

## Some Characteristics of the Language of a Jordanian Autistic Child

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### Abstract

This study investigates, from syntactic, semantic and phonetic perspectives, a Jordanian autistic child's language during the first year following his first words uttered between the age of six and seven years. The boy, who remained almost totally speechless for the first six years of his life, started to say words by the age of six years and nine months after intense training that lasted over three years. His language consisted mainly of nouns/verbs which he syntactically used to mean whole sentences. Repetition of the same word in order to express insistence was the main feature of his syntax. Semantically speaking, he used the same word to mean more than one thing or to refer to antonyms. From a phonetic point of view, the child's language was characterized by the phenomena of echolalia and monotonous prosody, consonant and syllable deletion, consonant substitution, consonantal assimilation, and vowel shortening. Most of these processes are attempts at simplification and seem to be in line with strategies adopted by other children with autism (Volden and Lord, 1991; Tager-Flusberg and Kasari, 2013; Mody and Belliveau, 2013), and by people with speech disorders or those who suffered strokes (Jaradat, 2016; Al-Duhon, 2017; Shatnawi, 2017). Like other children with autism in Jordan (see Al-Ta'ani, 2021), the boy adopted such processes probably to avoid syntactic, semantic or phonetic complexity.

**Keywords:** autism, disorders, features, Jordan, language, phonetics, semantics, speech, syntax

### INTRODUCTION

It is a well-received fact that language is the most effective way of communication, and so many wonder what is expected to happen when someone's language is impaired at a certain level in what is known as a communication failure, such as the case of autistic persons. Rapin et al. (2008:1129) argued that autism is a symptom of a typical development of an immature brain rather than a disease with infrequently abundant diagnosable etiologies. Autism is now known as a behavioral syndrome with many known and unknown causes, some of which may be genetic. Despite their different behavioral symptoms, autistic children are not always considered as being fragile, sick, or emotionally disturbed (Rapin et al. 2008).

Many scholars tested the language development process of autistic children from different aspects. Their results showed an impaired language development process at different levels that range from light to severe. (Volden and Lord, 1991; Prelock, 2001; Watson and Flippin, 2008; Mody and Belliveau, 2013; Tamanaha et al., 2014; Jaradat, 2016; Zhu et al., 2018; raisingchildren.net.au, 2020). Frith (2003) proposed that autism is a disorder in which the child suffers from many symptoms which range from mild to severe and which begin to appear at the age of (2-3) years. The child also finds it hard to communicate and fails to interact with others; he/she might have a problem when changing daily routine. It might be difficult for autistic children to be involved in society since they have a problem in acquiring the language and in properly using it. In most cases of autism, the child makes some repetitive activities and movements and might have unusual responses to certain situations (Mintz, 2018; Gladfelter and Van Zuiden, 2020).

Durrleman and Zufferey (2009) and Durrleman et al. (2014) argue that autistic children suffer from problems when they use language; their lack of interaction in society and dealing directly with people cause a lack of use of the language. Consequently, more problems will appear in autistic children's language acquisition process rather than those children who are typically processed (TD). This is due to the fact that children with Autism Spectrum Disorder (ASD) don't use language as much as TD children, in addition to the fact that (ASD) language acquisition process development will be delayed as a result of not using the language within the normal range.

Lewis et al. (2007) claim that autistic children's linguistic impairment ranged from above-average performance to severe difficulties. One type of language development impairments that autistic children are expected to have is the difficulty of producing many sounds and complete words. For example, Al-Duhoon (2017) found that Jordanian children with special needs cannot produce certain sounds, replacing them by other sounds or simply deleting them from words. In addition, she found that, in polysyllabic words, children tend to delete one or more whole syllables. Shatnawi (2017) found that Jordanian children with speech disorders face serious problems not only in speech production but also in speech comprehension due to their unwillingness to initiate communication (Durrleman et al., 2014). Other studies investigated other components of language like syntax, which are affected among autistic children. Guasti et al. (2012) assessed twenty autistic children aged (5-15) years old evaluating their ability to understand relative clauses, complement clauses, and WH- questions in Italian and Greek. Results showed an obvious deficit in understanding complex syntactic structures. Al-Ta'ani (2021) analyzed Jordanian ASD children's (aged 7-13) comprehension of relative clauses, complement clauses and Wh-questions. She found severe impairments in the understanding of all these types of syntactic structures.

