The Slovenian future auxiliary biti as a tenseless gradable evidential modal

Inferential and concessive readings

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Adopting a general perspective inspired by formal semantics -most prominently Kratzer’s ideas on modals-, this paper argues that the Slovenian future auxiliary biti may function as an epistemic modal with evidential characteristics. In its epistemic capacity, biti is a Zero-tense/tenseless modal anchored to Speech Time. In other words, it signals a deduction/concession made at Speech Time, or displays a so-called present ‘Temporal Perspective’. Biti does not define the time or ‘Temporal Orientation’ of the depicted event, which is defined by Viewpoint Aspect. Biti may depict present, past, future, or habitual events when it combines with Imperfective (IMPF) Viewpoint Aspect. When combined with Perfective (PERF) Viewpoint Aspect, biti necessarily depicts future events/ acquires a future ‘Temporal Orientation’. Biti is a gradable modal connected to either a scale of believability or a scale of desirability, both anchored in the speaker.

1. Introduction

As noted by Toporišič (2000, 398), in addition to ‘ordinary’ future/prospective readings, the Slovenian future auxiliary biti, glossed ‘be.Fut’, displays two modal readings classified as epistemic, illustrated in (1) and (2) (our glosses and translations). Following grammatical tradition, we label these two epistemic readings Inferential and Concessive respectively.

(1) **Inferential**:
   A: Kdo pa je ta moški z brki?  
   Who Particle be.pers.3sg this man with moustache?  
   “Who is this man with a moustache?”
   
   B: To bo tisti one, kako se že piše, Rozin ali Cvelbar.  
   This be.fut.3sg that guy, what refl.name.pers.3sg, Rozin or Cvelbar  
   “This will be that guy, what is his name, Rozin or Cvelbar.”
   (Toporišič 2000: 398)
Concessive:
Naj bo še tak revež, moj otrok je. (Toporišič 2000: 398)
Particle be.FUT.3sg even such poor.guy, my child be.PRES.3sg
“He might be so poor a guy, but he is my child.”

Concentrating on epistemic *biti*, the aim of this paper is to informally explore its inferential and concessive readings, seeking inspiration in current views on modality in the framework of Kratzer (1977, 1981, 1991, 2012). We argue that epistemic *biti* is a tenseless gradable evidential modal that introduces a comparative scale involving the proposition p embedded under the modal. Inferentials and Concessives may both grade the believability of p, and this factor unifies them under one common form.

The paper is organized as follows. Section 2 briefly introduces the syntax and readings of the Slovenian future auxiliary, illustrating ‘ordinary’ future/prospective meanings, which are not the topic of this paper. The section continues by introducing the inferential and concessive readings of the future auxiliary, and compares them with readings found with canonical epistemic modals in Slovenian. The conclusion is that epistemic *biti* exhibits unique characteristics when compared to canonical epistemic modals. Section 3 develops core ideas in the paper: epistemic *biti* as a modal (a) is an evidential that cares about indirect information, (b) is tenseless, and (c) is a degree expression. Section 4 concludes.

2. Introducing future *biti*

This section first briefly describes the future landscape in Slovenian, setting it against a (partial) background in the Slavic family. This is followed in §2.2 and §2.3 by an introduction of some key features in the epistemic uses of *biti*. The section closes with a brief comparison in §2.4 of the epistemic future and the modal auxiliaries *morati* ‘must’ and *utegniti* ‘may’, which also display epistemic uses. We conclude that epistemic *biti* has a unique character, which we attribute in section §3 to its temporal and aspectual properties, and to its gradable nature.

2.1 Future forms and future meanings in Slovenian

In the Slavic family, future forms and meanings display considerable morphosyntactic and semantic variation. Our first step in this section, then, consists in (partially) describing the complex landscape of the future domain in morphosyntax and semantics in Slovenian.

We begin with auxiliary *biti* ‘be.Fut’ from a general perspective. This form may display ‘ordinary’ future readings when it combines with imperfective and with perfective verbs as complements, as in (3a) and (3b).
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(3) a. Jutri bom pisal tisto pismo.
   Tomorrow be.fut.1sg write.imp.ppl that letter
   “Tomorrow I will be writing that letter.”

   Tomorrow be.fut.1sg perf.write.perf.ppl that letter
   “Tomorrow I will write that letter.”

While not identical in meaning, both (3a) and (3b) exhibit readings that traditional grammars consider canonical for future morphology: those where the time of the described eventuality, or Event Time, is forward-shifted with respect to the time of the utterance, or Speech Time (ST > ET).

The examples in (3a–b) also serve to identify variation in Slavic. On the one hand, Slovenian patterns with the South Slavic languages including Bulgarian, whose future marker may also combine with perfective and imperfective complements (a.o. Rivero & Simeonova in press). On the other hand, it contrasts with the East and West Slavic languages, where future auxiliaries do not combine with perfective verbs: Russian (4b), and Polish (5b). In East and West, perfective present verbs display future readings, as in (4a) and (5a), which is also an option in Slovenian (see (7) later).

(4) a. Naš poezd ot.pravit.sya v 10 časov. (Russian)
   Our train pr.leave.pres.perf at 10 o’clock
   “Our train will leave at 10 o’clock.”

   b. *Naš poezd budet ot.pravil.sya v 10 časov.
   Our train fut pr.leave.perf.ppl at 10 o’clock

(5) a. Jutro na.piszę list. (Polish)
   Tomorrow pr.write.present.perf.1sg letter.
   “Tomorrow I will write a/the letter.”

   b. * Jutro bęđę na.pisal list.
   Tomorrow fut.1sg pr.write.perf.ppl letter.

In § 3.3, we argue that the inferential and concessive readings of interest to this paper are found in Slovenian only when the complement of the future auxiliary is an imperfective and not a perfective verb. Such a restriction, however, distinguishes Slovenian from Bulgarian, whose future marker may display epistemic readings with imperfective and perfective complements. To illustrate, the complement of epistemic šte ’Fut’ in (6) adapted from (Rivero & Simeonova in press) is a present perfect with a perfective participle, and speaks of an inference about a past event.

(6) Ivan šte (da) e iztärpjal mnogo prez vojnata.
   Ivan fut (da) be.pres.3sg endure.perf.ppl a.lot during war.the
   “Ivan must have endured a lot during the war.” (Bulgarian)
Slovenian *biti*, however, is not the only verb form that displays readings where the Event Time follows Speech Time. The perfective present verb mentioned above now illustrated in (7) -a sentence comparable to Russian (4a) and Polish (5a)- is another case in point (see also Toporišč 2000: 393).

(7) Jutri na.pišem tisto pismo. Tomorrow write.pres.perf.1sg that letter “Tomorrow I will write that letter.”

Sentence (7) also indicates variation in Slavic. As noted, Slovenian resembles Russian and Polish, and the difference is with Bulgarian, where perfective presents are ungrammatical in main clauses, restricted to adjunct clauses, and can only be interpreted as habituals. This is illustrated in (8) adapted from (Rivero & Slavkov 2014); the when-clause contains a perfective present, the main clause an imperfective present as (the only grammatical) option, and the reading is necessarily habitual.

(8) Kogato Marija pročete tazi kniga, tja plače. When Maria read.pres.perf. this book, she cry.pres.imp “Whenever Maria reads this book to the end, she cries.” (Bulgarian)

We just noted that in Slovenian both perfective presents and future auxiliaries with perfective complements allow for future readings, so sentences such as (9a) and (9b) correspond to only one option in Russian, namely (4a). Again, the Slovenian sentences are both grammatical, but not identical in meaning.

(9) a. Naš vlak od.pelje ob desetih. Our train leave.pres.perf.3sg at 10 o’clock

b. Naš vlak bo od.peljal ob desetih Our train be.fut.3sg leave.perf.pl at 10 o’clock “Our train will leave at 10 o’clock.”

