, but it does not occur to him to tell anyone else because he does not see his feelings as relevant to them or theirs to him. What the normal child does without awareness, the autistic child does not do even with it. He communicates facts and ideas, but does not share feelings.

4.2 Narrative

Another use of language that is often absent is *narrative*. Many autistic children, though they lack neither vocabulary nor syntax, never tell stories or recount incidents that happened to them. In many cases what is lacking is not only disposition, the desire to tell stories, but also certain basic abilities and concepts. These children don't understand that language can represent not only separate events but also interrelationships between events and sequences of related events. Even simple single sentence narratives like "I forgot to bring my lunch today", in which forgetting and not-bringing are causally related, may be outside their repertoire. They are able to use language to describe single events, such as "I had corn flakes for breakfast today" or schedules and sequences of unrelated events, such as "At 9:00 we do spelling, at 10:00 we do maths", but related events such as "John took my chocolate so I hit him" are beyond them. When they hear someone else make such a statement, all it means to them is "John took his chocolate. He hit John." If they listen to a story, they understand the words and sentences but do not put them together.

This is the sort of deficit that is very difficult for the uninformed observer to comprehend. He does not suspect that a child who is otherwise intelligent might not grasp such a basic concept, one that normal children understand by the age of three or four. But narrative form is not at all obvious. It is a conventional use of language that human beings acquire through training, by listening to stories and by hearing brief reports. When their parents or older siblings come home and tell about something that happened, they listen because they are inclined to pay attention to what other people are doing. Gradually they begin to imitate this behaviour and learn to practise it themselves.

Any deficit in social interaction precludes the corresponding language use. To the extent that a child does not share feelings or thoughts physically, as by hugging or by showing objects of interest, he will not do it verbally, by expressing his emotions or by telling about his experiences. Social development therefore brings with it expansion of language. Most intelligent autistic children gradually develop some degree of social relationship, sometimes through secondary interest in human beings, sometimes through personal attachment to family members. As they advance in their ability to relate to others, their language use increases accordingly. Expression of emotion, though still less than that of normal children, begins to appear. So too, they eventually develop narrative. Actual narrative may be preceded by a period of single statements about recent events. While these still do not explicitly state causal relationships or even sequences of events, they are a significant step beyond general statements of facts such as "My house is blue" that the child had produced earlier. Since language and social interaction are related reciprocally, language is also a source of increased social and emotional awareness as it is for normal children. When a child learns forms of expression and imitates them, they become tools for social interaction, and through practising them, the corresponding feelings and thoughts can also be evoked.

4.3 Language as Part of Social Interaction

Even for autistic children whose language skills are within the normal range, the experience and therefore the concept of language remain different from those of normal children. The root of this abnormality is the social function of language. For the normal human being, the social use of language is central. Not only is social interaction the initial context of language development, it is both the main context and the main purpose of language use throughout life. For an autistic child it may never gain that status. While both language and world experience become closer to normal as he gradually gains greater appreciation and understanding of his relationship to other human beings, there may remain certain ways in which language use never becomes normal. Many intelligent autistic adults still do not like to express their emotions or chat socially.

Although it is rare for the relationship between language and social interaction to be recognised explicitly, either by those who are autistic or those who are not, this relationship is extremely significant because it is the root of so many of the outward differences. Without social relationship, without feeling of commonality and kinship, the normal enjoyment of exchange of vocalisations cannot exist. The way one uses language therefore parallels the way he sees and experiences the world. To the extent that social interaction lacks importance for an autistic child, his experience and concept of the world around him is different from that of a normal child. His language is at once a reflection of that experience and part of it, so abnormalities of language correspond to abnormalities of experience in general.

5. Abnormalities of Language Form - Neologisms and Idioms

Abnormal development leaves its mark not only on language use, but also on the form of language itself. To the extent that autistic children learn language differently, they may understand it differently and it may develop differently. Since they do not learn words socially, they do not begin by learning to imitate social patterns of word use. Language develops privately, internally, rather than in a social context of continual interaction with other people. If a child does not pay attention to how others use language, his own language is liable to develop idiosyncratically, to go off in its own direction. Although the source of language is, for him as for all children, the speech of other human beings, without continual attention it easily becomes detached and diverges from that source. When a normal child begins to use a word in a new and original way, as all children occasionally do, he soon sees that others are not using it that way and corrects himself. But when an autistic child comes up with a neologism or an original usage of an existing word, he may not even notice that others do not use it that way, and if he does notice he may not care, so he goes on. The normal child’s natural inclination to imitate provides him with a mechanism of self-correction. This is of great practical advantage, because the closer one’s language resembles that of others in his social group, the better he is understood by them. Without realising it, the normal child is optimising communication, while the autistic child, also without realising it, is hampering it.