More recent studies focused on the reasons behind autistic children's deficiencies in verbal communication. For example, Mody and Belliveau (2013) put special emphasis on behavior and neuroimaging to explicate speech and language impairments in autism. For their part, Habayeb et al. (2020) found a link between visual traces and language acquisition in autistic children. Garcia-Oscos (2021), finally, indicated that a gene called FoxP1 selectively regulates cultural transmissions of learned vocabularies.

The following table illustrates the stages of the language acquisition process, as proposed by Ingram (1989: 39), which consists of 5 periods starting from the period in which the children can express their needs by crying passing by the very first years and the changes that occur during them and ending with the period above 3 years when children start speaking and express themselves better than before.

**Table (1): Language acquisition stages (Ingram,1989:3)**

| Stage             | Age (The first number stands for the year, whereas the second number stands for the month). | Behaviors  | Examples  |
|-------------------|---|--|---|
| Preliminary stage | first year  | 1.babbling,<br>2.unintelligible imitation (e.g. jargon),<br>3.preliminary understanding  | Random, meaningless sounds but they indicate the child's needs  |
| First period      | (1;0-1;6)   | The child starts acquiring a small number of sounds that have special meanings and expresses the ideas of a complete sentence. On the other hand, the child does not understand grammar.   | Small utterances like (ma, ba, da), or a part of the word; the first syllable, the final syllable, or mix of the main sounds of the word. |
| Second period     | (1;6-2;0)   | The child recognizes that things have names, with<br>1. a quick development in word acquisition,<br>2. asking about the names of things. Right after combining the first utterances, first hesitantly, then more fluently. There are 3 stages of vocabulary growth:<br>(a) substance – increase in nouns;<br>(b) action – increase in verbs; (c) relation and distinction – increase in qualifying and relational words. | The child starts to pronounce full words which may have some errors in one sound like saying /tursi/ instead of /kursi/.                  |
| Third period      | (2;0-2;6)   | 1. Production of well-formed sentences which contain words that have major grammatical relations, like 'subject and object.'<br>2. The beginning of the acquisition of inflection which may last for many years.   | Child will be able to form full sentences and questions.  |

|               |          |  |  |
|---------------|----------|--|--|
|               |          | 3. The syntax consists of loose linking of words together where word order may vary. The range of questions expands.   |  |
| Fourth period | (2;6 on) | 1. The simple juxtaposition of words in syntax is replaced by a hierarchical structure and the acquisition of embedded or subordinate sentences.<br>2. The acquisition of some grammatical morphemes continues. The child's questions now include those of time and causality. | The syntactic order of the word becomes better and the questions start to cover wider range of things. |

As will be seen in the analysis below, the autistic child, who was almost 8 years old when this study was conducted, was only able to produce utterances that a normal child can make in the second period (age 1;6-2;0).

Previously, the language acquisition process of ASD children was investigated and studied from different pragmatic, semantic, and syntactic perspectives. In general, it was agreed upon that this process is different and impaired in comparison with the language acquisition process of typically developed children, which has some errors that are considered to be great pieces of evidence that allude to the origins of the moved elements in the syntactic derivations (Volden and Lord, 1991; Luyster et al., 2008; Kasari et al., 2013; Tager-Flusberg et al., 2013).

Many scholars (e.g. Chomsky, 2002; Luyster et al., 2008; Franck and Durrleman, 2013) confirm that language acquisition is a very intelligent process which unconsciously happens in the humans' brains. In it, a child innate knowledge and the acquired knowledge compose the final speech which requires the speaker to communicate more to practice to use the learned knowledge and learn more vocabulary from the other side of the conversation.

Rollins et al. (1998) emphasize the necessity of communication for the development of the language besides the cognitive factor which is the key to understanding concepts. The main idea of the process of language acquisition goes around the fact that when the child has a kind of disturbance, it will be hard for him/her to compose this kind of cognition for things around him/her, a matter which will damage the idea of communication due to the lack of concepts and vocabulary. The claims of Gernsbacher (2004) support the idea that delayed language acquisition process is due to social disinterest and lack of input or verbal dyspraxia rather than core linguistic disability. It was also found that there are a good relation and agreement between language, behavior, and cognition on the one hand,

and the development of the toddlers, on the other, according to direct assessment and parents' reports.

