

The Romanian future-and-presumptive auxiliary*

Teodora Mihoc
University of Ottawa

SUMMARY

In this paper I discuss a Romanian auxiliary with meanings divided between the future tense and the presumptive mood. The main goal of the paper is to provide a unified semantic account for it from the point of view of its temporal, epistemic, and evidential properties. My proposal draws on the thriving body of research regarding the semantics of modals (Kratzer, 1977, 1981, 1991, 2012a,b; von Stechow and Heim, 2009), the temporal properties of modals (Condoravdi, 2002), the future-tense-and-epistemic uses of English *will* (Condoravdi, 2003), variable force epistemic modals (Matthewson et al., 2007), and the connection between evidentiality and epistemic modality (von Stechow and Gillies, 2007, 2010), and contributes to a formal analysis of (at least one part of) the Romanian presumptive mood¹.

RÉSUMÉ

Cet article traite d'un auxiliaire roumain avec des sens répartis entre le temps futur et le mode présomptif. L'objectif principal est d'esquisser un compte-rendu sémantique unifié du point de vue des propriétés temporelles, épistémiques et évidentielles. Ma proposition s'appuie sur l'abondante littérature concernant la sémantique des modaux en général (Kratzer, 1977, 1981, 1991, 2012a,b; von Stechow and Heim, 2009), les propriétés temporelles des modaux (Condoravdi, 2002), les sens futurs-et-épistémiques de l'anglais *will* (Condoravdi, 2003), les modaux épistémiques à force variable (Matthewson et al., 2007), et la relation entre l'évidentialité et la modalité épistémique (von Stechow and Gillies, 2007, 2010), et contribue à une analyse formelle du mode présomptif roumain².

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¹ Recent research on the Romanian presumptive mood includes: in Romanian, Zafiu (2002, 2009), Reinheimer-Rîpeanu (1994a,b, 2007); in French, Reinheimer-Rîpeanu (1998, 2000); in English, Irimia (2009, 2010). From all of these, only Irimia attempted a formal semantic analysis, focusing in particular on the Romanian presumptive mood as a strategy for various types of indirect evidentiality.

² La littérature récente sur le mode présomptif roumain comprend: en roumain, Zafiu (2002, 2009), Reinheimer-Rîpeanu (1994a,b, 2007); en français, Reinheimer-Rîpeanu (1998, 2000); en anglais, Irimia (2009, 2010). De ceux-ci, seulement Irimia a tenté une analyse sémantique formelle, se concentrant en particulier sur le mode présomptif roumain comme stratégie pour différents types d'évidentialité indirecte.

1 INTRODUCTION

Like many other languages, Romanian also has one auxiliary, like the well-known English *will*, that has both future tense and ‘presumptive’ – or epistemic modal – uses. In this paper I will explore the semantic properties of this auxiliary and argue for a unified semantic account as an epistemic necessity modal for all its meanings.

The morpheme that is analyzed in this paper is derived from the verb *a voi* ‘to want’, inflects for person, and has two different sets of forms: literary (1SG:*voi*, 2SG:*vei*, 3SG:*va*, 1PL:*vom*, 2PL:*veți*, 3PL:*vor*) and colloquial (1SG:*oi*, 2SG:*oi/ei/ăi/îi*, 3SG:*o*, 1PL:*om*, 2PL:*oți/eți/ăți/îți*, 3PL:*or*)³. For ease of reference I will designate all these forms by a randomly chosen common label – ξ ⁴.

ξ appears in a number of periphrases. These can be described in terms of the aspect they encode. The table below presents them in summary:

Table 1: ξ periphrases (conjugating for the verb *a cânta* ‘to sing’)

Perfective	ξ ξ	+short INF cânta
Progressive	ξ +INV <i>fi</i> ‘be’ AUX ξ <i>fi</i>	+GER cântând
Perfect	ξ +INV <i>fi</i> ‘be’ AUX ξ <i>fi</i>	+PST.PTCP cântat
Past Perfect	ξ +INV <i>fi</i> ‘be’ AUX ξ <i>fi</i>	+INV <i>fost</i> ‘been’ AUX <i>fost</i> +PST.PTCP cântat
Past Progressive	ξ +INV <i>fi</i> ‘be’ AUX ξ <i>fi</i>	+INV <i>fost</i> ‘been’ AUX <i>fost</i> +GER cântând

From the periphrases listed in Table 1, only the perfective and the perfect ones are considered expressions of the future tense. Along with the progressive periphrasis, these two periphrases are also listed in grammars as forms of the Romanian presumptive mood. The past perfect and past progressive periphrases are obsolete – I have listed them here only to offer a complete picture of the paradigm.

