v. 34, n. 2, p. 169–197, 2026
ISSN: 2237-2083 · DOI: 10.17851/2237-2083.34.2.169–197
Submetido em: 04/11/2025 · Aprovado em: 11/06/2026

REVISTA DE ESTUDOS DA LINGUAGEM

The Categories of Tense and Aspect in the Mental Grammar of Adult Subjects With Down Syndrome

As categorias de tempo e aspecto na gramática mental de adultos com Síndrome de Down

Arabie Bezri Hermont[1]
Pontifícia Universidade Católica de Minas Gerais (PUC Minas)
Belo Horizonte | MG | BR
arabie@uol.com.br
https://orcid.org/0000-0003-2551-6145

Mariana Queiroga Gomes[2]
Pontifícia Universidade Católica de Minas Gerais (PUC Minas)
Belo Horizonte | MG | BR
marianaqueirogag@gmail.com
https://orcid.org/0000-0002-0584-5390

Abstract: The study investigates how the categories of tense and aspect are represented in the mental grammar of adults with Down syndrome (DS), in light of Generative Grammar. Recognition, comprehension, and elicitation tests were administered to six participants with DS and two control groups (one child in the language acquisition phase and six typical adults). The results indicate that subjects with DS exhibit linguistic performance similar to that of typically developing children, revealing at times the category of tense and at other times the category of of aspect. It was partially found that the lexical/semantic aspect influences the grammatical aspect. It was observed that the present tense is the default tense and that simple verb forms are more frequent than periphrastic ones. The study contributes to understanding the interface between cognition and language in people with DS and its parallels with typical acquisition.

Key words: Down Syndrome; Tense and Aspect; Mental Grammar; Generative Theory; Language Acquisition.

Resumo: O estudo investiga como as categorias de tempo e aspecto são representadas na gramática mental de adultos com Síndrome de Down (SD), à luz da Teoria Gerativa. Foram aplicados testes de reconhecimento, compreensão e eliciação a seis participantes com SD e a dois grupos-controle (uma criança em fase de aquisição da linguagem e seis adultos típicos). Os resultados indicam que os sujeitos com SD

[1] Bolsista de produtividade FAPEMIG/ CNPQ APQ – 06649-24; FAPEMIG – SHA - APQ-04533-10.

[2] Bolsista CAPES.

This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/ or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

apresentam desempenho linguístico semelhante ao de crianças em desenvolvimento típico, revelando ora a categoria de tempo, ora a de aspecto. Verificou-se em parte que o aspecto lexical/semântico influencia o aspecto gramatical. Constatou-se que o presente é o tempo padrão e que as formas verbais simples são mais frequentes que as perifrásticas. O estudo contribui para compreender a interface entre cognição e linguagem em pessoas com SD e seus paralelos com a aquisição típica.

Palavras-chave: Síndrome de Down; tempo e aspecto; gramática mental; teoria gerativa; aquisição da linguagem.

1 Introduction

Much is said about inclusion, but little has been done effectively to integrate people with various disabilities, especially intellectual disabilities, into society. In order to truly include these individuals in educational, cultural, and social environments, as well as in the job market, it is necessary to understand their cognitive and linguistic development.

It is within this context in which our research is designed, dealing more specifically with the mental representation of the categories of tense and aspect by adults with Trisomy 21, also known as Down Syndrome (hereinafter DS), who attend literacy workshops in the ALEGRIA (Aprendizagem de Leitura e Escrita Gerando Respeito, Inclusão e Autonomia) project, offered by PUC Minas. Understanding this subject is essential, especially for basic education teachers to know how to act more appropriately in their professional field, taking into account what is suggested by the parameterizing documents and supporting individuals with intellectual disabilities within the limits of their potential.

Regarding this, we established two main objectives for this work: i) to verify how the categories of Tense and Aspect are represented in the mental grammar of adults with DS, and ii) to investigate the relationship between Lexical/Semantic Aspect and Grammatical Aspect on the part of these subjects.

This work is based on Generative Theory, which assumes that all language parameters are known to native speakers from an early age, and on the assumptions of Wexler (1996, 1998), for whom children sometimes omit the functional category of tense and sometimes the category of agreement. The omission of the functional category — tense and/or aspect — would occur implicitly. Although children already have these categories in their mental grammar, their features are not always taken into account, and therefore the phonetic representation of this concept is not performed. While this author studies language development in typical subjects, Perovic (2002) and Perovic & Wexler (2019), among others, explain the grammar of subjects with DS. In this article, we will compare Wexler's framework (1996, 1998) with the results we obtained from comprehension and elicitation tests for people with DS.

One of the reasons for comparing studies on the linguistic production and comprehension of individuals with Down Syndrome to the spoken language of children is the observation of the syntactic characteristics of these two groups. Rubin (2004) notes that the speech of people with

Down Syndrome is telegraphic, meaning it lacks many articles, prepositions, auxiliary verbs, conjunctions, pronouns, and other elements. Thus, according to the author, the syntax of people with DS typically has a simpler structure. These characteristics closely resemble those found in studies investigating the language of children in the typical stage of language acquisition.

In line with Chomsky (1995), we assume that Agreement no longer has a place in the syntactic tree, and we have replaced it with the category of Aspect, which measures a temporal dimension internal to the verbal phrase.

In the literature on the acquisition of tense and aspect by children, it is commonly accepted that the aspectual category first appears in linguistic production is relation to tense. Thus, if we are associating the characteristics of language acquisition with those of adult subjects with DS, we can also establish other hypotheses:

a) The production and comprehension of adult subjects with DS have linguistic performance similar to that of children in the language acquisition phase, omitting, from their linguistic production and comprehension, sometimes the category of Tense — a deictic category that locates us in the past, present, or future — or the category Aspect — which indicates the inherent tense in the verbal phrase, whether the situation or event has finitude or not.

b) Lexical/semantic aspect influences the occurrence of grammatical aspect, i.e., verbs characterized by the [+telic] feature occur more often in the perfective verbal form, on the one hand, and verbs marked by the [-telic] feature appear more often in the imperfective verbal form, on the other hand.

c) The simple verbal form should occur more frequently than the verbal periphrases, since in the latter structure, the auxiliary verb is clearly a marker of tense, while in the simple form, the expected morphology is that of aspect, not tense. The idea is that, although adult speech contains morphemes that synthesize various categories — namely mood, tense, and aspect — in the speech of individuals with Down syndrome and typical children, only one of these categories should be present, as there is a Unique Check Constraint (in the functional categories of tense and aspect), as will be explained in more detail throughout the text.

This article is organized as follows: first, we provide a description of DS linked to the notions of Generative Theory. After that, we address the categories of Tense and Aspect. Next, we discuss the theory proposed by Wexler (1996,1998) to explain the acquisition of the notions of Tense and Agreement by children in the language acquisition phase, and we establish a relationship between this process and the production and understanding of Tense and Aspect by adult DS subjects. Next, we present the Methodology, which was based on research tests designed with animation, in addition to having their oral productions recorded and analyzed. In the following section, we present the data obtained and the analyses performed. Finally, we present our Final Considerations.

2 Down Syndrome and research in light of Generative Theory

The ICD 11 (International Classification of Diseases) launched by the WHO (World Health Organization) in 2018, and in force since 2022, defines Down Syndrome as a

> chromosomal abnormality, characterised by the presence of a third (partial or total) copy of chromosome 21, which clinical manifestations include variable intellectual deficiency, muscular hypotonia and joint laxity, often associated with

> facial dysmorphism and variable malformations (essentially heart and digestive) and a risk of complications (epilepsy, leukemia, auto-immune and endocrine pathologies, earlier aging and Alzheimer disease) (ICD-11, 2023).

Thus, Down Syndrome or Trisomy 21 is a genetic condition in which, if one germ cell has an extra chromosome (i.e., 24 chromosomes) and the other germ cell has 23 chromosomes, at the moment of conception of a new cell, this will lead to a total of 47 chromosomes. If the extra chromosome is chromosome 21, the individual will be born with DS.

As already explained, this article aims to investigate how linguistic constituents, especially syntax and studies of the categories of Tense and Aspect, are represented in the mental grammar of adult individuals with DS in light of Generative Theory. From this perspective, it is possible to point out that there are few studies that deal with language in DS using this theoretical approach, especially in the Portuguese language. We found research, for example, in the English language, in which Eadie *et al*. (2002), *apud* Arvigo (2015), conducted a comparative study between adolescents with DS and children diagnosed with SLI (Specific Language Impairment) regarding the acquisition and use of morphology, especially tense morphology. To this end, the researchers observed the spontaneous speech of 10 typically developing children, 10 adolescents with DS, and 9 children with SLI. In this study, the categories of analysis were, as pointed out by Arvigo (2015), verbal tense, as well as agreement inflection (past *-ed* and third-person singular). Regarding the data, Arvigo (2015) states that

> in general, children with SLI had the lowest scores for all grammatical items analyzed, showing greater difficulty at the syntactic level. *The difficulties of subjects with DS were restricted to morphemes linked to verbal inflection* (past tense -ed and third-person singular marker -s) (Arvigo, 2015, p. 89, emphasis added).

