

Echolalia as a Communicative Strategy: A Kleefstra-syndrome Case Study

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Abstract:

Echolalia – immediate or delayed – is the stereotyped and mechanical repetition of words and phrases produced by others. Experts used to view echolalia as a defect to eliminate; however, current research has shown that often imitation may serve a purpose for children with linguistic deficits. This study’s goal is to assess whether echolalia has communicative value; such purpose is achieved through the analysis of spontaneous speech and delayed echoes uttered by a 13- years-old boy officially diagnosed with Kleefstra Syndrome. Since there are no linguistic studies yet regarding this syndrome, this study may shed new light on a specific linguistic strategy that people with this syndrome might use. Based on the functional categories described by Prizant (1983), we analyzed the echolalic speech produced by this teen with the aim of demonstrating the pragmatic value behind those repetitions.

Keywords: *Communication, Delayed Echolalia, Immediate echolalia, Kleefstra-syndrome*

1. Introduction

Echolalia (from the greek ἠχώ “eco” and λαλία “speech”) can be generally described as the mechanical repetition of words and phrases spoken by others. However, controversies around the phenomenon have led to different descriptions and approaches to echolalia and its role. The core of the dispute about the function of imitation in language development has been

the behaviorist-nativist opposition. Whilst in Skinner's view (1957) imitation and reinforcement were crucial to imprint language on a child's *tabula rasa*, in Chomsky's (1957) theory, imitation cannot be the unique connection between the complexity of language structures and the poverty of the stimulus available to children.

Nowadays, it seems quite clear that imitation has a role at the very beginning of language acquisition but what seems also clear is that there is hardly a child imitating a sentence which is semantically and syntactically too complex. Thus, children don't use elements that are completely absent from their spontaneous speech (among others Ervin-Tripp 1964; Lenneberg 1967; Kemp and Dale 1973; Tager-Flusberg and Calkins 1990; Lidz and Gleitman 2004;). To imitate only what is understandable could be a useful technique for mapping certain aspects of language to the cognitive system and for acquiring that specific structure (Bloom *et al.* 1974). On the other hand, there are studies that considered imitation as not progressive in terms of children's acquisition (Slobin 1968) and as something that should be corrected.

Along the footsteps of this debate, this paper will consider the pragmatic value of echolalic productions uttered by a 13 years-old boy with a diagnose of Kleefstra Syndrome. We will analyze those echolalic speeches according to the functional categories of echolalia that have been proposed by Prizant and Duchan (1981) and Prizant (1983). This study doesn't intend to contribute to the description of echolalia's functional categories; the aim of the present investigation is rather to bring new data – collected in a semi-spontaneous situation – that seem to support the theory that proposes the communicative values that echolalia can fulfill.

1.1 Types of Echolalia

Before addressing the debate, we should make some distinctions regarding echolalia. First of all, echolalia can either be "immediate", when the repetition occurs immediately after or few turns later than the original utterance, or it can be "delayed" if a long time passes between the imitated words and its echo (Prizant 1983). It seems that the former can be related with short-term echoic memory whereas the latter can be related with long-term memory (Fay 1983). To recognize a delayed echo is particularly complex since it is not always possible to detect the original imitated speech and there is therefore a need to know and remember the personal biography of the individual. For this reason, researchers tend to focus on morphological, syntactical and prosodic patterns in the speech of the imitator and the differences that it is possible to detect between usual linguistic abilities and the hypothetical echoes. Delayed echoes are often sentences that can appear as not coherent in the particular context of output, they may have odd prosodic traits and appear multiple times without any change.

Echolalia can also be “mitigated”, if words or sentences are adapted to the context before repeating them (e.g. using the correct pronouns, changing the verb agreement), otherwise it can be “verbatim” when words are reproduced exactly as heard. A well-known phenomenon, which is related to verbatim echolalia, is pronoun reversal, which primarily consists in the use of the pronoun *I* meaning *you*, and vice versa. Since sentences are repeated without adapting the initial words to the context, pronouns, which are not fixed in reference, are employed erroneously. One of the first descriptions of this phenomenon in the literature can be found in Kanner (1943: 4) who, describing a child with Autism Spectrum Disorders (ASD), wrote:

He always seemed to be parroting what he had heard said to him at one time or another. He used the personal pronouns for the persons he was quoting, even imitating the intonation. When he wanted his mother to pull his shoe off, he said: “Pull off your shoe”. When he wanted a bath, he said “Do you want a bath?” [...] He seemed unable to generalize, to transfer an expression to another similar object or situation.