Slovenian perfective presents may also display habitual readings in parallel to those in Russian (10a). It remains that Slovenian allows for a larger variety of options that other Slavic languages, with semantic nuances in need of study, as not only in (10b), but also in (10c) and in (10d).

(10) a. Petja tebe vsegda pravdu skažet. Russian Peter you.dat always truth tell.pres.perf.3sg “Peter will always tell you the truth.” (Borik 2006)

b. Peter ti vedno pove resnico. Peter you.dat always tell.pres.perf.3sg truth “Peter always tells you the truth.”

c. Peter ti bo vedno povedal resnico Peter you be.fut.3sg always tell.perf.pl truth “Peter will always tell you the truth.”
b. Peter \textit{bo vedno govoril resnico.}  
Peter \textit{BE.FUT.3SG always speak.IMP.PPL} truth  
“Peter always speaks the truth.”

A last remark on the complex future landscape in Slovenian is that imperfective presents may also display readings where Event Time follows Speech Time, as in (11), a characteristic shared with many languages.

(11) Drug teden \textit{pripravljam članek za objavo.}  
Next week \textit{prepare.PRES.IMP.1SG paper for publication}  
“Next week I am preparing the paper for publication.”

To sum up, the Slovenian future auxiliary takes perfective and imperfective verbs as complements, resembling South Slavic languages including Bulgarian, and contrasting with East and West Slavic languages. In Slovenian, perfective and imperfective complements with the future form of \textit{biti} give rise to (non-identical but felicitous) future readings. However, only the imperfective complement version gives rise to epistemic readings. This makes Slovenian contrast with Bulgarian, where epistemic readings also exist with perfective options. Slovenian perfective presents are not syntactically restricted, and allow for episodic future readings and habitual readings. This is in tune with East and West Slavic, and in contrast with Bulgarian, whose perfective presents are restricted to syntactic adjuncts and habitual readings. Lastly, Slovenian is among the (numerous) languages with imperfective presents with future readings, so in tune with other East, West, and South Slavic languages.

### 2.2 Inferentials

After this excursus on the Slovenian future landscape, we turn to the main topic of the paper. The constructions in (12) and (13) display the modal reading we label Inferential. Roughly speaking, such constructions encode deductions concerning the likelihood of present states or events.\(^1\)

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\(^1\) When the VP-complement of epistemic \textit{biti} contains a lexical verb, as in (13), V is overt, it is inflected as a participle, and displays imperfective aspect (see §3.3):

(i) \([\text{MP bo } [\text{VP...spala...}]].\)

When the VP-complement contains what in our translations corresponds to the English copula \textit{be} in (12), we assume that the Slovenian copula is phonologically null (and likely semantically empty):

(ii) \([\text{MP bo } [\text{VP...0...sosed}]].\)
(12) **Context:** We are expecting our neighbor to visit us. When the doorbell rings, you exclaim:

To **bo** zdajle sosed, nihče drug.

This **BE.FUT.3sg now neighbor, no.one other.**

“This will/must now be the neighbor, no one else.”

(13) **Context:** No noise is coming from Tatjana’s room. Tatjana’s grandmother and Tatjana’s little brother are in the living room, so grandma states:

Ne moti je.

Neg disturb her.

Tatjana **bo zdajle spala/ se bo zdajle igrala.**

T. **BE.FUT.3sg now sleep.PPL/ refl BE.FUT.3sg now play.PPL**

“Do not disturb her. Tatjana will/must/may be sleeping/playing now.”

It is well known that readings similar to those in (12) and (13) are possible with English **will** (Palmer 1967, Lyons 1977, Hornstein 1990, a. o.), as our translations suggest. Epistemic futures have also been recently discussed by, among others, Giannakidou and Mari (2013) for Greek and Italian, Mihoc (2013, 2014) for Romanian, Rivero (2014) for Spanish, and Rivero and Simeonova (in press) for Bulgarian. As we note in passing, however, there is considerable cross-linguistic variation when the core characteristics in epistemic futures in these languages are compared to each other.

The Inferential readings in (1), (12), and (13) bear some similarity to readings in constructions with modal **morati** ‘must’ in (14), also felicitous in the context given for (12). In spite of the apparent meaning and morphological similarities between (12) and (14), as both **biti** and **morati** inflect for person and number, we argue that the two display different semantic properties as epistemics.²

When combined with other modal auxiliaries, the copula in the infinitive is overt, as in (14): **mora biti** ‘must be’. On the sketched view, the parallel but ungrammatical sequence with the future auxiliary would be with an overt participial copula as complement:

(iii) *[MP bo [VP bil sosed]].

2. When combined with non-stative predicates such as **igrati** ‘play’, **morati** does not function as an epistemic modal, but as a forward-shifted or future oriented ‘root’/circumstantial modal in the sense of Kratzer (1991), with a deontic reading: (i). Thus, the inferential reading of **biti** with the activity verb in (13) does not have a parallel epistemic reading in constructions with **morati**.

(i) Tatjana se **mora zdajle igrati.**

T. **refl must.pres.3sg now play.Inf**

“Tatjana must play now.” = is obliged to play (at some future time).

# “Tatjana must be playing now. It must be that Tatjana is playing now.”
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(14) To mora biti sosed, nihče drug.
   This must.pres.3sg be.inf neighbor, no.one other
   “This must be the neighbor, no one else.”

Inferential biti also bears some similarity to modal utegniti ‘may’ in (15a), which is restricted to epistemic uses.3 Parallel to morati and biti, utegniti inflects for person and number, and is also felicitous in the context in (12). However, partially reminiscent of English may in its epistemic use, utegniti results in a less certain statement, which renders (15b) infelicitous.

(15) a. To utegne biti sosed.
   This may.pres.3sg be.inf neighbor.
   “This may be the neighbor.”

   b. # To utegne biti sosed, nihče drug.
     This may.pres.3sg be.inf neighbor, no.one other
     “This may be the neighbor, no one else.”

In sum, auxiliary biti displays an epistemic reading of the inferential /conjectural type in a variety of contexts also suitable for some modal auxiliaries with epistemic roles in Slovenian: morati ‘must’, which can also function as a root/circumstantial modal, and utegniti ‘may’, which lacks root/circumstantial readings.

2.3 Concessives

Examples (2), (16), and (17) illustrate the reading we label Concessive following grammatical tradition. Roughly speaking, Concessives display an interpretation that involves some form of doubt, denial, disagreement, or rejection concerning a (sometimes reported) event or state, as the contexts in (16) and (17) suggest.

(16) Context: Upon being told that your boyfriend failed his entrance exam to the University, you state:
   Naj bo še taka zguba, (ampak) jaz ga ljubim.
   Ptd BE.FUT.3sg such loser, (but) I him love.pres.1sg
   “He might be a big loser, but I love him.”

3. Similar to morati ‘must’ and unlike utegniti ‘may’, biti may display root/circumstantial readings in addition to ‘ordinary’ future readings, neither of which we discuss. For instance, in imperative sentences, biti may be used as a deontic modal with an expected future orientation (also (Toporišič 2000)).
Concessive statements have caught the attention of both theoretical linguists and philosophers in the context of *might*, which in many varieties of English is a possibility modal restricted to epistemic uses. Slovenian *biti* shares characteristics of *might* that prove particularly important in the context of the linguistic encoding of knowledge, so we briefly mention some of them.

A common view regarding main clause epistemics such as *morati* ‘must’ in (14) is that, oversimplifying, they reflect a knowledge state located exclusively in the speaker. However, main clause modals with concessive readings have the interesting feature of escaping this characteristic. In concessive (16), for instance, a speaker that asserts *Biti p* (where *p* corresponds to -be a big loser-)\(^6\) may consider that *p* is false in the actual /‘real’ world. The sentence may thus be indicative of somebody else’s state of knowledge, belief, or claim. Concessive constructions, then, point towards the need to encode in modal expressions some knowledge or information that does not reside just in the speaker.