The structure of this paper is as follows: In section 2 I will present the range of meanings of ξ . In section 3 I will discuss its temporal properties. In section 4 I will explore its epistemic modal status. In section 5 I will discuss its evidential properties. Finally, in section 6 I present the conclusions.

³ The two sets are slightly different in usage. The colloquial forms cannot be used as a future tense. The literary forms, on the other hand, can be used both as future tense and as presumptive mood markers, although with a preference for the former. This distribution is inconsequential for my proposal, so I will not discuss it any further.

⁴ Irimia (2009, 2010) uses ‘INFER’ – in recognition of the inferential evidential properties of the auxiliary. In my previous work I used *will* – in recognition of its similarity with the Romanian modal. At present, however, I find it preferable to use a label that does not recommend any *a priori* assumptions.

2 USES OF ξ

Descriptively, ξ is both a future tense auxiliary (with periphrases listed in the Romanian indicative mood) and an epistemic modal (with periphrases listed among the forms of the Romanian presumptive mood). In what follows I will briefly review these two uses.

2.1 FUTURE TENSE

Romanian has a number of strategies to express futurity but it does not have any ‘simple’ future tense. Although periphrastic, the future tense with ξ is nevertheless roughly equivalent to the simple futures of other Romance languages.

Like these, as a temporal marker, the future tense with ξ is mostly restricted to the formal or ‘literary’ register⁵. Some examples (from Reinheimer-Rîpeanu, 1995) would be:

- (1) Articolul 4 se modifică și va avea următorul cuprins:
 article.the 4 REFL.3SG modifies and ξ .LIT.3SG have following.the content
 ‘Article 4 is being modified and shall have the following content.’
- (2) Președintele Iliescu se va întâlni cu președintele Clinton la 26
 president.the Iliescu REFL.SG ξ .LIT.3SG meet with president.the Clinton at 26
 septembrie.
 September
 ‘President Iliescu will meet President Clinton on September 26th.’
- (3) Valorile maxime vor fi cuprinse între 24 - 30° C.
 values.the maximum ξ .LIT.33PL be confined between 24 - 30° C.
 ‘The maximum temperatures will be between 24 - 30° C.’ (e.g. the weather forecast for
 tomorrow)
- (4) Trenul rapid de la Brașov va sosi în gară la linia 10.
 train.the fast from Brașov ξ .LIT.3SG arrive in statin at platform 10
 ‘The fast rail from Brașov will arrive at platform 10.’
- (5) La al cincelea semnal va fi ora 6.
 at the fifth signal ξ .LIT.3SG be hour 6
 ‘At the fifth signal it will be 6 o’clock.’

In sum, as an expression of futurity, ξ is mostly confined to the formal register and to official communications. In spoken language its periphrases often tend to be replaced by other future tense periphrases⁶, considered more ‘colloquial’, or by the present tense. Moreover, most of the times

⁵ According to Fleischman (1982, 101) (cited in Reinheimer-Rîpeanu, 2007), “as a temporal marker, the [Romance] simple future plays a minor role, occurring most often in formal, ‘intellectualized’ varieties of the written language (journalistic writing, official documents and communications, etc.) and less commonly in unmonitored conversation [...]”

⁶ For a detailed account of their forms, history, and meanings - in addition to expressing futurity - see Reinheimer-Rîpeanu (1995).

when it is encountered in spoken language ξ is used as a modal⁷. In the next section I will present some of ξ 's modal uses.

2.2 PRESUMPTIVE MOOD

As stated earlier, some of the periphrases of ξ are listed in Romanian grammars as forms of the Romanian *presumptive* mood⁸. As defined in Rosetti (1943, p.77) and Rosetti and Byck (1945, p.161), this label refers to the expression of “an uncertain event, suspected only by the speaker” [my translation]. Some examples include:

- (6) -Va fi citit el acest roman? -Mă îndoiesc.
 ξ .LIT.3SG be.AUX read he.NOM this novel? me.CLIT.ACC doubt.1SG
 ‘Will he have read this novel?’ ‘I doubt it.’ (from Friedman, 1997, p.173-75)
- (7) Context: *Do they call you ‘Nick the Liar’?*
 Mi-or fi zicând.
 me.CLIT.DAT- ξ .COLLOQ.3PL be.AUX calling.
 ‘They [supposedly] call me that.’ (from Friedman, 1997, p.173-75)
- (8) Doar n-o fi având purici!
 surely not- ξ .COLLOQ.3SG be.AUX having fleas!
 ‘Surely he does not have fleas!’ (from Friedman, 1997, p.173-75)
- (9) Context: *A keeps making up excuses to avoid doing a chore. B complains:*
 Azi e ocupat, mâine-o fi bolnav și tot așa!
 today is busy, tomorrow- ξ .COLLOQ.3SG be sick and forever thus
 ‘Today he’s busy, tomorrow he’ll be sick, and so on and so forth (= and he is basically never able to do it)!’

