Uniformity constraints in German reportive contexts

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In this paper, I analyze variation in interpretations and surface forms of German embedded clauses under reportive verbs. Variation exists in the position and modality of the finite verb. In order to account for this variation, I argue for a pronominal theory of tense and world variables, following Partee (1989), Kratzer (1998; 2005) and Percus (2000). In addition, I propose a hypothesis of uniformity, which restricts the occurrence of binders and variables on the same head. A pronominal approach to tense combined with the uniformity constraint correctly predicts and explains different interpretations of clausal complements of reportive verbs in German.
Keywords: German; Verb-second; Modality; Tense; Uniformity.

1   Introduction

This paper provides an account of German embedded clauses under reportive verbs, such as *sagen* 'to say', *glauben* 'believe', and *behaupten* 'to claim/assert'. Clausal complements of German reportive verbs show variation in surface form in two ways. The first one is the position of the verb. German is a predicate-final language with V2 effects in root-clauses (den Besten, 1983). In embedded clauses, there can either be a V-final order or V2 order. The V-final order is the canonical order with the finite verb left *in situ*. The V2 order only surfaces when the complementizer is absent. The position of the verb gives two possible surface configurations. The second surface form variation is the verbal mood. Under reportive verbs there exists optionality in the modality of the finite verb, which can either be indicative or subjunctive. The German subjunctive is divided into the present – i.e. Konjunktiv I, and the past subjunctive, Konjunktiv II. Both can be used in reportive contexts (Fabricius-Hansen & Saebo, 2004), although for the purposes of this paper I will address the present subjunctive only. The interaction between word order and modality in German embedded clauses results in interpretation variation, depending on the configuration of the two. This is discussed more elaborately in the next section. In this paper, I will argue for a pronominal analysis of tense and world variables, and constraints on the contents of functional heads. Based on this, the interpretation variation caused by word order and mood optionality can be accounted for.

In the next section, I provide a background on the configurations of German embedded clauses, and present the core data that will be used to further explain the phenomenon at hand. This will then be followed by a critical

discussion of the existing literature on this phenomenon, after which I will introduce a new hypothesis that relies on a pronominal theory of tense (Partee, 1989; Kratzer, 1998; 2005; 2009) and possible worlds (Percus, 2000). In the last section, I will address a number of unresolved issues and provide directions for further research.

2 Data and Background

There are four major configurations of German clausal complements. In cases where the complementizer is omitted, V2 triggers verb raising to C^0, and in the presence of the complementizer the verb remains in situ. This gives two main word orders in embedded clauses. There also is variation in verbal mood. Under reportive verbs, the finite verb in the embedded clause can either have indicative or subjunctive mood. The two types of variations yield four different configurations, and we will see that there are three different interpretations. Examples (1a-b), from Giorgi (2009: 1856) show modal variation with the verb in situ, and (2a-b), from Sode and Truckenbrodt (2018: 117), modal variation in verb-second position.

(1) a. | Thomas | hat | gesagt | dass | Sabine | krank | sei |
| *Thomas* | *has* | *said* | *that* | *Sabine* | *sick* | *BE. SUBJ* |

'Thomas said that Sabine is sick'

b. | Thomas | hat | gesagt | dass | Sabine | krank | ist |
| *Thomas* | *has* | *said* | *that* | *Sabine* | *sick* | *BE.IND* |

'Thomas said that Sabine is sick'

(2) a. | Was | Saskia | glaubt, | ist, | Maria | sei | in |
| *What* | *Saskia* | *believes* | *BE.IND* | *Maria* | *BE.SUBJ* | *in* |

Saarbrücken
Saarbrücken

'What Saskia believes is that Maria is in Saarbrücken'

b. | ??Was | Saskia | glaubt, | ist, | Maria | ist | in |
| *What* | *Saskia* | *believes* | *BE.IND* | *Maria* | *BE.IND* | *in* |

Saarbrücken
Saarbrücken

'What Saskia believes is that Maria is in Saarbrücken'

