1 Empirical issues: embedded main clause phenomena & assertion

Main Clause Phenomena [MCP]: constructions that are typically associated with matrix contexts (since Emonds 1970)

- Many MCP involve some type of fronting operation, e.g. Topicalization (1) and V2 (V-to-C) (2)\(^1\)

\[(1) \text{This book, Mary read.}\]
\[(2) \text{Peter geht nach Hause.}\]
\[\text{Peter goes to home.}\]
\[\text{German}\]

Since Hooper and Thompson (1973): the availability of MCP in clausal complements depends on the type of verb

\[(3) \text{John \{thinks, *regrets\} that } \{p \text{ this book, Mary read}\}.\] (Hegarty, 1992, 52)
\[(4) \text{Maria \{glaubt, *glaubt nicht, *bezweifelt\} } \{p \text{ Peter geht nach Hause}\}.\]
\[\text{Maria \{believes, believes not, doubts\} } \text{Peter goes to home.}\]
\[\text{Maria \{believes, doesn’t believe, doubts\} that Peter is going home.}\] (Truckenbrodt, 2006, 278, 295, 297)

General form of explanation for these contrasts, since H&T:

- The availability of MCP across embedded contexts is linked to the presence vs. absence of illocutionary force.
- Verbs like think and say licence/select for ‘assertive’ complements; verbs like doubt and resent do not.
  - Semantically and pragmatically, this has been linked to notions like factivity, presupposition, discourse status (e.g. old vs. new information), at-issuenss with respect to the QUD, etc.
  - Syntactically, this idea is often couched in terms of the Rizzian perspective whereby illocutionary force and discourse features like topic and focus are encoded in an extended left-periphery such as (5):

\[(5) \text{[ForceP Force}_o \text{ Top}_o \text{ Top}_o \text{ Foc}_o \text{ Top}_o \text{ Foc}_o \text{ Fin}_o \text{ IP }]][\text{Rizzi, 1997, 297}]\]

Big-picture questions for this approach:

1. What precise dimension of assertion is relevant to MCP-licensing?
   - What does it mean to assert an embedded proposition?
   - What precise dimension of assertion is relevant to MCP-licensing?
2. What is the role of the matrix predicate in licensing ‘embedded assertions’ and MCP?

Answers from previous work (brief overview):

1. What precise dimension of assertion is relevant to MCP-licensing?
   - (i) The presence of a commitment to or belief that p (e.g. Truckenbrodt 2006; Wiklund 2010; Krieka 2014; Julien 2015; Woods 2016); disagreement as to whether by speaker or attitude holder (see Section A, Appendix).
   - (ii) The discourse status of p as old vs. new information (e.g. Haegeman and Ürögdi 2010; Kastner 2015; Caplan and Djärv 2019; Djärv 2019a) (see Section B, Appendix).
2. What is the role of the matrix predicate?
   - (i) The embedding predicate selects for a particular type of clause, which is either compatible with MCP (e.g. a ForceP in Wiklund et al. 2009) or blocks MCP (e.g. a null DP in Kastner 2015).

---

\(^{1}\)H&T also discuss VP preposing, negative XP preposing, left/right-dislocation tag-question formation, subject-aux inversion, etc. Other types of MCP have also been identified in subsequent literature; see for instance Aelbrecht, Haegeman, and Nye (2012).
(ii) The compatibility between the verb and the complement is fundamentally semantic (e.g. Krifka 2014, where the subject and object slots of the matrix verb saturates the speaker and addressee arguments of the embedded assertion/ForceP).

(iii) The compatibility between the embedding verb and asserted/MCP-complements is essentially pragmatic in nature (e.g. Truckenbrodt 2006; Jensen and Christensen 2013; Woods 2016; Caplan and Djärv 2019).

Today:

- New answers to Questions 1 and 2 — based on detailed examination of the range of discourse functions and uses associated with embedded V2 [EV2] in naturally occurring data from Swedish
- I will also discuss some questions and consequences from MCP for (a) the question of how to think about assertions of embedded content, and (b) theoretical models of clausal complementation more broadly.

2 Review: distribution of MCP across embedding contexts

Distribution of MCP and embedded assertion tracks verb-classes, since H&T:\footnote{The terminology ‘response stance verb’ is originally from Cattell (1978), and is derived from their specific pragmatic requirement that the issue of p needs to be ‘up for debate’. This characterization of H&T’s Class C is from Djärv (2019a); though see also Kastner (2015).}

\begin{enumerate}
\item Class A: speech act verbs like say and claim \hspace{2cm} MPH/Asst-p
\item Class B: belief-verbs like believe and think \hspace{2cm} MPH/Asst-p
\item Class C: response stance verbs like accept and deny \hspace{2cm} MPH/Asst-p
\item Class D: emotive factive verbs like resent and appreciate \hspace{2cm} MPH/Asst-p
\item Class E: cognitive factive verbs like discover and find out \hspace{2cm} MPH/Asst-p
\end{enumerate}

The claim that cognitive factives (or ‘semi-factives’; Karttunen 1971) like discover and find out license MCP has been challenged: e.g. Kastner (2015) claims that factives in general disallow MCP-complements (see Appendix B.1).

- For EV2, however, the distribution in (6) has been corroborated by data from Scandinavian (Wiklund et al. 2009; Julien 2009; Bentzen 2010; Wiklund 2010; Jensen and Christensen 2013; Julien 2015; Djärv et al. 2017; Caplan and Djärv 2019, a.o), e.g. (7), and German (Djärv, 2019a), see Fig. 1.

\begin{enumerate}
\item Han upptäckte/*ångrade att han hade inte sjungit. He discovered/regretted that he had not sung.
\end{enumerate}

Adding to this pattern, Caplan and Djärv (2019) (corpus study of Swedish EV2) and Djärv (2019a) (experimental study of German EV2) find that contexts that typically allow EV2-complements (say, believe, discover) lose this ability under matrix negation (not say, not believe, not discover):\footnote{In Mainland Scandinavian, negation or some other VP-level adverb is necessary to tell whether the finite verb is in C or in situ.}

- This distributional pattern is not replicated for English topicalization (in line with much empirical disagreement about the distribution of topicalization in embedded contexts; see Djärv 2019a for discussion):

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Results from Djärv (2019a, Ch. 3.2.6.3): acceptability of German EV2 and English Topicalization across Hooper and Thompson’s (1973) verb classes.}
\end{figure}
• For EV2, Caplan and Djärv (2019) and Djärv (2019a) further show that the effect of matrix negation across verbs tracks the potential for the embedded proposition to function as discourse new information:

(8) Based on Caplan and Djärv (2019, 21–23)
[Uttered out of the blue:] Guess what — / You know what —

a. Anna {told me, thinks, found out} that [p Lisa won]. ✓V2
b. #Anna {doubts, appreciates} that [p Lisa won]. XV2
c. #Anna didn’t {tell me, think, discover} that [p Lisa won]. XV2

— This observation is replicated experimentally by Djärv (2019a).