In this same line of research, the author also presents a study conducted with spontaneous speech from adults with DS who speak Belgian French, in which they found that most verbs were not inflected and that the most used tense was the present, even in situations that indicated the past. Hence, the importance of learning more about the category of tense in adult subjects with DS, especially in studies that consider the Portuguese language.

Perovic (2002), Perovic & Wexler (2019), Fowler, Gelman & Gleitman (1994), Miller (1988), and Chapman (1995) have developed studies to understand the language of subjects with DS. In different research projects, the authors found that the population with neuropsychological developmental delays had much lower grammatical performance than is expected for the mental age of typical people of the same age. Individuals with DS show clearly noticeable grammatical deviations in language acquisition. These texts also suggest that there is a dissociation of modules as follows: those linked to morphosyntax and phonology appear to be more delayed in individuals with DS than those linked to lexical, semantic, and pragmatic knowledge. In this article, we will not compare morphosyntactic and phonological performance neither lexical, semantic, and pragmatic knowledge. This will be left for future investigations, but it is in this context of seeking to understand the mental grammar of individuals with DS that this research fits in. When reflecting on these studies, we realize the importance of further research involving the constituent domains of language in people with DS. Thus, this article aims to present the results of a study, from the perspective of Generative Theory, conducted with adults with DS regarding the representation of Tense and Aspect, two important categories for linguistic studies which we will explain below.

3 Tense and Aspect

The categories of verbal Tense and Aspect have one similarity: they measure time. However, the first category is deictic, that is, verbal tense only exists when contrasted with three distinct moments of speech: past, present, and future. These three verbal tenses describe the previous, simultaneous, and subsequent moments (Comrie, 1985; Corôa, 2005).

In Portuguese, there are numerous works that deal with Tense. According to Travaglia (2006, p. 38), tense can be divided into three ways. Tense 1 would be the verbal category related to tense in the past, present, and future; Tense 2 would be related to temporal inflection. For example, present indicative, imperfect indicative, future present, future subjunctive, etc.; Tense 3 would be the general and abstract idea of time without consideration of its indication by the verb or any other element of the sentence. For this work, we associate ourselves with Tense 2, since we are investigating the emergence of tense morphemes that are associated with the notions of Tense and Aspect. We will address the latter category below.

According to Travaglia (2016), aspect is a category that relates to the notions of duration and the phases of a situation or event. In this context, aspect is conceptualized as a non-deictic verbal category of time, through which the duration of the situation and its phases are shown.

One of the most classic texts in the literature on this aspect is that one from Vendler (1967), who suggests four types of verbs: *states, activities, accomplishments, and achievements*. "*State* terms" would be verbs such as "to love" (*op. cit.*, p. 23), which do not involve dynamism and persist over time, therefore having an indefinite duration. Another category pointed out by the author is "*activity* terms," for example, "*run*" (*op. cit.*, p. 22). Verbs in this category have a situation that begins at a certain point in time and has no end point, thus demonstrating homogeneity, with part of the process being equal to the whole. Opposed to "*activity* terms," according to Vendler, we have "*accomplishment terms*" and "*achievement terms*." The former tend toward an end, are heterogeneous, and have a defined and unique time for the situation to occur. An example is "*running a* mile" (*op. cit. p*. 22). *Achievement* terms, such as "*reaching the top*" *or* "*losing*" (*op. cit., p*. 26), occur at a single moment, at a defined instant in time. They can be defined in time and capture the beginning or climax of the act. It can be noted that *states* and *activities* have indefinite time, which is not the case with *accomplishments* (which have a defined time) and *achievements* (which have a defined and indivisible time).

Smith (1997) draws on Vendler and defines the concept of aspect as:

> Aspect traditionally refers to grammaticized viewpoints such as the perfective and imperfective. Recently, as people have come to appreciate the relation between viewpoint and situation structure, the range of the term 'aspect' has broadened. The term now includes temporal properties of situations, or situations types. Viewpoints and situation types convey information about the temporal aspects of situation such as beginnings, end, change of state, and duration. This notion of temporality is distinct from temporal location, although related to it. Aspect is the semantic domain of the temporal structure of the situations and their presentation (Smith, 1997, p.1).

To classify the notion of Aspect, the author uses the features of dynamism, atelicity, and instantaneity, and thus the types of verbs are defined as follows: (i) *state*, which would have an indeterminate and single period, would be static and durative. For example: "*Mariana loves*

João"; (ii) *activity*, which presents a relatively homogeneous event, characterized by having a temporary stage and does not tend to an end, in which case one can use "for X hours" and not "in X hours." It is dynamic, durative, and atelic, for example: "*Maria walks in the* square"; (iii) *accomplishment*, which has heterogeneous phases that tend toward a natural end point of the action. It is characterized by being dynamic, durative, and telic and allows the use of "in." For example: "*Sandra drew the circle in five seconds*."; (iv) *achievement* is instantaneous and has a single stage. It does not accept the imperfect tense and is characterized by dynamism, telicity, and instantaneity. In most cases, they are controlled by agents and accept the adverb "deliberately"; in some cases, they also accept the adverb "accidentally." For example: "*João detonated a bomb (deliberately)*"; (v) and the fifth category she added to Vendler's category was *semelfactive*, which has no preliminary or resultative stage and often occurs in repetitive sequence rather than in a single stage. According to him, "*these are events that occur very quickly, with no outcome or result other than the occurrence of the event*" (Smith, 1997, p. 29). For example: "*João is knocking on the door*."

Smith (1997) suggests that these five categories constitute the aspectual meanings and calls these categories situation types, that is, she indirectly classifies the event or state presented in the sentence according to its temporal properties. To the situation type, Smith (1997) adds the point of view, which adds a temporal perspective to the sentence, giving a partial or total view of the situation being addressed. It can be said that the situation type is given by inherent properties of the verbal constellation, which includes the main verb, its arguments, and adjuncts. Point of view is related to the "grammatical aspect," that is, it is expressed by grammatical morphemes and auxiliary verbs.

According to the author, there are three types of point of view: (i) *perfective*, in which the focus is on the entire situation (for example, '*caminhou*': 'walked'); (ii) *imperfective*, in which the focus is on part of the situation (for example, '*caminhava*'; 'was walking'); and (iii) *neutral*, which has a flexible focus.

That said, we affirm that, in this article, we work with the concepts of (a)telic and (im)perfective features. In this research, we refer to the "lexical/semantic aspect" as present in the meaning of the verb or verbal phrase, that is, if the verb is characterized by the [telic +/- feature]. We refer to the "grammatical aspect" as that observed in verbal endings, such as the perfective and imperfective.

4 The Theory of Unique Checking Constraint in the Optional Infinitive Stage

Since the 1990s, Wexler has been demonstrating that children, in the process of language acquisition, do not always produce verbal inflections in the same way as adults. In 1996, he proposed that there is a stage called OI — Optional Infinitive — in which children in the language acquisition phase sometimes produce verbal inflections and sometimes do not. In 1998, Wexler, a proponent of the continuity hypothesis, in a dense and complex work, advanced his explanation of children's linguistic performance as they acquire language. Based on the assumptions of Universal Grammar, advocated by Generative Theory, Wexler's text puts forward a hypothesis called the Theory of **Unique Checking Constraint** in the Optional Infinitive (OI) Stage and assumes that the basic parameters of a language are already realized when the child is very young, around a year and a half old. He calls this *Very Early Parameter-Setting* (VEPS). Wexler (1998) also assumes that children aged one and a half already know the phonology and grammatical structures of their language, which the author calls *Very Early Knowledge of Inflection* (VEKI).

In this article, Wexler (1998) states that children in the language acquisition phase sometimes omit tense inflection and sometimes omit verbal agreement. At other times, they

do not omit both inflections, and in a few other cases, they omit both inflections. In this context, Wexler (1998) proposes the ATOM model (Agreement and Tense Omission Model) in Stage OI. In the author's study, the presence of the Agreement category is determined by case designation, in which the pronouns 'he' and 'she' would no longer give way to 'him' and 'her', which are very common in children's linguistic production. The presence of Tense, on the other hand, would be observed by the past tense inflection -ed. What the author found is that Agreement can be stabilized before Tense. For the researcher, tense marking would be stabilized around the age of four to six, and the omission, which would occur earlier, would be due to a pragmatic interpretation by the child, in which they would consider new information, as given/old. With adults, however, the property would be structural in nature, and there would be no **Unique Checking Constraint**.

