A Comparative Case Study of the Morpho-Syntactic Abilities of an Arabic-Speaking Adult with Down Syndrome

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(**Received:** 07-10-2025; **Accepted**: 16-11-2025)

Abstract: This comparative case study, grounded in a developmental cognitive framework, investigates the morphosyntactic abilities of a 33-year-old Arabic-speaking adult female with Down syndrome (DS) in relation to a typically developing (TD) Arabic-speaking adult female of the same age. The primary focus is on the comprehension and production of tense and tense-related inflections—namely person, number, gender, and subject-verb agreement. Three tasks (storytelling, elicited production, and guided production) were employed to assess the use of present, past, and future tenses. The study further explores whether language delays in individuals with DS arise solely from cognitive impairments or are also shaped by phonetic, phonological, and physiological factors. Findings indicate that while the DS participant demonstrated relatively high accuracy in tense use and morphosyntactic marking, her performance contrasted with the TD participant's consistency, with task-specific difficulties suggesting that language development in DS is influenced by a combination of cognitive and non-cognitive factors.

Keywords: Keywords: Down syndrome, morpho-syntax, Arabic, tenses, inflections, comparative case study.

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دراسة مقارنة للقدرات الصرفية التركيبية لدى راشدة مصابة بمتلازمة داون

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(**تاريخ الاستلام:** 07-10-2025؛ **تاريخ القبول:** 16-11-2025)

مستخلص البحث: تتناول هذه الدراسة حالة مقارنة للقدرات الصرفية التركيبية لدى ناطقة بالعربية تبلغ من العمر 33 عامًا مصابة بمتلازمة داون، وذلك بمقارنتها بأخرى من نفس العمر تتمتع بنمو لغوي طبيعي. وتركز الدراسة على فهم واستخدام الأزمنة والعلامات الصرفية المرتبطة بها، مثل الشخص، والعدد، والجنس، واتفاق الفعل مع الفاعل. وقد استخدمت ثلاث مهام (سرد قصة، انتاج مستثار، وإنتاج موجه) لتقييم استخدام الأزمنة الثلاثة: الحاضر، الماضي، والمستقبل. كما تبحث الدراسة فيما إذا كان تأخر اللغة لدى الأفراد المصابين بمتلازمة داون يعود فقط إلى الضعف المعرفي، أم أنها تتأثر أيضًا بعوامل أخرى كالصوتيات، والفونولوجيا، والخصائص الفسيولوجية. وتشير النتائج إلى أن المشاركة المصابة بمتلازمة داون أظهرت دقة مرتفعة نسبيًا في استخدام الأزمنة والعلامات الصرفية، إلا أن أداءها تميز بصعوبات مرتبطة بطبيعة المهام مقارنة بالمشاركة الأخرى ذات النمو الطبيعي، مما يدل على أن تطور اللغة لدى الأفراد المصابين بمتلازمة داون قد يتأثر بمزيج من العوامل المعرفية وغير المعرفية.

الكلمات مفتاحية: متلازمة داون، الصرف-التركيب، اللغة العربية، الأزمنة، العلامات الصرفية، دراسة مقارنة.

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DOI: 10.12816/0062358

1. Introduction

The presence of an extra copy of chromosome 21 causes Down Syndrome, henceforth DS, a genetic condition typically associated with varying degrees of intellectual disability. This additional chromosome plays a significant role in the neurological features of the disorder (Lubec & Engidawork, 2002). Individuals with DS exhibit distinct physical traits that influence language development, including a small oral cavity, large tongue, narrow high-arched palate, variations in facial muscle structure, and irregular dentition (Martin et al., 2009). These physical characteristics, combined with challenges in hearing, short-term memory, and producing extended utterances, often result in comprehension difficulties, limited vocabulary, and shorter utterances (Miolo et al., 2005).

Individuals with DS exhibit delays in many linguistic areas, particularly syntax and morphology (Mashaqba et al., 2024). Roberts et al. (2007) identified syntax as a notable weakness in individuals with DS. This is evident in their delay in transitioning from single to two-word speech and the production of shorter utterances compared to typically developing (TD) individuals as measured by mean length of utterance (MLU) (Miolo et al., 2005). Several studies have shown that individuals with DS face significant challenges with syntax and morphology, particularly in the use of tense and word endings (O'Neill, 2024; Eadie et al., 2002).

