

Embedded Evidentials in Bulgarian*

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Abstract

We consider evidentials embedded in complement clauses with new data from Bulgarian. For Tibetan, Garrett has shown that embedded evidentials are always shifted to the perspective of the reported speech. In Bulgarian, we show that such a shift is almost never possible. This shows that Bulgarian evidentials should not be analyzed as modals, but rather as presuppositional.

1 Introduction

1.1 Embedded Evidentials and Shifting

Evidentials are linguistic markers that indicate the speaker's source of information, e.g. direct observation, hearsay or inference (Chafe and Nichols 1986, Aikhenvald 2004). It is often suggested that they do not contribute to the proposition expressed, but operate on the speech act level. If so, one would not expect evidentials to be embeddable. And indeed, for many languages it is claimed that evidentials can not be embedded at all:

“A fair number of languages do not have any evidentials in subordinate clauses; these include Abkhaz, Qiang, Eastern Pomo, Tariana and Jarawa.” (Aikhenvald 2003, 17)

On the other hand, we do find isolated examples of embedded evidentials, for example in Qiang (LaPolla 2003, 75, ex.41), Shipibo-Konibo (Valenzuela 2003, 38, ex.11), Western Apache (de Reuse 2003, 90, ex.22) and Cusco Quechua (Faller 2006, 6, ex.7b). But the status of such isolated examples and their semantics often remain unclear. At this point it is not possible to make cross-linguistic generalizations concerning the embeddability of evidentials, because most descriptive grammars simply don't state whether evidentials are allowed in embedded clauses and what their semantics is.

In fact, we are aware of only one extensive discussion of evidentials in complement clauses,¹ namely Garrett (2001, ch.5) on Tibetan evidentials under propositional attitude verbs. His two main observations for Tibetan are the following:

First, embedded evidentiality is only possible under verbs of speaking (*lab* 'to say', *skad.cha dris* 'to ask') and thinking (*bsam* 'to think', *yid.ches yod* 'to believe'), not other

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¹McCready and Ogata (2006) convincingly demonstrate that certain Japanese evidentials can be embedded in conditionals and under certain sorts of negation. However, they do not discuss (the semantic effects of) embedding under complement-taking predicates, which is our central interest in this paper.

attitude verbs (*ha.go* ‘to know, understand’, *thong* ‘to see’, *re.ba* ‘to hope’). Garrett (2001, 215) argues that Tibetan evidentials have a performative component that requires them to occur in assertive contexts, provided by verbs of speech and thought, but not other embedding predicates.

Second, embedded evidentials are no longer speaker-oriented, as illustrated in (1):

- (1) a. yang.chen dge.rgan **red**
 Yangchen teacher [ind cop]
 ‘Yangchen is a teacher.’ (*Speaker’s* source: hearsay/inference)
 (Garrett 2001, 13, ex.3)
- b. bkra.shis kho dge.rgan **red** bsam-gi-‘dug
 Tashi he teacher [ind cop] think-[dir imp]
 ‘Tashi_i thinks he_j is a teacher.’ (*Tashi’s* source: hearsay/inference)
 (Garrett 2001, 211, ex.7b)

Following Garrett (2001, 4), we call the person from whose perspective a given evidential is evaluated the *evidential origo*. If the evidential origo is not the speaker of the actual speech act, we call it *shifted*. For example, in (1a), the unembedded case, the evidential origo is the speaker, while in the embedded case (1b), it is the attitude holder (Tashi). More generally, in Tibetan, the evidential origo of embedded evidentials is always the attitude holder. In other words: embedded evidentials are always shifted.

This phenomenon of evidential shift is reminiscent of the phenomenon of indexical shift (Schlenker 1999, Schlenker 2003, von Stechow 2003, Anand and Nevins 2004). In English, indexical ‘I’ always refers to the speaker of the actual speech act, even in embedded contexts (cf. (2a)). In Amharic, things are different: If the first person pronoun is embedded under a verb of speech or thought, it can refer to either the speaker of the *actual* speech act, like in English, or to the speaker of the *reported* speech act (cf. (2b)). In the latter reading, the indexical is called *shifted*.

- (2) a. John said that I am sick.
- b. john Jägna näNN yt-lall (Amharic)
 John hero I-am says-3SG.M
 ‘John says that I’m a hero.’
 ‘John says that he’s a hero.’

In this paper we investigate whether embedded evidentials in Bulgarian shift and under which conditions. In subsection 1.2 we introduce the basic evidential distinctions in Bulgarian. Section 2 is devoted to the reportative evidential, section 3 to the dubitative. Our main results will be: First, predicates differ in whether they allow evidential markers in their complements (‘say’ and ‘read’ allow them, ‘believe’ and ‘see’ typically don’t). Second, unlike epistemic modals Bulgarian evidential markers usually remain unshifted, except in certain contexts. Third, evidential markers can be shifted independently of other indexical elements in the clause (vs. Anand and Nevins (2004)), but there is a violable preference to shift the evidential markers together.

