

# On the acquisition of dynamic, deontic and epistemic uses of modal verbs in Romanian

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## Abstract

This study investigates the acquisition of dynamic, deontic and epistemic values conveyed by modal verbs in Romanian. It is based on the analysis of naturalistic speech from three longitudinal corpora of Romanian monolingual children (age range 1;8–3;0). The results show that subject-oriented dynamic values are the first to emerge and are, overall, more frequently used than the deontic ones. No epistemically used modal verb has been found for the period observed. The comparison of the use of modal verbs by children with that in child-directed speech reveals striking similarities. The developmental epistemic gap is accounted for in terms of language-specific properties. Adults preferentially use modal adverbs rather than modal verbs for expressing epistemic meanings, which results in uninformative input with respect to the epistemic use of modal verbs. Additionally, the early acquisition of epistemic adverbs is facilitated by the fact that they have one single inherent modal value, whereas modal verbs feature a range of modal meanings determined by the context in which they occur.

## 1. Introduction

A considerable number of studies which investigated the acquisition of the semantics of modal verbs provide evidence that children acquire subject-oriented dynamic and deontic values of modal verbs earlier than epistemic ones (Wells 1979, 1985; Shepherd 1982; Stephany 1986, 1993; Smoczyńska 1993; Bassano 1996, among many others). Some of these studies report that the acquisition of the full range of modal meanings may extend into middle childhood (Major 1974; Perkins 1983; Coates 1988).

The developmental priority of dynamic and deontic uses of modal verbs compared to epistemic ones is, however, challenged by the fact that children who are acquiring a language in which epistemic modality is expressed by suffixes use them as early as age two (Aksu-Koç 1988; Choi 1991, 1995, 2006).

These findings indicate that the way in which epistemic modality is expressed in the language may modulate the acquisition route. Extending the investigation to other languages may shed light on the way in which language-specific properties can determine the order in which children acquire the contextual values of modal verbs.

The main aim of the present chapter is to study the acquisition of the semantics of modal verbs in Romanian. We focus on *a putea* ‘can, may’, *a trebui* ‘need, must’, and *a vrea* ‘want’. The analysis is based on naturalistic speech from three longitudinal corpora of monolingual Romanian children and their caretakers (see Section 4).

For the analysis of modal verbs, we adopt a unitary meaning approach according to which they have one core meaning that gets contextually specified (Kratzer 1977, 2012; Perkins 1983; Hegarty 2016). According to this view, one separates “the contribution made by linguistically encoded information and inferential processes in the derivation of contextually attested interpretations of lexical items” (Papafragou 2000: 8). In terms of acquisition, this property of modal verbs has been shown to pose a learnability challenge since the child has to figure out under what conditions a particular modal value obtains (Hacquard and Cournane 2016).

Modals can express dynamic, deontic and epistemic meanings (Nuyts 2001; Palmer 2001). Dynamic modality is “concerned with properties and dispositions of persons, etc., referred to in the clause, especially by the subject NP” (Huddleston 2002: 178). Deontic modality concerns the sphere of duty, permission, appropriateness, and its interpretation may vary from more idealized to more realistic modal bases (Hegarty 2016: 66). According to Palmer

(2001), subject-oriented dynamic modality<sup>1</sup> denotes real-world ability and willingness. Subject-oriented need or necessity has also been included in the category of subject-oriented dynamic modality (Palmer 1979; Huddleston and Pullum 2002; Nuyts 2006).

Subject-oriented dynamic modals (like English *can* and *will*, expressing ability and volition, respectively) have often been argued to actually ascribe a property to the entity in subject position (or “a property of the first argument of the predicate”, Nuyts 2006: 3). Unlike deontic and epistemic modalities, the dynamic one is not “attitudinal” (Nuyts 2016: 46) and does not express subjective evaluation. This is reflected in the early acquisition of subject-oriented dynamic uses of modal verbs, i.e. of those that involve a realistic modal base.