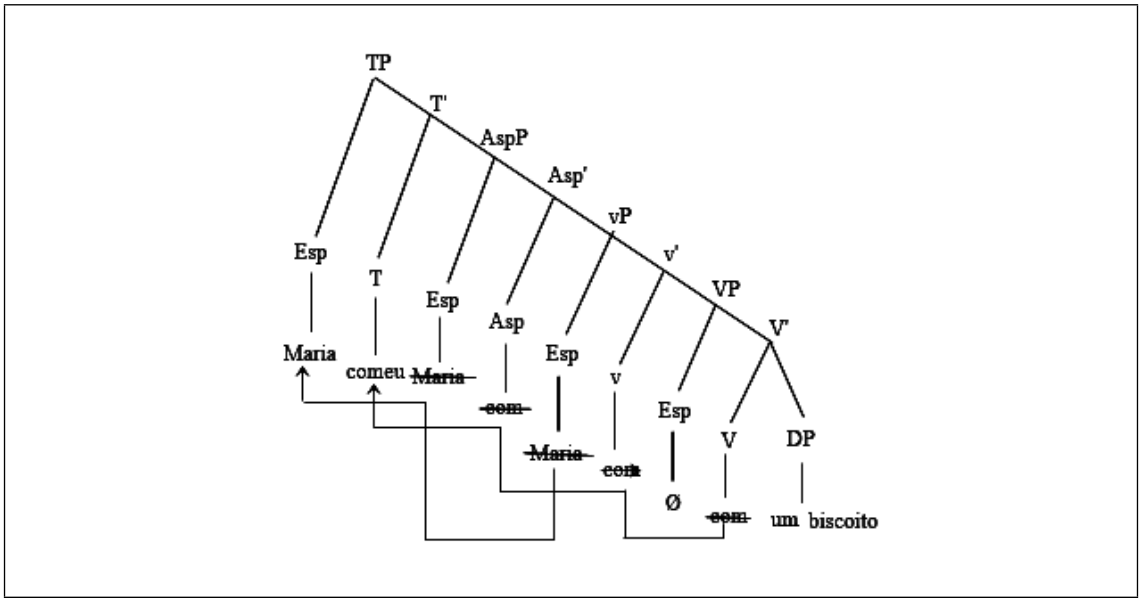
What exactly would be the pragmatic interpretation distinct from that of the adult? This interpretation would be derived from the hypothesis that, in the grammar of a child in the language acquisition phase, there is not always the D [+interpretable] feature of a subject DP, that is, sometimes it can be "seen" as [-interpretable]. This would not occur in the grammar of an adult individual, who would have both Tense and Agreement features valued. In the mental grammar of a child who is acquiring language, either agreement or tense will have the [-interpretable] features checked/valued, leading to the omission of a morpheme from one category or the other.

In this context, Wexler's adoption is inserted, which also adopts the assumptions of Distributed Morphology, which would also be known to children in the language acquisition phase. Distributed Morphology, proposed by Halle and Marantz (1993 *in* Wexler, 1998) and distinct from Lexical Morphology, proposes that the features for each set of morphemes are "in competition" in a given node. As children sometimes value the features of one category and sometimes those of another, what comes to the surface is a verb with tense inflection [+T, -Agr] or agreement inflection [-T, +Agr]. When both categories are valued, we have [+T, +Agr], and when neither is valued, the set of features is [-T, -Agr]. Regarding this, there are two crucial points to be made here: the first relates to the functional category of agreement. The second is linked to language acquisition by children.

Referring to the issue of Agreement, we concur with Chomsky (1995) that agreement is no longer assumed in the syntactic tree. This is because only interpretable features should go to the semantic interface. In this context, it is necessary to clarify the difference between interpretable and non-interpretable features. The former are important in the computation of semantic representations and should not be deleted (nor can they be) from the computational system (or syntax). Non-interpretable features, on the other hand, have no semantic interpretability (for example, semantically, there is no difference between "*nós fomos*" and "*nós foi*")[3]. The issue is purely relational, i.e., syntactic, and this relationship must be limited to the computational component. Thus, Agreement, as defined by Chomsky (1995), must be eliminated from the system in order for the structure to converge; otherwise, a *crash* will occur. From a contrary perspective, Aspect is a notion that has semantic interpretation at various levels, as we have already demonstrated. According to Hermont (2005), Hermont & Morato (2014) and Hermont, Oliveira & Brito (2022), we have assumed that Aspect is a node in the syntactic tree, below Tense. Thus, a verb would have its Aspect features (perfective or imperfective) valued and, afterwards, its Tense features would be valued (past, present, or future), as can be exemplified in the following syntax tree diagram:

[3] As English currently does not have inflections in the past tense, a possible translation is, for both cases, "we went". However, this can be found in the translation into English: we go / we goes.

Figure 1 – Tree representation



Source: Prepared by the authors based on Hermont (2005). Translation of the sentence: Maria ate a cookie.

Regarding the second point, we argue that the linguistic production of the adult subject with DS is very similar to that of a child in the language acquisition phase. According to Perovic & Wexler (2019):

> Individuals with intellectual disabilities (IDs) by definition have significant limitations in intellectual functioning (i.e. reasoning, planning, solving problems, thinking abstractly, comprehending complex ideas, learning quickly, and learning from experience) and in adaptive behavior expressed in conceptual, social, and practical skills that originate before the age of 18 (AAIDD, 2010). Limitations in language functioning are not specifically noted in this definition; however, most individuals with IDs will have some language difficulties. This may be in the domain of vocabulary, where they may not be able to comprehend abstract terminology or appropriately express their thoughts and intentions; in the domain of phonology, where they may not be able to pronounce certain consonant clusters, making their speech unintelligible to others; *in the domain of grammar, where they may not be able to rely on grammatical devices to mark the time or a duration of an event that has happened;* in the domain of pragmatics, where they may not be able to use linguistic devices to specify referents involved in an event, or in the domain of semantics, where they may not comprehend subtle ambiguities in meaning. Limited competence in any of these domains may considerably affect these people's adaptive functioning, independent of intellectual skills such as planning or reasoning (Perovic & Wexler, 2019, p. 26, emphasis added).

Thus, we suggest that the language of the subject with DS, an individual with intellectual disabilities, is similar to that of a child. In the ALEGRIA Project, we found that the linguistic productions of the researched audience do not present verb inflections such as those in adult grammar, in addition to other characteristics, such as the omission of functional category words. From this perspective, we undertook a study to verify the production and understanding of the notions of tense and aspect, as already indicated. It is important to emphasize that some research has already been conducted to understand children's grammar

using Wexler's framework (1998) but replacing a purely relational notion—Agreement—with one of semantic interpretability—Aspect. Below, we will explain these studies.

In Hermont & Morato (2014), based on the data observed, it was suggested that people in the process of language acquisition are unable to produce tense and aspect, simultaneously in the same sentence, as can be seen in the oral production of adults. In the authors' approach, this would happen due to the valuation of either aspect features or tense features. In cases of speech where there is an intention to produce a verbal periphrase (i.e., auxiliary + main verb in the gerund, for example: "I was visiting"), it is observed that children produce the gerund form more often. Therefore, in that study, it was found that, in the child's oral production, the aspectual category appears initially and repeatedly, rather than the temporal category, which would be encoded in the auxiliary. In Hermont (2005), a similar thought was made for the data obtained after testing a child with Specific Language Impairment (SLI).

The analyses carried out in Hermont (2005) and in Hermont & Morato (2014) were based on Wexler (1998). Extending this same reasoning to the production of a simple verb by children, the question arises: when children produce a verb in the past tense and perfective aspect (whose morpheme *-Ø-* encodes indicative mood, past tense, and perfective aspect) or a verb in the past tense and imperfective aspect (whose morpheme *-va-*, (1st conjugation), or *-ia-* (2nd or 3rd conjugation) encodes indicative mood, past tense, and imperfect aspect), what is being revealed (in addition to the indicative mood), tense, aspect, or both categories? This question is pertinent, since the morpheme accumulates the two notions studied, tense and aspect, in addition to mood. When we turn our attention to another category, also imperfective, known as present tense, such as "nós am-a-Ø-mos" ('we love her'), there is, in the same way, a zero morpheme of mood, present tense, and imperfective aspect accumulating these notions.

In the same perspective as Hermont e Morato (2014), Hermont, Oliveira e Brito (2022) analyzed the representation of the categories of tense and aspect in children during the language acquisition phase. The results obtained indicate that, between two and three years of age, verb forms in the present tense, on the one hand, and in the past tense with a perfective aspect, on the other hand appear more frequently in children's speech. The past tense verb form with an imperfective aspect, as well as verbal periphrasis, appear frequently around the age of four. Thus, it can be inferred that verb forms that indicate aspect appear first in children's linguistic production. Forms that explicitly indicate tense appear after the age of four, when forms with auxiliary verbs and main verbs emerge. In this sense, when producing the auxiliary with tense inflection, such as "*tô imitando*" ('I'm imitating') (Hermont, Oliveira e Brito 2022, p. 1957), and considering that simple imperfect past tense verb forms also appear at this stage, albeit not recurrently, it is possible to note that, from the age of four onwards, there is, in children's grammar, "valuation of both aspect and tense features, as occurs in the mental grammar of an adult." (Hermont, Oliveira e Brito 2022, p. 1958)[4].

Although there is little data in the literature pointing to a similarity between the linguistic production of children in the language acquisition phase and people with DS, there is a need to investigate the topic more broadly and deeply. It is from this perspective that we proposed the research presented here, which we will now address, beginning with the methodology adopted.

