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Metaphor comprehension in autistic spectrum disorders: Case studies of two high-functioning children

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Abstract
This article presents case studies on metaphor comprehension in two boys with high-functioning autistic spectrum disorder, aged 9;1 (9 years, 1 month) and 8;11. The participants were assessed twice, before and after an intervention program aimed at improving their social skills. The focus of the article is on the specific patterns exhibited by each child in a test of metaphor comprehension that elicits verbal explanation of metaphors, and is targeted at 4–6-year-old typically developing children. The two children had age-appropriate cognitive and verbal abilities, as measured by WISC-III and Peabody Picture Vocabulary Test. At the first assessment, performance on both children was within the average range of typically developing 5-year-old children, but they differed in their patterns of response. At the second time of assessment both the children's performance had improved, but each in a different manner. The discussion reconsiders the qualitative aspects emerging from the assessments performed at the two time points of the study, raises theoretical issues about metaphor comprehension, and points to possible implications for diagnosis and intervention.

Keywords
ASD children, high-functioning, metaphor comprehension, meta-semantic abilities, assessment

1 Introduction

The difficulties in understanding figurative language, metaphors in particular, in children with autistic spectrum disorders (ASD), are well documented. The first experimental studies date back to the beginning of the 1990s and find their place in the theory of mind line of research (Happé, 1993, 1995) where metaphor is considered 'an advanced test' for mentalization capabilities. In autistic individuals, from 9 to 28 years old, Happé found an association between metaphor

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comprehension and the solution of first-order false belief tasks (Baron-Cohen et al., 1985). Essentially, only those individuals who were able to solve this test were also able to understand metaphors. This correlation was interpreted as a proof that understanding metaphorical utterances involves the capability of inferring the speaker's communicative intentions, and in general, of attributing mental states to him or her.

The role of factors associated with theory of mind emerged again in later studies (Dennis et al., 2001; Martin and Donald, 2004). Dennis et al. (2001) showed that children with high-functioning autism (verbal IQ >70) and children with Asperger syndrome have no difficulties in attributing multiple meanings to ambiguous words but fail in the interpretation of metaphors and idioms. In contrast, Norbury (2005) – after redesigning the experimental task devised by Happé (1993) and applying it to 8–15-year-old autistic children – found that those who were able to solve false belief tasks were not necessarily able to understand metaphors. This is probably because understanding metaphors also requires specific lexical notions and extralinguistic knowledge that are stored in semantic memory. Deficit in metaphor comprehension could also be explained by other deficits associated with autism, affecting executive functions and central coherence. According to Happé and Frith (2006), individuals with ASD tend to process information locally rather than globally, and this processing modality would also affect metaphor processing negatively, where various semantic and pragmatic information must be integrated.

However, metaphor is not the only problematic figure of speech in individuals with ASD. Adachi et al. (2004), studying children between 7 and 14 years of age (total IQ and verbal IQ >70), concluded that the understanding of sarcasm was even more difficult, presumably because of an empathic deficiency in these children. McKay and Shaw (2004) turned their attention to other figures of speech, such as irony, metonymy, rhetorical questions, litotes, and hyperbole and found that hyperbole, irony, and metonymy were the most affected of these.

Recent research on the relations between ASD and metaphor has increasingly adopted a developmental perspective (Lewis et al., 2007; Norbury, 2005; Rundblad and Annaz, 2010). An interesting line of research has tried to ascertain how children with ASD evolve in their figurative language competencies in the course of their growth. Rundblad and Annaz (2010), studying developmental pathways of metaphor and metonymy, concluded that children with autism (age range: 5;4 years to 11;4 years) presented impaired performance in metaphor comprehension and delayed performance with regard to metonymy. In a study following a boy with high-functioning ASD from 3 to 8 years of age, Reuterskiold-Wagner and Nettelbladt (2005) focused on changes in his linguistic profile and noted that the metaphorical deficit remained relatively constant throughout his developmental stages. At the age of 5;10 years he was unable to explain lexicalized metaphors, nor comparisons, and this difficulty persisted at the age of 8.

