On Modeling the Distribution of Declarative V2-Clauses: the Case of Disjunction

Hans-Martin Gärtner (ZAS Berlin) & Jens Michaelis (University of Bielefeld)

Abstract. This paper discusses the prospects of theories that derive the distribution of V2-declaratives in languages like German and Swedish from their affinity with assertive illocutionary force (potential). We focus on disjunctive coordination of V2-declaratives, since this poses an interesting challenge to approaches relying on commitment-based construals of assertion. Three lines of dealing with this challenge are sketched. First, appeal to assertion could be dropped and V2 be analyzed as a purely formal "root transformation" (Emonds 1976), provided the general syntactic root nature of V2-declaratives can be established. Secondly, spelling out an idea suggested by Krifka (2001), one could exempt disjunction from directly applying to act valued objects by lowering disjunction to the propositional level. This can be achieved syntactically by means of ATB-extraction of a force operator or semantically by means of type coercion. Thirdly, assertion could be weakened to intersection with the common ground in the sense of Stalnaker (1978; cf. Truckenbrodt 2006). We show that none of these approaches is without problems and hope that showing this is a helpful intermediate step toward developing a satisfactory analysis.

1. Introduction

It is well-known that placement of finite verbs differs between standard main and subordinate clauses in many Germanic languages (cf. Vikner 1995, among many others). This is illustrated for interrogative clauses in the following translation equivalents from German, Swedish, and English, respectively.

(1) a. *Wo schneit es heute?*
b. *Var snöar det idag?*
c. *Where is it snowing today?*

(2) a. *(Ich weiß) wo es heute schneit*
b. *(Jag vet) var det snöar idag*
c. *(I know) where it is snowing today*

In German and Swedish this alternation also affects declarative clauses as shown in (3) and (4).

(3) a. *In Berlin schneit es heute nicht*
b. *I Berlin snöar det inte idag*
"As for Berlin, it isn't snowing there today"

(4) a. *(Es ist möglich) dass es in Berlin heute nicht schneit*
b. *(Det är möjligt) att det inte snöar i Berlin idag*
"It is possible that it isn't snowing in Berlin today"

The main or root clauses in (1)/(3) are usually called interrogative/declarative VERB SECOND (V2) CLAUSES. One tradition of linguistic research has followed Emonds (1976) in counting V2 among the set of ROOT TRANSFORMATIONS and in seeking a purely structural definition of their distribution in terms of (root nodes of) constituent structure trees.[1] Another tradition has followed Hooper & Thompson (1973) in trying to link such "root phenomena" to inter-pretational factors such as illocutionary force (potential). This latter tradition was inspired by

[1] See Partee, ter Meulen & Wall (1993:441f.) for a formal definition of constituent structure trees.

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the discovery of DEPENDENT ROOT PHENOMENA, i.e. the application of root transformations such as V2 in what look like subordinate clauses. An example is shown in (5).[2]

(5) a. *Ich behaupte [heute schneit es in Berlin]*
b. *Jag påstår att [idag snöar det i Berlin]*
"I claim that today it is snowing in Berlin"

Researchers in this second tradition (e.g. Andersson 1975; de Haan 2001; Wechsler 1991) have appealed to the notion of ASSERTION to account for the distribution of V2-declaratives. Starting point for this kind of approach is the rather uncontroversial intuition that through a (literal) utterance of the V2-declarative in (6) a speaker *S* commits himself (under normal circumstances) to the assumption that it is snowing in Berlin, i.e. *S asserts* Φ (abbreviated in the following as $\vdash_S\Phi$).

(6) *[In Berlin schneit es]*$_\Phi$

Given this, it is easy to see that $\vdash_S\Phi$ and $\vdash_S\Psi$ can be correctly inferred from conjunctive coordination of the declarative V2-clauses in (7).

(7) *[In Berlin schneit es]*$_\Phi$ *und [in Potsdam scheint die Sonne]*$_\Psi$
"It is snowing in Berlin and the sun is shining in Potsdam"

Crucially, $\vdash_S\Phi$ can also be derived from dependent V2-declaratives such as (5a), repeated in (8).

(8) *Ich behaupte [heute schneit es in Berlin]*$_\Phi$

What's more, it is correctly predicted that addition of negation in the matrix clause of (8), which blocks the speaker assertion of Φ, i.e. $\nvdash_S\Phi$, also eliminates the possibility of using a dependent V2-clause, (9a). Instead, as shown in (9b), the standard V-final form has to be used.