In this first study of the acquisition of Romanian modal verbs we ask how their different contextual values are acquired. Section 2 offers a brief summary of previous findings on the acquisition of the semantics of modal verbs in different languages. The main properties of modal verbs in Romanian are presented in Section 3, where *a putea* ‘can, may’ and *a trebui* ‘need, must’, two modal verbs which feature various modal meanings, are compared to *a vrea* ‘want’, which expresses exclusively agent-oriented volition/desire. Section 4 contains the results of our longitudinal study of the acquisition of modal verbs in Romanian. The main findings are discussed in Section 5.

## 2. Previous studies of the acquisition of the semantics of modal verbs

Studies of developmental pathways in the domain of modal verbs offer a relatively uniform picture. A common finding resulting from analyses of longitudinal corpora is that modal verbs emerge before age three; but during the early stages they are used

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<sup>1</sup> Nuyts (2006:3) calls this value “participant-inherent dynamic”.

exclusively with dynamic and deontic values and occur in a limited number of syntactic environments (Brown 1973; Kuczaj and Maratsos 1975; Fletcher 1979; Wells 1979, 1985; Shepherd 1982; Stephany 1986, 1993; Shatz and Wilcox 1991; Smoczyńska 1993; Bassano 1996; Papafragou 1998; Cournane 2015). A significant number of studies offer data which show that modal verbs with subject-oriented dynamic values are attested earlier than those with deontic value. For English, it has been shown that ability and volition expressed by *can* and *will/wanna*, respectively, sometimes in the negative form, are the first to emerge before age 3 (see e.g. Brown 1973; Fletcher 1979; Bliss 1988; Stephany 1986; Hickmann and Bassano 2016).

Deontic meanings of modal verbs also emerge early. At age 2;6, the modal verb *can* is used to express both ability and permission (Wells 1979). Similar results have been reported for child French, where *pouvoir* ‘can, may’ is first found only with dynamic and deontic meanings (Bassano 1996). Also in Greek, during the early stages, before age 3, children use the verb *boró* ‘can, may’ only with a dynamic or deontic value (Stephany 1986).

The epistemic use of modal verbs is attested later than the dynamic and deontic ones across languages (see Hickmann and Bassano 2016 for an overview), with some differences from one study to another concerning age of emergence or full acquisition. However, the absence of epistemically used modal verbs during the early stages does not necessarily indicate that children have problems with epistemic modality in general. Epistemic adverbs and adjectives are attested very early. Bowerman (1986) and O’Neill and Atance (2000) show that two-year-old English-speaking children use epistemic adverbs such as *maybe* and *probably*. Similarly, Polish children begin to use epistemic adjectives at around age two (Smoczyńska 1993). For French, Bassano (1996) shows that epistemic utterances (with an epistemic adverb or in the conditional mood) are attested as early as age 2;7.

Such findings, which reveal the importance of the means by which epistemic modality is expressed, are further supported by

results reported for the acquisition of languages in which epistemic/evidential modality is expressed by sentence-ending particles, such as Korean. Choi (1991, 1995, 2006) has shown that two-year-old Korean children can produce both epistemic/evidential and deontic modal expressions. Similar results have been discussed for Turkish, where epistemic modality is expressed by verbal inflection (Aksu-Koç 1988; Stephany and Aksu-Koç, this volume). On the other hand, in Spanish, subjunctive morphology emerges early. The subjunctive is first produced exclusively with volitive and directive value; but the extension to contexts in which it is used with an evaluative value is delayed (Pérez-Leroux 1998). In Romanian as well subjunctive morphology is attested early, around age 2, and it is first used with volitive and directive values (Avram and Coene 2011). During the early stages, it is used as a “surrogate” imperative, as the complement of modal verbs as well as in periphrastic future constructions. This means that the first subjunctives occur in (dynamic and deontic) obligatory contexts.

Such data are particularly telling. They show that when the means of expressing modality has a range of context-dependent modal values, allowing both deontic and epistemic uses, there is an epistemic gap. Along this line, Hacquard and Cournane (2016) distinguish between lexical modals (a class which, in their analysis, includes modal adverbs as well) and “grammatical” modal verbs. The latter get contextually specified for dynamic, deontic and epistemic values and they interact with tense and aspect depending on their modal interpretation. This context dependence for full semantic specification would explain why these modal verbs represent a learnability challenge.

If this line of reasoning is on the right track, it straightforwardly predicts cross-linguistic differences in the acquisition of the semantics of modal verbs.