*Biti* need not be just anchored in the speaker. Thus, it can be embedded under several propositional verbs including the negated first person *ne vem* ‘I do not know’ in (18a) and (18b), a much-debated type of sentence in the linguistic and philosophical literatures. In this case too, *biti* resembles English *might*.

4. Concessives in copular constructions require the particle *naj* with the future form: (16). With the future form combined with a lexical verb as in (17), the particle is not possible. This shows that the doubt/denial flavor does not reside in the particle itself, but we have no explanation for the distributional contrast.


6. *P* is also known as *prejacent*, a term from medieval logic (re)introduced by von Fintel (2006), which we adopt. In syntax, prejacent *p* roughly corresponds to the proposition encoded in the VP-complement of *biti*. This complement contains (a) a lexical verb with the morphology of a participle marked for aspect, or (b) a phonologically null copula with a stative adjective or a NP, as in Footnote 1.
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(18) a. Ne vem, ali *bo* Tatjana zdajle spala/ se *bo* Tatjana zdajle igrala.
   Neg know.pres.1sg, if BE.fut.3sg T. now sleep.Ppl/refl BE.fut.3sg T. now play.Ppl
   Samo babica, ki pazi nanjo, zagotovo ve.
   Only grandma, who look.pres.3sg after.her, for sure know.pres.3sg
   “I do not know if Tatjana is/ might be sleeping/playing now. Only grandma, who is babysitting, knows for sure.”

b. Ne vem, ali *bo* tole užitna goba.
   Neg know.pres.1sg if BE.fut.3sg this edible mushroom.
   Samo Janez ve zagotovo, ker je izkušen gobar.
   Only J. know.pres.3sg for.sure because BE.pres.3sg experienced mushroom.gatherer.
   “I do not know if this {is/might be} an edible mushroom. Only Janez knows for sure since he is an experienced mushroom-gatherer.”

Should we call (18a) and (18b) Inferentials or Concessives? The distinction between the two seems blurred in these examples, which involve a state of knowledge that is not the speaker’s, and seem to lack a flavor of either agreement or denial. If epistemic *biti* introduces a comparative scale based on ‘believability’, as we stated earlier, (18a) and (18b) represent a case where the scale is not active.

Epistemic *biti* can also be used felicitously when seeking information from a presumably more informed participant, as in (19). Here *biti* may correspond to English *might*, but also to *will* or to *could*. Again it is difficult to dub interrogatives of type (19) as ‘inferentials’ or ‘concessives’ - another case where the scale in *biti* is not active.

(19) Ali *bo* Tatjana zdajle spala/ se *bo* Tatjana zdajle igrala?
   Qparticle BE.fut.3sg T. Tatjana now sleep.Ppl/refl BE.fut.3sg T. now play.Ppl
   ‘Will/could/might Tatjana be sleeping/playing now?’

In the concessive reading with doubt/denial, Slovenian *biti* finds a close equivalent in English *might*, but not in English *will*, as our translations suggest. In our terms, English *will* may function as an epistemic in inferences /conjectures at Speech Time, but unlike Slovenian future *biti*, it does not function as a concessive that expresses some form of doubt. In our view, this is not a lexical peculiarity

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7. As stated, we borrow the term ‘concessive’ and its flavor of doubt/denial from the grammatical tradition. Our term has a narrower sense than ‘concessive knowledge’ in philosophical and semantic discussions, where it usually alludes to information/knowledge states not attributed to the speaker. This broader definition based on anchoring relations, not on a scale of believability/acceptance/denial applies to (18), (19), (16) and (17), while we suggest that in these non-speaker-centric examples *biti*’s scale is not active.
of English will compared to Slovenian biti, but identifies a widespread type of cross-linguistic variation as to the presence/absence in future forms of inferential and concessive readings. For instance, Spanish futures display the two readings (see (Rivero 2014)), while Bulgarian futures are limited to the inferential type (see (Rivero & Simeonova in press)).

In Slovenian, then, Inferentials and Concessives may not be totally identical in interpretation, but they are based on the same form: auxiliary biti. Besides this common morphology, Inferentials and Concessives are difficult to tease apart in some instances, as we just saw, and share two interpretive properties that make it desirable to unify them. On the one hand, the two encode some state of knowledge, which we propose is a form of acceptance by the speaker in prototypical Inferentials, and a case of doubt/denial by the speaker in prototypical Concessives. In this sense, they both belong to the realm of epistemics. On the other hand, Inferentials and Concessives alike may allude to events situated at Speech/Utterance time, or as we show in §3.3 to events before Speech Time. Thus, both Inferentials and Concessives lack an orientation situating events after Speech Time traditionally viewed as the core characteristic of future forms.

2.4 Comparing biti with modal auxiliaries in Slovenian

The comparison of epistemic biti with the modal verbs morati ‘must’ in (14) and utegniti ‘may’ in (15a) serves to highlight the pervasive chameleon-like modal force in this future auxiliary. Our claim is that such a chameleon-force is one of the factors that differentiates biti from both morati and utegniti.

First, (12) illustrates that biti is felicitous in contexts suitable for morati, which fits the description of necessity/strong modals related to universal quantificational force in the semantic literature. Second, biti is felicitous in contexts suitable for possibility/weak modals such as utegniti ‘may’, a type often connected to existential quantificational force in the literature. In our view, a third characteristic that makes biti particularly interesting is to be felicitous in cases where universal morati ‘must’ is excluded: namely, Concessives often coupled to doubt, as in (20a–c). In addition, we argue in §3.3 and §3.4 that biti also differs from the possibility modal utegniti with respect to temporal/aspectual relations, and gradability.

In simple terms, biti is comfortable when playing the role of an Inferential as shown above. In such a case, it may share contexts both with universal morati ‘must’ and with existential utegniti ‘may’. In addition, however, biti is equally comfortable in contexts that involve some form of doubt/denial as in the coordination patterns in (20a–c), where morati is in principle excluded. Such coordinations may sound more natural with some form of ellipsis, as in (20b) and (20c), which does not affect our argument.
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(20) a. Naj bo zguba ali naj ne bo zguba, jaz ga ljubim.
   Particle {BE.FUT.3sg loser or Particle Neg BE.FUT.3sg loser, but him
   love.PRES.1sg
b. Naj bo zguba ali naj ne bo, jaz ga ljubim.
   c. Naj bo zguba ali ne, jaz ga ljubim.
   “He might be a loser or (he might) not (be a loser), but I love him.”

To repeat, necessity morati specializes for Inferential readings and cannot signal the flavor of doubt/denial we assign to concessive biti. The comparison between concessive (20a–c) with felicitous biti and (the odd sounding) (21a–c) with infelicitous morati serves to illustrate the proposed difference.

(21) a. ?# Mora biti zguba ali ne more biti zguba,
   Must.PRES.3SG be loser or Neg can.PRES.3SG BE.INF. loser,
   jaz ga ljubim.
   but him love.PRES.1SG
b. ?# Mora biti zguba ali ne more, jaz ga ljubim.
   c. ??# Mora biti zguba ali ne, jaz ga ljubim.
   “# He must be a loser or (he can)not (be a loser), but I love him.”

We argue in §3 that the contrast between (20a–c) and (21a–c) is not to be understood as an argument in favor of biti being similar to utegniti. In our view, the future auxiliary also differs from the existential modal. In sum, epistemic biti has unique properties that distinguish it both from universal morati and from existential utegniti, even though biti may be felicitous in contexts suitable for either one of those modals.

3. Characterizing epistemic biti: A gradable tenseless evidential modal

In §2, we noted that auxiliary biti is interesting as an epistemic from both theoretical and descriptive points of view. In this section, we characterize this modal expression in more detail.