(9) a. * *Ich behaupte nicht [heute schneit es in Berlin]*$_\Phi$
b. *Ich behaupte nicht, dass es heute in Berlin schneit*
"I don't claim that it is snowing in Berlin today"

Similar alternations have been amply documented. Consider (10), involving the causal or explicatory connective *weil* ("because") (cf. Wegener 1993).[3]

(10) a. *Ich bin nicht glücklich, weil (:) [in Berlin schneit es]*$_\Phi$
b. *Ich bin nicht glücklich, weil es in Berlin schneit*
(i) "I'm not happy and this is because it is snowing in Berlin"
(ii) "I'm happy but this is not because it is snowing in Berlin"

(10a), displaying a dependent V2-declarative, only has reading (i), which clearly supports $\vdash_S\Phi$. The V-final variant (10b), on the other hand, allows reading (ii) in addition, which is

[2] Note that Swedish requires the complementizer *att* ("that") to precede such dependent declarative V2-clauses. German, by contrast, disallows addition of *dass* in these cases (* *Ich behaupte, dass heute schneit es in Berlin*).
[3] (:) signals that for many speakers of German some kind of pause or prosodic lengthening has to intervene between *weil* and the V2-declarative.

compatible with the subordinate clause appearing in the scope of negation and thus compatible with $\nvdash_S\Phi$.

Clauses specifying the degree modifier *so* can occur as V2-declaratives, too (cf. de Haan and Weerman 1986, who showed this for Frisian). However, V2 is only licensed as long as $\vdash_S\Phi$ is supported as in (11a). Once negation leads to $\nvdash_S\Phi$, a dependent V2-declarative is ill-formed and its V-final counterpart has to be used, as shown by the contrast in (11b)/(11c).

(11) a. *Das Wetter war so winterlich, [in Berlin schneite es]*$_\Phi$
b. * *Das Wetter war nicht so winterlich, [in Berlin schneite es]*$_\Phi$
c *Das Wetter war nicht so winterlich, dass es in Berlin schneite*
"The weather was (not) so winter-like that it snowed in Berlin"

Finally, relative-like clauses can be realized as V2-declaratives as long as they are asserted (cf. Gärtner 2001). (12) shows the by now familiar pattern of the V2 variant going along with $\vdash_S\Phi$ and its V-final counterpart being required in case $\nvdash_S\Phi$.

(12) a. *Heute ist ein Tag, [da schneit es in Berlin]*$_\Phi$
b. * *Heute ist kein Tag, [da schneit es in Berlin]*$_\Phi$
c *Heute ist kein Tag, wo es in Berlin schneit*
"Today is (not) a day on which it is snowing in Berlin"

Now, spelling out the syntactic, semantic, and pragmatic details of the assertion approach to the distribution of V2-declaratives has proven difficult. Among the obstacles to developing a satisfactory account of their interpretation belong at least the following three kinds of facts.

(i) The class of predicates compatible with dependent V2-declaratives reaches beyond straightforward cases like *behaupten* ("claim") and contains items like *hoffen* ("hope"), as shown in (13).

(13) *Ich hoffe [heute schneit es in Berlin]*$_\Phi$

Clearly, $\vdash_S\Phi$ is not straightforwardly derivable here.

(ii) The licensing of V2-declaratives is compatible not only with first person but also with third person subjects, as shown in (14).

(14) *Mein Onkel behauptet [heute schneit es in Berlin]*$_\Phi$
"My uncle claims that it is snowing in Berlin today"

Again, $\vdash_S\Phi$ is not straightforwardly derivable.

(iii) There are more intricate constructions built from V2-declaratives, like the ones involving "preference predicates" (cf. Frank 1998) shown in (15).

(15) *Es ist besser [du gehst jetzt]*$_\Phi$
"You'd better go now"

Once again, $\vdash_S\Phi$ is not supported.[4]

Among others, Reis (1997), Gärtner (2002), Meinunger (2004), and Truckenbrodt (2006) – in addition to the authors already mentioned – discuss some of these intricacies and how they affect the prospects for a uniform interpretation-driven theory of the distribution of V2-

[4] It is interesting to note that an indirect speech act construal of *du gehst jetzt* would be consistent with the overall directive force of (15).

declaratives. Curiously, however, a much more obvious and "elementary" challenge for the assertion approach to the distribution of V2-declaratives has so far not been given much thought in the literature, namely, the case of disjunctive coordination. Consider (16).

(16) *[In Berlin <u>schneit</u> es]$_{\Phi}$ oder [in Potsdam <u>scheint</u> die Sonne]$_{\Psi}$*
"It is snowing in Berlin or the sun is shining in Potsdam"

It is generally agreed that through an utterance of (16) a speaker is neither committed to Φ nor to Ψ, i.e. $\not\vdash_S\Phi$ and $\not\vdash_S\Psi$. The general point about this effect of disjunction was made very explicitly by Geach (1965:452), who stated that "even if the proposition represented by "p vel q" or by "p aut q" is itself taken to be an asserted proposition, "p" will not be asserted in this context, and neither will "q"." Nevertheless, V2-clauses are well-formed in (16). In fact, they are obligatory here.

In the following, we will discuss three ways out of this dilemma. First, there is the possibility of simply giving up the assertion approach to accounting for the distribution of V2-declaratives (Section 2.1). Secondly, specific adjustments could be made in exactly those environments where assertion is not warranted such that, in particular, disjunction would be exempted from posing a threat to the assertion theory (Section 2.2). Thirdly, a "weaker" notion of assertion could be devised that captures disjunction together with the more standard cases (Section 2.3).