The goal of the present study is to investigate an ASD child's production of his first words in Jordanian Arabic. The male child was 6 years and 9 months old (6;9 from now on) when he started to say his first words. Like many autistic children (Kasari et al., 2013; Tager-Flusberg and Kasari, 2013), he possessed no or very limited language skills. Except for a few words like /ba:ba/ 'Daddy' and /ma:ma/ 'Mommy', which he only occasionally uttered, the boy was completely speechless before that despite efforts spent over almost 3 years by family members and some local "autism experts" to make him speak. He used to express his needs for food, drink, going outside, going to the bathroom, etc... to parents and one older sibling by pointing to the thing desired or by holding the hand and dragging the parent or sibling to the desired place.

Since he was almost three years old, the boy, like most autistic children, exhibited repetitive behaviors characterized by motor movements like lining up toys or objects, standing on his toes, clapping/flapping hands, flicking, and holding a piece of clothing or a string and spinning it repeatedly. At an earlier age, he loved lining up toys and objects as well as going to the main nearby street to watch trucks and heavy automobiles pass by and emit loud sounds. He did not carry out all these movements at the same time, but he alternated among them every 3 months or so. Often, he did two of them at the same time, abandoned one of them after a few months and took on a third one, and so on (Internet: [verywellhealth.com](http://verywellhealth.com); [spectrumnews.org](http://spectrumnews.org)) At the time this research was carried out, he favored spinning a piece of clothing or a string.

He was also characterized by continuous movement and walking, and he rarely sat down. He was not interested in playing for over a minute with his sibling or other children of his age, which reflects the usual lack of communicative skills characterizing autistic persons. Unlike normal peers, he rarely watched television since he was unable to focus on one thing for a long time. His speech was limited to babbling, crying, or shouting before he started to speak. He was diagnosed with mild to moderate autism by one pediatrician and two autism specialists just before he turned three. After he started speaking, he was more inclined to play for a few minutes with his older normal sibling and watch television; moreover, he started to play with and cherish medium-size toy cars of different colors, especially red, blue, yellow and green.

## LANGUAGE ANALYSIS

In this section, the autistic boy's language is presented and analyzed linguistically. Most of his speech consisted of single words to ask for things or activities. Rarely did he use two-word phrases or sentences. His active vocabulary consisted of about one hundred words acquired over a period of one year, i.e. from the age of 6;9-7;9. The words he used were collected via recording or note-taking (using the Arabic Alphabet) by the boy's mother and older sibling. They were transcribed into the Roman Alphabet by the researcher. The words were for the great majority in colloquial Jordanian Arabic (JA); only in one of them was Standard Arabic used. It is the word /huna/ 'here' (it is /ho:n/ in JA). A few were English words learned following repetition by the boy's immediate family

members. These include *go, bye, one, two, eight, nine, and ten*. Although he was taught the other numbers (three-seven), he could not say them correctly because they are probably more phonetically complicated than the ones he could actually utter. It is worth mentioning that English is a second language for many educated Jordanians and is taught in all schools from the first to the twelfth grades; it is also a mandatory subject in colleges and universities, and many scientific topics like medicine, engineering, physics, etc. are taught in this language. So, it is no surprise that the autistic child was taught some English words since he belonged to a well-educated family.

In general, his language was characterized by unusual or monotonous prosody and echolalia (Mody and Belliveau, 2013). He would, for instance, repeat a word or phrase as he heard it the first time and if he heard a long sentence, he would repeat the last word. The following example, in addition to many others, may be significant indication of his echolalia: when he was asked: "Do you like more Mummy or Daddy?", he would say "Daddy". However, if the order of the direct objects was reversed: "Do you like more Daddy or Mummy?", he would say "Mummy".

The most commonly used child's words are found in the examples cited in the analysis below.

### Syntax

There is not much to say about the boy's syntax since he mostly used single words, which were for the great majority nouns and verbs, besides a few pronouns and adjectives (see Second Period in Table 1). Only occasionally did he use two-word phrases or sentences like the following:

1) ʔabbi mayy 'fill up (the jug/container) with water'

He would say this sentence when he saw his mother fill up some containers with water from a hose in the garden.

2) batti:x .... (pause) batti:x biddi or biddi batti:x (literally: watermelon ....(pause) watermelon I want [or] I want watermelon).

In (2), he would say the name of the thing he wanted. If he got no answer, he would say the sentence "Watermelon I want, or, I want watermelon" to show insistence. Another way he used to show insistence was repetition of the same word several times as in the following two examples:

2) balla .... (pause) balla balla balla.... (lit. outside.... (pause) outside, outside, outside...)

3) ʔagga ....(pause) ʔagga ʔagga ʔagga.... (or using the more correct JA word) gu:m (pause) gu:m gu:m gu:m....(lit. get up....(pause) get up, get up, get up...)

