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On Covert Modality in German Root Infinitives

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1. Introduction

German adult Bare Root Infinitives (BRIs) share a considerable number of uses with imperatives. They can, for example, be employed as commands, (1a), instructions, (1b), and permissions, (1c). In addition, they may occur as (self-directed) wishes, (1d) (for an overview, see Gärtner 2013, and references cited there). [MP = modal particle].

(1) a. *Hinsetzen (, bitte)!*
there.sit.INF please
"Sit down (, please)!"

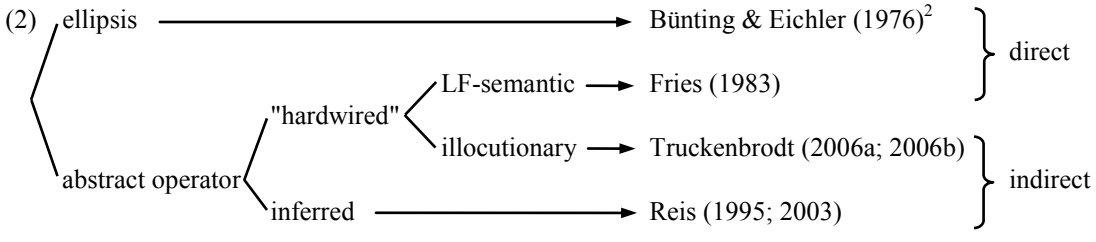
b. *Den Reis langsam kochen!*
the rice slowly boil.INF
"Let the rice boil slowly!"

c. *(OK,) Ruhig anrufen (, wenn ihr was braucht)!*
MP call.INF if you sth. need
"(OK,) Feel free to call me (, if you need anything)!"

d. *(Ach,) Endlich Sedona besuchen!*
oh finally Sedona visit.INF
"(Oh,) To finally visit Sedona!"

It is standardly assumed that this range of uses is the consequence of some form of covert modality associated with BRIs.[1] However, there is so far no consensus on how exactly the formal counterpart of covert modality should be conceived of within an explicit theoretical account of BRIs. The chart in (2) presents four major types of approaches.

(2)



In the following, I will focus on the inference-based theory by Reis (Section 2) and the illocutionary one by Truckenbrodt (Section 3). Section 2 spells out a version of the inference approach in terms of von Stechow's framework of "transparent logical form." It will be shown (i) how covert modality can then be captured in terms of existential closure for BRIs and (ii) how this mechanism fails to account for the covert modality of *wh*-infinitves. Section 3 briefly sketches (i) how Truckenbrodt analyzes the covert modality of BRIs by means of a volitional attitude operator and (ii) how this runs into similar difficulties with *wh*-infinitives. By way of theory comparison, Section 4 reflects on the distinction between direct and indirect approaches to covert modality and checks the overall adequacy of theories wrt performativity, non-embeddability, modal force, and modal flavor. Section 5 provides a short summary.

[1] Some recent work on covert modality can be found in the collection edited by Abraham and Leiss (2012).
[2] As cited by Fries (1983).

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2. Covert Modality as an Inferred Modal Operator

Inspired by work on imperatives (in particular, Platzack and Rosengren 1998; Rosengren 1993), Reis (1995; 2003) argues for inducing covert modality in BRIs via (minimal) "pragmatic enrichment." Two main interrelated factors are taken to be involved in this process: (i) absence of finiteness, which may be implemented syntactically in terms of lack of FinP (and/or IP); (ii) absence of a "canonical" predication relation, which derives from the assumption that BRIs are subject-less.[3] As a consequence, on the pragmatic side, BRIs are taken not to support any regular "speaking about," i.e., descriptive language use, but only some kind of "speaking to (the addressee)" or "speaking from (the speaker)," i.e., variants of normative or expressive use. In the terms of Searle (1976:3f.), the representative direction of fit (words-to-world) is suspended in BRIs.

Now, instead of discussing the previous assumptions in any more detail, I will spell out a formal mechanism of pragmatic enrichment that largely preserves the spirit of the inference approach. This will be cast in the framework of "transparent logical form" (TLF) by von Stechow (1993; 2004).