The literature about metaphor comprehension in typically developing children indicates a significant turn toward genuine metaphorical interpretations during this age interval. The easiest case is represented by the so-called 'sensorial metaphors' (Gentner, 1988; Keil, 1986; Siltanen, 1986), which link two objects of the same physical domain (e.g. 'The moon is a light bulb'). Children as young as 5 years old are able to analyse the relevant semantic features of both terms, 'moon' and 'light bulb' and to explain why these features can justify the link between the two terms of the metaphor. Even more complex metaphors, such as 'physico-psychological' ones that relate human beings to inanimate objects (e.g. 'Children are balloons') can be grasped at the age of 5 in multiple-choice tasks (Waggoner and Palermo, 1989). Nevertheless, adequate verbal explanations can only be given at the end of childhood, as suggested in research studies of the 1970s and of the 1980s, reviewed by Winner (1988).

This last point raises the issue of the methods for assessing metaphor comprehension. Winner (1988) suggests that there are multiple and heterogeneous methods for measuring this type of comprehension: verbal or iconic multiple choice (Billow, 1975; Cicone et al., 1981: Waggoner and Palermo, 1989), the request for verbal explanation (Siltanen, 1986; Gentner, 1988; Keil, 1986) or the request to dramatize the meanings of metaphors with toys (Vosniadou et al., 1984). Each has advantages and inconveniences. For instance, in multiple-choice tasks, the child may be able to point to the right response within a range of options prepared by the adult, but the child may prove unable to conceive of these options spontaneously. On the other hand, in tasks that explicitly require verbal explanations of the meanings of the metaphors, some children may have expressive difficulties that mask their real comprehension. Nevertheless, when the child is able to give adequate and exhaustive explanations of these metaphors, there are no reasons for doubting that the child has understood them. As argued above, this is possible from the age of 5 for those metaphors of a more concrete nature, such as the 'sensorial' ones. Moreover, from the studies of Keil (1986) and Siltanen (1986) it appears that the process of explaining metaphors is a gradual one, and that, with age, children are increasingly capable of focusing on appropriate semantic features in the words that compose the metaphors. This type of ability has been defined by Gombert (1990, 1992) as 'meta-semantic' in that it requires the use of language for analysing meanings and, as such, it is a typically metalinguistic ability (Tunmer et al., 1984) where mental activity works upon language by means of language.

These methodological and developmental issues are particularly important with regard to children with ASD, given their well-known difficulties with figurative language and with discourse activities in general (Baltaxe, 1977). Metalinguistic requests, in particular, could represent an obstacle for these children and a possible confound between comprehension and discourse abilities from a methodological point of view. Within this clinical population, children who do not have specific difficulties with expressive language offer a privileged opportunity for exploring the distinctive aspects of their spontaneous elaboration of metaphors.

This article presents two qualitative descriptive case studies that focus on the process of metaphor comprehension in two children with high-functioning ASD whose characteristics seemed particularly favorable to this kind of study. On the one hand, expressive difficulties in explaining metaphorical meanings could be excluded, as the lexical definition abilities of these children were age appropriate. On the other hand, although in both cases their explanations of metaphors were often inadequate, they showed some idiosyncratic patterns worthy of analysis.

Furthermore, as the two children participated in an intervention program for a group of high-functioning ASD participants aimed at their social skills, it was interesting to study their capabilities in a test of metaphor comprehension before and after this program. In this article, the focus is not on the program as such, but on the specific patterns exhibited by each child in the metaphor comprehension test at two time points.

II Method

1 Participants

The participants are two Italian-speaking children with high-functioning ASD – Child F, a boy aged 9 years, 1 month (9;1), and Child M, a boy aged 8;11 – selected from a sample of children with high-functioning ASD (Verbal IQ > 70), aged from 7 to 14 years old, within a research in progress studying various aspects of linguistic and metalinguistic competencies. Child F was assigned the diagnosis of Autistic disorder and M the diagnosis of Pervasive Developmental

Table 1 WISC-III and Peabody Picture Vocabulary Test scores of Child F and Child M

	WISC III			Peabody Picture Vocabulary Test
	Tot-IQ	V-IQ	P-IQ	
F	104	88	120	90
M	105	96	113	101

Disorder Not Otherwise Specified (PDDNOS) on the basis of the Diagnostic and Statistical Manual, 4th edition, text revision (DSM IV-TR) criteria (2000) and the following tests: *Autism Diagnostic Observation Schedule* (ADOS) (Lord et al., 1999; Italian version: Tancredi et al., 2005), Autism Diagnostic Interview-Revised (ADI-R) (Rutter et al., 2003; Italian version: Faggioli et al., 2005). On the ADOS, Child F scored in the Autism range (12) whereas Child M's score was coincident with the cut-off for Autistic Spectrum (7). Child F was over the cut-off for Autistic Spectrum on the ADI-R, whereas Child M barely reached the cut-off for Autistic Spectrum on the ADI-R.