8. In Slovenian, the negative version of epistemic morati ‘must’ is the negated modal mocí glossed ‘can’, which inflects for person, number, and tense. This alternative is shown in the second conjunct of (21a) and (21b) as ne more (Pres.3SG). Coordinations of type (21) are at most marginally acceptable, with (21c) close to incomprehensible, so are also infelicitous. Infelicity under a concessive reading is expected under the view that epistemic morati has universal force as a lexical property. However, we cannot adopt the view that a universal-like flavor is inherently incompatible with doubt/denial because we later see examples in §3.4 where epistemic biti takes on a universal-like flavor, but still conveys doubt/denial (i.e. a Concessive). In our view, the difference is that biti introduces a scale, while morati does not.
Our ideas are inspired by Kratzer’s theory of modality (1977, 1981, 1991, 2012), so in §3.1 we briefly sketch basic components in this theory. In §3.2 we argue that epistemic biti invokes indirect evidence, so it can be classified as an evidential modal. In §3.3 we examine some temporal and aspectual relations involving epistemic biti, and conclude that the future auxiliary is a ‘tenseless’ modal, in partial contrast with epistemic morati and utegniti. Section 3.4 adds epistemic biti to the inventory of gradable modals in natural language, showing that it differs from morati, and utegniti. It tentatively speculates on the type of scale that may unify Inferentials and Concessives under a common morphology.

3.1 Sketching Kratzer’s theory of modality

We outline in brief and oversimplified terms the well-known approach to modality developed by Kratzer (1977, 1981, 1991) recapitulated and updated in Kratzer (2012). This theory, often considered the standard in the current linguistic literature, assigns to modal expressions two parameters. The first is called a Modal Base, and the second called an Ordering Source imposes restrictions on the Modal Base (see Portner 2009: §3.1 for a formal introduction, and technical details).

On this approach, modals are treated as quantifiers over possible worlds with different quantificational strengths, and allow for different interpretations depending on which subset of possible worlds /propositions they quantify over. The Modal Base provides a set of relevant propositions. The Ordering Source may be empty, but when present it orders or ranks the propositions in the Modal Base according to some preference. The basic division is between epistemic modality, which as mentioned in §2 usually concerns an individual’s or a group of individuals’ knowledge or evidence, and circumstantial (also known as ‘root’) modality, which concerns facts about the world.

Let us apply these ideas to Slovenian morati ‘must’ by way of exemplification. This modal may behave as an epistemic, as in (14), partially repeated in (22a), or as a circumstantial/’root’ modal, as in (i) in Footnote 2, partially repeated in (22b).

(22) a. To mora biti sosed, nihče drug.
   “This must be the neighbor, no one else.”

   b. Tatjana se mora zdajle igrati.
   “Tatjana must play now.” = is obliged to play (at some future time).

Within a Kratzerian view, morati in (22a) and (22b) is not ambiguous, but requires contextual supplementation as a trigger for its various readings. In the readings in (22a) and (22b), it counts as a necessity modal /quantifier whose modal force is fixed as ∀, an inherent lexical property. However, this modal may access /quantify over two different sets of propositions, corresponding to two different Modal
Bases: an epistemic one in inferential (22a), and a circumstantial one in deontic reading (22b).

Adopting a speaker-centric view (see §2), morati in (22a) says that in every world/proposition compatible with what the speaker knows, the person at the door is the neighbor: an Epistemic Modal Base. In deontic (22b), morati says that in every world compatible with some facts in the actual world, Tatjana plays. This Circumstantial Modal Base embodies notions also grouped under ‘root modality’.

The Ordering Source orders/ranks the propositions in the Modal Base. With the Epistemic Modal Base in (22a), an Ordering Source could, for instance, be representative of the added expectations/ beliefs of the speaker, as suggested by Portner (2009: §3.1) for English must. This constitutes a Doxastic Ordering Source, which ranks what the speaker knows or his/her information state against his/her beliefs/expectations. An Ordering Source as a filtering device can weaken the strength in a modal claim, so a statement with Slovenian morati counts as weaker than the equivalent non-modalized assertion corresponding to the prejacent p (i.e. To je sosed “This is the neighbor” for (22a)). With the Circumstantial Modal Base for (22b), the Ordering Source is Deontic. For instance, the context could provide some relevant facts in the actual world, such as the norms in a primary school that impose the obligation to play during recreation periods on the children.

To sum up, morati in (22a) and (22b) is unambiguous, with an inherent modal force of necessity. The difference between the two readings first rests on different Modal Bases for this lexical item based on/derived from extra-linguistic context, or determined by the precise linguistic form of the construction. For instance, adding the adjunct In view of the school rules to (22b) eliminates the epistemic option for this modal. For (22a), we have suggested an Epistemic Modal Base centered on the speaker. An Ordering Source may rank the propositions in the modal base along different dimensions (strength, expectations, rules, the law, etc.). Inspired by Portner on English must, in (22a) we have opted for an Ordering Source relying on the speaker’s expectations/beliefs. For (22b), the Modal Base is Circumstantial, and the Ordering Source is Deontic.

Slovenian modals including utegniti ‘may’ have different characteristics. This modal has an inherent existential force, and only an Epistemic Modal Base, lacking a circumstantial option. Utegniti, then, contrasts with English, which serves to illustrate that modals that look apparently similar in two languages may nevertheless differ in Modal Bases or Ordering Sources.

Gradability is a much-debated topic addressed by Kratzer when she introduces the notion of comparative possibility (1981, 1991, 2012: 46–49). She proposes that modals with variable strength (labeled ‘upper-end degree modals’) should be analyzed in terms of the interaction between a Modal Base and an Ordering Source, just like other modals. For Kratzer, variable-strength modals should not be
compared to must or to may, but to expressions of the type of It is more probable
that, with a comparative scale based on the best option/world, or the 'upper-end'
in a scale of alternatives in terms of possibility. Such upper-end degree modals
display variable strengths when their domain of quantification/Modal Base is
restricted by an Ordering Source, which results in the weakening of the claim.

Gradable modality has received considerable attention in the literature, \(^9\)
and several alternative proposals, now exist, including probabilistic ones. A criticism
of Kratzer's approach is that it does not offer sufficient flexibility when comparing
different groups of alternatives that need not all rank as the best within their own
domain. Oversimplifying, the best option in a scale of, for instance, likelihood/
possibility may need to be compared to an option that does not rank as the best in
a scale of desirability, or vice versa. This is difficult to accomplish under Kratzer's
ideas. One proposal to endow gradability with more flexibility consists in the
assumption that gradable modals carry an extra degree argument/evaluation
component that introduces an independent scale. On this view, gradable modals
derive their scalar properties not from an Ordering Source that restricts their
Modal Base, but from the characteristics of the scale they introduce. \(^10\)

In §3.4, we add biti to the inventory of modals with gradable characteristics.
However, we do not offer evidence that would allow us to choose between the two
analytical options just sketched, a complex topic under much current debate.

### 3.2 Biti as an evidential

With the above background, our first step is to show that epistemic biti has eviden-
tial properties. That is, this modal invokes indirect propositional information, and
is not felicitous if the information is direct in the sense that the event encoded in
the prejacent proposition or \(p\) is directly observed. Biti has evidential semantics,
so its Modal Base can be dubbed evidential in the sense used by Kratzer (2012:
Chapter 2). Informally, biti invokes some external information, in addition to
some state of knowledge in the speaker. It is often assumed that Modal Bases with
similar characteristics are restricted by an indirect evidence presupposition, along
lines first proposed by Izvorski (1997). Adopting this idea, we assign to epistemic
biti an Evidential Modal Base coupled to an indirect evidence presupposition.

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9. For recent approaches to gradable modals see (Deal 2011; Lassiter 2010; Portner 2009;
Rullmann, Matthewson & Davis 2008; Villalta 2009; Yalcin 2007, 2010; Yanovich 2013,
among others).

