Verum Focus and Phases

Horst Lohnstein & Hildegard Stommel
University of Cologne

1. Introduction

Phases – proposed in Chomsky (2001, 2008) – as formal complexes of syntactic structure, bear properties which need to be explicated in semantic/functional terms. One such phenomenon is verum focus, first analyzed by Höhle (1988, 1992) for German, which shows up if the complementizer or the finite verb in left peripheral position of the ‘CP phase’ bears a pitch accent. This kind of phonological marking suggests an interpretation which seems to emphasize the truth of the expressed proposition. The effect led to the assumption that there exists some grammatical feature [VERUM] which seems to be responsible for the emphasis of truth if it is focused. It will be argued that [VERUM] is a relevant grammatical phase feature – clearly observable in the case of verum focus – which has relevance in some instances of left peripheral force marking. In the literature, verum focus is assumed to be strongly different from other kinds of focalization. In this paper we will argue that the interpretation of verum focus is strongly connected to the epistemic dispositions and the determination of sentence mood, which is determined in the CP phase too.

Höhle (1988, 1992) has described an accentuation effect in German, which is localized at some left peripheral sentential position. The fronted finite verb can bear this accent (F-verum focus) or the complementizer (C-verum focus). In verb final clauses a similar effect can be achieved if an auxiliary bears the accent, but not a main verb. The semantic interpretation of this accentuation effect is assumed to consist in emphasizing the truth of the expressed proposition.

This paper is organized as follows: The data and the phenomenon will be explored in section 2. In section 3, we delimit verum focus from other kinds of focalization. In section 4, we summarize the syntactic positions of the assumed feature [VERUM]. Section 5 gives an overview of a compositional theory of sentence moods in German, which derives the respective epistemic dispositions of speakers on the basis of grammatical objects and processes. Section 6 deals with the semantic objects corresponding to sentence moods. It is shown that they parallel with discourse structures if verum focus appears. Verum focus, under this perspective, shifts the structure of epistemic dispositions — the precursor of sentence mood — to the context of discourse. Section 7 concludes.

2. Phenomenon and Data

Expressing the emphasis of truth is a possibility not restricted to declarative clauses (1), but seems to appear with other sentence moods as well (2)-(6). In the a-sentences, capitalization marks the accent position. The b-sentences give the paraphrase typically formed with the predicate be true:

(1) declarative:
   a. Peter HAT die Katze gefüttert.
      Peter has the cat fed
      ‘Peter has fed the cat.’
   b. Es ist *wahr*, dass Peter die Katze gefüttert hat.
      it is true that Peter the cat fed has
      ‘It is true that Peter has fed the cat.’

(2) y/n-interrogative:
   a. HAT Peter die Katze gefüttert?
      has Peter the cat fed
      ‘Did Peter feed the cat?’
   b. Ist es *wahr*, dass Peter die Katze gefüttert hat?
      is it true that Peter the cat fed has
      ‘Is it true that Peter has fed the cat?’

(3) wh-interrogative:
   a. Wer HAT die Katze gefüttert?
      who has the cat fed
      ‘Who did feed the cat?’
   b. Für wen ist es *wahr*, dass er die Katze gefüttert hat?
      for whom is it true that he the cat fed has
      ‘For whom is it true that he has fed the cat?’

(4) imperative:
   a. GEH jetzt endlich in die Schule!
      Go now at last in the school
      ‘Go to school now!’
   b. Mach es endlich *wahr*, dass du in die Schule gehst!
      make it at last true that you in the school go
      ‘Go to school at last!’
      ‘Make it true that you go to school.’

(5) optative:
   a. GINGE aber doch endlich in die Schule!
      Go but at last in the school!
'If he would go to school.'

b. Wenn es doch wahr wäre, dass er endlich in die Schule ginge!
   if it however true be.CNJ2 that he at last in the school go!
   ‘If it were true that he would go to school.’

(6) fronted conditional:
   a. KOMMT er heute Abend, (so) können wir ins Kino gehen.
      Comes he today evening can we in cinema go
      ‘If he comes this evening, we can go to the cinema.’
   b. Wenn es wahr wird, dass er heute Abend kommt, können wir ins Kino gehen.
      If it true comes that he today evening comes can we in cinema go
      ‘If it becomes true that he comes this evening, we can go to the cinema.’

Höhle (1992) argues that this kind of focalization is semantic in nature and that it should be delimited from other cases of focalization, such as wh-focus, focus-projection, difference focus or exclamative focus. Höhle (1992: 114; our translation — HL & HS) assumes that there exists a semantic element VERUM, with the following characterization of its focused realization:

(7) In the discussed cases, the verb is associated with a semantic element VERUM which becomes prominent if the verb bears the accent.

There is another construction which engenders verum effects, namely, relative clauses and embedded wh-questions. By focusing the relative- or wh-phrase in left peripheral position a verum effect arises (RW-focus) in the case of bare relative- or wh-pronouns (8) as well as in the case of complex ones (9):

(8) a. Dort steht der Mann, DER die Kiste geleert hat.
    there stands the man who the box cleared has
    ‘There stands the man who cleared the box.’
   b. Ich möchte wissen, WER die Kiste geleert hat.
      I want know who the box cleared has
      ‘I want to know who cleared the box.’

(9) a. Dort steht der Mann, mit DESsen Töchtern Karl Skat gespielt hat.
    there stands the man with whose daughters Charles skat played has
    ‘There stands the man with whose daughters Charles played skat.’
   b. Ich möchte wissen, mit WESsen Töchtern Karl Skat gespielt hat.
      I want know with whose daughters Charles played skat has
      ‘I want to know whose daughters Charles played skat with.’

To capture this observation as well, Höhle (1992: 130ff.) assumes some functional projection at
the left periphery of clauses in German that bears the syntactic feature [+VERUM] which enters the maximal projection by percolation if the accent is placed on the head or its sister.

He then discusses various ways to grasp the crucial properties of this element. One possibility Höhle proposes is that the VERUM element is an independently motivated variable over illocution type operators (IT-analysis). But, as he himself argues, this cannot be correct, since embedded clauses, which do not have an illocution at all, allow for verum focalization as well.