Since then, many studies focused on echolalia and related manifestations, targeting mainly ASD children (Fay 1969; Prizant and Duchan 1981; Prizant 1983; Prizant and Rydell 1984; Local and Wootton 1995; Stribling *et al.* 2007; Sterponi and Shankey 2014) and considering echolalia as a communicative failure that has to be eliminated or reduced (for a review Neely *et al.* 2016).

In typically developing children, it has been demonstrated that echolalia peaks at around 30 months of age, and then decreases (Lovaas 1981). On the other hand, if echolalia doesn't decrease, it can be a symptom of a disorder. This paper focuses on the latter case, pathological echolalia. The goal is to demonstrate that imitation sometime can serve a purpose and that in eliminating it, there is the risk of limiting communication too.

A related phenomena – less studied – is the case of auto-echolalia, also known as ‘palilalia’, in which the person repeats words and sentences initially produced by himself/herself. This behavior may be considered a form of vocal stereotypy or else it may serve as self-stimulation (Karmali *et al.* 2005).

1.2 Categories for the analysis of echolalia

Many studies defined particular functions that echolalia can fulfill; particularly Prizant and Duchan (1981) and Prizant (1983) were the first who systematically – through a meticulous analysis of 1009 videotapes of four ASD children's spontaneous interactions and paralinguistic behaviors – outlined both interactive and non-interactive functions of immediate (Table 1) and delayed echolalia (Table 2). Those functions will be used in this paper in order to analyze echolalic exchanges.

Interactive functions	
1. Turn taking	Utterances used as turn fillers in an alternating verbal exchange.
2. Declarative	Utterances labeling objects, actions, or location (accompanied by demonstrative gestures).
3. Yes answer	Utterances used to indicate affirmation of prior utterance.
4. Request	Utterances used to request objects or others' actions.
Non-Interactive functions	
1. Non-focused	Utterances used to request objects or others' actions.
2. Rehearsal	Utterances used as a processing aid, followed by utterance or action indicating comprehension of echoed utterance.
3. Self-regulatory	Utterances that serve to regulate one's own actions. Produced in synchrony with motor activity.

Table 1. Functional categories of immediate echolalia (from Prizant 1983: 67)

Interactive functions	
1. Turn taking	Utterances used as turn fillers in an alternating verbal exchange.
2. Verbal completion	Utterances that complete familiar verbal routines initiated by others.
3. Providing information	Utterances offering new information not apparent from the situational context.
4. Labeling	Utterances labeling objects or actions in the environment.
5. Protest	Utterances protesting actions of others. May be used to prohibit others' actions.
6. Request	Utterances used to request objects.
7. Calling	Utterances used to call attention to oneself or to establish/maintain interaction.
8. Affirmation	Utterances used to indicate affirmation of previous utterance.
9. Directive	Utterances that serve to regulate one's own actions. Produced in synchrony with motor activity.

Non-Interactive functions	
1. Non-focused	Utterances produced with no apparent communicative intent or relevance to the situational context. May be self-stimulatory.
2. Situation Association	Utterances with no apparent communicative intent, which appear to be triggered by an object, person, situation or activity.
3. Self-directive	Utterances used to regulate one's own actions. Produced in synchrony with motor activity.
4. Rehearsal	Utterances produced with low volume followed by louder interactive production. Appears to be practice for subsequent production.
5. Label (non-interactive)	Utterances labeling objects or actions in environment with no apparent communicative intent. May be a form of practice for learning language.

