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Speech-act participants in modality

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Abstract

Semantic accounts of subjective modality commonly assume that the speaker is the source of modal attitudes. However, there is a large body of data to suggest that attributing a certain subjective modality to the speaker is the default only for the declarative sentence type. In interrogative sentences, it is often systematically the hearer who is credited with the modal attitude. For instance, *Linda may go* is commonly interpreted as 'I allow Linda to go'. However, the interrogative version *may Linda go?* usually means 'do you allow Linda to go?' rather than 'do I allow Linda to go?'

Modal operators from a small set of diverse language (English *may*, German *sollen*, Korean *-kess*, Yucatec *he'l*, the Amharic and Kambaata jussive) are analyzed from the point of view of the shift of the modal assessor depending on sentence type. Some parallels from evidentiality and egophora are drawn. The result may be summarized as follows: By inferences or rules of grammar, subjective modalities may be attributed to a speech-act participant as their source. In declaratives, that is the speaker. In interrogatives, the speaker cedes the decision on the pragmatic focus to the hearer. A modal operator is the pragmatic focus of an utterance. Consequently, in interrogative sentences, the hearer becomes the default source of such modalities. The account generalizes to modalized complement clauses of predicates of communication, where the participants of the communicative act designated take the stead of speech-act participants.

1 Introduction[1]

Most of this paper will be devoted to modality, with some comparative looks at neighboring areas added at the end. The functional domain of modality has been subdivided in different ways (see Nuyts 2005[M]), some of which may be used to delimit the subject of the following argument. Epistemic and deontic modality together may be set off against dynamic (= inherent) modality by the criterion that the force or locus from which those modalities emanate is outside of the proposition or situation coded by the modalized sentence, while it is a factor inherent in the situation – typically its agent – for dynamic modality. On this basis, epistemic and deontic modality may be grouped together as attitudinal modality.[2]

Second, the concepts of speaker-oriented and of subjective modality have sometimes been opposed to agent-oriented or objective modality, resp.[3] While these contrasts are by no means clear-cut (Palmer 2001:84f), they may serve a preliminary characterization of the phenomena to be treated here: these manifest speaker-oriented, subjective modality rather than the latter kinds of modality. However, the point will be precisely that the term 'speaker-oriented' is a misnomer since orientation of a modality towards the speaker is contingent upon the sentence-type, and instead what we have is a speech-act-participant orientation. In sum, we will be dealing with modality as it reflects attitudes of a speech-act participant.

While the engagement of the hearer in such modalities has been noted repeatedly both in the descriptive literature that underlies the empirical section 3 of the present treatment and in some specialized studies mentioned in §4, the standard treatments of modality enumerated in the references are not aware of any speech-act participant but the speaker as a possible source of modality. The following is, thus, a contribution to a necessary modification of theories of modality.

In a sample of six languages, one modal operator per language has been selected for analysis and comparison. The set comprises the English modal verb *may* in its permissive use, the German modal verb *sollen*, the so-called definite future formed with *he'l* in Yucatec Maya, the presumptive-volitive mood formed with the verb suffix *-kess* in Korean and the jussive verb forms of Amharic and Kambaata. This does not exclude occasional side-looks at other modal formatives inside or outside the language sample. It had to be a convenience sample, with some preponderance of Germanic, because the meanings of modal operators are generally not thoroughly analyzed in grammars, let alone their use in interrogative clauses. No ty-

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[2] It may be noted that, despite the criterion mentioned, this rest does not form a natural class in traditional subdivisions of modality (e.g. Lyons 1977, ch. 17). Palmer (2001:22) divides modality into propositional and event modality, subdividing the former into epistemic and evidential, and the latter into deontic and dynamic modality. The unity of epistemic and deontic modality under the concept of attitudinal modality (or "attitudinal qualifications") is vindicated in Nuyts 2005[T].

[3] See Narrog 2005 and the report in Nuyts 2005[M], §2.4 and 4.1. The term 'objective modality' will occasionally be used here, although it is slightly weird (cf. Nuyts 2005[M], §4.1).

pological generalizations are intended here. It suffices for present purposes that the six modal operators behave in like fashion with respect to the criteria applied here. In §8, the approach is tested on a couple of grammatical categories, including evidentiality and egophora (conjunct-disjunct marking), which share with subjective modality their relation to the speaker as a reference point; and it turns out that the findings may generalize beyond the domain of subjective modality.