Table 1 reports the cognitive and linguistic levels of the two children as measured by Wechsler Intelligence Scale for Children (WISC-III; Wechsler, 1991; Italian version: Orsini and Picone, 2006) and by Peabody Picture Vocabulary Test (Dunn and Dunn, 1997; Italian version: Stella et al., 2000). Scores obtained by both children are within the normal range. Vocabulary subtest scores at the WISC-III are respectively 9 for Child F and 10 for Child M and therefore within the normal range. The WISC-III Vocabulary subtest requires the child to define the meanings of words and can, therefore, be considered as a metalinguistic task, based on expressive language abilities. Both children were reported by their families and school teachers as having difficulties in understanding various forms of figures of speech (idioms, metaphors, metonyms, hyperbole, and irony) produced by adults and peers in daily life situations.

2 *Materials*

The Junior Metaphor Comprehension Test (Junior MCT: Pinto et al., 2008) was administered. The test targets typically developing children of the age range 4–6 years and has been validated for Italian paediatric population. Although Children F and M were approximately 3 years older than the oldest age targeted by the test, the junior MCT was appropriate given the difficulties shown by children with ASD with figurative language.

The test is composed of 25 items, all based on novel metaphors, most of which are drawn from spontaneous productions of typically developing children. These are prevailingly sensorial metaphors (see Section I), although some are physico-psychological metaphors (see Section I). Twelve metaphors are presented in decontextualized sentences and 13 are contextualized in short stories.

Before starting the test, the examiner presents a trial item where 'Words are used in a strange way' and asks: 'What do you think they mean?' The examiner analyses the possible meanings together with the child and then recapitulates the acceptable outcomes. Then the child completes the test items alone. The essence of the task is a verbal explanation of the meanings of the metaphors.

The assessment is based on the notion that a metaphor is a form of semantic incongruence. This is generated by the two main terms of the metaphor whose meanings normally pertain to different domains and are linked together in an unusual way. Nevertheless, this unusual semantic association

can be accepted as plausible if one detects some common feature in the meanings of each word. For instance, in the item 'The moon is a light bulb', 'moon' pertains to the domain of 'celestial bodies' and the 'light bulb' to that of 'electric devices'. On rational grounds, this association poses a semantic conflict that can be faced at different levels of abstractness, explicitness, and integration:

- At the most elementary level (0), the conflict may simply be ignored in various ways:

  (a) refusal: the association is denied as being illegitimate: 'It's not true: the moon is not a light bulb', 'It's a lie';
  (b) elusion: 'I don't know', 'I can't say';
  (c) partial centration: focus is exclusively centered on one of the two words; 'The moon is big'; 'The bulb is small';
  (d) literal interpretation: instead of searching for an impossible validation of the metaphor in this world, an alternative context is created to make the metaphor plausible: 'It's true, in comics the moon is a bulb';
  (e) magic interpretation: some unearthly force transformed one term into the other: 'With the magic wand the fairy transformed the moon into a bulb';
  (f) metonymic interpretation: the meanings of the two words are connected by spatial or temporal contiguity: 'If you look at them, one near the other in my room, there is a drawing of the moon on the bulb'. All these responses can be considered as 'pre-metaphorical'.

- At an intermediate level (1), the semantic conflict is accepted and recomposed in a plausible way: the connection between the two terms is justified by a common ground, based on functional or perceptual features. For example: 'They both send us light', 'The moon is yellow and the bulb too is yellow.'

- At the most elaborate level (2), the synthesis performed at the previous level becomes more elaborated in that it considers both differences and similarities of the two terms: 'It means that the moon gives light as the bulb, but the bulb gives light also during the day whereas the moon does it only at night.' 'Because it (*the moon*) gives light at night. The moon is a light bulb because it gives light, but the bulb produces light also during the day. It's like a light bulb because it produces light but it looks like a piece of mandarin for the form and for the color; it's nearly like a bulb but the bulb consumes electricity whereas the moon does not.'

Raw scores are computed by summing the scores attributed to each item on the basis of the above 0,1, 2 scale and can be converted into T scores, subdivided into 5 main competence levels: deficient (0–30), low-average (31–40), average (41–60), high-average (61–70), and superior (71–100).