The first ingredient of our account concerns free variables, which will be interpreted deictically (von Stechow 2004:431). As illustrated in (3), in finite indicative declaratives, the world variable is denotationally restricted to the actual world (von Stechow 2004:435).[4]

(3) a. *Hans passt auf* ("John is watching out")
b. [$\underline{w}^{+ind}$ [$_{VP}$ *Hans aufpasst*]] ➥ WATCH.OUT(w_0,h)

The crucial assumption about infinitives will be that they "lack referential anchoring" (cf. Huntley 1984).[5] The consequence of this has been described for Italian BRIs by Rizzi (1993/94:375), who rephrases the above-mentioned insight concerning direction of fit as follows: "What seems to be excluded is a root-infinitival declarative. That is, if I see somebody playing football, I could not describe the scene by uttering [*giocare al pallone*]." Technically, this will be implemented by saying that a world variable of type $\underline{w}^{-fin}$, licensed in German by the infinitival verbal suffix *-en*, is not interpretable deictically. If $\underline{w}^{-fin}$ occurs free at LF, the structure is "untranslatable:"

(4) [$\underline{w}^{-fin}$ [$_{VP}$ PRO *aufpassen*]] ➥ ✖

Next, as stated by von Stechow (2004:431), features on semantically bound variables get deleted and thus do not feed interpretation.[6] This allows conceiving of "minimal pragmatic enrichment" in BRIs as world variable binding via existential closure (cf., e.g., Heim 1988:II.2; von Stechow 2004:4.2.3), which is shown in (5). [Deleted features are crossed out].

(5) [$\exists\underline{w}$ [$\underline{w}^{\cancel{-fin}}$ [$_{VP}$ PRO *aufpassen*]]] ➥ $\exists$w.WATCH.OUT(w,arb)

Crucially, existential binding of a world variable amounts to adding a possibility modal, i.e., $\exists w.WATCH.OUT(w,arb) \Leftrightarrow \Diamond[WATCH.OUT(arb)]$ (cf., e.g., Gamut 1991:123). Thus, a rather elegant way of deriving the covert modality of BRIs seems to be available.

Furthermore, on embedding a bare infinitive, $\underline{w}^{-fin}$ will be λ-abstracted (von Stechow 2004:5.1.2). This again leads to deletion of [−fin] (>[$\cancel{-fin}$]), and the absence of intrinsic modality is correctly predicted for embedded bare infinitives.

Reis (2003:183f.) further envisages application of her inference-driven approach to *wh*-infinitives, which are restricted to root environments in German and will here be called "WRIs." Evidence against subordination is provided in (6), where (6b) is a direct translation of (6a) (cf., e.g., Tappe 1984:229).

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[3] Non-vocative occurrences of nominatives, such as *alle* ("everyone") in *Alle mal herhören!* ("Everyone listen!") are accordingly analyzed as (VP-)adjuncts (Reis 1995:124, 151).

[4] LF-structures and translations are simplified and adapted to my purposes.

[5] A critical evaluation of Huntley's ideas is provided by Mastop (2005:2.2).

[6] von Stechow's applications range from pronominal indexicals and tenses to subjunctive mood.

(6) a. *Mary didn't remember* [*where to put the soap*]
b. * *Maria erinnerte sich nicht* [*wohin die Seife (zu) legen*]

However, as illustrated in (8) (cf. von Stechow 1993:74), the formal mechanisms just developed cannot be applied in the case of WRIs.[7]

(7) *Wem vertrauen?* ("Who to trust?")