1.2 Bulgarian evidential categories

All languages of the Balkan Sprachbund (except Greek) developed evidentiality systems, presumably under Turkish influence. Bulgarian (and more generally Balkan Slavic) pos-

sesses at least three kinds of verbal evidential markers (cf. e.g. Radeva (2003), Friedman (1986)):

1. *direct* (DIR) (aka confirmative, witnessed)
2. *reportative* (REP) (aka nonconfirmative, renarrative, perfect of evidentiality)
3. *dubitative* (DUB)

In the system of Aikhenvald (2004), Bulgarian is classified as type A1 *Firsthand vs. Non-firsthand* (ibid., 288, 298), or as type A2 *Nonfirsthand vs everything else* (ibid., 264), or – probably more accurate and in accordance with our presentation – as A1 with an A2 subsystem (Friedman 2003, 191). Friedman (2003) distinguishes ‘confirmative’ (corresponding to our ‘direct’) and ‘nonconfirmative’ (corresponding to our ‘reportative’ and ‘dubitative’). The distinction between reportative and dubitative is not strictly evidential in nature, since both indicate the same type of source of information (namely indirect evidence), but the dubitative additionally conveys that the speaker has considerable doubts concerning the truth of the proposition expressed.

The direct is morphologically unmarked and indicates that the speaker has firsthand evidence for the proposition expressed. (The same form is also used as a default for general knowledge.) For example, (3) conveys that the speaker directly witnessed that Todor has red hair. It would be odd to use this sentence if the speaker has only ever spoken with Todor on the phone.

- (3) Todor ima červena kosa
 Todor has.DIR red hair
 ‘*I know from my own experience that Todor has red hair*’

The reportative is realized by a verbal suffix *-l* and indicates that the speaker has reportative evidence for the proposition expressed, i.e. somebody told him, as illustrated in (4).² Reportative forms are required in free indirect discourse (Radeva 2003, 149).

- (4) Todor imal červena kosa
 Todor has-REP red hair
 ‘*I was told that Todor has red hair.*’

The reportative forms are identical to the perfect form, except in the 3rd person, where the perfect does not allow auxiliary drop at least in the Eastern dialects (Friedman (1986)).³ In these dialects, (4) is unambiguously a reportative form, while (5) is interpreted as present perfect.

- (5) Todor e imal červena kosa
 Todor be.pres has-PERF red hair
 ‘*Todor has had red hair*’

²The same form can also be used to indicate inferential indirect evidence (cf. Izvorski (1997)). However, we will exclusively focus on reportative readings in this paper.

³One of our informants is actually a speaker of the Sofia dialect in the West, but she shared all the relevant intuitions with our Eastern informant.

Bulgarian also has a dubitative form, which we will argue has an evidential component. The dubitative is morphologically realized in a periphrastic form: *be*+PERF and *participle*+PERF, illustrated in (6). It contributes two meaning components, namely that the speaker has only indirect evidence for the proposition expressed and that he has doubts concerning its truth.

- (6) Todor bil imal červena kosa
 Todor be-REP have-DUB red hair
 ‘I was told that Todor has red hair, but I doubt it.’

2 The Reportative

2.1 Embedding the reportative

In Bulgarian, evidential distinctions are not restricted to main clauses. At least certain predicates allow evidentials to occur in their complements. We use constructed scenarios to control for the evidential origo in the following test sentences. The relevant parameters for the reportative are the evidential origo (Sp(eaker), Su(bject)) and the type of the information source (Dir(ect), Rep(ortative evidence)). For example, *Dir(Sp)* means that the speaker of the sentence has direct evidence for the embedded proposition.

- (7) Scenario types:

	Dir(Sp)	Rep(Sp)
Dir(Su)		(8)
Rep(Su)	(9)	

If the evidential source of speaker and matrix subject match, as in the shaded cells of the table, we expect the corresponding evidential marker: DIR for $\langle \text{Dir(Sp)}, \text{Dir(Su)} \rangle$ and REP for $\langle \text{Rep(Sp)}, \text{Rep(Su)} \rangle$. The unshaded cells are the interesting cases, where speaker and subject source don’t match. For embedding under *kaza* (‘say’), relevant scenarios are given in (8) and (9).⁴

- (8) Scenario: Maria saw Todor’s hair and tells me “Todor ima červena kosa” (Todor has red hair). I believe her.
- a. ? Maria kaza če Todor ima červena kosa.
 Maria said that Todor has-DIR red hair
- b. Maria kaza če Todor imal červena kosa.
 Maria said that Todor has-REP red hair

In (8b), uttered in the given context, REP indicates that the speaker has indirect evidence for the proposition that Todor has red hair, i.e. embedded REP receives an unshifted interpretation. The relative acceptability of (8a) without reportative morphology, we believe, reflects the use of the direct reporting common knowledge. It seems reasonable for the speaker to accept Maria’s first-hand knowledge as common knowledge. Consequently, we found that omission of REP is more sharply ill-formed if both speaker and subject have only indirect evidence.

