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Factors reflecting children's use of temporal terms as a function of social group

Celia Renata Rosemberg, Florencia Alam and Alejandra Stein
CONICET, Buenos Aires, Ciudad Autónoma de Buenos Aires, Argentina

The study analyzes the relationship between the temporal terms used by four-year-old children from different socio-economic backgrounds — marginalized urban neighborhoods and middle-income families — and the use of these terms in the spontaneous situations in which they participate in family and community contexts. The analysis assumes that the child develops knowledge about temporal expressions as they are used by others and as the child uses them herself (Nelson 2007; Tomasello 2003). Findings show that children from marginalized urban neighborhoods use fewer temporal terms than children from middle-income backgrounds. These differences correlate with differences in the input of both groups. The analysis shows differences in the interactional and discursive patterns of use of the terms in the homes of both groups of children.

Keywords: temporal vocabulary, lexical input, socio-cultural differences, acquisition, interaction

1. Introduction

This study explores the relationship between the temporal terms used by four-year-old children from different socio-economic backgrounds and the use of these terms in the spontaneous situations in which they participate in family and community contexts.

Temporality has been defined as the expression of the location of events on the timeline, temporal relations between events and temporal constituency of events (Berman & Slobin 1994: 19). Time understood in terms of duration, boundedness, sequence, frequency, and localization is not directly observable. On the contrary, the child must abstract temporal concepts from events. She must also coordinate her own comprehension of time with the socio-cultural and linguistic systems through which time is ordered and measured. As Nelson argues (1989,

1996, 2007), language allows the child to conceptualize the most abstract aspects of temporality, which are inaccessible to experience.

Spanish (Berman & Slobin 1994; Cortés & Vila 1991; Eisenberg 1985; Uccelli 2009), like other languages (Bronckart & Sinclair 1973; Hickmann 2002), makes use of diverse devices for expressing temporality: grammatical devices such as verbal particles and morphology (Bedore & Leonard 2001, 2005; Gathercole, Sebastián & Soto 1999; Gutiérrez-Clellen, Restrepo, Bedore, Peña & Anderson 2000); lexical devices like temporal and aspectual adverbs, connectors, noun and adverbial phrases that indicate temporality (Hernández Pina 1984; Lubbers-Quesada 2006), verb semantics (Gathercole 1977; Jackson-Maldonado & Maldonado 2001; Sanz-Torrent 2002); and discourse devices, for example clause order. Diverse studies undertaken with children speaking different native languages, such as Spanish and English, have demonstrated that the acquisition of temporal vocabulary begins as soon as the basic grammatical forms of time and aspect have begun to develop within the system of verbal inflection (Berman & Slobin 1994; Nelson 1989; Uccelli 2009).

Tomasello (2003, 2009) claims that children experience words in the ongoing flow of discourse and interaction, in which their interlocutors produce many different types of words in varied types of utterances. The comprehension of a word entails determining its functional role in the utterance and involves different cognitive and social-cognitive processes. Among these, the prerequisite processes allow the segmentation of speech and the conceptualization of references. The social-cognitive processes enable joint attention. Within this context of joint attention the child can interpret the specific intentions of her interlocutor when using a particular word so as to isolate both its form and its functional role. The linguistic context of the sentence and the discourse, together with lexical contrast, provide additional information that aids children with the inferential process through which they interpret which object or action the interlocutor is referring to. To learn a word, children have to extract it from the utterance in which it was used and connect it with the appropriate aspect of the context of joint attention they share with their interlocutor. The meaning of a word included in an utterance can be identified more readily and emerges as an independent unit when the phonological form appears, over time, in different utterances with a degree of functional consistency between them. Relevant factors in this process include the number of times the term appears in the input to which the child is exposed, the semantic context of the discourse, and aspects of the situational context that may contribute to the child's interpretation.

Children's first uses of certain words are closely tied to the communicative context in which they were used by their interlocutors. This is the case for temporal terms (Levy & Nelson 1994). In her analysis of a child's monologues at bedtime, Nelson (1989) identified the early use, at 24 months, of adverbial terms,

connectors, and other temporal expressions such as *later*, *then*, *when*, *yesterday*, *today*, *after*, *one day*, and *another day*. These early uses reiterated pragmatic and discursive conversational patterns that the child had previously experienced with her parents and other caretakers. Interactional situations offer the child opportunities to adjust the meaning and use of these terms (Nelson 1996).

Sebastián and Slobin (1994) and Slobin and Bocaz (1988) analyzed the production of stories based on a picture book, *Frog, where are you?* (Mayer 1969), by native Spanish-speaking children from Spain, Chile, and Argentina. The authors found that three-year-old children used temporal and aspectual lexical markers that signal results and reoccurrence such as *ya* ('already'), *otra vez* ('again'), and the connector *cuando* ('when') in order to mark that one action occurred immediately before another, or to express simultaneity. At four years, while narrating the picture sequence, the children employed the deictic marker *acá* ('here'), accompanied by markers of sequence such as *luego* ('later'), *entonces* ('then'), and *después* ('after'). This suggests that children were anchoring their stories in the deixis of localization while they tried to use these sequential markers.