### 3. Romanian modal verbs

In this section we offer a brief description of the most important properties of the modal verbs *a putea* ‘can, may’, *a trebui* ‘must, need’, and *a vrea* ‘want’. The first two can express different modal values in a contextually determined way (Guțu-Romalo 1956; Avram 1999; Zafiu 2005, 2013), i.e. they correspond to the class of “grammatical” modals in Hacquard and Cournane’s (2016) terms. *A vrea* ‘want’, on the other hand, is inherently dynamic.

*A putea* ‘can, may’ can express subject-oriented dynamic modality<sup>2</sup> (example 1a), deontic modality (example 1b) and epistemic modality (example 1c) (Avram 1999; Zafiu 2005).

- (1) a. *Am putut să citesc cartea.*  
 have.PRS.1SG can.PTCP SBJV read.PRS.1SG book.DET  
 ‘I managed to read the book.’
- b. *Pot să plec acum?*  
 can.1SG SBJV leave.1SG now  
 ‘May I leave now?’
- c. *Copiii nu puteau fi în curte.*  
 children.DET not can.IPFV.PAST.3PL be in yard  
 ‘The children can’t have been in the yard.’

The modal verb *a trebui* ‘must, need’ can be used with deontic (example 2a) and epistemic values (example 2b), but dynamic uses are very rare.

- (2) a. *Trebuiau să plece imediat.*  
 must.PST.3PL SBJV leave.3PL immediately  
 ‘They had to leave immediately.’
- b. *Trebuie să fi suferit mult.*  
 must.PRS.3SG SBJV be suffer.PTCP much  
 ‘They must have suffered a lot.’

*A putea* ‘can, may’ and *a trebui* ‘must, need’ can take both finite and non-finite clausal complements. They can be constructed with a subjunctive complement, irrespective of their

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<sup>2</sup> We disregard Palmer’s (2001) circumstantial dynamic modality.

modal value (see example 3, where the modals can have both a deontic and an epistemic interpretation). A *putea* ‘can, may’ can also take an infinitival complement (example 4), regardless of its modal value. Therefore, the complement type (subjunctive or infinitive) is not informative with respect to modal interpretation. It is inspection of the larger context which will provide clues with respect to the type of modality expressed by the verb.

(3) *Trebuie/ poate să plece.*  
 must.PRS.3SG can.PRS.3SG SBJV leave.3SG  
 ‘He must/may leave.’

(4) *Poate ajunge acasă foarte repede.*  
 can.PRS.3SG arrive.INF home very fast  
 ‘He can/may arrive home very fast.’

With *a trebui* ‘must, need’, however, some complementation patterns can offer a cue with respect to modal value. When *a trebui* ‘must, need’ takes a supine (example 5a) or a past participle complement with passive meaning (example 5b), the epistemic reading is blocked so that the construction can only be interpreted as deontic.

(5) a. *Trebuie spus lucrurilor pe nume.*  
 must.PRS.3SG say.SUPINE things.DAT on name  
 ‘One should speak frankly.’  
 b. *Cartea trebuie citită.*  
 book.DET must.PRS.3SG read.PTCP.FEM.SG  
 ‘The book must be read.’

A *trebui* ‘must, need’ can also take an indicative clausal complement (example 6). In this pattern, the only available interpretation is an epistemic one. For possibility, an epistemic value can be conveyed only by the modal adverb *poate* ‘maybe’, homophonous with the third person singular of the present tense of the modal verb *a putea* ‘can, may’ with an indicative complement (example 7) (Avram 1999; Protopopescu 2012; Zafiu 2005, 2013).

(6) *Trebuie că el a decis lucrul ăsta.*  
must.PRS.3SG that he has decided thing.DET this  
'He must be the one who took this decision.'

(7) *Ea poate că ajunge la timp.*  
she maybe that arrive.PRS.3SG at time  
'She may arrive in time.'

A *vrea* 'want' exclusively expresses dynamic modality and can only occur with a subjunctive complement (example 8).

(8) *Mama vrea să plece.*  
Mother want.PRS.3SG SBJV leave.3SG  
'Mother wants to leave.'

