

Chapter 2 - A General Description of Autism

Beyond the central trait of autistic aloneness described above, there are many other traits which together comprise the syndrome. Some are universal, some are found in most cases but not in all, and some, though infrequent, nonetheless bear a statistical correlation with autism. We can therefore say that autism involves tendencies towards many different traits, but that there are only a few that are essential parts of the syndrome. They fall into three broad categories, *social interaction*, *language and communication*, and *resistance to change*. These three categories have become generally accepted as diagnostic criteria. An additional criterion of diagnosis which is not in itself a trait is *early onset*. In autism, traits are generally evident by the middle of the second year, and always before the age of three. When development is normal beyond that age and is then followed by social withdrawal, loss of language and degeneration of activity or other such regression to a state resembling autism, a diagnosis of autism is not appropriate. This distinction is born out by future development, which in such cases do not follow a course characteristic of autism. There are, however, other traits that, although they do not belong to any of these categories, bear a strong correlation with autism. Some have proven very significant in understanding the syndrome. We shall begin by describing the three main categories and then describe the traits that do not fall into any of them.

1. Impaired Social Interaction

Impaired social interaction is the broad category which includes autistic aloneness. Of the three main categories, it is the most central and includes the most important of the specific traits. Tendencies toward impaired social interaction are sometimes already evident in infancy. Rather than responding positively to being picked up and held as normal infants do, some autistic infants squirm or become rigid and resist being held. Others are limp and passive when held, seemingly unaware that anything is happening to them. But whether aware or not, it is clear that they derive no pleasure from it. Some find any human contact unpleasant and react by screaming. These sorts of behaviour, however, are neither necessary nor sufficient indications of later autism. Some infants who behave this way proceed to develop normally, while in others, autistic behaviour does not appear until after infancy. However, when early lack of positive response to human contact continues and becomes a life-long trait, it can be seen in retrospect to have been part of the syndrome.

Underlying impaired social interaction seems to be a fundamental lack of interest in human beings, and this too is often apparent at an early age. The autistic child is rarely a friendly baby. Rather than smiling or cooing in response to the smiles and vocalisations of adults who admire him or try to attract his attention, he ignores them. When he becomes able to crawl or walk he wanders off by himself or finds himself a corner away from everyone where he can play or simply sit alone without being bothered. He doesn't care to be around people. He may find objects or animals more interesting than humans. When his parents bring him along visiting, he ignores the people and explores the house and furniture, finds something interesting to play with, or draws into himself and becomes unresponsive to whatever is going on around him.

Lack of eye-contact, especially in infancy and early childhood, is one aspect of this lack of interest. Some older autistic children and adults actively avoid eye-contact, but in infants it is never yet an aversion, only lack of a positive attraction. Most normal infants begin to show attraction to the human face, especially to eyes, shortly after birth. They gaze into the eyes of their caregivers, especially when the eyes are directed toward them. In fact, babies and young children tend to stare at eyes more than adults do. Gazing at eyes is an innate behaviour that only later do they learn to control and channel in ways that

are socially acceptable. Failure to gaze in infancy indicates lack of this innate response. When found in conjunction with lack of other kinds of early social responsiveness it may be the beginning of a pattern of isolation that later develops into autistic aloneness.

But, while in some cases lack of eye-contact may be noticed in infancy, in others it appears only later together with other autistic traits. Here again, the connection between early behaviour and later autism is not absolute. Some autistic children gazed at eyes, responded to caregivers, and otherwise seemed to have been behaving normally in infancy, while some children who did not gaze at eyes as infants later developed normally. It is when such behaviours persist into the second year that they can be considered an indication of autism. From that point on, failure to interact with other human beings becomes incorporated into a variety of abnormal play patterns, which are the next manifestation of impaired social interaction.

1.1 Play

A wide range of abnormal play modes have been observed among autistic children. While some are difficult to explain, most involve or are derived from lack of social contact. The most fundamental characteristic of autistic play is *isolation*. The autistic child plays by himself. Some autistic children do not respond even when another child or adult approaches and tries to play with them. Of those that do, few will seek out anyone to play with if not approached. This lack of social play is an extension of earlier lack of social responsiveness, but is more obvious because as the normal child becomes increasingly engaged in activities in which he interacts with others, the autistic child's isolation becomes a greater deviation from the norm. It is therefore often in the second year, the period during which social play normally develops, that autism is first recognised. As the normal child proceeds through the various stages of social play, at first playing in proximity to other children and then gradually increasing and improving interaction with them until it becomes truly social, the abnormality of the lone play of the autistic child becomes increasingly evident. What might not have seemed strange at one or two years is severely abnormal at five or six.

Like normal children, most autistic infants play with physical objects. Only those who are very severely autistic do not, their play being limited to various kinds of self-stimulation. Even autistic object-play, however, is not normal because they do not play together with their caregivers. Typically, the autistic child explores the physical world by himself, in the course of which he happens upon objects that interest him. He examines them in various ways and with various senses, turning them around, discovering the way they move and the sounds they make. Interest may be directed at a particular property of an object, such as its texture or its odour. He enjoys picking things up, dropping them, watching them fall and hearing the noise. In this way he learns about them and his knowledge and understanding of the world increases. For the normal child such independent exploration is typical of infancy, but becomes a smaller and smaller part of his activity and learning process as he gets older.

There are also often abnormalities in the modes of physical interaction and in the forms of relationships that develop with physical objects. In autistic children who are severely mentally impaired, interactions are limited to simple and direct contact, the sort of object-play that is normal for infants. They involve modalities characteristic of infants but which older children have generally stopped using, such as exploring objects by putting them in their mouths or rubbing them on their skin. In this way, the severely mentally impaired child has failed to mature, remaining permanently at an early stage of development. Even autistic children who are less severely impaired or have normal intelligence often continue such direct exploration and play longer than do normal children, but it becomes increasingly complex as more advanced skills and reasoning are acquired, resulting in an infantile mode of interaction performed with the advanced skills of the older child.

In the absence of normal social interaction, deviant modes of interacting with human beings sometimes appear. Some autistic children play with humans as if they were objects, manipulating their

fingers or clothing, but not relating to them as intelligent beings. In normal children this purely physical treatment of other humans is limited to very early infancy, when the breast is treated simply as a physical object. It is soon supplemented by social interaction, which develops and improves together with physical skills, before long completely replacing treatment of humans as physical objects. In the autistic child the physical skills improve but not the social ones. As he becomes more skillful at manipulating physical objects and his play with them becomes more complex, he becomes able to interact physically with humans in ways that would not be possible for an infant, so uniquely autistic modes of interaction develop.

For the most part, however, the autistic child whose intelligence is normal eventually gives these up and replaces them with more mature kinds of play and interaction. He builds with blocks, assembles jigsaw puzzles, takes things apart and puts them together again. He enjoys collecting rocks and leaves and arranging and classifying them. Later he plays music, draws and paints, rides his bicycle and reads. In autistic children of normal intelligence, therefore, most abnormalities in modality of interaction are only temporary.

Most of the interests and play-activities of the autistic child are not, therefore, different from those of other children. In adulthood as well, very little of autistic behaviour is, in itself, unique to autism. The differences are in *when*, *how*, and *to what extent* a particular activity is practised. Firstly, since social play is lacking, playing with physical objects necessarily comprises a larger part of his play activity. Secondly, while the normal child often involves others in his object-play, the autistic child does not. Thirdly, the autistic child's object-play is not modified by social guidance. He ignores the toys the caregiver presents and the ways the caregiver shows him to play with them, as if the caregiver and his actions did not exist but only the objects themselves. He therefore tends to acquire different modes of play than normal children do, generally fewer, and tends to acquire them more slowly. Even his physical play-repertoire is therefore more limited than that of other children. Fourthly, duration of interest tends to be longer in autism. Autistic children often enjoy playing with the same toy over and over again even though there are other toys available and they know how to play with them. They tend to remain interested in a single object or activity for a longer period of time than most normal children, without becoming bored.