While there is extensive research on the linguistic abilities of individuals with DS in English-speaking populations and other languages such as German and Greek, studies on Arabic-speaking individuals with DS, and more broadly, on the morphosyntactic abilities of individuals with cognitive disabilities in Arabic, remain scarce (Mashaqba et al., 2024). Little is known about how Arabic-speaking individuals with DS acquire and use tense and tense-related inflections, as well as how they handle subject-verb agreement, which is a key feature of Arabic syntax. Given the morphological richness of Arabic, examining how individuals with DS comprehend and produce these structures can provide valuable insights into language development in cognitively diverse populations. This study aims to address this gap by investigating the syntactic abilities of Arabic-speaking individuals with DS, focusing on their production and comprehension of tense and subject-verb agreement. By doing so, it contributes to a more comprehensive understanding of linguistic development in this underrepresented population.

2. Background

Numerous studies on the linguistic abilities of individuals with DS indicate significant challenges with verbal inflections and tense (Eadie et al., 2002; Mashaqba et al., 2024; O'Neill, 2024) Children with DS experience difficulties in both understanding and producing syntax, leading to delays in the acquisition of morphological and syntactic skills relative to their other language abilities (Mashaqba et al., 2024). These challenges include difficulties with function words and tense and non-tense bound morphemes, such as the past tense "-ed" and 3rd singular "-s" (Chapman et al., 1998). Miller (1996) suggested that individuals with DS have a disordered language system in which grammar is more severely impaired than vocabulary. Chapman (1997) noted that children with DS often omit many grammatical morphemes, potentially due to hearing problems. German-speaking children with DS perform lower than typically developing peers of the same age in grammatical number inflections (Penke, 2022). The deficiency in grammatical morphology may be a function of phonological forms, accounting for the frequent omission of grammatical words (Chapman, 1997). These findings suggest that factors such as phonological form and hearing problems contribute to the syntactic weaknesses observed in individuals with DS.

Previous research has explored the challenges individuals with DS face in acquiring subject-verb agreement across different languages. Penke (2018) conducted a study on subject-verb agreement in German-speaking individuals with DS, finding that children and adolescents with DS exhibited impaired use of subject-verb agreement and failed to reach the acquisition criterion with an accuracy level, usually 90%, compared to typically developed individuals. In a picture-naming production task, difficulties articulating word-final agreement markers /t/, /s/, and /n/ were observed, which were not attributable to phonological problems. Additionally, the frequent substitution of the 3rd person agreement marker /t/ was interpreted as a deviation rather than a delay (Penke, 2018). Similarly, Christodoulou and Wexler's (2016) study on subject-verb agreement in Cypriot Greek examined the production of

the phonemes /s/, /t/, and /n/, taking into account potential phonological difficulties faced by the participants. They found that the problem with /s/ was phonologically conditioned, while issues with /t/ were morphosyntactically conditioned, and problems with /n/ depended on both phonological and morphosyntactic environments. This evidence supports the idea that difficulties with subject-verb agreement in individuals with DS are not solely due to phonological limitations but also reflect underlying morphosyntactic impairments. By distinguishing between phonological and morphosyntactic sources of error, both studies highlight the complexity of grammatical acquisition in DS and suggest that certain patterns of deviation may be language-specific yet rooted in broader cognitive-linguistic deficits.

Most research on inflectional marking in individuals with DS has focused on English (Christodoulou & Grohmann, 2014). Studies on English-speaking individuals with DS indicate impairments in tense and inflection, particularly difficulties with the 3rd person -s (Laws & Bishop, 2003). Additionally, research on English past tense morphology found that individuals with DS struggle with both regular and irregular past tense forms (Laws & Bishop, 2003). In contrast, a study by Stathopoulou and Clahsen (2010) revealed that Greek-speaking adults with DS performed similarly to typically developing children in forming and comprehending the past perfective tense, suggesting that their difficulty lies not in tense knowledge but potentially in other areas of grammatical processing.