• They also point out that the general unavailability of EV2 under verbs like accept, admit (positive Class C) is problematic for accounts that points to speaker or attitude holder commitment to p as the relevant factor, given that these verbs give rise to strong commitment-inferences.

As we shall see in Section 4:
• the claim that discourse novelty is the key factor is on the right track, but needs to be refined;
• commitments also play a role; though differently from how it’s has previously been characterized (see Section A).

First, I introduce Farkas and Roelofsen’s (2017) model of the conventional discourse effects of matrix declaratives and interrogatives, which I will extend to assertions of embedded content and EV2-clauses (Section 5).

• See Appendix A.3 for discussion of a proposal from Woods (2016) which links EV2-licensing to the presence of a belief-context (via a DOX operator), but which additionally invokes the table model from Farkas and Bruce (2010) to account for the discourse effects of a subset of EV2-clauses, namely those where the speaker asserts p (see Section 4.2.1). In Section 4.2.2, I additionally identify two types of cases where the speaker does not assert p, and argue that F&R’s model alone can provide a unified account of EV2 in all of these cases (without invoking assertion or belief operators).

3 Farkas & Roelofsen (2017) on the discourse effects of matrix sentences

• Traditionally, a distinction is drawn between declaratives and interrogatives in terms of their semantic type:

(9) a. [Lisa won.] = λw’.Lisa won in w’ (st)
b. [Did Lisa win?] = {λw’.Lisa won in w’, λw’.¬Lisa won in w’} (st,t)

— Reflecting the idea that the semantic content of a declarative is informative, whereas the semantic content of an interrogative is inquisitive.

• In inquisitive semantics (e.g. Ciardelli et al. 2013, 2015), both sentence types are analysed as proposition sets:

(10) a. [Lisa won.] = {λw’.Lisa won in w’} (st,t)
b. [Did Lisa win?] = {λw’.Lisa won in w’, λw’.¬Lisa won in w’} (st,t)

— Here, both declaratives and interrogatives are associated with informative and inquisitive content.

• Building on Farkas and Bruce (2010), a.o, Farkas and Roelofsen (2017) model a discourse context as in (11):5

(11) Farkas and Roelofsen (2017, 255)
A basic discourse context is a triple (participants, table, commitments), where:
a. participants is the set of discourse participants;
b. table is a stack of propositions, representing the proposals made so far;
c. commitments is a function that maps every participant x ∈ participants to a set of possibilities, those possibilities that x is publicly committed to.

The commitment set of a participant x, cs(x) is the set of worlds that are compatible with all the possibilities that x is publicly committed to: cs(x) = ∩ commitments(x).

• Farkas and Roelofsen (2017) further propose a basic convention of use (12), which —together with the semantic differences between declaratives and interrogatives (modelled in terms of inquisitive semantics)— accounts for the differences in the conventional discourse effects associated with matrix declaratives and interrogatives:

5Where a possibility is modelled as the set of possible worlds which are compatible with it.
(12) **Basic convention of use** (Farkas and Roelofsen, 2017, 265)
If a discourse participant \(x\) utters a declarative or interrogative sentence \(\phi\) the discourse context is affected:

a. The proposition expressed by \(\phi\), \([\phi]\), is added to the table.

b. The informative content of \(\phi\), \(\bigcup[\phi]\), is added to commitments(\(x\)).

- Thus, an utterance of a (falling) declarative sentence (e.g. *Lisa won\(^\downarrow\)*) has the following effect on the context:
  - \(p\) gets added to the speaker’s discourse commitments (12-b)
  - the issue of \(p\), \(\{p\}\), gets added to the conversational table (12-a)
    * since *Lisa won* expresses a non-inquisitive proposition (containing only one alternative), this move has the effect of steering the conversation towards a state where *Lisa won* is common ground.\(^6\)

- Following F&R and Farkas (2021): this captures conventional discourse effects. Declarative sentences can involve a range of further uses, like providing reminders (13-a), drawing attrition to a well-known fact (13-b), committing to a salient proposition (13-c), or providing an explanation or justification (13-d):

\[
\begin{align*}
(13) & \quad \text{Farkas (2021, 1, 9–10)} \\
& \quad \text{a. Let me remind you. You are supposed to pick up the kids at 5.} \\
& \quad \text{b. I’m your mother, and I know what’s best for you.} \\
& \quad \text{c. A: It’s hot outside. / B. Yes, it’s hot indeed.} \\
& \quad \text{d. (i) It’s raining. So you should take your umbrella.} \\
& \quad \text{ (ii) This is the US after all.}
\end{align*}
\]

- On the current picture, these cases are the same as canonical assertions (informative uses of declaratives) in terms of their semantic content, form, and conventional discourse effects: what differs are the contextual assumptions about why the speaker utters the sentences.\(^7\)

➢ As we shall see, this perspective provides us with a nice way of understanding the role of the matrix verb and the restrictions on EV2 (and MCP more broadly) across embedding contexts.