Furthermore, scope phenomena show a clear difference in acceptability of F- vs. C-verum constructions, if negation elements appear in the clause. While C-verum focus is not possible with negation (cf. (10a)), F-verum focus is perfectly ok ((cf. (10b)) (see Höhle 1992: 206):

(10)  Ich hoffe, dass Karl ihr zuhört.
     I hope that Charles her listen
     ‘I hope that Charles listens to her.’
     a. #Aber Anna denkt, DASS er ihr nicht zuhört.
        # but Anna thinks that he her not listen
        # ‘But Anna thinks that he doesn’t listen to her.’
     b. Aber Anna denkt, er HÖRT ihr nicht zu.
        but Anna thinks he listen her not (particle)
        ‘But Anna thinks he doesn’t listen to her.’

The continuation to (10) in (10a) is not adequate, but this differs in the case of (10b) since here the finite verb is fronted. As it appears, (10b) allows for a paraphrase like (11), showing that VERUM is in the scope of negation:

(11)  Anna denkt, dass es nicht zutrifft, dass er ihr zuhört.
     NEG VERUM
     Anna thinks that it not applies that he her listen
     ‘Anna thinks that it’s not the case that he listens to her.’

This interpretation is not possible for (10a). Here the only available interpretation is the one in (12) in which the verum element scopes over negation:

(12)  Anna denkt, dass es zutrifft, dass er ihr nicht zuhört.
     VERUM NEG
     Anna thinks that it applies that he her not listen
     ‘Anna thinks that it’s the case that he doesn’t listen to her.’

Since an illocution type operator has scope over all elements in its clause — especially negation — the VERUM element has to be characterized in other terms.

A further argument against the IT-analysis consists in the fact that accented auxiliaries in clause-final position can lead to a verum interpretation (cf. (13)), while this effect does not arise in the case of accented clause-final main verbs (cf. (14)):
(13) Ich möchte wissen, ob sie in ROM ist.
   I want know if she in Rome is
   ‘I want to know if she is in Rome.’
   a. Karl meint, dass sie in Rom IST.
      Charles thinks that she in Rome is
      ‘Charles thinks that she is in Rome.’

(14) Ich möchte wissen, ob Karl ein DREHBUCH schreibt.
   I want know whether Charles a script writes
   ‘I want to know whether Charles does write a script.’
   a. Hanna meint, er SCHREIBT ein Drehbuch.
      Hannah thinks he writes a script
      ‘Hannah thinks he does write a script.’
   b. #Hanna meint, dass er ein Drehbuch SCHREIBT.
      #Hannah thinks that he a script writes
      # ‘Hannah thinks that he does write a script.’

Since illocution types are not sensitive to the distinction between main and auxiliary verbs, there is no reason to assume that the contrast in (14a) vs. (14b) can be related to an illocution type operator. This shows that the IT-analysis of the verum element cannot be correct, as Höhle already argued.

Another observation concerning verum focus is mentioned in Romero & Han’s (2002, 2004) analysis of yes/no-questions with (preposed) negation, which deals with Ladd’s (1981) ambiguity and the raise of specific implicatures. It combines the partition approach to questions given by Groenendijk & Stokhof (1982, 1984) and Stalnaker’s (1978) conception of Common Ground (CG). According to this approach yes/no-questions with VERUM lead to a bipartition of the common ground (CG), while clauses without VERUM induce a bipartition of the speakers epistemic system without any bias about the truth of the expressed proposition $p$, i.e. $p$ or $\neg p$ are of equal status. According to the authors, yes/no-questions with VERUM are posed if counter-evidence on the addressee’s side is available or if the speaker himself is in doubt about the truth of the propositional content and asks for certainty. While this approach appears to us to be convincing, it is concerned with yes/no-questions only. But, as Höhle (1992) points out, verum focus is not restricted to yes/no-questions but appears with other sentence moods as well. We will argue — (especially in sections 5 to 6) that verum-focused yes/no-questions are a special instance of the more general phenomenon of focalization in the mood component of a clause.

Summing up the different aspects of the phenomenon so far, focus accents with verum effects appear with all sentence moods in German irrespective of the root vs. embedded distinction. The crucial syntactic position where the accent has to be placed is the left (or, in the case of auxiliaries, right) clausal periphery. Since verum focus is strictly clause-bound and strictly connected to sentence mood, which is realized in the CP system, we assume that [VERUM] is a general phase feature.
3. Delimitations and Readings

Verum focus has specific properties which seem to discriminate it from other kinds of focalization. In the first place, verum focus (15e) appears to be different from the other kinds of focalization in (15a–d), as Höhle (1992) notes:

(15) Delimitation to other kinds of focus
   a. Karl hat den Hund gefüttert. (contrastive focus)
      Charles has the dog fed
      ‘Charles has FED the dog.’
   b. Peter hat Wen gesehen? (wh-focus, echo-wh)
      Peter has whom seen
      ‘Peter has seen whom?’
   c. Was Der alles essen kann! (exclamative focus)
      What the all eat can
      ‘What that guy can eat!’
   d. Karl hat gestern den HUND gefüttert. (focus projection)
      Charles has yesterday the dog fed
      ‘Charles has fed the dog yesterday.’
   e. Karl HAT gestern den Hund gefüttert. (verum focus)
      Charles has yesterday the dog fed.
      ‘Charles has fed the dog yesterday.’

(15a) is an instance of contrastive focus: From the set of possible activities with respect to the dog feeding is chosen. In (15b) an in-situ wh-phrase bears the focus accent leading to an echo wh-question. The kind of focus marking in (15c) signals exclamativity of the whole clause, while (15d) is an instance of focus projection. From the focus exponent dog the focus domain can be extended even to the whole clause. The verum focus construction in (15e) seems to emphasize the truth of the expressed proposition.