Research on grammatical development in individuals with DS has revealed both persistent challenges and emerging strengths. According to Miolo et al. (2005), individuals with DS have more difficulty producing grammatical morphemes than TD children, even though they acquire these morphemes in the same developmental order. These difficulties are not necessarily tied to general cognitive deficits but may stem from other underlying factors, such as phonological processing or speech-motor limitations. In contrast, Christodoulou and Grohmann (2014) observed that individuals with DS exhibit certain morphosyntactic abilities, particularly in their use of morphosyntactic marking, suggesting that aspects of grammatical competence may remain relatively preserved or develop unevenly. Together, these findings highlight the complexity of morphosyntactic development in DS and the importance of considering both deficits and potential areas of strength.

Although research on Arabic-speaking individuals with DS remains limited, existing studies reveal a nuanced picture of their linguistic abilities. Algaith et al. (2017) primarily focused on receptive and expressive language skills, indicating a general trend of stronger receptive than expressive abilities. Expressive language difficulties are often attributed to physical characteristics of the oral motor system, which impact articulation and syntactic production. While individuals with DS may acquire new vocabulary at a relatively typical rate, they often struggle to construct syntactically correct utterances (Elrasheed, 2019). Moreover, phonetic challenges linked to oral cavity structure further hinder their speech clarity. Interestingly, Algaith et al. (2017) found that Arabic-speaking individuals with DS tended to rely more on verbs than on nouns or adjectives, suggesting unique patterns in lexical choice that may reflect underlying grammatical strategies. Collectively, these findings underscore the interplay of anatomical, cognitive, and linguistic factors in shaping language development in this population.

Given the contradictory results from various studies, this study aims to further explore these linguistic complexities by investigating the syntactic abilities of an Arabic-speaking adult with DS. Specifically, it examines the participant's use of tense and tense-related inflections, with the goal of identifying patterns of morphosyntactic development or delay. This investigation is guided by the following research questions.

- What are the differences in tense use between an adult with Down syndrome and a typically developing adult?
- How does an adult with Down syndrome and a typically developing adult differ in their ability to produce tense-related inflections?
- To what extent do adult with Down syndrome and typically developing adult differ in their understanding of the distinctions between tense values?

3. Methodology:

This study employed a matched-pair comparative case study design to explore tense use in an Arabic-speaking adult with DS, compared to a TD adult matched for chronological age. This design is commonly used in developmental and clinical linguistics to highlight differences and similarities in language abilities between individuals with and without atypical development. Many previous studies have utilized elicitation tasks tailored to individuals with limited expressive abilities, while narrative and retelling tasks have proven effective in eliciting natural tense use (Christodoulou & Grohmann, 2018; Mashaqba, 2023; Mohamed et al., 2023). The matched-pair approach allows for the comparison of two individual cases using both descriptive and numerical data, providing a comprehensive picture of language performance across key grammatical domains. The participants were matched for age, gender, dialect, and socioeconomic background to control for extraneous variables and enhance validity. The educational difference—since the DS participant had not attended school—was acknowledged as typical of the population rather than a methodological limitation. This design thus allowed for a controlled and ecologically valid comparison of linguistic performance.

3.1 Participants:

The two participants were matched on age, gender, and language background. One was a 33-year-old Arabic-speaking female diagnosed with DS and the other a TD Arabic-speaking female. The participant with DS has a moderate intellectual disability, as indicated by medical reports, and is unable to read or write. The TD participant, a college graduate, shares the same language variety and cultural background as the participant with DS, both having been born and raised in the northern region of Saudi Arabia. These matching criteria were chosen to ensure that any observed differences in morphosyntactic abilities could be attributed to the presence of DS rather than other potential variables.

3.2 Materials and Methods

This research involved three tasks: storytelling, elicited production, and guided production, each designed to examine the use of the present, past, and future tenses, respectively. The storytelling task assessed present tense use, the elicited production task tested past tense use, and the guided production task examined future tense use. The tasks were administered in two separate sessions: the first session was conducted via Skype, with data collected and analyzed using audio recordings and score sheets, and the second session was conducted in person, with data similarly collected using audio recordings and score sheets. Three distinct tasks evaluated the use of present, past, and future tenses.

Task 1: Present Tense

Participants were asked to watch an episode of an anime show twice, first with sound and then without sound. Following this, they were asked to retell the story to assess their use of the present tense. This task was chosen specifically because the participant with DS had a strong interest in anime, particularly in shows about characters in an imaginary digital world. Using a familiar and personally engaging topic helped facilitate her participation and encouraged more natural language production. Engaging her through something she enjoyed increased her responsiveness and willingness to communicate, which is critical for eliciting a representative language sample. In this task, both participants watched three episodes from three different seasons. This selection was intentional: one episode was from an earlier season, while the other two were from more recent seasons. This allowed for a comparison of tense usage in response to both older and newer content, and provided a broader narrative context, giving the participants more opportunities to produce varied utterances.