Differences in degree and quality of social interaction inevitably lead to different types of play. There are no games in the normal sense, in which several individuals take different parts, either competing or cooperating with one another. Aside from object-play, a larger portion of time is spent in solitary play involving nothing but the player's own body. The more intelligent sing to themselves, recite passages they have heard, or do mental calculations. Those who are less intelligent rock back and forth or wave their hands in front of their faces.

Normal children are inclined to learn modes of play from other children and from adults. They are eager to be taught new games. Autistic children generally have no interest in play-learning. The younger and more severely autistic are not even aware that the other person is trying to teach them anything or that any sort of action is expected of them. They fail to grasp the play-learning situation. The more intelligent know what play-training is but ignore it, and may actively resist it even though they are aware of what is expected of them. Even those who are occasionally willing to learn are generally poor at it. They have trouble understanding what is being taught and correctly imitating others.

Autistic play patterns are therefore abnormal both in *type of interaction* and *amount of interaction*. The normal child interacts physically and socially, the autistic child only physically; the normal child learns ways of interaction from his caregivers and from other children, the autistic child knows only those that he discovers on his own; the normal child spends most of their time interacting, the autistic child may spend much of his time in activities that involve neither the social nor the physical world, amusing himself with nothing but his own body.

1.2 Pretend Play

There is a specific mode of play that is universal among children who are not autistic, but which autistic children engage in to a much lesser extent, and many not at all. That is *pretend play*. For instance, a child may take a block and push it along, pretending that it is a car, or may take an empty cup and pretend to drink from it. Though it was not initially recognised when autism was first identified, it was later observed that compromised pretend play is, to some degree, characteristic of the syndrome. Complete lack of pretend play is generally found only in children of lower intelligence. Most who are of normal intelligence engage in some pretend play, but less than normal. They generally begin at a later age, and even after they have begun, both quality and style of pretend play tend to lag behind age level. Some will engage in pretend play only when prompted, but not spontaneously. Some will follow specific play scripts, but not make up any of their own. For some, pretend play is limited to static activities such as naming dolls and ascribing family relationships to them, but does not extend to dynamic ones such as making up a story and playing it with them.

Unlike the other deviant play patterns we have just discussed, pretend play does not always involve social interaction, and therefore would seem not to belong in this section. However, for the normal child most pretend play is social in nature, even when the child is playing all by himself. When he plays with dolls or other objects, he acts out stories or situations from real life. Since for the normal child this is one of the main kinds of solitary play, even his solitary play is essentially social! It is therefore significant that not only does the autistic child spend more time in solitary play, but that the nature of his solitary play differs too. In that it involves little or no pretence, it is truly non-social.

1.3 Sharing Attention

Another aspect of normal development that tends to be lacking in autism is the *sharing of attention*. At an early age, generally preceding or coinciding with the beginning of speech, normal children begin holding things up to show them to adults and pointing to draw their attention. This is referred to as “proto-declarative pointing” because it serves the same purpose as a verbal declaration such as, “What a pretty birdie!” but is performed before enough linguistic skill is acquired to express it verbally. This sort of behaviour is lacking in autistic children. Even when, whether at a normal age or later, they learn to point to request something, few autistic children point simply to draw attention. Their pointing is limited to what is referred to as “proto-imperative pointing”, because it takes the place of a verbal request, “Give me that!”

As the normal child acquires language, that too becomes a mode of sharing attention by chatting and telling little stories. He can now not only draw the other person’s attention to the thing that he finds interesting, but also tell him about it and why it is interesting for him. Together, these reveal a fundamental inclination of the normal child to form “attention-relationships” with others, relationships of attending to something together with one another, and to enjoy those relationships whenever they are formed. The absence of these behaviours in autism indicates lack of that inclination. Most autistic children seem to have no desire to share attention and thoughts with others and not to experience pleasure when they do.

The talkativeness often found in Asperger Syndrome and in other cases of autism in which intelligence is normal or only moderately impaired is also very different from the attention-sharing chatter of the normal child. Even though it too indicates a strong desire to communicate and relate socially, it is not attention-sharing and does not create a relationship of coordinated thought. Though the intelligent Asperger child’s knowledge and command of language may be precocious, his is not true adult conversation. There is no reciprocity or exchange of ideas. It is a monologue, a one-sided lecture.

An essential component of shared attention that is found in even the earliest proto-declarative pointing and single-word utterances is the anticipation of a complementary act of response. Every act

of showing or presenting is normally accompanied by looking into the other's eyes and listening to his voice to know whether he has indeed focused his attention on the designated object and to see what his response is. Normal attention-sharing behaviour is therefore from the start a dialogue. Without that, it is not an attention-relationship.

1.4 Peer Relationships

While normal children are attracted to other children and have begun developing primitive friendships by their third year, many autistic children have no friends even at five or six. Most are happy being by themselves and don't seem interested in having anything to do with other children. By around ten, however, intelligent autistic children often begin to want friends. This new interest can be problematic, because by then other children have already been playing with friends for several years and have acquired considerable social skills. They know what one does with a friend and what one doesn't do, while the autistic child, who hasn't had that practice, is still an amateur. Indeed, the social clumsiness of the autistic child shows how advanced the social skills of normal children really are.

Not only does the autistic child not know how to be a friend, he may not even know what friendship means. He knows the word and may have observed friendships between other children, but he does not know of what their friendship consists. Not only is he ignorant of what they do together that makes them friends, he is unaware of his very ignorance. He does not realise there is something going on that he does not know about. Some autistic children, although they don't really want friendship, believe it is something they ought to have because adults have been telling them it is good to have friends or because they now want to be like other children, and having friends is one of the things children do. Others now genuinely want to play with other children, but the kind of friendship they desire may not be up to the level of normal children of their age. They may not yet be ready to engage in actual reciprocal relationships such as cooperation or sharing of feelings and ideas. They might not yet be able to even imagine such things. All they want is the sort of side by side play characteristic of preschoolers. So even if an autistic child finds companions who are willing to tolerate his social ineptitude, they may not provide him with the kind of relationship he wants.

1.5 Social Behaviour

Autistic children also fail to learn normal social rituals such as saying "hello" and "goodbye", or not taking off clothes in public. There are a myriad of social do's and don't's that normal people take for granted, but of which an autistic person may be completely unaware. While the autistic child is still young this may not be apparent. Since these are things that very young children who are not autistic do not know either, an autistic child may just be considered slow if he fails to observe those social conventions appropriate for his age. As he gets older, though, more is expected of him. The gap between his behaviour and that which is normally acquired by his age widens, and it becomes increasingly obvious that something is wrong.

1.6 Posture and Expression

Autistic children are noticeable in the way they hold themselves and the expressions they make. Some slouch when they sit or stand, or hang their heads down over their plates when they eat. Their motion is clumsy and lacks grace. Some develop their own unique facial expressions that are obvious in their oddity.

Many show very little expression most of the time, and their lack of expression is particularly noticeable in situations in which strong expression is normal and therefore expected. This is sometimes misunderstood to mean that they do not experience feelings as much as others, but it is the expression

of the feeling, not the feeling itself, that is lacking. Less common is the excess of expression, such as laughing in inappropriate situations. In autistic children of normal intelligence these peculiarities tend to decrease with age, as they learn to conduct themselves as others do, but rarely are they entirely eliminated.