While the data in (15) exhibit different instances of focus, the data in (16) evidence that a focus on the finite verb allows for several readings, which seem to depend on the various grammatical components the finite verb brings along:

(16) Exemplification of other readings

      Charles fed the dog
      ‘Charles fed the dog.’
     i. Er hat ihn nicht vernachlässigt und auch nicht vergiftet. (contrast on lexical meaning)
        he has him not disregarded and too not poisoned
        ‘He didn’t disregard him and didn’t poison him either.’
   Charles fed the dog
   ‘Charles fed the dog.’
   i. Er wird ihn nicht füttern. Er fütterte ihn bereits. (contrast on tense)
      he will him not feed he fed him already
      ‘He won’t feed him. He has fed him already.’

c. Karl GAB dem Hund Futter.
   Charles gave the dog feed
   ‘Charles fed the dog.’
   i. Karl GÄbe dem Hund Futter. (contrast on verbal mood)
      Charles gave-CONJ2 the dog feed
      ‘Charles would feed the dog.’

d. Karl GAB dem Hund Futter.
   Charles gave the dog feed
   ‘Charles fed the dog.’
   i. Es ist wahr, dass er ihm Futter gab. (verum focus reading)
      it is true that he him feed gave
      ‘It’s true that he fed him.’

Obviously, the lexical meaning of the finite verb can be focused and thereby be made the subject of discussion as (16a) shows. Likewise, it is possible to focus the tense feature as in (16b) or the verbal mood feature as in (16c). The verum focus reading in (16d) differs clearly from the other readings, thereby suggesting that a component or feature [VERUM] is equally present, even though it does not have an overt realization as tense, verbal mood or the phonological form of the lexical element. In this sense, the data in (16) show that four components associated with the finite verb can be subject to focalization:

(17) a. lexical meaning
    b. finiteness
    c. verbal mood
    d. truth

While (17a-c) seem to be uncontroversial, (17d) needs further justification. For (17a-c) the feature [+F] can be assumed to be assigned to the lexical head V₀ or to the respective functional heads FIN₀ or Mood₀. For the verum focus case (17d), no special functional category seems to be available. In order to account for this possibility of focalization, we will assume a grammatical feature [VERUM].

In the next section, we will look at some distributional properties of verum elements to prepare a view of sentence mood interpretation which strongly correlates with syntactic structure formation. In section 5, we will consider a way of sentence mood interpretation in more detail to get a clue on the appearance of a truth-element in grammatical constructions.
4. Syntactic Positions of Verum Focus

The structure and feature markings of the sentential left periphery has been discussed under a variety of perspectives. Starting with Katz & Postal’s (1964) approach, clause-type distinctions were reflected by grammatical features, for instance $\pm$wh, and a number of investigations were concerned with questions of their interpretation (cf. Zaefferer 1979, Bierwisch 1979, 1980, Cheng 1991, Jacobs 1988, 1992, Brandt et al. 1992, Rizzi 1997, 2001, Lohnstein 2000, 2001, 2007, Truckenbrodt 2006, Sabel 2006), to mention just a few.

In the course of this, the determination of the semantic/pragmatic properties of sentential force representing the epistemic attitudes of a speaker (sentential or illocutionary force, viz. sentence mood) played an important role in the semantic characterization of these syntactic features. On the other hand, the structural and inflectional realization of these features as functional categories (Pollock 1989, Chomsky 1989) and the segmentation of information structure into topic and focus parts (Rizzi 1997) led to a variety of new syntactic phrases headed by the respective features, leading to a variety of terminological denominations. In the remainder of this article, we will use the following terminological convention: Sentence types refers to the formal syntactic properties of clauses and sentence mood refers to the semantic objects associated with the attitude a proposition is connected to — both determining the literal meaning of the whole clause; illocutionary or sentential force is a pragmatic notion relevant in communicative settings and speech-act interpretation (see Bierwisch 1980 for a discrimination of these components).


Using the traditional CP-IP-scheme, syntactic positions in which verum focus can be realized by phonetic accentuation seem to be the two head positions associated with finiteness ($I^0$, $C^0$) and the specifier position SpecCP:

\[
\text{(18)} \quad \text{CP} \quad \text{SpecC} \quad \text{C'} \quad \text{SpecI} \quad \text{I'} \quad \text{VP} \quad \text{F-Verum} \quad \text{F-Verum}
\]
Especially the two left-peripheral positions (SpecCP and C₀) are the relevant categories for the determination of sentence moods. In the next section, we will look at the distributional properties of the elements, which can occupy these positions in German together with their interpretation. From the interaction of these elements and the respective movement operations, we will derive representations of sentence moods.

5. Syntax and Semantics of Sentence Mood

Truth — seen as a relation between propositional contents and circumstances in some (mental model of the) world — shows up in the mood component at the left periphery of sentential structures. Lohnstein (2000, 2007) proposes a theory, which derives the main sentence moods (declarative, yes/no-interrogative, wh-interrogative, imperative) in German in an isomorphic relation between syntactic and semantic structuring. The syntactic operations of head movement of the finite verb to the position C₀ and [±wh] XP-movement to the left-peripheral SpecCP-position together with specifications of verbal mood are the elementary building blocks of syntactic and semantic structuring which enables the semantic interpretation of sentential force in a compositional fashion. With respect to German, the main generalizations of this theory are these:

(19) Empirical generalizations:
   a. All finite main clauses bear a verbal mood.
   b. All finite main clauses have the finite verb in left peripheral position.
   c. A [–wh]-phrase occupies SpecCP in the case of declaratives.
   e. SpecCP is empty in the case of yes/no-interrogatives.
   f. Clauses with indicative or conjunctive 2 verbal mood allow for truth-value assignment or question formation and are sensitive for filling SpecCP.
   g. Clauses with imperative or conjunctive 1 verbal mood do not allow for truth-value assignment or question formation and are not sensitive for filling SpecCP, in the sense that mood effects do not result.

From these empirical generalizations, a hypothesis can be formulated from which the relevant structures together with their interpretation are derivable. The principles of semantic interpretation are directly related to the processes of syntactic structuring. They make crucial use of Frege’s (1986) assumptions about the constitution of judgments and Groenendijk & Stokhof’s (1982, 1984, 2002) semantics of questions, which use partitions of the set of possible worlds for the representation of question meanings.