The above examples highlight the metalinguistic nature of the processing that the task elicits, that is, the identification of distinctive semantic features by articulating complete sentences. This shares commonalities with the task of word definitions, as in the WISC-III Vocabulary subtest, for which testees also have to focus on distinctive semantic features and must articulate their analysis in syntactically simple sentences. These requirements are met in intermediate level responses in the junior MCT, with identification of one relevant semantic feature.

3 Procedure

The study has been carried out in two phases: a Time 1 assessment of metaphor comprehension and a Time 2 assessment after a three-month intervention. In brief, the general aim of the program was to empower social skills, including the specific area of figurative language competencies.

Table 2 Time 1 Junior MCT total raw scores and T scores, responses at three assessment levels, and types of 0-level responses of Child F and Child M (percentages in parentheses)

	Child F	Child M
Total raw score:	15	15
T scores as compared to two typically developing age groups:		
5 years	46	46
6 years	38	38
Number of responses at each level:		
L0 (elementary)	10 (40)	10 (40)
L1 (intermediate)	15 (60)	15 (60)
L2 (elaborate)	0 (0)	0 (0)
Number for each types of elementary level responses:		
Refusal	6 (60)	–
Elusion	–	–
Centration	2 (20)	1 (10)
Literal	–	–
Magic	–	–
Metonymic	2 (20)	2 (20)
Drifts	–	7 (70)

III Results

1 Time 1

At the first time of testing, Children F and M gave elementary level (level 0) and intermediate level (level 1) responses to the items of the junior MCT. Both children obtained a total raw score of 15 which, converted into T scores, corresponds to average level (46) for 5-year-old and to low-average level (38) for 6-year-old typically developing children (Table 2).

Appendix 1 reports the responses given by the two children in the 12 decontextualized metaphors at Time 1. These responses suggest that sensorial metaphors, which predominate in junior MCT, have some role in facilitating comprehension. Both children show a similar degree of delay in this task; however, the way they fail to recompose the semantic conflicts generated by metaphors takes different forms.

a Child F's responses: The majority (60%) of elementary (level 0) responses are refusal of the meanings of metaphorical items, expressed by such answers as: 'It doesn't exist', 'It's not true', 'It's false'. There are some metonymical responses (20% of level 0 responses), as, for example, in the case of the item: 'The eyes of the houses are closed at night'. This metaphor originally comes from a spontaneous reaction of a typically developing preschooler to a drawing representing a house with closed windows, as if the house had eyes instead of windows. Child F interprets this metaphor in the following way: 'Children who sleep inside (the house) close their eyes because the light is too dazzling.'

Some partial centrations (20% of level 0 responses) are also present, as in the item: 'The moon is a light bulb': 'The bulb is a sort of electric device, a chemical substance that illuminates darkness', or for the item 'A kite is a bird', where he says: 'it's made out of sticks and a

special paper, you tie them [the threads] with a thread and make them fly with the wind, this is why we tie all these threads, otherwise they fly away.' Responses of the 'magical' type are totally absent.

Apart from the different types of elementary responses, Child F's responses have a dynamic aspect. For instance, the metaphor underlying the item 'the house has a hat' is based on an implicit comparison between 'hat' and 'roof'. At first, F responded: 'No', 'It doesn't exist', 'It's not true', apparently denying that 'a house can have a hat' but, paradoxically, he justified his denial precisely by the underlying metaphor: 'No, the house has no hat … it's the roof', as if the metaphor in question was as a sort of involuntary mistake. This response was assessed as scoring 0, as can be seen in Appendix 1. After the testing session had been completed, the examiner explored the possibility of rewording some of the items by inserting the phrase 'is like' between the two terms of the metaphor. For the above item 'The house has a hat', the examiner reworded the sentence in the following terms: 'Is the roof like the hat?'. The child appeared to perceive the sentence as acceptable and recognized the similarities between the two terms of the metaphor as being possible. During testing his first response had been 'No, the house has no hat, it's the roof'. After the examiner had reworded the sentence to 'Is the roof like the hat?' the child's response was: 'Because it protects the house against germs, air, flies, mosquitoes … the hat protects against sun and cold', identifying a common feature shared by both 'hat' and 'roof', that is, the function of protecting.

b Child M's responses: Child M tended to give more atypical elementary responses, that we have called 'metalinguistic drifts' (70% of level 0 responses). Whereas in typical development, the elusion of the semantic conflict induced by metaphors is implemented in synthetic form (see examples in Section 2.II), Child M's elusive responses are overdeveloped. They follow totally idiosyncratic paths, both in the choice of contents and in shifting from one content to another.