The word order and modal variation visible in examples (1-2) leads to different interpretations (Giorgi, 2009; Sode & Truckenbrodt, 2018). Those are as follows. For (1a), with a subjunctive present in V-final position, the tense of the embedded proposition is interpreted simultaneously to the main clause. As expected for a subjunctive, the truth of the complement in (1a) only needs to hold for the attitude holder in the main clause. This interpretation is also observed for

(2a), where the subjunctive sits in V2 position. The V-final indicative in (1b) is also modally bound, similar to (1a-2a), despite its being indicative. However, the tense on the indicative gets a Double Access Reading (DAR) (Giorgi, 2009), which entails that the present tense in the embedded clause is interpreted at the time of utterance (cf. Abusch, 1988; Ogihara, 1995). Example (2b) yields another interpretation. With an indicative present in V2 position, the embedded proposition is interpreted as a speaker-assertion, and holds true for the speaker of the utterance, according to Sode and Truckenbrodt (2018). The present tense is again interpreted at utterance time.

The four configurations give three different interpretations. The cases with an embedded subjunctive show no different effects as a result of verb movement. The embedded clauses with an indicative verb, however, do. In the following subsection, I will critically discuss a standing analysis by Sode and Truckenbrodt (2018), after which I will present a new hypothesis in section 3.

3 Recent approaches

3.1 Sode and Truckenbrodt (2018)

Sode and Truckenbrodt (2018, henceforth S&T) propose an analysis specifically for V-to-C phenomena in embedded constructions similar to (2). They argue for a structure in which root clauses, or clauses that show root phenomena, have speaker anchoring in the CP (cf. Rizzi 1997), which makes an entire utterance a speaker assertion. V2 in German is a root clause phenomenon, as it is the standard for non-embedded declaratives. Building on Rizzi's idea of speaker anchoring, S&T argue that all root clauses also receive a semantic label in the CP, where the anchoring takes place. The values are BEL and WANT, which are speaker anchors that introduce a belief (assertion) and desire. WANT is the anchor that results in the imperative, and anchoring by BEL triggers assertive force. Either the speaker of the utterance or the subject of the main clause can be the agent of the assertive force. In order to distinguish between the agent of an assertion, S&T introduce the feature [±origo], of which $\langle x,t,w \rangle$ are the parameters. The parameter x refers to the speaker of the utterance, t to utterance time, and *w* to world of the utterance. S&T formalize it as follows (S&T 2018: 107).

(3) a. [+origo] on BEL or WANT requires that $\langle x,t,w \rangle$ is the origo.
     b. [–origo] on BEL or WANT requires that $\langle x,t,w \rangle$ is different
         from the origo.

The formalizations in (3) mean the following: for [+origo], the variable bundle $\langle x,t,w \rangle$ correspond with the coordinates of the speaker of the utterance. For [–origo], the utterance is not 'anchored' to the speaker to the utterance, but to the subject of the matrix verb. Translating this to the cases of V2-embedding in (2), the origo feature in C^0 accounts for the difference. In (2a), the CP of the

embedded clause contains a [–origo] feature, which means that the parameters on BEL must not refer to the coordinates of the speaker of utterance, but to the subject of the main clause yielding a reading that the proposition holds true for the subject of the matrix clause. In (2b), the feature is [+origo], yielding a reading where the <x,t,w> variables correspond to the speaker, time, and world of utterance. As a result, the proposition in the embedded clause is treated like any other root clause assertion by the speaker. Generalizing more broadly, S&H divide the origo feature as such that [+origo] requires indicative morphology, whereas this need not be true for the subjunctive.

In short, S&T propose a system with feature anchors in the CP, which then account for the speaker assertion with embedded indicative V2 under reportive verbs, as in (2b). However, a number of issues remain under this proposal, which I will outline in the next subsection.

3.2   We Need to Talk about Tense

Under S&H's approach, the speaker assertion of the embedded proposition, as in (2b), follows from the analysis. However, the proposal they put forward ignores the variation displayed in (1). The DAR interpretations of sentences like (1b), with a verb-final indicative, are not included in S&H's analysis, nor do they follow from their analysis. Consider example (1b), from above.