In particular, Groenendijk & Stokhof propose a semantics for questions which uses the concept of index dependent proposition (an index i is understood as an ordered pair consisting of a world w and a time t: <w,t>). The crucial property of an index dependent proposition is
signified by the fact, that the denotation of the proposition at one index depends on its value at another index, as the following example of a yes/no-question will illustrate:

(20) a. Is it raining?
    b. $\lambda i \ [ \text{rain'}(i) = \text{rain'}(a) \ ]$
    c. $\llbracket \lambda i \ [ \text{rain'}(i) = \text{rain'}(a) \ ] \rrbracket = \begin{cases} 
\lambda i \ [\text{rain'}(i)], & \text{if it rains at } a \\
\lambda i \ [\neg \text{rain'}(i)], & \text{if it does not rain at } a 
\end{cases}$

The yes/no-question in (20a) has as its semantic value the index dependent proposition in (20b). The value of this proposition at an index $i$ depends on its value at some index $a$. So, if it rains at $a$, the value of the proposition is *that it is raining*, if it does not rains at $a$, the value of the proposition is *that it does not rain*. Therefore, the index dependent proposition induces a bipartition on the set $I$ of possible indices $i$:

(21) $I = \lambda i \ [\text{rain'}(i)] \cup \lambda i \ [\neg \text{rain'}(i)]$

Both subsets — call them $p_i$ and $p_j$ — are disjoint in pairs, which means that $p_i \cap p_j = \emptyset$. Their union delivers the whole set of indices $I$, i.e. both subsets build a partition based on the equivalence relation given by ‘=’-relation in the condition on indices in (20b). This partition mirrors the space of possible answers to the yes/no-question.

Looking more closely to [+wh]-interrogatives a similar semantic form is assumed which, again, leads to a partition of all possible answers:

(22) a. Who comes?
    b. $\lambda i \ [\lambda x [\text{come'}(i)(x)] = \lambda x [\text{come'}(a)(x)] \ ]$

The difference between (20b) and (22b) is, that in the latter case the set of individuals that come at an index $i$ has to be identical the set of individuals that come at index $a$.

An easy extension leads to the semantics of multiple questions:

(23) a. Who bought what?
    b. $\lambda i \ [\lambda y \lambda x [\text{buy'}(i)(x)(y)] = \lambda y \lambda x [\text{buy'}(a)(x)(y)] \ ]$

The condition in (23b) expresses that the set of ordered pairs $<x,y>$ at an index $i$ has to be identical the set of ordered pairs $<x,y>$ at index $a$, where $<x,y>$ is defined by the relation ‘$x$ bought $y$’.

In general, all kinds of questions are assumed to denote index dependent propositions, with the main property, that the denotation of the question at some index $i$ depends on the denotation at an index $a$.

Let us now turn over to considerations undertaken by Frege (1986: 35) in his analysis of an assertion. Frege distinguishes three acts necessary to claim some propositional content:
“We expect to hear ‘yes’ or ‘no’. The answer ‘yes’ means the same as the assertion, because it claims that the thought, which is entirely contained in the question, is true. Therefore, it is possible to form a question from every assertion. […]

<table>
<thead>
<tr>
<th>thinking</th>
<th>the capturing of the thought</th>
</tr>
</thead>
<tbody>
<tr>
<td>judging</td>
<td>the acknowledgement of the truth of the thought</td>
</tr>
<tr>
<td>claiming</td>
<td>the announcement of the judgement</td>
</tr>
</tbody>
</table>

By forming a yes/no-question, the first act is already achieved.”

Frege identifies the capturing of the thought with a yes/no-interrogative. The thought in this view corresponds to a proposition, which divides the set of possible indices into two classes: One class contains indices in which the proposition is true, and the other class contains indices at which the proposition is false. Together with Groenendijk & Stokhof’s analysis of questions, propositions induce bipartitions on the set of possible indices. Judging, then, means to assign the actual index under discussion @ to the class of indices at which the proposition is true, i.e. extensionalization of the index dependent proposition to the actual index @.

Lohnstein (2000, 2007) combines Frege’s (1986³: 35) analysis of the judgment and the partition account proposed by Groenendijk & Stokhof (1982, 1984) to develop a compositional theory of sentence moods. The starting point in the derivation of a specific sentence mood is what Frege calls das Fassen des Gedankens (‘the capturing of the thought’) which corresponds to a yes/no-question inducing a bipartition on the set of possible indices. In contrast to Frege, who suggests that “it is possible to form a question from every assertion” (Frege 1986³: 35), Lohnstein assumes that bipartitions are the basic objects from which assertions are derived. Basically, the propositional content (the object Frege calls the thought) can be true or false. It is, roughly speaking, the semantic core of the inner phase vP. XP-movement to the outer CP-phase determines operations on this object. Head movement of the finite verb to C⁰ marks the location in which this object is anchored. Two possible locations need to be distinguished: (i) context of discourse (main clauses), and (ii) grammatical context (embedded clauses).

Looking at the various sentence moods more closely, we ascertain that in the case of declaratives (which have a [−wh]-phrase in SpecCP), the propositionally-induced bipartition becomes reduced to the class of worlds (including the actual world under discussion @) for which the expressed proposition is true. This mirrors what Frege called das Urteil (‘the judgement’).

In the case of [+wh]-interrogatives the bipartition becomes differentiated into subclasses along the sortal properties of the wh-phrase(s): Persons in the case of who, locations in the case of where, times in the case of when, reasons in the case of why, and so on. This operation of differentiation leads to a set of classes, which represent possible answers to the respective wh-questions in the sense of Groenendijk & Stokhof’s (1982, 1984) analysis of questions.

In the case of yes/no-interrogatives the bipartition remains unmodified. The reason for this is traced back to the syntactic fact, that SpecCP is left empty.