This independent non-social approach to language affects comprehension as well as production. An intelligent autistic child who has an extensive vocabulary and can understand complex sentence structure may nonetheless have difficulty understanding common idioms. Idioms are essentially non-analytic. In many cases the meaning of an idiom is only tangentially related to the component words. It is the expression as a whole that conveys the meaning, so it must be learnt as a whole, as one would learn a new word. But learning idioms is more difficult than learning single words, firstly because most idioms do not stand for tangible objects or actions, and secondly because by being composed of individual meaningful words they mislead the listener to think that the meaning of the composite can be derived from those of the parts. For an autistic child, the difficulty of understanding idioms is compounded further by his lack of interest in human beings and social situations. Social context is one of the main sources of the real meaning. The normal child, being interested in the situations in which expressions are used and the people involved in them, learns these uses of language through his experience of those situations. His prior social and

human understanding also help him surmise the point the speaker wants to convey and what he is trying to accomplish by it. It is therefore not difficult for him to learn new idioms from context. But when an autistic child is in those situations he directs most of his attention to the objects and little to the social context, so he fails to notice significant aspects of the social context and therefore to learn the idiomatic use. His experience of the situation is also impoverished because his understanding of the behaviour of the other human beings is weaker, not having learnt them as well in the past. He therefore tends to interpret idiomatic expressions according to their literal meaning. Even after he has become aware of the idiomatic usage of an expression, the literal meaning may continue to loom larger than the usage because he lives more in the world of words than that of people. His initial response may therefore continue to be to the literal meaning.

None of these difficulties, however, are absolute. There is no essential inability to understand idioms. It is just a tendency that is significant by contrast to general level of language comprehension. Eventually, if a child hears an idiom often enough, the usage becomes primary for him, becoming the “real” meaning of the words in that context or phrase, and he understands it as others do.

6. Conversation

Conversation presents multiple problems, even for the intelligent autistic adult. Unlike isolated statements, a conversation has a central theme. Recognising the theme of a conversation requires skills and knowledge that are beyond those needed to understand statements or requests. Conversations also involve more cultural background and context than statements. Every culture has certain patterns that conversations follow, a “conversational syntax”. These restrict the form a conversation can take, such as what sorts of contributions are appropriate and how one contribution can follow another. Like the syntax of a sentence, they are not rigid but range around certain forms. Being familiar with these forms helps people understand conversations because it gives them an idea of what to expect. Participating in a conversation is not a wonderland, a place where anything could happen. Familiarity also guides them in their own contributions. The restrictions the syntax imposes are therefore not a burden but an aid.

Like other kinds of social learning, learning to understand conversational forms is a cyclical process in which competence and participation bear a reciprocal relationship to one another. Participation in conversations is dependent upon one’s level of conversational competence. The higher it is, the more advanced the conversations he can participate in, the more extensive his participation can be, and the more he can learn and increase his competence. The factors that impair the broader Social Learning System in autism impair this smaller subsystem similarly. To the extent that an autistic child’s desire and inclination to participate are low, he participates less and advances less rapidly, so his conversational skills tend to be weaker than his language skills.

6.1 Cultural Context

Participation and acquisition of conversational forms are also impaired by lack of familiarity with cultural context. The topics of a conversation and the individual statements in it reflect the thoughts and attitudes of the culture. An autistic person who does not participate in cultural activities and does not share the interests of other members will not find conversations interesting. Even some of the individual elements may be difficult to understand without relevant cultural knowledge. Lack of participation then contributes reciprocally to his ignorance. He participates less and learns less. Furthermore, since a culture is itself a dynamic system, cultural thoughts and attitudes are constantly changing. It is impossible to prepare oneself in advance for all future conversations by studying the culture and getting to know it once and for all. One must constantly keep abreast of it.