⁴All our data has been checked with two consultants independently (Dora Toneva and Penka Stateva). The two show a high degree of agreement.

- (9) Scenario: Milena told Maria that Todor has red hair and Maria believes her. Maria says: “Todor imal červena kosa.” I saw Todor’s red hair with my own eyes.
- a. Maria kaza če Todor ima červena kosa.
 Maria said that Todor has-DIR red hair
- b. *Maria kaza če Todor imal červena kosa.
 Maria said that Todor has-REP red hair

(9b) shows that the reportative cannot receive a shifted interpretation under *kaza*. Since embedded REP is incompatible with a context like (9), where the speaker has direct evidence for the embedded proposition, we conclude that embedded REP requires a speaker oriented interpretation. The following table summarizes our findings for embedding DIR and REP under *kaza*.

- (10) Embedding evidentials under *kaza*:

	Dir(Sp)	Rep(Sp)
Dir(Su)	DIR, *REP	?DIR, REP
Rep(Su)	DIR, *REP	*DIR, REP

2.2 Semantics of the Reportative

Our semantics of embedding rests on the following basic assumptions: First, matrix and embedded clauses are predicates of individuals (Lewis 1979). Second, we adopt a fully extensional treatment of possible worlds (Cresswell 1990, Percus 2000, Schlenker 1999) with λ -operators in the syntax that bind world variables. The first assumption then entails that both matrix and embedded clauses are always initiated by a set of context operators binding at least an individual and a world argument. Third, we assume that indexicals can, in principle, be bound from either the matrix clause (x_0 or w_0), yielding the unshifted reading, or the embedded clause (x or w), yielding the shifted reading.

- (11) λ_{x_0, w_0} Maria kaza $\lambda_{x, w}$ EVID(-, -) Todor ima červena kosa

For the purpose of this paper, we’ll use the following semantics of *kaza/say*:

- (12) $\llbracket \text{say} \rrbracket(w_0)(P)(s) = 1$ iff $\forall(x, w): (x, w)$ fulfills all assertions made by s in $w_0 \rightarrow P(x, w)$

Let’s turn to the semantics of REP. There are several proposals for the semantics of reportative markers in the literature, but none of them predicts the correct readings of the embedded cases.

Option 1: Modal (Izvorski 1997). Izvorski (1997) analyses the Bulgarian reportative as a *must*-like epistemic modal that additionally presupposes that the speaker has indirect evidence for their claim. If there is no indirect evidence available, it would be odd to use the reportative marker, as shown in (13b) from Izvorski (1997, 227).

- (13) Knowing how much John likes wine ...
- a. ... toj trjabva da e izpil vsičkoto vino včera
 he must is drunk all-the wine yesterday

- b. # ... toj izpil vsičkoto vino včera
 he drunk-REP all-the wine yesterday

This contrast can be illustrated with a parallel English example: In the absence of available indirect evidence, it is possible to use epistemic *must* (as in (14a)), but it would be odd to use the evidential adverbial *apparently* (as in 14b).

- (14) Knowing how much John likes wine ...
 a. ... he must have drunk all the wine yesterday.
 b. # ... he apparently drank all the wine yesterday.

Formally, Izvorski (1997) analyzes the reportative as an epistemic modal with an evidential presupposition:

- (15) The Interpretation of $EV(p)$:
 Assertion: $\Box p$ in view of the speaker's knowledge state
 Presupposition: The speaker has indirect evidence for p

The use of a necessity operator in the assertion part seems somewhat counterintuitive, especially if we think of cases in which the speaker relies on a report from a source that is not entirely trustworthy. One of Izvorski's reasons for using the box is that she aims to develop a common semantics for all uses of the present perfect morphology which include not only reportative, but also *inferential* uses. For inferential uses, the analysis in (15) works fine, but it does not easily extend to reportative uses (cf. Faller (2002, 104–109) for a detailed discussion of this point).

If we try to apply a modality-based analysis like (15) to embedded occurrences of the reportative, we face another two problems: First, we would expect REP to shift, because it is analysed as an epistemic modal and embedded epistemic modals always shift (cf. Stephenson (2005), Hacquard (2006, 137)), as illustrated in (16). In (16b) it is not the belief worlds of the *speaker* that are claimed to entail that it is raining, but the belief worlds of *John*.

- (16) a. It must be raining
 b. John thinks it must be raining

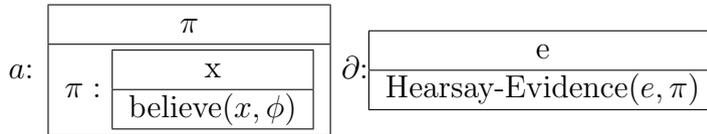
Second, the intuitively plausible assumption in (15) that the reportative contributes to the assertion leads to severe problems in the embedded cases. (17) means that Maria said that *Todor has red hair*. But Izvorski predicts it to mean that Maria said that *Todor must have red hair*.