One of the most obvious early signs of autism is absence of the social smile, that is, failure to smile when smiled at. As was mentioned earlier, as infants some autistic children do, like normal infants, respond by smiling when smiled at, but later fail to develop more advanced social responses. On the other hand, there are some normal children who do not smile at others when they are very young, but smile normally later on. It is not, therefore, the early social smile that is significant, but the mature social smile of the older child and adult. In Western culture, normal people will always respond by smiling unless they want to convey their displeasure or disinterest in the other person. It is the lack of this universal response in a person who has no such negative feelings that is so strikingly abnormal.

All of these contribute to autistic aloneness, separating the autistic person from those around him, for if a person does not express himself the way others do, they cannot understand him. They are also the first signs by which autism can be recognised, because they are being exhibited constantly. Even without speaking or acting, the autistic person calls attention to himself by his posture and expression. Alone, however, these are not definite signs of autism. They are shared by many mentally impaired people who are not autistic, and by some normal people as well. Those who move to a different culture, in particular, rarely learn the posture and expression of the new culture, and may look odd in a similar way.

Normal expression is not, however, completely lacking in autism. Since some expressions are natural because they are produced biologically in certain situations without effort or training, they are found in those who are autistic just as in those who are not. An autistic child who is smiling while playing by himself may therefore not appear at all abnormal. He is enjoying himself and expressing his feelings appropriately. There are also many autistic children who are not at all clumsy or ungraceful, and whose posture is normal and healthy. Abnormalities in expression and bearing, therefore, while widespread, are not universal. Moreover, many intelligent autistic adults successfully learn to express and carry themselves normally, along with other sorts of normal behaviour, so their autism may not be apparent even to those who have daily contact with them. Though there remain the subtle abnormalities, they are not sufficient to produce an impression of autism.

1.7 Eye-contact

One of the first signs of abnormality that one notices when meeting an otherwise intelligent autistic adult or older child is lack of eye-contact. They don't look at you the way normal people do, with the look that indicates that they understand you and are paying attention to you. Some do not look in the other person's eyes at all. Others stare at them as one might at an inanimate object, in a way that makes most people uncomfortable. Even autistic adults who have good language skills and enjoy conversation may fail to look at the person to whom they are talking, looking instead at their own hands or at some object such as a cup on the table, or gazing into the air. Some face in apparently arbitrary directions as they speak, some never look long at anything, but instead continually shift their gaze. They all certainly know they are talking to someone and that he is listening and understands them, but unlike most normal people, they do not express that awareness of mutual understanding by making eye-contact with the other person.

However, lack of eye-contact is not universal. Some of those who are of normal intelligence or slightly below do make eye-contact during conversation and their overall use of eye-contact may be in the normal range. Some use eye-contact correctly when meeting someone and in other social situations. Others who have not achieved these levels nonetheless do know how to use eye-contact and make use

of it in limited ways, such as looking into the other person's eyes momentarily when beginning to talk to see whether he is paying attention.

Lack of eye-contact has different significance in those who are mentally impaired than in those who have normal or near normal intelligence. Since the rest of their behaviour is on a lower level, lack of normal eye-behaviour is not inconsistent and therefore not unexpected. Some who are severely mentally handicapped as well as autistic not only do not make eye contact, but fail to focus their eyes on anything at all. Their eyes resemble more those of a blind person than those of a seeing person who is staring into space. Some look directly forward, others habitually look in a particular favoured direction, such as up and to the left. Some do focus, but do not seem to be making any sense of what they are looking at. They seem, rather, to be picking some object arbitrarily and staring intently at it, but not processing visual sensations in a meaningful way.

Although some autistic individuals actively avoid eye-contact, most do not. Their failure to make eye-contact is simply the lack of a normal positive behaviour, not an opposite negative one. It is therefore possible to teach autistic children to make eye-contact. Even those who are mentally handicapped can be trained to look at the other person's eyes, although in most cases all that is achieved by such training is visual attention to the eyes of other human beings resembling the curious staring of small children. The coordination and interpersonal sensitivity of normal eye-contact is rarely achieved except by those of normal intelligence or of only mild mental handicap.

1.8 Empathy

Given what we have already described, it is not surprising that empathy and appreciation of the feelings of others also tend to be lacking. This too varies greatly, both with severity of autism and with intelligence. Those who are severely autistic and also mentally handicapped seem to have no awareness of humans as thinking and feeling beings. Of those who are only mildly mentally handicapped, there are varying degrees of awareness of thoughts and emotions and of recognition and understanding of them. Children in this range are able to recognise the facial expressions indicative of basic emotions such as happiness and sadness, but have trouble with more subtle and complex ones such as surprise, and find it difficult to differentiate between emotions whose expressions bear some similarity to one another. Though ability to understand and recognise emotion is better in those of higher intelligence, even very intelligent autistic adults generally cannot recognise expression as well as comparable adults who are not autistic.

Even those who are able to recognise emotions tend to pay more attention to purely physical qualities. They might be able to tell you what colour clothes someone they met was wearing, but not whether he was happy or sad. Lack of empathy in autism is closely related to this lack of attention to human beings. An autistic person may sometimes become so involved in an activity that he does not notice the people around him at all. He may actually forget that other people are there.

Autistic behaviour is sometimes shockingly inconsiderate. An autistic child may step on people as if they were inanimate objects. An autistic adult may take all the food and leave none for anyone else. But what would be despicable callousness in a normal individual may simply be lack of awareness in an autistic one. It is not that they are not concerned about others, but that they are not aware of their feelings and sometimes of their very existence. What makes this so surprising is that it is true not only of those whose intelligence is too low to appreciate the humanness of people in general, but even of some of normal intelligence. It is hard to imagine how a person can fail to notice the other human beings around him. This is in sharp contrast to mentally handicapped people who are not autistic, some of whom have acute sensitivity to those around them even though they cannot explain or express their feelings.

So generally insensitive conduct does not mean that autistic children are incapable of sensitivity to others. On the contrary, they sometimes show acute sensitivity and care. They can be disturbed when

they see others suffering, and even some of those who are severely mentally impaired can sense whether another person likes them or not, becoming agitated in the presence of those who dislike or reject them. Lack of sensitivity is therefore not a universal characteristic of autism. What is characteristically autistic is, rather, the capacity to become so detached from other humans, either in general or in particular situations, that their feelings are unnoticed. This is rarely possible for a normal person.

1.9 Personal Attachments

There is a common misconception that autistic children do not form personal attachments. While this is true of some, it is certainly not universal, nor even true of the majority. Some become very attached to specific individuals such as to their parents or to therapists who have succeeded in communicating with them. Those who are of normal intelligence or only mildly mentally impaired are generally able to express these feelings. In those who are severely mentally impaired it becomes evident from their behaviour. They are happy when these individuals arrive and may be distressed when they leave. There are others, both of normal intelligence and below, who do not form strong, emotionally intense relationships, but have definite likes and dislikes for specific individuals. Some who are intelligent and articulate explain that they sometimes like being with people but do not have specific attachments, so if one friend leaves it does not disturb them as long as they can be with a different friend.

Some do not experience grief at the death of close relatives or friends, even though they were clearly emotionally attached to them while they were alive. Attitudes toward death, however, vary too. Some, on the contrary, find death distressing even though they had never seemed particularly attached to the deceased when he was alive.

In general, attitudes and feelings toward other people are not normal. They tend to be weaker, but also involve unique individual expressions. Failure to recognise or understand these expressions contributes to the impression that the feelings themselves are lacking.

2. Language and Communication

Abnormalities in language and communication are found in two broad areas, the process of *language acquisition* and the *nature of language* once it is acquired. Language acquisition is generally delayed and proceeds in various abnormal ways. Failure to begin talking at the normal age is often the first sign of autism that parents notice. In most cases, however, some language is eventually acquired. Indeed, the later abnormalities in how language develops and in the nature of the language that is eventually achieved are more significant than the delay itself.