This is effortless for the normal person, since he participates in the culture and is interested in it, but it may be a tedious chore for one who is autistic.

6.2 Specific Context

Autistic participants also have difficulty adjusting to the specific context of the conversation. Normally, both form and topic of conversation are modified by who the speakers are and what the immediate situation is. In certain situations, light chatting is appropriate, in some it is appropriate to joke, and in others to discuss serious issues. For those who are not autistic, these adjustments are done automatically, because they have been paying attention to those factors in the past and learning them, so without any conscious effort they notice them in their current conversation and apply the rules they have learnt. Many autistic adults, on the other hand, are not even aware of the need to make these adjustments, so the remarks they make and the conversations they initiate are often out of place. Those who do recognise the significance of context may still find it difficult to make the appropriate adjustments.

6.3 Keeping to the Topic of the Conversation

One of the conversational deficits often noted in autism is failure to keep to the topic. This has been attributed to innate deficits in executive functions, but as we have seen, this explanation is problematic because many of the same individuals do not suffer from such deficits when they are involved in other activities. Failure to learn conversational form provides a much more satisfactory explanation. Although many normal speakers might imagine that their conversations adhere faithfully to a single topic, perfunctory review of a typical conversation should convince them that they do not. Normal conversations migrate from one topic to another, developing spontaneously over the course of their duration. Most revolve around a central topic, but many do not. That is, indeed, the nature of conversation. They are not like lectures that are planned out beforehand. There are, however, cultural rules of how a conversation flows, which express themselves as rules of what sort of contributions are acceptable at any given point. How the topic is permitted to vary is therefore one aspect of conversational form of the culture. The abnormality of the autistic speaker’s contributions is therefore not that he wanders from one topic to another, but that normal speakers do so in accordance with the conventions of their culture, so their conversations seem coherent to other members of that culture, while autistic speakers fail to recognise, learn and master those conventions, so their patterns of wandering are idiosyncratic. Unlike normal speakers, who have mastered conversational structure functionally even if they do not understand it conceptually, many autistic speakers lack even basic functional skills. Some may not even realise that conversations generally have a central topic. If their contributions are arbitrary it is because the contributions of others seem arbitrary to them. Others, while recognising this basic principle, have difficulty identifying the central topic or making acceptable contributions because they have not learnt the conventional ways by which the topic is changed.

There are also some who, having recognised the principle of a central topic but not the complementary principle of fluidity, insist that the topic never be changed and annoy others by their intolerance of culturally acceptable digressions. Although they manifest it in the opposite way, their underlying deficit is the same.

6.4 Providing Background Material

The contributions of autistic speakers are also sometimes difficult to understand because they do not provide sufficient background information when introducing a new topic. This is partially because they do not share the same general knowledge base as the rest of society and partially

because the rules of what listeners can be assumed to already know and what must be explained to them are cultural. Normal speakers and writers never provide all the necessary background information either, but they are familiar with their listeners and what they can be expected to know. Even more important, they know what information their culture gives them the right to assume. Knowing the cultural conventions of which things to explain and which not is one of the many aspects of conversational competence needed both as a speaker and as a listener. Normal listeners know in advance what things they are expected to know and will therefore not be explained for them, so they make it their business, when possible, to learn and know them. When they have not, they accept the lack of explanation.

6.5 Extra-lingual Communication

Among the other conventions acquired by normal conversants but not autistic ones are cues by which a speaker indicates that he has finished speaking and is giving the floor to someone else, and by which he may also indicate to whom he is giving the next turn. They include posture, voice modulation, and eye motions. Eye-contact and other signs are also used by listeners to indicate to the current speaker that they would like to speak and to request to be given the floor. By attending only to the subject of the discussion and not to the participants and their actions, the autistic listener fails to notice these extra-conversational behaviours, so he does not understand them when others use them or know how to use them himself. He finds himself unable to get a turn speaking as others do, and if naively or in desperation he interjects without following the culturally prescribed protocol, he is considered rude.