The difference between this type of elusion, here termed 'drift', and the elusion performed by the typically developing child lies in the lack of 'communicative interplay', which creates a serious obstacle in sharing meanings. Here it is proposed to distinguish between two types of 'drifts': one centered on semantic associations, labeled 'S-drifts', and the other centered on phonological associations, labeled 'P-drifts'.

An example of the S-drifts has been elicited by a metaphor embedded in a story of the junior MCT, drawn from a picture storybook for young children: 'Daddy opens the door of the cellar and Philip *sees the night* and he starts feeling scared'. In this context, to 'see the night' is interpretable as 'to be scared of the night'. Child M says: 'Philip went down to take some stuff … something for cellar … he was stolen and could see things behind him … he goes into the cellar … night, moon, stars … stage … the performance begins.' The process of gradual distancing from the contents of the item is quite evident. Although single neighboring words may be grouped in a plausible way there is no backward monitoring for retrieving the meaning of the initial request.

In the P-drifts, the child apparently decomposes and recomposes so as to generate new associations, and this makes the elusion of the semantic conflict related to metaphor even stronger. In this sense, the P-drift is the extreme form of the elusion type of response, in that it distorts the focus of the task by transforming comprehension of meanings into production of new signifiers. For instance, the item 'The kite is a bird' is usually understood by many normally developing children from 4 to 6 years old in the Italian standardization of the test. Child M responds: 'Bird … hammer … the pecker … the woodpecker … the decker … the speaker.' The first association, between 'bird' and 'hammer', may be interpreted on semantic grounds, although in a loose way. The next association that relates the pair 'bird–hammer' to the new word 'pecker' is semantically

Table 3 Time 2 Junior MCT total raw scores and T scores, responses at three assessment levels, and types of 0-level responses.

	Child F	Child M
Total raw score:	30	22
T scores as compared to two typically developing age groups:		
5 years	77	61
6 years	65	51
Number of responses at each level:		
L0 (elementary)	2 (8)	5 (20)
L1 (intermediate)	16 (64)	18 (72)
L2 (elaborate)	7 (28)	2 (8)
Number for each types of elementary level responses:		
Refusal	–	–
Elusion	–	–
Centration	2 (100)	1 (20)
Literal	–	–
Magic	–	–
Metonymic	–	–
Drifts	–	4 (80)

understandable as the pecker, or the woodpecker, can be viewed as a bird whose beak works as a hammer. But from 'woodpecker' onward, the semantic links with the previous words are completely lost and phonological associations dominate.

2 Time 2

After 3 months, and following a period of intervention, Children F and M were reassessed with the junior MCT. As shown in Table 3, both children's performances on the test have improved. They both score at the average level for the highest age of the test, that is, 6 years old. However, this is still a gap of 3 years below the chronological age of the two children. There has been a shift from one qualitative level to another, in this case, mainly from elementary (level 0) to intermediate (level 1) responses; that is, from 'ignoring' towards 'acknowledging' the semantic conflict of metaphor, and in a few cases this acknowledgement reaches an elaborate form (with some level 2 responses from both children). Within this incremental shift, whereas Child M's level 0 responses are still characterized by 'drifts', Child F does not respond with any refusals and his only type of level 0 response is 'partial centration', which indicates a more analytic modality.

IV Discussion and concluding remarks

In this article, metaphor comprehension has been studied in two Italian children with high-functioning ASD. A standardized test of metaphor comprehension was administered at two time points: before and after a therapeutic intervention aimed at empowering these children's social skills. The outcomes of the assessments performed at these two time points demonstrated some

specific patterns in these children and support some theoretical considerations. At the first time of testing, both children could provide plausible analyses of some metaphors but not of others, and, even when successful, some justifications were quite idiosyncratic when compared to responses of typically developing children. This confirms the difficulties children with ASD might have in handling figurative language, the lack of specificity of their explanations when compared with typical children, and, that metaphor comprehension is not an all-or-none phenomenon. Understanding metaphors may vary in relation to their structural specificities and also in relation to elicitation modalities, which are centered on verbal interaction and open to gradual explication.

It is of interest that the two children differed in their responses when they failed to understand a metaphor. Whereas Child F tended to refuse the existence of such an odd usage, Child M tended to overdevelop sequences of word associations, based either on meanings or on signifiers, a tendency that has been called 'metalinguistic drift' and, as a consequence, lost control both of his own discourse and of communication with the examiner.