4) na:m na:m na:m....(lit. go to sleep)

In (2), the child would ask mother or sibling to take him outside, and when he met no response, he would insist on going outside by repeating the same word up to six or seven times. In (3), he would ask the person sitting next to him to get up and go away, and if his request was not granted right away, he would insist on it by the same repetitive technique. It is worth mentioning that the boy had no patience and wanted his demands

to be met immediately. Regarding the word /ʔagga/, it is his own pronunciation of the JA /gu:m/, which he started to use at a later stage. In (4), he repeated the word /na:m/ several times to indicate his willingness to go to bed right away, or to ask his mother to prepare the bed for him, to bring a blanket, and also to ask to be carried around so that he could fall asleep (like one does to babies).

He could also use a short sentence consisting of a verb in the imperative followed by an object pronoun in the third person form, which in Arabic is linked to the verb forming one word as in (5) below. In such a sentence, he would ask somebody to take away a pillow or blanket by him on the couch or to take off his/her glasses.

5) gi:m-u /gi:m-ah (lit. take off/away it (masc.) /take off/away it (fem.))

6) ʔatti:ni (lit. give-me)

Although he used in (5) both the masculine and feminine pronominal forms, he was unable to distinguish between them, using them interchangeably to refer to either a masculine and feminine word. He would use this imperative verb followed by the pronoun to ask somebody to take off his/her glasses or ask the person to take away a blanket or pillow. In Arabic, masculine and feminine are the only genders possible; the neuter gender does not exist.

### Semantics

Semantically speaking, the most noticeable thing was using the same word to mean two or more things like the word /na:m/ in (4) above. Polysemous words were a basic part of his vocabulary. For example, he used the word /ki:wi/ to mean all kinds of citrus fruits (oranges, tangerines, lemons, kiwis, mangoes, etc..) and even sometimes all fruits (including apples and bananas). Similarly, he used the word /ja:jih/, which means 'chicken', to ask for any kind of meat (chicken, lamb, beef, fish and even canned tuna). Moreover, the word /laban/ 'yoghurt' was used by him to ask for yoghurt, solid yoghurt (called /labanih/ in Jordan), and milk. He did not use it, however, to ask for cheese, probably because he never liked this product.

At an early stage, he used the word /balla/ (his pronunciation of /barra/ 'outside') to mean going outside to the balcony, going to the nearby street, opening/unlocking the door for him to be able to go outside, and bringing the key to unlock the door so that he could get outside. Later on, he learned the word for 'key' /mitta:h/ or /ta:h/ (from /mifta:H/) which he used to refer to the third and fourth meanings, and the word /balla/ continued to be used for meanings one and two.

The originally English word 'bye', which has become a borrowing in Arabic, was used by him to ask to go on a long walk, to go for a drive in the car, to go visit Uncle's house, which was about one kilometer away, or to go to the nearby MacDonald's restaurant.

Amazingly enough, the pronoun /ʔana/ 'I' was used to mean 'I' and 'you'. For example, when he wanted to eat something, he would say /ʔana?; and when he wanted his mother or sister, not himself, to eat, he would also say /ʔana/ and point his hand/finger to the person concerned. In fact, he did not know the second person pronoun /ʔinta/, /ʔinti/ ('you' masculine and feminine, respectively).

At times, the boy used the same word to mean opposite things. For example, he used the word /daww/ 'light' to mean 'turn on/off the light, turn on/off the TV'. The word /na:m/ 'go to sleep' was used to mean 'go to sleep/get up from sleep, bring/take away the blanket'. Moreover, the JA word /Ha:mi/ 'hot' was used to mean either 'hot' or 'cold'. When the food or drink was too warm for him, he would say /Ha:mi/, and when the air from the air-conditioner was cool, he also said /Ha:mi/.

Sometimes, he forged his own words to mean certain things (idiosyncratic language in autistic language, as mentioned by Volden and Lord, 1991). See, for example, the word /ʔagga/ 'get up' in (3) above. Moreover, he used the word /ma:do:/ when he wanted to see photos or watch videos on his mother's telephone. The origin of this word is not very clear, but it looks like it comes from the word /vidiyo/, which is a borrowing from English and used in JA. When he wanted to watch videos on Youtube, he pointed to the wanted video with his finger/hand saying /ho:n/huna/ 'here', to mean 'this (video)'. It is worth mentioning here that his favorite videos on Youtube were the ones related to car racing games and car fixing. This again shows the autistic child's fixation with one kind of activity or routine.