[4] "Valoração tanto de traços de aspecto, quanto de tempo, tal como ocorre na gramática mental de um adulto".

5 Methodology

Aiming to investigate how the categories of Tense and Aspect are represented in the mental grammar of adults with DS, in light of Generative Theory, we followed the path of quantitative and qualitative exploratory research. In this perspective, we adopted the deductive method as our working methodology, since this method is anchored in rationalism, considering that it "starts from principles recognized as true and indisputable and makes it possible to reach conclusions in a purely formal manner, that is, solely by virtue of its logic" (Gil, 2008, p. 9)[5].

We applied three types of tests to six young people and adults with DS who are served by the ALEGRIA (Aprendizagem da Leitura e Escrita Gerando Respeito, Inclusão e Autonomia) extension project, which is developed at PUC Minas, *campus* Coração Eucarístico[6]. The subjects' participation in this study consisted of taking the recognition, comprehension, and elicitation tests developed by Hermont (forthcoming) on the same day and at the same time they attend the project, with the researcher acting as a mediator.

The group of participants in this research consists of three men and three women, aged between 25 and 38, who are participating in the ALEGRIA project. The participants were designated as Participants 1, 2, 3, 4, 5, and 6. Participant 1 is male and is thirty years old. He has participated in the ALEGRIA project since its beginnig in 2016. He attended regular schools, inclusive schools, and APAE (Association of Parents and Friends of People with Intellectual Disabilities). Subject 2 is also male, 28 years old, and has also participated in the project since its first cohort. He attended only regular schools and left when he was in the 7th grade of middle school. Subject 3 is female, 31-years-old, who has also been part of the project since its inception. She attended regular schools through high school. Subject 4, female, is 25 years old and joined the ALEGRIA project in 2023. She finished high school. Subject 5 is also female and is 38 years old. She has participated in the ALEGRIA project since 2022 and attended both regular and inclusive schools. Finally, Subject 6 is male and is 26 years old. He has participated in the project since its inception and also attended both regular and inclusive schools.

The three tests (recognition, comprehension, and elicitation) were also administered to individuals who were part of the control group. The first group consisted of a typical child aged three years and six months, who was selected using the *Mean Length of Utterance-words* method. The second control group consisted of six typical adults of the same age as adult subjects with DS. We therefore considered the criterion of chronological age. They will also be referred to as subjects 1, 2, 3, 4, 5, and 6, considering, for example, the following relationship: subject 1 in the test group (DS) is the same chronological age as subject 1 in the control group (typical adults). And so on with all subjects.

Let us recall our objectives:

i) to verify how the categories of Tense and Aspect are represented in the mental grammar of adults with DS and

ii) to investigate the relationship between Lexical/Semantic Aspect and Grammatical Aspect on the part of these subjects.

---

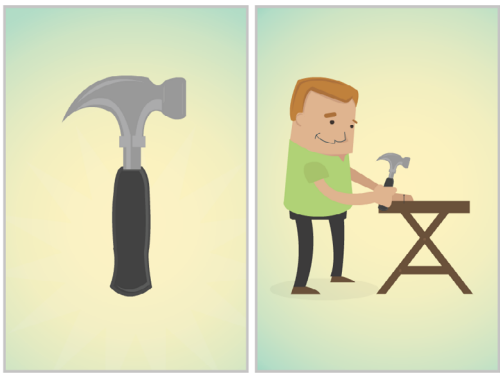
[5] "parte de princípios reconhecidos como verdadeiros e indiscutíveis e possibilita chegar a conclusões de maneira puramente formal, isto é, em virtude unicamente de sua lógica".

[6] This study was approved by the Institutional Review Board for Research Involving Human Subjects at the Pontifical Catholic University of Minas Gerais. Nº. Registro CEP: CAAE – 67935323.0.0000.5137. All participants were free to choose whether or not to take part in the study, and their parents signed an informed consent form.

To verify whether the adult subject with DS produces and understands tense and aspect, we created situations in which there are and are not situations and events. For this type of investigation, we created recognition tests and went a step further, creating tables with situations and events whose verbs describing the scenes are actual and with fictitious verbs, that is, they were invented. The objective of this first test is to verify whether the subject can present the morphemes of tense and aspect that we wish to analyze in our work. Thus, in order to observe whether participants recognize morphological clues present in words and pseudowords, we initially assessed their ability to recognize an event and differentiate it from a non-event, that is, to distinguish nouns from verbs. Thus, eight videos with actual verbs and nouns and four videos with fictitious verbs and nouns were created, for a total of 24 stimuli. Each video was made with two images. In one, to represent the noun, there is a stationary object. In the other, there is a scene developing the event represented by the object in the scene next to it. In this sense, the commands followed this structure, for example: "*Me mostre* ('show me') (noun)", for example: "*Me mostre o martelo*" ('show me the hammer'); "*Me mostre o homem* ('show me the man') (verb + -ing)", for example: "*Me mostre o homem martelando*" ('show me the man hammering'). The commands referring to fictitious nouns and verbs followed the same structure: "*Me mostre o junga*" ('Show me the junga') and "*Me mostre o homem jungando*" ('Show me the man junging'.)

Below, we present the scenes that were shown to the survey respondents in the form of animations corresponding to the commands mentioned above:

Chart 1 – Examples of name and verb recognition tests

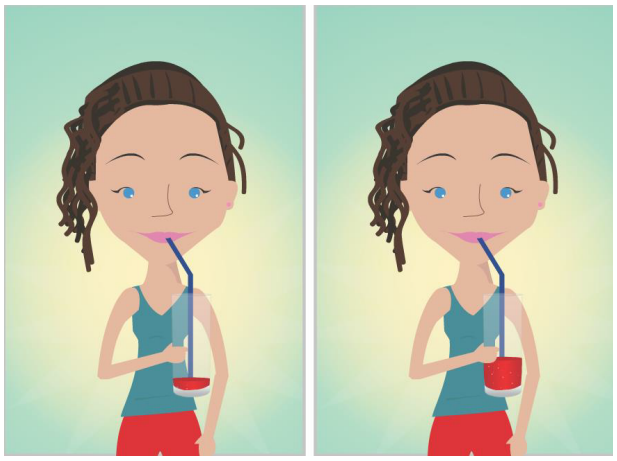
Actual verbs	Fictitious verbs
	

Source: Hermont (forthcoming).

The second test, on comprehension, aimed to verify the difference between tense and aspect. Thus, videos were created and divided into four groups, for a total of 34 stimuli: (i) verbs marked by the [+ telic] feature, or only telic, occurring in the past tense with a perfective aspect and verb forms in the present tense, (ii) verbs marked by the [+ telic] feature occurring in the past tense with a imperfective aspect and verb forms in the present tense, (iii) verbs marked by the [-telic] or atelic feature, as we will refer to it from now on in this research, appearing in the past tense with a imperfective aspect and verb forms in the present tense, and (iv) verbs marked

by the atelic feature occurring in the past tense with a perfective aspect and verb forms in the present tense. The videos were divided into two frames and presented side by side, as follows[7]:

Chart 2 – Example of a comprehension test with verbs with a telic aspectual feature in the present tense, past perfect tense, and imperfect tense



This frame, divided into two scenes, was used twice, once to check comprehension of the verb characterized by the [+telic] feature in the past tense with a perfective aspect *versus* the present tense, and once in the past tense with a imperfective aspect *versus* the present tense. Obviously, the scenes were randomized with several others from the test battery. The command for "Beber um suco" ('drink some juice') was:

In the past tense with a perfective aspect **and present tenses:**

Researcher (corresponding to **the first frame**): "*Me mostre onde Isabela* ***bebeu*** *até o final um copo de suco*" ('show me where Isabela **drank** a glass of juice until the end').

Researcher (corresponding to **the second frame**): "*Me mostre onde Isabela* ***bebe*** *o suco e a imagem é congelada*" ('show me where Isabela **drinks** the juice, and the image is frozen').

In the past tense with a **imperfect aspect and present tense:**

Researcher (corresponding to **the first frame**): "*Me mostre onde a Isabela* ***estava bebendo*** *um suco*" ('show me where Isabela **was drinking** juice').

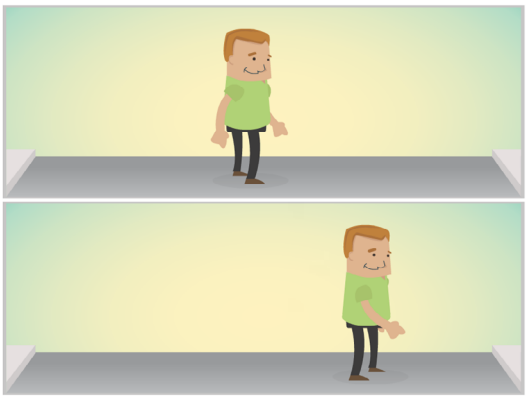
Researcher (corresponding to **the second frame**): "*Me mostre onde a Isabela* ***está bebendo*** *um suco*" ('show me where Isabela **is drinking** juice').