2.1 Echolalia

There are several ways in which the course of language acquisition tends to be abnormal in autism. Autistic infants rarely coo and chatter with their caregivers, which for normal infants is one of the early precursors of speech. For some, language production begins with *echolalia*, the repetition of something they have heard. Echolalic utterances generally consist of single words or phrases, but sometimes entire sentences or even long passages are repeated. Echolalia is not unique to autism. It is not unusual in normal children at early stages of language development, and is one of the mechanisms by which new words and usages are acquired. It helps the child think about a word he has just heard and extends his opportunity to comprehend its meaning. His vocal organs also become accustomed to producing it, and it is reinforced in his memory. Echolalia in autism, however, is abnormal in several ways. For normal children, echolalia is generally only a brief stage and plays only a minor role in language learning. Furthermore, at no stage in normal language development is language entirely echolalic. The normal

child who produces echolalic utterances is also producing his own original speech and is using language interactively with caregivers. Furthermore, rarely will he continue echolalic repetition once a word has been acquired and has become a part of his vocabulary, while in autism it may persist even after mature language has been attained.

Some autistic children go through a stage in which speech is entirely echolalic. They repeat things they have heard, but produce no original utterances. This echolalic production may be directed at another person as part of some minimal interaction, or may be produced by the child by himself, completely devoid of social context. For some autistic children, echolalia plays a crucial role in language development, for without the social interaction which for normal children is the main context of language learning, it is the primary activity in which words are practised and speech skills developed.

There are two kinds of echolalia, *immediate* and *delayed*. In immediate echolalia, the phrase is repeated within a short time of being heard. It makes use only of short-term memory, and can generally be considered a form of imitation. In delayed echolalia the repetition is made long after the original hearing, in situations that may be very different from the original one. It necessarily requires a different kind of memory, and unlike immediate imitation, indicates that the utterance and the ability to produce it have already been learnt. Delayed echolalia often involves long utterances and sometimes melody as well, as in the repetition of TV jingles.

Echolalic repetition is sometimes done only a single time and never repeated again. More often it is done over and over again, and may become a sort of ritual. Echolalia is sometimes precocious. Infants, both autistic and normal, occasionally reproduce phrases or entire sentences, pronouncing them correctly, before they have even begun to speak single words. Some autistic children do this only once or twice and are then silent. Of these, some later learn to speak in a more normal way while others never speak again at all.

In some cases echolalia involves understanding, if not of the individual words, at least of the general content or use of the phrase, and may be used as a form of communication. In others, however, it is simply imitation of sounds without comprehension. In such cases, echolalia cannot be considered true language. It is a skill that has been gained, like spinning a top or building with blocks. Even so, it may be a step toward eventual language acquisition. A child who imitates sounds without meaning may eventually become aware of their significance. Some autistic children, however, never advance beyond this stage. Whether or not they are aware of the significance of the sounds they are making, they never take the step of creating their own original utterances. Some are able to recite long passages flawlessly, reproducing the intonations and melodies with which they were heard, even though otherwise they function on a level of significant mental impairment. It is therefore important to distinguish between echolalia as a stage in language acquisition and echolalia as a terminal skill.

2.2 Pronoun Reversal

Closely related to echolalia is personal pronoun reversal, in which “you” is used in place of “I” or “me”, and, though less frequently, “I” or “me” are used in place of “you”. This is often found in autistic children who are mentally handicapped and in children who are first learning to speak. It is most often found in responding to questions. Instead of changing the pronouns in the question so that they will be appropriate for the response, the question-phrase is repeated as heard. So when asked, “Do you want an apple?” they reply, “You want an apple” rather than, “I want an apple.” Such repetition is clearly being done for the purpose of communication, not simply reproduction of sound. This pattern may then also be extended to non-echolalic utterances, thus the child might ask the caregiver, “What’s in my pocket?” when he means, “What’s in your pocket?” Like echolalia, for many autistic children it is a stage that is eventually transcended, though it may take years for it to disappear entirely.

2.3 Language Acquisition and Level of Intelligence

Of those autistic children who are also mentally impaired, many never acquire any language. Some gain a limited repertoire of stock phrases which they use in specific situations. Others understand some words and phrases and can follow instructions, but cannot speak at all. Ascertaining comprehension in such cases can be difficult. Some appear to understand when in fact they do not. The correct behavioural response is produced not because the words were understood but because context made clear what was expected of them. On the other hand, some understand much more than they seem to. Their comprehension is never recognised because they are never in situations in which it is revealed and are not inclined to do anything to demonstrate it.

With proper training, many of those who lack speech are able to learn to communicate by sign-language or by pointing to pictures. Rarely, however, do such children develop full expression the way deaf children do. Their sign-communication remains limited to simple requests and responses.

Of those who are only moderately mentally impaired, many learn to speak, but in most cases language use remains limited to making requests, answering questions, and stereotyped phrases used to make primitive social contact.

Among those of normal or above-normal intelligence, however, many acquire language at the normal age, and those who do not generally begin speaking by about four or five. Most of these children have shown intelligence in other areas during their first years, but have failed to speak at the normal time. A few then suddenly begin speaking in complete sentences. Most begin in a more normal way, with a few words and phrases, gradually increasing until full speech is attained. The order in which words and grammatical structures are acquired may, however, be different from that of most other children. Initial delay in language acquisition therefore does not necessarily imply mental impairment, nor that normal language will never be attained.

2.4 Abnormalities in Language and Communication

Nonetheless, even among intelligent autistic children, the language that is eventually acquired is rarely entirely normal. Grammar and vocabulary are generally good. Sometimes, especially in Asperger Syndrome, they are superior. But there are abnormalities in the way language is used. Use of language for practical purposes is, characteristically, skillful and appropriate, but for social purposes, such as greeting, chatting, or sharing experiences, it tends to be deficient. Many intelligent autistic children and adults do not even realise that language can be used as a tool for social interaction and for forming social relationships. This is most extreme in young children, who may understand words and be able to produce grammatically correct and meaningful sentences, yet still not use them to communicate with others. They do not realise that other human beings can share their ideas and feelings. So, while they say things like "Please give me an apple" because they understand that it will get them one, they never just talk about how they feel or what they have done. As they get older, those whose intelligence is normal eventually begin to recognise these social uses, but it is a gradual process and may never reach a normal level. Thus they understand sharing feelings and comforting, but still think that "How are you?" is a request for information, not just a form of greeting, so instead of answering "Fine, thank you" they go into a detailed explanation of how they feel. Or they may have successfully mastered standard greetings, but not chatting and exchange of jokes, which require more variation and spontaneity.

Other abnormalities involve intonation and modulation of the voice. The speech of many autistic children is indistinct and their diction poor. They fail to learn the normal ways of raising and lowering the voice, so their speech is sing-song or monotone. This can make their speech strange and unpleasant even if it is grammatically correct. But poor voice modulation is not only a matter of style and aesthetics. Intonation also contributes to meaning, and failure to use it correctly can lead to

misunderstanding. This may be accompanied by comparable problems in comprehension. When others speak, they may fail to understand the message that is being conveyed by their intonation. They have not yet recognised this dimension of speech, or if they have, have not developed skill in using it.