Table 2. Some functional categories of delayed echolalia (from Prizant 1983: 68)

Through Discourse Analysis techniques, other studies tried to confirm the communicative role of echolalia in ASD but also in other diseases, such as Alzheimer (Cruz 2010). The analysis of imitative behaviors and the comparison between pathologic echolalia and imitation in typical language acquisition, led to the conclusion that echolalia can be an active process (Bloom *et al.* 1974) because children can select what they want to imitate and with whom they want to repeat a particular statement; these decisions can conceal a desire of interaction.

An interesting study on 18 ASD children, made by McEvoy *et al.* (1988), demonstrated that with higher language abilities the amount of

echolalic speech decreases but the frequency of imitations does not. Researchers explained these data suggesting that children with a higher language level are more ready to respond to verbal stimuli and, since they speak more, the percentage of their echolalia – compared to the total of verbal emissions – is lower. By contrast, if a child has poor language skills and is not talkative, his/her entire verbal repertoire may be echolalic. This study's results confirm the idea that echolalia may be helpful in terms of acquisition of social skills and in interacting with others. Similarly, Stribling *et al.* (2007), video-recording and transcribing 6 hours of an ASD girl's speech, described echolalia as essential for interaction when a person has poor lexicon and language abilities.

1.3 The present study

The goal of this study is to analyze the echolalic speech of a 13-year-old boy diagnosed with Kleefstra Syndrome, a recently described and very rare disorder, to find out whether echolalic speech may be communicatively useful and/or serve specific purposes. We will use the functional categories presented above (Prizant and Duchan 1981; Prizant 1983) in order to properly understand how specific acts of echolalia may be used to share information with certain interlocutors. This analysis also aims to shed light over a syndrome that has never been studied with respect to linguistic and communicative skills.

2. Methodology

2.1 Data corpus

The data set considered in this paper derives from recordings of the spontaneous speech of a 13-year-old boy (at the time of the recordings), that we are going to name Jack, an invented name. Jack was diagnosed with Kleefstra Syndrome by a neuropsychiatrist.¹ Kleefstra Syndrome is a rare genetic disorder and it derives by mutations/deletions of the gene called EHMT1 (Euchromatin Histone Methyl Transferase 1; Kleefstra *et al.* 2010). Kleefstra syndrome involves low muscles tone, including the tongue muscle. For this reason speech comprehension might be affected (see GeneReviews®, Last Update: March 21, 2019, Accessed on May 23, 2019). In a survey carried out in 2018 on 179 cases (<<https://www.kleefstrasynndrome.org/wp/wp-content/uploads/2018/08/>

¹ Detailed information is not given due to the rareness of the syndrome and privacy issues.

Kleefstra-Syndrome-Survey-Report-2018.pdf> [06/2019]), it has been found that, on one hand, the 29% of people with such syndrome (with an age range from 12 months up to 38 years old) are non-verbal and do not communicate with other methods while, on the other hand, the 16% of them produce full sentences. The 14% of them produce sentences of just 1 or 2 words. The others use other methods to communicate (e.g., sign language, picture exchange communication system, augmentative and alternative communication).

Jack presented many linguistic and cognitive deficits. His IQ and VIQ are below the mean intelligence levels of age-matched peers: Jack rarely produces entire sentences and he utters single words instead. Moreover, muscles problems led to the production of distorted sounds, often unintelligible. Those communication challenges have led us to choose the recording of verbal interactions during school lessons and familiar routines, in particular with two teachers that are used to speak every day with Jack and that could help in the analysis of his speech. The recorded data have been transcribed and teachers' help has been essential in decoding the speech. Parents formally signed a consent form in which they agreed to participate in the study.

2.2 Material and procedure

The experimenter spent two entire days at the school attended by Jack, recording the whole time spent together with three different teachers. The boy did not notice the recording machine so that the communication could be spontaneous. A total of four hours of recordings have been transcribed and analyzed with the help of one teacher, in order to evaluate the different functions of echolalic behavior.