Other aspects of conversation that vary from one culture to another include acceptable distance between speakers and duration of tolerated silence between contributions. Since they are cultural conventions they must all be learnt culturally, so they too pose a problem for those who are autistic. In conversation, as in other kinds of social relationships, there is a complex balance between participants, like the balance of tensions on a drum head. When two or more people participate in such a relationship they need to adjust to one another so that an acceptable balance is achieved and maintained. Normally the burden of adjusting is shared by all the participants, but sometimes one does not adjust and the others need to adjust more to accommodate him. If more than one does not adjust, whether because they are unable or because they are unwilling, balance cannot be achieved and the conversation or relationship fails.

Ability and willingness to adjust are not absolutes. Some people are more willing to adjust than others, and some are more skilful at adjusting. These are the people who “get along with everybody”. Some are only willing to adjust when they see that the other is adjusting too. Since most autistic individuals have poor adjustment skills, they can only get along with those who are willing and able to bear the extra burden of adjustment. Unfortunately, their inability is sometimes misinterpreted as stubbornness, and some of those who might otherwise have compensated for it are estranged and refuse. Adjustment, both in conversation and in relationships in general, is therefore an important social skill for an autistic person to learn. Even if he is only able to do it poorly and artificially, his small contribution to balance can be very helpful.

7. Eye-contact

Eye-contact is the most important of the non-verbal means of communication. Like the voice, the eyes are capable of many fine variations which can be combined in multiple ways to produce a vast range of expressions, making them a versatile tool for communicating feelings, emotions and attitudes. They can be open to various degrees, from squinting to fully open; they can focus directly on another person’s eyes, look slightly away, or look ‘through him’ by focussing on a point beyond him; each of the muscles around the eyes can be relaxed or tense to varying degrees; the eyebrows

can be raised or lowered; gaze can be maintained for varying amounts of time, so looking at another person can be sustained or brief. Using these variations a person can express friendship, hostility, threat, wariness, disinterest, lust, or sympathy.

But perhaps more important than expression of feelings is the role of eye-contact in coordination. It's role in conversation is but one example of it's use in cooperative activities. In addition to coordination in activities already under way, it can be used to initiate activity, such as a plea for help or an offer of friendship. Recalling that coordination includes not only sympathetic but also aggressive behaviour, we find that eye-coordination can also be used aggressively as a threat or a warning, as animals do. When passing in a public place, eye-contact can be used as a prelude to greeting. Duration of eye-contact can be used to indicate intention to greet or to challenge. Use of eye-contact in conversation by a listener to show the speaker that he has understood him, or by the speaker to show the listener that he invites him to speak are but a few examples of its use to coordinate behaviour of individuals in social interaction. In particular, looking at another person with readiness to reflect the emotions he expresses is the most effective way to communicate sympathetic coordination. Denial of coordination, too, can be communicated by the eyes. Both stubborn intense staring indicating refusal to coordinate, on the one extreme, and relaxed disinterest on the other, unambiguously convey this message. That is why eye-contact, even more than expression of emotion, is so often deficient in autism. The autistic person has emotions and has the normal biological expressions that go with them, so he has some kind of eye-expression, but in that he does not coordinate his actions with those of others and may not even be aware of the possibility of coordination, the use of the eyes for this central aspect of facial expression remains undeveloped.

Like facial expression and posture, eye-contact involves both innate biological elements and social ones, so there are basic similarities across cultures, but also differences. The complexity of eye-communication necessitates a long and gradual course of development, beginning early in infancy and continuing throughout childhood. Furthermore, as the individual develops socially, the scope and nature of social coordination increases, and as it does, the function of eye-communication increases accordingly.

For normal children, the strength of innate attraction to eyes guarantees that this crucial part of human behaviour is learnt. At first the infant stares into any pair of eyes that comes into his field of vision. This begins the first cycle of learning, in which by attending to eyes he learns to recognise certain of the patterns of human eye-behaviour practised by those around him. At the same time, though in different ways, his own eye-behaviour is being moulded. He develops a secondary response to turn when he hears a vocalisation and look in the direction from which it came, where he has learnt to expect the pleasurable sight of a pair of eyes looking at him. Although he does not yet have a concept of human beings, these auditory and visual experiences have become connected. This lays the foundation of what is later to develop into eye-coordination in conversation and the broader skills of eye-coordination with other human beings.