2.5 Idioms and Neologisms

There are also abnormalities in the way words are used. Most of these involve idioms and context. Unlike normal people, who always include context in their interpretation of the speech they hear, the autistic person tends to understand phrases literally even when context should make it clear that they are meant idiomatically. They may also fail to learn conventional and idiomatic uses. Thus a request like, "Can you pass the salt?" or a question like, "Do you know the sum of seven and eight?" may be understood literally, and responded to simply by "Yes", rather than passing the salt or giving the answer to the problem. In comprehension of both reading and speech, they may fail to use context to clarify ambiguities. When asked to bring flowers as a present they may come with a bag of flour, and when reading the sentence "There was a tear in his shirt" may be unable to tell how to read the homograph "tear". Clearly, however, they have some awareness of context and convention, for without them there could be no communication at all. Rather, what is characteristic of autism is not complete neglect or ignorance of context and convention, but a tendency to use them insufficiently.

Ignorance of idiomatic usage affects production as well as comprehension. Intelligent autistic children and adults sometimes use a word or expression in a way that is not incorrect and would not even have been inappropriate, except that it has become conventional to use it idiomatically, so it is never used in its literal sense by normal speakers. When asked where one of her co-workers had gone, one autistic woman replied that he had "gone to a better place", meaning that he had got a better job. The expression seemed appropriate to her, and she had no doubt heard it before, but she did not realise that idiomatically it had become a euphemism for dying.

There is also a tendency on the part of autistic speakers to assume that the listener is familiar with the same background knowledge as they are, so they fail to supply key information necessary to make their statements comprehensible. This sort of insufficient presentation of information is normal for small children, who have not yet learnt to take the listener's point of view into account, but in autism it persists much longer, sometimes into adulthood. Until it is pointed out to them, they do not stop to consider that their own knowledge is derived from personal experience which the listener does not share.

Closely related is the tendency to create new words and expressions. Those who are mildly mentally handicapped are especially prone to attaching a new meaning to a word or expression after finding a single incident particularly impressive. In some cases the connection is almost logical and therefore easily understood. Thus a child might use the expression "Let's go for ice-cream" to mean "Let's go to a restaurant" because that was the expression that was used when he was taken to a restaurant for ice-cream. In others it may be so opaque as to seem nonsensical. A child might refer to a certain shop as "the twins shop" because he once saw twins there. Older and more intelligent children realise that the expressions they are using are not standard or do not really mean what they are using them for, but younger children and those who are mentally impaired use them naively without distinguishing between these and standard usages. Their speech may be so full of neologisms and idiosyncratic usages that it becomes a private language unintelligible to any but their families and those who have worked closely with them.

Autism also tends to involve difficulty in understanding abstraction and abstract terms. This too differs with level of intelligence. Those who are mildly mentally impaired may have trouble understanding even such simple concepts as "similarity" and "difference". For those whose intelligence is normal or above, it is less an inability to understand abstraction when necessary than a preference for concrete thought, and therefore for visual over verbal modes of thinking. Whether or not this is derived

from the same source as language difficulties, it certainly affects both language comprehension and use.

Sometimes, an otherwise intelligent autistic person seems to have trouble grasping a simple straightforward message. No matter how much you try to explain it to him, he doesn't seem to get it. Often this seems to be resistance to an idea or a fact that he does not want to accept. But this may be more than just stubbornness - it may be so contrary to his basic assumptions and world view that he finds it impossible to assimilate. In other cases it may not be resistance, but lack of some basic prerequisite concept that most children of his age already have, but that he has failed to acquire. Without it, the new message may be impossible to understand.

2.6 Conversation

Even when language competence is normal, autistic speakers tend to have problems carrying on conversations. Some never initiate conversations and only speak when spoken to. They do not use language to share ideas and feelings and do not enjoy telling stories. Others like to converse, but tend to digress and have trouble keeping to the topic. They lack certain of the skills involved in the dynamics of conversation and grasp of conversational structure, such as how to keep a conversation going after a temporary pause has been reached. This might not be evident when they are talking to someone who is cooperative and helpful, because he keeps the conversation going for them, but if the interlocutor does not come to the rescue in such situations, the autistic person may be left stranded. There is a period of silence and the conversation dies. The more astute autistic partner realises this and feels uncomfortable but helpless; one who is mildly mentally impaired may simply consider the conversation over and leave.

Conversations with more than one other person present even greater difficulties, since they require the additional skill of turn-taking. The autistic conversant may not know how to indicate when he wants to make a contribution, or to recognise the signs that speakers give one another when they invite them to speak. Using the telephone can also present problems for some otherwise capable autistic speakers. Although they may be comfortable conversing face-to-face, they may have difficulty talking to someone they cannot see. Some are afraid to answer the phone. Others answer but will not make calls.

Autistic children and adults also tend to ask less questions than normal, and their questions are of a more limited nature. Most noticeably absent are "why?" questions. This is less obvious than other abnormalities in speech, because no one is expected to be asking questions all the time, so not asking a question at any given moment is not in itself abnormal. Only over the course of time does absence of questions become noticeable. Since questions are one of the avenues by which conversations proceed, failure to ask questions further limits their participation in conversation. More significant than the practical effects of not asking, however, are the implications with regard to thought and reasoning. Failure to ask questions seems to reflect a general lack of curiosity and interest in the reasons for things. Indeed, some autistic people seem never to wonder about the reasons for things, and their response when asked about something they do not know indicates that they never expected the answer to be known. Whereas most people have an awareness of a large body of knowledge of which their own knowledge is but a small part, these behave as if their own current knowledge encompassed the entirety of all that could be known. Like other abnormalities, however, this is not universal. There are others who do ask questions and who are no less curious than anyone else.

2.7 Positive Abnormalities of Language

Although most abnormalities in language are negative, there are also sometimes positive ones. In those whose intelligence is normal or near normal, grammar and vocabulary are generally good. Some,

especially those with Asperger Syndrome, love to talk and ask questions. Even though they may lack sensitivity to the thoughts of the other person and their conversation may be a monologue rather than an exchange of ideas, they are able to express themselves and convey information clearly.

Various kinds of hyperlexia are also found in autism. Some intelligent autistic children acquire the ability to read at a very early age, many without being taught. Others learn to read in the normal way, but become able to read very rapidly. Some of lower intelligence are able to read words and sentences correctly even when they don't understand what they mean.

Language abnormalities in autism lie therefore in the three distinct areas of *acquisition of language, comprehension and production of language*, and *use of language*. The last, in particular, involves communication more than language itself, and also belongs to the category of social interaction. Characteristically, as long as there is no mental handicap, it is not the internal technical aspects of language, semantics and syntax, that are deficient, but the pragmatics, the way language is used in interactions with other human beings.

3. Resistance to Change and Repetitive Behaviour

The third category involves two main branches, *resistance to change* and *tendency for repetitive behaviour*, which are closely related even though they are very different from one another.

3.1 Resistance to Change and Concern for Regularity

An autistic individual may insist that the furniture in his house always be arranged the same way, and become very upset, even violent, if the slightest change is made. He may insist on always sitting in the same place, following the same route, buying the same brands, eating the same food, or wearing the same clothes. He may also want objects to be arranged in a particular order, such as stacking books by size and aligning them all in the same direction. For those who are more intelligent, this may transcend the realm of behaviour to the theoretical levels of law and morality. They may become sticklers for grammar and other rules, and may consider deviation from the perceived norm not only disturbing, but a moral violation! Thus they might consider it improper to eat breakfast cereal at any meal but breakfast, or to wear shoes while wearing pyjamas.

It may be a global insistence on regularity in all aspects of life, or may apply only to certain objects or aspects of the surroundings while ignoring others. For some it is a matter of time and schedule. Everything must be done exactly at the right time. Deviation is stressful and creates severe anxiety. It may involve standard schedules that the child is accustomed to at home or school, or may involve apparently nonfunctional routines made up by the child himself that he insists must be followed. There may also be intense attachment to specific objects and distress if they are missing.