(8) [λ<u>p</u> [$_{CP}$ *wem* [λ<u>x</u> [[$_{C°}$?$_{(p)}$] [λ<u>w</u> [<u>w</u>$^{\text{–fin}}$ [$_{VP}$ PRO [<u>x</u> *vertrauen*]]]]]]]]
➥ λp[∃x[PERSON(w_0,x) ∧ p = λw.TRUST(w,arb,x)]]

In order to derive the propositional core of a question (in a TLF version of Hamblin semantics), the world variable has to be *λ*-bound. Thus, the potentially offensive feature [–fin] gets deleted and existential closure as a repair mechanism bringing about modal enrichment is not called for. It is therefore incorrectly predicted that (7) lacks covert modality, i.e., it is not a question about who one *should* or *could* trust.[8,9] Conversely, if existential closure were to apply internally nevertheless – an arguably dubious case of "pragmatic intrusion" – the question operator would become inapplicable and the resulting LF untranslatable (➥ ×).

3. Covert Modality as a Hardwired Illocutionary Operator

Truckenbrodt (2006a:263f.; 2006b:394) takes root clauses to be in the scope of an (illocutionary) attitude operator encoding speaker volition. Given (putative) absence of further features in their C-system, BRIs get treated as follows:

(9) [PRO *Fußball spielen*] ➥ WANT(S, PLAY.SOCCER(arb))

In line with remarks about BRIs by Brugmann (1918:64) and the analysis of directive speech acts by Searle (1969:66; 1976:11), covert modality in (9) amounts to the expression of the speaker's wish that there be soccer playing.

In addition, Truckenbrodt (2006a:264f., 268) assumes that *wh*-movement to Spec,CP induces insertion of an epistemic attitude operator. Applied to (7), this would yield the analysis in (10).[10]

(10) [*Wem vertrauen?*]
➥ WANT(S, KNOW(S&A, λp[∃x[PERSON(w_0,x) ∧ p = λw.TRUST(w,arb,x)]]))

Here the speaker's wish concerns the establishment of joint knowledge wrt a question. However, the resulting dissociation of the volitional operator and the infinitive leaves the latter unmodalized. Therefore, as in the case of (8), we end up with a question as to who one (actually) trusts instead of who one *could* or *should* trust.

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[7] *?* is translated as *λq.p=q*. To guarantee correct variable binding, von Stechow employs some kind of coindexation mechanism: subscripted *(p)* ensures that *?* will introduce *p* as free variable.

[8] Abstraction over world variables is independent of the framework. Thus, (i) provides the transparent LF for the "functional/categorial approach" to question semantics (Krifka 2011:1753) as applied to (7).
(i) [λ<u>w</u> [λ<u>x</u> [<u>w</u>$^{\text{–fin}}$ [PRO [<u>x</u> *vertrauen*]]]]] (*wem* introduces the restriction ∈ *PERSON* on *x*)
(i) would also serve as input for an analysis in terms of the partition approach (Krifka 2011:1761).

[9] One important caveat is in order concerning the TLF-approach to interrogatives. As the careful reader will have noticed, the world variable of a finite indicative interrogative (<u>w</u>$^{\text{+ind}}$) would equally get bound and therefore not be interpreted deictically.

[10] By showing that WRIs allow unbounded *wh*-dependencies, Reis (1995:142) establishes the fact that WRIs involve *wh*-movement.

4. Discussion: Direct vs. Indirect Approaches to BRIs

Restating the results of the previous two sections in slightly more abstract terms, we can say that to "scale up" techniques for treating covert modality from BRIs to WRIs is difficult for *indirect* approaches, at least for the ones we have studied. Indirectness here means the absence of any designated standard exponent of modality as part of the (extended) infinitival constituent[11] itself. Instead, modality is added to BRIs "from the outside" via existential binding or "illocutionary framing." The question formation involved in WRIs then creates an intervention-like effect: λ-abstraction preempts existential closure and insertion of an epistemic operator separates the infinitival constituent from the volitional operator.

In *direct* approaches to BRIs, on the other hand, modality is an integral part of the (extended) infinitival constituent, either as a standard modal verb undergoing PF-ellipsis or as a modal operator inserted into the structure at LF. Thus, no interference with interrogative/question formation is expected and WRIs are predicted to be straightforwardly derivable extensions of BRIs.[12]

It would, however, be rash to conclude that (the extant) direct approaches are superior to indirect ones in all respects. In fact, the following – very brief and sketchy – remarks on (i) performativity, (ii) embedding, (iii) modal force, and (iv) modal flavor will show that the picture is much more mixed.