In particular, the thought corresponds to the proposition syntactically realized as vP, the inner phase. The semantic content of the outer phase CP is triggered in a three-fold way by the (non-) occurrence of [±wh]-movement by occupation through a [+wh]-phrase, a [−wh]-phrase, or
nothing:

(24)

\[
\begin{array}{c}
\text{CP} \\
\text{SpecC} \\
\text{C'}
\end{array}
\]

\begin{align*}
\text{a. declarative:} & \quad [-\text{wh}] \\
\text{b. [+wh]-interrogative:} & \quad [+\text{wh}] \\
\text{c. yes/no-interrogative:} & \quad \emptyset
\end{align*}

Let us now look more closely at the respective operations: First, declaratives: If SpecCP is occupied by a [-\text{wh}]-phrase, the bipartition becomes reduced by extensionalizing the index dependent proposition to the index \( \@ \) of the fronted [-\text{wh}]-phrase, as shown in (25). The computation proceeds along the following steps: First, compute the denotation of the [-\text{wh}]-phrase. This is a generalized quantifier, denoting the set of all properties \( Q \), Peter has at \( \@ \), as in (25b). Second, apply this generalized quantifier to each cell in the bipartition by pair-wise functional application in the Cartesian product of the cells and the generalized quantifier, as in (25c). Third, decide upon which property Peter has at \( \@ \) and reduce the bipartition to the right cell, thereby performing Frege’s judgement (the acknowledgment of the truth of the thought), as in (25d).

(25)

\begin{align*}
a. \text{Peter comes.} \\
b. \ |[\text{Peter}]| & = \lambda Q \ [ Q(@) (\text{Peter}) ] \quad \text{(generalized quantifier, denoting the set of all properties } Q \text{ Peter has at } @) \\
c. \text{Bipartition:} & \quad \lambda i [ \lambda x[\text{come'}(i)(x)]] \quad \lambda i [ \lambda x[\neg \text{come'}(i)(x)]]
\end{align*}

\text{Cartesian product:}
\[
\lambda Q \ [ Q(\text{Peter})(@) ] \times \{ \lambda i [ \lambda x[\text{come'}(i)(x)]], \lambda i [ \lambda x[\neg \text{come'}(i)(x)]] \}
\]

\text{Functional application with first cell:}
\[
\begin{align*}
\lambda Q & \ [ Q(@) (\text{Peter}) ] (\lambda i [ \lambda x[\text{come'}(i)(x)]])) \\
\rightarrow & \quad \lambda i [ \lambda x[\text{come'}(i)(x)]] (\@)(\text{Peter}) \\
\rightarrow & \quad \lambda x[\text{come'}(@)(x)] (\text{Peter}) \\
\rightarrow & \quad \text{come'}(@)(\text{Peter})
\end{align*}
\]

\text{Functional application with second cell:}
\[
\begin{align*}
\lambda Q & \ [ Q(@) (\text{Peter}) ] (\lambda i [ \lambda x[\neg \text{come'}(i)(x)]])) \\
\rightarrow & \quad \lambda i [ \lambda x[\neg \text{come'}(i)(x)]] (@)(\text{Peter}) \\
\rightarrow & \quad \lambda x[\neg \text{come'}(@)(x)] (\text{Peter}) \\
\rightarrow & \quad \neg \text{come'}(@)(\text{Peter})
\end{align*}
\]
d. Reduce the bipartition:

The relevant point at which truth (VERUM) comes into play is (25d) in which the judgment proper (see Frege’s Urteil) is performed, since at this point, the property of coming is related to the states of affairs at index @ with respect to Peter. In performing the judgement, the index @ is allocated to one of the two classes in the bipartition. Crucially, at this point, nothing prevents the allocation of index @ to the other cell. But this option is never possible:

(26) There exists no judgement denoting its own negation!

From this, the existence of a [VERUM]-element seems to be necessary in the case of declaratives.

Second, wh-interrogatives: If SpecCP is occupied by a [+wh]-phrase, the elements of the denotations of the cells in the bipartition combine with the denotation of the moved [+wh]-phrase. Now, the denotation of the phrase in SpecC is a set (see Hamblin (1974), who uses sets of individuals) of generalized quantifiers, as in (27b).

The computation of the combination of the [+wh]-phrase in SpecC with the propositional content of the phrase is performed over the following steps: Compute the denotation of the [+wh]-phrase in (27b), compute all possible combinations of the denotation of the [+wh]-phrase with the elements in the bipartition by pair-wise functional application in (27c), ignore logical impossibilities (27d). The result is the space of all logically possible answers to the question in (27e) organized as a partition with each cell being disjoint from any other cell and the union of all cells build the whole space of possible answers. This is a Boolean lattice which is closed under conjunction and negation (27c) with all logically impossible cells excluded (27e):

(27) a. Who came.
   b. [[who]] = { λQ[Q(@) (Peter)], λQ[Q(@) (Mary)] }
   c. Build the cartesian product between bipartition and [+wh]-phrase:
      \{ λxλi[come'(i)(x)], λxλi[¬come'(i)(x)] \} x = \{ λQ[Q(@) (Peter)], λQ[Q(@) (Mary)] \}
      = \{ come'(Peter), come'Mary>,
                 come'(Peter), ¬come'Mary>,
                 ¬come'(Peter), come'Mary>,
                 ¬come'(Peter), ¬come'Mary>,
                 come'(Mary), ¬come'Mary>,
                 ¬come'(Mary), ¬come'Mary> \}
   d. \{ come'(Peter), come'Mary>,
                 come'(Peter), ¬come'Mary>,
                 ¬come'(Peter), come'Mary>,
                 ¬come'(Peter), ¬come'Mary>,
                 come'(Mary), ¬come'Mary>,
                 ¬come'(Mary), ¬come'Mary> \}
Now, in contrast to the case with a [–wh]-phrase in SpecCP, alternatives exist which have to be reduced by an answer (see Higginbotham 1993, 1996 how various types of possible answers lead to different degrees of their informativeness).