2 Theoretical preliminaries

2.1 The operator-operand analysis

First let us briefly recapitulate the basic idea of the operator-operand analysis.[4] In semantic analyses of modality inspired by modal logic, it has been common to conceive of modal concepts as unary operators applied to a proposition.[5] That has worked satisfactorily for the classical modal concepts NECESSARY (p) and POSSIBLE (p). E1 illustrates the idea with the English modal operator *ought to*.

E1.　　Linda ought to work.

E1 is a deontic statement to the effect that Linda is under the obligation to work (cf. Lyons 1977:824). A rough representation of this meaning might be S1.

S1.　　OBLIG (WORK (Linda))

The modal operator takes scope over the entire proposition of Linda's working. The combination of the modal operator OBLIG with a proposition containing the phase operator START yields something like E2, which might be represented as S2.

E2.　　Linda ought to start working.

S2.　　OBLIG (START (work (Linda)))

As S2 shows, the scope of the modal operator includes the phase operator. It is not possible to invert these scope relations; in other words, the grammatical system provides no simple expression for the thought 'there began to be an obligation for Linda to work'. The operator-operand model implies a layered structure, where the scope of higher-level operators includes lower-level operators with their operands. Consequently, the question arises where the position of modal operators is in this hierarchy of layers (cf. Nuyts 2005[M], §6).

The interrogative counterpart of E1 is E3 (which is certainly not colloquial, but that does not affect the point):

E3.　　Ought Linda to work?

S3.　　INT (OBLIG (WORK (Linda)))

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[4] It is used, among many others, in Hengeveld 1989 and Dik 1997. In Dik 1997, ch. 12.2.2, modal operators are subsumed under proposition operators, i.e. operators on the propositional content of a clause. They are at the second highest level of the layered structure of the clause, while illocutionary operators are at the highest level. The analysis presented here fits in that model.

[5] I am using the term 'proposition' in a loose sense throughout, as a generic term for the semantic counterpart of a clause.

Now this is a question concerning an obligation, not an obligation concerning a question. Consequently, the modal operator is in the scope of the interrogative operator (INT in S3), not the other way around. Furthermore, the question concerns precisely the obligation itself, i.e. it does not concern Linda's working. The issue is whether there is or is not such an obligation. In other words, the modal operator is not only in the scope, but is actually the focus of the polar question. This shows that in a layered structure of sentence meaning, the illocutionary operator is the outermost, while modal operators are at the next lower level, as shown in S3. In this study, I will investigate the effect of embedding a modal operator under different illocutionary operators, viz. under declaration vs. interrogation.

2.2 Locutor and assessor

Consider the speakers involved in E4:

E4.   a.   Irvin should leave.
          b.   Linda said that Irvin should leave.

In both E4.a and b, an obligation is imposed on Irvin to leave. However, in the case of E4.a, I, the one who utters E4.a, am responsible for the assessment that Irvin is under such an obligation, whereas in the case of E4.b, I am not, and instead I confer this responsibility on Linda. In order to systematically account for this difference, two notions of 'speaker', or rather of instances[6] (generally, persons) that operate on propositions have to be distinguished: The person producing an utterance is its **locutor** (Grice's [1969] utterer), while the instance on whom the locutor confers responsibility for the assessment of a proposition, thus the instance that the locutor "makes speak", is the **assessor**.[7] Thus, in both E4.a and b (just as for all sentences of this text, including the examples), I am the locutor. There is no assessor (other than myself) in E4.a; but in #b, Linda is the assessor responsible for the proposition 'Irvin should leave'. The term *speaker* is commonly used to mean 'locutor' and will continue to be so used in what follows.

Locutor and assessor are, of course, at different hierarchical levels. Given a speech situation, the locutor has the natural and original privilege to assess propositions. He can freely adjudicate it to his assessors. There are means for the locutor to signal either agreement with or distantiation from the assessment made by the assessor, which will be of no concern to us.[8]

In E4.b, the assessor is responsible for a deontic statement (although Linda is not necessarily the source of the obligation there, as we shall see in §2.3). Conditions analogous to those for communicative acts obtain for mental acts.

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[6] The noun *instance* will be used in the technical sense of 'authority' throughout.