Other studies have focused on young children's use of temporal terms when narrating stories about frequent events, recalling past experiences, or anticipating future events, either by the children individually or in collaboration with their mother or other caretaker. As Sachs (1983) has argued, the need to decontextualize the immediate situation of the here and now required by these narratives causes the child to make greater use of the linguistic resources that allow the narrative to be constructed. Among these, temporal terms are particularly relevant because temporality constitutes a crucial dimension of the narrative (Labov 1972, 1997).

By the end of their second year or during their third year, children can verbalize a sequence of regular events and can, in this scripted context, make use of temporal terms (French & Nelson 1985; Levy & Nelson 1994). When parents help their children remember a past situation or narrate activities that they plan to perform in the future, children familiarize themselves with temporal vocabulary (Hudson 2002, 2006; Nelson 1989, 1996, 2007). In her analysis of the narratives of past personal experiences from two Spanish-speaking children between two and three years of age, Uccelli (2009) observed a marked increase in temporal forms when the children were close to their third birthday, at which point they also integrated different linguistic forms to mark temporality within a narrative.

Children's use of temporal terms when producing accounts about foreseen events has been less studied than their use of these terms in accounts about past events (Hudson 2006). In her studies of dyadic conversations between children (2;6 and 4 year-olds) and their mothers, Hudson (2002, 2006) identified the temporal terms used by both participants and observed that at four years of age the quantity of temporal terms used by the children correlated positively with the

quantity used by their mothers. She also observed that in the conversations about future events, the mothers employed a greater quantity of conventional temporal terms than in the conversations about the past. This is probably due to the fact that the participants in the conversations about foreseen events do not share a representation of the event being talked about, so that temporal terms are more important in the linguistic construction of future events. This points to the importance of these types of conversational accounts as context for the study of the use of temporal terms.

A growing body of research has suggested that many features of children's language development are linked to their linguistic experience (Bloom, Paradis, Sorenson & Duncan 2012; Fernald, Marchman & Weisleder 2013; Hart & Risley 1995; Hoff 2006; Hurtado, Marchman & Fernald 2008; Kern & Dos Santos 2011; Küntay & Slobin 2002; Lieven 2010; Tomasello 2003; Veneziano & Parisse 2010; Weisleder & Fernald 2011; Weizman & Snow 2001). In particular, some of these studies have demonstrated the importance of certain qualitative and quantitative input characteristics to children's lexical development, based on natural patterns of discourse and interaction. Tomasello (2003) points out that the learning process is structured by the pragmatics of the situation in which a child encounters a word. Various studies in collaboration with other authors (Carpenter, Nagell & Tomasello 1998; Tomasello, Mannle & Kruger 1986; Tomasello & Todd 1983), note a correlation between the amount of time children spend in joint engagement with their mothers and the size of their vocabulary. Hudson's (2002, 2006) results on the use of temporal terms in collaboratively produced accounts about future and past events also provide evidence of the impact of child-directed speech. However, as Hudson analyzed induced situations of conversation, her studies do not characterize the relationship between the children's use of temporal terms and linguistic input. Nor do they analyze the relationship between the temporal terms used by children and the interactional and discourse patterns in which these terms are used in everyday interactions.

Furthermore, research by Nelson (1996), Uccelli (2009) and Hudson (2002, 2006) has focused exclusively on children from middle-income families, and therefore does not consider the eventual linguistic differences among children from different socio-cultural and economic groups with regards to the quantity, diversity, and patterns of use of temporal terms in everyday interactional discourse. Nor do they consider the possible impact of these differences on the terms children use. The importance of analyzing these aspects is evident when one takes into account the results of other research demonstrating that although linguistic experiences differ between families from a similar social background, the differences from one socio-economic group to another are far more marked (Hart & Risley 1995; Hoff-Ginsberg 1998; Huttenlocher, Haight, Bryk, Seltzer & Lyons 1991).

In the context of these studies, this article focuses on temporal terms with the aim of analyzing: a. the frequency of the types and tokens of temporal terms used by children from different socio-economic groups, children from middle-income families whose parents have a university education and children from marginalized urban populations whose parents have spent less than seven years in formal education, in the production of spontaneous accounts about foreseen events; b. the differences in the frequencies of the types and tokens of these temporal terms in the home input of both groups of children; c. the correlation between the temporal terms that children employ in these accounts and those that are part of the input that children from both groups receive at home; and d. the differences in the interactional and discursive patterns in which these terms are employed in the spontaneous situations in which children from both groups take part within their homes. We predict that children from middle-income families will make greater use of temporal terms than those from marginal urban populations, and that there will be a correlation between children's use of temporal terms and their home input. We also expect differences in the interactional and discursive patterns in which temporal terms are used in the spontaneous situations in which children of each group participate in their homes.

2. Method

2.1 Participants

Thirty-seven Argentinean four-year-olds (age 4;5) from two different socio-economic groups participated in this study: 1) 18 children from middle-income families whose parents have a university education; 2) 19 children who live with their families in extremely poor, marginalized urban populations (*villas de emergencia*).¹ Members of these communities are mostly migrants from the North of Argentina or from neighbouring countries (Bolivia, Peru, and Paraguay). The adults have low literacy levels (they have completed seven years of formal education or less). All the children were monolingual Spanish speakers.