This complex structure of eye-behaviour supplements and enhances the innate eye-interest from which it develops, while never negating or supplanting the innate foundation upon which it rests. Adults quickly notice when someone is looking at them, even from considerable distance and even when they are involved in other activities. If a pedestrian looks directly at the driver of a passing car rather that just at the vehicle, the driver will often notice and look back. The primitive response already present in the infant remains a powerful attractive force throughout life, independent of the understanding of the significance of eyes that develops later.

Learning to understand and to use eye-expression is similar to learning to understand and use language. Normal children learn both without special training. In autism, eye-expression is the more problematic of the two. This is not surprising, in light of the foregoing discussion. Once some concept of word-meaning is grasped, a child can learn language without having to direct more than passing attention to its human producers. Eye-expression, however, cannot be learnt that way. Many autistic children who learn to speak and understand language relatively well therefore never learn to

make eye-contact or to understand or use eye-communication. Some look downwards rather than towards the person they are speaking to, others look into the air or in apparently arbitrary directions when they speak. Even though they certainly know who they are talking to and know that they are talking to them, as far as they're concerned eye-contact isn't part of it. Some occasionally look into another person's eyes but do not maintain eye-contact during conversation or use correct eye-contact when greeting. Some make momentary initial eye-contact when they begin speaking to make sure the other person is listening, and then don't bother to look at them again until they are done. They understand the significance of eyes and of people's attention, but not that eyes, together with voice, are a part of ongoing communication.

What is lacking is not the aptitude to direct gaze at another person's eyes and to focus on them. Even autistic children who are mildly mentally impaired can be trained to do that. That is not eye-contact. It does not serve as a means of communication or coordination, nor does it indicate mutual understanding. Training in eye-contact doesn't alleviate the autistic condition unless the child is cognitively ready for it. Even for autistic children whose intelligence is normal or above, premature training may make little difference in the rest of their behaviour. They continue to be otherwise autistic. Training can only be valuable after the underlying structures of communication and coordination with others have developed. For children of normal intelligence, this generally happens by adolescence.

As has already been explained, the aetiology of autism accompanied by mental handicap is different from that of autism with normal or near-normal intelligence. The root deficit in one involves cognitive aptitudes, while in the other it involves dispositions. In autism with mental handicap, primary interest responses, including the interest-response to eyes, are generally intact. Low-level deficits in processing visual stimuli, however, may preclude their development. Some severely mentally impaired children never focus their eyes on anything. They cannot put the visual stimuli together in any meaningful way, so the fundamental behaviour of focussing the eyes cannot develop.

There are other mentally handicapped children who stare blankly into eyes without any awareness that those eyes are part of an intelligent conscious being. Although such staring may make some people uncomfortable, it should be seen as a positive sign. The ability to focus this way indicates that they can process visual configurations and form memories of them. In addition to innate interest, having seen the same configuration several times, they experience it as familiar, so they direct their attention to it. They lack, however, the ability to connect it to other experiences in ways that would make it meaningful. They stare at faces and other objects, but do not then proceed to other kinds of interaction. For them, the capacity to recognise visual configurations makes it possible for the innate response to the two-eye pattern to be evoked, resulting in attention, but they cannot go further to develop coordination or communication that would constitute eye-contact, nor can they develop sensitivity to the emotions being expressed by the eyes at which they are staring.

In spite of the importance of these deficits in the autistic syndrome, discussion of autism rarely goes beyond mention of lack of eye-contact to address questions of causes and implications. This is a serious omission. Unless the role of eye-communication in human behaviour is appreciated, the significance of its lack in autism cannot be understood. It is a grave error is to confuse failure to make eye-contact with avoidance of eye-contact, which is essentially different. The normal child experiences eye-contact as communication and personal interaction. If he avoids it, it is because he does not want to interact, does not want to share his feelings. Most autistic children, especially those who are mentally impaired, do not actively avoid eye-contact but simply ignore eyes because they have no meaning to them. Indeed, in autism active avoidance of eye-contact is a positive sign, because it shows that the eye-configuration is being processed and recognised. An intelligent autistic child who actively avoids eye-contact has already begun to recognise it as a form of interpersonal relationship, which he avoids because he does not know how to navigate that kind of intimacy and is frightened by it. Perhaps he is afraid of doing the wrong thing and getting a

negative response. Perhaps he feels that the other person will get inside him through his eyes and will thereby be able to find out something about him. Like normal children who avoid eye-contact, he diverts his gaze to protect himself. Such a child is ready to learn meaningful eye-contact. Once he learns to trust others and feel comfortable with them, eye-contact will follow with little or no training.