Concern for regularity often develops into interest in arranging and ordering, and is often accompanied by superior memory for specific arrangements and patterns. In intelligent children and adults, this can become very complex and sophisticated, developing into interest in maps, timetables, statistics and classifications. Younger children may enjoy arranging and rearranging objects on a shelf or table, and may spend long periods of time playing this way. It can also involve making collections of certain kinds of objects such as marbles or bottle caps, sometimes just to keep them, sometimes to arrange and rearrange them. As adults, even some whose intelligence is slightly below normal may find employment in areas in which these inclinations and skills are useful, such as cataloguing books in a library or working at an information desk.

3.2 Repetitive Behaviour

Repetitive motor mannerisms include spinning, tapping, swaying back and forth, and hand flapping. These are most characteristic of young children and children who are severely mentally impaired. Many hold a hand in front of their eyes and wave it back and forth, or hold it still and sway back and forth so that the view between their fingers changes. Since these children interact less with their environment than do those of normal or near-normal intelligence, they are less prone to insistence on routine or on arrangement of their surroundings. Indeed, they are oblivious to much of what goes on around them, so insistence on regularity, though not absent, is not as pronounced. Repetitive behaviour also makes up a larger portion of the totality of behaviour of those of lower intelligence because their entire repertoire is smaller. But even among those whose intelligence is normal or above, repetitive behaviour, though less obvious, is not absent. It is generally more complex. They are more likely to sing a certain melody over and over than to flap their hands. Repetitive behaviour is also less visible in intelligent autistic adults because they know such habits are not socially acceptable, so they generally conceal them. Repetitive behaviour, however, is not unique to autism. Tapping or pacing to relieve stress, for instance, are done both by those who are autistic and those who are not. So here, as in some of the traits that we discussed earlier, the difference between autistic and normal behaviour is one of degree rather than of kind.

3.3 Perseveration

Another trait that belongs to this category is *perseveration*. Autistic children tend to be reluctant to abandon an activity once they get involved in it, or to interrupt before it is completed. If they begin watching a video, they must play it through to the end. If they are swimming, they refuse to get out of the water at closing time. This should not be misunderstood as a specific attachment to the activity in question. If the same child is drawing pictures when it comes time to go swimming, he will resist putting down his crayons. Perseveration may seem to be of minor significance compared to the other traits, but it can be a serious inconvenience for the families of autistic children and a source of conflict and behaviour problems.

In conversation, an autistic speaker may refuse to abandon a topic even after the others to whom he is speaking are no longer interested in discussing it. Some who are less intelligent just keep repeating the same thing over and over again. Those who are more intelligent go into greater and greater detail and present more and more information. This may also involve lack of sensitivity to the other person, but sometimes an autistic speaker feels he must finish the topic even though he realises that the listener has become bored.

Inflexibility in strategy, which is among the deficits in Executive Functions found in autism, seems to be related to this. If the approach taken to solving a problem proves unsuccessful, those who are autistic take longer to abandon it and to try a different one than others do. Impulsiveness may also be related. Sometimes just getting the idea of doing something is enough for an autistic child to insist that it be done right away.

3.4 Spinning and Other Repetitive Motion

Fascination with spinning objects is very common, and also seems to belong to this category. It may involve actively spinning and twirling things or just watching. Toys such as tops are therefore popular, but so are toys with parts that can be spun even though they were not intended for that purpose. Some children enjoy turning toy wagons upside down and spinning the wheels. This is also one of the reasons that gramophones were especially popular among autistic children. Like tape recorders and CD players which eventually superseded them, they produce music, which many autistic children enjoy, and are repetitive and strictly predictable, but in addition, simply watching the record turn can be pleasurable.

Enjoyment in spinning objects may later be extended to interest in vehicles, machines, and anything with wheels, even when the spinning is not particularly salient.

4. Other Traits

There are many traits associated with autism that do not fall into any of these three main categories. Most are not universal. They are found in many cases, perhaps a majority, but not in all. Some are rare, but are found often enough to indicate some connection to autism. The following is one of many possible classifications:

4.1 Cognition and Intelligence

The category closest to the three main traits involves mental activity not related to social interaction or language skills.

4.1.1 Variations in Cognitive Abilities

Although autism does not necessarily entail mental handicap and indeed is compatible with superior intelligence, many autistic children are mentally impaired to some degree. But perhaps of even greater significance than the incidence of mental handicap is the abnormal correlation of strengths and weaknesses in different areas. For instance, an autistic child whose overall intelligence is normal or above may nonetheless have areas in which he is seriously deficient. Conversely, a child who is below in most areas may have normal or above ability in one or perhaps a few. The extreme is the idiot-savant, who excels in one ability while being severely below normal in most others. Most often it is musical or mechanical ability that is superior, or specific mathematical abilities such as rapid calendar calculation, multiplication or division. Occasionally it is drawing or sculpture. Many have excellent rote memory of one form or another. Some children have detailed memories of events they have experienced or places they have seen. Some can recall what happened on each day of their lives since an early age. Others can recite long passages by heart, sometimes without understanding them at all. Some can do this with perfect accent and pronunciation even in languages that they do not know and have never heard before. Many have absolute pitch, and some can replace objects that have been moved to within a fraction of an inch of their original location. By contrast, reasoning abilities in other areas may be far below normal and communicative language may be impaired or even completely lacking. In most cases superior abilities are not above the normal level, and are notable only by comparison to the others. In some cases, however, they are outstanding even by normal standards. These are the real idiot-savants. This extreme, however, is rare. While it may be true that most savants are autistic, few autistic children are savants.

There are also abnormalities in the order in which information is learnt and skills acquired. In general, physical skills precede social ones even when intelligence is normal. An autistic child may have difficulty following simple instructions even when he pays attention and tries to understand, but be able to solve difficult puzzles without assistance. He may be able to recite pages of poetry, but not be able to remember how to spell simple words. Sometimes number skills and ability to tell time are acquired early, when language skills are still minimal. Some children learn to write letters and even to read at three or four years old, but their use of language may still be behind.

Although there are certain cognitive patterns that are characteristic of autism, like other traits, none are universal. For every generalisation there are exceptions. While it is true that autism often involves strengths in rote memory and deficits in reasoning, there are also many cases in which it is false. It is therefore not the specific pattern that is characteristic, but the tendency for unusual cognitive patterns of one sort or another.

4.12 Deficits in Executive Functions and Central Coherence

In later chapters, we shall discuss certain areas of thought and reasoning that collectively are called Executive Functions and Central Coherence. Although not recognised in the original studies, deficits in these areas have been found to characterise many of the abnormal cognitive patterns in autism. Autistic children tend to excel at tasks requiring attention to detail, such as assembling jigsaw puzzles, finding embedded pictures, and copying block designs. Many perform exceptionally well, not only relative to their own performance at other tasks, but also compared to children of similar age who are of normal intelligence and are not autistic. Some autistic children can even assemble jigsaw puzzles upside down, relying on the shape of the pieces alone without making use of the picture. On tasks involving planning and flexibility of reasoning, however, they tend to perform poorly, even for their own level of intelligence, as mentioned above in the discussion of perseveration. Here, attention to detail tends to be detrimental, because it draws attention away from the larger picture.

This pattern was first discovered in analysing performance of autistic children on intelligence tests, but later, deficits in planning and flexibility were recognised in many other areas of autistic functioning. This discovery is especially significant because this pattern has been found consistently in all kinds of autism and all levels of intelligence, except for those in which mental handicap is so severe that it precludes performance of tasks involving concentration and attention to detail.