The word /kiyo:n/, which was his pronunciation of /ki:lo:n/ 'insulated underwear', was used to mean the piece of clothing referred to and also to pants, socks, and any kind of underwear. In addition, he used the words /miaw/ 'meowing' and /ʔaww/ 'howling' to mean also the animal itself, namely the cat and the dog, respectively.

The word /ʔulu:m/, which literally means 'sciences', and which he used to ask for the 'science book', was used at a later stage by him to ask for any kind of book. This happened after he stopped saying the word /ta:b/ from /kita:b/kta:b/ 'book'. It is worth mentioning here that the boy used certain words for days and weeks and then stopped using them all of a sudden for some reason. Besides /ta:b/, such words include /ʔabbi/ 'fill up (with water)'.

Sometimes, he used two different words to mean the same thing. The most striking example was his use of JA /gu:m/ (see Table 2 below) and English /go/ to ask somebody to leave. These two words were usually accompanied by trying to push away the person asked to leave. In addition, the word /mayy/ 'water' was used to mean the liquid itself, to ask somebody to water a plant or a small tree in the garden, to tell someone that there was water on the floor, and let someone know that his shirt or pants were wet. Table 2 below shows other words/phrases that the child used to mean more than one thing:

**Table 2.** Some of the child's polysemous words/phrases

| JA word/phrase and meaning  | Child's rendering | Child's Meanings   |
|-----------------------------|-------------------|--|
| zaʔtar 'thyme'              | ʔattar            | 'thyme; oil and thyme; bread, oil and thyme'                       |
| kaʔkih 'cake'               | ke:kih            | 'cake, biscuits, pie, jello, and any similar thing which is sweet' |
| gu:m 'get up'               | gu:m              | 'get up, leave'  |
| gi:muh/gi:mha 'take it off' | gi:mu/gi:ma       | 'take it off, take it away from the area'                          |
| kib dih 'liver'             | kibbih            | 'liver, hamburger'   |

|                         |         |   |
|-------------------------|---------|---|
| na:m 'he went to sleep' | na:m    | 'I want to go sleep, carry me around, bring my blankets so that I can go to sleep, (you) go to sleep' |
| HSa:n 'horse'           | hisa:n  | 'horse, donkey, camel'  |
| ghanam 'sheep'          | ghanam  | 'sheep, goat, gazelle'  |
| Daww 'light'            | daww    | 'turn on the light, turn off the light, turn on the TV/laptop, turn off the TV'                       |
| baTTi:x "watermelon'    | batti:x | 'watermelon, melon'   |
| wigiʕ 'fell down'       | wigiʕ   | 'fell down, fell off, tripped, went missing'  |
| maʕlagah 'spoon'        | magga   | 'spoon, fork, knife, dish, plate'   |
| ?irfaʕ 'pull up/lift'   | ?iffaʕ  | 'pull up, pull down, lift, lower'   |
| shibs 'chips'           | shibs   | 'chips, cornflakes'   |
| ʕilkih 'chewing gum'    | ʕikkih  | 'chewing gum, candy, chocolates'  |

## Phonetics

The child's field of pronunciation and phonetics is a rich one that includes many features and characteristics which deserve studying. Several processes were found to be at work in the boy's language, including, but not limited to vowel addition, vowel shortening/lengthening, sound deletion/omission, sound substitution, assimilation resulting in frequent gemination, and syllable deletion. They mostly amounted to a process of simplification or ease of pronunciation, a common phenomenon in simple natural languages and pidgins. Most of these processes or changes from the norm were reported by other researchers, such as Volden and Lord (1991), Luyster et al. (2008) Kasari et al. (2013), Tager-Flusberg and Kasari (2013), and Mody and Belliveau (2013), with regard to autistic children. They were also reported by Jaradat (2016) in relation to older Jordanian people who had suffered strokes, by Al-Duhoon (2017) among special needs children (especially those who were born deaf but were later able to hear), and by Shatnawi (2017) who studied the effects of speech disorders on speech production and comprehension by some school pupils in Jordan.

It is worth mentioning at the outset that the child had no problem with the pronunciation of the JA eight vowels, namely, /i, u, a, i:, u:, a:, e:, and o:/, as the examples analyzed clearly show. Moreover, he was able to utter the diphthongs /ay/ and /aw/ as in the word /hay/ 'this', /miaw/ 'meowing/cat', /daww/ 'light/turn on light' and /ʕaww/ 'howling/dog'.