2. Three Approaches to the Disjunction Dilemma

2.1 Discarding assertion

One way of interpreting the obstacle posed by the disjunction facts in (16) is to conclude that the assertion approach to the distribution of V2-declaratives is mistaken and should be discarded. In pursuing this radical line, one may note that the facts about disjunctive coordination are directly predicted by Emonds (1976:2), whose purely formal approach simply requires that a root transformation like V2 must affect a root sentence, i.e. "an S that is not dominated by a node other than S." In the framework underlying Emonds' work, coordinations would be based on rules like (17), in which each individual clause satisfies the condition for root transformations.

(17) a. $S \rightarrow S$ *and* S
b. $S \rightarrow S$ *or* S

From this perspective, dependent root phenomena have to be given a syntactic analysis that ensures root status of the clauses in question. In fact, this is what has been proposed anyway for cases like (10a), (11a), and (12a), even by adherents of the assertion approach. In addition, Emonds (1976:25) suggests to treat cases of speech and thought representation like (8), (13), and (14) in terms of parataxis, i.e. in a way that the V2-declarative becomes a second root clause in a sequence of sentences. The example actually analyzed by Emonds comes from the domain of interrogatives, which we will return to in section 2.2. Thus, (18a) is claimed to be derived from something like (18b).

(18) a. *John wondered why <u>should</u> he be early*
b. *John wondered thus: Why <u>should</u> he be early*

Again, at least some followers of the assertion approach to the distribution of V2-declaratives have made suggestions along the same line. In particular, de Haan (2001) pursued such a paratactic approach in his analysis of Frisian dependent V2-declaratives.[5]

In sum, if agreement on the syntactic root status of V2-declaratives could be reached, the disjunction facts in (16) could be interpreted as showing that a purely formal analysis of the distribution of V2-declaratives in terms of "root transformations" as proposed by Emonds (1976) is superior to an analysis in terms of assertive illocutionary force (potential).

Discarding the assertion approach would also be in line with "classical" assumptions about illocution such as captured in the "logic of assertion and supposition" by Kearns (1997), according to who "[. . .] a completed sentence ⊢A cannot be a component of a larger sentence as in [⊢A ∨ ⊣B]" (Kearns 1997:335). "Completed" sentences in this framework are sentences closed off by an illocutionary operator such as assertion (⊢) or rejection (⊣).

2.2 Exempting disjunction

An alternative perspective on the disjunction facts in (16) is indirectly implied in work by Krifka (2001) discussing the combinatorics of speech acts. For the case of conjunction the following rule is assumed (cf. Gärdenfors 1988:134).

(19) [A & A'](s) = A'(A(s))

According to (19), the impact of a conjunction of acts on a (belief/commitment) state *s* is equivalent to the sequential application of the individual acts.

Interestingly, Krifka (2001:16) notes that "a disjunction of *A* and *A*' at the state *s* could only be captured by a set of commitment states which we would have to understand disjunctively, { A(s) , A'(s) }." He goes on to point out that "[s]yntactic forms that look like disjunction of two speech acts typically are interpreted in special ways, for example, by lowering the disjunction to the propositional level." Lowering to the propositional level would thus be another way out of the disjunction dilemma in (16). Disjunction would be exempted from applying at the speech act level by some kind of reanalysis, as shown in (20).

(20) [$\vdash_S \Phi$ OR $\vdash_S \Psi$] >> $\vdash_S$[$\Phi \vee \Psi$]

Now, although (20) looks like a viable step toward reconciling the disjunction facts with the assertion approach to V2-declaratives, the notion of lowering to the propositional level is in need of justification. In particular, it should be shown how it can be integrated into linguistic theory in a *non ad hoc* fashion. This is a point we consider worth dwelling on in some detail.

To begin with, one should distinguish syntactic and semantic approaches to "disjunction lowering." Among the former, we think that across-the-board (ATB) extraction of a force operator is the most promising direction to pursue. Following Rizzi (1997), one may assume that (at least root) clauses, in addition to a peripheral CP projection, contain an outer structural projection called "ForceP" (FP). Let us also assume that in its specifier, FP hosts a force operator, *Op*, translateable as $\vdash_S$ in the case of declaratives. A simple V2-declarative like (6) could then be structured as in (21).[6]

(21) [$_{\mathbf{FP}}$ Op [$_{\mathbf{F'}}$ F° [$_{\mathbf{CP}}$ *In Berlin*$_{\mathbf{i}}$ [$_{\mathbf{C'}}$ *schneit*$_{\mathbf{j}}$ [$_{\mathbf{IP}}$ *es* t_i t_j]]]]]

[5] Retracing the by now rather voluminous and intricate syntactic debate over how to analyze dependent V2-declaratives is beyond the scope of this paper. For further references consult the works already cited.