3. Results

Transcription of different type of echolalic speech will be reported and analyzed. We considered both the echolalic production and the turns before and – if useful - after it. Echolalic utterances will be transcribed in bold. Since the original recordings are in Italian, glosses will be provided when useful, following the Leipzig Glossing Rules (Lehmann 1982; Croft 2003). When glosses aren't useful, translation will be provided. The first letter of the names will be used to distinguish speakers: J stands for 'Jack', A stands for 'Antonella', one of the teachers, K stands for 'Katuscia', another teacher, and, finally, G stands for 'Greta', the experimenter. Comments will be given inside square brackets.

3.1 Immediate Echolalia

The example in (1) is a clear case of immediate echolalia. Jack reproduces the same verb uttered in the turn before by the teacher (i.e., to laugh), maintaining the verb in the second person singular form, even if probably referring to himself. The functions might be the 'Yes answer', that is 'to indicate affirmation of prior utterance'. This is also a case of auto-echolalia.

- (1) J: [laughs]
 A: ridi? Ridi pagliaccio [singing]
 laugh-2SG laugh-2SG clown
 'Do you laugh? You, clown, laugh'

J: ridi ridi ridi ridi
 laugh-2SG
 'You laugh'

The example in (2) is also a case of immediate echolalia. Jack reproduces the question uttered by the teacher. In this case, however, the function seems to be the 'rehearsal', that is something used non-interactively as a processing aid. Jack previously answered to this question, saying 'three minutes' so he probably got confused when the teacher asked again the same question.

- (2) A: Numana... quanto ci si mette ad
 Numana... how much CL.LOC CL.REFL take-3SG to
 andare a Numana?
 go-INF to Numana
 'Numana, how long does it take to go to Numana?'

J: tre minuti
 'three minutes'

A: quanto? Quanto?
 'How long? How long?'

J: quanto?
 'How long?'

A: Cinque ore?
 'Five hours?'

The example in (3) seems a case of echolalia in which there are no communicative intentions, indeed Jack answers a very simple question 'Am I a female or a male?' wrongly, probably simply repeating the last word of the

sentence in the previous turn. However, we can think that Jack is trying to maintain “Turn taking”.

- (3) A: chi sono io?
 who be.1SG I
 ‘who am I?’
- J: Antonella
 ‘Antonella’
- A: sono una donna o un uomo?
 be.1SG a-F female or a-M male
 ‘Am I a female or a male?’
- J: uomo**
 ‘male’
- A: come un uomo?
 how a-M male
 ‘what? A male?’

In the example in (4) Jack and the teacher are doing some schoolwork in which the boy has to listen to a description and to point at the correct picture. We can perceive Jack’s difficulty in answering the question, indeed he pointed at the wrong picture several times. When he has to answer some questions, he repeats twice what he has just heard in the turn before, that is the verb “*punge*” (sting). In this example, it seems that Jack is using this strategy in order to keep up the conversation, so with a “Turn taking” function.

- (4) A: ascolta Jack, dim- mi una cosa qual è
 listen-2SG Jack tell-2SG me a thing... which is-3SG
 quell’ animale tra questi che punge...
 that animal among these that sting-3SG
 ‘Jack, listen, tell me something. Which is the animal that stings, among these?’
 [Jack points to the wrong picture producing a sound]
- A: che punge
 that sting-3SG
 ‘The one that stings’
 [Jack points to the wrong picture producing a sound]
- A: che punge, che morsica...
 that sting-3SG, that bite-3SG
 ‘The one that stings, that bites’
 [Jack points to the wrong picture producing a sound]

A: cos' è questo?
'What is this?'

J: **punge**
sting-3SG
'(It) stings'

A: un serpente... e cos' è questa qua?
a snake ... and what is-3SG this one?
'A snake. And what is this one?'

J: [laughs] lingua
'Tongue'

A: e cosa fa la lingua?
'What does the tongue do?'

J: **punge**
sting-3SG
'(It) stings'

In the example in (5), again we may think that Jack had some difficulty in answering a request. In this case he both repeats something that he has heard before (“*piove*”) and he produces auto-echolalia. In this case we can observe both the echolalic behavior with a function of “Turn taking” and the auto-echolalic behavior with the function of “Rehearsal”.