Source: Prepared by the authors based on Hermont (forthcoming).

In Chart 3 we find an example of scenes that aimed to verify how the research subjects understood verbs with an atelic feature in the present tense, past tense with perfective aspect, and past tense with imperfective aspect:

[7] Here we are presenting one example from each category. It is also important to note that the tests were randomized for application.

Chart 3 – Example of comprehension test with verbs with atelic aspect in the present tense, past tense with perfective aspect, and past tense with imperfective aspect



This table, divided into two scenes, was used twice, once to check comprehension of the verb characterized by the atelic aspect in the simple present tense *versus* the simple past tense (perfect tense), and once in the present tense *versus* the imperfect tense. Obviously, the scenes were randomized with several others from the test battery. The command "caminhar" ('to walk') was:

In the past tense with perfective aspect and present tenses:

First frame: The man starts walking and the image ends when he reaches the other end and stands still.

Second frame: The man is standing still and begins to walk. Halfway through, the image is frozen.

Researcher (corresponding to **the first frame**): "*Me mostre onde o Danilo* ***já caminhou***" ('show me where Danilo **already walked'**).

Researcher (corresponding to **the second frame**): "*Me mostre onde o Danilo* ***caminha***" ('show me where Danilo **walks'**).

In the past tense with imperfective aspect and present tense:

First frame: The man begins to walk, and the image ends when he reaches the other end and stands still.

Second frame: The man is standing still and begins to walk. Halfway there, the image is frozen.

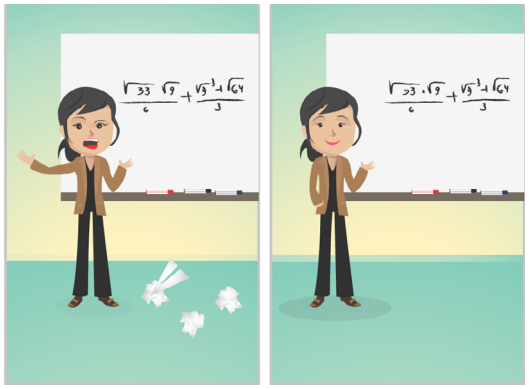
Researcher (corresponding to **the first frame**):.

Researcher (corresponding to **the second frame**): "*Me mostre onde o Danilo* ***estava caminhando***" ('show me where Danilo **was walking**'). "*Me mostre onde o Danilo* ***está caminhando***" ('show me where Danilo **is walking**')

Source: Prepared by the authors based on Hermont (forthcoming).

The last category of tests, elicitation, aimed to verify the difference between perfective and imperfective aspects. The objective was to understand whether adults with DS can perceive the difference between telicity and atelicity and their relationship between telicity/perfectivity, on one hand, and atelicity/imperfectivity, on the other. The test was conducted as follows: we presented two contiguous videos, for a total of 40 stimuli. For the group of verbs characterized by **telicity** combined with verbs in the **simple past** tense, the first video shows an action/event that is happening, and the second video shows an action that has already ended. When the researcher points to the second video, the subject under analysis must complete the sentence as follows:

Chart 4 – Example of an elicitation test with a verb with a telic aspect in the perfective



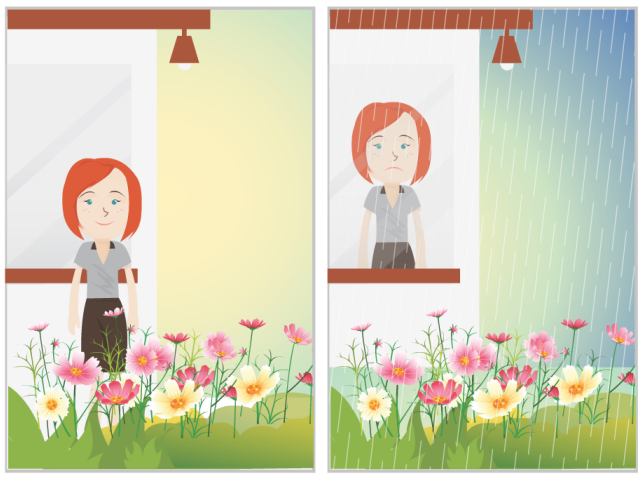
Mariana briga com os alunos sempre. Mas, na semana passada, ela _____ *(não brigou)*. (Mariana always quarrels with the students. But last week, she _____ (did not quarrel).
What is in parentheses, in this case "did not quarrel," is what the subject is expected to answer.

Source: Prepared by the authors based on Hermont (forthcoming).

In order to examine the other relationship, this time between verbs with a telic characteristic and an imperfective aspect, the same scene was shown and the following was elicited at another time: "Today Mariana does not quarrel with the students. But in the past, she _____" and the expected answer was "quarrelled." The researcher pointed to the scene that corresponded to what was desired, in this case, the first scene.

The test, which aimed to elicit verbs with an atelic aspect in the perfective tense, followed the same structure:

Chart 5 – Example of elicitation test with verbs with an atelic aspect



Clarisse caminha todos os dias no jardim. Mas, ***ontem****, choveu. Então Clarisse não* _____ (Clarisse walks in the garden every day. But it rained ***yesterday***. So Clarisse)
The expected answer was "*não caminhou*" (did not walk.)

Source: Prepared by the authors based on Hermont (forthcoming).

In order to examine the other relationship, this time between verbs with an atelic characteristic and an imperfective aspect, the same scene was shown, and the following was elicited at another time: "Clarisse takes a walk in the garden every day. But when she was little, she didn't _____. Expected answer: "*caminhava*": "walk." The researcher pointed to the scene that corresponded to what was desired.

It is important to note that we expect to identify as perfective verb forms those that occur in the past tense; and as imperfective verb forms those that occur in past tenses with imperfective aspect. Although this is to be expected, some survey participants may (and did) respond in the present tense, which was classified as an imperfective aspect, since it does not express finitude.

In the following section, we present the description and analysis of the data.

6 Description and data analysis

In this section, we present the results of the recognition, comprehension, and elicitation tests of the subjects with DS participating in the research and the control groups. Initially, we show the data from the first test we conducted: recognition. The proposal, as we already mentioned in the methodology, was to investigate whether the participants perceive the difference between nouns and verbs.

Table 1 – Results of the test of recognition of actions/events and non-actions/events by adult subjects with DS

Recognition test – general results							
SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj. 4	Subj. 5	Subj. 6	TOTAL EXPECTED
Actual verbs – expected answers	50%	56.25%	100%	100%	50%	50%	67.70%
Fictitious verbs – expected answers	50%	37.5%	75%	87.5%	50%	50%	58.33%

Source: Survey data.

The results allow us to identify that the expected responses are above 50%, that is, in general, the participants were able to differentiate between an event and a non-event. The same happened with fictitious verbs, albeit to a lesser extent. As a result, the individuals were able to participate in the tests. It is worth noting that the control group composed of children also presented more than 50% of expected responses, while the group composed of adults obtained 100% of expected responses, as we can see in Tables 2 and 3 below:

Table 2 – Responses to actual verbs (child)

Recognition test – actual verbs	
Expected responses	12 (75%)
Unexpected answers	4 (25%)

Source: Survey data.

At the time the data were collected, the child in the control group was 3 and a half old. As a result, she was unable to complete the recognition and elicitation tests with the made-up verbs. We observed that, at the time of the test, the child was unable to assign meaning to the invented nouns and verb forms. In contrast, typical adults provided 100% of the expected responses for verbs marked by perfectivity and 73.33% for verbs marked by imperfectivity. In this case, all unexpected responses involved verbs marked by perfectivity.

Table 3 – Recognition test general data (typical adults)

Recognition test – control group (typical adults)							
SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj. 4	Subj. 5	Subj. 6	TOTAL EXPECTED
Actual verbs – expected answers	100%	100%	100%	100%	100%	100%	100%
Fictitious verbs – expected answers	100%	100%	100%	100%	100%	100%	100%

Source: Research data.

From this initial result, we can see that adult subjects with DS perform very differently from typical adults, who recognized 100% of the difference between nouns and verbs. The performance of adults with DS is more similar to that obtained by three-year-old children, even though the latter performed slightly better than the subjects with DS, which is in line with one of our hypotheses, namely that the language of people with DS is very similar to that of children in the linguistic development phase.

Next, we present the results of the comprehension tests. The purpose of this test was to verify how the categories of tense and aspect are represented in the mental grammar of adults with DS and to investigate the relationship between lexical/semantic aspect and grammatical aspect in these subjects.

The data presented in the following table refer to the performance of adults with DS in comprehension tests with verbs characterized by the telic feature.