What is striking in these examples as opposed to the future tense examples listed earlier is the seemingly different temporality of the ξ structure in (6), the presence of progressive aspect in (7), the hypothetical nature of the future illness expressed in (i), and the general modal flavour present in all.

In the next sections I will argue that both the future tense and the presumptive mood uses of ξ can be reconciled in a unified account. My argument will be deployed along three dimensions: 1. the temporal properties of ξ ; 2. the epistemic properties of ξ ; and 3. the evidential properties of ξ .

3 THE TEMPORAL PROPERTIES OF ξ

My analysis in this section is the result of my observation that my data is perfectly accounted for by Condoravdi (2002) and Condoravdi (2003)’s analysis of the temporal interpretation of the English modals.

⁷ See Fleischman (1982) for a similar observation about the simple future in other Romance languages.

⁸ According to Zafiu (2009), in Romanian, the label ‘presumptive’ dates from Manliu (1894, p.248).

3.1 MODALS FOR THE PRESENT AND MODALS FOR THE PAST

Starting from the observation that modal auxiliaries in English are used to express possibility or necessity, from the perspective of the time of the utterance, about a state of affairs temporally located in the present, future, or the past, Condoravdi (2002) labels the ones regarding the present or the future (e.g. *may, must, might, should, ought to*) ‘modals for the present’ and the ones regarding the past (e.g. *may have, must have, might have, should have, ought to have*) ‘modals for the past’. Contra a theory arguing that modals should be classified into non-shifting, forward-shifting, and backward-shifting (e.g. Enç, 1996), Condoravdi argues for a decompositional analysis according in which the modal auxiliary in modal auxiliaries for the present and for the past has the same meaning. Moreover, trying to account for the metaphysical versus the epistemic temporality of modals for the past such as *might have*, she also argues that modals are grouped together in one way according to their temporal orientation and in another way according to their temporal perspective. A modal’s temporal perspective is fixed by the tense in the scope of which they are: modals are in the scope of present tense in extensional contexts and in the scope of zero tense in intensional contexts. Modals come with an inherent temporal semantics: they do not forward-shift the time of evaluation but rather expand the time of evaluation forward. The temporal orientation of a modal is set by this inherent temporal semantics and by the semantics of the aspect it combines with. For example, in its standard interpretation perfect aspect has a backward-shifting effect, so its semantics straightforwardly accounts for the past orientation of epistemic modals for the past⁹. As for the non-shifting and forward-shifting effect observed in modals for the present, this depends on the type of eventuality in the scope of the modal.

In what follows I will discuss, in turn, how each of the formats of ξ fits into this story.

3.2 PERFECTIVE

According to Condoravdi’s account, there are two types of eventualities: states and events. Modals for the present have a future orientation optionally with stative predicates and obligatorily with eventive predicates. Condoravdi’s account for the English modals in their perfective form is straightforwardly borne out in perfective ξ too:

(10) *Stative predicate*

Va/o *fi* *acasă*.
 ξ .LIT/COLLOQ.3SG be home
 ‘She is probably home (now / later).’

(11) *Eventive predicate*

Va/o *cânta*.
 ξ .LIT/COLLOQ.3SG sing
 ‘S/he will (probably) sing (*now / later).’

⁹ Condoravdi (2002) also notes that, for metaphysical (counterfactual) modals for the past, it is aspect that takes scope over the modal, hence their backward-then-forward-shifting temporal interpretation.

This simple classification of eventualities accounts for the temporality of the future tense use of ξ too.

3.3 PROGRESSIVE

In Condoravdi's generalization, future orientation is optional in modals for the present combined with a stative predicate. This makes a stative predicate in the scope of a modal for the present ambiguous between a present and a future temporal interpretation. In Romanian this can be disambiguated by using progressive aspect:

- (12) *Epistemic judgement about the present: stative predicate*
 Va/o fi acasă. / Va/o fi fiind acasă.
 ξ .LIT/COLLOQ.3SG be home / ξ .LIT/COLLOQ.3SG be being home
 'She will probably be home (now / later).' / 'She is probably home (now / *later).'

As can be seen, in Romanian, progressive aspect is perfectly acceptable with stative predicates.