A remark is in order with respect to the actual use of modal verbs. Epistemically used modal verbs are rare in adult-directed speech.<sup>3</sup> Epistemic modality is more frequently expressed by modal adverbs. Also, as mentioned above, modal verbs are frequently used with a subjunctive complement, which is uninformative with respect to modality type.

Given the role of input in the language acquisition process (e.g. Yang 2002), one could predict that the emergence of epistemically used modal verbs may be even more delayed in child Romanian than in other languages. First, because both *a putea* 'can, may' and *a trebui* 'must, need' can feature a range of context-dependent modal meanings whose acquisition requires inspection of syntactic structures which do not offer robust disambiguation cues. Second, because the frequency of epistemic modal verbs in the input is very low. Modal adverbs, on the other hand, whose modal value is

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<sup>3</sup> The analysis of a transcript of 220 minutes of conversation among adults (the corpus in Dascălu-Jinga 2002) revealed that out of 57 tokens of *a trebui* 'must, need' with a clausal complement only one denoted epistemic necessity. We identified 73 tokens of *a putea* 'can, may', out of which only 2 were used epistemically.

not context-sensitive, are in addition more frequently used, facilitating their early acquisition.

#### 4. The acquisition of the semantics of modal verbs in Romanian

##### 4.1. Main questions

The main goal of the present study is to investigate the development of the modal verbs *a putea* ‘can, may’ and *a trebui* ‘must, need’ in early child Romanian. Their acquisition is compared to that of *a vrea* ‘want’, a modal verb which exclusively expresses subject-oriented dynamic modality, and to epistemic adverbs.

The first question to be addressed is whether dynamic uses of modal verbs, associated with subject orientation, are acquired earlier than their deontic uses. The second question is whether the epistemic use of Romanian modal verbs emerges later than their dynamic and deontic uses as found in other languages (Wells 1979, 1985; Perkins 1983; Stephany 1986, 1993; Bassano 1996; Cournane 2015). In order to evaluate to what extent language-specific input properties can account for the acquisition data we also analyze the use of modal verb meanings in child-directed speech (CDS) comparing it to child speech.

##### 4.2. Data and method

The present study is based on three longitudinal corpora of child Romanian: Iosif (Stoicescu 2013), Bianca and Antonio (Avram 2001). The three children come from Bucharest families with different socio-economic backgrounds, including working class, lower middle class and upper middle class households. Antonio and Bianca are first-born children, while Iosif has an elder brother. All the corpora contain weekly 60 minute audio recordings made at home. They include non-structured conversations with family members in the presence of an

investigator. Sessions were transcribed in CHAT format (MacWhinney 2000). For the present study, a total of 46 files were analyzed (one 60-minute file per month from each corpus) (see Table 1). The use of modals in CDS was also analyzed (see Table 2).

Table 1. Corpora of Romanian child speech

Child	Age range	MLU range	No. of files	Utterance total	Utterances with MV
BIA	1;8–2;11	1.064–2.873	16	8,787	87
ANT	1;9–3;0	1.514–3.174	16	7,526	113
IOS	1;10–3;0	1.115–3.828	14 <sup>4</sup>	7,981	152
TOTAL	1;8–3;0	1.064–3.828	46	24,294	352

MV = Modal verb

Table 2. Corpora of CDS

	No. of files	Utterances with MV
BIA	16	301
ANT	16	197
IOS	14	432
TOTAL	46	930

Each transcript was searched for utterances containing a modal verb (*a putea* ‘can, may’, *a trebui* ‘must, need’, or *a vrea* ‘to want’). The meaning of each modal was analyzed taking into account the immediate conversational context (i.e. the interlocutor’s preceding utterance). We coded each token for: (i) (subject-oriented) dynamic, (ii) deontic, and (iii) epistemic value. The few cases where the context did not provide sufficient information to allow the identification of the meaning were not included in the final analysis. For both *a putea* ‘can, may’ and *a trebui* ‘must, need’ we analyzed the syntactic context in which the modal occurred (i) with an omitted clausal complement

<sup>4</sup> For Iosif, there is no recording available for age 2;3.