Regarding vowel changes, he often inserted a short front high vowel /i/ after an initial consonant if followed by a palatal glide like in his pronunciation /xiya:r/ for JA /xya:r/ 'cucumbers' and /hisa:an/ for JA /HSa:n/ 'horse'. Moreover, he sometimes tended to shorten a long vowel as in the word /xet/ for /xe:T/ 'string/.

His major phonetic problem was with consonants. In the first place, he was unable to produce several consonants of JA. These included the sibilants /s, z, and ch/, H, dh, th, r, and the emphatics S, Dh, T. Here, he used the common strategy of substitution or sound replacement, or complete deletion of the consonant in a few cases, as will be made clear in the analysis. Regarding /s/, he was reluctant to say words beginning with this sound; when he was repeatedly urged to say the word /sayyarah/ 'car', for example, he would delete the first syllable /say/ and only utter /yarah/. For the word /sukkar/ 'sugar', he said /kukkal/, exhibiting a process of anticipatory complete assimilation. Word-medially,

he usually deleted this sound if it was next to another consonant, as in his pronunciation of the JA word /basko:t/, 'biscuits/cookies', which he rendered as /bato:t/. He only pronounced this sound in the word /ʕasi:l/ from /ʕaSi:r/, thereby changing the emphatic /S/ into its non-emphatic counterpart. Phrase-medially, such as in the phrase /ka:s lu:lu:/ 'Loulou's (his sister's nickname) glass', he would say /ka:y lu:lu:/ or even sometimes /ka:y yu:yu:/, replacing the /s/ with /y/ and then going on to completely assimilate the two lateral sounds to the palatal glide. No examples were found to see what he did with /s/ word-finally. Normally, for Jordanian children who cannot pronounce /s/, this sound is replaced by /t/, and this is what the child did in the word for 'cat' rendering it /bittih/ instead of JA /bissih/.

Regarding the voiced alveolar fricative /z/, he replaced it, word-initially, with /y/; so, instead of saying /ze:t/ 'olive oil' and /ze:tu:n/ 'olives', he said /ye:t/ and /ye:tu:n/. This sounds peculiar because, normally, Jordanian young children replace /z/ with /d/ (see Al-Duhon, 2017 and Shatnawi, 2017). However, this agrees with the idea of idiosyncrasy in autistic children's language as stipulated in Volden and Lord (1991). Word-medially, he replaced /z/ with /t/, saying /pitta/ instead of the normal JA pronunciation /pizza/ or /bizza/. In the word /bu:za/ 'ice-cream', he assimilated the /z/ to the initial /b/ and pronounced this word as /bu:ba/. Word-finally, he deleted it altogether as in his pronunciation /mo:/ for /mo:z/ 'bananas'.

The sound /ch/ was replaced by /t/ as in /katap/, which represents his pronunciation of 'ketchup', a borrowing from English commonly used in JA. The two other sibilants of JA, namely /sh/ and /j/, were correctly pronounced by the autistic boy. Thus, he could say /ʔishshah/ from /ʔishlaH/ and /ja:jih/ 'chicken'. In the first word, we also notice a process of complete assimilation resulting in a geminated /sh/ (see below). This process was also found in /wishshi/, his pronunciation of /wijhi/ 'my face'.

The voiceless pharyngeal /H/ was commonly replaced by /h/, an easier sound for many children and even for many foreign learners of Arabic. This is evident in the words /ʔishshah/ (paragraph above), /wahad/ for /waHad/ 'one', /tuffa:h/ for /tuffa:H/ 'apples', and /mitta:h/ 'key' (see section 2.2 above). Word-initially, he most often deleted it or replaced it with a glottal stop as in the word /(?)ammam/ 'bathroom'. Amazingly enough, he had no problem correctly pronouncing the voiced counterpart of /H/, namely /ʕ/, and this was clear in many words like /ʕabbi/ 'fill up', /ʕe:ni/ 'my eye', /ʕubba/ (from /ʕulba/ 'box'), /ʕulu:m/ 'science (book)', /ʕammu/ 'uncle', and /ʕutur/ 'perfume'. It is worth noting here that he had no problem pronouncing the velar/uvular fricatives /x/ and /gh/. Thus, he could say /xet/ 'string', /xiya:r/ 'cucumbers', /ghanam/ 'sheep' and /ghina/ 'Ghina (girl's name)'.