Now, as shown in (11), eventive predicates in the scope of an epistemic modal obligatorily have a future orientation. If one however wants to make an epistemic judgement about the *present* using an eventive predicate, one would again resort to progressive aspect:

- (13) *Epistemic judgement about the present: eventive predicate*
 a. *Va/o cânta. / Va/o fi cântând.
 ξ .LIT/COLLOQ.3SG sing / ξ .LIT/COLLOQ.3SG be singing
 'She is probably singing (now).'

Basically, progressive aspect turns an eventive predicate into a stative one. Its role, in short, is to disambiguate the temporal orientation of stative predicates in the scope of a modal for the present and to help cancel the future orientation of eventive predicates in the scope of a modal.

This role of progressive aspect has mostly passed unnoticed in Romanian. This partly has to do with the fact that progressive aspect occurs in Romanian only with some (epistemic) uses of ξ and with certain uses of the conditional-optative, the subjunctive, and the infinitive, and is hence comparatively rare in usage. Unless prompted with targeted examples as the examples shown above, most native speakers of Romanian would be unsure that there is any difference at all between perfective ξ and progressive ξ . Also, given its occurrence exclusively in contexts labelled as 'uncertain' or recognized as epistemic and/or evidential, the Romanian progressive aspect has often been wrongly assumed to be a marker of uncertainty *per se*.

The fact that progressive ξ cannot be interpreted as, say, the equivalent of an English future tense progressive can be explained simply by the way the Romanian TAM system is organized: the tenses of the Romanian indicative mood do not branch into 'simple' and 'progressive'. Progressive aspect in Romanian seems to be restricted to non-deictic, or *irrealis*, verb forms. It seems particularly designed to accommodate the make-up and requirements of modals (and evidentials, but I will talk about this later).

3.4 PERFECT

In combination with perfect aspect, an epistemic modal undergoes backward-shifting due to the semantic properties of perfect aspect. Thus, an utterance such as (14):

- (14) Va/o fi plecat deja de la birou.
 ξ.LIT/COLLOQ.3SG be left already from office.
 ‘He must have already left from office.’

Which can be semantically decomposed as:

- (15) PRES (ξ (PF (he read the book)))

Where the perspective is given by the present tense in the scope of which it is, and the past orientation is given by the perfect.

Under the future tense perfect interpretation, the same semantic recipe works, except that the perfect in the scope of the modal first needs to combine with a frame adverbial which will map its temporal properties to its own temporal properties. For example:

- (16) Măine la 5 el va fi plecat deja de la birou.
 tomorrow at 5 he ξ.LIT.3SG be left already from office
 ‘Tomorrow at 5 he will have already left from office.’

Which can be semantically decomposed as:

- (17) PRES (ξ (By (future-time-limit)(PF (he-leave-from-office)))).

3.5 PAST PERFECT AND PAST PROGRESSIVE

As mentioned at the outset, the past perfect and the past progressive¹⁰ forms of ξ are now obsolete. In addition to the invariable auxiliary *fi* ‘be’ and the past participle form of the verb, which form the perfect, these forms also include another invariable auxiliary, *fost* ‘been’. This auxiliary seems to act like a special perfect; the role of which is to backward-shift the time of evaluation from the time of utterance into the past, before perfect aspect (as in (18)) or progressive aspect (as in (19)) come into play:

- (18) Când a ajuns el în sfârșit acasă, ea va fi fost terminat deja toată
 when has.AUX arrived he in end home, she ξ.LIT.3SG be been finished already all
 treaba.
 work
 ‘When he finally arrived home, she had probably already finished (must have had already finished) all the work.’

¹⁰These labels rely on my observations about the temporal-aspectual properties of these formats of ξ. While I have seen the former being called a ‘pluperfect’, to my knowledge, the ‘past progressive ξ’ label for the latter is mine.

- (19) Pe când ea muncea din greu, el se va fi fost
 while she worked.IMPF.3SG from hard he REFL.3SG ξ .LIT.3SG be been
 distrând toată ziua.
 having.fun all day
 ‘While she was working so hard, he was probably having fun all the time.’

In this section I have reviewed the temporal properties of ξ and shown that it obeys in every way the predictions of Condoravdi (2002)’s analysis. In this analysis, the future tense use of ξ is merely one of the possible temporal realizations of the modal ξ – in the perfective format or, with a *BY* adverbial, also in the perfect format. Descriptively, as opposed to epistemic ξ , future tense ξ is a modal for the present which has a future orientation obligatorily with both eventive *and* stative predicates. As a whole, ξ is a modal that has exclusively epistemic readings when the property it applies to is instantiated at a time coinciding with, or in the past of, its temporal perspective; it allows for (but is not limited to)¹¹ a metaphysical (future tense) reading when the property it applies to is instantiated at a time in the future of the temporal perspective of the modal (Condoravdi, 2003).