(5) G: Com' è fuori Jack? Piove?
How is-3SG outside Jack? Rain-3SG
'How is the weather outside, Jack? Is it raining?'

J: Sì
'Yes'

G: Hai l' ombrello?
Have-2SG the umbrella
'Do you have the umbrella?'

J: Sì
'Yes'

G: Piove tanto. Hai visto cosa fa Katiuscia?
Rain-3SG a lot. Have-2SG seen what do-3SG Katiuscia?
È al telefono. Come si risponde al telefono?

Be- 3SG at the mobile. How pick up at the mobile
 'It's raining a lot. Have you seen what Katuscia is doing? (She) is
 speaking on the mobile. How do you pick up the mobile?'

J: Piove piove piove
 Rain-3SG rain-3SG rain-3SG
 It rains

3.2 *Delayed Echolalia*

As may be seen in Prizant (1983: 65) and Prizant and Rydell (1984), studying and analyzing delayed echo can be really challenging due to the fact that delayed echoes are “temporally removed from the present” (Sterponi and Shankey 2014: 287) and this aspect might make their analyses more arbitrary. For this reason, there are few studies that focus on delayed echoes and their communicative/pragmatic functions.

We should take into consideration that there are some cues which are useful when we analyze delayed echoes.

1. Subjects that rely on delayed echoes, tend to repeat the same exact words and sentences many times, often maintaining also their intonation. We will use this cue, also thanks to people that work with Jack every day and that can reconstruct the history of specific expressions.
2. Delayed echoes are often syntactically and morphologically different from the rest of the spontaneous production (Prizant 1983: 65).
3. Syntactic and pragmatic errors might occur when particular words are repeated without considering their context of reproduction; for example, when proper names are reproduced, or if personal pronouns are repeated without taking into account the altered situation (pronoun reversal errors). This is what occurs with Jack's pronominal production: as we will see, he always refers to himself saying his name or with the pronoun “you” and to the interlocutor with his/her name or with the pronoun “I”.
4. It has been noticed that communicative delayed echoes are often “differentiated according to ownership” and specific delayed echoes might be reproduced solely with the person that originally produced that sentence (Sterponi and Shankey 2014: 287).
5. Cues such auto-echolalia are often an evidence of the presence of a delayed echo.

In (6) we have two examples of delayed echoes. There is a first example of pronoun reversal: Jack didn't want to work at the PC and when the teacher put his hand on the keyboard he refused to write saying “Io”.

Teachers are used to his pronoun reversal errors and in this first case they explained to me that ‘allora io sono io’ (‘I it’s me’). In our entire recordings we counted 62 occurrences of pronoun reversal in which the first-person singular pronoun *I* is used to refer to the speaker. In this case the delayed echo has a “Directive” function, since it is used to direct the teacher’s action.

The second example of delayed echo is ‘piano piano’ (quietly) which is also a case of auto-echolalia. Also in this case the teacher explained to me that he said ‘quietly because he has pain in his ears’. Every time they sit at the PC to write sentences on a specific program that reads aloud what they type, Jack says ‘piano piano’ in order to request to turn down the volume of the PC because he suffers with listening to loud sounds. Again, then, this is a case of “Directive” function, since it is used to direct the teacher’s action.

(6) A: allora facciamo vedere come lavoriamo con Jack [...]

then make-1PL see-INF how work-1PL with Jack

‘Let us show how we work with Jack’

[The teacher puts Jack’s hands on the keyboard]

J: [laughs] io

‘I’

A: [explaining to me] io... allora io sono io e Jack è Jack

I ... well I be-1SG I and Jack be-3SG Jack

‘I... well I it’s me, and Jack is Jack’

[...]

A: [...] facciamo solo vedere a Greta come faccio io [...]

make-1PL just see-INF to Greta how do-1SG I

‘Let us simply show to Greta what I do’

J: **piano piano**

‘Quietly quietly’

A: sì piano piano perché lui ha male alle orecchie

yes quietly quietly because he have-3SG pain at the ears

‘Yes, quietly quietly because he has pain in his ears’

In (7) we have a case of delayed echolalia in which Jack uses a strategy, in all likelihood, to avoid using pronouns. Indeed, in order to refer to himself he used his name, with a function of “Protest”, that is to prohibit the teacher’s action of going to the printer machine to take the sheet. In our recordings we ran across 14 occurrences of pronoun avoidance, in which Jack uttered his name in order to refer to himself.