First, only the illocutionary theory captures the fact that BRIs come with *performative* modality.[13] (1a) and (1c) show this interpretive effect most clearly: an utterance of (1a) will invariably put an obligation on addressees and an utterance of (1c) will result in the granting of permission – assuming, of course, that standard felicity conditions are met. Unlike in the case of declaratives containing overt modals – e.g., *Ihr sollt euch hinsetzen* ("You should sit down.") – BRIs do not support a second "non-performative" use that merely reports on obligations, permissions and the like.[14] This in turn highlights one of the obvious disadvantages of the ellipsis approach, where the performativity restriction has to be independently stipulated. Such a stipulation is equally required within the LF-operator approach by Fries (1983)[15] and, it seems to me, within the TLF-based inference approach outlined in Section 2. The original inference theory by Reis (1995; 2003), however, is clearly intended to involve just performative modality.

Closely related to performativity, secondly, is the ban on standard *embedding* for BRIs. Again, neither ellipsis approach nor LF-operator approach have any handle on this except for stipulation. At the same time, both illocutionary and TLF-based inference theory make the right predictions, i.e., that BRIs are at most ready to occur as dependent root phenomena.[16] Recall from Section 2 that composition operations bringing about proper embedding of bare infinitivals will involve λ-binding of $\underline{w}^{-fin}$ and thus render existential closure inapplicable.[17] Here, the TLF-approach is fully in line with the original ideas by Reis, which are analogous to the ones Platzack and Rosengren (1998:3.2) appeal to for the ban on embedding imperatives.

Third, the TLF-based inference theory may be criticized as being inadequate for capturing the *modal force* of BRIs like (1a), which seems to require a necessity modal instead of a possibility

[11] The ellipsis approach must actually be based on a finite declarative containing the infinitival constituent as complement to some modal verb.

[12] The treatment of WRIs by Fries (1983:232ff.) is somewhat unclear, as the semantics of questions to be adopted is not spelled out more explicitly. As it stands, though, it seems that the modal operator would incorrectly receive wide scope wrt the question operator.

[13] Recent discussion of performative modals is provided by Portner (2009) and Kaufmann (2012).

[14] The possibility of starting (1c) with *wie schon gesagt* ("as already said") does not alter this point. The resulting speech act would be the reissuing of permission, not a report.

[15] Fries (1983:221) discards a temporarily envisaged treatment of (some) BRIs in terms of the imperatival operator IMPER.

[16] Heycock (2006) provides an overview over such phenomena, and the collection edited by Aelbrecht, Haegeman and Nye (2012) contains relevant recent work.

[17] Technically, higher order operations on infinitival constituents like (4) cannot be ruled out, but they would have to be argued for on independent grounds. I leave this subject for further research.

modal.[18] However, none of the approaches under consideration here can do without a certain amount of contextual adjustment in order to capture the full variety of readings. Fries (1983), for example, works with a necessity operator for standard BRIs but allows an operator-less variant for additional readings, which will be determined in context by (not further specified) "pragmatic mechanisms" (p.226). Thus, the TLF approach may likewise resort to contextually guided strengthening – e.g., by means of exhaustification (Kaufmann 2012:5.2) – for deriving necessity interpretations.[19]

Fourth, none of the approaches under consideration here has so far been developed enough to explicitly capture all readings of BRIs (and WRIs). Thus, the delicate issue of *modal flavors* (and their interaction with modal force) is an area where further work is needed most urgently. At first sight, of course, the ellipsis approach has clear advantages concerning coverage, since, at least as far as I'm aware, there is no reading of BRIs or WRIs that cannot be derived by eliding some modal verb or other. However, ellipsis comes with the serious threat of overgeneration.[20] For WRIs, this has been illustrated by Reis (2003:178) using examples like those in (11). (11a) gives the content of a note speaker A finds on his desk and (11b)/(11c) are variants of A's utterance after having read that note asking (himself) what to do.