In the next section I will review the epistemic properties of ξ and try to propose an epistemic modal analysis that would capture both its epistemic and its future tense uses.

4 THE EPISTEMIC PROPERTIES OF ξ

The temporal properties of ξ have already shown it to be a modal. Its meanings also seem to indicate that it is an epistemic modal. In what way is ξ an epistemic modal, though? To answer this question let us try to test ξ against some of the common tests and examples for epistemic modality that have been proposed in previous literature (e.g. Faller, 2002; Matthewson et al., 2007; von Stechow and Gillies, 2007):

- Is ξ felicitous if *p* is known to be false? No:

- (20) *O fi plouând, dar nu plouă.
 ξ .colloq.3SG be.AUX raining but not rains
 ‘It’s probably raining but it’s not raining.’

¹¹The fact that ξ can have epistemic uses in the future too has been generally neglected in the literature. Examples such as (i) however prove that that is possible too:

- (i) Context: *A keeps making up excuses to avoid doing a chore. B complains:*
 Azi e ocupat, mâine-o fi bolnav și tot așa!
 today is busy, tomorrow- ξ .COLLOQ.3SG be sick and forever thus
 ‘Today he’s busy, tomorrow he’ll be sick, and it never ends!’

- Is ξ felicitous if p is known to be true? No:

(21) *O fi plouând. De fapt știu sigur că plouă, numai
 ξ .COLLOQ.3SG be.AUX raining in fact know.1SG for.sure that rains, only
 ce-am venit de-afară!
 that-have.1SG.AUX come from-outside!
 ‘It’s probably raining. Actually I know it’s raining, I’ve only just been outside!’

This test feels inadequate. A better question would be: Is ξ felicitous if p is known from direct or trustworthy evidence to be true? This is because the infelicity seems to arise from the fact that ξ presupposes indirect evidence, whereas the continuation ‘Actually I know it’s raining, I’ve only just been outside’ involves direct evidence. Also, the word *sigur* in the original, translating into ‘I know for sure’, does not necessarily reinforce the idea of speaker commitment as much as the idea of trustworthiness of the evidence s/he has. We will see more about this in section 5. In conclusion: No, ξ is not felicitous if p is already known *through direct/trustworthy evidence* to be true. (We will see more about direct/trustworthy evidence in section 5.)

- Is the indirect evidence requirement for ξ cancelable? As already hinted above, no:

(22) *O fi plouat. De fapt, am văzut eu că a
 ξ .COLLOQ.3SG be.AUX rained in fact have.1SG.AUX seen I that has.AUX
 plouat.
 rained
 ‘It must have rained. Actually I saw it rain.’

- Does the ξ -modalized proposition pass the assent/dissent test? Yes:

(23) Context: A is driving past John’s house with B and sees John’s lights are on.
 A: O fi acasă; toate luminile sunt aprinse.
 ξ .COLLOQ.3SG be home all lights are lit
 ‘John must be home; all his lights are on.’
 B: Nu-i adevărat. El întotdeauna uită să stingă lumina când
 nor word he always forgets SUBJ turn.off.SUBJ.3SG light.the when
 pleacă de acasă.
 leaves from home
 ‘This isn’t true. He always forgets to turn his lights off when he goes out.’

B’s reply does not deny that the proposition that the John is home. Rather it denies that A has the correct information about John’s whereabouts in the worlds in which his lights are on. Otherwise put, it denies the modal claim that John *must* be home. This suggests that the ξ is contributing to the propositional content. Hence, ξ passes the assent/dissent test.

- Is ξ embeddable? Yes. Epistemic modals are syntactically high, which makes some kinds of embedding problematic (von Stechow and Iatridou, 2002). However, there are still many cases

in which an epistemic modal embeds felicitously (von Fintel and Gillies, 2007). ξ provides eloquent examples in this sense:

- Antecedent of a conditional:

- (24) *A has bought gifts for her friend's newborn baby. As she arrives at her friend's place she notices that everything she has bought is designed as for a male baby. All of a sudden it dawns upon her that she does not really know that the baby is a boy. She worries:*

Și dac-o fi fată?
and if- ξ .COLLOQ.3SG be girl
'And what if it should turn out to be a girl?' [Reinheimer-Rîpeanu (1994a),
context mine]

- (25) *A sees B lying on the ground. C is checking B's pulse. A asks C, 'Is B still alive?' C replies:*

Pe lumea cealaltă, dac-o fi existând!
on world.the other,, if ξ .COLLOQ.3SG be.AUX existing
'On the other world, if there is one.'

- Temporal clauses:

- (26) Când n-oi mai fi, să-ți
when not- ξ .COLLOQ.1SG any.more be, SUBJ-yourself.clit.DAT
amintești...
remind.SUBJ.2SG...
'When I shall be no more, remember...'