[6] Vikner (1995) provides the necessary background information on verb-movement to C° and fronting to the specifier of CP. We indicate the traces created by these movement steps as t_j and t_i respectively but leave out further structural detail.

The crucial disjunction case in (16) could then be analyzed as in (22).

(22) [$_{+P}$ [$_{FP\text{-}1}$ Op [$_{F'\text{-}1}$ F°-1 [$_{CP}$ *In Berlin schneit es*]]]
[$_{+'}$ *oder* [$_{FP\text{-}2}$ Op [$_{F'\text{-}2}$ F°-2 [$_{CP}$ *in Potsdam scheint die Sonne*]]]]]

+P is a projection explicitly designed to implement coordination. One conjunct, FP-1, occupies the specifier of +P while the second one, FP-2, is the complement of the head of +P, i.e. the complement of *oder* in (22).[7]

(23) illustrates a standard instance of ATB-movement. It applies here to a *wh*-expression extracted from two coordinated IPs at the same time.

(23) [$_{CP}$ *Which book*$_i$ [$_{C'}$ *does* [$_{+P}$ [$_{IP\text{-}1}$ *Mary like* t$_i$] [$_{+'}$ *and* [$_{IP\text{-}2}$ *John hate* t$_i$]]]]]

(24) then shows ATB-movement of the force operator out of both disjuncts in (22).

(24) [$_{+P}$ **Op**$_i$ [$_{+P}$ [$_{FP\text{-}1}$ **t**$_i$ [$_{F'\text{-}1}$ F°-1 [$_{CP}$ *In Berlin schneit es*]]]
[$_{+'}$ *oder* [$_{FP\text{-}2}$ **t**$_i$ [$_{F'\text{-}2}$ F°-2 [$_{CP}$ *in Potsdam scheint die Sonne*]]]]]

This structure would be a good basis for interpreting *Op* outside of disjunction and thus for "lowering" disjunction to the propositional level. Technically, this would follow if (the semantic value of) *Op* is of type $\langle t,\underline{a}\rangle$, i.e. a function from a truth-value denoting entity to an act denoting one and (the semantic values of) the traces are identity functions of type $\langle t,t\rangle$. The resulting illocutionary interpretation would be $\vdash_S(\Phi\vee\Psi)$. Crucially, $\vdash_S\Phi$ and $\vdash_S\Psi$ are no longer derivable.[8]

However, a number of objections may be raised against (24). Putting aside qualms about moving force operators in the first place, one may note that the landing site of *Op* differs in syntactic type from its original site. It has moved from the specifier of FP to a position adjoined to +P. Also, FP was introduced into the system to serve as an interface between syntactic marking and illocutionary interpretation. The (mother node of the) landing site should therefore preferably be labeled FP as well. Both these objections can be met by postulating that +P, being a root projection, must come with an additional FP layer. ATB-movement could then target the specifier of that additional FP as shown in (25).[9]

(25) [$_{FP\text{-}0}$ **Op**$_i$ [$_{F'\text{-}0}$ F°-0 [$_{+P}$ [$_{FP\text{-}1}$ **t**$_i$ [$_{F'\text{-}1}$ F°-1 [$_{CP}$ *In Berlin schneit es*]]]
[$_{+'}$ *oder* [$_{FP\text{-}2}$ **t**$_i$ [$_{F'\text{-}2}$ F°-2 [$_{CP}$ *in Potsdam scheint die Sonne*]]]]]]

Yet, a more serious objection remains. Applying ATB-movement to *Op* just in the case of disjunction is rather *ad hoc*. Clearly, the same rule could be used in the case of conjunction, as illustrated in (26).

(26) [$_{FP\text{-}0}$ **Op**$_i$ [$_{F'\text{-}0}$ F°-0 [$_{+P}$ [$_{FP\text{-}1}$ **t**$_i$ [$_{F'\text{-}1}$ F°-1 [$_{CP}$ *In Berlin schneit es*]]]
[$_{+'}$ *und* [$_{FP\text{-}2}$ **t**$_i$ [$_{F'\text{-}2}$ F°-2 [$_{CP}$ *in Potsdam scheint die Sonne*]]]]]]

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[7] Progovac (2003) gives an overview over a variety of syntactic approaches to coordination, the use of "Conjunction Phrases" like +P among them. We adopt this approach for expository purposes. Nothing crucial hinges on this, as the points we will make apply *mutatis mutandis* to alternative mechanisms as well.

[8] Larson (1985) works out a system in which disjunction can gain wider than surface scope through movement of an abstract operator taken to be a silent counterpart of *either*. Crucially, it is assumed that movement must go "upwards" due to the familiar c-command condition. A "downward" movement of that operator, i.e. "lowering," is not considered. Only such an operation, which belongs among the highly controversial tools of formal syntax, would be a candidate for implementing disjunction lowering more directly.