Task 2: Past Tense

This task consisted of two parts. First, participants answered a set of structured questions about the episode they had watched, including:

1. What did the team do at the beginning?
2. Where did they go?
3. What did they talk about?
4. Where did the children go?
5. What did he say to his mother?
6. What happened when the stone fell?
7. What happened to the boys?

These questions were designed to prompt narrative recall and elicit the use of present or past tense forms in context. In the second part of

the task, participants were shown two images of the anime team—one from an older season and one from a more recent season. They were asked to compare the two. This comparison aimed to assess how the participants described past events while simultaneously viewing them in the present, thereby allowing for the researcher's observation of the ability to shift between tenses appropriately, especially the use of the past tense.

Task 3: Future Tense

Participants were asked to predict, guess, and make decisions about what might happen next in the story. The guided questions included:

1. What do you think will happen in the next episode?
2. Do you think there is going to be a season 5?
3. I think there is going to be a new team—what do you think?
4. What will happen in the next episode?
5. What will happen to everyone on the team?
6. Do you know that Salma and Hind won't be in the next season?

This guided production task was designed to elicit the use and comprehension of the future tense in spontaneous speech. To further support this goal, three specific incidents were selected from different episodes and seasons of the anime. The participants were prompted with statements such as, *"I think this is what will happen in the next episode,"* to encourage them, especially the DS participant, to make their own predictions and engage in forward-looking narration.

3.3 Data Analysis Procedures:

The data analysis involved the following steps:

1. All participants' oral productions were audio-recorded.
2. Utterances from each task were transcribed and saved in separate files.
3. Noteworthy observations during each session were documented in a designated section of the database.
4. The transcripts were analyzed using a scoring system to evaluate the accuracy of tense production:

   0 = incorrect (INC)

   1 = correct (COR)

   NA = not applicable (e.g., when the response was irrelevant to the target tense or involved a nominal sentence).

The number of targeted and produced utterances was counted to calculate the percentage of correct tense usage. Additionally, the MLU was calculated for the DS participant across all three tenses—past, present, and future—as a measure of her linguistic productivity. The same tasks and procedures were administered to both the DS and TD participants to enable a comparative analysis of their tense usage.

4. Results:

This study examined tense and tense-related inflections, including person, number, and gender. The findings from both sessions are summarized in Table 1. The analysis is organized into three sections, each focusing on one of the tenses. To ensure the reliability and accuracy of the transcriptions, all audio recordings were listened to multiple times by the researcher and carefully cross-checked by two colleagues with expertise in linguistics.

Table 1, Tense Use

	Present			**Past**			**Future**		
Session I									
	COR	INC	%	COR	INC	%	COR	INC	%
DS	73	2	97	28	1	96	22	4	84
TD	58	-	100	57	-	100	5	-	100
Total	DS		75	29			26		
	TD		58	57			5		

	Present			Past			Future		
Session II									
DS	29	-	100	19	-	100	4	2	80
TD	12	-	100	34	-	100	2	-	100
Total	DS	29		19			6		
	TD	12		34			2		
Overall total	DS	104		48			32		
	TD	70		91			7		

Table 2 presents the Mean Length of Utterance (MLU) for each session. There is a noticeable difference between the number of morphemes and the MLU across the two sessions. The second session, which took place three years after the first, showed a reduced number of morphemes and a lower MLU, primarily due to a decrease in the number of utterances. During this session, the DS participant exhibited stuttering and frequent pauses, despite the grammatical accuracy of her productions. This decline can be attributed to the participant's experience with depression and obsessive compulsive disorder (OCD) one year prior to the second session, for which she was undergoing medical treatment. These conditions affected her physically, psychologically, and cognitively, resulting in diminished memory, reduced willingness to speak, and a general lack of interest in activities.