- Verbs of saying:

- (27) *A is speaking on the phone to B. C asks A to ask B where D is. B guesses that D is probably at school. A then relays the information to C:*

Zice c-o fi la școală.
says that- ξ .COLLOQ.3SG at school
'[B] says that [D] is probably at school.'

With verbs of saying, the embedded ξ -clause feels like a quotation: 'B says: "D is probably at school."' ξ is relative to B's knowledge.

- Attitude predicates:

- (28) Cred c-o fi acasă.
think.1SG that- ξ .COLLOQ.3SG be home
'I think s/he/it must be home.'

- Questions. Conjectural questions¹² are very common with ξ :

- (29) Ce-o fi făcut?
 what- ξ .COLLOQ.3SG be done
 ‘What may he have done?’ (adapted from von Fintel and Iatridou, 2002, cf. Brennan (1993))
- (30) Unde-o fi ascunsă arma crimei, după părerea ta?
 where- ξ .COLLOQ.3SG be hidden weapon.the crime.GEN, after opinion.the your
 ‘Where [might/]must the crime weapon hidden, in your view?’ (adapted from von Fintel and Iatridou, 2002, cf. Brennan (1993))
- (31) Cine-o fi lăsat bebelușul acesta în pragul meu?
 who- ξ .COLLOQ.3SG be left baby.the this in doorstep my
 ‘Who can have left this baby on my doorstep?’ (adapted from von Fintel and Iatridou, 2002, cf. Brennan (1993))

These tests can be replicated for future tense ξ too - with the caveat (already mentioned above) that future tense is restricted to the perfective and the perfect formats and to instantiations at a time in the future of the temporal perspective of the modal (Condoravdi, 2003). Interesting examples from the point of view of English would be the ones where future tense ξ is embedded under *when* or *if*. Due to the relative / hypothetical / conditional temporal value of *when* in such contexts, as well as the modal-restriction quality of *if*, these examples nevertheless strongly suggest that, thus embedded, ξ acts more as an epistemic modal than as a future tense auxiliary.

Now that we have gained a sense of the data, the next step is to try to find an epistemic modal analysis that would capture both the epistemic and the future tense uses of the epistemic modal ξ .

The biggest challenge to an epistemic modal analysis of ξ is posed by its epistemic force. The reason is that it does not appear to map straightforwardly to either a possibility or a necessity modal. My glosses so far have translated ξ into English diversely – as *may*, *must*, *probably*, *should*, *shall*, or *will*. *May* is an epistemic possibility modal, *must* is an epistemic necessity modal, *probably* suggests a variable force. Which one of these is ξ , really?

Condoravdi (2003) argued that the epistemic and the future tense uses of English *will* can both be accounted for by an analysis of *will* as an epistemic necessity modal. Let us start, therefore, with the assumption that such an analysis will be adequate for ξ too.

Adopting von Fintel and Heim (2009)’s version of Kratzer’s doubly relative theory of modality (with the Limit Assumption), ξ is relative to two conversational backgrounds: a modal base that assigns to any input world a set of propositions describing the relevant circumstances and an ordering source that assigns to any evaluation world a set of propositions which are known or believed to be true in the evaluation world and which are used to order the worlds in the modal base. Modals quantify over the best worlds from the modal base. A necessity modal will quantify universally, over all the best worlds picked out by the ordering source:

¹²In this paper I will not be able to discuss conjectural questions any further. For a discussion and a theoretical proposal see Littell et al. (2010).

$$(32) \quad \llbracket \textit{necessity modal} \rrbracket^{w,g} = \lambda f_{\langle s, \langle s, t \rangle, t \rangle} \cdot \lambda g_{\langle s, \langle s, t \rangle, t \rangle} \cdot \lambda q_{\langle s, t \rangle} \cdot \forall w' \in \max_{g(w)}(\cap f(w)): q(w') = 1$$

where f is the modal base and g is the ordering source

At this point it is time to refine our analysis and object that it does not say anything about the perceived variable force of ξ .

Here, too, previous literature comes to the rescue. ξ seems to resemble the inferential epistemic modal *k'a* from St'át'imcets - reported Rullmann et al. (2008) to have a variable force. Speaking of this modal, Kratzer (2012a, 46-9) remarks that variable-force modals should be glossed neither as *must*, nor as *may*, but rather as *it is somewhat probable that*. As this seems very convenient for ξ , I will adopt this refinement.