(retrievable from the context), (ii) with a subjunctive clausal complement; (iii) with an infinitival complement; (iv) with a supine or a past participle, or (v) with an indicative clausal complement. The epistemic adverbs *poate* ‘maybe’ and *sigur* ‘certainly’ were also extracted from the corpora.

### 4.3. Results

#### 4.3.1. The early use of modal verbs in child Romanian

The analysis of the meanings of the modal verbs found in child speech in the three longitudinal corpora reveals a similar acquisition path. A *putea* ‘can, may’ with a subject-oriented dynamic value is attested very early: at age 1;9 in Antonio’s corpus (example 9a), at 1;10 in Bianca’s (example 9b), and at 2;1 in Iosif’s (example 9c).

(9) a. Antonio, 1;9

*Antonio poate.*

Antonio can.PRS.3SG

‘Antonio can (repair this toy).’

b. Bianca, 1;10

ADU: *poți și tu să cauți*

can.PRS.2SG and you SBJV search.2SG

*cu mine?*

with me

‘Can you look for it with me?’

BIA: *nu poți, mami.*

not can.PRS.2SG Mummy

‘You cannot. Mummy.’

(Intended meaning: ‘I cannot do it; mummy should.’)

c. Iosif, 2;1

*Ăsta, nu pot.*

this not can.PRS.1SG

‘This, I cannot.’

(Intended meaning: ‘I cannot take this one out.’)

Dynamic *a putea* ‘can, may’ emerges concurrently with the modal verb *a vrea* ‘want’ in Antonio’s and Iosif’s corpora (see examples 10a–b). With Bianca, no other modal verb besides dynamic *a putea* ‘can, may’ is found in the corpus in the period from 1;10 to 2;1; *vrea* ‘want’ is first attested at 2;2.

(10) a. Antonio, 1;9

ADU: *Spui?*

say.PRS.2SG

‘Will you say it?’

ANT: *nu vrei.*

not want.PRS.2SG

‘You don’t want to.’

(Instead of: ‘I don’t want to.’)

b. Iosif, 2;1

ADU: *Tu vrei să mai arunci?*

you want.PRS.2SG SBJV more throw.2SG

‘Do you want to throw it again?’

IOS: *Da. Tu vrei?*

yes you want.PRS.2SG

‘Yes. Do you want to?’

There is a time lapse of four months up to one year between the first subject-oriented uses of *a putea* ‘can, may’ marking ability and the first deontic uses of the same modal verb expressing permission (examples 11). The number of tokens of deontically used *a putea* ‘can, may’ is lower than that of the subject-oriented dynamic ones overall and also after the emergence of deontic uses.

(11) a. Antonio, 2;9

ADU: *stai aici pe scăunel, frumos.*

sit.IMP.SG here on chair.DIM nicely

‘Sit here on the chair, nicely.’

ANT: *nu poți să stai și pe pat?*

not can.PRS.2SG SBJV sit.2SG and on bed

‘May you not sit on the bed as well?’

(Instead of: ‘May I not sit on the bed instead?’)

b. Iosif, 2;5

*Tu poți să ieși aia.*

you can.PRS.2SG SBJV take.2SG that  
'You may take that one.'

c. Bianca, 2;7

*Pot să intru în grajd?*  
can.PRS.1SG SBJV enter.1SG in stable  
'May I enter the stable?'

The first spontaneous use of the modal verb *a trebui* 'need, must' with a deontic value is attested concurrently or almost so with the first deontic use of *a putea* 'can, may': at 2;7 in Bianca's corpus, at 2;8 in Iosif's and at 2;11 in Antonio's (examples 12).

(12) a. Bianca, 2;7

*Trebuie să pun și eu asta.*  
must.PRS.3SG SBJV put.1SG and I this  
'I must put this one too.'

b. Iosif, 2;8

*Trebuie să mi dea tati cu d-ăsta.*  
must.PRS.3SG SBJV me.DAT give.3SG daddy with of-this  
'Daddy must put this on my wound.'

c. Antonio, 2;11

*De ce-ai pus cum nu trebuia?*<sup>5</sup>  
why have.PRS.2SG put.PTCP how not must.IPFV.PST.3SG  
'Why did you put it the way you shouldn't have?'