(11) a. *Alle sollen die Chefin anrufen.* ("Everyone has to call the boss.")
b. *Hm, wann soll man sie kontaktieren?* ("Well, when shall one contact her?")
c. *Hm, wann sie kontaktieren?* ("Well, when to contact her?")

Crucially, (11b), the version involving an overt modal, allows a purely deontic reading, i.e., it supports an inquiry "in view of what is required (by the boss or company regulations)." The WRI in (11c) does not have this reading. Instead it is restricted to "bouletic-teleological" interpretations, i.e., it just supports an inquiry "in view of what is practicable/advisable/desirable (for A)."[21] On the ellipsis approach this constraint is unexpected, given that the WRI in (11c) could be derived straightforwardly from (11b) by eliding *soll man*.

Kaufmann (2012) has shown how to flexibilize a modal approach to imperatives and derive (most of) the required readings by particular constraints on modal backgrounds and ordering sources. It seems that the genuinely modal approaches to BRIs and WRIs, i.e., the LF-operator approach and (both versions of) the inference theory, can be developed along the same lines to yield adequate results. But what about the illocutionary theory? Here covert modality is induced by a volitional attitude operator. In fact, the uniform treatment of directive (command) and "desiderative" (self-directed wish) interpretations derivable from appropriate specifications of PRO in (9) – determining whether its reference excludes, includes, or is even limited to the speaker (Truckenbrodt 2006a:275)[22] – has a lot of intuitive appeal. On the other hand, criticisms of volitional attitude approaches to the interpretation of imperatives seem to carry over to such an analogous treatment of BRIs. Thus, in cases like the granting

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[18] Reis (2003:184) takes "weak possibility" to be the plausibly derivable "minimal pragmatic enrichment" of her inference theory.

[19] An alternative approach to the quantificational variability of modals is provided by Rullmann, Matthewson and Davis (2008), who assume that a modal operator contextually selects a choice function that picks out a smaller or larger (non-empty) subset of the accessible modal background. "The modal itself then acts as a universal quantifier which quantifies over the individual worlds in f(B(w))" (p.337). This is show in (i) (p.338).
(i) $[[\text{MODAL}]]^{c,w} = \lambda f.\lambda p.\forall w'[\, w' \in f(B(w)) \rightarrow p(w')\,]$

[20] Fries (1983:2.3) discusses a number of morphosyntactic phenomena that are equally difficult to reconcile with an ellipsis account.

[21] Along these lines, Bhatt (2006:127) devises an analysis for English *wh*-infinitives involving a "hardwired" covert modal operator located in C°:
(i) a. $[_{CP}\ \text{who}_i\ \Diamond_{D,\rightarrow}\ [_{IP}\ \text{PRO}^k$ to talk to $t_i\ ]\ ]$
b. $[[\Diamond_{D,\rightarrow}(p)]] \Leftrightarrow$ (a) action p is possible, and
(b) execution of p leads to the satisfaction of (contextually set) goals
As shown in (6), English *wh*-infinitives are embeddable, so hardwiring covert modality is a plausible option here.

[22] I have used *arb* as a translation of PRO to capture the largely impersonal flavor of BRIs and WRIs reflected morphosyntactically in third person agreement (cf. Fries 1983:26; Reis 1995:137). Spelling out semantic details has to await further research.

of permission in (1c) it is too strong to say that the speaker *wants* the addressee(s) to call (if need arises). Permission simply means that the speaker *allows* such a call (cf., e.g., Wilson and Sperber 1988:80).[23] Zaefferer (2001:223), on whose framework Truckenbrodt builds, makes a distinction between strong and weak volition to capture directives and permissives, respectively. Cast in terms of operators this amounts to working with the dual of *WANT*, i.e., *~WANT~* (cf. Zaefferer 2007:209) in the latter case. However, appeal to an alternation between these two options would clearly compromise the initial elegance of the illocutionary approach.