[9] The point about labeling could also be captured by using coordination rule (i) FP $\rightarrow$ FP *or* FP (cf. Progovac 2003:255), which corresponds to the rules in (17) adopted by Emonds (1976).

But then $\vdash_S\Phi$ and $\vdash_S\Psi$ no longer follow in the case of conjunction either, contrary to the intentions of the assertion approach to the distribution of V2-declaratives. We are thus left with the arbitrary decision of when to apply ATB-movement to *Op* and when not to.[10] [11]

A semantic approach to disjunction "lowering" could start from representation (27) and assume that $\vee$ is of type $\langle\langle t,t\rangle,t\rangle$ while each disjunct is of type a due to presence of $\vdash_S$.

(27) $[\ \vdash_S\Phi \vee \vdash_S\Psi\ ]$

In order to reach the desired result, one has to allow in addition that the disjuncts are shifted to type t as a consequence of type coercion and that $\vee$ is now applicable to Φ and Ψ directly. Now, even if such a controversial move were allowed here, it would again be a matter of *ad hoc* decision to confine the mechanism to disjunctive structures. In fact, the power of defusing the impact of $\vdash_S$ would lead to serious overgeneration elsewhere. Let us consider two such cases.

First, conditional clauses introduced by *wenn* ("if") disallow V2 structures, as shown in (28).

(28) * *In Potsdam scheint die Sonne, wenn [in Berlin schneit es]*$_\Phi$
"The sun is shining in Potsdam if it is snowing in Berlin"

This fact nicely supports the assertion approach to the distribution of V2-declaratives, given that $\not\vdash_S\Phi$ holds for (28). However, if the semantic value of *wenn* were allowed to be of type $\langle t,\langle t,t\rangle\rangle$ and type coercion applied as in the case of disjunction above, V2 would incorrectly be predicted to be licensed.

Secondly, Krifka (2001) accounts for interpretational differences between interrogative complements of verbs like *wonder* vs. verbs like *know* by allowing interrogative complements to be semantically of an act denoting type in the former but not the latter case. This nicely fits in with the observation (cf. McCloskey 2005) that complements allow verb movement in the former but not the latter case, as shown in (29). (For *wonder* see also (18a) above).

(29) a. *I wonder [will they take the job]*$_\Phi$
b. * *I know [will they take the job]*$_\Phi$

In illocutionary terms this would mean that – on the assumption that $?_S$ is the "erotetic" counterpart of $\vdash_S$ – WONDER($?_S\Phi$) is interpretable while KNOW($?_S\Phi$) is not. However, this result would be lost if type coercion were allowed to adjust the complement of *know*.[12] Similarly, the German contrasts in section 1 would be in danger of being lost too.

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[10] In seeking a solution to this problem, one could devise an economy principle of the kind discussed by Fox (1995). The principle in question would allow ATB to apply to *Op* only when the resulting structure leads to additional (distinct) interpretive options. Further more radical economy approaches to (quantifier) scope are discussed by Müller (2000).

[11] Alternative formal mechanisms will run into the same dilemma, as far as we can see. Thus, assume that in a structure like [$_{FP}$ FP *or* FP], the top FP inherits (the features of) *Op* by means of feature-transfer. This is in analogy to the top DP node in [$_{DP}$ [$_{DP}$ *him*] *or* [$_{DP}$ *her*]], which inherits the property of qualifying for insertion in positions that require object case on a DP. Again, it would be *ad hoc* to prevent the same derivation from applying to conjunctive counterparts [$_{FP}$ FP *and* FP]. In addition, interpretable features are standardly not eliminated from the individual conjuncts under coordination. For example, number features have to be available in [$_{pl}$ [$_{sg}$ *John*] *or* [$_{sg}$ *his brother*]] on each individual DP, for example, in licensing later anaphoric take-up. To ensure that feature transfer eliminates internal $\vdash_S$ in the case of disjunction therefore requires an additional stipulation.

[12] We have radically simplified the treatment of interrogative complements here. The underlying lexico-semantic distinction is the one between *intensional* verbs like *wonder* and *extensional* verbs like *know* (Groenendijk and Stokhof 1984). Krifka (2001: section 6) assumes that all interrogative complements involve an illocutionary

Thus, type coercion fails to be the attractive way out of the disjunction dilemma it might appear at first sight.[13]

2.3 Weakening assertion

A third way of meeting the disjunction challenge is to "weaken" the notion of assertion along the lines pursued in the treatment of dependent V2-declaratives by Truckenbrodt (2006). Following Stalnaker (1978) one may assume that assertion is interpreted as intersection of the asserted proposition with the common ground, CG. The resulting analysis of simple V2-declaratives like (6) is given in (30). (In the following we drop subscripted S from the assertion operator.)