We put out a call for participants in the study, reaching families from middle-income sectors through our own social and professional networks, and families

1. These "*villas de emergencia*" are urban slums that are characterized by precarious housing, which was mostly built from wood and salvaged materials, and insufficient or nonexistent infrastructure and services. Although most of these neighborhoods are connected to the municipal network for drinking water, they all lack sewers and natural gas connections. In many cases they are illegally connected to the power grid, as the inhabitants do not have the resources to pay for the service. Such neighborhoods are accessed by narrow dirt- or cement-floored corridors.

from marginalized urban populations through community centers and community kitchens where members of our research team are involved in linguistic and cognitive infant development initiatives.

2.2 Procedure

2.2.1 Data collection

Each child was observed interacting with his/her family members, friends, and neighbours at home for 12 hours over the course of three or four days. Some situations in which the children interacted with these people in another place not far from their home were also recorded. An observer took context notes and made audio recordings of the entire interaction. The observer did not promote conversation or specific activities, but responded to the participants' comments and questions in order to avoid a tense atmosphere that would disturb the natural setting.

The interactions recorded in these spontaneous situations were transcribed according to the CHAT format (*Code for the Human Analysis of Transcripts*) and using the standards stipulated by the CHILDES system (*Child Language Data Exchange System*) (MacWhinney 2000). Transcription was carried out by one of the co-authors and subsequently checked by the other two for accuracy.

The analyzed data consist of:

- a. 228 hours of spontaneous situations (including play, hygiene, and mealtime situations) recorded in the homes of the 19 children from marginalized urban populations, and 216 hours of spontaneous situations (also including play, hygiene, and mealtimes) recorded in the homes of the 18 children from middle-income populations.
- b. 250 episodes of children talking about foreseen events. These accounts refer to events they were planning to carry out, or more generally to events they were anticipating. We chose this type of account as a unit of analysis because, as was indicated in the introduction, Hudson (2002, 2006) showed that subjects tend to use a greater number of temporal terms in these accounts than in those referring to the past. In the corpus of spontaneous situations described in (a), we identified all interactions in which accounts were developed that included a child's contribution of at least two utterances referring to a plan or to an anticipated event: 104 accounts were produced by the marginalized urban group and 146 by the middle-income group. The boundaries of the account were established in relation to the topic.

Example of an account referring to an anticipated event:

- (1) Niña: *¿Sabés que el lunes empiezo las clases?*
 Tía: *¿Y te tenés que despertar muy temprano?*
 Niña: *Sí. Yo voy a dormir así no me quiero levantar.*
 Madre: *Sí, pero después te gusta levantarte, ¿no tenés ganas de ir?*
 Niña: *Pero me voy a despertar 5 minutos, tomo la leche y me vuelvo a dormir.*
 Madre: *Eso era lo que me hacías el año pasado, ¿este año me vas a hacer lo mismo?*
 Niña: *Sí.*

(‘Child: Do you know that I start school on Monday?

Aunt: Are you going to have to be up very early?

Child: Yes. I’m going to sleep so I won’t want to get up.

Mother: Yes, but then you like getting up. Don’t you want to go?

Child: I’m going to wake up for 5 minutes, have my breakfast and go back to sleep.

Mother: That’s what you did to me last year. Are you going to do the same this year?

Child: Yes.’)

2.2.2 Data analysis

In the corpus of children’s accounts (b) the lexical devices used during the production of the narratives were identified. Specifically, different types of words or expressions were taken into consideration: temporal adverbs, e.g. *siempre* (‘always’), *después* (‘then’, ‘later’), temporal adverbial phrases, e.g. *a la mañana* (‘in the morning’), *a veces* (‘sometimes’), noun phrases, e.g. *un día* (‘one day’), *un minuto* (‘one minute’), and nouns that denote time, e.g. *hora* (‘hour’), *semana* (‘week’). Given that previous research (Berman & Slobin 1994; Uccelli 2009) has shown that the first temporal terms used by children are sequential adverbs, for the purpose of this analysis we considered all sequential terms separately from the remaining temporal terms. In line with Hudson (2002), we define sequential terms as those that make “reference to time in terms of a sequence of actions within or between events” (p. 57) such as *después* (‘after’), *antes* (‘before’), *luego* (‘next’), *entonces* (‘then’, ‘so’). Within “temporal terms” we include adverbs, adverbial phrases, noun phrases, and nouns that refer to conventional units of time, *día* (‘day’), *semana* (‘week’), *mes* (‘month’); episode markers, *en la Navidad* (‘at Christmas’) and indeterminate intervals of time, *un rato* (‘a while’).

Two of the authors independently coded 25% of the temporal terms identified in the children’s narratives as being either temporal or sequential terms. They agreed on 94.12% of the cases. According to Cohen’s Kappa coefficient, the agreement obtained in a single round between the two researchers was robust, $K = 0.742$, $p < .01$. Following discussion and agreement on the criteria to be used

for categorizing borderline cases, the remaining transcripts were coded by the second or the third author.

In each set of children's accounts about foreseen events (corpus b) we counted the different types and the total amount (tokens) of temporal and sequential terms, using Computerized Language Analysis (MacWhinney 2000). For each social group, we calculated indexes that analyze the quantity and diversity of temporal and sequential terms spoken by the children in each group in relation to the quantity of accounts produced. We analyzed the significance of the differences between the two groups of children according to the index of quantity and diversity of temporal and sequential terms using a one-way ANOVA test (factor: social group).

From the input that each of the children in the two groups was exposed to (corpus a), we identified and then counted the types of temporal and sequential terms and the total frequency of these (tokens), using Computerized Language Analysis (MacWhinney 2000).