- (17) Maria kaza če Todor imal črvena kosa.
 Maria said that Todor has-REP red hair
 (18) Presupposition: The speaker has indirect evidence that Todor has red hair.
 Assertion: Maria said: $\lambda_{x,w} \Box \lambda_{y,v} (\text{Todor has red hair}(y, v))$ in view of the speaker's knowledge state

Option 2: Weak assertion. McCready and Asher (2006) present an SDRT analysis of Japanese evidentials that is close in spirit to Izvorski's account, especially for inferential evidentials. The treatment of reportatives differs in that their contribution to the assertion

does not contain any modal element. As illustrated in (19), the reportative element *soo-da* weakens the assertion considerably: It is only required that there is somebody who believes the proposition the evidential applies to.

(19) Japanese: *soo-da*(ϕ)



(McCready and Ogata 2006, 38)

Again, this analysis is plausible for unembedded occurrences of the reportative, but as soon as we try to account for embedded cases, we get into trouble. If we transferred the analysis to Bulgarian, we would predict the reading in (20) for (17).

(20) Assertion: Maria said that *there is some individual who believes that* Todor has red hair

Presupposition: There is hearsay-evidence that Todor has red hair

Clearly, the assertion part is too weak in (20).⁵ The moral for Bulgarian seems to be: Don't let embedded reportatives modify the assertion directly.

Option 3: Illocutionary Modifier. Another analysis of reportative markers locates their contribution at the speech act level. Fallér (2002) analyses reportative Cusco Quechua *-si* as an illocutionary modifier. According to (21), the reportative changes the illocutionary force from ASSERT to PRESENT and replaces the sincerity condition that the speaker believes that p by the condition that there is reportative evidence for p .

(21) **-si:**

$$\begin{array}{l} \text{ASSERT}(p) \\ \text{SINC}=\{\text{Bel}(s, p)\} \end{array} \quad \longmapsto \quad \begin{array}{l} \text{PRESENT}(p) \\ \text{SINC}=\{\exists s_2(\text{Assert}(s_2, p) \wedge s_2 \notin \{h, s\})\} \end{array}$$

While this analysis is attractive for Cusco Quechua, where the reportative, and evidentials in general, cannot be embedded, it is problematic for Bulgarian. If analysed as illocutionary modifiers, along the lines of (21), embedded occurrences of the reportative would have to take scope over the whole proposition. For (17), we would get the analysis in (22a) instead of the correct one in (22b).

(22) a. PROP: Maria said that Todor has red hair

EVID: The speaker has reportative evidence that *Maria said that Todor has red hair*

b. PROP: Maria said that Todor has red hair

EVID: The speaker has reportative evidence that *Todor has red hair*

⁵McCready and Ogata (2006) present an alternative account of Japanese evidentials using probabilistic dynamic predicate logic, but as far as we can tell, the analysis cannot be transferred to Bulgarian either, for exactly the same reason.

Our Analysis. We propose the purely presuppositional lexical entry for REP in (23). There are two differences to Izvorski’s entry in (15): First, we replaced reference to the speaker by variables to handle potential shifting of the evidential origo. Second, we removed the modal component in the assertion part to get correct predictions for embedded occurrences of the reportative.

- (23) $\llbracket \text{REP} \rrbracket(y, v)(p)$
 Presupposition: y has in v reportative evidence for p
 Assertion: p

The following binding condition ensures that the reportative receives a speaker oriented interpretation:

- (24) Binding condition:
 The arguments of REP y and v must be bound by the context operators of the matrix clause.

The examples in (25) have the same presupposition, namely that the speaker has indirect evidence for the proposition that Todor has red hair.

- (25) a. λ_{x_0, w_0} Todor has-REP(x_0, w_0) red hair
 b. λ_{x_0, w_0} Maria said $\lambda_{x, w}$ that Todor has-REP(x_0, w_0) red hair

There is one objection against (23) that immediately comes to mind: Isn’t the assertion part much too strong? After all, one point of using the reportative is to signal that the speaker isn’t committed to the truth of p , or at least not to the same degree as if he uttered the sentence without the reportative.

However, in the embedded case, we need exactly that strong assertion part. Nothing weaker will do, as our discussion of other analyses has shown. In the unembedded case, notice that Bulgarian reportative seems to be different from Cusco Quechua and Japanese. In Cusco Quechua (cf. (26a) from Faller (2002, 193)) and Japanese (cf. McCready and Ogata (2006, 57)) it is possible to assert p -REP *and* $\neg p$ without contradiction.

- (26) a. Pay-kuna-s ñoqa-man-qa qulqi-ta saqiy-wa-n, mana-má ni un
 (s)he-PL-REP I-ILLA-TOP money-ACC leave-1O-3 not-SURP not one
 sol-ta saqi-sha-wa-n-chu
 Sol-ACC leave-PROG-1O-3-NEG
 ‘They left me money, but they didn’t leave me one *sol*.’
 EV: It is said/They said that they left me money.
- b. *Todor imal červena kosa no vsăštnost kosata mu e černa
 Todor has-REP red hair but in fact hair.the his is black
 (Attempted:) ‘I was told that Todor has red hair – but in fact his hair is black.’