Table 4 – Comprehension of verbs marked by telicity by adult subjects with DS

DS SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj. 4	Subj. 5	Subj. 6	TOTAL EXPECTED
Telic x Present Tense (Verbal periphrases) "*Isabela* ***está bebendo*** *um suco*" "Isabela **is drinking** juice".	43%	86%	57%	100%	86%	57%	71.4%
Telic x Past Tense with Imperfective Aspect (Verbal periphrases) "*Isabela* ***estava bebendo*** *um suco*" "Isabela **was drinking** juice"	43%	14%	28.5%	28.5%	14%	14%	23.8%
Telic x Present Tense (Simple form) "*Isabela* ***bebe*** *o suco*" "Isabela **drinks the** whole juice"	60%	70%	70%	80%	60%	60%	66.6%
Telic x Past Tense with Perfective Aspect (Simple form) "*Ontem, Isabela* ***bebeu*** *até o final um copo de suco*" "Yesterday, Isabela **drank** a glass of juice until the end"	60%	70%	50%	40%	40%	40%	50%

Source: Survey data.

When analyzing the data from all subjects, we noticed that there are more expected responses when the verb is in the present tense, in the simple form, 66.6%, as well as in the verbal periphrases, 71.4%. With the periphrastic forms in the past tense with imperfective aspect and the simple form in the past tense with perfective aspect, we noticed that the percentages of corrected answers fall in relation to the verbal occurrences in the present tense, as we have 23.8% and 50%, respectively. Thus, the data, in general, also show us that sentences in the present tense are better understood, indicating that it is a *default* tense. When there is past tense, the performance of adults with DS is not good.

The difference between past tenses indicates that the verb characterized by telicity appears more often in the perfective form than in the imperfective form, as expected. This may suggest that there is a relationship between semantic aspect and grammatical aspect[8].

It is important to note that the control group composed of one child presented a different result from the group composed of adults with DS, as shown in table 5:

[8] We might also suggest that verbal periphrases may be more challenging for individuals with Down syndrome, but our main point in this article is to examine whether or not lexical/semantic aspects influence the emergence of grammatical aspects.

Table 5 – Comprehension – verbs characterized by telicity – control child

SUBJECTS CATEGORIES	TOTAL EXPECTED
Telic x Present Tense (Verbal paraphrases) *"Isabela **está bebendo** um suco"* **"Isabela is drinking juice".**	57%
Telic x Past Tense with Imperfective Aspect (Verbal periphrases) *"Isabela **estava bebendo** um suco"* **"Isabela was drinking juice"**	43%
Telic x Present Tense (Simple form) *"Isabela **bebe** o suco"* **"Isabela drinks the whole juice"**	50%
Telic x Past Tense with Perfective Aspect (Simple form) *"Ontem, Isabela **bebeu** até o final um copo de suco"* **"Yesterday, Isabela drank a glass of juice until the end"**	70%

Source: Research data.

The child showed a higher percentage of expected responses when the tense is in the past, 70%, in the simple form in the telic x past tense with perfective aspect, while in the present tense, the percentage is lower, 57% in verbal periphrases and 50% with verbs in the simple form. It can be inferred that the linguistic performance in the comprehension tasks of the three-year-old child is in line with what is predicted in Hermont, Oliveira & Brito (2022). The comprehension of verbs characterized by the telic feature and the fact that the simple form in which the past tense with perfective aspect ending is -Ø-, which synthesizes tense and grammatical aspect, suggests that only one of the categories should be valued (in this case, aspect), since when there is a verbal periphrasis in the past, performance is lowest among all categories tested. And in periphrases it is clear that there is the auxiliary coding the tense.

Among the past tenses, in the control child, there is a greater recurrence of expected responses in the past tense with perfective aspect than in the past tense with imperfective aspect. These data are similar to those found in the subjects with DS surveyed, which indicates that there is a relationship between perfective verbs and forms characterized by telicity. When analyzing and comparing the data from these two groups, we can see two situations: a) when the verbs are in the present tense, adults with DS and the control child show more expected responses when there are verbal periphrases than when the verb is in the simple form; b) there are more expected responses among the past tenses when the verb is in the past tense with perfective aspect.

The data from comprehension tests with verbs characterized by telicity by typical adults differ from the results presented by adults with DS and the control child, as shown below:

Table 6 – Comprehension of verbs characterized by telicity – control group (typical adults)

SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj. 4	Subj. 5	Subj. 6	TOTAL EXPECTED
Telic x Present Tense (Verbal paraphrases) "*Isabela* ***está bebendo*** *um suco*" "Isabela **is drinking** juice".	85.71%	100%	71.42%	100%	100%	100%	92.85%
Telic x Past Tense with Imperfective Aspect (Verbal periphrases) "*Isabela* ***estava bebendo*** *um suco*" "Isabela **was drinking** juice"	71.42%	100%	71.42%	100%	100%	100%	90.47%
Telic x Present Tense (Simple form) "*Isabela* ***bebe*** *o suco*" "Isabela **drinks** the whole juice"	70%	100%	90%	90%	80%	20%	75%
Telic x Past Tense with Perfective Aspect (Simple form) *"Ontem, Isabela* ***bebeu*** *até o final um copo de suco*" "Yesterday, Isabela **drank** a glass of juice until the end"	100%	100%	90%	100%	90%	100%	96.66%

Source: Survey data.

They present 96.66% of expected responses in the telic x past tense with perfective aspect and 90.47% in the telic x past tense with imperfective aspect, that is, the responses are very close. In the present tense, the percentage occurs more frequently in verbal periphrases than when the verb is in the simple form, 92.85% and 75%, respectively.

The following table shows the results of comprehension tests involving verbs marked by atelicity by adult subjects with DS:

Table 7 – Comprehension of verbs marked by atelicity by adult subjects with DS

DS SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj.4	Subj. 5	Subj. 6	TOTAL EXPECTED
Atelic x Present Tense (Verbal paraphrases) "*Danilo* ***está caminhando***" "Danilo **is walking**"	78%	100%	78%	100%	89%	67%	85.18%
Atelic x Past Tense with Imperfective Aspect (Verbal periphrases) "Danilo **estava caminhando**" "Danilo **was walking**".	78%	22%	55%	22%	22%	33%	38.8%
Atelic x Present Tense (Simple form) "*Danilo* ***caminha***" "Danilo **walks**"	50%	87.5%	87.5%	87.5%	87.5%	75%	79.16%
Atelic x Past Tense with Perfective Aspect (Simple form) "*Danilo* ***já caminhou***" "Danilo **already walked**"	62.5%	25%	12.5%	50%	0%	25%	29.16%

Source: Research data.

In this comprehension test with verbs characterized by atelicity, we noticed that adults with DS, as in the test with verbs characterized by telicity, give more expected answers when the verb is in the present tense. This happens both with verbal periphrases, 85.18%, and when the verb appears in its simple form, 79.16%. Again, we noticed that verbs in the present tense are better understood than verbs in the past tense, which strongly suggests that the present tense is *the default*.

When analyzing verbs in the past tense, we noticed that the subjects with DS surveyed presented more expected responses in the category of verbs characterized by atelicity *versus* imperfect aspect, that is, when there are verbal periphrases, than when the verb appears in its simple form. This fact suggests that sentences whose verbs are characterized by atelicity appear more often when the verb is in the imperfective form, which indicates a certain duration, than when the verb is in the perfective form, which presents a specific situation, thus showing that may be, in part, an influence of the semantic aspect on the emergence of endings that correspond to the grammatical aspect.

In the control group composed of children, we noticed that the results of comprehension tests involving verbs marked by atelicity are very close to what we found in adults with DS:

Table 8 – Comprehension – verbs characterized by atelicity – control child

SUBJECTS CATEGORIES	TOTAL EXPECTED
Atelic x Present Tense (Verbal paraphrases) "*Danilo* ***está caminhando***" "Danilo **is walking**"	78%
Atelic x Past Tense with Imperfective Aspect (Verbal periphrases) "*Danilo* ***estava caminhando***" **"Danilo was walking".**	33%
Atelic x Present Tense (Simple form) "*Danilo* ***caminha***" "Danilo **walks**"	62.50%
Atelic x Past Tense with Perfective Aspect (Simple form) "*Danilo* ***já caminhou***" "Danilo **already walked**"	50%

Source: Survey data.

The highest percentage of expected responses occurs when verbs are in the present tense, both when verbs occur in the simple form and in verbal periphrases, 62.50% and 78%, respectively. With verbs in the past tense, however, we see a difference. Children give more expected responses with verbs characterized by atelicity when combined with the perfective form. This suggests that, according to the theory of Wexler (1998), Hermont (2005), Hermont & Morato (2014) and Hermont, Oliveira e Brito (2022), when faced with verbal periphrases with verbs in the imperfective aspect, children are only valuing the aspect feature and not the tense feature, that is, the **Unique Checking Constraint** Theory would be in effect.

Let us now analyze the data obtained after administering comprehension tests with verbs marked by the atelic feature to typical adults:

Table 9 – Comprehension of verbs characterized by atelicity – control group (typical adults)

SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj.4	Subj. 5	Subj. 6	TOTAL EXPECTED
Atelic x Present Tense (Verbal paraphrases) "*Danilo* ***está caminhando***" "Danilo **is walking**"	100%	100%	100%	100%	89%	100%	98.16%
Atelic x Past Tense Imperfective Aspect (Verbal paraphrases) "*Danilo* ***estava caminhando***" **"Danilo was walking".**	77.77%	100%	66.66%	88.88%	66.66%	88.88%	81.47%

Atelic x Present Tense (Simple form) *"Danilo **caminha**"* **"Danilo walks"**	100%	100%	100%	100%	87.5%	87.5%	95.83%
Atelic x Past Tense with Perfective Aspect (Simple form) *"Danilo **já caminhou**"* **"Danilo already walked"**	75%	100%	87.5%	75%	87.5%	87.5%	85.41%

Source: Research data.