For each social group we analyzed the significance of the differences between the input for the two groups of children in terms of the quantity and diversity of temporal and sequential terms using a one-way ANOVA test (factor: social group).

To explore the relationship between the temporal and sequential terms used by the children in their accounts about foreseen events and the temporal and sequential terms that they heard in their input at home, a correlation (Pearsons R) between the quantity of temporal and sequential terms in the accounts and the quantity of these in the input was determined for each group of children.

We identified the temporal and sequential terms that appeared in the input of both social groups but were only used by children from middle-income homes. Of this set, we selected the four terms most used: 'a while/a little while' (*un rato/un ratito*), 'a minute/a few minutes' (*un minuto/minutos*), 'day/daytime' (*el día*), 'always' (*siempre*). An analysis was carried out with the aim of identifying input factors (beyond the usage frequency of the term) that could account for the differences between the two groups of children regarding their use of these terms when producing their accounts of anticipated events (corpus b). We identified the sequences of the exchanges in which these terms were used in the spontaneous situations (corpus a), considering the six previous and six subsequent turns. An analysis was performed in order to characterize the sequences according to the following aspects:

1. Discursive context: if the term was used in:
 - a. Narrative: a sequence of two or more temporally linked clauses.
- (2) *Hermano: Porque estaba ahí agarrándose, caminando y ahí cuando se ahogó, se levantó.*

Niño: No podía subir.

Hermano: Arriba, ¿no?

Niño: No podía subir arriba.

Hermano: No. Fuiste hasta abajo de ahí y no podías. Fuiste un minuto y ahí te levantaste, ¿no?

Niño: Papá, papá, a papá y después...

Hermano: Mi papá hacía de muchas formas porque él sabe nadar, él me enseñó a nadar.

(‘Brother: Because there he was, holding on, walking, and then when he went under, he stood up.

Child: I couldn’t go up.

Brother: Up there, right?

Child: I couldn’t go up there.

Brother: No. You sank down and you couldn’t go up. You went under for a minute and then you got up, didn’t you?

Child: Dad, dad, dad and then...

Brother: My dad did everything he could because he knows how to swim, he taught me to swim.’)

- b. Argument: an interactive sequence in which there are two different points of view, and strategies are deployed to persuade the interlocutor to accept this point of view or to carry out a certain course of action.

- (3) *Agustina [Niña] quiere ver televisión. Su mamá le dice que si ve televisión en ese momento después no puede ver más.*

Niña: Quiero ver los dibujitos.

Madre: Pero después no hay más televisión.

Niña: ¿Mañana?

Madre: Hasta mañana.

Niña: Bueno.

Madre: ¿No te conviene verla dentro de un rato? Va a ser largo el día.

Niña: No, ahora.

Madre: Como quieras, pero después no hay más televisión.

(‘Agustina [child] wants to watch television. Her mom tells her that if she watches television now she won’t be able to watch more later.

Child: I want to watch some cartoons.

Mom: OK but no more TV later on.

Child: Tomorrow?

Mom: Until tomorrow.

Child: OK.

Mom: Wouldn’t you rather watch TV later? It’s going to be a long day.

Child: No, now.

Mom: Up to you, but there won't be any more TV later.')

- c. Explanation: a sequence of interactions that are focused on specifying causes, motivations, paraphrases of lexical meaning, definitions of objects and indications of functions.

- (4) *Niño: ¿Las personas siempre nacen el día de su cumpleaños?*

Padre: Claro.

Niño: ¿Joaquín nació el 23 de enero cuando era su cumple?

Padre: En realidad es al revés. Uno pone el día del cumpleaños según el día que nació.

('Child: Are people always born on their birthdays?

Father: Of course.

Child: Was Joaquin born on January 23 when it was his birthday?

Father: Actually it's the other way around. Your birthday is your birthday because it's the day you were born.')

- d. Description: a discursive sequence that focuses on mentioning the functional and perceptive features of an object, person, situation, or action.

- (5) *Niño: Esa es de mi mamá. Santi, dame.*

Amigo: Me lo llevo a mi casa. (Los niños comienzan a pelear)

Hermana: Así se pelean siempre.

('Child: That's my mom's. Santi, give it back.

Friend: I'm taking it home with me. (The children start fighting)

Sister: They always get into fights like that.')

- e. Instructions: sequences of exchanges in which the mental processes of the recipient are structured and regulated by means of clear systematic orders.

- (6) *Agustín [niño] se manchó el pantalón y su madre le dice que se ponga unos pantalones limpios.*

Madre: ¿Qué pasó?

Niño: Tengo algo en mis pantalones.

Madre: Vení acá, poné estos pantalones en el canasto de la ropa sucia y sentate un ratito acá.

('Agustín [child] has spilled something on his pants, and his mom tells him to put some clean ones on.

Mom: What's the matter?

Child: I got something on my pants.

Mom: Come here, put the pants in the laundry basket and you sit here for a while.')

In line with Cortés and Vila (1991), Lubbers-Quesada (2006), and Hudson (2002, 2006), we distinguish the temporality of the event being referred to in the conversation from the grammatical tense expressed in the main clause of the utterance that included the temporal term being analyzed.

2. The temporality of the event referred to in the sequence:

We took into account the time of the actual event being referred to, regardless of the tense of the verb in the utterance containing the temporal or sequential term being analyzed. In this sense, we considered whether the event being referred to was present, past, or future.