Kratzer calls variable-force modals 'variable-force upper-end degree modals', and argues that they can be accounted for by the same mechanism of domain restriction via the ordering source. Depending on how much ordering shrinks the set of accessible worlds, the epistemic force of ξ will be perceived as weaker or stronger, with an admissible probability ranging from, for example, 50% to a maximum of 100%.

According to Kratzer (2012a, 42), a plausible way to determine the probability of propositions is to start from the probability values of individual worlds. For example, if an ordering gives a ranking such as:

$$w_3 <_Q w_2 <_Q w_1 <_Q w_0,$$

Then we can assign probability values to each of these worlds in a way that respects this ordering, i.e.:

$$Pr(\{w_3\}) > Pr(\{w_2\}) > Pr(\{w_1\}) > Pr(\{w_0\}).$$

One possible set of values is, for example, $Pr(w_0) = .35$, $Pr(w_1) = .55$, $Pr(w_2) = .70$, and $Pr(w_3) = .85$. Although these values do indeed obey the ordering of probabilities, they are not, however, adequate, since they add up to more than 1, whereas the maximum probability of a proposition $p = w_0, w_1, w_2, w_3$ is 1. To make sense, these values must therefore obey the following normalization condition:

$$Pr(\{w_0\}) + Pr(\{w_1\}) + Pr(\{w_2\}) + Pr(\{w_3\}) = 1.$$

A way to figure out some possible values for these singleton sets and for their combinations is to calculate the total number of possible combinations (which is in fact the total number of propositions one can get from 4 worlds), and then scale it to 1. Applying the combination formula ${}^n C_r = \frac{n!}{(n-r)!(r!)}$ for combinations of n possible worlds taken r at a time, and adding up the results for each of the possible values of r (i.e. 4, 3, 2, 1, or 0, since in all we have four worlds), we obtain a total of 15 possible combinations. Scaled to 1, this is 15/15. The sum of probabilities of all the worlds can now be rewritten as:

$$Pr(\{w_0\}) + Pr(\{w_1\}) + Pr(\{w_2\}) + Pr(\{w_3\}) = 15/15.$$

The values for the remaining combinations can be then put in by hand in a way that respects the ordering of the worlds, for singleton sets, and added up from the values of the singleton sets, for sets with more than one world. Kratzer assigns them as follows:

$\Pr(\emptyset) = 0$	$\Pr(w_2) = 4/15$	$\Pr(w_3) = 8/15$	$\Pr(w_2, w_3) = 12/15$
$\Pr(w_0) = 1/15$	$\Pr(w_0, w_2) = 5/15$	$\Pr(w_0, w_3) = 9/15$	$\Pr(w_0, w_2, w_3) = 13/15$
$\Pr(w_1) = 2/15$	$\Pr(w_1, w_2) = 6/15$	$\Pr(w_1, w_3) = 10/15$	$\Pr(w_1, w_2, w_3) = 14/15$
$\Pr(w_0, w_1) = 3/15$	$\Pr(w_0, w_1, w_2) = 7/15$	$\Pr(w_0, w_1, w_3) = 11/15$	$\Pr(w_0, w_1, w_2, w_3) = 15/15$

For all p, q from the set of propositions, p is a better possibility than q iff $\Pr(p) > \Pr(q)$.

Applying this to ξ , for epistemic modal meanings the ξ proposition can be any one of these 15 combinations, except for the empty set and w_0, w_1, w_2, w_3 , since the probability value associated with a presumptive is greater than 0 and less than 1. If the proposition includes worlds such as w_0 or w_1 , the expectation is that this proposition will be weaker than a proposition that includes worlds w_2 or w_3 . The former will be perceived as a mere speculation or somewhat likely possibility, whereas the latter will be perceived as a more likely possibility. All of them will convey the sense that they're the speaker's best guess about a given information gap.

As for the future tense meanings of ξ , they can be understood in exactly the same way, with the constraint that the probability of the epistemic judgement has to be 1. (Or the constraint that there is no ordering source, hence also no ordering and no division of probability among possible worlds.)

5 THE EVIDENTIAL PROPERTIES OF ξ

Does ξ truly weaken an assertion, in any kind of contexts? The prevalent answer in the literature so far has been 'yes', ξ being vaguely correlated with uncertainty, speculation, inference, and doubt. Recently, though, the apparent weakness of certain epistemic modals has been called into question. Von Fintel and Gillies (2007) have argued, for example, that *must* is not necessarily weaker than ordinary assertions. It can be used in logical inferences where there is no uncertainty, in such cases it serving rather to signal the indirect reasoning process. Von Fintel and Gillies (2007)'s example in this sense can be replicated for ξ too:

(33) *Logical inference: The ball is in A or in B or in C. It is not in A. It is not in B.*

Atunci o fi în C.
 then ξ .COLLOQ.3SG be in C
 'Then, it must be in C.'