Third, yes/no-interrogatives: If SpecCP is empty no combinatorial process between an element in SpecCP with the propositionally induced bipartition takes place, as illustrated in (28). The bipartition denoted by the proposition remains unmodified:

(28) a. Does Peter come?
   b. 

<table>
<thead>
<tr>
<th>Come’(@)(Peter)</th>
<th>¬come’(@)(Peter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter comes.</td>
<td>Peter does not come.</td>
</tr>
</tbody>
</table>

Summing up, syntactic and semantic structuring is interrelated in the following way: The left-peripheral specifier position SpecCP is filled by movement of a [±wh]-phrase leading to a judgment in (25), a differentiated bipartition as in (27), or an unmodified bipartition as in (28). Filling SpecCP through A-bar movement is responsible for the kind of modification of the bare propositional object represented by vP:

(29) Relation between syntax and semantics of [±wh]-movement
   a. filling SpecCP with a [–wh]-phrase leads to a judgment in Frege’s sense (reduction of bipartition);
   b. filling SpecCP with a [+wh]-phrase leads to a differentiated partition (differentiation of bipartition);
   c. leaving SpecCP empty (bipartition remains unmodified).

Under this view, A-bar movement to SpecCP determines the kind of the semantic objects representing sentence mood.

The precondition for these syntactic operations and their semantic effects is that the clauses in question all require the verbal mood indicative or conjunctive 2. These are the two verbal moods in German, which allow their propositions to be true or false or questioned. Imperative and conjunctive 1 do not bear these properties:

(30) a. imperative verbal mood:
   i. Bring das Buch in den Laden! (not a yes/no question)
      bring the book in the store
      ‘Bring the book to the store!’
In both cases, (30a) and (30b), verb fronting does not lead to a question ((i)-examples), as is typical for indicative and conjunctive 2 verbal mood. Also, there results no mood variance by A-bar-movement of a [-wh]-phrase to the SpecC-position, as the (ii)-examples show. Furthermore, [+wh]-A-bar-movement makes the sentences ungrammatical, the (iii)-examples. These facts are independent of verum focus, but have to be related to the building blocks of sentence mood only. In Lohnstein (2000, 2007), the relevant properties of verbal mood is related to domains of possible worlds with respect to which the proposition is evaluated. Verbal mood — on a par with tense which restricts the evaluation time of a proposition — restricts the evaluation worlds of a proposition. For verbal mood in German, two main classes need to be distinguished:

(31) a. Indicative and conjunctive 2 restrict the proposition to epistemically accessible worlds.
   b. Imperative and conjunctive 1 restrict the proposition to factively accessible worlds.

Since propositions can be true only with respect to epistemically accessible worlds, only sentences marked with indicative or conjunctive 2 can be true or false or allow for question formation. Since facts cannot be true or false these properties escape for propositions marked with imperative or conjunctive 1. The domain of facts cannot be bipartitioned and for this very reason, neither reduction nor leaving the bipartition unmodified can take place. This explains why there is no difference in sentence mood in the (i)- and (ii)-examples in (30). Since well-formed wh-question formation requires a bipartition to perform the right computations, the (iii)-examples result as ungrammatical.

The next question, we have to address, concerns the existence of verum focus in constructions like (32), which do not relate to truth in any sense at all. But as we have seen in (4), repeated here as (32a), verum focus seems to be possible with imperative and also with
conjunctive 1 verbal mood in (32b):

(32) a. imperative:
   i. GEH (jetzt endlich) in die Schule!
      go (now at last) in the school
      ‘Go to school now!’
   ii. Mach es (endlich) wahr, dass du in die Schule gehst!
      make it (at last) true that you in the school go
      ‘Make it true that you go to school.’

b. conjunctive 1:
   i. Er GEhe (jetzt endlich) in die Schule.
      he go.CONJ1 (now at last) in the school
      ‘He should make it true that he goes to school now.’
   ii. Er mache es (endlich) wahr, dass er in die Schule geht.
      he make.CONJ1 it (at last) true that he in the school goes
      ‘He should make it true that he goes to school now.’

Since the imperative in (32a) and the conjunctive 1 clause in (32b) cannot be true or false, it appears that the component make in the rather natural paraphrase make it true is related to the mood component (CP phase) while it true is related to the propositional component (vP) of the clause. This shows exactly what (31b) expresses: With imperative- or conjunctive 1-marked propositions, facts should be established.

Let’s next look at the position of the finite verb. In German, the finite verb is fronted to $C^0$ in main clauses, while it remains in its right-peripheral position ($I^0$) in embedded clauses even if the $C^0$-position is empty (cf. indirect questions, relative clauses).

If we now relate the main vs. embedded distinction to what Frege has called Kundgabe (‘announcement’), we observe that only main clauses are modally anchored in the context of discourse and that in these cases the finite verb is in $C^0$. Embedded clauses like complement clauses are anchored with respect to some epistemic system (knowing, believing, hoping, …) of the matrix subject’s referent, relative clauses are anchored to some noun phrase, and adverbial clauses generate frames in which the respective main clause is interpreted. All these embedded clause types show the verb final pattern. These facts suggest that verb-movement to the $C^0$-position seems to demarcate the crucial difference between main clauses and their corresponding embedded counterparts. The position of the finite verb seems to signify the structure of a higher order in which the propositional object is anchored (context of discourse in the case of main clauses vs. some grammatically given object). This correlation between the position of the finite verb in German and modal anchoring of a propositional object can be expressed in the following way:

(33) Relation between syntax and semantics of verb-movement to $C^0$:
   a. Fronting the finite verb to $C^0$ marks the proposition to be anchored in the context of discourse.
b. Leaving the finite verb in final position marks the proposition to be anchored with respect to some element in the grammatical context.