The following example refers to a future event:

- (7) *Canela [niña] está jugando en su cuarto, su mamá entra, le pregunta qué está haciendo y le propone otras actividades para más tarde.*

Madre: ¿Qué estás haciendo?

Niña: Jugando.

Madre: Bueno, te dejo un ratito sola jugando, y yo más tarde vengo y preparamos las cosas, primero vamos a armar la mochila.

(‘Canela [child] is playing in her room, her mom comes in, asks her what she’s doing, and suggests other activities for later on.

Mom: What are you doing?

Child: Playing.

Mom: Well, I leave you playing here for a little while by yourself, and then I’ll come back and get things ready, we’ll do your backpack first.’)

3. The temporality of the utterance in which the term was used:

In this case we considered the grammatical tense of the main clause of the utterance containing the temporal term being analyzed.

a. Present: if the verb of the main clause of the utterance was in the present tense.

- (8) *Madre: Aparte ella [la niña] siempre tiene lugar para (comer) alguna otra cosita.*

(‘Mother: Anyway she [the girl] always has room to (eat) something else.’)

b. Past: when the verb of the main clause of the utterance was in the past tense.

- (9) *Hermana: No me dejás invitar amigos.*

Madre: El día de tu cumpleaños invitaste a los que quisiste.

Niña: En el cumpleaños de ella solamente invitó a su papá para que venga.

(‘Sister: You don’t let me have my friends over.

Mother: The day of your birthday you invited whomever you wanted.

Child: On her birthday she only invited her dad to come.')

- c. Future: cases in which the verb in the main clause of the utterance was in the future tense.

- (10) *Madre: Mientras vos jugás, yo voy a ordenar un ratito para ver la ropa que te vas a llevar.*

('Mom: While you play, I'm going to tidy up for a little while and see what clothes you're going to take with you.')

4. The child's involvement in the interactive situation:

- a. Interlocutor spoke directly and explicitly to the child.

- (11) *Madre: (Al niño) Dejá el teléfono celular. Va a llamar la abuela y siempre está apagado.*

('Mother: (To the child) Put the cell phone down. Grandma's going to call and it's always switched off.')

- b. Interlocutor spoke to another participant and the young child participated verbally in the exchange.

- (12) *Los hermanos mayores de Ezequiel [niño] juegan y no lo dejan jugar a Ezequiel, la abuela interviene para que lo dejen jugar.*

Abuela: Maxi, dejalo a Eze que también juegue un rato.

Maxi: No, él es muy chico.

Niño: Dale, dejame.

('Ezequiel's [child] older brothers are playing but aren't letting him join in, so his grandma intervenes so that he can play, too.

Grandmother: Maxi, let Eze play with it too for a while.

Maxi: No, he's too little

Child: Come on, let me.')

- c. Interlocutor spoke to another participant and the child did not participate verbally.

- (13) *La hermana mayor de la niña dibuja.*

Hermana: (A su tía) ¿Me hacés una casa?

Madre: Sí, ahora te hago gordita. ¿Me esperarás cinco minutos y ahora te hago?

Mientras dibújame una princesa para mí así me la llevo a mi casa.

Hermana: No, una Barbie (muñeca).

('The child's older sister is drawing.

Sister: (To her aunt) Can you do a house for me?

Mother: Yes, I'll do one for you in a minute, little one. Can you hold on for five minutes and then I'll do it for you? In the meantime why don't you draw a princess for me so I can take it home with me.

Sister: No, a Barbie (doll).')

5. The interactional function of the utterance:

For this purpose, we used Sinclair and Coulthard's (1975) categories.

a. Assertion: the provision of information.

- (14) *Madre: Hoy me dice una maestra: sos re dramática. No, no soy dramática. Es así. Pueden estar re bien los chicos y en cinco minutos se tragan una pavada...*

('Mother: A teacher said to me today that I'm very dramatic. But I'm not, I'm not dramatic. That's the way it is, the kids are totally fine and then in five minutes they swallow something...')

b. Directive: defined as an utterance that is aimed at regulating the action.

- (15) *Antonella [niña] se está haciendo baños de vapor y quiere irse a jugar, la mamá le dice que se quede un rato más.*

Niña: Ya está.

Mamá: No, no, quedate un ratito más.

('Antonella [child] is having a steam bath but wants to go and play, so her mother tells her to stay where she is for a little longer.

Child: That's enough.

Mom: No, no, stay here for a little while.')

c. Elicitation: a request for information.

- (16) *Niño: Facundo le dice Eva a mamá.*

Madre: Es verdad. Pero ¿siempre o cuando quiere que le demos algo?

('Child: Facundo calls his mom "Eva".

Mother: That's true. But does he always do it or only when he wants us to give him something?')

In their unmarked forms, the categories of eliciting, asserting, and directing are expressed through the interrogative, declarative, and imperative grammatical forms. However, these functions can also be performed via other grammatical forms, depending on the situation.

The association between these discursive categories and the social group was tested using the chi-squared test. Likewise, Cramer's V correlation index was calculated for each of the discursive categories considered.