4 **New data: complex assertions in EV2-sentences**

In this section, I examine in detail the range of discourse functions found with a set of naturally occurring EV2-sentences from the Swedish *Korp* corpus (Borin et al., 2012).\(^8\)

4.1 **The corpus**

- The sample investigated consists of 233 sentences randomly sampled from three largest sub-corpora in the corpus, representing data from blogs and online discussion forums (we’ll look at a subset of this sample):\(^9\)
  
  - Familjeliv-känsliga (5,971,907 sentences; proportion non-ambiguous embedded V2 sentences = 0.1163)
  - Bloggmix (2,713,376 sentences, proportion non-ambiguous embedded V2 sentences = 0.0765)
  - Flashback-politik (2,841,872 sentences, proportion non-ambiguous embedded V2 sentences = 0.0972)

- Criteria for inclusion in the sample: (a) that the overall number of occurrences per sub-corpus was greater or equal to 10, and (b) that the number of embedded V2 sentences for each verb included was greater or equal to 10.

**Note:** this is not an exhaustive overview of all possible discourse functions available with EV2, nor is it a quantitative investigation of the distribution of discourse functions occurring with EV2-clauses in the corpus/ across verb types.

4.2 **Data**

4.2.1 **EV2-clauses with speaker commitment**

Among these cases, we find a range of more specific discourse effects, also generally available to matrix declaratives:

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\(^6\)For polar interrogatives, which express inquisitive propositions \(\{p, ¬p\}\), both alternatives are added to the table. Hence, the step in (12-a) steers the conversation towards a state where \(p\) or \(¬p\) is common ground. In this case, as the commitment is trivial, the speaker remains neutral with respect to \(p\) vs. \(¬p\).

\(^7\)See also Condoravdi and Lauer (2012); Lauer and Condoravdi (2012); Lauer (2013).

\(^8\)This is the corpus that was used in Caplan and Djärv (2019).

\(^9\)The data is publicly available at [https://spraakbanken.gu.se/](https://spraakbanken.gu.se/). The code for extracting the data and creating the sub-corpora with information about EV2 used by Caplan and Djärv (2019) is available at [https://github.com/scaplan/ev2-optionality](https://github.com/scaplan/ev2-optionality) under the MIT license for replicability and extension to related data sets and analyses; courtesy of Spencer Caplan (UPenn/Swarthmore).
1. The speaker clarifies, re-states, or echoes a previous assertion of p in the conversational context:

(14) a. Jag menade bara att en man behöver inte vara manlig.
I just meant that a man doesn’t need/have to be manly.

b. Nej, jag säger bara att folk kan inte hantera amfetamin, kokain etc etc.
No, I’m just saying that people can’t handle amphetamine, cocaine, etc etc

2. The speaker directly contrasts their opinion that p with an alternative point of view in the current context. (In (15), the point of view that’s highlighted is that of the speaker, whereas in (16), it’s that of the addressee.)

(15) a. själv ansåg jag att det handlar inte så mycket om träning.
I am myself of the opinion that it’s not so much about practise

b. kan absolut vara skuldkänslor, men jag tror mer att han orkar inte ta konflikt med barnet.
could definitely be guilt, but I would be more inclined to think that he doesn’t have the energy to deal with the conflict with the child

(16) a. fattar du inte själv att pengar kan inte betala för allt som ett barn behöver?
don’t you get it that money can’t pay for everything that a kid needs

b. du måste lära dig att människor fungerar inte på det sättet
you have to learn that people don’t work that way

3. Evidential uses, where the matrix clause is used to provide some kind of justification or motivation for the claim that p; sometimes to persuade the addressee of p.

(17) a. har du följt debatten så vet du att folk blir inte direkt hjälpta när det sociala lägger sig i
if you’ve been following the debate you will know that people aren’t exactly helped when the social services get involved

b. jag har ett inifrånperspektiv och säger att det är inte så de delar av de institutioner jag varit i beröring med fungerar
I have an insider’s perspective and (I’m) saying that that’s not how the institutions that I’ve been involved with work

4. Reminders, as in (18).

(18) a. glöm aldrig att man kan inte sprida för lite glädje!
never forget that one can’t spread enough happiness

b. ska du veta att du är inte ensam . . . och det finns hjälp att få.
you should know that you’re not alone . . . and there’s help to be had.

5. Promises/reassurances, as in (19).

(19) a. den ser ganska liten ut på bilden men jag lovar att den där buren är inte liten, den är stor
it looks small in the photo but I promise that this cage isn’t small, it’s big

b. tyvärr är det sant och jag kan lova dig att jag är inte ensam.
unfortunately it’s true and I can promise you that I’m not the only one

Discussion:
In all of these cases (14)–(19), it’s clear that the embedded proposition p is part of the speaker’s assertion, in the sense of Farkas and Roelofsen (2017):

(20) a. p is pushed on to the conversational table as an issue for discussion/interlocutors to respond to. cf. (12-a)

b. p is added to the speaker’s public commitments. cf. (12-b)

These sentences could easily be paraphrased as two matrix clauses with the same conversational effects, as in (21):

(21) a. Let me clarify what I meant. A man doesn’t need to be manly. ≈ (14-a)
b. It’s not so much about practise. That’s my opinion. ≈ (15-a)
c. Money can’t pay for everything that a kid needs. Don’t you get it! ≈ (16-a)
d. People aren’t exactly helped when the social services get involved. You would know that if you’d been following the debate. ≈ (17-a)
e. One can’t spread enough happiness. Don’t forget that. ≈ (18-a)
f. I promise you. This cage isn’t small, it’s big. ≈ (19-a)
I will argue that the effects in (20) (with one important modification; see below) are the conventional discourse effects associated with EV2-clauses; i.e. the same as for matrix declaratives, as on F&R’s account.

- Following F&R and Farkas, I distinguish these effects from the pragmatic discourse effects of the utterance (e.g. whether the utterance is intended to be informative, or provide a reminder, clarification, justification, or a promise, etc.), which depend on the the particular utterance situation.

- Further, adding to the picture from F&R, we find that in complex sentences, the embedded clause may be part of the speaker’s assertion. I claim that in this case, the utterance situation which frames the discourse move represented by the embedded clause includes the embedding context, e.g.

> Clarifications/re-statements/echoes of previous assertions, with meny (mean), säga (say)...
> Contrast speaker’s opinion with alternative view, with anse (be of opinion/consider), tro (believe), fatta (get it/realize), lär sig (learn)...
> Evidential uses, with veta (know), säga (say)...
> Reminders, with glömma (forget), veta (know)...
> Promises, with lova (promise)...