Dynamic *a trebui* 'must, need' is absent from Iosif's and Antonio's corpora. The only context which allows a subject-oriented dynamic interpretation of *a trebui* 'must, need' is attested in Bianca's corpus at age 2;3 (example 13).

(13) Bianca, 2;3

(Wanting to look at a game that her father has arranged on the floor.)

*Trebuie să văd.*  
must.PRS.3SG SBJV see.1SG  
'I must see.'

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<sup>5</sup> Antonio's mother has put a toy in the wrong place.

While epistemically used modal verbs are not found in any of the CS files investigated, the corpora contain several epistemic/evidential adverbs which are used early and in an adult-like way. They are, however, attested only a few months after the first modal verbs with a dynamic value. In Antonio's corpus an isolated token of the epistemic adverb *poate* 'maybe' is attested as early as 2;3 (example 14a), but no other epistemic adverb is found until 2;11, when four tokens of *sigur* 'certainly' are used (example 14b).

(14) a. Antonio, 2;3

*Poate n- a oprit.*  
 maybe not have.PRS.3SG stop.PTCP  
 'Maybe he did not stop.'

b. Antonio, 2;11

*Sigur sînt alea.*  
 certainly are those  
 'Those are certainly the ones.'

Iosif also occasionally uses epistemic modal adverbs. The first one is *parcă* 'apparently', attested as early as age 2;2 (example 15a). *Poate* 'maybe' is found later, at age 2;11 (example 15b).

(15) a. Iosif, 2;2

*Parcă sînt a(i) mei.*  
 apparently are DET mine  
 'They seem to be mine.'

b. Iosif, 2;11

*mai are două, poate.*  
 more has two maybe  
 'Maybe he has two more.'

As has been found with the other two children, Bianca does not use modal verbs epistemically either during the period observed, but also uses epistemic modal adverbs instead: *poate* 'maybe' is first attested at 2;7 (example 16).

(16) Bianca, 2;7

*Poate nu mai vine gîndăcelu(l).*  
 Maybe not more comes bug.DIM.DET  
 ‘Maybe the little bug will not come anymore.’

Other epistemic modal adverbs besides *poate* ‘maybe’ are occasionally used: *parcă* ‘apparently’ (by Iosif) and *sigur* ‘certainly’ (by Antonio).

The results of the analysis of modal verbs are summarized in Table 3.

Table 3. Age of emergence and number of tokens of dynamic and deontic modal verbs in child speech

Child		<i>putea</i>		<i>trebui</i>		<i>vrea</i> ‘want’
		‘can, may’		‘must, need’		
		dynamic	deontic	dynamic	deontic	dynamic
BIA	Age	1;10	2;7	2;3	2;5	2;2
	Tokens	30	4	-	31	22
ANT	Age	1;9	2;9	-	2;11	1;9
	Tokens	47	3	-	10	51
IOS	Age	2;1	2;5	-	2;8	2;1
	Tokens	38	10	-	18	83

There are only two syntactic frames in which the modals *a putea* ‘can, may’ and *a trebui* ‘must, need’ are attested. They either occur with a contextually retrievable omitted clausal complement (illustrated in 17) or with a subjunctive complement (illustrated in 18).

(17) Antonio, 2;1

*Vrei să cazi.*  
 want.PRS.2SG SBJV fall.2SG  
 ‘You want to fall down.’

(18) Antonio, 2;7

*Nu mai pot să mă ridic.*  
 not anymore can.PRS.1SG SBJV REFL rise.1SG  
 ‘I can’t get up anymore.’

In terms of frequency, Bianca and Iosif preferentially use the modal verb *trebui* ‘must, need’ with a subjunctive complement and Iosif also does so with *putea* ‘can, may’. In Antonio’s corpus the modal verb with an omitted complement is the most frequently encountered pattern (see Table 4).