An even more subtle point can be made if one adopts the Searlean perspective on *WANT* (cf. Searle 1976:11), coupling a default relation of this attitude and directive force with the assumption that directives count as "attempts [...] by the speaker to get the hearer to do something." Applied to self-directed cases of BRIs, i.e., cases where the value of PRO in (9) includes or is identified with the speaker, this would seem to predict hortative rather than desiderative uses of such BRIs. As a consequence, (1d) should be rendered as "Let's / Let me visit Sedona," which is not quite accurate.

In fact, one may be justified in classifying examples like (1d) as infinitival optatives (Grosz 2013:147f.), whose pragmatic value is a member of the expressive illocution type. On the analysis by Zaefferer, however, expressives constitute "non-volitional" illocutions: "If the expressed attitude is not primarily volitional in the sense of some well-defined will [...], it will result in an expressive speech act" (Zaefferer 2001:223; cf. Zaefferer 2007:209).[24,25] "Well-defined will" is taken to accompany clearly goal-oriented behavior as it occurs in the pursuit of epistemic goals with assertives and erotetics (question acts) or practical/action goals with directives. At the same time, the illocutionary operator *WANT* is the counterpart of Zaefferer's feature [+volitional] and thus, although *WANT* correctly applies in capturing commands, (1a), it should not apply in the analysis of self-directed wishes, (1d). I consider it a distinct merit of the explicitness of Truckenbrodt's illocutionary account of BRIs that this important constraint on analyses of the covert modality of BRIs can be brought out very clearly.

5. Summary

Section 2 showed how to formalize the inference approach to the covert modality of German adult bare root infinitives (BRIs) by Reis (1995; 2003) on the basis of the theory of "transparent logical form" (TLF) by von Stechow (1993; 2004). Modal interpretation is the result of existential closure affecting an otherwise untranslatable world variable. It was then demonstrated that this mechanism fails in the analysis of root *wh*-infinitives (WRIs). Section 3 dealt with the illocutionary account of BRIs by Truckenbrodt (2006a; 2006b), which induces covert modality by means of a volitional attitude operator. This approach was shown to equally fail on WRIs, due to an intervening epistemic operator. Section 4 argued that, when it comes to predicting the performativity and non-embeddability of BRIs, the indirect approaches to covert modality by Reis and Truckenbrodt have advantages over direct ones based on ellipsis (e.g., Bünting and Eichler 1976) or the construction-specific "hardwiring" of a modal operator (Fries 1983). The ellipsis approach was further criticized for its complete lack of restrictions on modal

[23] Kaufmann (2012:5.1.1) calls imperatival counterparts of (1c) "permission-like," stating that they "differ in that – in addition to all characteristics of a PERMISSION – they also convey some sort of endorsement, therefore, they are more like INVITATIONS or ENCOURAGEMENTS" (p.172). This would seem to be true of BRIs too, but the "pro-attitude" involved appears to be weaker than the attitude of *wanting*, another issue requiring further research.

[24] Some critical deeper analysis of the approach by Zaefferer (2001) is provided by Searle (2001) and Gärtner (2012).

[25] Curiously, the expressivity of optatives seems to necessitate non-trivial adjustments to the direction-of-fit-based approach to illocution types: "The exceptions to the principle that the directions of fit of the illocutionary point and of the sincerity condition are identical are cases where the illocutionary point of the expressive is to express a psychological state which has a direction of fit, even though the expressive speech act itself has no direction of fit. For example some speech acts are simply expressions of desire or belief. Consider the English sentence "If only John would come!" or a sentence in the old optative mood "Would that John came." Utterances of such sentences function as expressions of desires, and they are therefore expressives, but they are exceptions to the general rule that the direction of fit of the illocutionary point and of the sincerity conditions are identical, since each of these expresses a psychological state with a world-to-mind direction of fit though the point of the utterance is not to bring about success of fit" (Searle and Vanderveken 1985:95).

interpretations assignable to BRIs and WRIs. Finally, the illocution-based theory was shown to run into difficulties wrt the use of BRIs as permissions and self-directed wishes, where a (standard) volitional analysis is inadequate.

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