- Is speaker commitment to p always present?

No – we find two types of cases in the sample where the speaker expresses no commitment to p.10

4.2.2 EV2-clauses without speaker commitment

Type 1: the EV2-clause mirrors the use of rising declaratives

- in (22) the speaker reproduces a third person’s assertion of p from a reported conversational context:

(22) jag har hört att man inte frakta ett barn fram och tillbaka förrän efter 1 år?
I’ve heard that one shouldn’t move a kid back and forth until after 1 year?

- With falling intonation, this would function as an evidential speaker-oriented assertion, similarly to (17);
- With rising intonation (as indicated with the ? in (22)), this is interpreted as a type of biased question, similarly to rising declaratives (Lisa won?); raising the issue of p as a question for discussion in the current context.

Discussion:

This case is problematic for accounts that link EV2 to assertion-operators that incorporate speaker (or attitude holder) commitment to p as part of their semantic meaning (e.g. Truckenbrodt 2006; Krifka 2014; Julien 2015; Woods 2016); see discussion of these accounts in Section A.

- Since the embedded clause in (22) does not represent an assertion (either by the speaker or the attitude holder), it is not clear how such proposals would account for the presence of EV2 in this case.
- On the current account, EV2-clauses are associated with the same range of discourse functions as matrix declaratives; which —depending on factors like intonation— can be interpreted either as assertions or (biased) questions.

> However, as we shall see in Section 6, this case also raises a number of questions for the current approach.

Type 2: the discourse move represented by the EV2-clause is anchored to a projected speaker.

- in (23), the speaker reproduces a third person’s or the addressee’s assertion of p from (what I’m referring to as) a projected conversational context (provided by the matrix clause):

(23) a. nu kanske någon säger att man kan inte ha 4 föräldrar, men det tycker jag
now someone might say that one can’t have 4 parents, but I think you can
b. och man säger jämnt att man har inte tid med hus, djur och tre barn men någon måtta fär det vara
people always say that they don’t have time for a house, pets and three kids, but there’s gotta be some limits

10We already know from previous work e.g. from Julien (2009, 2015), that speaker commitment to p is not always present. Julien discusses examples like (23), characterizing these cases as indirect assertions, anchored to the attitude holder (see Section A.1). Here, we’re going to look closer at the pragmatic effects associated with these cases.
Discussion:

- At a first glance, (23-a)–(23-b) look like good candidates for Krifka’s (2014) analysis (see Section A.1), whereby EV2-clauses are analysed (semantically) as involving assertive context updates by the attitude holder.

- However, there are at least two reasons to reject that approach in favour of the current one:
  1. While Krifka’s approach could technically be applied to (23-a)–(23-b), it would not work for (23-c), nor for many of the cases discussed above; including (22), thus not allowing for a unified analysis.
  2. Even though the examples in (23) lack speaker-commitment, they—like (22)—do share one important thing in common with the cases with speaker commitment (Section 4.2.1): namely, that the speaker is raising the issue of p with respect to the current conversational context.
     - However, in (23), the speaker raises the issue of p as the assertion of a projected discourse participant, provided by the matrix clause, in order to subsequently themselves reject or take issue with p.

5 Proposal: extension of F&R’s model to embedded V2 and MCP

5.1 Composition with the matrix clause

In each of the cases discussed here, the semantic composition of the embedded clause and the matrix verb is standard (following Theiler, Roelofsen, and Aloni 2018, 2019):

\[ \text{participants} = \{Sp, Ad\} \]

(28) Discourse context after the speaker \( Sp \) has uttered the sentences in Section 4.2.1 to the addressee \( Ad \):

a. \( \text{participants} = \{Sp, Ad\} \)

b. \( \text{table} = \{p_1, p_2\} \)

c. \( cs(Sp) = \cap \text{commitments}(Sp) \), where \( p_1, p_2 \in \text{commitments}(Sp) \)

11 They argue, within in the framework of inquisitive semantics, that clausal complements are uniformly of type \( (st,t) \) and that clause-embedding predicates take arguments of this type.
5.2.2 Assertions anchored to a projected speaker

These are the cases we saw in (23) in Section 4.2.2, e.g. (29):

- Here, the speaker uses the reported (matrix) context to project a participant onto the discourse context, to function as the commitment-anchor for their discourse move of adding the issue of p to the table.

(29) nu kanske någon säger att man kan inte ha 4 föräldrar, men det tycker jag now someone might say that one can’t have 4 parents, but I think you can

- Here, the relevant participants are the current speaker (Sp), addressee (Ad), and projected speaker (PrSp) (30-a).

- As above, the issue represented by the matrix {p₁} and embedded clause {p₂} get added to the table (30-b).

- With respect to the discourse commitments, however, we now get a split whereby p₁ gets added to the current speaker’s commitments (30-c), and p₂ gets added to the projected speaker’s commitments (30-d).

(30) Discourse context after the speaker (Sp) has uttered (23)/(29) to the addressee (Ad):
   a. participants = {Sp, Ad, PrSp}
   b. table = {p₁, p₂}
   c. cs(Sp) = \[commitments(Sp) \cap \{p₁\}\]
   d. cs(PrSp) = \[commitments(PrSp) \cap \{p₂\}\]

5.2.3 Embedded declarative biased questions

In Section 4.2.2, we also looked at the case in (22), repeated in (31), where the declarative sentence functions as a type of biased question (at the root level), similarly to raising declaratives:

(31) jag har hört att man ska inte frakta ett barn fram och tillbaka...? I’ve heard that one shouldn’t move a child back and forth...?'

To account for non-canonical uses of interrogatives and declaratives such as rising declaratives, Farkas and Roelofsen (2017) additionally propose the clause type markers dec/int and closed/open.¹²

- On F&R’s account, rising declaratives like like Lisa won↑? start out as sentence radicals denoting a singleton set {p}, but take on the meaning of a question, {p, ¬p}, when they combine with the clause type marker open, which is marked by rising intonation:

(32) {{w: Lisa won in w},{w: Lisa didn’t win in w}}

```
  OPEN  \{w: Lisa won in w\}
    DEC  Lisa won
       \{w: Lisa won in w\}
```

Additionally, the sentence Lisa won↑? also signals that the speaker has access to some evidence for the possibility that Lisa won (see also Malamud and Stephenson 2015).