4.13 Interests

There is a tendency for unusual interests, and for interests to be limited in unusual ways. An autistic person might be very interested in freight trains and collect all sorts of information about them, but have no interest whatsoever in passenger trains. Lack of interest is most blatant when it involves something that normal people generally find interesting, such as playing games, reading stories or watching films. There are many intelligent autistic children who have no interest in stories. They read only non-fiction and watch documentaries. It is not, however true, that autism necessarily involves a limited range of interests. Some autistic children actually have broader ranges of interests than those of many normal children, but they appear to be narrow because some of those interests are so unusual that few observers are aware of them. Indeed, some autistic children have unusually open minds and are easily interested in a large variety of activities, as long as they are presented to them correctly. This accounts, in part, for the excellent academic success of many intelligent autistic children, who pursue their schoolwork with enthusiasm. Others, however, really find very few things interesting and there is very little that they enjoy doing, so they live dull and narrow lives. This is certainly true of those who are severely mentally impaired, but even some of those whose intelligence is normal find very little in their experience interesting or stimulating. Interest cannot, therefore, be characterised as limited, but rather as unusual.

4.14 Common Sense and Sense of Danger

One of the puzzling aspects of autism is lack of common sense. Otherwise intelligent autistic children and even adults are notorious for making mistakes that are inconsistent with their overall level of intelligence. It is particularly surprising when an autistic adult who excels at difficult intellectual tasks such as mathematics, and has deep and extensive knowledge in academic areas, has no inkling about how to make certain practical decisions. Some mistakes can be accounted for by absentmindedness or by lack of attention to context or social custom. An autistic child might go to school on Sunday because he forgot what day it was, or answer the door without his clothes on because the bell rang when he was in the middle of changing. Other mistakes, however, are harder to explain. For instance, an autistic boy

who missed the school bus and had to walk to school followed the meandering route of the bus rather than taking the direct route, even though he knew the shorter route well.

Closely related to lack of common sense is poor judgement. Indeed, the two form a continuum. While common sense involves knowledge, judgement involves reasoning. Lack of common sense means that the autistic person is ignorant of some things that are so obvious that everyone knows them, or he knows them but fails to take them into account in his actions. Poor judgement means that he is unable to correctly weigh the different sides of a situation to make a decision that most other people would find trivially easy. An autistic person might, for instance, call someone up in the middle of the night to wish them happy birthday because he is afraid their feelings will be hurt if they are not called. He does not realise that they would much rather not be woken up.

Many autistic children lack a sense of danger. They enter dangerous situations without fear. On the other hand, some have abnormally intense fears, sometimes of situations that are absolutely harmless. It is not unusual for a single individual to at once fear some things that are harmless and fail to recognise the true danger of other things.

Autistic children tend to be gullible. Some cannot understand deception in general. In school, autistic children are easy victims for cruel jokes. In reading fiction, some autistic readers cannot tell when one character is lying to another and take his words on face value. This is an even deeper deficit than failure to recognise deception in real life, because unlike real-life situations, in which the other person is doing everything possible to fool them and conceal the truth from them, in a story the author is trying to reveal the deception to the reader, and only the character himself is supposed to be fooled.

Deceiving others does not involve all the same elements as recognising deception, so the two do not always go together. Even among those children who cannot speak, there are some who are able to hide things and fool people to achieve their goals. Others, however, although more intelligent in other ways, are miserably poor at deception. Their lies may be transparent, and they may fail to completely cover an object they are hiding, or may put it in the hiding place while the other person is watching.

Deception is therefore not correlated with other aspects of intelligence. Some intelligent autistic children have a theoretical understanding of deception even though they are easily fooled and their attempts at deceiving others are absurdly ineffective. Others are able to lie and deceive when they want to and may be quite skillful at it, but are rarely motivated to do so. Indeed, many autistic children are naively honest. They never lie because they see no reason to. What they fail to grasp is the social advantage that lying might get them. Their own gullibility might also be partly due to failure to expect the other party to lie because they cannot understand why he should want to. A normal person expects others to lie in certain situations, so he suspects them and is prepared for it. An autistic one does not, so he is caught off guard.

4.2 Hyper and Hypo-sensitivity

Although it is not universal, there is a tendency for abnormal experience of sensation in autism. Some are hypo-sensitive, some hyper-sensitive. Sensations may be experienced as painful, pleasurable or neutral. Many autistic children are not bothered by things that normal children find painful or uncomfortable. They don't mind getting injections or eating sharp or bitter foods. They tolerate a higher than normal intensity of heat or cold with no sign of discomfort. Some don't notice certain sounds, even if they are very loud. On the other hand, some are more sensitive than normal. They may find scratchy clothing intolerable, or may be disturbed by certain flavours or odours such as those of perfumes and synthetic chemicals. Some cannot stand being touched, others notice the hum of a television or a florescent light, and may find them disturbing. For some children it is not a specific stimulus that causes the discomfort, but the volume or intensity. Any loud noise, bright light, or combination of several strong sensations at the same time disturbs them. It is not unusual for an

individual to be hypo-sensitive to one sort of stimulus and hyper-sensitive to another. A child may enjoy very bitter foods but not tolerate even moderately sour ones.

Unless they have received special training, few caregivers are aware of this phenomenon. They do not realise that autistic child's sensory experience may be radically different from their own or that of normal children. Even if they are aware of this as a theoretical possibility, it may be difficult for them to discover what is bothering the child, especially if he is too young or too mentally handicapped to be able to express himself. They see the child scream, run away and hide, or cover his head with his hands, but do not know why. Older intelligent autistic children can generally express their feelings, but may be reluctant to reveal what is bothering them if in the past they have been criticised for being oversensitive. They too do not know that other people are experiencing sensations differently than they are, so they do not realise that these sensations are not disturbing for others the way they are for them. They assume that the others are controlling themselves, and believe they should be doing the same. Thus the autistic child suffers from his own lack of understanding as well of that of others.

4.3 Lack of Sensory Integration

Especially in severe autism, there tends to be a lack of sensory integration. Sensations are experienced but not combined or interpreted in a meaningful way. For such children, the world is constant and pervasive chaos. Unlike autistic children with normal or even moderately low intelligence, who develop intelligent ways of interacting with inanimate objects even if they do not relate to human beings, there are severely autistic children who interact with the world only in those aspects that provide direct physical pleasure or pain. They are unable to recognise structure or properties of objects. Less severe sensory integration problems are sometimes found at higher levels of intelligence. Although these children are able to learn and understand the world, they find it difficult to fit together sights, sounds and feelings, especially when they come in rapid succession or with high intensity.

4.4 Abnormalities in Emotions

Autistic children do not always express emotions in the normal ways. Some exhibit very little expression, giving the impression that they have no emotions at all. Some never shed tears or show any sign of grief, even over the loss of a close relative, so they seem to have less emotions or weaker ones than other children. Anyone familiar with autism, however, knows that they really do experience feelings, sometimes very intense ones. The apparent lack of emotions is due rather to abnormal modes of expression, and to the unusual nature of the emotions themselves and of the situations that evoke them. If a child grimaces or slaps himself when he is happy, few other than those familiar with him are likely to understand.

Many autistic children experience irritation and stress in situations that other children do not, and react by crying, screaming or anger. Uncontrollable rage is therefore a common problem in autism. Especially among autistic children of normal intelligence, it may be the most disturbing trait, causing serious problems at home and in school.

In some cases it may be caused by a physical sensation, in others by a misunderstanding of what is happening to them or around them. An autistic child whose mother tells him that she is going to work may not understand that she will only be away a few hours and then return. He may think he will never see her again. If he screams and clings to her, his behaviour is neither irrational or abnormal. All that is abnormal is his misinterpretation of the circumstances, a misinterpretation that no normal child would have made.