(33) accounts for the fact that only main clauses can have illocutionary force, while embedded clauses do not. More specifically, fronting of finite verbs in German marks the location of the modal anchor as the context of discourse, and it is this domain in which clauses can unfold illocutionary force. Complement and relative clauses on the other hand are related to elements in the grammatical context with respect to which they are anchored. This is the reason why they do not have any illocutionary force at all. This is not to say that embedded clauses do not bear sentence mood, they clearly denote interrogatives (indirect questions) or declaratives (that-complements), but there is no obligation for a hearer to answer an indirect question, for instance. (33) gives an explication of the grammatical means, which implements Frege’s third act: the announcement of the judgment. But (33) also accounts for the whole class of non-declaratives, since it predicts that all clause types with fronted finite verb in German bear an illocutionary force.

However, there remains the question why in Frege’s analysis of the judgment a reduction to truth applies albeit falsehood is as good a logical possibility. Likewise, how can we account for the facts Karttunen (1977) mentions to argue for questions to denote sets of true possible answers instead of the whole class of answers, as Hamblin (1974) did. And, after all, do these properties relate to the verum focus phenomena in systematic ways?

6. Discourse Structure and Partitions

In this final section, we want to focus on the various instantiations of sentence mood in discourse situations. In the first place, verum focused clauses are inappropriate as ‘out of the blue’ utterances. Consider the example in (34), which exemplifies that verum-focused clauses cannot be used to start a discourse. The ‘#’ marks the constructions for non-appropriateness in discourse structures, although the are not ungrammatical:

(34) Context of discourse is empty: Somebody opens the door and utters:
   a. # Wer HAT die Katze gefüttert?
      who has the cat fed
      # ‘Who did feed the cat?’
   b. # Karl HAT die Katze (aber) gefüttert.
      Charles has the cat (but) fed
      # ‘But Charles did feed the cat.’
   c. # HAT Karl die Katze gefüttert?
      has Charles the cat fed
      # ‘Did Charles feed the cat?’

Without any preceding utterances, (34a - c) have no appropriate interpretation, because specific antecedent utterances being necessary for an adequate use seem to be missing. Neither of the
sentence moods (wh-interrogative (34a), declarative (34b), yes/no-interrogative (34c) allows for opening a discourse sequence, if it bears a verum focus.

In discourse situations in which, for example, speakers A, B, and C controversially discuss the truth or falsehood of some propositional content — i.e. exactly the epistemic disposition which gives rise to a yes/no-question or allows for a judgement — verum-focused yes/no interrogatives (35a) or declaratives (35b) are possible, while wh-interrogatives (35c) are not. In discourse contexts of this kind, a bipartition consisting of true or false assertions is present:

(35) Assume the following context of discourse with speakers A, B and C:

Sprecher A: Karl hat gestern die Katze gefüttert.
Speaker A: Charles has yesterday the cat fed
‘Charles has fed the cat yesterday.’

Sprecher B: Nein, Karl hat die Katze nicht gefüttert.
Speaker B: no Charles has the cat not fed
‘No, Charles hasn’t fed the cat.’

Sprecher C: Doch. Er hat sie wohl gefüttert.
Speaker C: sure he has her probably fed
‘Sure. He did feed her.’

A possible continuation by a new speaker or one of the speakers A, B or C could be a. or b., but not c. :

a. HAT er die Katze (denn nun) gefüttert?
has he the cat PRT PRT fed
‘Did he feed the cat than?’

b. Doch. Karl HAT die Katze (aber) gefüttert.
sure Charles has the cat PRT fed
‘Sure. Charles did feed the cat.’

c. #Wer HAT die Katze (denn nun) gefüttert?
who has the cat PRT PRT fed
# ‘Who did feed the cat?’

(35a) asks for the true answer to the question whether Charles has fed the cat. Without verum focus this question signals that the speaker is epistemically bipartitioned. With verum focus, it signals that the context of discourse is bipartitioned in that the discourse participants have different opinions on whether Charles has fed the cat or not.

In a discourse structure like (36), various alternatives are under discussion. On the level of sentence mood, this corresponds to an epistemic system being structured as a differentiated bipartition which is induced by a wh-interrogative. In discourse structures of this kind, verum focused wh-interrogatives (36a) are possible, but yes/no-interrogatives (36b) or declaratives (36c) are not:
(36) Speakers A, B, C discuss the question: *who fed the cat:*

Speaker A: Karl hat gestern die Katze gefüttert.
‘Charles has fed the cat yesterday.’

Speaker B: Nein, Karl hat die Katze nicht gefüttert, Clara hat sie gefüttert.
‘No, Charles didn’t feed the cat, Clara fed her.’

Speaker C: Das stimmt nicht. Clara war im Kino, und deshalb kann sie nur Paul gefüttert haben.
‘That’s not right. Clara was in cinema and because of that can her only Paul fed have.
‘That’s not right. Clara was in cinema and because of that only Paul could have fed her.’

A possible continuation by a new speaker or one of speakers A, B or C could be a., but not b. and c.:

a. Wer HAT die Katze (denn nun) gefüttert?
   who has the cat PRT PRT fed
   ‘Who did fed the cat than?’

b. # Karl HAT die Katze (aber) gefüttert.
   ‘However, Charles did feed the cat.’

c. # HAT er die Katze (denn nun) gefüttert?
   has he the cat PRT PRT fed
   # *Did he the cat feed than?*

Consider next imperatives and conjunctive 1 clauses in discourse situations. Since these clauses cannot be true or false at all, no verum effects should be observable — contrary to what Höhle (1992) claimed. For illustration, take a communicative setting in which an imperative with the finite verb focused as in (37):

(37) A person P has entered a room. Some people sitting around the table. Several chairs are free, and P is invited to take a seat, but hesitates again and again to take a chair. One of the persons in the room says:

a. NIMM dir (endlich) einen Stuhl!
   Take you (at last) a chair
   ‘Take a chair!’

No propositions need to be under discussion. Rather, the hesitating behavior of person P is sufficient for the putative verum focus on the finite verb. As it appears, this focus is not a focus which emphasizes the truth of the proposition, but directs the behavior of P: P should MAKE that he has a chair. In this case, the focus is clearly on the *make*-component of the imperative: MAKE it true. This effect is predicted by the evaluation classes for verbal mood in (31):
Imperatives and conjunctive 1 clauses have to be evaluated with respect to the factive domain. The propositional content has to be realized as a fact in the world.