- (7) A: allora prima stampiamo... prendo io.
 so first print-1PL take-1SG I
 So, first of all we print. I take (the paper)'

J: Jack, no Jack
 Jack, no Jack'

In (8) we have two other delayed echoes. In the first one, Jack said 'per favore' (please) that, apparently, might not seem an echo but it occurred 14 times during our recordings, always to request something: 4 times he used 'per favore' to ask for water and 9 times to ask for food. For this reason, it has a "Request" function and it is uttered with formulaic value.

Then, again, we find a pronoun reversal error. The teacher explained to me that they have a sort of ritual for the snack time in which when Jack has to eat biscuits, the teacher opens the box and gives one biscuits at a time to Jack, who says *buoni* 'tasty' mimicking the yummy sign with a finger on his cheek. In this occasion, indeed, Jack gave the close box to the teacher saying 'I' and then 'tasty' in order to perform a "Request" act, asking to open the biscuits' box.

- (8) [when J. eats biscuits the teacher has to put them inside a box]

J: per favore
 'Please'

A: sì
 'Yes'

J: io io ... buoni [giving a closed box of biscuits to the teacher]
 'I, I, tasty'

The example in (9) shows more clearly how Jack makes errors when referring to the speaker. We can see pronoun reversal errors in which Jack says *I* instead of *you*, in one case also saying clearly 'I Antonella' that is the first-person singular pronoun together with the name of the addressee. At the same time, we can see the pronoun avoidance error, in which he produced twice the name 'Antonella'. These are all cases of "Request".

- (9) A: proviamo a cercare la pizza su Google?
 try-1PL to search-INF the pizza on Google
 'Let us try to search for (the picture of) a pizza on Google'

J: sì

‘Yes’
 A: chi la cerca?
 who CL search-3SG
 ‘Who should search for it?’

J: io Antonella
 ‘I, Antonella’

A: allora... la cerca Antonella... la cerca Jack?
 so CL search-3SG Antonella CL search-3SG Jack
 ‘So is it Antonella who should search for it? Is it Jack?’

J: io
 ‘I’

A: chi è io?
 who be-3SG I
 ‘Who is I?’

J: Antonella
 ‘Antonella’

The exchange in (10) is an example of pronoun reversal but different from the ones seen above. In this case Jack refers to himself with the second-person singular pronoun *you*. This occurred three times in our recordings. In this particular case, Jack wants to eat biscuits and this kind of echolalia has a simple function of “Turn taking”.

(10) G: chi è che mangia i Ritz, io o tu?
 who be-3SG that eat-3SG the Ritz, I or you
 ‘Who is eating the crackers? Is it me or is it you?’

J: tu [taking the box]
 ‘You’

The conversation in (11) presents many interesting cases of delayed echo in which the communicative value is clear. We were asking Jack to describe what he had done the day before. He said ‘music music music’ which is something apparently odd in this circumstance, since we were speaking about him going to the bakery to order a sandwich. Thanks to the teacher we reconstructed that he was particularly happy because inside the bakery there was some music and he danced and sang. Indeed, some turns after he repeated again ‘music music music’, which is also a case of auto-echolalia, and then ‘music, Jack dances, Jack laughs’ in which he speaks about himself in the third person, with also the verb with agreement in the third person sin-

gular (i.e. 'balla' and 'ride'). In this example, we can see that the function of echolalia is of "Providing informations" since he is trying to communicate to me what happened and what made him happy.

Similarly, another case of delayed auto-echolalia with a "Providing Information" function, is the the answer to the teacher's question 'What was the name of the sandwich?'; Jack's answer is, again, apparently inappropriate since he uttered 'wine wine wine'. With the teacher we reconstructed the day and she immediately remembered that something unusual happened (once a week, in the same day, they always go to buy a sandwich): while they were returning to school she found a colleague that gave her a bottle of wine as a gift and they went all together to the colleague's car to collect it. This change of program probably surprised Jack and he tried to communicate this.