At the second time of testing, both children improved their capability to analyse and recompose the semantic conflicts posed by the metaphors of the test, as shown by the increases in intermediate (level 1) responses and the appearance of elaborate (level 2) responses. This increase corresponds to a crucial qualitative improvement in the process of understanding metaphors, as it denotes the passage from absence of processing or from reductive processing, toward a suitable – although still elementary – processing of metaphor constituents meanings. This phenomenon is especially visible in Child F, where the refusal responses that were predominant among the elementary level responses at the first testing have disappeared at Time 2. However, Child M continued to show a tendency toward drifts in his responses at the second time of testing, a tendency which also affects the communicative exchange with the interlocutor. Although the two children improved in their ability to analyse metaphorical language, they were still resistant to accept why speakers should use such strange forms, and in some cases clearly asserted that these were 'errors'; for example, during the Time 2 testing Child F asked if metaphors were 'nicknames'. It is encouraging to see that the ability to understand and explain metaphors can improve over time. In order to understand this improvement further the therapeutic program that the children received, and especially the activities on use of figurative language, will require further exploration and evaluation.

There are some methodological issues to consider. The junior MCT elicits the identification of some semantic features in the two terms of the metaphor but does not explore the awareness of the communicative intentions underlying metaphorical usages. For instance, in the example of 'Philip' and 'the cellar' (see Section 3.I), a child may think that when the adult says that 'Philip sees the night' this is a lie rather than a metaphor. To check if the child is really unaware of this type of communicative intentions or if the test insufficiently explores this aspect, further questions could be added as to the why a given person has used this 'strange word'.

There are implications of the present study for both diagnosis and the therapeutic intervention for children with high-functioning ASD. The instrument used in these case studies offers a fine-grained assessment of a particular type of language processing, as required for understanding metaphors, for children with known difficulties in this area. The qualitative analysis of children's responses, both strengths and their weaknesses, might suggest possible therapeutic strategies. For instance, in Child F's case when he used the 'is like' device for analysing some metaphors (see Section 3.I), this can become a generalized strategy for analysing other metaphors and consolidating this ability.

Appendix 1 Children's responses to the decontextualized items of the junior Metaphor Comprehension Test at Time 1

Item	Child F	Child M
1. *The moon is a light bulb*	"The light bulb is a sort of electric device, a chemical substance that illuminates darkness" (0)	"It means that it illuminates the sky, the light bulb illuminates the home" (1)
2. *The house has a hat*	"No, it doesn't exist, it's not true … no, the house has no hat … it's the roof"(0)	"The roof ... it's the hat ... it's the hat of the house" (1)
3. *The tree in the garden has got undressed*	"It has lost its leaves ... it's fall" (1)	"Without the leaves ... in autumn the leaves fall, Freeze make them fall"(1)
4. *Clouds are sponges*	"It doesn't exist" (0)	"The cloud is full of rain, it comes down from the sky and it wets ... it goes into plashes ... (0)
5. *Children are balloons*	"They have a round face" (1)	"They hold them in their hands, ... they bought them the balloons ... it's a birthday party" (0)
6. *The eyes of the houses are closed at night*	"Children who sleep inside (*the house*) close their eyes because the light is too dazzling" (0)	"Nose, mouth, mentadent (*a toothpaste*) microspheres and zinc ... (0)
7. *A bird is perched on the arm of a tree*	"The branch" (1)	"It's the branch" (1)
8. *My dad is a car doctor*	"He fixes them ... he is a mecanic" (1)	"He repairs them with tools, the mecanician ... he is a mecanic" (1)
9. *The sky's scarf is coloured*	"There is no scarf" (0)	"Red, orange, yellow, green ... this means scarf ... harp ... arf ... the scarf is coloured ... it does not exist the scarf-arf (0)
10. *The leaves are dancing*	"The wind makes them move in the air" (1)	"They move in the air ... the leaves dance in the air as dancers." (1)
11. *A kite is a bird*	"It's made out of sticks and a special paper, you tie them (*the sticks*) with a thread and make them fly with the wind, this is why we tie all these threads, otherwise they fly away" (0)	"Bird ... hammer ... the pecker ... the woodpecker" (0)
12. *There's whipped cream on the mountain tops*	"Whipped cream is like snow, its' white" (1)	"It's the snow ... white ... whipped cream is white" (1)

Notes: Score of 0 or 1 shown is in brackets after each response.

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