- To account for this, F&R add a special effect to the basic discourse effects discussed above:

(33) Conventional discourse effects of a rising declaratives (Farkas and Roelofsen, 2017, 268–9)

When a discourse participant x utters a rising declarative \(\phi\), expressing the proposition \([\phi] = \{\alpha, \bar{\alpha}\}\), the discourse context is affected as follows:

1. Basic effect – as defined in (12)
   - The proposition expressed by \(\phi\), \([\phi]\), is added to the table.
   - The informative content of \(\phi\), \(\cup[\phi]\), is added to commitments(x).

2. Special effect
   - \((\alpha, \{\text{zero, low}\})\) is added to evidence(x)

where evidence(x) is a list of pairs, \((p, i)\), where p is a possibility, and i a credence interval, capturing the amount of credence x signals that she has in p.

¹²In English root clauses, dec/int are marked by declarative vs. interrogative word order, and in embedded clauses, dec/int are marked by the complementisers that vs. whether. In English root clauses, closed/open are marked by falling vs. rising intonation. F&R assume that rising/falling intonation in English has semantic import in root clauses only (fn. 12, p. 257).
Thus, an utterance of a raising declarative sentence (e.g. *Lisa won?*) has the following effect on the context:

- As for unmarked polar interrogatives, the speaker
  1. raises the issue of whether Lisa won by placing the inquisitive proposition \( \{ p, \neg p \} \) on the table; thus steering the conversation towards a resolution, a state where either *Lisa won* or *Lisa didn’t win* is common ground.
  2. expresses a (trivial) commitment to \( p \cup \neg p \) (W).
- Additionally, by virtue of the special discourse effects, the speaker also signals that they have some evidence for the embedded proposition, for which their credence is at most low.

> This model thus seems to capture the meaning of our embedded declarative biased questions quite well!

6 Discussion: analysing embedded speech acts

However, this analysis of the example in (22)/(31) raises a question —

- As we saw above, on F&R’s account, rising declaratives start out as sentence radicals denoting a singleton set \( \{ p \} \), but take on the meaning of a question, \( \{ p, \neg p \} \), when they combine with the clause type marker open.
- If this happens at LF, however, that means that the complement clause in (31) (*I’ve heard that one isn’t supposed to...*) would be an inquisitive proposition \( \{ p, \neg p \} \) when it combines with the matrix verb (hear).
  1. This is not a problem for the compositional semantics as such; hear is compatible with both declarative and interrogative complements.
  2. Intuitively, however, the interpretation of the matrix sentence in (31) is that the speaker has heard that \( p \), not whether \( p \), thus suggesting that we want the EV2-clause to denote a non-inquisitive proposition when it combines with the matrix verb, while triggering the global discourse effect of a question with respect to \( ?p \).
- According to Farkas and Roelofsen (2017), this problem is not expected to arise. They suggest, based on (34), that rising declaratives and tag-interrogatives cannot be embedded:

\[
\begin{align*}
(34) & \quad a. \quad *\text{John told Bill that [Amalia left, didn’t she].} \\
& \quad b. \quad *\text{Don’t tell Bill that [Amalia left†].} \\
& \text{(Farkas and Roelofsen, 2017, 244)}
\end{align*}
\]

  1. stating that “even if we consider a sentence involving a plain declarative complement clause, like [John thinks that Amalia left], the commitment that the embedded declarative would induce, if uttered in isolation, does not need to be taken into account in determining the discourse effects of the entire sentence. All we need is the propositional content of the embedded clause” (p. 244).

  2. However, as we’ve seen from the cases considered here, as a general claim, this doesn’t hold up:
  3. with EV2-clauses, we find that the commitment that the embedded declarative would’ve induced if uttered in isolation does have to be taken into account in determining the discourse effects of the entire sentence.

General issue: at some point, the embedded content to become independently accessible to the matrix predicate (for the semantic composition, e.g. as an informative proposition) and to the discourse level (to have discourse effects at the level of the conversational context, e.g. as an inquisitive proposition).

Finally, a note regarding the judgement in (34):

- While I agree with the judgement in (34), the overall picture painted in this talk is that MCP are fickle: their acceptability depends on a multitude of factors, including the precise nature of the matrix context (not just the type of verb), as well as the overall discourse function of the sentence (NB: topicalization vs. EV2 in Fig. 1).
- As shown in (35), tag-interrogatives can in fact be embedded, in appropriate circumstances — and notably also under verbs which don’t otherwise embed questions, like suppose:13

\[
\begin{align*}
(35) & \quad a. \quad \text{The square root of nine is three, isn’t it?} \\
& \quad b. \quad I\supseteq \text{suppose acupuncture really works, doesn’t it?} \\
& \quad c. \quad *\text{Gloria supposes acupuncture really works, doesn’t it?} \\
& \quad (Hooper and Thompson, 1973, 468, 471)
\end{align*}
\]

- As noted by Hooper and Thompson (1973), the embedded tag-question in (35-b) represents a discourse move that is anchored to the current speaker and the current discourse context; thus further highlighting this as general issue for further theoretical work in this area to address.

13Cf. discussion in Farkas and Roelofsen (2017, 257).
7 Summary

From examining the range of discourse functions and uses associated with EV2 in naturally occurring Swedish data, I have provided an answer to two central questions regarding the licensing of MCP:

1. What precise dimension of assertion is relevant to MCP-licensing?

- EV2-clauses have the conventional discourse effects of (a) adding the embedded proposition to the conversational ‘table’, as an issue for discussion, and (b) adding p to a set of public discourse commitments; which can either be the current speaker’s or a projected discourse participant.
  - However, purely semantic attitude holder commitments (e.g. Lisa said that Anna won) play no role, as on Krifka’s (2014) semantic account.
  - There is also no evidence that beliefs play a role, as predicted by Truckenbrodt (2006) and Woods (2016).
- My proposal is modelled in terms of Farkas and Roelofsen’s (2017) account of matrix declaratives and interrogatives.