- (11) A: racconta alla Greta cosa abbiamo fatto ieri
 tell-2SG to Greta what have-1PL done yesterday
 'Tell to Greta what we did yesterday'
- J: panificio ... pane
 'Bakery, bread'
- A: panificio
 'Bakery'
- J: musica musica musica**
 'Music, music, music'
- A: piano racconta le cose in ordine, racconta cosa abbiamo fatto
 slowly tell-2SG the things with order, tell-2SG what have-1PL done
 prima
 before
 'Slow down, tell things orderly, tell what we did before'
- J: pane
 'Bread'
- A: pane
 'Bread'
- J: musica musica musica**
 'Music, music, music'
- A: ascolti?
 listen-2SG
 'Are you listening?'
- J: sì
 'Yes'

A: piano, prima siamo andati al panificio.
 slowly, before have gone-1PL to the bakery
 Quando siamo entrati cosa c'era?
 when have entered-1PL what be-3SG
 'Slow down, first we've been to the baker. When we entered, what was there?'

J: musica, Jack balla, Jack ride
 music Jack dance-3SG Jack laugh-3SG
 'Music, Jack dances, Jack laughs'

A: Jack balla e Jack ride, e poi cosa abbiamo fatto?
 Jack dance-3SG and Jack laugh-3SG and then what have done-1PL

 tu hai dato i soldi...
 you gave-2SG the money
 'Jack dances, Jack laughs, and then what did we do?' You gave the money to...'

J: sì ... mmm [mimicking "yummy"]
 'Yes, mmm'

A: mmm che buono il panino... come si chiamava questo
 mmm how delicious the sandwich how CL.REFL called-3SG that
 panino?
 Sandwich
 'mmm, the sandwich was delicious! What was the name of the sandwich?'

J: vino vino vino
 'Wine, wine, wine'

A: vino?
 'Wine?'

J: sì
 'Yes'

The examples in (12), (13) and (14) are clear examples of delayed echos with the function of "Verbal completion" and they have a strong communicative value. In (12) Jack is drinking water. When he drinks too fast he always chokes. For this reason, a particular teacher, Katuscia, takes the bottle away saying "breathe!" every time. Jack, just with her, often repeats this rule, as in (12). It's a sort of ventriloquization that is used communicatively to create a playful situation. Similarly, in (13) Jack repeated the rule that Katuscia always tells him, which is to put the hand in front of the mouth when coughing. In (14) Jack did not repeat a rule but a joke that he always makes with the teacher: when Jack stains the teacher's shirt, she always says that he has

to take it to the laundry. What is interesting in such exchanges is that Jack knows that they can occur with Katiuscia only.

(12) [after drinking water]

J: [laugh] **respira**
breathe-3SG
'Breathe!'

(13) [Jack cough]

J: **mano**
'Hand'

K: la mano davanti alla bocca quando tossisci
the hand in front the mouth when cough-2SG
'put the hand on your mouth when you cough'

J: **mano**
'Hand'

(14) K: e dopo quando sporchi la maglia a Katiuscia cosa dici?
and after when dirty-2SG the shirt of Katiuscia what say-2SG
'What do you say when you get Katiuscia's shirt dirty?'

J: **pulitura**
'Laundering'

In (15) there is another classical verbal routine that Jack performs to communicate. In this case, the teacher and Jack were playing a game in which the teacher showed a picture to Jack and he had to say the name of what was depicted. The picture represented a sea landscape and immediately Jack said 'three minutes' and then 'Numana'. This combination of words 'Numana'-'three minutes' occurs every time that something related to the sea enters into a conversation. 'Numana' is the location where they always go on holiday. 'Three minutes' is probably related to something he had heard while going to Numana. This kind of echo can have a "Labeling" function.