Table 2 MLU

DS MLU	Session I
Morphemes	998
MLU	6.9
	Session II
Morphemes	454
MLU	3.21

4.1 Present tense results:

As the results indicate, the DS participant demonstrated the ability to produce and comprehend present tense-related morphemes with 97% accuracy in the first session and 100% in the second session. It is important to note that in some spoken varieties of Arabic, such as the Northern variety used by both participants, there is syncretism, whereby the plural masculine form is used to mark both dual and plural masculine and feminine in all tenses. For instance, *yaktub-un* ("they write," masculine plural) is used for both masculine and feminine plural as well as dual forms. The following are some examples from the DS participant's present tense utterances.

1. *(y)ataklam (un)* *ʕan* *aʃiaʔ*
   3.talk.masc.pl about things.pl.
   They talk about things.

2. *(y)aftaħ* *(al)nafeðah*
   3.masc.open.sg the window
   He opens the window.

3. *hað(eh)* *(t)atakalam* *ʕan* *(al)taʕam*
   fem.this.sg. *3.fem. talk.sg* *about* *the food.*
   This girl talks about food.

In (1), the participant used 3rd person, number and gender correctly when talking about a group of children. In this sentence, she used the irregular plural /aʃiaʔ/ 'things' correctly. In (2), the participant used all the inflections correctly for person, number and gender. In (3), the participant used the demonstrative / hað (eh)/ this (fem) correctly with the verb

4.2 Past tense results:

The participant showed ability to produce and comprehend past tense related morphemes with 96% accuracy in the first session and 100% in the second.

Some examples from the participant utterances:

1. *ʃaħen(ah)* *xaṭaf(at)* *(al)ʔwlad*
   a truck.sg.fem. kidnapped. past.fem.sg
   the boys.pl.masc a truck kidnapped the boys.
2. *Tarak(uh)* *(le) waħd(eh)*
   leave.past.sg. prep.alone.sg.masc.gen
   They left him alone/by himself.

In (1) the participant used the word / shaħen(ah)/ without an article in the beginning, the truck was unknown, so she did not use *the* then, she used it in the following sentences.

The word for truck in Arabic is feminine, so she inflected the verb with /t/ to agree with the subject in number and gender. In (2), the verb means *they left him*. The participant was aware that she can inflect the clitic /uh/ to the verb to form plural pronoun referring to *them* and /h/ to refer to *him*.

The use of past tense is a significant aspect of language in individuals with Down syndrome (DS). As shown in Table 1, the DS participant used the past tense in 27 utterances compared to 57 utterances by the TD participant during the first session. In the second session, the DS participant used 19 past tense utterances, while the TD participant produced 34. Notably, 17 utterances in task 2 related to past tense were marked as "NA," either because they were in the present tense or ctonsisted of one-word adjectives. This may indicate that the DS participant struggles with linking what they observe in the moment to past events. In other words, the participant has difficulty using past tense to describe old pictures, despite being given examples prior to being asked to describe the differences between old and new pictures.

Some examples of DS sentences:

1. *labes* *badlah*
   3.wear.presnt.sing.masc. a suit
   He is wearing a suit.

2. *wajh-ah* *sayir*
   face.his young, his face looks young.

3. *kabir-ah*
   old.sg.fem
   Old.

4. *al-ʃaʔar* *ɣir*
   the hiar different
   the hair looks different.

From the examples above, it appears that the DS participant uses the present tense more frequently than the past tense. As mentioned earlier, some of the utterances consist of one-word adjectives, as shown in example (3). It seems that present tense functions as the unmarked tense, as it does not require additional lexical support Morphological or phonetic content, a view supported by studies such as Benmamoun (2000) and Fassi Fehri (2012), which describe the present tense as the default or morphologically simple form in Arabic verbal morphology.

4.3 Future tense results:

The DS participant demonstrated an ability to form and comprehend the future tense. In the first session, the DS participant produced 22 future tense utterances, compared to 5 by the TD participant. In the second session, the DS participant performed 4 correct future tense utterances, while the TD participant used 2. The percentage of future tense use in the DS participant was 80–84% across both sessions, compared to 100% for the TD participant. This difference may be attributed to the flexibility of spoken Arabic varieties with future tense. For instance, to form the future tense in Arabic dialects, a prefix can be added to the verb—both *b* and *ħ* are acceptable in the participant's dialect—or a future expression can be used followed by the present tense. For example: "Tomorrow I go."