Such situations are not only stressful but also frustrating. Most autistic children do not realise that others do not understand what is bothering them. They think the others understand but do not care, and

in some cases are purposely persisting in tormenting them. They are unable to escape from the situation, and are being thwarted and ignored by those from whom they expect help.

But even if they realised that the others did not understand, they would not be able to explain what was bothering them. Explaining one's feelings is a skill that children gain gradually as they grow and interact with others and as their language skills improve, and therefore lies far beyond the abilities of most autistic children, even those who are very intelligent. Furthermore, even if the child could express them, few adults take him seriously. They would not believe that the feelings he was experiencing were so different from their own.

Many autistic children and adults seem to lack of any sense of humour. Not only are they unable to tell jokes, they do not find them funny when they hear them. Sometimes they cannot understand what is supposed to be funny in the joke until it is explained to them, but in other cases they understand but are not moved to laughter. On the other hand, some, especially those who are mentally impaired, laugh inappropriately.

What is abnormal in autism, therefore, is not the degree of emotion, but the situations that evoke it and the way it is expressed.

4.5 Stubbornness

Among the most disturbing practical problems of autism is stubbornness. Although the nature of stubbornness varies with age and level of intelligence, most autistic children are stubborn to some degree and in some situations. Some stubbornness is related to inflexibility and resistance to change. Autistic children are unwilling to modify the schedules and rituals to which they are accustomed, and resist, sometimes violently, any pressure to relinquish them. They are also unwilling to interrupt an activity once begun until it is completed. Certain of the popular techniques used in dealing with autism are directed at breaking down this resistance. Although these are employed primarily for the convenience for those who need to live and interact with the child, in some cases they may also be beneficial for the child's own development. Especially among those children who are of normal or superior intelligence, stubbornness tends to escalate into conflict and uncontrollable rage. This is not, however, because children of lower intelligence are less stubborn, but because less is expected of them.

Closely related to stubbornness is resistance to punishment. Some children will sustain pain and injury rather than give in, and parents, faced with a child whom they cannot control, find themselves increasing the severity of punishment until they give up for fear of physically injuring him. Oddly enough, the same children may be amenable to positive reinforcement, and it may be relative easy to modify their behaviour by skillful use of rewards and appropriate training techniques.

Stubbornness may not become a problem until the child goes to school. Parents may learn to avoid conflict and accommodate a child while he is at home, but at school he encounters teachers who do not know his individual needs or how to deal with them. They have, moreover, a whole class of children to take care of, and cannot devote themselves to him the way his parents did. Schools rely upon various methods of punishment to maintain order, and cannot tolerate children who cannot be controlled in the usual way. Rather than receiving the appropriate therapy, autistic children may find themselves medicated, institutionalised and even hospitalised.

4.6 Course of Development

Like all human beings, autistic individuals develop and change over time. They go through various stages, each involving new awareness and abilities. And, like all human beings, no two individuals are the same, and no two follow exactly the same course of development. There are, however, certain ways in which autistic individuals tend to be more similar to one another than to those who are not autistic. That is, there are certain things that are characteristic of the autistic course of development. Within a

specific subtype of autism too, development may proceed in ways that are different from other subtypes.

The young autistic child may be oblivious to human beings most of the time, but as he gets older he begins to notice them, and his attention and interaction with them, though not always normal, increase with time. Language plays an important role in this process, so language acquisition and increased awareness of others are significant milestones. For some, increased interest in human beings and attention to the sounds they make leads to comprehension and then production of language. For others, such as those who have already been producing meaningless echolalic repetitions, grasp of meaning in those sounds brings a new kind of awareness of other human beings and interaction with them.

Once language is acquired, the child's world becomes greatly expanded. He gains access to ideas of which he was previously completely unaware. He becomes capable of affecting and interacting with human beings in new ways, and they take on new significance for him. This is a unique experience of the language-delayed child, one that a child who acquired language at a normal age never has. It marks a new stage in the child's life, in which there is interaction, albeit still abnormal, with others. He has begun to become a social being.

The next major milestone is generally reached in late childhood or in adolescence, when the child begins to want to have friends and to be part of a group. This is a new kind of interest in human beings and leads to a new kind of socialisation. Until now, although he recognised humans as thinking and feeling creatures and realised that he was the same sort of being himself, he did not share the feelings of the other individuals around him. Now he begins to develop some care and concern for others.

He is still, however, outside their world. Though he may now want to become part of it, years of separate development have left him in a unique individual world of his own. Though it is a highly significant change that the two worlds have now become connected, it will take many more years for him to learn about their world and for the two to blend. He is still "out of tune", not yet sensitive to the values and feelings of others, and may still not conform to social dress codes or other norms of behaviour. And all along, he still has his basic autistic nature. He is still inclined to be separate, so entering and becoming part of the social world, and developing social sensitivity, requires constant effort. Though he wants to be with others and to be liked and accepted, he may not, as yet, genuinely enjoy social activities. If he goes to games or concerts, it is because he enjoys the game or the music itself, not because he enjoys them as social events. Success is therefore rarely complete, and only a few eventually become comfortable in the normal social world in spite of their basic asocial nature.

Another important milestone is awareness of autism. Some very bright children reach this awareness before becoming interested in having friends and being with other people. They realise that in certain ways they are essentially different from the other children around them. Most, however, do not reach it until after they have begun to try to interact and socialise. Many never reach at all. How clearly an individual understands how and why he is different, and how skillful he becomes at applying that understanding to getting along better with others, is dependent upon various factors. The two most important are his own intelligence and the help and guidance he receives.

We have already pointed out that the various characteristics of autism manifest themselves differently in different individuals. Even in a single individual, however, they change as he matures and passes through different stages of development. The syndrome therefore looks different in different cases and at different times.

Uta Frith identified three general varieties of autism that she referred to as *aloof*, *passive*, and *odd*¹. Aloofness is the epitome of autistic aloneness. The aloof child is in a world of his own, oblivious to other human beings and, to a greater or lesser extent, to his surroundings in general. The passive child is aware of other human beings and responds to them in one way or another, but does not initiate

1 Uta Frith, *Autism: Explaining the Enigma*

interaction. Some are globally inactive, not even initiating interaction with the physical world. Others play with physical objects, but will only interact with human beings when approached. They may willingly answer questions, but never ask any or otherwise initiate conversation. The odd child actively approaches others and interacts with them, but not in the ways that other children do. Depending upon intelligence and level of development, it may be by treating them simply as physical objects or of subjecting them to lectures about his personal experiences or interests. In keeping with our earlier analysis of autistic aloneness, this oddness is characterised by lack of coordination. The course of development is generally from aloofness to one of the other modes, but an individual may maintain several different modes at a single period of his life. He may be aloof in certain situations, interact oddly in others, and in others he may be passive.

5. Some Statistical Correlations

We have already seen that although autism does not necessarily involve mental handicap, it is found to a higher degree among autistic children than among those who are not. Autism is also significantly more prevalent among males than females, and the incidence of left-handedness is higher than normal, as is the incidence of absolute pitch. These cannot be considered traits of autism, but there must, nonetheless, be some reason for the correlation.

6. Conclusion

Now that we have a basic overview of what autism is and the traits that it involves, we are ready to begin to try to understand it. At first it may seem that all we are looking for is an underlying cause, and once we have found that, everything will fall into place. But we shall soon see that it's not that easy. We shall discover complex interrelationships and apparent contradictions.

In the next two chapters, we shall look at various theories that have been presented in the past, and evaluate them. We shall find that while none can explain all of the traits we have seen, all of them contribute valuable insights. Some even reveal facts about autism that are not readily apparent, and that were not previously recognised. It is for this reason that we shall be discussing, sometimes in considerable detail, theories that are unquestionably mistaken. Only after that shall we begin to construct a theory of our own.