The control group composed of typical adults showed a higher percentage of expected responses with verbs in the present tense, but when compared to verbs in the past tense, unlike the group with DS and the control child, the difference is small, which suggests that this group perceives the difference between tense and aspect. Below, we present the results of the elicitation test.

Table 10 – Elicitation of verbs with telic and atelic features by adult subjects with DS

DS SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj. 4	Subj. 5	Subj. 6	TOTAL EXPECTED
Telic x Imperfective (Simple form)	0%	10%	30%	10%	10%	10%	11.66%
Telic x Perfective (Simple form)	10%	30%	40%	80%	60%	40%	43.33%
Atelic x Perfective (Simple form)	30%	30%	10%	60%	90%	20%	40%
Atelic x Imperfective (Simple form)	0%	10%	0%	10%	20%	20%	10%

Source: Survey data.

As pointed out in the methodology, the elicitation tests aimed to verify whether the subjects surveyed identified the difference between perfective and imperfective aspects, between telicity and atelicity. In all categories, the percentage index did not reach 50% or more, which occurred with verbs marked by telicity and atelicity, in the perfective and imperfective forms. These data allow us to indicate the following: a) perfective verb forms appear very similarly to verbs marked by telicity and atelicity, 43.33% and 40%, respectively; b) there were very low occurrences of imperfective verb forms, both with verbs marked by telicity and atelicity, with 11.66% and 10%, respectively. At least in these tests, unlike the comprehension test, the grammatical aspect does not seem to be consistently triggered by the semantic aspect.

When applying the tests, we noticed that in the categories telic x perfective, on the one hand, and atelic x imperfective, on the other, when we expected, for example, the verb "*dançou*" ('danced'), what appeared in most responses was "*dança*" ('dances'), showing that the present tense prevailed in their responses and is recurrent in their speech, reinforcing the idea that it may be a *default* form. In some productions, the gerund form appeared. We expected "*tocou*" ('played'), and the subject researched produced "*tocando*" ('playing'), without the auxiliary verb. In these cases, we noticed that the DS subjects were only valuing the aspectual feature of the verb and not the tense. On few occasions when the auxiliary appeared, as in "*está fazendo*" ('is doing'), they were valuing both tense and aspect.

When we analyzed the imperfective forms, we noticed that the results were similar for both verbs marked by atelicity and verbs marked by telicity. In the first case, when an imperfective form was expected, what appeared in the linguistic production of adults with DS was the perfective verb. If both forms were in the past tense and the elicited aspect did not occur, the suggestion is that, here, the features of tense (and not aspect) were valued in the mental grammar of the DS subjects. When we expected a perfective form, the most recurrent form was in the present tense and, in some cases, the verb in the infinitive form. Here, neither tense nor aspect would have been valued, since the elicited forms and those that appeared did not coincide.

Let us now look at the results obtained after the control child performed the elicitation tests.

Table 11 – Elicitation – control child

SUBJECT CATEGORIES	TOTAL EXPECTED
Telic x Imperfect (Simple form)	0%
Telic x Perfect (Simple form)	60%
Atelic x Perfect (Simple form)	20%
Atelic x Imperfect (Simple form)	20%

Source: Research data.

The child in the control group, like the adult subjects with DS, gives few expected responses in forms marked by imperfectivity. However, between the categories 'telic x imperfective' and 'atelic x perfective', there are more expected responses when the verb is marked by telicity than atelicity, 60% *versus* 20%, which indicates that the semantic aspect can trigger the grammatical aspect. When applying the test, we noticed that when the child gave an unexpected response, the verb was inflected in the present tense, for example, "studies", "quarrels", "cooks". Thus, we

have further evidence that the language of adults with DS is similar to that of a child in the language acquisition phase; that the present tense verb form is *the default*.

Let us now analyze the results of the elicitation test performed with the control adults.

Table 12 – Elicitation – control adults (typical adults)

SUBJECTS CATEGORIES	Subj. 1	Subj. 2	Subj. 3	Subj. 4	Subj. 5	Subj. 6	TOTAL EXPECTED
Telic x Imperfect Past (Simple form)	100%	100	100%	100%	100%	100%	100%
Telic x Perfect Past (Simple form)	90%	100	100%	100%	100%	100%	98.33%
Atelic x Perfect Past (Simple form)	100%	100%	100%	100%	100%	100%	100%
Atelic x Imperfect Past (Simple form)	100%	80%	100%	100%	80%	100%	93.33%

Source: Survey data.

The group composed of typical adults is able to distinguish between perfectivity and imperfectivity. In almost all categories, they present 100% of expected responses. Therefore, we can conclude that this group has already consolidated notions of perfectivity and imperfectivity, which we did not observe in adults with DS and the control child. In addition, these results grant legitimacy to the tests used.

7 General data analysis

For this section, let us return to the objectives and hypotheses established in this article. The objectives are: i) to verify how the categories of Tense and Aspect are represented in the mental grammar of adults with DS and ii) to investigate the relationship between Lexical/Semantic Aspect and Grammatical Aspect on the part of these subjects. The hypotheses are: i) Adults with Down syndrome exhibit language performance similar to that of children in the language acquisition phase, sometimes omitting the category of verb tense and sometimes the category of aspect in their language production and comprehension. ii) Lexical/semantic aspect influences the occurrence of grammatical aspect, i.e., verbs characterized by the [+telic] feature occur more often in the perfective verbal form, on the one hand, and verbs marked by the [-telic] feature appear more often in the imperfective verbal form, on the other hand. iii) The simple verbal form should occur more frequently than the verbal periphrasis, since in the latter structure, the auxiliary verb is clearly a marker of tense, while in the simple form, the expected morphology is that of aspect, not tense. The morpheme is cumulative, as it combines

notions of mood, tense, and aspect; therefore, it appears in the linguistic output of the study participants, with either the tense or the aspect being emphasized—which does not mean that both features were emphasized in the mental grammar of subjects with Down Syndrome and of child. Since aspect seems to emerge earlier in children's mental grammar and we are drawing parallels between studies of this population and those of individuals with Down syndrome, the idea is that here too aspect precedes the notion of tense, generally speaking.

Subjects with Down Syndrome and the control child performed at chance level (around 50%) on the tests administered, sometimes slightly above and sometimes slightly below chance level, which means that both groups exhibit linguistic similarities in both production and comprehension. Both groups (subjects with Down syndrome and the control child) sometimes reveal tense and sometimes aspect in their linguistic comprehension/production, corroborating the Unique Checking Constraint Theory, initially proposed by Wexler (1998) and reformulated in Hermont (2005), Hermont & Morato (2014), and Hermont, Oliveira, and Brito (2022).

With regard to the relationship between lexical/semantic aspect and aspectual morphologies—whether or not they are compatible with the idea of the completion of an action, event, or situation—we were able to verify this correspondence to some extent. Considering the results of the comprehension tests for the child and the control adults, we found that verbs characterized by telicity appear in the perfective form, whereas subjects with Down syndrome, in general, do not demonstrate the same performance. When verbs are characterized by atelicity, neither the subjects with Down syndrome nor the child produced the expected verbal forms in the past tense with imperfective aspect. In the elicitation tests, in proportion to the overall performance (which was low), a slight tendency toward a relationship between verbs with a telic feature and those with a perfective morpheme is observed. This relationship is more pronounced in the language production of the control child than in that of the subjects with Down syndrome. Thus, the relationship between lexical/semantic aspect and grammatical aspect was evident in some cases, but not in all.

The following tables summarize the unexpected responses of each subject with DS.

Table 13.1 – Unexpected responses I – Verbs with telic features – perfect past tense

Subjects	Unexpected responses
Subject 1	*Dormindo, pintar, viajar, colando, ajudando e dança* (sleeping, paint, travel, gluing, helping, and dance).
Subject 2	*Briga, cozinha, está fazendo, pinta, escreve, joga e viaja* (quarrel, cook, is doing, paint, write, play, and travel).
Subject 3	*Xinga, dorme, cozinha, pinta e fez* (swear, sleep, cook, paint, and did).
Subject 4	*Cozinha, fez* (cook, did).
Subject 5	*Fez* (did)
Subject 6	*Cozinha, derrete, está contando e tocando* (cook, melt, is counting, and playing).

Verbs with atelic features – perfect past tense	
Subject 1	*Nadar, chuva, canta, ajudando, violão e carro* (to swim, rain, sing, helping, guitar, and car).
Subject 2	*Nada, está chovendo, canta, dorme e dança*. (swim, is raining, sing, sleep, and dance).
Subject 3	*Natação, pega, anda, nada, canta, estuda, joga, dança e toca*. (swimming (noun), catch, walk, swim, sing, study, play, dance, and play).
Subject 4	*Está* (is)
Subject 5	*Nadava* (swam)
Subject 6	*Está contando, parada e tocando* (is counting, standing, still, and playing).