[7] It is hard to find a suitable term for this role. Ducrot et al. 1980, ch. 1 call it *énonciateur*, but that actually means 'utterer' and is therefore confusing. Hargreaves 1991 calls it epistemic source and Creissels 2008, assertor. However, both of these terms are inspired by the functions fulfilled in egophora (see §8.3) and not really suitable for modal attitudes; moreover, the assertor has little if anything to do with the assertion as opposed to the presupposition. Goethals 2010, §3 calls the role evaluator. The term *assessor* is used in Nuyts 2005[T] in the sense needed here.

[8] Among many others, Heltoft (2005:92) discusses the example of the German subjunctive I (or present), by which the locutor signals that the assessor is somebody else, typically implying that he does not share that assessor's assessment.

E5.   Linda thinks that Irvin left.

In E5, the assessor Linda is the "epistemic source" (Hargreaves 1991) for the proposition 'Irvin left'. Thus, the locutor may confer to the assessor different kinds of modal attitudes and epistemic assessments which originally fall in the locutor's responsibility. Among the terms used in the literature to generically designate the relation of the locutor or assessor to a proposition are *propositional attitude, point of view*, *perspective* and *assessment*. We will abide by the latter here.

The distinction between the locutor and the assessor is perhaps clearest in indirect speech. We will see in the rest of the paper that it may also apply to independent sentences. Furthermore, in the present simplified framework, a sentence has only one locutor, while there may be a hierarchy of assessors, since an assessor can defer the assessment privilege to another assessor, as we shall see in §6.[9]

2.3 The modal assessor

Two levels of subjectivity in utterances have to be distinguished. At the higher level, just any utterance is relative to its speaker. Any proposition declared is not an independent entity in the world, but something declared by its speaker. Unless indicated otherwise, any evaluative assessment is the speaker's assessment. Any deontic or epistemic modality applied to a proposition is applied by the speaker. Thus, if something 'must' be the case, as in E6,

E6.   The whale must surface from time to time.

then the speaker may well be referring to a necessity that obtains independently of himself, but the assessment that such a necessity exists is still the speaker's assessment (in which he may be mistaken or with which he may want to mislead somebody). In this sense, all meaning in language is subjective. Call this the generic subjectivity of speaking. This is, then, no basis for distinguishing between subjective and objective modality. Quite in general, it would indeed be misleading to ascribe specific semantic components of sentences to the speaker's intervention if nothing else is meant than that the speaker chose to say this rather than that. We will return to this point in §7.

Taking this for granted, we may from now on focus on the lower level of subjectivity. At that level, some utterances come with a specific qualification that it is the speaker (or, actually, a speech-act participant, as we shall see below) who is taking a certain modal attitude towards the proposition, while others lack such a meaning component (cf. Nuyts 2005[M], §4.1). In natural interpretations, E6 lacks it. Its modal operator can, thus, be represented by a one-place predicate similarly as in S1. In less generic uses of obligative *must* such as E7, things are slightly different.

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[9] Ducrot et al. (1980, ch. 1) introduce a distinction between *locuteur* and *énonciateur* in order to allow for the attribution of assessments to different instances in an utterance. This distinction later develops into a theory of "polyphony" which is sophisticated enough to account for changes of the speaker in direct (quoted) speech.

E7.   You must hurry up now.

Here it is possible that the speaker is the source of the obligation imposed on the hearer. But that is only an inference, which the speaker can defeat without contradicting himself ('it is you who said you want to be punctual'). Now contrast this with E8:

E8.   This whale must be over two years of age.

This means something like 'I infer (from some evidence) that this whale is more than two years old'. Here, the meaning component that it is the speaker who makes the inference is not defeasible. The speaker cannot felicitously continue with 'it is someone else, not me, who infers that'. Thus, the inferential modality or evidentiality coded by *must* in sentences such as E8 would be appropriately represented by a two-place predicate, as in S4, where the variable x is assumed to be instantiated by the speaker.

S4.   INFER(x, p)

Things are similar in E9, where only the volitive senses of the modals are currently of interest.

E9.   a.   Linda may leave.
              'It is permitted that Linda leave.'

       b.   Linda shall leave.
              'It is determined that Linda leave.'