Table 4. Early modals: patterns of complementation

Child	<i>putea</i> ‘can, may’		<i>trebui</i> ‘must, need’	
	omitted	SBJV	omitted	SBJV
	clausal COMP	COMP	clausal COMP	COMP
BIA	23	11	5	26
ANT	31	19	8	2
IOS	18	30	4	14

#### 4.3.2. Child-directed speech

One of the questions addressed in this study is to what extent the acquisition order of the contextual uses of modal verbs can be accounted for in terms of properties of the input. The analysis of CS has revealed that deontic *a trebui* ‘must, need’ and deontic *a putea* ‘can, may’ are attested later than the dynamic uses of *a putea* ‘can, may’; the overall frequency of deontic use is much lower (see Table 3). The picture which emerges from the analysis of CDS is similar. One notices an asymmetry between agent-oriented *a putea* ‘can, may’, the most frequently encountered modal in child-directed speech across the three corpora (a total of 296 tokens), and agent-oriented *a trebui* ‘must, need’ (a total of 132 tokens).

The delayed acquisition of epistemically used modal verbs can also be accounted for in terms of properties of the input. The analysis of child-directed speech reveals a very low number of modal verbs used with an epistemic value (Table 5). In the input data of Iosif and Bianca, they amount to at most 5% of tokens and in Antonio’s they are not found at all.

Table 5. Agent-oriented (dynamic and deontic) and epistemic use of modal verbs in CDS

	<i>A putea</i> ‘can, may’		<i>A trebui</i> ‘must, need’	
	agent-oriented	epistemic	agent-oriented	epistemic
BIA	99	4	44	2
ANT	65	0	36	0
IOS	132	7	52	2

The adults in the three corpora investigated preferentially use adverbs to express epistemic modality. The adverb *poate* ‘maybe’ expressing epistemic possibility is used much more frequently than the corresponding verb (Table 6).

Table 6. Overall use of the epistemic modal verb *a putea* ‘can’ vs. the adverb *poate* ‘maybe’ in CDS

	Epistemic verb	Epistemic adverb
	<i>a putea</i> ‘can, may’	<i>poate</i> ‘maybe’
Iosif	7	20
Bianca	4	15
Antonio	0	5

## 5. Discussion and conclusion

The analysis of the modal verbs in the three longitudinal corpora of child Romanian has revealed that deontic and dynamic meanings of modal verbs are acquired before epistemic ones. While modal verbs with a subject-oriented dynamic value emerge very early, epistemically used modal verbs are not yet attested at age 3;0. In this respect, our results are similar to what has been reported for the acquisition of a variety of other languages (Wells 1979, 1985; Shepherd 1982; Bassano 1996, among many others). A number of researchers have accounted for this delay in terms of cognitive development (see Papafragou 2000 or Shatz and Wilcox 1991 for an overview). Besides evidence from many languages,

the Romanian data also challenge the cognitive development approach. Bianca and Antonio begin to use epistemic adverbs concurrently with or shortly after their first use of deontic modals, at a time when epistemic modal verbs are not yet attested. Iosif's epistemic adverb *parcă* 'apparently' is found at age 2;2. Although the number of such adverbs is relatively low, the fact that children use them correctly at a time when epistemic modal verbs are still absent from their speech suggests that epistemic modality per se does not actually lag behind. Since epistemic modal adverbs used in appropriate contexts are attested before age 3 in the corpora of the three Romanian children, a cognitive difficulty with the acquisition of epistemic modal meanings is excluded.

Another account links the delay in the acquisition of epistemic modal verbs to a delay in the acquisition of clausal complementation (see the discussion in Hegarty 2016). In Romanian, as shown in Section 3, deontic and epistemic modals occur with the same type of clausal complement. Both *a putea* 'can, may' and *a trebui* 'must, need' can take a subjunctive complement. Romanian children begin to use the subjunctive early, around age two (Avram and Coene 2011). They also use embedded clauses shortly after they turn two (Avram and Coene 2006). Moreover, modal verbs in the longitudinal data which we investigated are frequently encountered with a subjunctive complement. Therefore, the delayed emergence of epistemically used modals cannot be accounted for in terms of a delay in the acquisition of clausal complementation.