Two coders independently coded 25% of the situations in which the children's interlocutors used temporal and sequential terms in order to categorize them according to the discursive and interactional patterns contemplated in the analysis. They agreed on 90.45% of discursive context categories, on 91.02% for the coding of the temporality of the utterance in which the term was used, on 89.89% for the temporality of the event referred to in the sequence, on 92.14% for the child's participation in the interactive situation, and on 93.26% for the interactive function of the utterance. According to Cohen's Kappa coefficient, the agreement obtained in a single round between the two researchers was robust for each of the analyzed dimensions: $K=0.880, p<.001$; $K=0.818, p<.001$; $K=0.83, p<.001$; and $K=0.868, p<.001$, respectively. Following discussion and agreement on the criteria to be used for categorizing borderline cases, the remaining transcripts were coded by the second or a third coder.

3. Results

3.1 Temporal and sequential terms in children's accounts about foreseen events

Results showed differences in the temporal terms used by the children from marginalized urban neighborhoods (MUN) and from middle-income families with university education (MI). Children from marginalized urban neighborhoods included less temporal and sequential terms per account than those from middle-income families (temporal terms: MUN: 0.5 vs. MI: 1.07; sequential terms: MUN: 0.59; MI: 1.02). The differences between the groups with regard to temporal terms are statistically significant (ANOVA; $F_{(1,36)}=7.53, p=.01$). The diversity, per account, of temporal and sequential terms used by children from middle-income families was also higher than that observed among children from marginalized urban neighborhoods (temporal terms: MUN: 0.32 vs. MI: 0.69; sequential terms: MUN: 0.37 vs. MI: 0.38). The differences between the groups with regard to the diversity of temporal terms per account are also statistically significant (ANOVA; $F_{(1,36)}=7.95, p=.008$). These results are shown in Figure 1.

3.2 Lexical input: temporal and sequential terms in daily situations

The same pattern that was observed with regard to the use of temporal and sequential terms in children's accounts was also observed in the vocabulary that the two groups of children were able to hear during natural situations in their homes and communities: the children from middle-income families heard a greater quantity

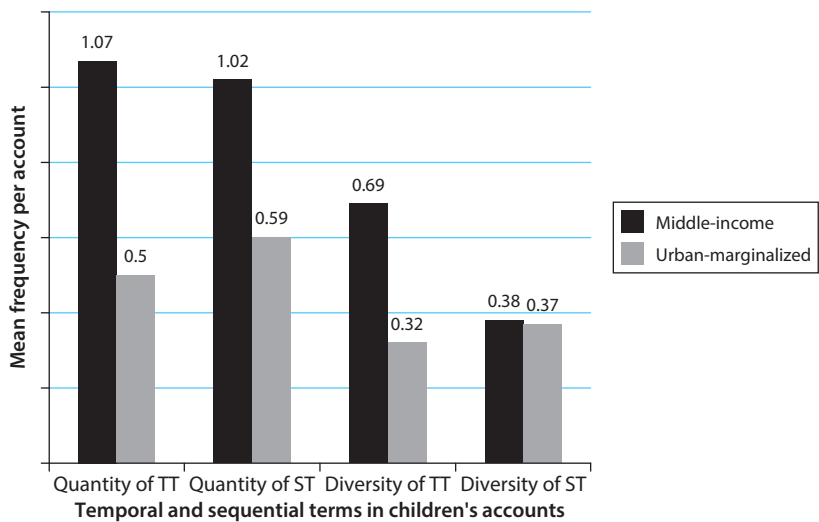


Figure 1. Quantity and diversity of temporal (TT) and sequential terms (ST) used by the children per account

and diversity of temporal and sequential terms than the children living in marginalized urban neighborhoods. These results are presented in Figure 2.

Differences in the quantity of the temporal and sequential terms heard by the children from middle-income families and by the children from marginalized urban neighborhoods are statistically significant (ANOVA; temporal terms:

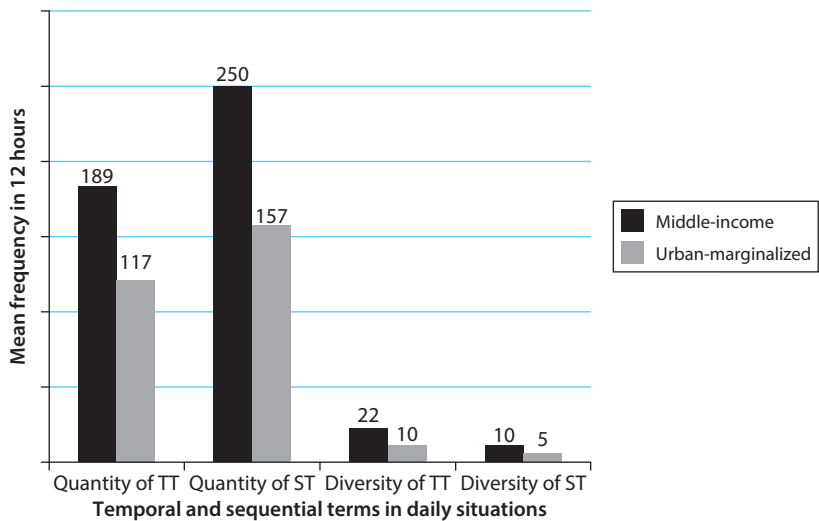


Figure 2. Lexical input: Quantity and diversity of temporal (TT) and sequential terms (ST) in daily situations

$F_{(1, 36)} = 13.77, p = .001$; sequential terms: $F_{(1, 36)} = 7.7, p = .009$). The differences in the diversity of temporal and sequential terms that both groups of children were able to hear are also statistically significant (ANOVA; temporal terms: $F_{(1, 36)} = 166, p = .001$; sequential terms: $F_{(1, 36)} = 1456, p = .001$).