In a first attempt, we might try to spell out these readings by the passive constructions appearing in the paraphrases. We would then represent the meaning of these modals, in analogy to E2, as unary operators, e.g. as PERMITTED (p) and DETERMINED (p). However, in such cases, English syntactic structure does not quite reflect the semantics. If Linda has a permission to leave, then there must be an instance that issued the permit. And likewise, if it is determined for Linda to leave, there must be somebody who determined it. Therefore, such modal concepts are, again, better represented by binary predicates, PERMIT (x, p) and DETERMINE (x, p).[10] E9 would then be represented rather as in S5.

S5.   a.   PERMIT (x, LEAVE (Linda))

       b.   DETERMINE (x, LEAVE (Linda))

The instance x acting as the first argument in these expressions will be called the **modal assessor**, the issuer or source of modality, the one who takes the modal attitude towards a proposition. A modality that involves a modal assessor will be considered a **subjective modality**. Only attitudinal modalities can be subjective in this sense (Nuyts 2005[M]:14). More precisely, it is typically volitive modalities that are subjective, as we shall see.[11] Most of this paper will be concerned with who that x is, i.e. the question of the identity of the modal assessor.

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[10] Cf. Lyons 1977:833-836 on the analysis of deontic modality by two-place operators whose arguments are some authority and the modalized proposition.

[11] Forerunners for such concepts include the following: Bech 1951 introduces a "Modalfaktor", a force internal or external to the modalized proposition p which forces or allows p to realize. Heine 1995 defines "agent-oriented modality" by "some force that is characterized by an 'element of will'" plus a proposition-internal agent. Heltoft 2005 takes up the notion of modal factor and distinguishes between its "location" inside or outside the modalized proposition.

In the case of deixis, according to Bühler 1934, the *origo* (Latin for 'origin, source') is the speaker by default. He can turn it over to somebody else, but that is derivative and temporary and must be indicated somehow. Modality has sometimes been analyzed as a deictic category (e.g. Fritz 2003). As we shall see in §8.1, that is inappropriate. At the moment, however, it suffices to note that the assessment of propositions that is conveyed by subjective modal categories such as volitive, permissive, commissive etc. derives from the speaker's assessment privilege. In that sense, the origo of subjective modality is, by default, with the speaker. It is the task of this study to differentiate this elementary observation further. To that end, the central empirical section of this paper, §3, will look at modal operators in six languages, all of which show a strikingly similar behavior in declarative as opposed to interrogative sentences. This will be evidence for the basic claim to be made, viz. that in interrogative sentences, the speaker is turning the role of modal assessor over to the hearer.

Evidentials may have an assessor analogous to modals. In §8, we will briefly review evidence from a few languages to show that their assessor, too, shifts to the hearer in interrogative sentences. The modal and the evidential assessor are specific incarnations of the assessor. What has been said so far amounts to saying that in questions, the locutor outsources the assessment privilege, ceding it to the hearer and thus making him the assessor, just as he might do in indirect speech.

2.4 The executor

One further component of this kind of construction will have to be taken into account. The proposition that functions as the operand of modal and phase operators has an internal structure composed of a predicate and its arguments. One of the arguments is represented by the actor of the corresponding clause, *Linda* in the examples given so far. This argument is more directly affected by the higher level operators than any other arguments of that proposition. For instance, in E1, we say that Linda is under the obligation to work, and in E9, that Linda has the permission to leave. Thus, for a modalized proposition p, there is, on the one hand, a modal assessor x who issues the modality of p, and on the other hand an executor y, generally represented by the subject of an active clause, who implements the state of affairs represented by p. (In passive clauses, it would be the agent, not the subject.) Then the issue of the possible identity or distinctness of x and y arises. In E9.a, for instance, the permitter may be anybody except Linda, as we can test by continuing E9.a with something like *I / you / the director / $^?$she permitted it*. This means that in determining the identity of the modal assessor, we will also have to control for incompatibility relations with the executor.

2.5 'Say' and 'will'

The predicate 'will' is taken to represent the linguistic notion of volition. It is paraphrasable by 'intend and drive at', which is one of the senses of basic volitive predicates such as English *will* and *want*. The concepts of 'say' and 'will' are intimately related. Let us see some empirical evidence to plausibilize this claim.

Both of the German modal verbs *wollen* 'will' and *sollen* 'shall/should' are polysemous in the same way. In E10.a, *wollen* governs the simple (imperfective) infinitive and has a simple volitive meaning. In #b, it governs the perfect infinitive. Thus, a volitive meaning is excluded,

and *wollen* instead means 'say'.[12] In both cases, the source of the volition or information is the executor.