8. Personal Pronoun Reversal

Another puzzling aspect of autism that can be explained by deficits in interest in human features is *personal pronoun reversal*, the use of "you" in place of "I" or "me", and "I" or "me" in place of "you", which is found both in autistic children who are mentally handicapped and in autistic children of normal intelligence while they are in the process of acquiring language. It is difficult to understand why a child would make such a mistake. One can see why they might completely lack personal pronouns, referring to themselves by their names rather than "I" or "me", for it is much easier to grasp the meaning of a proper noun, which does not vary with the speaker, than an indexical. Indeed, caregivers sometimes use this pattern of simplified speech when speaking to young or mentally handicapped children in an attempt to make language easier for them. But why would a child respond to "Do you want an apple?" with "You want an apple!"?

Let us begin to unravel the problem by analysing what the autistic child knows in such a situation. He knows it is an opportunity to get an apple and he knows that it calls for a response. He also knows the word "apple" and he knows what it refers to. But what does he think of the individual words "Do", "you" and "want"? Even for the normal child, these may at first be no more than a formula, a combination of sounds having no meaning in themselves but serving to transform the word "apple" into the request for one. How does he eventually learn to use these words correctly?

The normal child learns to use first-person indexicals by imitating the speech patterns of others. For example, he may be playing with a toy when his older brother pulls it away and exclaims "Mine!" His own subsequent exclamation of "Mine!" when he pulls it back is no more than imitation. Initially it does not indicate any understanding at all. The next step may simply be adopting the practice of saying "Mine!" when taking something away from someone else. Similarly, the first use of the word "I" need not involve comprehension of its significance. It too, begins by imitation. Child and caregiver are playing peek-a-boo. The caregiver uncovers his eyes and says "I see you!" and child imitates and says "I see you!" Through a sufficient variety of imitations of such sentence patterns, the child learns to use the word "I" correctly, and *that usage itself* constitutes a functional concept of its meaning.

But to develop such a functional concept, that is, to learn to use the word correctly, one must notice and attend to certain aspects of the situation. When brother pulls the toy away, one must notice not only that the toy is being pulled away, but also who is doing the pulling and that the exclamation is being made by that same person. What if one, lacking any interest-response to human features, does not pay special attention to the human participants in the scene? The only thing interesting at the moment is the toy, and the event is construed only as the toy being pulled away and concurrently the sound "Mine!" being heard. What is the meaning of "Mine!" to a child who sees the world this way? Will he say it when he pulls it back? "Mine!" means something is being taken away. If there were any appropriate sound for getting things back, it would hardly be the same one!

When a normal child is offered an apple, there are three participants: the apple, the person offering it, and the self. The words "apple", "you" and "I" correspond to relationships between these three. They depend upon who is speaking, whether it is the one who is offering the apple or the one who is to get it. These must be understood in order for the correct use of the words to be learnt. Otherwise it is *essentially impossible* to learn them.

For the autistic child in the same situation, there is but one participant, the apple. The sound "Do you want an apple?" is heard, and it signifies the possibility of getting the apple. To change the situation into one in which he actually receives an apple, he must make some sound. The most obvious form is the one that he just heard, "Do you want an apple". That is the "apple-getting sound". If his attempt is rewarded by receipt of the apple, as will no doubt happen if the child rarely speaks and his caregiver is eager to encourage any speech whatsoever, it will be reinforced.

Training such a child to respond correctly is of little value as long has he continues to experience the world this way. Even if he is trained to reply "I want an apple", successful performance does not necessarily indicate that any concept of "I" is developing, even a functional one. As long as he does not pay attention to who the speaker is, there is nothing for the sounds "you" and "I" to refer to. They are simply forms of offer and response.