10. Villalta (2009) argues in favor of an extra degree argument in predicates that select the
Subjunctive mood in Spanish. She offers a detailed comparison between an approach that in-
volves a degree argument, and one that involves an Ordering Source. See also (Portner 2009).
To show that epistemic \textit{biti} requires that the evidence be indirect, let us consider (13) partially repeated as (23a). This sentence is infelicitous if uttered by grandma when she opens the door to Tatjana’s room, and sees that Tatjana is sleeping. This context involves propositional information that counts as direct evidence,\textsuperscript{11} and calls for the present tense verb \textit{spi} ‘is sleeping’ in (23b), not the future periphrasis \textit{bo} \textit{spala} in (14a).

\begin{center}
\begin{tabular}{ll}
(a) & Tatjana \textit{bo} zdajle spala.  \\
 & Tatjana \textbf{be.fut.3sg} now sleep.Ppl  \\
 & “#Tatjana will/must/may be sleeping now.” \\
(b) & Tatjana zdajle \textit{spi}.  \\
 & Tatjana now sleep.\textbf{pres.3sg}  \\
 & “Tatjana is sleeping now.”
\end{tabular}
\end{center}

We can further support the idea that epistemic \textit{biti} invokes indirect information with (24). This paradigm adapts to Slovenian a context given by Von Fintel & Gillies (2010) in relation to the evidential component in English \textit{must}. In this deductive context based on indirect information, the Slovenian future auxiliary is also felicitous so parallel to English \textit{must}. Cross-linguistic variation affects many dimensions in the noted behavior of \textit{biti}, and it also affects this particular pattern. Slovenian is comparable to English and to Spanish (see (Rivero 2014)) but contrasts with Italian, where futures are reported to be infelicitous in contexts such as (24) (Pietrandrea 2005; Giannakidou and Mari 2013).

\begin{center}
\begin{tabular}{l}
(24) & \textbf{Context}: An individual has lost a ball, and knows that it is in either box A, box B, or box C. Without opening box C, the individual then states:  \\
 & Žoga je v A ali B ali C. Ni v A. Ni v B. Torej \textit{bo} v C.  \\
 & Ball \textbf{be.pres.3sg} in A or B or C. Neg.is in A Neg.is in B. So \textbf{be.fut.3sg} in C  \\
 & “The ball is in A or B or C. It is not in A. It is not in B. So it must be in C.”
\end{tabular}
\end{center}

If the relevant context was one of direct evidence, i.e. if the individual in (24) opened box C by accident and saw the ball there, then future \textit{biti} would be infelicitous, and the present copula \textit{je} in (25) would be a felicitous choice.

\begin{center}
\begin{tabular}{l}
(25) & \textbf{Context}: the individual opens box C by chance, sees the ball, and states:  \\
 & Žoga \textit{je} v C.  \\
 & Ball \textbf{be.pres.3sg} in C  \\
 & “The ball is in C.”
\end{tabular}
\end{center}

\textsuperscript{11} In the typological literature (Willett 1988, and others later), visual perception is a sign of direct evidence. In our propositional approach, visual and auditory perception can also signal indirect evidence, as when I see/hear that Mary is laughing and infer that she is happy. See also Footnote 12.
Sentences (23a–b), (24), and (25) support the conclusion that a prejacent proposition \( P \) (Tatjana sleep; Ball in C, etc.) is felicitous with epistemic \textit{biti} when the speaker’s evidence for that proposition counts as indirect, not when it counts as direct. In sum, epistemic \textit{biti} is a modal that contains indirect evidential semantics.\(^\text{12}\)

3.3 \textbf{Biti} as a tenseless modal: Temporal and aspectual relations

Traditionally, \textit{biti} is associated typically with futurity or a forward-shifted reading that follows Speech Time. The inferential reading about present events is mentioned as a special use. Inferentials and Concessives, however, do not participate in forward-shifted readings, which raises questions of theoretical interest about temporal and aspectual relations addressed in this section.

We begin by mentioning a double temporal-like relation often associated with modal expressions in the current literature, before we return to epistemic \textit{biti}. Consider (26a–b) where the temporal-like duality seems clear: both constructions constitute \textit{present} inferences made at Speech Time, and concern an event held to have happened at some earlier \textit{past} time before Speech Time.

\begin{quote}
\textbf{(26) Context:} Grandmother goes to Tatjana’s room, sees an empty bed, and states (a) or (b), which are both felicitous:

\begin{enumerate}
\item a. Tatjana \textit{je morala} danes zjutraj oditi v šolo zelo zgodaj.
Tatjana \textit{be.pres.3sg must.PPl today morning go.inf} in school very early.
“This morning Tatjana must have left for school very early.”
\item b. Tatjana \textit{je utegnila} danes zjutraj oditi v šolo zelo zgodaj.
Tatjana \textit{be.pres.3sg may.PPl today morning go.inf} in school very early
“This morning Tatjana may have left for school very early.”
\end{enumerate}
\end{quote}

\textbf{12.} An anonymous reviewer suggests that concessives may differ from inferentials in not being based on indirect evidence given that a speaker may felicitously utter examples of type (i) when directly looking at a boyfriend:

\begin{quote}
\textit{Naj bo še tako slabo oblečen, jaz ga vseeno ljubim.} \hspace{1cm} ‘He might be poorly dressed, but I still love him.’
\end{quote}

As noted in Footnote 11, direct perception including ‘seeing’ may be the basis of both evidence that counts as indirect and evidence that counts as direct. We submit that there is no difference between inferentials and concessives in this respect. In simple terms, the speaker who utters (i) when ‘seeing’ a boyfriend deduces on the basis of logic that such a boyfriend could be poorly dressed, among other possible options. In the relevant respect, (i) is parallel to inferential (1b) when the last is uttered in a context where the speaker is looking at/sees the man with a moustache, and deduces \textit{/lists} possible options for his name. Concessives are not contradictory when they list opposite options, as in (20), which suggests that the nature of the evidence they involve is indirect, not direct.
In syntax and morphology, the modals in (26) encode past events in a present tense auxiliary combined with the modal participle functioning as its complement. The modal agrees in gender/number with the nominative subject: \([\text{Tense je [Modal morala]}]\). \textbf{Morati} and \textbf{utegniti}, then, differ from English \textbf{must} and \textbf{may}, and inflect for tense (plus person, gender, and number) in a way reminiscent of Spanish modals, which do not agree in gender/number with nominative subjects: \([\text{Tense ha [Modal debido]}]\) ‘must have’ in (27).

\begin{enumerate}
\item [(27)] \text{Tatiana ha debido salir para el colegio pronto.} Spanish Tatjana have.PRES.3SG must.PPL go.out.INF towards the school early.
\text{“Tatjana must have left for school early.”}
\end{enumerate}

As to interpretation, Slovenian, Spanish, and English are parallel as to the relevant duality we will describe with two labels coined by Condoravdi (2002): “Temporal Perspective” and “Temporal Orientation”. On the one hand, (26a–b), (27), and English translations share the same Temporal Perspective, which is present: they are inferences or modal claims made at Speech Time. On the other hand, all three share a similar Temporal Orientation, which is past: the described events are necessarily located at a moment that precedes Speech Time.

Now let us consider epistemic/evidential \textit{biti} regarding Temporal Perspective and Temporal Orientation, which as far as we know have not been addressed in the tradition. Regarding Temporal Perspective, Inferentials such as (13) partially repeated in (28) and Concessives such as (17) partially repeated in (29) illustrate that main clause epistemic \textit{biti} systematically adopts a present Temporal Perspective.

\begin{enumerate}
\item [(28)] \text{Tatjana bo zdajle spala.} “Tatjana will be sleeping now.”
\item [(29)] \text{Tatjana se bo zdajle zadovoljno igrala, ampak navadno je zelo siten otrok.} “Tatjana might be playing happily now, but usually she is a very grumpy child.”
\end{enumerate}

Cross linguistically, a present Temporal Perspective is a common option with epistemic modals (but admits exceptions). \textbf{Morati} and \textbf{utegniti} also identify inferences made a Speech Time in (26a–b), with the past morphology encoding a past reading concerning prejacent \(p\), not the modal (i.e. the modal scopes over Tense in the semantics).