(30) *[In Berlin schneit es]*$_{\Phi}$ $\rangle\rangle$ $\vdash\Phi$ =
CG $\cap$ λw.SNOW.IN.BERLIN(w)

This restricts the resulting common ground to worlds in which it is snowing in Berlin. Next, allowing a set-theoretic interpretation of conjunctions such that conjunction and disjunction are interpreted as intersection and union respectively[14] we can interpret (7) and (16) as follows:

(31) *[In Berlin schneit es]*$_{\Phi}$ *und [in Potsdam scheint die Sonne]*$_{\Psi}$ $\rangle\rangle$ $\vdash\Phi$ AND $\vdash\Psi$ =
[CG $\cap$ λw.SNOW.IN.BERLIN(w)] $\cap$ [CG $\cap$ λw.SUN.IN.POTSDAM(w)]

(32) *[In Berlin schneit es]*$_{\Phi}$ *oder [in Potsdam scheint die Sonne]*$_{\Psi}$ $\rangle\rangle$ $\vdash\Phi$ OR $\vdash\Psi$ =
[CG $\cap$ λw.SNOW.IN.BERLIN(w)] $\cup$ [CG $\cap$ λw.SUN.IN.POTSDAM(w)]

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operator QUEST of type $\langle\langle s,t\rangle,t\rangle,a\rangle$, i.e. a function from sets of propositions to (question) acts. Intensional verbs directly combine with the resulting object as in WONDER(QUEST(q)). For extensional verbs an additional shift to the conjunction or sum of propositions constituting the true answers to the question (act) is envisaged. This is implemented by a type-shifter TA of type $\langle a,\langle s,t\rangle\rangle$. The resulting structure is KNOW(TA(QUEST(q))). Whether or not this system runs into the problem sketched in the text depends on explicit assumptions on the form-meaning mapping.

[13] Syntactic movement of a force operator would do better than type coercion on the conditional facts, given that conditional clauses are syntactic islands. This is usually attributed to their status as adjuncts and derived from the "Condition on Extraction Domains" (CED) (Huang 1982) or similar locality constraints. For interrogative complements it should be noted that verbs like *know* as opposed to verbs like *wonder* have been observed to induce at least "weak" extraction islands. Szabolcsi & Zwarts (1997) discuss this in some detail.

[14] We have not been fully explicit about (flexibilizing) the interpretive options for *and* and *or*. Suffice it to say that the most influential theory, i.e. "generalized conjunction/disjunction" by Partee & Rooth (1983; cf. Simons 2000:192), would be applicable as long as the arguments are of propositional type, i.e. t or $\langle s,t\rangle$ but not if they are of type a. This follows from definitions (i) and (ii):

(i) *t-conjoinable types*
  a. *t* is a *t*-conjoinable type;
  b. if τ is a *t*-conjoinable type, then for all σ, $\langle\sigma,\tau\rangle$ is a *t*-conjoinable type.

(ii) *Generalized Boolean conjunction for t-conjoinable types*
  a. if α, α' are of type *t*, then $\alpha \wedge \alpha'$ as usual;
  b. if α, α' are of a *t*-conjoinable type $\langle\sigma,\tau\rangle$, then $\alpha \wedge \alpha' = \lambda u[\alpha(u) \wedge \alpha'(u)]$,
    where u is a variable of type σ that does not occur in α, α'.

Crucially, *t*-conjoinable types must end in *t*, which a doesn't. Therefore, generalized Boolean disjunction is not applicable to objects like $\vdash_S\Phi$ where $\vdash_S$ is of type $\langle t,a\rangle$ or $\langle\langle s,t\rangle,a\rangle$, as assumed in section 2.2. The weakened assertion operator here, however, stays on the propositional level, so that (32), for example, can effectively be analyzed as $\lambda u[(CG(u) \wedge SNOW.IN.BERLIN(u)) \vee (CG(u) \wedge SUN.IN.POTSDAM(u))]$, for u a variable of type s.

Whether or not a generalized theory could be built in terms of *a*-conjoinable types seems to depend on whether a satisfactory version of some kind of success-conditional framework (cf. Vanderveken 1991) can supersede the truth-conditional one.

(31) will reduce the common ground to worlds in which it is snowing in Berlin and the sun is shining in Potsdam. (32) will reduce the common ground to worlds in which it is snowing in Berlin or the sun is shining in Potsdam or both. Clearly, changing assertion from a speech act to a *quasi*-propositional format allows a uniform adequate treatment of conjunction and disjunction. This approach to disjunction is taken by Simons (2000:112) and also appealed to *mutatis mutandis* in the treatment of permission sentences by Merin (1992:116).

Yet, this is only a first step. Overgeneration is still possible, as an analogous treatment of negation and implication will show. Consider negation first. Matrix negation is not compatible with V2-declaratives, as (33) illustrates.

(33) * *Es ist nicht der Fall (dass) [in Berlin schneit es]*$_{\Phi}$
"It is not the case that it is snowing in Berlin"

Obviously, though, (33) can be translated as NOT($\vdash\Phi$) and interpreted as in (34).