3.3 Exploring the relationship between the temporal terms used by children and the home input

The statistical analysis of the relationship between the temporal and sequential terms used by the children from each group in their accounts about foreseen events and the frequency with which these terms appeared in the input in the homes of each social group showed a significant and positive correlation in both groups (MI: $r = .66, p < .001$; MUN: $r = .69, p < .001$). It was observed that some of the temporal terms used by children from middle-income homes but not by children from marginalized urban populations were part of the linguistic input of children from both groups.

An analysis was therefore carried out in order to identify other aspects besides frequency in the input that could account for the differences in the use of the terms by the children from the two groups. This analysis revealed a number of aspects that are related to the interactional and discursive contexts in which the terms were used and that seem to vary between the two social groups. As mentioned in the methodology section, these aspects are the discursive context in which the terms were used (narrative, argumentation, explanation, description, or instruction); the temporality of the utterance (present, past, or future); the temporality of the event that was being referred to in the sequence; the child's involvement in the interactive situation; and the interactional function of the utterance (assertion, directive, or elicitation). A statistical analysis was then performed in order to evaluate the association between these aspects of the input and social group.

The results presented in Table 1 show a significant association between social group and discursive context. In the homes of marginalized urban neighborhoods, a greater proportion of temporal terms were used during narratives (54.18%) and argumentations (18.33%); whereas in the middle-income group, they were used most often in narratives (44.77%) and instructions (36.46%), ($\chi^2_{(4)} = 63.32, p < .001$, *Cramer's V* = .32, $p < .001$).

The results did not show any association between social group and temporality of the utterance in which the term was included. In both social groups, more than 70% of the temporal terms were produced in present-tense utterances ($\chi^2_{(2)} = 3.17, p = .21$, *Cramer's V* = .07, $p = .21$). In contrast, the analysis demonstrated a significant association between social group and the temporality of the event denoted in the interaction in which the term was used. In both social groups, the term

Table 1. Social group and discourse context

		Social group			
		MUN		MI	
		Frequency	Percentage	Frequency	Percentage
Discourse context	Narrative	136	54.18%	167	44.77%
	Argumentation	46	18.33%	15	4.02%
	Instruction	40	15.94%	136	36.46%
	Description	29	11.55%	45	12.06%
	Explanation	0	0.00%	10	2.68%

was primarily used in conversations about a present event (MUN: 56.18% and MI: 53.08%). However, in the group of middle-income children, a greater proportion of situations was observed in which the term was used to make reference to a future event (29.22%). In the homes of the marginalized urban populations, the term was used in a greater proportion of situations referring to a past event (23.11%) ($\chi^2_{(2)} = 6.68, p < .05$, *Cramer's V* = .10, $p < .05$). These results are presented in Table 2 and Table 3, respectively.

Considering the characteristics of the interactive situation in which the term was used showed that in the majority of the situations recorded in middle-income homes the temporal terms were used in utterances in which the interlocutor spoke directly to the child (69.17%). However, in the homes of the marginalized urban populations, half of the situations in which the temporal terms were used implied utterances in which the child was present during exchanges that took place between other people (50.6%). The chi-squared analysis demonstrated that both variables — social group and interactive situation — are significantly associated ($\chi^2_{(2)} = 68.37, p < .001$). The correlation index, although low, also proved significant (*Cramer's V* = .33, $p < .001$). These results are presented in Table 4.

Lastly, the relationship between the social group and the interactional function of the utterance containing the temporal term was also analyzed. In the middle-income homes, there was a higher proportion of cases in which the terms were

Table 2. Utterance temporality and social group

		Social group			
		MUN		MI	
		Frequency	Percentage	Frequency	Percentage
Utterances temporality	Past	46	18.40%	52	13.94%
	Present	179	71.60%	272	72.92%
	Future	25	10.00%	49	13.14%

Table 3. Event temporality and social group

		Social group			
		MUN		MI	
		Frequency	Percentage	Frequency	Percentage
Event temporality	Past	58	23.11%	66	17.69%
	Present	141	56.18%	198	53.08%
	Future	52	20.72%	109	29.22%

Table 4. Interactive situation and social group

		Social group			
		MUN		MI	
		Frequency	Percentage	Frequency	Percentage
Interactive situation	Interlocutor to child	94	37.45%	258	69.17%
	Interlocutor to another participant				
	Child participated	30	11.95%	9	2.41%
	Child did not participate	127	50.60%	106	28.42%

used as part of a directive than in the marginalized urban populations (34.58% versus 17.93%). These findings are presented in Table 5. The statistical chi-squared test showed that both variables — social group and interactional function of the utterance — are significantly associated ($\chi^2_{(2)} = 21.65, p < .001$). The correlation index, although low, also proved significant (*Cramer's V* = .18, $p < .001$).