As to Temporal Orientation, epistemic \textit{biti} in (28) and (29) describes events that occur/are ongoing at the time of the inference, thus at Speech Time. Thus, \textit{biti} may associate with a present Temporal Orientation coupled to its consistent present Temporal Perspective.

Inferences about past events have not been mentioned in the literature on epistemic \textit{biti}. However, when suitable contexts are constructed, often not an easy
task, they are possible, their interpretation is clear, and they sound natural to several native informants. To this effect, consider (30) and (31).

(30) **Context:** Yesterday, there was some food in the freezer with an old expiry date, so your mother threw it out. So you make a guess about the specific food that was thrown out and state:

To **bo tisti zamrznjeni jogurt, ki smo ga kupili že zdavnaj.**
This **biti.fut.3sg** that frozen yogurt which **be.pres.1pl** it bought already ages.ago

“That must have been that frozen yogurt which we bought ages ago.”

(31) **Context:** Yesterday, there was an accident and two people died. So you make a guess about the identity of the two dead people, and state:

To **bosta Peter in Tone, saj sta bila divja voznika.**
This **biti.fut.3dual** Peter and Tone, for **be.pres.3dual** been wild drivers

“That must have been Peter and Tone, for they were wild drivers.”

In our view, (30) and (31) illustrate present inferences about past events, where epistemic **biti** associates with a present Temporal Perspective like in (28) and (30), which is instead coupled to a past Temporal orientation.

In other words, (30) and (31) are modal claims made at Speech Time that share Temporal Orientation with **morati** in (26a) and **utegniti** in (26b), or describe past eventualities. An important morpho-syntactic difference, however, distinguishes epistemic **biti** from epistemic **morati** and **utegniti**. In (26a) and (26b) past Temporal Orientation is overtly encoded in a past morphology. By contrast, the future auxiliaries in (30) and (31) display the same morphology as those in (28–29), which instead depict present events/ or associate with a present Temporal Orientation.\textsuperscript{13}

\textsuperscript{13} An anonymous reviewer mentions that in contexts like (30–31), **morati** and **utegniti** morphologically inflected for the Present as in (i.a–b) may also exhibit a Past Temporal Orientation (as in our translation):

(i) **To {a.mora/ b.utegne} biti tisti zamrznjeni jogurt, ki smo ga kupili že zdavnaj.**
This {a. must/b. may} have been that frozen yogurt which we bought ages ago.’

In our view, Temporal Orientation in (i.a–b) should be derived from the Present inflection. In contrast with Past morphology in (26a–b), Present morphology could be semantically inert/ empty, with the extra-linguistic or linguistic context allowing for a Past, Present, or Future Temporal Orientation (this could also be derived from IMPF in such Presents). On the suggested view, Present **morati** and **utegniti** in (i) are morphologically but not semantically ‘tensed’; the past forms are both morphologically and semantically tensed. By contrast, in §3 we develop a proposal where epistemic **biti** never associates with a Tense category in form (as its morphology suggests) or interpretation.
What theoretical conclusions can we draw from the above patterns? In our view, the behavior of epistemic *biti* supports at least two perhaps surprising assumptions. The first is that in semantics such a modal should be considered a ‘tenseless’ or Zero-tense item with respect to both its Temporal Perspective and its Temporal Orientation. The second assumption connected to the first is that auxiliary *biti* considered a traditional ‘future’ seems to lack the future orientation often viewed as an inherent lexical property of modals in the current literature. Let us discuss each ‘surprising’ assumption in turn.

First, why is epistemic *biti* a ‘tenseless’/Zero-tense modal in semantics? On the one hand, its Temporal Perspective is always present, as we saw. This makes it possible to treat *biti* as a modal that derives its Temporal Perspective from being anchored to Speech Time. On this view, the modal does not combine with an independent tense category that could provide it with a past/present Temporal Perspective, and it also fails to display an inherent Perspective as a lexical property.

On the other hand, as to Temporal Orientation, epistemic *biti* is suitable to describe both present and past events, as illustrated. Thus, it can also be assumed that this Zero-tense modal directly anchored to Speech Time fails to impose a particular Temporal Orientation on its VP-complement/prejacent *p*. That is, *biti* takes a tenseless complement, which may describe either present or past events because Temporal Orientation is defined by context, not by linguistic form. If Temporal Orientation is contextually derived with epistemic *biti*, the context in (30) and (31) imposes a past Temporal Orientation, and the one in (28) and (29) a present Temporal Orientation. Thus epistemic *biti* differs from both *morati* and *utegniti*, which we have suggested are ‘tensed’ modals, regarding Temporal Orientation.

Our second surprising assumption is related to the first. It is that epistemic *biti* does not seem to display an inherent semantics that is future oriented. To make this idea clear, we first note a common view on modals we illustrate with English: modals display an inherent lexical semantics that is future, or shift towards the future as an inherent property in their lexical entry patent with non-stative predicates (Enç 1996, and many others later). On this view, *It might rain (tomorrow)* displays a forward-shifting property natural in modals (i.e. an intrinsic future Temporal Orientation unless additional mechanisms intervene). A first mechanism to block this orientation in English non-statives is progressive morphology: it keeps modals in the present, as in *It might be raining (now)*. A second mechanism is perfect(ive) *have*: it may shift modals towards the past, as with *It might have rained* – an inference about a past event: Yes, we just checked, and it did rain.14

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14. Our oversimplified remarks on English *might* omit mention of counterfactual readings (Condoravdi’s ‘metaphysical’). We refer interested readers to Condoravdi (2002) for discussion
The behavior of epistemic *biti* supports a perhaps unlikely conclusion: to repeat, this modal does not appear to be future-oriented, as it may describe past events without the help of any overt past morphology, even though it inflects for person and number. On this view, then, epistemic *biti* contrasts with *morati*, with *utegniti* as we saw, but also with the English modals. This absence of inherent future orientation supports our proposal that epistemic *biti* is altogether ‘tenseless’, both as to its Temporal Perspective and, more strikingly, also as to its Temporal Orientation.

With the above remarks in mind, let us consider *biti*’s interactions with aspect, which again supports our general views. As already stated, the Slovenian future auxiliary may receive inferential and concessive readings only when its complement verb is imperfective, not perfective. With a perfective verb, the reading is necessarily prospective. This is not an isolated fact, as Modern Greek establishes a parallel distinction (see Giannakidou and Mari 2013). However, as far as we know, the consequences of this situation have remained unexplored. In this paper, we provide a preliminary answer regarding the theoretical significance of the aspectual contrast in Slovenian.

Let us illustrate. The minimal pairs in (32a–b) and (33a–b) indicate the aspectual contrast. With appropriate contexts, (32a) and (33a) with imperfective *spala* and *igrala* may be interpreted as present inferences involving an ongoing sleeping or piano-playing event (a reading where Event Time follows Speech Time is also possible). By contrast, (32b) and (33b) with perfective *za-spala* and *za-igrala* can only depict an event that follows Speech Time, or display a forward-shifted

and references. It is important that epistemic *biti* does not have counterfactual readings, unlike English *might*. In Slovenian, such readings reside in the invariable conditional form *bi*, which we illustrate in (i–ii). Conditional *bi* differs from the epistemic future in at least three morpho-syntactic dimensions, which in our view prevent the unification of the two forms. (a) *Bi* does not inflect for person/number, while the epistemic future inflects. (b) *Bi* takes perfective verbs as complements: the traditional ‘present conditional’ in (i); the epistemic combines with just imperfective verbs, as in (32) and (33). (c) *Bi* may combine with an overt form of past morphology: the traditional ‘past conditional’ with an additional participle *bil* in (ii). This combination is not possible with epistemic *biti*.

(i) Janez *bi* pre.bral tisto knjigo, a je ni nikjer našel.
   Janez Cond Prefix.read.Perf.Ppl that book but be.Pres3Sg it not nowhere find.Ppl
   “John would have read that book, but he could not find it anywhere.”