(34) $CG - [CG \cap \lambda w.SNOW.IN.BERLIN(w)]$

Likewise, conditionals, which have been shown in (28) above to disallow V2-declaratives in the conditional protasis, can be treated as in (35). This exploits the equivalence of $p \rightarrow q$ and $\neg(p \wedge \neg q)$.

(35) * *[In Potsdam scheint die Sonne]*$_{\Psi}$ *wenn [in Berlin schneit es]*$_{\Phi}$ $\rangle\rangle$ $\vdash\Psi$ IF $\vdash\Phi$ =
$CG - ([CG \cap \lambda w.SNOW.IN.BERLIN(w)] - [CG \cap \lambda w.SUN.IN.POTSDAM(w)])$

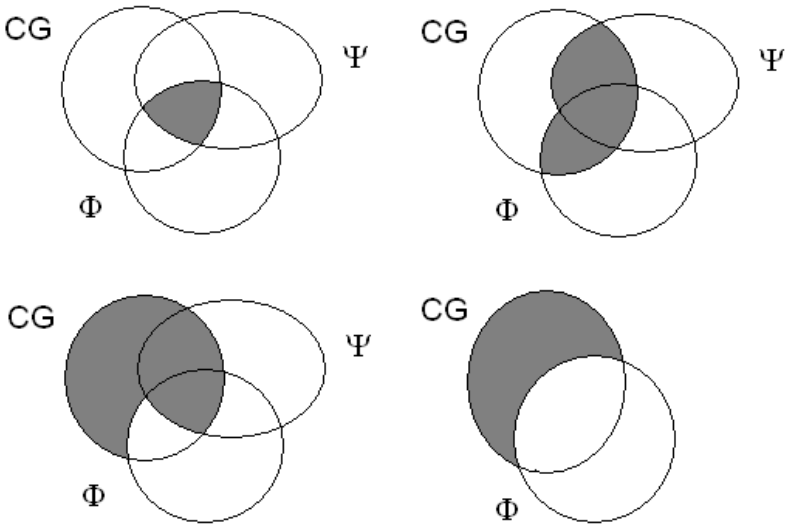
In order to prevent these unwelcome predictions concerning the possibility of V2-declaratives receiving an assertive treatment in the case of negation and implication, an additional constraint is necessary. The following "progressivity" requirement on assertive update is a candidate for such a constraint.[15]

(36) *Progressive Update*
An assertive update of a common ground CG by an utterance u_d containing meaning components $\vdash\Phi_1, \ldots, \vdash\Phi_n$ is *progressive* if $CG' \subseteq [CG \cap (\Phi_1 \cup \ldots \cup \Phi_n)]$

[15] So far, we have been concerned with the (CG-sensitive) interpretation of V2-declarative *clauses* only. The impact of (utterances of) complete ("rooted") declarative *sentences* like (30)-(33) and (35) on the common ground involves an *assertive update*, defined as follows:

(i) *Assertive Update*
Assume that *d* is a declarative sentence, Δ the meaning of *d*, u_d an utterance of *d*, and CG a common ground, then
$u_d(CG) = CG \cap \Delta = CG'$
where $u_d(CG)$ is called the *assertive update* of CG by u_d.

The idea is that the common ground must fully "proceed" into the worlds described by $\Phi_1, \ldots, \Phi_n$ and "evacuate" all worlds not described by $\Phi_1, \ldots, \Phi_n$. The following picture shows that this is fulfilled in the case of conjunction and disjunction (upper row) but violated in the case of implication and negation (lower row). (The shaded areas correspond to CG'.)



Progressive update captures the intuition that (dependent) root phenomena in general, and V2-declaratives in particular, come with an informativity requirement related to providing "new information" (Hooper and Thompson 1973; Meinunger 2004). The exact nature of this requirement is still not fully understood.

This weaker notion of assertion together with progressive update makes the additional correct prediction that the exceptive conjunction *außer* ("except") combines with a V2-declarative, as shown in (37).

(37) *[In Berlin schneit es]$_{\Phi}$ außer [in Potsdam scheint die Sonne]$_{\Psi}$* $\rangle\rangle$ $\vdash\Phi$ XOR $\vdash\Psi$ =
([CG $\cap$ λw.SNOW.IN.BERLIN(w)] $\cup$ [CG $\cap$ λw.SUN.IN.POTSDAM(w)]) $-$
([CG $\cap$ λw.SNOW.IN.BERLIN(w)] $\cap$ [CG $\cap$ λw.SUN.IN.POTSDAM(w)])

The interpretation amounts to the effect of exclusive disjunction.[16]

It is also clear that an account of the distribution of speech-act adverbials will require an additional stronger notion of assertion. Insertion of items like *offen gesagt* ("frankly") is infelicitous in disjunctive constructions. (38) illustrates this.[17]

(38) a. # *In Berlin schneit es offen gesagt oder in Potsdam scheint die Sonne*
b. # *In Berlin schneit es oder in Potsdam scheint offen gesagt die Sonne*

[16] An additional correct prediction is that V2-declaratives are ruled out under the possibility modal *es ist möglich* ("it is possible") (cf. Truckenbrodt 2006), as shown in (i).
(i) * *Es ist möglich (dass) [in Berlin schneit es]*$_{\Phi}$
Updating with (i) would only remove non-Φ-worlds in CG from which Φ-worlds aren't accessible but it would keep those from which they are. This violates progressive update.