Some examples from the DS participant's utterances

1. *al- ħalqah al-ʔaxerah y-oħaqeq(un) aħlama(hom)*
   The episode.fem.sg the last. 3.achieve.PL dreams.pl their.
   In the final episode they achieve their dreams.

2. *B-(t)yser* *ʃaʕer(ah)*
   fut.3.fem.become.sg. poet.sg.fem
   She will become a poet'.

3. *B-(y)seer* *laʕeb*
   fut.3.masc.become.sg. player.sg.masc
   He will become a player'.

In example (1), the participant used a future expression, "which is in the final episode," and then continued with the present tense. In examples (2) and (3), she used *b-* to form the future tense. Additionally, she used the prefix /t-/ for subject-verb agreement with a singular feminine subject, and /y-/ for agreement with a masculine subject. The reason the DS participant achieved 80–84% accuracy in future tense use can be attributed to the observation that she often used a future expression and then continued with short sentences in the present tense. Consequently, when counting her utterances, many appeared to be in the present tense.

In the comprehension task, which was part of the elicited production, the participant demonstrated a high level of understanding. Three incidents were selected from different seasons and episodes, and the DS participant was told that these events would happen in the next episode. She correctly responded

that these incidents had occurred in seasons 1 and 2, showing she was aware that they were from past seasons. When asked about an incident from the current season in an episode she had not yet watched, she said, '*Ma sheftah, lma ashufah aqulik'* "I haven't seen it yet; I will tell you once I see it." This indicates her ability to recognize and understand different tenses.

4.4 Subject-Verb Agreement

It was observed that the DS participant was able to accurately use number, gender, person, and tense in subject-verb agreement in almost all of the utterances, as shown in Table 3.

Table 3. Agreement: number, gender, and person

	Person			Number		Gender	
Tense	1st	2nd	3rd	Singular	plural	Fem	Masc.
Present	✓	✓	✓	✓	✓	✓	✓
Past	✓	✓	✓	✓	✓	✓	✓
Future	✓	✓	✓	✓	✓	✓	✓

Some examples from the DS participant's utterances.

1. *Heya* *taqul*
   She.fem.sg 3rd.say.fem.sg
   She says.

2. *ja* *al jasos*
   past.come.sg.masc the sg.masc.spay
   The spy came.

3. *yonqðon* *alʕalam*
   3.rescue.pl the world
   They rescue the world.

In examples (1) and (2), the DS participant used number, gender, and tense correctly. In example (3), the subject is a third-person pronoun, which is a null subject, but it agrees in both number and gender because she was referring to a group of children.

4.5 Observations

This section turns to some observations made while conducting this study. One notable observation was that the DS participant used function words, articles, and a variety of content words and nouns. However, she had pronunciation difficulties, such as stuttering and altering certain sounds in some words. For example, she changed /s/ to /θ/, /m/ to /n/, and /ð/ to /d/ in certain words. It is important to note that these pronunciation difficulties are not related to tense usage, which is the main focus of this study; therefore, there is no effect of these difficulties on her use of tenses. Another observation is that the DS participant's language challenges were more related to phonetics and phonology than to syntax.

Additionally, when she spoke, she did so very quickly, attempting to say everything at once, which made her pronunciation seem unclear or even incorrect; this is a common characteristic of DS speech. Upon listening to the recordings several times, she formed tenses perfectly. She also frequently paused to take a breath before continuing, resulting in short utterances. This suggests that she can produce longer utterances but divides them due to the need for breathing, which gives the impression that her speech consists of short utterances.

5. Discussion and Conclusion

The main goal of this exploratory study is to examine whether an Arabic-speaking adult with DS may experience difficulties in the production and comprehension of past, present, and future tenses. The study primarily focuses on the participant's use of tense and tense-related morphemes and compared these patterns to those of a TD participant. As demonstrated in the results section, the DS participant was able to use tense and tense-related inflections with high accuracy across all tenses: present, past, and future. These findings suggest that the participant has a solid understanding of tense and related morphemes (person, number, and gender), thereby addressing the first two research questions. When compared to the TD participant, the DS participant showed comparable performance in both the use of tenses and the production of tense-related inflections, indicating minimal or no observable differences in this area. This finding aligns with recent work by Mashaqba et al. (2023), who showed that Arabic-speaking individuals with DS demonstrate relative strength in subject-verb

agreement morphology, a key component of tense inflection.