Source: Research data.

Table 14.2 – Unexpected responses II – Verbs with telic features – imperfect past tense

Subjects	Unexpected responses
Subject 1	*Brigou, brincar, dormiu, jogar e escreveu* (fought, to play, slept, to play, and wrote).
Subject 2	*Brava, come, roncou, assou, espreme, joga, pinta e escrever* (angry, eat, snored, baked, squeeze, play, paint, and write).
Subject 3	*Xinga, brinca, janta, joga e pinta* (swear, play, has dinner, play, and paint).
Subject 4	*Brigou, cozinhou, jantou, leu, fez, jogou e escreveu* (fought, cooked, had dinner, read, did, played, and wrote).
Subject 5	*Sentou, aguentou, dormiu, cortou, chutou, pintou e escreveu* (sat, endured, slept, cut, kicked, painted, and wrote).
Subject 6	*Brava, brinca, comeu, dormiu, chutando, pinta e construiu* (angry, play, ate, slept, kicking, paint, and built).
Verbs with atelic features – imperfect past tense	
Subject 1	*Nada, estudando, canta, nadar, dança e joga* (swim, studying, sing, to swim, dance, and play).
Subject 2	*Nadar, dorme, tira, pulou, pilota, canta, brinca, tocou e dançou* (to swim, sleep, take, jumped, fly, sing, play, played, and danced).
Subject 3	*Nada, estuda, dirige, canta, toca, dançou e joga* (swim, study, drive, sing, play, danced, and play).
Subject 4	*Estudou, dirige, nadou, cantou, tocou e dançou* (studied, drives, swam, sang, played, and danced)

Subject 5	*Escreveu, esperou, nadou, andou, cantou, jogou, tocou e dançou* (wrote, waited, swam, walked, sang, played, played, and danced).
Subject 6	*Nada, estudou, cantou, ficou, entrou, dirigiu, canta, entra e dançando* (swim, studied, sang, stayed, entered, drove, sing, enter, and dancing).

Source: Research data.

In these responses, we noticed that there are few instances of verbal periphrases. For the most part, the verbs are in the simple form, which may indicate that aspect is being emphasized rather than tense, as previously explained. Furthermore, the gerund constructions without the auxiliary verb that appear in most of the subjects' responses possibly indicate that only aspect is being valued.

8 Final Considerations

The objectives of this article were to verify how the categories of tense and aspect are represented in the mental grammar of adults with DS and to investigate the relationship between lexical/semantic aspect and grammatical aspect in these subjects. To this end, we applied comprehension and elicitation tests to this group and to control groups, consisting of a child in the language acquisition phase and typical adults.

In the comprehension test, we obtained more expected responses in the relationship between verbs characterized by telicity when combined with verbs in the past tense with perfective aspect than when related to the past tense with imperfective aspect. Subjects with DS also showed more expected responses in the combination of verbs characterized by atelicity when related to the past tense with imperfective aspect. These data reveal that the semantic aspect seems to trigger the grammatical aspect.

The elicitation test of adults with DS, as well as the control child, in turn, showed very few verbal productions in the past tense with imperfective aspect. When the past appears in their productions, the predominant tense is the past tense with perfective aspect, which allows us to conclude that the present is the first tense acquired, followed by the past tense with perfective aspect, and the last to be acquired is the imperfect past tense, which, from the perspective adopted in Hermont, Oliveira e Brito (2022), associates tense and aspect.

With the results presented in this article, we observe that the representation of the categories of tense and aspect in the mental grammar of adults with DS is similar to that of children in the typical language acquisition phase. This finding corroborates studies such as those by Perovic (2002) and Perovic & Wexler (2019), which show that morphosyntax and phonology are computational modules that are more delayed in subjects with DS than in typical subjects.

In a way, we have developed an exploratory study that may trigger reflections on some cognitive and linguistic dissociations. The proposal in this article, therefore, was to establish a dialogue between the results obtained here and the studies by Hermont (2005), Hermont and Morato (2014) e Hermont, Oliveira e Brito (2022). This was done, and we successfully realized that the language of subjects with DS is similar to that of children in the linguistic development phase. Thus, we believe that the research developed here contributes to guiding future investigations that explore the relationship between linguistic aspects and DS, promoting a broader understanding of the functioning of cognitive and linguistic areas.

Authorship Statement

Arabie Bezri Hermont wrote the text and conducted the research presented in this article. Mariana Queiroga Gomes wrote the text and conducted the research presented in this article.

References

ARVIGO, M. C. *A noção de definitude na Síndrome de Down*. 2015. Tese (Doutorado em Linguística) – Universidade Estadual de Campinas, Campinas, 2015.

COMRIE, B. *Tense*. Cambridge University Press, 1985.

CORÔA, M. L. M. S. *O tempo nos verbos do português*. São Paulo: Parábola, 2005.

CHAPMAN, R. Language Development in Children and Adolescents with Down Syndrome. *In*: Fletcher, P.; MacWhinney, B. (ed.), *The Handbook of Child Language*. Oxford: Blackwell, 1995.

CHOMSKY, N. *O programa minimalista*. Tradução de Eduardo Paiva Raposo. Cambridge: MIT Press. Lisboa: Editora Caminho, 1995.

FOWLER, A. E.; GELMAN, R.; GLEITMAN, L. R. The course of language learning in children with Down syndrome. *In*: TAGER-FLUSBERG, H. (ed.). *Constraints on Language Acquisition*: Studies of Atypical Children. Hillsdale: Lawrence Erlbaum Associates, 1994. p. 91-140.

GIL, A. C. *Métodos e técnicas de pesquisa social*. 6. ed. São Paulo: Atlas, 2008.

HERMONT, A. B.; MORATO, R. A. Aquisição de tempo e aspecto em condições normais e no déficit específico de linguagem. *Revista LinguíStica*, Rio de Janeiro, v. 10, p. 213-233, 2014. DOI: https://doi.org/10.31513/linguistica.2014.v10n1a4588.

HERMONT, A. B. *Aquisição de tempo e aspecto no déficit especificamente linguístico*. 2005. Tese (Doutorado em Linguística) – Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2005.

HERMONT, A. B.; OLIVEIRA, K. C.; BRITO, L. S. A aquisição de tempo e aspecto: uma investigação sobre a emergência de estruturas verbais e a influência do aspecto semântico sobre o aspecto gramatical no processo de aquisição da linguagem. *Revista de Estudos da Linguagem*, v. 30, n. 4, p. 1937-1963, 2022.

HERMONT, Arabie Bezri. *Técnicas de compreensão e eliciação*: metodologias para pesquisa em aquisição e perda da linguagem.(a sair)

MILLER, J. The Developmental Asynchrony of Language Development in Children with Down Syndrome. *In*: NADEL, L. (ed.) *The Psychobiology of Down Syndrome*. Cambridge: MIT Press, 1988.

ORGANIZAÇÃO MUNDIAL DA SAÚDE. ICD-11. *International Classification of Diseases*. The global standard for diagnostic health information, 11. ed. [2023?]. Disponível em: https://icd.who.int/browse11/lm/en#/http://id.who.int/icd/entity/1624623908. Acesso em: 22 fev. 2023.

PEROVIC, Alexandra. Language in Down Syndrome: Delay of Principle A Effect? *Durham Working Papers in Linguistics*, Durham, v. 8, p. 97-110, 2002.

PEROVIC, A.; WEXLER, K. The Effect of Age on Language in Adults with Intellectual Disabilities: A Comparison of Passives in Down Syndrome and Williams Syndrome. *In*: Erdeljac, V.; Sekulić, M. S.

Interdisciplinary Linguistic and Psychiatric Research on Language Disorders. Zagreb: University Psychiatric Hospital Vrapče: FF Press 2019.

RUBIN, M. C. B. P. *A passiva na Síndrome de Down*. 2004. Tese (Doutorado em Letras) – Universidade Federal do Paraná, Curitiba, 2004.

SMITH, C. S. *The Parameter of Aspect*. 2. ed. Dordrecht: Springer Science+Business, v. 43, 1997.

WEXLER, K. The Development of Inflexion in a Biologically Based theory of Language Acquisition. *In*: RICE, M. L. *Toward a genetics of language*. Mahwah, NJ: Lawrence: Erlbaum Assoc., 1996.

WEXLER, K. Very early parameter setting and the unique checking constraint: a new explanation of the optional infinitive stage. *Lingua*, p. 23-79, 1998.

TRAVAGLIA, L. C. *O aspecto verbal no português*: a categoria e sua expressão. 5. ed. Uberlândia: Universidade Federal de Uberlândia, 2016.

VENDLER, Z. Verbs and Times. *In*: VENDLER, Z. *Linguistics in Philosophy*. Ithaca: Cornell University Press, 1967.