Von Fintel and Gillies (2010) further argue that the perceived weakness of *must* relies on the incorrect assumption that indirectness equals weakness. They propose an approach that incorporates the indirect evidential component of *must* without thereby weakening its epistemic force. In their approach, the information that modals quantify over is not all equal: some of it is privileged information - in the sense that it is direct (or direct enough in the context). They call this direct, privileged information the *kernel*. A modal base determined by a kernel of information is defined as:

Definition 1. Let K be a kernel for B_k . B_k is determined by K only if:

- (i) K is a set of propositions (if $P \in K$ then $P \subseteq W$)
- (ii) $B_K = \cap K$

With this set-up in mind, von Fintel and Gillies (2010) then treat the evidential signal as a presupposition and impose its satisfaction as a definedness constraint on the assignment of truth values in a context at a world. The necessity modal *must* then looks like this:

Definition 2. (*Strong must + evidentiality.*) Fix a *c*-relevant kernel *K*:

- (i) $\llbracket \text{must } \phi \rrbracket^{c,w}$ is defined only if *K* does not directly settle $\llbracket \phi \rrbracket^w$
- (ii) if defined, $\llbracket \text{must } \phi \rrbracket^{c,w} = 1$ iff $B_K \subseteq \llbracket \phi \rrbracket^w$

Since all epistemic necessity modals seem to have an evidential component¹³, this analysis is predicted to be applicable to ξ too. Indeed, ξ can be, and has already been described in the literature (e.g. Reinheimer-Rîpeanu, 2000; Zafiu, 2009; Irimia, 2009, 2010) as an indirect inferential evidential. Some examples would be:

- Results

- (34) Context: *Mark is a little boy who loves chocolate cake. One day his mom buys a chocolate cake and puts it in the fridge. Later she sees someone has eaten half of the cake. Her best guess about who might have eaten it is:*

O fi mâncat-o Mark!
 ξ .COLLOQ.3SG be.AUX eaten-it.CLIT.ACC Mark
 ‘It must be Mark that ate it!’

- (35) Context: *Ann is in a house with a new-born baby. She hears the sound of someone crying. She thinks:*

Va fi plângând bebelușul.
 ξ .LIT.3SG be.AUX crying
 ‘It’s probably the baby (that’s) crying.’

- Reasoning

- (36) Context: *Maggie’s roommate is putting on a nice dress and jewelry and make-up. She looks happy and excited. Maggie’s best guess is:*

O fi mergând la întâlnire!
 ξ .LIT/COLLOQ.3SG be.AUX going at meeting
 ‘She’s probably going on a date!’

According to von Fintel and Gillies (2010)’s analysis, outlined above, epistemic ξ is defined only if the kernel - or the direct and privileged information available in the modal base - does not

¹³“We have not found a language whose expression of epistemic necessity fails to carry an evidential signal of indirect inference. That is, the paradigm illustrated for English [...] can be replicated in language after language [...] We thus see no choice but to stipulate the evidential component of *must* in its lexical semantics, and we have to leave as unsolved the mystery of why this seems to be happening with every epistemic necessity modal that we have come across. We’d be more than happy to be shown that there is a reliable conversational derivation, but for now we will treat the evidential signal as hardwired” (von Fintel and Gillies, 2010, 367-8).

directly settle $\llbracket \phi \rrbracket^w$. The future tense interpretation of ξ would then arise in those cases where the kernel is actually able to directly settle $\llbracket \phi \rrbracket^w$. The examples in 2.1 all support this conclusion. (Official communications are inherently privileged information, direct *enough* or sufficient to settle an issue.)

6 CONCLUSIONS

In this paper I have tried to provide a unified semantic account for the future tense and presumptive mood uses of the Romanian modal *voi, vei, va, vom, veți, vor* (with its colloquial counterparts) - in short labelled ξ . The main conclusions of my analysis include: 1. the temporal properties of ξ are the same as those of English epistemic modals; future tense is merely a special case of modal temporality; 2. ξ is a variable force upper-end degree epistemic modal; future tense is merely a special case of epistemic modal with an empty ordering source; and 3. epistemic ξ is defined only if the direct information in the modal base does not settle it, otherwise ξ is interpreted as future tense.

In terms of contribution to the current state of the research, my paper identified a solution for the role of progressive aspect in Romanian - an issue that has long been controversial. This solution is potentially applicable to the other three Romanian moods - the conditional-optative mood, the subjunctive mood, and the infinitive mood - where it occurs as well. In addition to this I have also tried to establish the status of ξ in light of the current semantic theories of modality and evidentiality.

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