(ii) Janez *bi* bil pre.bral knjigo.
    “John would have read a book (but he did not).”
The Slovenian future auxiliary biti as a tenseless gradable evidential modal

reading with a future Temporal Orientation (i.e. only a reading where Event Time
follows Speech Time is available).

(32) a. Tatjana bo zdajle spala.
    Tatjana be.fut.3sg now sleep.imp.ppl
    “Tatjana will/may/might/could be sleeping now (as I speak).”

    b. Tatjana bo zdajle za.spala.
    Tatjana be.fut.3sg now prefix.sleep.perf.ppl
    “Tatjana will now fall asleep.”

(33) a. Tatjana bo zdajle igrala Chopina.
    Tatjana be.fut.3sg now play.imp.ppl Chopin
    “Tatjana must/may/might be playing Chopin now (as I speak).”

    b. Tatjana bo zdajle za.igrala Chopina.
    Tatjana be.fut.3sg now pr.play.perf.ppl
    “Tatjana will play (i.e. begin to play) Chopin now.”

In appropriate contexts too, stative predicates that the Slavic tradition associates
with the ‘imperfective vid’ label may also display inferential or concessive read-
ings, as (34) and (35) illustrate. Such readings seem habitual, a type usually avail-
able to imperfective forms (readings where Event Time follows Speech Time are
also possible within an appropriate context).

(34) Context: You are told that Tatjana studied English for ten years, so you
    conclude:
    Tatjana bo odlično znala angleščino.
    Tatjana be.fut.3sg excellently know.imp.ppl English
    “Tatjana will/ must/ may/ might know English perfectly.”

(35) Context: We are wondering who to ask to help us with English at a meeting
    with foreign partners.
Speaker A: Tatjana studied English for ten years.
Speaker B: Tatjana bo odlično znala angleščino,
    Tatjana be.fut.3sg excellently know.imp.ppl English,
    ampak jo redko govori v javnosti.
    but it rarely speak.pres.3sg in public.
    “Tatjana might know English perfectly, but she rarely speaks it in public.”

Above we noted a common view, which is that modals display an inherent future
orientation, with perfective have in the particular case of English locating them in
the past. In view of the aspectual contrast we just introduced Slovenian represents
a rather different situation. In this language the effect of the perfective morphol-
ogy encoded in verbal prefixes such as za is to forward-shift modal biti towards the
future, not to turn it towards the past.
In our view the contrasting effects of perfective and imperfective verbs reinforces the idea that modal *biti* is tenseless from a semantic perspective (also from a morphological perspective). Those effects indicate that *biti* is not inherently future-oriented/does not impose a specific Temporal Orientation on its complement. The opposition between morphologically perfective and morphologically imperfective verbs determines the Temporal Orientation in this auxiliary, suggesting in addition that Temporal Orientation relies onaspectual relations.

Let us now briefly mention one specific view on aspect that can capture the contrasting effects of perfective and imperfective morphology on *biti*, and in particular the apparently surprising effect of perfective aspect. Looking at constructions where *biti* combines with imperfective verbs, note that they display the ongoing and habitual readings traditionally associated with the semantics of imperfectivity (Arregui, Rivero, and Salanova 2014 for recent discussion). It can then be proposed that such constructions encode an IMPF operator as a Viewpoint category (Smith 1991, 1997), and this operator contrasts with a PERF operator signaled by the perfective morphology on the verb, within the rough structure [MODAL [AspectP IMPF/PERF [VP]]].

On this view, the morphological prefix standing for PERF provides tenseless *biti* with a Temporal Orientation that can only be prospective for the reasons we suggest immediately below. By contrast, we propose that the extra-linguistic context combines with the notoriously ambiguous Viewpoint operator IMPF signaled by the imperfective morphology of the verb to allow tenseless *biti* to associate with a present, a past, a future Temporal Orientation, or a habitual reading. In sum, IMPF is the tool behind the modal’s association with a variety of Temporal Orientations, while the PERF operator is the tool that necessarily pushes modal *biti* into the future.

The question now is as to why perfective aspect forward-shifts the modal auxiliary, allowing for just a prospective (Event Time follows Speech Time) interpretation as in (33b), and blocking the readings we have dubbed inferential and concessive in this paper that speak of events in the present or the past in the ‘actual’ world?

To answer this question, we first reiterate our proposal that *biti* is a Zero-tense modal directly anchored to Speech Time, and that this is the factor that derives its systematically present Temporal Perspective. Our second step consists in coupling this assumption with the traditional definition of (Viewpoint) Perfective Aspect: Event Time is included in Reference/Topic Time (Klein 1994 and others later).

If *biti* is directly anchored to Speech Time (without the intervention of Reference/Topic time), as we propose, and if we further assume that Speech Time is an instantaneous moment, the composition of this modal with Perfective Aspect immediate poses a conflict in search of some solution. The conflict is that Perfective
Aspect imposes the requirement that the event described by the complement of biti, or prejacent p, must fit inside Speech Time, which anchors biti without the intervention of Reference/Topic time. In other words, in examples of the type in (33b), the effect of Perfective aspect is to impose what looks like an impossible requirement, which is that the event of Tatjana playing some Chopin be included in/fit into the instantaneous moment representing Speech Time. However, (33b) is not ungrammatical, or out on semantic grounds, so the conflict is solved in Slovenian. The solution adopted in this case consists in forward-shifting the auxiliary. That is, PERF provides it with a Temporal Orientation that projects into a future, which, unlike Speech Time, need not be instantaneous.

To sum up, our answer on why Perfective aspect induces an ‘ordinary’ future orientation on modal biti consists in the proposal (a) that the modal is tenseless and directly anchored to Speech Time, which provides it with a Temporal Perspective, (b) that Speech Time is an instantaneous moment, (c) that PERF requires that the described event/p be included in Reference/Topic Time, which equals Speech Time for a Zero-tense modal. (d) The last requirement identifies a conflict. The conflict consists in an attempt to include an extended event in an instantaneous moment. (e) The conflict is solved by assigning to the modal a future Temporal Orientation.15

Combinations of biti with imperfective verbs display several types of temporal readings consistent with IMPF, including an ‘ordinary’ future one with Event Time following Speech Time. By contrast, when biti combines with a perfective verb the ambiguity disappears, and the Temporal Orientation must be with Event Time following Speech Time (i.e. an ‘ordinary’ future). Thus, future Temporal Orientation with this modal depends on Perfective Aspect, that is on an aspectual and not a temporal relation.

The proposal we just made regarding the effects of Viewpoint Aspect have as one important consequence that they ‘blend’ epistemic biti with prospective or ‘ordinary’ future biti, whose analysis we have not discussed in this paper. To repeat, the claim is that tenseless biti or the ‘epistemic type’ becomes/transforms itself into prospective/future biti or the ‘ordinary type’ when combined with Perfective Aspect. This conclusion raises many questions regarding the connection

15. Our proposal on aspect draws inspiration from the now classical (Bennet & Partee 1978). Bennet and Partee view the English present as an instantaneous moment in conflict with perfective requirements. Note that this kind of conflict is also solved in East and West Slavic languages and in Slovenian (but not Bulgarian) by endowing perfective presents with future semantics. However, East and West Slavic future auxiliaries do not combine with perfective verbs, so equivalents of Slovenian (32b) are ungrammatical in those languages, as shown in §2.1. Again, cross-linguistic variation is widespread under detailed examination.
between epistemic, concessive, and purely prospective (‘ordinary future’) readings in this auxiliary, suggesting that they should be unified. We leave this complex topic to future research.

3.4 **Biti** as a gradable modal

We conclude the paper by identifying a topic in need of much future study. We add epistemic *biti* to the inventory of gradable modals in natural language, arguing that this form need not reduce to necessity like *morati* ‘must’, or possibility like *utegniti* ‘may’. The gradable nature of *biti* is at the source of the chameleon properties in §2, which allow it to sometimes mimic universal/strong modals, and other times existential/weak modals, while not strictly belonging to either class.