(15) A: allora dim- mi cosa c' è in questa immagine
so tell-2SG me what there be-3SG in this picture
'so, tell me what you see in this picture'

J: mare
'sea'

A: mare
'sea'

J: **tre minuti**
'three minutes'

A: Dove vai in tre minuti?
where go-2SG in three minutes
'where do you go in three minutes?'

J: **Numana**
'Numana'

A: Numana ... Numana.. cos' è Numana?
Numana Numana what be-3SG Numana
'Numana, Numana, what is Numana?'

J: mare
'sea'

In (16) we find again Jack producing the auto-echo 'music music music' but, in this case, the function is "Calling": we were simply walking around and he probably wanted to call for our attention. The teacher said that this is something that often happens and that Jack loves the song *Inno alla gioia*. For this reason, we can presume that *Inno alla gioia* is an echo too, but we don't have enough information to analyze it.

(16) **J:** **musica musica musica**
'music music music'

A: musica? [A. began to sing]
'music?'

J: [laugh]

A: ascolta, di' alla Greta cos'è questa canzone
listen-2SG tell-2SG to Greta what be-3SG this song
'listen, tell Greta the title of this song'

J: **inno alla gioia**
'Ode to joy'

A: inno?
'Ode?'

J: gioia
'Joy'

A: inno alla gioia
'Ode to joy'

The example in (17) is interesting because the turn 'Today is Monday' is syntactically complex for Jack, who never produces a complete sentence but tend to produce single words instead. For this reason, this turn is probably an echo of the exercise Jack and the teacher do when they report what Jack did during the day on the PC, and it has a function of "Turn taking".

(17) A: martedì ... dove vai? In?
Tuesday ... where go-2SG to
'Where do you go on Tuesday? To?'

J: piscina
'Pool'

A: piscina
'Pool'

G: ah piscina
'Ah pool'

J: oggi è lunedì
'Today is Monday'

4. Discussion

In the past years, the phenomenon of echolalia has been scarcely investigated, either because it has often been considered a mere words repetition without any communicative value, or because, as we have seen, it can be really tough to recognize and analyze an echolalic speech, particularly when we have to consider delayed echoes. The scientific literature has mainly focused on how to eliminate echolalia (e.g., Palyo *et al.* 1979; Schreibman and Carr 1978), since it has been considered something that might slow down the natural processing and acquisition of language.

The single-case study proposed here had the goal of focusing the attention on how echolalia can be an instrument that population with linguistic and cognitive deficits might use in order to communicate with others. We analyzed two different type of echolalic production uttered by a boy diagnosed with Kleefstra syndrome: immediate echolalia and delayed echolalia. Despite the fact that our corpus presented few examples of immediate echolalia, we were able to recognize how it can be used to answer questions, to express difficulties in answering questions, to maintain the turns in a conversation and, thus, to keep the exchange with the speaker. Some echoes had no clear

communicative functions but, still, they were probably useful to calm down and to regulate the person's behavior.

When considering delayed echoes – both self-echoes and other-echoes – many different communicative functions are clear and it appears evident that such borrowed words are fundamental to keep the communication going with the surrounding environment. We have seen cases in which words were apparently uttered out of the blue, with no immediate clear connections with the conversation. This was actually a way to communicate that something happened, a way of giving new information, of telling something. We have also analyzed delayed echoes that are part of a ritual or that are uttered with specific interlocutors only, recognizing that the value of that echo is not simply that of uttering something but that of producing those words with a person that can understand them. Delayed echoes are used to label objects, to ask for something, to prevent other people's action, to play, to make jokes, to give new information, to interact and, again, to maintain turns in a conversation. Something that has been considered merely pathological has a clear pragmatic value.

In conclusion, we don't want to suggest that all cases of echolalic speech are communicative in nature and that it is always the case that echolalia should be maintained. Each single case should be analyzed and considered: when it's clear that cognitive and linguistic deficits render other forms of communication impossible, echolalia may serve a communicational purpose. It is a powerful instrument when it is inserted in an environment in which it is absorbed and supported. Professionals should consider availing themselves of the help of linguists for the creation of intervention programs, in order to fully understand the communicative context of echolalic productions and to evaluate the best way of working with them.

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