In contrast, in Bulgarian the speaker cannot use p -REP if he knows that p is false. Hence it is not possible to assert p -REP and $\neg p$ at the same time (this is shown in (26b)). If the speaker wants to express his doubts, it is necessary to use the dubitative marker – the topic of the next section.

3 The Dubitative

3.1 Embedding the dubitative

The dubitative indicates indirect evidence and doubt. Morphologically, it is marked by two occurrences of perfect morphology. We analyze these as two separate components: REP and DUB.

- (27) Todor bil imal červena kosa
 Todor be-REP have-DUB red hair
‘I have reportative evidence that Todor has red hair, but I doubt that it’s true’

The use of the dubitative in unembedded contexts is described as having an exclamative flavor (“As if Todor had red hair!”) (Radeva 2003). Embedding the dubitative under *kaza* is grammatical. We again use constructed scenarios to control for the evidential origo in the following test sentences. For the dubitative we need the additional parameter *doubt* (*Dbt*) in our scenarios. For example, *Dbt(Su)* means that the matrix subject doubts the modified proposition in the given scenario. As we will see below, it matters whether the speaker believes that the subject has direct evidence in the case Rep(Sp), Dbt(Sp), Dir(Su).

- (28) Scenario types:

	Dir(Su)	Rep(Su)	Rep(Su), Dbt(Su)
Dir(Sp)			(30)
Rep(Sp)			
Rep(Sp), Dbt(Sp)	(31)/(32)	(29)	

The first scenario tests whether DUB can remain unshifted in embedded contexts. We take the acceptability of (29c) to establish this.

- (29) Scenario: Milena told Maria that Todor has red hair and Maria believes her. Maria tells me: “Todor imal červena kosa.” However, I saw that Todor has white hair.
- ?* Maria kaza če Todor ima červena kosa.
 Maria said that Todor has-DIR red hair
 - ? Maria kaza če Todor imal červena kosa.
 Maria said that Todor has-REP red hair
 - Maria kaza če Todor bil imal červena kosa.
 Maria said that Todor be-REP has-DUB red hair

In this scenario the speaker doubts the information provided by Maria because of conflicting direct evidence. Since both the speaker and Maria have reportative evidence for the embedded proposition, it is clear that the direct cannot be used. The dubitative component DUB in (29c) has to be speaker oriented, since Maria doesn’t doubt the proposition that Todor has red hair in the given context.

The next scenario tests whether the dubitative can also shift. The unacceptability of the dubitative in (30c) establishes that this is not the case – the dubitative must remain unshifted.

- (30) Scenario: Milena told Maria that Todor has red hair but Maria doubts it. Maria tells me: “Todor imal cervena kosa.” However, I saw Todor’s red hair, too.

- a. Maria kaza če Todor ima červena kosa.
Maria said that Todor has-DIR red hair
- b. * Maria kaza če Todor imal červena kosa.
Maria said that Todor has-REP red hair
- c. * Maria kaza če Todor bil imal červena kosa.
Maria said that Todor be-REP has-DUB red hair

We conclude that the dubitative component DUB cannot be shifted, but has to be speaker oriented. The next two scenarios show that the reportative REP above DUB behaves differently from DUB itself: The unacceptability of (31c) shows that REP above DUB cannot remain unshifted.

- (31) Maria met Todor and saw that he had red hair. Maria then says: “Todor ima červena kosa.” However, I actually played an elaborate trick on Maria: While she was asleep, I secretly put red contact lenses into her eyes which she hasn’t noticed yet. So, while I can clearly see that Todor has white hair, Maria perceives it as red.

- a. Maria kaza če Todor ima červena kosa.
Maria said that Todor has-DIR red hair
- b. ? Maria kaza če Todor imal červena kosa.
Maria said that Todor has-REP red hair
- c. * Maria kaza če Todor bil imal červena kosa.
Maria said that Todor be-REP has-DUB red hair

In (31) the dubitative cannot be used although the speaker has untrusted reportative evidence that Todor has red hair just as in (29). The only difference between the two scenarios is that the subject, Maria, has reportative evidence in (29), but not in (31). We conclude therefore, that REP above DUB has to shift. Therefore, the subject of *kaza* must have indirect evidence for the embedded proposition.

Scenario (32) shows a further subtlety: In this scenario, the speaker believes that the subject has indirect evidence, while the subject herself believes to have direct evidence. We found that the dubitative is acceptable in this scenario.

- (32) Todor is a famous billionaire who, like Howard Hughes, few people have ever seen and it’s not known what he looks like. Maria has never seen him, but recently she dreamed of Todor and noticed that he had red hair. Now she thinks her dream was reality and claims to have seen Todor with red hair, *though I know it was just a dream*. However, I’m actually one of Todor’s few friends, and having seen him, I know his hair is white.