These observations show that the sentence mood of a verum-focused clause requires a discourse structure which is on a par with the epistemic system of a speaker who uses the same sentence mood without a verum focus. Taking this to be the case, the theory of sentence mood proposed by Lohnstein (2000, 2007) predicts which structure a context of discourse must have in order to be compatible with verum-focused clauses bearing a specific sentence mood. To capture this theoretically, we can assume that in the case of sentence moods the epistemic system of a speaker is partitioned in the way explored in the preceding sections, while in the case of verum-focused clauses the very same partition structure has to take place in the Common Ground (CG) in the sense of Stalnaker (1978) (for a similar approach for other data see Romero & Han 2002, 2004, and for a syntactic domain specific for context information Grohmann 2003). If we deal with epistemic verbal moods (38a) carries over to (38b) if verum focus is applied. If we deal with factive verbal moods, the same shift to discourse takes place, but requires the domain of factivity, as illustrated in (38c), where no partitioning is possible, since facts do not allow for a true vs. false distinction:

\[(38)\]  
\[\begin{align*}
\text{a. Sentence mood without verum focus with epistemic verbal mood:} & \quad (S_{\text{epi}} = \text{speaker’s epistemic system}) \\
S_{\text{epi}}: & \quad S_{\text{epi}} \cap p \quad S_{\text{epi}} \cap \neg p \\
\text{b. Sentence mood with verum focus on epistemic:} & \quad (CG = \text{common ground}) \\
CG: & \quad CG_{\text{epi}} \cap p \quad CG_{\text{epi}} \cap \neg p \\
\text{c. Sentence mood with verum focus on factive domain: } p \rightarrow \text{FACTS} \quad \uparrow \\
\quad & \quad ‘\text{make}’
\end{align*}\]

Speaker dispositions and contexts of discourse require identical structures with respect to sentence moods. If the partition structure should hold for the epistemic system of a speaker, verum focus may not be present. If it holds for the context of discourse verum focus is required.

Looking next at embedded clauses with so called C-verum focus, we can observe that in the case of complement clauses the same kind of structuring of sentence moods takes place. The differences are, that the finite verb is in final position with the effect, that the proposition of the embedded clause is anchored to the epistemic system of the matrix subject’s referent:

\[(39)\]  
\[\begin{align*}
\text{a. Paul glaubt, DASS Fritz die Katze gefüttert hat.} & \quad \text{Paul thinks that Fritz the cat fed has} \\
\text{Paul glaubt, DASS Fritz die Katze gefüttert hat.} & \quad ‘\text{Paul thinks that Fritz has fed the cat.’} \\
\text{b. Paul fragt sich, OBF Fritz die Katze gefüttert hat.} & \quad \text{Paul asks REFL whether Fritz the cat fed has}
\end{align*}\]
Paul wonders whether Fritz has fed the cat.

Paul fragt sich, WER die Katze gefüttert hat.

Paul asks refl who the cat fed has

‘Paul wonders who fed the cat.’

The three clauses in (39) require a context of discourse, in which Paul’s epistemic states are under discussion. With respect to sentence mood, the embedded clauses behave in the same way as their unembedded counterparts, except that the finite verb is in final position. The partition structures are in both cases the same. The that-complement clause corresponds to a declarative, the whether-complement clause to an yes/no-interrogative and the wh-complement clause to a wh-interrogative sentence. In order for these clauses to be true, Paul’s epistemic system corresponds to a reduced bipartition in the case of (39a), to an unmodified bipartition in (39b), and to a differentiated bipartition in (39c).

Summarizing the observations and assumptions so far, we get the following picture, which relates the grammatical categories of sentence mood and verum focus to the structures of the non-linguistic systems of epistemic attitudes and contexts of discourse:

(40) sentence mood
    (declarative, yes/no-interrogative, wh-interrogative)
    ← REALIZED AS
    main clause
    embedded clause
    [+Verum] [–Verum] [+Verum] [–Verum]
    ↓ ↓ ↓ ↓
    epistemic system of speaker epistemic system of the matrix subject’s referent epistemic system of the matrix subject’s referent
    CG CG with respect to the epistemic system of the matrix subject’s referent

Imperatives do not have embedded counterparts, but behave on a par with declaratives and interrogatives with respect to finite verb fronting. The difference in verbal mood restricts them to the factive domain which makes their special properties derivable. Non-embedded conjunctive 1 clauses in German require specific discourse situations and are preferred in embedded contexts. Their properties and behavior need further clarification we cannot present here.

7. Conclusion

Verum focus seems to be a phenomenon that strongly depends on the structures provided by the semantic objects corresponding to sentence mood. The syntactic derivation of these objects is subject to the usual conditions of head movement and A-bar movement from the vP-phase to the
CP-phase. Depending on the [±wh]-features of the A-bar moved XP to SpecCP, or not filling this position at all, the semantics of sentence mood is determined: for embedded and root clauses in the same way. Further restrictions are built in by the choice of verbal mood in German: epistemic vs. factive mood. The position of the finite verb in German specifies the location at which the sentence mood object is evaluated: First, context of discourse, if the finite verb enters C⁰ in German. Clauses with this property unfold their illocutionary force in speaker-hearer configurations, for instance: declaratives claim and interrogatives are posed. Second, some grammatically given object, if the finite verb remains in final position; for instance: in complement clauses the matrix subject referent’s epistemic system in the case of complement clauses, the related NP in the case of relatives.

In all cases of sentence mood, some variant of a [VERUM] element is required even without verum-focalization. If verum focus is applied, a shift of the structural conditions being the precursors of the realization of sentence mood to the context of discourse takes place. As we assume, there is no need for a specific [VERUM] element in verum focus constructions. Rather, the properties of sentence mood seem to already contain this feature, thereby accounting for the realization of verum focus in the CP phase. As the embeddings of verum-focused constructions in specific communicative settings show, focalization of the [VERUM] element leads to a shift of the precursors of sentence mood to the context of discourse for root as well as for embedded constructions.

References