9. Asperger Syndrome

Lack of innate interest might also explain the difference between Kanner's autism and Asperger Syndrome. Autism was identified independently by Leo Kanner and Hans Asperger in the first half of the twentieth century. The populations that they studied were different, but the syndromes they described were similar. Although the intelligence of Asperger's subjects ranged from below normal to above, none were more than mildly mentally impaired. All could use language for communication. There was a much broader range of intelligence among Kanner's subjects, including some who were severely mentally impaired. Many had little or no language. The severity of their autism varied more widely too. None of Asperger's subjects were completely cut off from other human beings as were some of Kanner's. The source of these differences was a function of the context within which they came to be examined. Kanner's subjects were brought before school age because they did not relate normally to other human beings. Asperger's were brought because of behavioural problems in school. That they were attending school in itself excluded severe mental impairment and complete lack of language, although it did not exclude initial delay in language acquisition. Some had been, only a few years earlier, much like Kanner's, and some of Kanner's subjects who had no language when originally examined later acquired language and attended school.

Today, the term "Asperger Syndrome" has come to be used in three different ways. Some use it to indicate a milder form of autism, others to indicate autism without mental handicap, and others autism without delayed language acquisition. By all these definitions children of very low intelligence are excluded. Communicative language, in itself, precludes such classification. The second and third, however, include a range of intelligence from low-normal to superior, as did Asperger's own description. The term "autism", on the other hand, is currently applied to the full range, from profound mental impairment to exceptional genius. Current usage has therefore broadened Kanner's definition while it has restricted Asperger's, thereby increasing the difference between them.

In our brief description of Asperger Syndrome in the first chapter, we adopted the last of these definitions. This choice was a pragmatic one, in that by defining Asperger Syndrome by a qualitative difference, a distinct subgroup is identified. But whether one prefers this or a different definition, the fact remains that there are some autistic children who develop language at a normal age and others who, though very similar to them by the time they are ten or fifteen years of age, were significantly delayed in their initial acquisition of language. The question is, therefore, what the underlying difference between them is. Why do some children develop language at a normal age while others of comparable intelligence do not? Identifying interest in human features as the primary cause of autism with normal intelligence suggests that the difference between these two groups may lie in the innate interest-response to the *human voice*. Children who, like normal children, innately direct their attention to the sound of a human voice, but who lack normal interest

responses to other human features, may acquire language at a normal age but nonetheless fail to develop normally in other social areas. While language brings with it certain aspects of social learning, others are still missing, both during the early years, when social learning draws heavily on nonverbal physical interaction, and in later development, in which group identity and group socialising become central. The Social Learning System that children with Asperger Syndrome develop therefore differs in significant ways from the norm. To a greater or lesser degree, they remain subject to the same basic deficits in coordination with other human beings as other autistic children, and to the secondary traits that follow from them.

For those whose language acquisition is delayed, the initial impairment of social learning is also more severe, but as language develops it lessens until there is little difference between the two groups. Given normal intelligence, the secondary interest in language takes the place of innate interest in human voice to motivate the system. Those differences that remain are related to the continued role of innate interest in human voice. To the extent that this innate interest contributes to behaviour throughout life, there continues to be a fundamental difference between the two groups. Those who, as infants, were attracted to the sound of the human voice, continue to have this attraction, and it continues to contribute to certain kinds of learning and interaction. They tend to have better language-related skills than those of comparable intelligence whose language acquisition was delayed.

10. Conclusion

The hypothesis that lack of interest in human beings is the primary cause of autism is not new. It is only when seen within the context of the Social Learning System, however, that it can be fully appreciated. Especially in the area of language and communication, the insights that the Social Learning System is the Final Common Pathway in autism and that the primary cause of autism without mental impairment is a deficit of innate interest in human features, when taken together, offer plausible explanations for puzzling phenomena including delayed language acquisition, deficits in social and expressive use of language, idiosyncratic language and neologisms, difficulty with idioms, difficulty with conversation, and pronoun reversal. The continued role of innate interest beyond childhood, after secondary interest has developed, also helps explain why autism is never completely overcome.

This completes the discussion of underlying causes and the aetiological taxonomy of the various subcategories that were begun in the previous chapter. We are still, however, far from a complete answer. Much remains hypothetical. It is a beginning, a foundation from which further research and analysis can proceed.