- a. ?? Maria kaza če Todor ima červena kosa.
Maria said that Todor has-DIR red hair
- b. ?? Maria kaza če Todor imal červena kosa.
Maria said that Todor has-REP red hair
- c. Maria kaza če Todor bil imal červena kosa.
Maria said that Todor be-REP has-DUB red hair

We conclude from the difference between (31) and (32) that the embedded REP above DUB requires that the speaker believe that the subject not have indirect evidence. This

can be captured formally in our account by the requirement that the world argument of REP above DUB must be bound by the context binders of the matrix clause, while the individual argument must be bound by the context binders of the embedded clause.

The following table summarizes our findings for embedding the reportative and the dubitative under *kaza*. $\text{Dir}(\text{Su}, w_\theta)$ indicates that the speaker knows that the subject has indirect evidence, whereas $\neg\text{Dir}(\text{Su}, w_\theta)$ indicates the opposite. This captures the difference between (31) and (32). For the reportative alone in the first and second line, as we saw in the previous section, the evidence available to the subject alone did not matter.

(33) Embedding evidentials under *kaza*.⁶

	$\text{Dir}(\text{Su}, w_\theta)$	$\neg\text{Dir}(\text{Su}, w_\theta)$	$\text{Rep}(\text{Su})$	$\text{Rep}(\text{Su}), \text{Dbt}(\text{Su})$
$\text{Dir}(\text{Sp})$	DIR, *REP, *DUB	DIR, *REP, *DUB	DIR, *REP, *DUB	DIR, *REP, *DUB
$\text{Rep}(\text{Sp})$?DIR, REP, *DUB	?DIR, REP, *DUB	*DIR, REP, *DUB	*DIR, REP, *DUB
$\text{Rep}(\text{Sp}), \text{Dbt}(\text{Sp})$	DIR, ?REP, *DUB	*DIR, ?REP, DUB	*DIR, ?REP, DUB	*DIR, *REP, DUB

3.2 Semantics of the Dubitative

As already mentioned, we analyze the dubitative as consisting of two separate components: REP and DUB. The semantics of DUB is stated in (34). This is the same as the semantics suggested for the subjunctive in Romanian (Brasoveanu 2006).

(34) $\llbracket\text{DUB}\rrbracket(y, v)(p)$
 Presupposition: $p \not\subset \text{Dox}(y, v)$
 Assertion: p

Now consider the semantics of REP, first for an unembedded occurrence of dubitative like (35) (repeated from (27)).

(35) Todor bil imal červena kosa
 Todor be-REP have-DUB red hair
‘I have reportative evidence that Todor has red hair, but I doubt that it’s true’

First assume that the reportative had the presuppositional meaning that we argue for in section 2 in this case as well. The meaning predicted for (35) then consists of a presupposition and an assertion: the presupposition is that the speaker does not believe that Todor has red hair and the speaker has indirect evidence that Todor has red hair. The assertion is that Todor has red hair. Since the assertion contradicts the presupposition, the speaker would be asserting something he does not believe – which cannot be.

Therefore we assume that there is also the assertive lexical entry for $\llbracket\text{REP}\rrbracket(y, v)(p)$ in (36):

⁶The scenarios not mentioned in the text are as follows:

$\langle\text{Dir}(\text{Sp}), \text{Rep}(\text{Su})\rangle$: Milena told Maria that Todor has red hair and Maria believes her. Maria says: “Todor imal cervena kosa.” I saw Todor’s red hair with my own eyes.

$\langle\text{Rep}(\text{Sp}), \text{Dir}(\text{Su})\rangle$: Maria saw that Todor had red hair. She tells me on the phone: “Todor ima cervena kosa.” I believe her.

$\langle\text{Rep}(\text{Sp}), \text{Rep}(\text{Su}), \text{Dbt}(\text{Su})\rangle$: Milena told Maria that Todor has red hair but Maria doubts it. Maria says: “Todor imal cervena kosa.” A close friend of mine also told me that he has seen Todor’s red hair and I believe him.

- (36) Presupposition: –
 Assertion: y has in v indirect evidence for p

Now, the predicted meaning for (27) is the following: It presupposes that the speaker doesn't believe that Todor has red hair, and asserts that the speaker has reportative evidence that Todor has red hair. This captures the meaning of unembedded dubitative forms correctly as far as we can see. We assume that the choice between the presuppositional and the assertive interpretation of REP is determined by context: In (27) only the assertive interpretation can be used, because the presuppositional one is contradictory. Similarly, when REP is embedded only the presuppositional interpretation can be available: if REP was interpreted assertively in an embedded clause, but with its world argument position bound to the matrix clause w_0 , the embedded proposition would denote a constant property of worlds.⁷

Our claim that REP can have an assertive interpretation when it occurs as part of the dubitative straightforwardly explains the distribution of the dubitative. While in languages like Romanian the dubitative form (formally, the subjunctive B) can only be used in embedded clauses, the Bulgarian dubitative also occurs unembedded. On our analysis this follows from the fact that the dubitative in Bulgarian is inherently embedded under assertive REP.