In our view, *biti* invokes a comparative scale, as many have already suggested in the context of gradable modals, but what kind of scale?

Inspired by Herburger and Rubinstein (2014) on German comparative *eher*, we first suggest that *biti* introduces a scale of believability anchored in the speaker: *biti* as epistemic predicate relates a prejacent proposition *p* to the degree to which the speaker is ready to believe that *p* is true. On this view, Inferentials usually identify a case where *p* is more believable to the speaker and Concessives a case where *p* is less believable, thus suggesting doubt and denial.

However, we shall also see Concessives where the factual nature of the event is not under question/is settled, with the speaker accepting that *p* is true. In such a case, the scale triggered by *biti* cannot be one of ‘believability’, so inspired by Villalta (2009) on the Spanish subjunctive, we propose that in this case *biti* triggers a scale of desirability on the part of the speaker, which also endows constructions with a flavor of doubt/undesirability.

Finally, if the scale cannot be anchored in the speaker, it remains inactive, as in the complements embedded under a negated verb of propositional attitude in (9a–b), or the questions of type (19) partially repeated in (36).

(36) Ali bo Tatjana zdajle spala?
‘Will/could/might Tatiana be sleeping now?’

To develop our core idea, we first show that epistemic *morati* ‘must’ and epistemic *utegniti* ‘may’ form what is known in the literature as a ‘dual’ pair, or are dual modals of each other. By contrast epistemic *biti* cannot be considered to form a dual pair with either *morati* or *utegniti*.

*Morati* and *utegniti* constitute a dual pair, with necessity *morati* associated to a universal quantificational force, which makes it inherently stronger than possibility *utegniti*, whose force is inherently existential. To this effect consider felicitous (37) and infelicitous (38) within the context given in (37).

(37) Ali bo Tatjana zdajle spala?
‘Will/could/might Tatiana be sleeping now?’

(38) Ali bo Tatjana zdajle spala?
‘Will/could/might Tatiana be sleeping now?’
The sequence in (37) illustrates that morati in the second clause strengthens the assertion with utegniti in the first, and (38) illustrates that the opposite order sounds contradictory. This supports the view that the two form a dual pair based on quantificational force/strength.

Now consider epistemic biti in (39) and (40).

(39) Janez bo danes bolan. Dejansko mora biti bolan. Janez BE.FUT.3SG today sick. In.fact morati.PRES.3SG BE.INF. Sicer bi bil pri pouku. Otherwise would.Cond BE.PPL with class. “Janez will be sick today. In fact he must be sick. Otherwise he would be in class.”

(40) Janez bo danes bolan. Dejansko utegne biti bolan. Janez BE.FUT.3SG today. In.fact utegniti.PRES.3SG be sick. Sicer bi bil pri pouku. Otherwise would.Cond BE.Pple with class. “Janez could be sick today. In fact he may be sick. Otherwise he would be in school.”

First, in the context in (37), both (39) and (40) are felicitous, and (40) lacks the infelicitous flavor in (38). This demonstrates that biti does not form a dual pair with either morati or utegniti. It also suggests that biti as a modal with gradable characteristics may correspond to will in (39) and could/ might in (40).16

16. For Deal (2011), the apparently variable-force circumstantial o’qam in Nez Perce is a possibility modal interpreted as a necessity modal because Nez Perce lacks a necessity modal that could serve as its dual. Biti coexists with morati, so this proposal is not suitable for Slovenian.
Second, both (39) and (40) may be interpreted as a sort of repetition, which is confirmed by several informants. It is possible to read the second clause in those examples as if it reiterated the first clause with a firmer tone. The situation is suggestive of so-called harmonic modality: two modals that are similar in strength, and ‘agree’ with each other. While strengthening is clear in (37), no particular strengthening effect is apparent in (39), suggesting that *biti* is not an ordinary possibility modal.

Another indication that epistemic/ evidential *biti* displays gradable properties comes from the adverbs that may modify it in (41). *Biti* is compatible with adverbs that are suitable either for *morati* or for *utegniti*.

(41) Tatjana *bo zdajle gotovo/ verjetno /mogoče spala.*
    Tatjana *BE.FUT now definitely/ probably/ perhaps sleep.*PPL
    “Tatjana will now definitely/probably/perhaps be sleeping”.

In view of the different properties of *biti* identified in this paper, we take inspiration in (Herburger & Rubinstein 2014) to propose that this modal mainly introduces a comparative scale of believability on the part of the speaker, with Inferentials most often identifying the higher range in such a scale, and Concessives most often identifying the lower end.

In both Inferentials and Concessives, the speaker usually signals that she/he does not fully believe the prejacent *p*. If she/he did, a simple assertion of *p* would be called for. So, in parallel with constructions with German *eher* neither type is felicitous when followed by the denial of *p*, as illustrated in (42).

(42) # Tatjana *bo odlično znala angleščino, ampak je ne zna.*
    T. *BE.FUT.3SG excellently know.*IMPF.PPL English, but it Neg *know.*PRES.3SG
    “#Tatjana might know English perfectly, but she does not know it.”

However, Concessives offer a more complex picture, which lead us to suggest that *biti* may also invoke a scale of desirability. Given our view that *biti* introduces a comparative scale, a particularly interesting subcase that falls under the concessive label is when the context provides only one alternative, which the speaker goes on to accept as true, incorporating it to the common ground.

(43) Speaker A: Janez je najboljši pevec.
    Janez *BE.PRES.3SG best singer*
    “Janez is the best singer.”

Speaker B: Naj *bo* najboljši pevec, dejansko se strinjam
    Particle *BE.FUT.3SG best singer in.fact refl agree.*PRES.1SG
    *s tabo, da je, ampak ni zmagal na tekmovanju.*
    with you, that *BE.PRES.3SG but Neg.is win.*PPL at competition
    ‘He might be the best singer, in fact I agree with you that he is, but he did not win the competition.’
In (43) speaker A asserts \(p\) (i.e. J. the best singer), thus advancing it as true in the actual world. Speaker B accepts this as the only alternative. In such a situation, it is as if \(\text{biti}\) in (43B) quantifies over a singleton set. However, this contextually available singleton set is sufficient to trigger a concessive interpretation. In such cases, the scale \(\text{biti}\) introduces cannot be one of believability. Thus, we propose that if believability cannot be invoked, we consider that the scale may also be based on desirability, taking inspiration in Villalta. Our very tentative idea, then, is that \(\text{biti}\) as a gradable modal can access two types of scales depending on contextual factors. This allows this modal to associate with familiar inferential readings and with a full range of concessive readings most often based on believability, and sometimes based on desirability.

In sum \(\text{biti}\) as a gradable modal differs from both \(\text{morati}\) and \(\text{utegniti}\) in apparent strength. It introduces a scale based on the speaker, which depending on context measures believability or, if believability is settled, desirability.

4. Summary and Conclusions

In this paper we argued that the future auxiliary \(\text{biti}\) may function as an epistemic modal with evidential characteristics. As a Zero-tense/tenseless modal anchored to Speech Time, epistemic \(\text{biti}\) displays a present Temporal Perspective. \(\text{Biti}\) does not impose a Temporal Orientation on its complement, which is defined by Viewpoint Aspect. \(\text{Biti}\) allows for a present, a past, a future Temporal Orientation, or a habitual reading when it combines with Imperfective (IMPF) Viewpoint Aspect. When combined with Perfective (PERF) Viewpoint Aspect, \(\text{biti}\) necessarily acquires a future Temporal Orientation. \(\text{Biti}\) is a gradable modal, with inferential and concessive readings due to a scale of believability anchored in the speaker. In concessive constructions where the truth of the described event is settled, \(\text{biti}\) cannot associate with a scale of believability, so a scale of desirability comes into play.

References