This sentence is not accounted for by S&T, for the following reasons. They argue that [+origo] is an inherent feature value on indicative. [+origo] corresponds with the coordinates of the speaker of an utterance. At the same time, they describe that 'in [reportive] V-final clauses, the indicative seems to be unrestricted' (p. 115; attested by Giorgi, 2009) where it gets a reading that corresponds with [–origo]. If the feature on finite indicatives by default is [+origo], this reading is expected to be unavailable, because the V-final indicative is expected to get a speaker-assertion interpretation, contrary to fact. Under S&T's analysis, this is not the predicted outcome, and it is left unaccounted for. Furthermore, the fact that the sentence in (1b) receives a DAR interpretation is neither mentioned nor predicted. In other words, the interpretation V-final indicative receives is unpredicted and unexplained. The modal interpretation should not be possible, and it remains unclear how exactly tense is derived. Moreover, it is puzzling how tense is fully interpreted on the indicative, whilst it is modally interpreted as a subjunctive. In order to account for these facts, tense needs to be taken into account as a variable that affects the reading. Additionally, the generalization that the indicative is always valued for [+origo] is too strong, and either needs to be adjusted or replaced by a reasonable alternative. The next section will introduce an alternative theoretical approach to account for examples (1-2).

4   A New Hypothesis

In order to account for the variation described in section 1, I introduce an alternative analysis that builds on a pronominal theory of tense and worlds, following Partee (1989), Kratzer (1998; 2005; 2009), and Percus (2000). Under this approach, tense on the indicative is a free variable with respect to a certain time interval *t*. In other words, it is deictic. Tense on subjunctive verbs, however, is similar to a relative pronoun (cf. von Stechow, 1985; Chierchia, 1989; Heim & Kratzer, 1998). By virtue of being a free variable, tense on the indicative cannot be bound. A relative pronoun, however, must be bound by an antecedent, hereby creating a fundamental difference between the tense features that accompany the subjunctive and indicative. I furthermore assume that reportive verbs, or bridge verbs, select a clausal complement, by virtue of which the world variable *w* of the main clause binds the proposition of the embedded clause, leaving a binder in its CP. This yields a situation in which the embedded clause is interpreted as a proposition holding true for the matrix-clause subject.

More concretely, it is represented as follows. In cases where the modal reading is bound to the attitude holder in the main clause, there is a λ in C^0 that serves as a binder for variables *w* and/or *t*. The variables sit in a lower position, where they can be c-commanded by their binder. For the purposes of this paper, I will assume that world and time variables originate in T^0, and that *w* and *t* are bundled together as *<w,t>*.

(4)   *V-final subjunctive*
$[_{CP} [_{C^0} λ<w,t>] [_{TP} … [_{T^0} <w,t>]]]$

As argued earlier, tense on subjunctive verbs must be bound by an antecedent. Variable *t* on the subjunctive therefore needs to be bound by λ<w,t> in C^0.

Given that interpretations of the embedded clauses with subjunctives are indifferent for movement, there is reason to assume that the variables can also be bound in C^0 – which is similar to how relative pronouns are bound. This configuration, for V2 subjunctives, is given in (5).

(5)   *V2 subjunctive*
$[_{CP} [_{C^0} λ<w,t>] [_{TP} … [_{T^0} <w,t>]]]$

The configurations in (4) and (5) yield similar interpretations, and the only surface difference is the position of the verb. Example (5) shows that when V2 is triggered, the variables move up with the verb to the position of their binder head, where they are subsequently bound by their λ-abstractor. This procedure falls in line with the treatment of traces and relative pronouns (cf. Heim & Kratzer, 1998).

Overall, the configurations and interpretations of subjunctives follow in an

orderly manner from the pronominal analysis of tense. Let us now turn to embedded indicatives and see how the interpretation of the examples in (1) are derived under this approach.