For embedded dubitatives, we have established that, on the one hand, the dubitative component always receives a speaker-oriented interpretation, and the reportative component, on the other hand, must be interpreted in the following way: the speaker believes that the subject of *kaza* has reportative evidence.

To explain these facts, we assume that DUB is subject to a binding condition that its two arguments must be bound to the matrix context operator. Furthermore for the REP above DUB, we can conclude that its world argument must be bound to the matrix context. This will entail that this occurrence of REP must receive a presuppositional interpretation as we argued above. The individual argument of REP above DUB, however, must be bound to the speaker, i.e. to the context operator in the embedded clause.

These generalizations completely describe the semantics of embedding evidentials below *kaza* in Bulgarian. Can we extract any more general principles from these generalizations? While DUB is always speaker-oriented, REP exhibits a more complex behavior. If we consider the abstract structure in (37), the table below summarizes the binding possibilities for REP – a *-mark indicates that a certain binding pattern is not available:

- (37) $\lambda x_0 \lambda w_0$ [M. said $\lambda x \lambda w$] T. REP($-, w_0$) [DUB] has red hair.

environment	assertive?	individual	world
unembedded	assertive, presuppositional	x_0	w_0
umemb. with DUB	assertive, *presuppositional	x_0	w_0
embedded	presuppositional, *assertive	$x_0, *x$	w_0
emb. with DUB	presuppositional, *assertive	* x_0, x	w_0

The surprising fact about REP is that its individual argument position must be filled by x_0 when it does not occur above DUB, but by x when its complement is headed by DUB.

⁷We assume that world variable position in *de re* descriptions are ignored at this point (cf. Percus (2000)).

Scenario (31) shows that the fully speaker-oriented interpretation of the REP above DUB is blocked, though it should be available. This interpretation gap remains unexplained. The non-shiftability of the plain reportative on the other hand, can plausibly be attributed to a preference to bind both the world and the individual argument of REP from the same position. This would be an instance of the Shift-Together constraint of Anand and Nevins (2004). But, this constraint is violated in case of the REP that is part of the dubitative. Hence, it would have to be a violable constraint within our analysis.

4 More embedding predicates

So far we only considered embedding of evidentials under *kaza* ('say'). Other utterance predicates, for example *spomena* ('mention'), behave similar. But there are other types of predicates that allow evidentials in their complements, among them predicates of knowledge and acquisition of knowledge like *znae* ('know'), *sânuva* ('discover') or *rezbra* ('dream'). Of course, factive uses of *sânuva* ('discover') are not compatible with the dubitative (38c), but embedding the reportative is possible (38b).

- (38) a. Marija rezbra če ima burja v Ispanija
 Maria discovered that is-DIR storm in Spain
 b. Marija rezbra če imalo burja v Ispanija
 Maria discovered that is-REP storm in Spain
 c. *Marija rezbra če bilo imalo burja v Ispanija
 Maria discovered that be-REP is-DUB storm in Spain
 'Maria discovered (found out) that there is a storm in Spain'

The reportative is even required in complements of *rezbra* ('dream'), because the speaker cannot have direct evidence for events happening in other people's dreams (cf. (39)).

- (39) a. *Marija sânuva če ima burja v Ispanija
 Maria dreams that is-DIR storm in Spain
 b. Marija sânuva če imalo burja v Ispanija
 Maria dreams that is-REP storm in Spain
 'Maria dreamed that there is a storm in Spain'

Interestingly, the reportative in complements of *znae* ('know') can be shifted: (40b) can be used if the speaker has direct evidence for and told Maria that there is a storm in Spain.

- (40) a. Marija znae če ima burja v Ispanija
 Maria knows that is-DIR storm in Spain
 b. Marija znae če imalo burja v Ispanija
 Maria knows that is-REP storm in Spain
 'Maria knows that there is a storm in Spain'

Most embedding predicates seem not to allow evidentials in their complements at all. Among the predicates we tested are propositional attitude verbs (*vjerva* 'believe', *sâmnjava* 'doubt', *predpolaga* 'suspect'), perception predicates (*čuva* 'hear', *čuvstva* 'feel', *vidja* 'see'), desiderative predicates (*iska* 'want') and pretence predicates (*lâže* 'lie'). This pattern is illustrated in (41) for *vjarva* ('believe').

- (41) a. Marija vjarva če ima burja v Ispanija
 Maria believes that is-DIR storm in Spain
 b. *Marija vjarva če imalo burja v Ispanija
 Maria believes that is-REP storm in Spain
 ‘Maria believes that there is a storm in Spain’

The following table shows the pattern which verbs allow embedded evidentials in Bulgarian. For comparison, we added data from three other languages from Garrett (2001) and our own fieldwork (reportative *sollen* in German and reportative *soo-da* in Japanese; the Japanese data are preliminary).