E10.   a.   Linda will den Mt. Everest besteigen.
GERM   'Linda wants to climb Mt. Everest.'

       b.   Linda will den Mt. Everest besteigen haben.
            'Linda says she climbed Mt. Everest.'

E11.   a.   Linda soll den Mt. Everest besteigen.
GERM   'Someone wants for Linda to climb Mt. Everest.'

       b.   Linda soll den Mt. Everest bestiegen haben.
            'Someone says that Linda climbed Mt. Everest.'

The modal *sollen* differs in meaning from *wollen* in that the source of the volition or information is distinct from the executor. Otherwise it is perfectly analogous to *wollen* in its polysemy pattern: In E11.a, it governs the simple infinitive and has a volitive meaning, whereas in #b, where it governs the perfect infinitive, it has a reportative meaning. This is, thus, not an idiosyncratic polysemy of one verb, but instead a grammatical pattern.

Lest one think that this is a German peculiarity, here are two examples from Nànáfwê, a dialect of Baule (Kwa, Ivory Coast):

E12.   bé   wán bé   sū   bé   kɔ̀   àmánní blô
NAN   3.PL   say 3.PL PROG   3.PL go   fruit   bush
       'they say they are going [to look] for fruit in the bush' (Bohoussou 2008:105)

E13.   bwá-n   wán   ūn   ɔ́ fú   wákā-n   sú
NAN   sheep-DEF   say   meanwhile 3.SG climb   tree-DEF   on
       'the sheep wanted to climb on the tree in the meantime' (o.c. 107)

The word *wán* is actually a relational noun. It means 'word' in E12 and 'will (n.)' in E13, the reading being disambiguated by the aspect of the dependent clause.

Third, consider the meaning of the jussive. It is a modal category signaling the speaker's will concerning the proposition thus modalized. The jussive is, in fact, the purest grammatical manifestation of the notional category of volition. The executor of the modalized proposition may, in principle, be any of the three persons; however, depending on the grammatical system of the specific language and its description, it is often confined to the third person (cf. §3.5 below). In Latin, the jussive is one of the senses of the subjunctive. E14 is a third-person example.

E14.   Abeat!
LAT   off:go:SUBJ.PRS:3.SG
       'He shall leave!', i.e. 'I order that he leave.'

The speaker pronounces his will concerning the action of a third person who may not even be in the speech situation. This makes sense only if he expects the addressee to intervene in the realization of his will. Semantic accounts of jussives, both at the comparative (e.g. van der Auwera et al. 2004:55f) and at the descriptive level (e.g. Treis 2010, §2.2.2 for Kambaata),

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[12] While the infinitive perfect forces the reportative meaning, the simple infinitive does not force the volitive meaning. For instance, *Linda will von Napoleon abstammen* 'Linda says she descends from Napoleon' has the reportative reading.

unanimously emphasize that a jussive, even a third person jussive, implicitly involves the hearer. This may also be seen from English jussives formed with *let*: A third person jussive may use it, as E14 could be translated by *let him leave!* And the first person jussive, which amounts to the hortative, involves it systematically: *let's leave!* Etymologically, the form *let*, of course, directly addresses the hearer. In short, the jussive is a grammatical manifestation of will, and it involves saying it to the addressee.

More examples of this kind will appear below. The above may suffice to prove the semantic relationship between 'say' and 'will'. It is a mutual one: On the one hand, for somebody to will *p* implicates (although it does not imply) that he says so. In this perspective, the willer is a communicator. On the other hand, speaking is an intentional act. The speaker pursues certain goals not only with systematically volitive speech acts such as requesting and asking. More generally, if the speaker declares something to be true, then he wants his interlocutors to believe it and wants to proceed under this presupposition. That is the original sense of German *wollen* in constructions such as E10.b.

These relations are based on a set of shared semantic components of 'will' and 'say'. Both are
- two-place predicates taking a person as first and a proposition as second argument
- intentional acts, i.e. the first argument is an agent
- effective acts, i.e. the second argument is an effected object (the willed proposition as a goal and the utterance, respectively).
- Moreover, 'say' takes a third argument, the addressee. 'Will' may take it, too, viz. whenever the goal is set for the addressee.

Below, this intimate affinity between 'will' and 'say' will be taken to be the basis for the fact that a pattern whose locus is in volitive sentences generalizes to other kinds of sentences.