The DAR interpretation of the V-final indicative in (1b) follows from the referential treatment of tense on indicatives. When the embedded proposition contains a subjunctive, the λ-abstractor can be the binder head for both <w,t>. This differs when the finite verb in the embedded clause is indicative. In that case, the tense in T^0 is referential and cannot be bound, i.e. has no binder. The world variable still requires a binder. Under this configuration, there still is a binder head in C^0, binding only world variable w. The tense on the indicative is valued. What follows from this, is that the world variable w is bound, yielding that the embedded proposition need only hold true for the attitude holder in the matrix clause. Tense, however, is free and interpreted as a present tense variable, giving rise to DAR. Consequently, the tense coordinate is interpreted at utterance time. The syntactic derivation of (1b) is given below in (6).

(6)
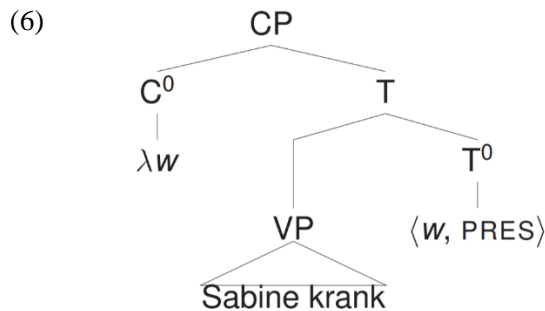
The tree in (6) effectively captures what has been described above. Binder λw binds the w in T^0. The referential tense is interpreted as is, since it is a free variable.

Under the standing analysis we can still not explain how V2 indicative yields a return to speaker assertion. In that case, there is a process similar to (5), in which the variables in T^0 move up to C^0, where the variables are subsequently bound. A return to speaker assertion is not predicted by this process alone. In order to account for the return to speaker assertion in V2 indicative contexts under reportive verbs, I introduce the Uniformity Hypothesis, in (7).

(7)   **Uniformity Hypothesis:** A binder and a variable cannot be bundled on the same head.

The Uniformity Hypothesis (UH) entails that one functional head, in this case C^0, can only simultaneously carry variables, but not a binder and a variable. When the indicative verb moves to C^0, the free variable [PRES] moves up together with the world variable, as they are bundled together. As a result, the free tense variable ends up in the same syntactic terminal where w binds its

trace – in a similar fashion a relative pronoun binds its trace (von Stechow, 1995; Percus, 2000). The consequence is that Uniformity is violated.

To resolve this clash, the world variable w is forced to be a free variable, sharing the deictic properties of the tense variable, making sure that the CP-head contains only variables. Movement of the indicative to C^0 therefore yields a speaker assertion of the embedded proposition. The syntactic configuration, following example (2b), is given below in example (8).

(8)
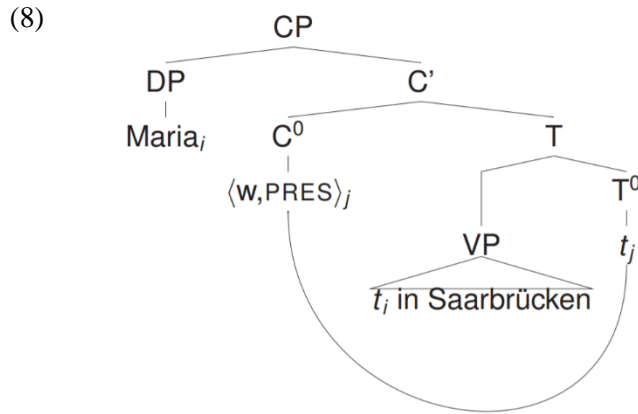
The configuration in (8) exemplifies the speaker assertion of the embedded proposition with V2 indicatives under reportive verbs.

In short, UH straightforwardly predicts that embedded subjunctives under reportive verbs are interpreted similarly, since both the tense and world variable on subjunctives must be bound. The difference between V-final and V2 indicatives also follows from the new hypothesis. The referential head in V-final contexts occupies a lower position than the binder head (as in (6)). In this way, the world variable gets the interpretation that the embedded proposition need only hold true for the attitude holder of the matrix clause. The referential tense gets interpreted as well, extending the time interval beyond the tense reference of the matrix clause. This cannot be the case in V2 indicative environments, where the referential and binder head both occupy the same functional projection. In order to solve the conflict caused by a violation of uniformity, the world variable is forced to be referential, giving rise to speaker assertion.