- (42) Predicates that accept evidential distinctions in their complements:

	Bulgarian	Tibetan	German	(Japanese)
<i>say, speak</i>	+	+	+	+
<i>know</i>	+	–	+	–
<i>think, believe</i>	–	+	+	–
<i>see</i>	–	–	–	–

5 Conclusion

Bulgarian embedding predicates differ in whether they allow evidentials in their complements. Utterance predicates and predicates of knowledge allow them, while most others do not. Unlike epistemic modals and Tibetan evidentials they usually don’t shift in embedded contexts but remain speaker oriented. Under *kaza* (‘say’) the simple reportative REP and the dubitative DUB are never shifted, but REP above DUB can shift.

References

- Aikhenvald, A. Y.: 2003, Evidentiality in typological perspective, *in* Aikhenvald and Dixon (2003), pp. 1–31.
- Aikhenvald, A. Y.: 2004, *Evidentiality*, Oxford University Press, Oxford.
- Aikhenvald, A. Y. and Dixon, R. M. W. (eds): 2003, *Studies in Evidentiality*, Benjamins, Amsterdam.
- Anand, P. and Nevins, A.: 2004, Shifty operators in changing contexts. Unpublished Ms., MIT.
- Brasoveanu, A.: 2006, Temporal and propositional de se: Evidence from Romanian, *Proceedings of SuB 10*, ZAS Working Papers in Linguistics, Berlin, pp. 55–70.
- Chafe, W. and Nichols, J. (eds): 1986, *Evidentiality: The Linguistic Coding of Epistemology*, Ablex Publishing Corporation, Norwood.
- Cresswell, M.: 1990, *Entities and Indices*, number 41 in *Studies in Linguistics and Philosophy*, Kluwer, Dordrecht, Netherlands.
- Faller, M.: 2002, *Semantics and Pragmatics of Evidentials in Cuzco Quechua*, PhD thesis, Stanford University.

- Faller, M.: 2006, The Cusco Quechua reportative evidential and rhetorical relations, Draft, submitted to a special volume of *Linguistische Berichte* on endangered languages, edited by Peter Austin and Andrew Simpson.
- Friedman, V. A.: 1986, Evidentiality in the Balkans: Bulgarian, Macedonian, and Albanian, *in* Chafe and Nichols (1986), pp. 168–187.
- Friedman, V. A.: 2003, Evidentiality in the Balkans with special attention to Macedonian and Albanian, *in* Aikhenvald and Dixon (2003), pp. 189–218.
- Garrett, E. J.: 2001, *Evidentiality and Assertion in Tibetan*, PhD thesis, UCLA, Los Angeles.
- Hacquard, V.: 2006, *Aspects of Modality*, PhD thesis, MIT, Cambridge, MA.
- Izvorski, R.: 1997, The present perfect as an epistemic modal, *SALT* 7, 222–239.
- LaPolla, R. J.: 2003, Evidentiality in Qiang, *in* Aikhenvald and Dixon (2003), pp. 63–78.
- Lewis, D. K.: 1979, Attitudes *de dicto* and *de se*, *The Philosophical Review* 88(4), 513–543. Reprinted with postscripts in (Lewis 1983).
- Lewis, D. K.: 1983, *Philosophical papers*, Vol. I, Oxford University Press, Oxford.
- McCready, E. and Asher, N.: 2006, Modal subordination in Japanese: Dynamics and evidentiality, *in* A. Eilam, T. Scheffler and J. Tauberer (eds), *Penn Working Papers in Linguistics 12.1*, UPenn, Philadelphia.
- McCready, E. and Ogata, N.: 2006, Evidentiality, modality and probability. Draft submitted to *Linguistics & Philosophy*, November 2006.
- Percus, O.: 2000, Constraints on some other variables in syntax, *Natural Language Semantics* 8, 173–229.
- Radeva, V. (ed.): 2003, *Bulgarische Grammatik: Morphologisch-syntaktische Grundzüge*, Buske, Hamburg.
- de Reuse, W. J.: 2003, Evidentiality in Western Apache (Athabaskan), *in* Aikhenvald and Dixon (2003), pp. 79–100.
- Schlenker, P.: 1999, *Propositional attitudes and indexicality*, PhD thesis, MIT Press, Cambridge, Mass.
- Schlenker, P.: 2003, A plea for monsters, *Linguistics and Philosophy* 26, 29–120.
- von Stechow, A.: 2003, Binding by verbs, *in* M. Kadowaki and S. Kawahara (eds), *Proceedings of NELS 33*, GLSA, University of Massachusetts, Amherst.
- Stephenson, T.: 2005, Assessor sensitivity: Epistemic modals and predicates of personal taste, *in* J. Gajewski, V. Hacquard, B. Nickel and S. Yalcin (eds), *New Work on Modality. MIT Working Papers in Linguistics 51*, MIT, Cambridge, MA.
- Valenzuela, P. M.: 2003, Evidentiality in Shipibo-Konibo, with a comparative overview of the category in Panoan, *in* Aikhenvald and Dixon (2003), pp. 33–61.