Table 5. Interactional function and social group

		Social group			
		MUN		MI	
		Frequency	Percentage	Frequency	Percentage
Interactional function	Assertives	175	69.72%	204	54.69%
	Directives	45	17.93%	129	34.58%
	Elicitation	31	12.35%	40	10.72%

4. Discussion and conclusion

This research shows that at four years of age, Spanish-speaking children can make use of diverse types of temporal and sequential terms in the production of accounts referring to foreseen events. This coincides with the results of other studies that have focused on the use of temporal terms in other types of narratives, for example fictional narratives elicited by means of pictures (Sebastián & Slobin 1994; Slobin & Bocaz 1988), or in the framework of narratives of personal experience (Uccelli 2009).

Although all of the children in the sample of this study used temporal and sequential terms, the results of the analysis showed significant differences between children from middle-income households and children from marginalized urban populations in terms of the quantity of tokens and types of these terms that they used while narrating. The data obtained in this study provide new empirical evidence regarding the differences in the quantity and diversity of the vocabulary between children from different social groups; differences that have also been registered in research recorded in other languages (Hart & Risley 1995; Hoff 2006).

Similarly to what was observed by Hart and Risley (1995) and Hoff (2006), these differences in the quantity and diversity of the temporal and sequential terms used in the accounts correspond to significant differences in the quantity and diversity of these terms in the input that the two groups of children hear in their homes. The results showed a positive and significant correlation between the frequency of use of these terms by children from each of the two groups in their accounts and the frequency with which these terms appeared in the input. The results thus provide new empirical evidence of the relationship between lexical learning and the frequency with which terms appear in the input (Bloom et al. 2012; Hoff 2006; Huttenlocher et al. 1991; Lieven 2010; Tomasello 2003; Weizman & Snow 2001).

It is worth mentioning, however, that some terms that were used by children from middle-income homes in their accounts of foreseen events, but that were not used by the children from marginalized urban populations, are equally frequent in the input heard by both groups of children in their homes. The results of the analysis further identified those factors of the interactional and discursive contexts that could contribute to an understanding of these differences between the two groups.

Indeed, in the recorded exchanges of both social groups, we identified differences in certain aspects such as the discursive context, the temporality of the referred/denoted event, the participation of the young child in the interactional situation, and the interactional function of the utterance that contained the temporal term. Statistical analysis showed that these factors are significantly associated with social group. These factors allow us to characterize the interactional and discursive patterns that shape the situation in which these temporal terms were used in each social group.

The exchanges in which the children from marginalized urban populations heard these temporal terms were, for the most part, narratives or arguments that generally were concerned with present events or occasionally with past events. The terms were generally used during assertions directed at an interlocutor other than the child — indeed, in half the studied cases the child did not take part in the linguistic exchange at all. As has been shown in other studies, some of these aspects characterize the communicative interactions of children from low-income backgrounds or children from minority groups. For example, regarding the frequency of arguments and narratives in the daily conversational contexts of children from low-income backgrounds, Rosenberg, Silva and Stein (2008, 2011) also observed the prominence of this type of discursive sequence in a population similar to the one depicted in this study. In turn, in connection with the type of involvement children have in the exchanges, Tomasello (2003) and Weisleder and Fernald (2011) suggest that the fact that children do not take part as direct interlocutors in the conversations constitutes a characteristic of the communicative interactions of minority groups or groups with a low socio-economic status.

In the middle-income families, temporal terms were used in the greatest percentage of opportunities in the context of instructions that take the function of directives. Regarding the temporality of the event, the results showed that temporal terms were mainly used in exchanges referring to present events, as was also the case in low-income homes. However, a higher proportion of exchanges that referred to a future event were recorded in middle-income families than in the families from marginalized urban populations. This could partially explain why children from middle-income families were making greater use of temporal terms in their accounts of foreseen events. In line with Nelson (1989, 1996), this relationship depends on the assumption that children tend to use such terms in the context of discursive and pragmatic patterns that are similar to those in which they themselves heard the terms. Moreover, Hart and Risley (1995) point out that parents from lower socio-economic sectors use a greater number of directives when talking to their children. However, in the data analyzed in this study — that is, utterances that contain certain temporal terms — it was observed that middle-income families are the ones who include more of these terms in directives in their interactions with young children, and not those who live in marginalized urban populations.

Generally speaking, and despite some discrepancies, the results of this research, which focused specifically on the temporal lexicon, coincide with the results of other studies (Küntay & Slobin 2002; Lieven 2010; Nelson 1996; Weizman & Snow 2001; among others), showing that in order to comprehend children's vocabulary production, it is important to take into account not only the frequency

with which the terms appear in the input, but also other aspects of the discursive adult-child interaction in which the linguistic forms are embedded.

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Résumé

Cette étude analyse la relation entre les expressions temporelles utilisées par des enfants argentins de 4 ans habitant les quartiers urbains marginalisés et ceux qui appartiennent à la classe moyenne, ainsi que l'utilisation de ces expressions dans des situations naturelles en contexte familial ou dans la communauté. L'analyse part du postulat que les enfants développent leurs connaissances des expressions temporelles et séquentielles à partir de l'utilisation qui en est faite par leur entourage, mais également à partir de la manière dont ils s'en servent eux-mêmes (Nelson, 2007). Les résultats montrent que les enfants issus des quartiers urbains marginalisés emploient dans leurs récits moins de termes temporels que ceux de la classe moyenne. Ces différences sont corrélées avec des différences dans l'input des deux groupes. L'analyse montre également des différences dans les patrons discursifs et interactionnels dans lesquels ces termes sont utilisés chez les deux groupes d'enfants.