5   General Discussion

In this section, I will present a number of issues that remain, and which provide directions for further research.

The first issue is that the data presented in S&T (2018) merely provides embedded clauses with forms of *kommen* 'to come' and *sein* 'to be.' The first problem here is that *kommen* shows even less contrast between indicative and subjunctive embedded V2 and V-final constructions (cf. S&T, 2018). That is, there are no interpretational differences between indicative and subjunctive in

either V-final or V2 position. Although this might be the case due to independent properties of this verb, this is yet unattested. Since the other data is all set up with *sein* 'to be', the scope of the phenomenon is unclear. It could be that modal shift in V2 only has the said effects for forms of 'to be.' This may or may not be the case but cannot be determined from the data. There seems to be no obvious reason for this. Fabricius-Hansen and Saebo (2004) describe that for more verbs than *sein* 'to be', there is a distinct morphological form for the present subjunctive. It should therefore be tested whether the patterns described in the previous sections hold for more verbs. More data is needed to fully comprehend the scope of the phenomenon argued for in this paper.

The second complication with the data provided so far, is that the sentence type of the examples is inconsistent throughout S&H (2018). The examples presented here are drawn from their work (and Giorgi (2009)), and the pattern is clear in those. However, all other examples are in the form of clefts of pseudo-clefts, as can be seen in examples (2a-b), and S&H seem to claim that the V2 indicative has speaker assertion in only the clefted sentences. This leaves a number of questions. Firstly, using merely pseudo-clefts in the relevant part of the analysis leaves the question open whether the phenomenon is restricted to cleft-like constructions only, or whether there is another purpose served by those examples. This remains unclear and needs to be tested.

Despite the fact that UH comprehensively captures the data discussed above, a closer analysis of the properties of tense is required. Consider example (9), from S&H (2018: 117):

(9) Was   ich   damals glaubte, ist/war,   M. ?ist/*war   in S.
     What   I   then   believed   is   M. BE.IND.PRES/PAST in S.
     'What I believed at the time is/was that Maria is/was in Saarbrücken

Given that the subject of the matrix and embedded clause in (9) both have the first person [+ speaker] feature (Harley & Ritter, 2002, among many others), V2 indicative speaker assertion is expected to be felicitous since the subject of the matrix clause is also the speaker of the utterance. However, the temporal adverb and past tense in the matrix clause appear to disallow an embedded V2 past tense, allowing present tense only. S&H (2018) argue that this is because the matrix clause past tense is a shift away from first person speaker assertion, giving rise to a configuration similar to (2b). The interpretation of embedded present indicative in V2 is predicted under Uniformity. The ungrammaticality of embedded past tense under matrix past tense remains puzzling and shows the subtleties caused by tense variation. Further research is needed to get a more robust analysis.

6   Conclusion

This paper has provided a comprehensive overview of modal and present tense variation in German embedded clauses under reportive verbs. The four different

surface configurations with three types of interpretations can be accounted for under a pronominal analysis of present tense (cf. Partee, 1989; Kratzer, 2005), and worlds (Percus, 2000). By treating tense on the subjunctive as a relative pronoun that must either bind its trace or be bound, and present tense on indicative verbs as a free variable, most interpretations straightforwardly follow. The Uniformity Hypothesis furthermore requires that one head can host either binders or free variables, but not both simultaneously. In this way, a free tense reading with a modally bound indicative in V2 violates UH. Questions remain, however, about the more precise spell-out of tense relationships.

In conclusion, a pronominal approach of present tense and possible worlds, combined with the Uniformity Hypothesis, comprehensively accounts for the variation outlined in this paper, and makes predictions about the interpretations of the four different surface orders. More research is needed, however, to explain unresolved issues.

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