2. What is the role of the embedding verb in licensing embedded assertions and MCP?

- Like matrix declaratives, EV2-clauses allow for a range of non-canonical uses (reminders, clarifications, etc).
  The function of the matrix clause is to signal the specific type of use/discourse move intended.
- In the case of discourse moves relating to embedded content, the matrix clause can also be used to project a speaker onto the discourse context, to function as the commitment-anchor for the discourse move of adding the issue of p to the table.
  - EV2/assertion (compatible) clauses are not selected for (as for Wiklund et al. 2009; Kastner 2015).
  - The assertion of the EV2-clause is also not derived semantically via composition with the matrix verb (as for Krifka 2014).

I’ve also discussed some questions and consequences for theoretical accounts of clausal complementation:
  ➢ such account need to allow the embedded content to become independently accessible to the matrix predicate (for the semantic composition) and to the discourse level (to have discourse effects at the level of the conversational context).

References


Tim Stowell. As so, not so as. M.S., University of California, Los Angeles, 1987.

Appendices

A Previous commitment-based models

A.1 Krifka (2014)

Krifka (2014) analyses illocutionary acts as dynamic acts (functions from world/time indices $i'$ to world/time indices $i$)

- Whereas unembedded assertions involve adding $p$ to the speaker’s list of public commitments, embedded assertions, including EV2 clauses, describe an event of the attitude holder adding $p$ to their list of public commitments.

- Such embedded illocutionary acts are derived via the assertion operator in (36), which, merged in ForceP, provides the speaker ($x$) and the addressee ($y$) argument slots for the embedded assertion act:

  $\text{ASSERT}(i)(p)(y)(x) \iff \text{at } i, \text{the speaker } x \text{ is liable for the truth of } p \text{ at the index } i \text{ towards the addressee } y$

- Combined with the proposition $p$ provided by TP, ForceP gets the meaning of an assertion (by $x$ to $y$):

  $\llbracket \text{ForceP } \llbracket \text{Lisa admires Sue} \rrbracket = \lambda c \lambda y \lambda x \lambda i' \lambda i'' \langle i' < i \rangle \text{ASSERT}(i)(\lambda x'[\text{admire}(i'')(\text{sue})(\text{lisa})])(y)(x)\rangle$

- ForceP can be taken as the argument of a verb describing an assertion, such as tell (38-a):

  $\llbracket \text{tell} \rrbracket = \lambda c \lambda y \lambda x \lambda i' \langle i' < i \rangle \text{Assertion} \lambda y \lambda x \lambda i' \lambda i'' \langle i' < i \rangle \text{ASSERT}(i)(\lambda x'[\text{admire}(i'')(\text{sue})(\text{lisa})])(y)(x)\rangle$

- Crucially, the verb provides the speaker and addressee arguments of the assertion: the subject ($x$) and direct object ($y$) of the telling event, which saturate the speaker and addressee arguments of ForceP (38-b):

  $\llbracket \text{tell} \rrbracket = \lambda c \lambda y \lambda x \lambda i' \lambda i'' \langle i' < i \rangle \text{Assertion} \lambda y \lambda x \lambda i' \lambda i'' \langle i' < i \rangle \text{ASSERT}(i)(\lambda x'[\text{admire}(i'')(\text{sue})(\text{lisa})])(y)(x)\rangle$

- Thus, the sentence in (38-b) describes an assertion by Anna to Mary, that Lisa admires Sue.

  $\llbracket \text{tell} \rrbracket = \lambda c \lambda y \lambda x \lambda i' \lambda i'' \langle i' < i \rangle \text{Assertion} \lambda y \lambda x \lambda i' \lambda i'' \langle i' < i \rangle \text{ASSERT}(i)(\lambda x'[\text{admire}(i'')(\text{sue})(\text{lisa})])(y)(x)\rangle$

- Specifically, it describes a change of state from index $i'$ to index $i$, such that at $i$, unlike at $i'$, Anna is liable towards Mary that the proposition ‘Lisa admires Sue’ is true at $i$.

- On this view, V2-sentences describe a change from a state where the attitude holder’s assertive commitment doesn’t hold to one where it does hold.

Julien (2009) provides Scandinavian data suggesting that EV2-clauses can “represent a proposition that is asserted, either directly, by the speaker, or indirectly, with the speaker reproducing a claim that someone else has made” (like the cases we looked in Section 4.2.2):

(39) Danish, Norwegian (Julien, 2009, 8, 169)

  a. Det er jo klart, at det bliver ikke bedre på den måde.
  it is PRT clear that it gets not better on that way
  $\text{It is clear that it does not get any better that way.}$

  [Danish corpus data]

  b. Dei sa at den bloggen las han alttid, men det gjorde han ikkje.
     They said that that blog, DEF read he always but that did he not
  $\text{They said that that blog, he always read, but he didn’t.}$

  [Norwegian judgement data]

---

14This is unlike cases where tell embeds non-V2 clauses: in those cases, Krifka takes tell to subcategorise for a proposition, rather than for an illocutionary act as in (38-a) (see Krifka 2014, Sec. 2.6.).
Julien (2015) suggests that we adopt Krifka’s (2014) proposal, supplementing it with a proposal from Sigurðsson (2004, 2011) et seq, whereby the embedded ForceP contains C/edge linkers, which can either be valued by arguments in the matrix clause (as in (37)–(38)) or by the current speaker and addressee.

- The problem is that if we saturate the the speaker and addressee arguments of the embedded ForceP with arguments linking to the current speaker and hearer, then we’d effectively close off the argument slots for the subject and object of tell, given that on Krifka’s (2014) analysis, the speaker and addressee of the assertion of the EV2-clause (37) are simultaneously the subject and object of the telling-event (38-a).

- This would lead to a problem for the computation of the truth-conditional meaning of the sentence.

- Thus, speaker-oriented EV2-clauses/embedded assertions remain problematic for Krifka (2014).

Another problem for this account has to do with the availability of EV2 under verbs that don’t describe assertions (as we’ve seen in Section 4); an issue which Krifka does acknowledge.