Alternatively, one could look for a possible cause in input properties. The analysis of child-directed speech revealed a very low number of epistemic modal verbs. The Romanian data are not singular in this respect. Shatz et al.'s (1990) analysis of child-directed speech in American English and German revealed that epistemically used modals amount to less than 10% of the tokens of modal verbs. Interestingly, the caretakers of the Romanian children use even fewer modal verb tokens epistemically and prefer adverbs to express epistemic modality. The adverb *poate*

‘maybe’, for example, is found more frequently than the corresponding modal verb *a putea* ‘can, may’ for expressing epistemic possibility in child-directed speech.<sup>6</sup> We suggest that the complete absence of epistemic modal verbs in Romanian child speech during the early stages could be explained in terms of language-specific properties: These verbs have contextually determined modal values and they are rarely found in the input which children receive. The early emergence of epistemic adverbs in Romanian child speech (as in other languages) may be further facilitated by the fact that they are inherently epistemic and do not acquire this modal value contextually. This argument is in line with studies which argue that epistemic modality is delayed only with modal expressions conveying more than one contextual modal meaning (Hacquard and Cournane 2016). Our data show that the delay in the acquisition of epistemically used modals is tied to at least two factors: type of modal expression (context-dependent vs. context-independent) as well as the overall tendency in Romanian to use epistemic adverbs to the detriment of epistemic modal verbs. This account can also explain why in Romanian the epistemic delay with modal verbs is more significant than in other languages. In English, for example, epistemic uses of modal verbs are attested as early as age 2;3 (Cournane 2015). Gaidargi (2013) also reports early use of epistemic modal verbs in child English, before age 3;0. But in the Romanian corpora no epistemic modal verb is attested before age three.

The second question which was addressed in the present study was whether a developmental asymmetry between subject-oriented dynamic and deontic uses of modal verbs is also found in child Romanian. Our results reveal that this is indeed the case. In this respect as well the Romanian data are similar to those reported for other languages (Brown 1973; Fletcher 1979; Bliss 1988). Overall, modal verbs with subject-oriented dynamic

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<sup>6</sup> This is also true of adult-directed speech.

meaning are attested before modal verbs used with deontic meaning. The order of acquisition is the same across the three longitudinal corpora investigated: subject-oriented dynamic *a putea* ‘can, may’ and *a vrea* ‘to want’ are the first modal verbs attested. The deontic meaning of *a putea* ‘may, can’ develops in the second half of the children’s third year, more than half a year or even a full year after its dynamic meaning. This, however, does not mean that deontic meanings in general are not attested earlier in child Romanian. Bare subjunctives used as directives are attested as early as 1;10 in Bianca’s corpus (see example 18a). Imperatives (though rarely found in the early data) are found in Antonio’s corpus (see example 18b) at 2;4 (Avram and Coene 2011):

(19) a. Bianca, 1;10 (Avram and Coene 2011: 362)

Căutăm                      leul.  
 search.PRS.SBJV.1PL lion.DET  
 ‘Let’s look for the lion.’

b. Antonio, 2;4 (Avram and Coene 2011: 363)

Dă                      o bomboană      de-acolo!  
 give.IMP.SG a candy              of-there  
 ‘Give a candy from over there.’

There is a slight delay only with deontic uses of modal verbs, not with deontic modality *per se*.

Dynamic modals ascribe properties; they do not involve the speaker’s evaluation of situations. This may explain their early acquisition. The fact that dynamic *a trebui* ‘need, must’, which is infrequent in CDS, is also practically absent in child speech shows that frequency in child speech is similar to frequency in the input.

To summarize, in this chapter we have explored the acquisition route of dynamic, deontic and epistemic uses of modal verbs in Romanian. We have compared the acquisition of *a putea* ‘can, may’ and *a trebui* ‘must, need’, which express dynamic and deontic as well as epistemic modality, to that of the modal verb *a vrea* ‘to want’. In accord with results reported in several previous

studies, the identified acquisition order for modality denoted by modal verbs is: (subject-oriented) dynamic > deontic > epistemic. Our data fully confirm the epistemic gap which has been previously observed for modal verbs in various other languages. The fact that the first instances of epistemic modality to be found in Romanian child data are adverbs rather than modal verbs can be attributed to language-specific properties.

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#### Abbreviations

1	first person
2	second person
3	third person
COMP	complement
DET	determiner
DIM	diminutive
INF	infinitive
IPFV	imperfective
MV	modal verb
PRS	present
PL	plural
PST	past
PTCP	participle
REFL	reflexive
SBJV	subjunctive
SG	singular