[17] Clearly, "strong assertion" comes along with speaker commitment and involves assertive update as defined in footnote 15. It is tempting to relate strong and weak assertion to the notions of force and proto-force, sketched by Gärtner (2002).

3. Conclusion

This paper has been meant as a contribution to accounting for and modeling the distribution of V2-declaratives in Germanic languages like Swedish and German. Section 1 has illustrated that there is evidence that appealing to assertive illocutionary force (potential) goes some way toward achieving this goal. However, we have also pointed out that assertion - "naively" construed - leads into trouble with disjunctive coordination of V2-declaratives such as (16) (repeated below), given that neither disjunct is added to the commitments of a speaker uttering such a sentence.

(16) *[In Berlin schneit es]$_{\Phi}$ oder [in Potsdam scheint die Sonne]$_{\Psi}$*
"It is snowing in Berlin or the sun is shining in Potsdam"

Section 2 has discussed three ways of dealing with this obstacle. First, the assertion approach to the distribution of V2-declaratives could be discarded (section 2.1). Success here depends on showing that all V2-declaratives are root clauses syntactically, so that V2 can apply as a root transformation in the sense defended by Emonds (1976).

Secondly, disjunction could be exempted from directly combining with assertive V2-declaratives by "lowering" it to the propositional level, a possibility indicated by Krifka (2001). Section 2.2 has sketched two variants of this approach, one syntactic and one semantic. The syntactic approach would appeal to across-the-board (ATB) extraction of a force operator from both disjuncts as shown in (25) (repeated below).

(25) [$_{\text{FP-0}}$ **Op$_i$** [$_{\text{F'-0}}$ F°-0 [$_{+\text{P}}$ [$_{\text{FP-1}}$ **t$_i$** [$_{\text{F'-1}}$ F°-1 [$_{\text{CP}}$ *In Berlin schneit es*]]]
[$_{+'}$ *oder* [$_{\text{FP-2}}$ **t$_i$** [$_{\text{F'-2}}$ F°-2 [$_{\text{CP}}$ *in Potsdam scheint die Sonne*]]]]]]]

Apart from working out syntactic detail, one will have to provide reasons for why disjunction should allow this rule while conjunction doesn't, i.e. the arbitrariness of exempting disjunction has to be addressed. The semantic approach would allow coercing the type of the disjuncts to the propositional level. This approach threatens to overgenerate among other things in the case of conditionals and is therefore in need of much more careful development.

Finally, section 2.3 has offered a weakened version of assertion in the sense of intersection with the common ground (Stalnaker 1978). Here conjunction and disjunction can be given a uniform adequate treatment, as shown in (32) and (33) respectively (repeated below).

(31) *[In Berlin schneit es]$_{\Phi}$ und [in Potsdam scheint die Sonne]$_{\Psi}$* $\rangle\rangle$ $\vdash\Phi$ AND $\vdash\Psi$ =
$[\text{CG} \cap \lambda\text{w.SNOW.IN.BERLIN(w)}] \cap [\text{CG} \cap \lambda\text{w.SUN.IN.POTSDAM(w)}]$

(32) *[In Berlin schneit es]$_{\Phi}$ oder [in Potsdam scheint die Sonne]$_{\Psi}$* $\rangle\rangle$ $\vdash\Phi$ OR $\vdash\Psi$ =
$[\text{CG} \cap \lambda\text{w.SNOW.IN.BERLIN(w)}] \cup [\text{CG} \cap \lambda\text{w.SUN.IN.POTSDAM(w)}]$

To prevent this analysis from overgenerating in the case of implication and negation a "progressivity" condition on the effect of update has to be added. This is repeated here.

(36) *Progressive Update*
An update of a common ground CG by an utterance *u* containing meaning components $\vdash\Phi_1, \ldots, \vdash\Phi_n$ is *progressive* if $\text{CG}' \subseteq [\text{CG} \cap (\Phi_1 \cup \ldots \cup \Phi_n)]$

At this stage we would like to refrain from deciding among these options for avoiding the "disjunction challenge" that approaches designed to account for and model the distribution of

V2-declaratives face. We hope, however, that our contribution further sharpens the understanding of the tasks involved.[18]

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gaertner@zas.gwz-berlin.de
jens.michaelis@uni-bielefeld.de

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[18] It should be clear to readers familiar with the literature that our paper has not been meant to lead to any essentially more sophisticated understanding of disjunction itself. We are aware that works by a.o. Zimmermann (2001), Geurts (2005), Eckardt (2007), and Singh (2008) differ substantially from our's in this respect. It remains to be seen whether our neglect adversely affects the validity of our discussion.

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