### A.2 Truckenbrodt (2006)

Truckenbrodt (2006) links V-to-C movement to the presence of context indices in C:

- Main clause declaratives and interrogatives represent ‘epistemic’ and ‘deontic’ speech acts, in the sense that the speaker wants to (a) update the common ground, and (b) change the epistemic states of the addressee (declaratives) or the speaker (interrogatives); either by conveying or requesting knowledge.

- Syntactically, verb-movement is triggered by context indices in C:

\[
\langle \text{epist} \rangle \quad \text{and} \quad A
\]

(40) Truckenbrodt (2006, 271–2)

\(\langle \text{Deont}_S, A, \langle \text{Epist} \rangle \rangle \) Es regnet (‘It’s raining’)

‘S(peaker) wants from A(ddressee) that it is common ground that it’s raining.’

- In main clauses, \(\langle \text{epist} \rangle \) and A combine with \(\langle \text{deont} \rangle \) to give rise to an attempted context update, as in (40).

- In embedded contexts, however, the assertion (or ‘assertive proto-force’) becomes absorbed by appropriate embedding verbs (building on a proposal by Gärtner 2002):

  - This process of absorption is used to explain the restrictions on EV2 imposed by the embedding verb: \(\langle \text{epist} \rangle \) is licensed when the local embedding context (the VP) entails a belief or commitment to p.

  - This accounts for the availability of EV2 under verbs like say and believe, as well as the unavailability of EV2 under don’t believe or doubt, as in (4).\(^{15}\)

  - An apparent problem for this account is that it risks over-generation; wrongly predicting that EV2 should be equally available also under (positive response stance) verbs like accept and admit.

### A.3 Woods (2016)

Woods’s (2016) analysis has both a syntactic-semantic (LF) component and a discourse component:

At the level of LF, Woods (2016) links the availability of EV2 to an Illocutionary Act Phrase, which hosts two elements:\(^{16}\)

- The doxastic assertion-operator in (41), and a ‘perspectival monster’, which is responsible for fixing the the context c with respect to which the assertion of p is evaluated: this can be the current speech context or the reported discourse context (the contrast between (39-a) and (39-b) is thus accounted for in terms of the contextual anchoring of the assertion operator in (41) via the perspectival monster):

(41) Woods (2016, 119), from Hacquard (2010, 102)

\[
[\text{assert}]^c = [\lambda p . [\lambda w . \forall w' \in \text{DOX}_{\text{speaker-of-c}}(w) : p(w') = 1]]
\]

- This model thus predicts that the availability of EV2 is linked to the presence of a belief-context. (Though note that Woods additionally makes use of a [Responsibility] feature, thus also invoking an additional notion.)

---

\(^{15}\) Regarding the availability of V2 under factive verbs like know, Truckenbrodt suggest that they can satisfy the requirement of an epistemic context via the speaker’s commitment to the belief that p (or via the speaker’s commitment to the belief that the attitude holder knows p). The question for this view then is how to account for the general unavailability of EV2 under emotive factives.

\(^{16}\) Woods’s (2016) primary focus is embedded inverted questions (EIQs) in English, but she looks also at EV2 in German and Mainland Scandinavian.
Further, to capture the conversational effects of EIQs and cases of EV2 where p is asserted by the speaker (as in Section 4.2.1 and Julien’s (39-a)), Woods adopts Farkas and Bruce’s (2010) table model:

- On F&B’s model, an assertion is simultaneously (i) a public expression of the speaker’s commitment to p (42-a), (ii) a way of raising the issue of p by adding it to the conversational table (42-b), and (iii) a proposal by the speaker to add p to the common ground (42-c). (Similarly to the proposal of F&R 2017, Section 3.)

- On this proposal, assertions are derived via the assertion operator in (42); see Farkas and Bruce (2010, 92) for details. (F&B also propose a polar question operator, which is essentially the same as the one in (42), but which doesn’t make reference to discourse commitments; see Farkas and Bruce 2010, 95 for details.)

\[
A(S[D], a, K_i) = K_o \text{ such that}
\]

\[
a. \quad DC_{a,o} = DC_{a,i} \cup \{p\} \\
b. \quad T_o = push(S[D], \{p\}, T_i) \\
c. \quad ps_o = ps_i \cup \{p\} \quad \text{(Farkas and Bruce, 2010, 92)}
\]

- For cases where the speaker asserts p (as in Section 4.2.1 and Julien’s (39-a)), Woods argues that both the matrix proposition and the embedded proposition are added to the table, as well as to the speaker’s discourse commitments (as on the current proposal). For details, see Woods (2016, Section 5.4.2).

- Woods does not apply the model to cases where the assertion of p is not anchored to the speaker (Julien’s (39-b) and the cases discussed in (23); identified here as being anchored to a projected speaker); and doesn’t discuss the type of cases identified here in (22), where the sentence functions like a type of biased question.

  - This raises the question of whether, on this proposal, Farkas and Bruce’s (2010) assertion operator should be viewed as a necessary feature of EV2-sentences, or whether it is optional; recruited only in cases where p is asserted by the speaker, but not otherwise.\(^{17}\)

- In this talk, I have argued that (the more recent version of) the table model is in fact all we need to account for the licensing and interpretation of EV2 in clausal complements.

  - Beliefs as such play no role and simultaneously over and under-generates EV2-licensing contexts.

  - The account from Farkas and Roelofsen (2017) has the advantage of allowing for a unified account of the cases where the speaker asserts p (Section 4.2.1) and the two types of cases identified in Section 4.2.2, where the speaker does not assert p (including the question uses).

  - It also provides us with a nice way of understanding the role of the matrix verb, and the restrictions on EV2 (and MCP more broadly) across embedding contexts.

B Previous discourse-status based accounts

B.1 Kastner (2015)

According to Kastner (2015), MCP-complements are blocked in contexts where p is discourse old information.