The dental voiceless /th/ and voiced /dh/ were absent from his phonetic repertoire, replacing them with /t/ and /d/, respectively, which is quite common for small children and even for some Arab speakers, like the Lebanese, Syrians and Egyptians, whose spoken Arabic lacks these two fricatives. Thus, the words /thala:th/ 'three' and /dhurah/ 'corn' were pronounced /tala:t/ and /dulah/ by the boy. In some cases, as in the word /ʔithne:n/ 'two', the boy said /ʔine:n/, merely deleting the voiceless dental fricative.

The sound /r/ was, like for many other normal children, a big problem for him. Word-initially, he would say /la:h/ instead of /ra:H/ 'he went away'. Word-medially between vowels, he also replaced it with /l/, as in the words /balla/ 'outside' and /dulah/ 'corn' (cf. JA /dhurah); however, word-medially next to another consonant, this sound assimilated to the one next to it resulting in geminates, as in /shaʕʕi/ for /shaʕri/ 'my hair and /ʔammal/ for /ʔaHmar/ 'red/. Word-finally, the sound was also replaced by /l/ as in /kukkal/ for /sukkar/ 'sugar' and /ʕasi:l/ for /ʕaSi:r/ (see above).

The commonly used JA emphatics /S/ and /T/ were replaced by their non-emphatic counterparts /s/ and /t/, respectively. Thus words like /ʕaSi:r/ 'juice', baTTi:x/ 'watermelon' were rendered /ʕasi:l/ (see above) and /batti:x/. If next to another consonant, the /S/ assimilated to it, as in /ʔaffal/ for /ʔaʕfar/ 'yellow'. Regarding the emphatic /Dh/, the dental fricative which is also used in JA to substitute for the dental emphatic plosive /D/, it was replaced by /d/ as in the word /daww/ 'light'.

Another phonological process found common in the child's speech, besides sound deletion and sound substitution, was complete assimilation which often resulted in gemination or reduplication. Examples abound, and a mere look at the table below makes this clear:

**Table 3.** Examples of complete assimilation

| JA word   | Child's rendering | Meaning       |
|-----------|-------------------|---------------|
| ʔishlaH   | ʔishshah          | 'take off'    |
| ʔirfaʕ    | ʔiffaʕ            | 'lift'        |
| ʔaHmar    | ʔammal            | 'red'         |
| ʔaʕTi:ni  | ʔatti:ni          | 'give me'     |
| kursi     | kukki             | 'chair'       |
| maʕlaga   | magga             | 'spoon'       |
| mifta:H   | mitta:h/ta:h      | 'key'         |
| ʕulba     | ʕubba             | 'box'         |
| ʕilkih    | ʕikkih            | 'chewing gum' |
| bu:za     | bu:ba             | 'ice-cream'   |
| kibdih    | kibbih            | 'liver'       |
| galam     | gamm              | 'pen/pencil'  |
| kalib     | kabb              | 'dog'         |
| bando:rah | baddo:lah         | 'tomatoes'    |
| salaTah   | sattah            | 'salad'       |

In most examples in the table and in others which are not mentioned in the table but could be found in the examples given in the analysis, the assimilation is regressive or anticipatory, i.e. the first sound assimilates to the one following (see words for 'lift', 'red', 'give me', 'spoon', 'pencil' and 'tomatoes'). However, in the words for 'take off' and 'ice-cream', the assimilation is progressive or perseverant. It looks like the child chose the sound easier for him and then carried out the assimilation to it. The assimilation was usually done to neighboring sounds; however, distant complete assimilation was also noticed in the words for 'ice-cream', 'pen/pencil' and 'dog'; in the latter two words, the assimilation was, as can be noticed, preceded by the deletion of the second vowel.

Syllable deletion in some di- and many polysyllabic words is very common in the speech of many people with production problems such as autistic children, aphasiacs, and people who learn to speak after the age of six (see Al-Duhoon, 2017 and Shatnawi, 2017). The goal is probably also here ease of pronunciation. Table 4 below gives examples of complete or partial syllable deletion, where the omission may be initial or medial:

**Table 4.** Examples of partial or complete syllable deletion

| JA word           | Child's rendering | Meaning                            |
|-------------------|-------------------|------------------------------------|
| mifta:H           | ta:h              | 'key'                              |
| muknisih          | kunnih            | 'sweeper'                          |
| fala:fil          | fa:fi             | 'fried balls of hummus/chick peas' |
| Hali:b            | hi:b              | 'milk'                             |
| thama:nieh        | ma:nieh           | 'eight'                            |
| maʕkaro:nih       | makko:nih         | 'spaghetti'                        |
| kita:b/kta:b      | ta:b              | 'book'                             |
| kalib             | kabb              | 'dog'                              |
| galam             | gamm              | 'pen/pencil'                       |
| maʕlagah/milʕagah | magga             | 'spoon'                            |
| salaTah           | sattah            | 'salad'                            |

In the words for 'dog' and 'pen/pencil', as can be seen, the boy probably first deleted the vowel in the second syllable, then assimilated the /l/ to the final consonants /b/ and /m/, respectively; this resulted in a one-syllable word. In some cases, he did not truncate polysyllabic words; examples include /kamma:mah/ 'mask', /bata:ta/ (from JA /baTa:Ta/) 'potatoes', and baddo:lah (from JA /bando:rah/) 'tomatoes' despite the fact they are trisyllabic. Probably, he found all of the consonants in the three words easy to pronounce and, thus, did not carry out any deletion. The occurrence, also, of the same vowel in the three syllables of the first two words may have further facilitated their pronunciation.

In the word for milk, the child first deleted the vowel from the first syllable /Ha/; then, he omitted the /l/ from the second syllable /li:b/. Afterwards, he joined what is left of the two syllables into one syllable /hi:b/.

## CONCLUSION

The analysis of some syntactic, semantic, and mainly phonetic features of the language of a Jordanian autistic child between the age of 6;9 and 7;9 years has revealed that the subject's linguistic competency and performance are still similar to those of a child aged 1;6-2;0. His word stock was limited to about 100 words, most of which were nouns along with a small number of verbs, adverbs and pronouns. On the syntactic level, he used single words to mean a whole sentence; these words were sometimes accompanied by gestures or hand/finger pointing. Rarely did he use two-word phrases or short sentences. Semantically speaking, the same word was used to mean more than one thing (sometimes up to four). For example, the word /mayy/ 'water' was used by him to mean 'bring me water to drink', 'water the plant/small tree', 'there is water on the floor', and 'my shirt/pants are wet'. Moreover, the same word was used to refer to opposite things, such

the word /ha:mi/ 'hot' which he uttered to mean 'hot/warm' or 'cold/cool'. The most noticeable features were those related to pronunciation, phonetics and phonology. He was able to correctly pronounce JA vowels but was unable to produce many consonants, especially some sibilants and emphatics, in addition to the guttural /H/. Among the phonological processes he accomplished were the following: consonant deletion, consonant substitution, assimilation resulting in gemination/duplication, and whole or partial syllable deletion resulting in disyllabic or polysyllabic words becoming monosyllabic/disyllabic ones. Such processes seem to have contributed to the child's endeavors towards ease of pronunciation and simplification, as found by other studies on ASD.

## APPENDIX

### List of Phonetic Symbols

The following phonetic symbols are used for some Arabic sounds in this study; sounds not listed have standard symbols (e.g. /b, d, t,..../)

#### Consonants

| JA Sound | Description                           | Symbol |
|----------|---------------------------------------|--------|
| Hamza أ  | Glottal stop                          | ʔ      |
| Tha: ث   | Voiceless interdental fricative       | th     |
| Ja: ج    | Voiced postalveolar affricate         | j      |
| Ha: ح    | Voiceless pharyngeal fricative        | H      |
| Xa: خ    | Voiceless velar fricative             | x      |
| Dha: ذ   | Voiced interdental fricative          | dh     |
| Shi:n ش  | Voiceless postalveolar fricative      | sh     |
| Sa:d ص   | Voiceless emphatic alveolar fricative | S      |
| Tcha: تش | Voiceless postalveolar affricate      | ch     |
| Ta: ط    | Voiceless emphatic alveolar stop      | T      |
| Dha: ظ   | Voiceless emphatic alveolar fricative | Dh     |
| ʔe:n ع   | Voiced pharyngeal fricative           | ʔ      |
| Ghe:n غ  | Voiced velar fricative                | gh     |
| Ya: ي    | Palatal glide                         | y      |

#### Vowels

##### A) Short vowels

|      |   |  |
|------|---|--|
| فتحة | a | Front, nearly half-open, low unrounded |
| ضمة  | u | Back, nearly close, high rounded       |
| كسرة | i | Front, open, high unrounded            |

##### B) Long Vowels

Long vowels are indicated as follows: /a:, u:, i:, e:, and o:/

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