Regarding the third research question— the extent to which adults with DS and TD adults differ in their understanding of distinctions between tense values—this study does not offer a definitive conclusion, as its goal was to contribute to the broader understanding of this issue. However, the results suggest that the DS participant appears to comprehend and use tense accurately and efficiently, despite cognitive limitations (Lubec & Engidawork, 2002; Roberts, Price, & Malkin, 2007). The participant successfully distinguished between past, present, and future tenses in both production and comprehension tasks, consistent with findings from Miolo, Chapman, and Sindberg (2005) and Martin et al. (2009), who emphasized that language profiles in DS often include both preserved and impaired aspects of morphosyntax.

An interesting finding relates to the use of present tense in the narrative task: in the first session, the DS participant produced 73 present-tense utterances compared to 58 by the TD participant; in the second session, 29 utterances were produced by the DS participant versus 12 by the TD participant. This higher frequency may reflect a preference for, or reliance on, present-tense structures. While this could be due to the production of shorter, simpler utterances, it may also indicate a subtle deficit or reduced flexibility in tense use (Stathopoulou & Clahsen, 2010; Penke, 2018). Further research with a larger sample is needed to clarify whether this pattern reflects a processing strategy or a limitation in tense representation.

Nevertheless, an interesting area that warrants further investigation is the participant's use of the past tense, particularly as seen in tasks comparing old and new pictures. This might suggest that the DS participant experiences difficulty connecting what she observes in the present moment with past events, a challenge also reported by Chapman et al. (1998). Chapman (1997) and Eadie et al. (2002) similarly noted that DS participants sometimes display uneven performance depending on task type and context. Chapman et al. (1998) suggested that the syntax of individuals with DS seems to be influenced by the sampling context, with adolescents with DS demonstrating more advanced syntax in narratives than in conversational skills. This finding could support the observations made in this study, where the DS participant produced more utterances in the storytelling task compared to the TD participant.

Additionally, this finding may indicate that DS individuals tend to use the present tense more often than the past tense when describing an event or action they are observing in the present, even if there is temporal and spatial dislocation. This explanation is supported by the differences in the use of the present tense during the retelling task between the DS and TD participants. However, the results from the past tense tasks, as discussed in the results section, are more complex. It is not immediately clear why the participant showed lower ability in using the past tense when describing an old picture but demonstrated higher ability when answering questions about a past event. Laws and Bishop (2003) and O'Neill (2004) have emphasized that individuals with DS may struggle with grammatical morphemes and tense inflections depending on cognitive load, task design, and processing demands, which may account for this variability.

Although she understood the differences between the two pictures—one being old and the other new—she used the present tense more frequently than the past tense in this specific task. One possible explanation is that, during the elicited production task, she was answering questions about events she had seen before, whereas in the picture comparison task, she was describing an old picture while looking at it in the present moment. This reinforces the view that the present tense in Arabic represents the unmarked or default verbal form, in line with previous descriptions by Benmamoun (2000) and Fassi Fehri (2012).Of course, this explanation is not conclusive, and further research is needed in this area, using a different methodology and a larger sample of DS participants with varying levels of cognitive ability from different age groups and linguistic backgrounds (Christodoulou & Grohmann, 2014; Christodoulou & Wexler, 2016; Alghaith, Alshirawi, & Elkhamisi, 2017; Elrasheed, 2019).

Further examination of the syntactic abilities of individuals with DS is also needed to explore whether the difficulties observed in previous research are related to their general cognitive abilities or are a result of other factors, such as phonetics and phonology, physical and physiological characteristics, or psychological factors (Roberts, Price, & Malkin, 2007; Martin et al., 2009).

6. Conclusion

In summary, this study contributes to the growing body of research on the morphosyntactic abilities of individuals with DS by highlighting the strengths and subtle limitations of an Arabic-speaking adult in the domain of tense. The results demonstrate that the DS participant was largely successful in producing and comprehending tense-related morphology, showing comparable abilities to a TD control. At the same time, the observed reliance on the present tense, particularly in narrative and picture-description tasks, suggests possible areas of reduced flexibility that deserve further exploration. Ultimately, while the current findings are limited to a single case study, they point to the need for broader, cross-linguistic investigations into how DS affects tense representation and use, which may in turn inform both theoretical models of language development and practical approaches to intervention.

7. References

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