- On Kastner’s (2015) model, verbs like doubt and resent select for a clause headed by a null DP-layer, which licenses a ‘presuppositional ForceP’, which does not license Topic and Focus (unlike the assertive ForceP in (5)):

\[
\left[v_P \text{ deny } [DP \ D \ [CP \ that \ p]] \right] \quad \text{(Kastner, 2015, 157, 161)}
\]

- Independent support comes (for instance) from the distribution of the CP-anaphor so (e.g. Stowell 1987; Moulton 2009, 2015).\(^{18}\)

\[
\text{(44) Kastner (2015, 173)}
\]

\[
a. \quad \text{John thought/said so.} \\
b. \quad \text{*John remembered/forgot so.}
\]

- Problem 1: the link between the status of p as discourse old and CP-status is not robust (Djärv, 2019a):

\[
\text{(45) Based on Djärv (2019a, 43)}
\]

\[
a. \quad \text{A says: Anna believes that Lisa won.} \quad [Lisa \ won \ is \ discourse \ old]
\]

\(^{17}\)Unlike the doxastic operator in (41), the A() operator in (42) does not appear to be explicitly tied to any functional projection in the left-periphery on Woods’ proposal; thus suggesting the latter option.

\(^{18}\)This argument goes back to Kiparsky and Kiparsky (1970).
Problem 2: the effect of matrix negation speaks against an account in terms of selection.
Problem 3: as we saw from looking at a range of naturally occurring EV2-clauses in Section 4, the role of the embedding verb seems to be primarily discourse-oriented and more flexible than what we’d expect on a selection-based account.

### B.2 Haegeman and Ürögdi (2010)

Haegeman and Ürögdi (2010) propose that MCP are blocked in referential contexts.\(^\text{19}\)

- They argue that referentiality is derived via operator movement from a TP-internal position to Spec,CP.
- Syntactically, the ban on MCP is attributed to intervention in terms of (feature-based) Relativized Minimality (e.g. Starke 2001; Rizzi 2004, also Progovac 1988; Rizzi 1990; Melvold 1991; Haegeman 2009a,b, 2010).
- Non-referential clauses (including matrix clauses) are not derived by such operator movement.
- Semantically/pragmatically, referentiality is linked to the discourse status of p as old vs. new:
  - The basic idea is that speech acts (whether matrix or embedded) must contain some novel element in order to be felicitously uttered, which runs counter to the requirement of truth-conditional presupposition imposed on the complement clause by the lexical semantics of factive verbs. (Haegeman and Ürögdi, 2010, 137)

However, they also adopt the following definition from De Cuba and Ürögdi (2009):

(46) De Cuba and Ürögdi (2009, 45); replicated with minor changes in Haegeman and Ürögdi (2010, 137).

a. **Referential CP**: a referential entity that denotes a proposition without illocutionary force. Since referentiality does not implicate truth-conditional presupposition, both factive and nonfactive predicates are compatible with this clause type. On this definition, a CP is simply used to refer to a proposition, hence (just as in the case of referring expressions in general) contextual givenness is also not a necessary requirement.

b. **Non-Referential CP**: a non-referential semantic object denoting a speech act, i.e. an unresolved proposition or an open question. Since speech acts cannot be presupposed (fully presupposed propositions are not felicitous as speech acts, given that speech acts must add something to the context) true factives are not compatible with this type of complement.

Problem 1: If what it means for a declarative clause to be referential is just to be proposition-denoting, then that suggests that there is actually nothing special about the semantics-pragmatics of these clauses. Rather, it is the non-referential sentences that are special; they denote speech acts. If a ‘non-referential’ clause denotes an assertion, then, given that assertions make reference to propositions, we would still need some way to derive a proposition internally to the assertion.

- If those propositions were derived via op-movement, then we would end up with an island inside of the assertion (given that, at least on standard assumptions, merging a speech act operator or some other element related to illocutionary force on top of an island should not cancel the effects of the island).\(^\text{20}\)
- If those propositions were not derived by op-movement, then we would have two types of propositions: one which we find in the context of assertions and which doesn’t involve op-movement (thus, permitting MCP), and one which shows up in non-asserted clauses and which *does* involve op-movement (thus, blocking MCP).

Problem 2: It’s not clear how the operator-movement account would deal with the restrictions on V2, if V2 primarily involves V-to-C head-movement; given that the proposed event operator is an A-bar operator.

### B.3 Djärv (2019)

Djärv (2019a,b) suggests that the relevant notion distinguishing EV2-compatible contexts is Givenness, in the sense of Schwarzschild (1999).\(^\text{21}\)

- Problem: this description overgenerates contexts that should disallow V2. E.g., on Schwarzschild’s (1999) account, the B-sentence in (47) counts as Given, since the sentence ‘John ate a green apple.’ entails ∃Y[John ate a Y apple]:

---

\(^{19}\)Building on earlier proposals by Munsat 1986 and Melvold 1991.

\(^{20}\)Relatedly, as pointed out by Bhatt (2010, 175) (review of H&Ü), it is not clear why operator movement would be needed in order for a CP to be interpreted as a proposition.” (Bhatt, 2010, 175).

\(^{21}\)This is a purely descriptive claim; Djärv (2019a,b) does not provide an explanation for why Givenness should prohibit embedded V2.
(47) Schwarzschild (1999, 148)
A: John ate a green apple.
B: No, he ate a RED apple.

- If V2 was blocked when p is Given, we would predict V2 to be ruled out in such contexts.
- This, however, is not correct, as shown by the examples in (48)–(49):

  – Context: the interlocutors are discussing what snacks to buy for their friend Johan’s surprise party:

(48) German
   a. Johan mag grüne Trauben, richtig?
      Johan likes green grapes, correct?
      ‘Johan likes green grapes, right?’
   b. Nein, ich habe eben mit Johan gesprochen und er hat gesagt, [V₂ er mag ROTE Trauben].
      No, I have just with Johan spoken and he has said he likes red grapes.
      ‘No, I just spoke to Johan, and he said that he likes RED grapes.’

(49) Swedish
   a. Johan gillar inte gröna vindruvor, visst?
      Johan likes not green grapes, right?
      ‘Johan doesn’t like green grapes, right?’
   b. Nej, jag pratade precis med Johan, och han sa [V₂ att han gillar inte RÖDA vindruvor].
      No, I spoke just with Johan, and he said that he likes not RED grapes.
      ‘No, I just spoke to Johan, and he said that he doesn’t like RED grapes.’