3   Some case studies

In the following sections, one modal operator per language will be analyzed. Depending on the language and its modal system, there may be more than one modal operator behaving in an analogous way. Moreover, the analysis will be confined to independent sentences. Subordinate clauses will be studied in §6.

3.1 English permissive *may*

For a start, let us take a closer look at English *may*, still focusing on its sense of permission. We will begin with an independent declarative sentence, as in E15.a:

E15.   a.   Linda may go now.
        b.   May Linda go now?

In E15.a, the permitter may be anybody except Linda. It may always be some third person, contextually known or anonymous. However, as a matter of fact, the default interpretation of E15.a is E16.a.

E16.   a.   I allow Linda to go now.
        b.   Do you allow Linda to go now?

Now convert E15.a into its interrogative counterpart E15.b. Again, the permitter may be some third person. However, the default interpretation now is E16.b. Note in particular that while

the permitter in the declarative E15.a is naturally the speaker, it cannot be the speaker in the interrogative E15.b; this sentence cannot be used to mean 'do I allow Linda to go now?' (if that made any sense). Generalizing over these examples, we can say: If in an independent declarative sentence modalized by permissive *may*, the permitter is a speech-act participant, then it is the speaker; in an interrogative sentence, it is the hearer. It cannot be the other way around.

This identification of the modal assessor with a speech-act participant happens by pragmatic inference. This inference is defeasible by contextual information. For instance, one may override it explicitly as in E17:

E17.   a.   I think/know that Linda may go now.
       b.   Do you think that / know whether Linda may go now?

By embedding the modal verb under a suitable higher predicate that excludes volition for its subject, one shifts the modal assessor role for the embedded proposition away from the speech-act participants to some anonymous instance. Likewise, E15.a may be used in the following situation: Both of Linda's parents have equal power to permit her to leave. I am Linda's mother, and I don't want her to leave. However, Linda's father has already issued the relevant permit. I might report this by saying E15.a. In such a situation, however, if I want to forestall the inference that I am the modal assessor, I would have to defeat it explicitly.

It should be noted that in declarative *may*-sentences, the addressee as the modal assessor is not absolutely excluded. Under special circumstances, a sentence like E15.a may be used to mean 'you allow Linda to go now', for instance if I mechanically echo the permit you just gave, typically in order to then dispute it. With such an utterance, I would make myself a locutor for a proposition whose assessor you are. Such a use will be called 'non-authentic' and be marked by brackets in T1 below.

Summarizing, then, the modal operator coded by English *y may P* is a two-place predicate PERMIT $(x, P(y))$, where x is the modal assessor and y is the executor. For the sake of simplicity, the speech-act participants and non-participants are represented by the numbers of the three persons in T1; but what is meant is those communicative instances and not the grammatical category of person. T1 shows the occupation of the modal assessor position under the conditions of sentence type and occupation of the executor position.

T1.   **Assessor shift for English *may***

sentence type / executor	declarative	interrogative
1	[2] 3	2 3
2	1 3	3
3	1 [2] 3	2 3

In other words, the position of the assessor (x) of *y may P* is occupied by some mechanism like the following:
1. x must be distinct from the executor *y*.
2. x may always be some third person.

3. In an independent sentence, *x* may be identified with a speech-act participant by pragmatic inference.
   a. In a declarative sentence, that is the speaker.
   b. In an interrogative sentence, it is the hearer.

Note, by the way, that the distribution of the exceptional hearer as modal assessor in (non-authentic) declaratives mirrors its distribution in interrogatives. This exception thus proves the rule that the hearer gets the assessor role if the locutor cedes it to him.

Part #3 of this mechanism will be met repeatedly in what follows. We will call it **assessor shift**. So much may suffice to prepare us for more exotic cases.

3.2 Reported commands in German

The German modal system resembles the English one in many respects, and what has been shown to hold for English permissive *may* could here be repeated for its German counterpart *dürfen*. Instead, a different kind of modality is brought in by *sollen*, which does not have a simple English translation equivalent. Here we will concentrate on the obligative sense appearing in independent sentences such as E18, which will consistently be rendered by *should*, although that does not quite match it.

E18. Linda soll essen kommen.
GERM 'Linda should come to lunch.'

The meaning of E18 is 'someone wants Linda to come to lunch' or 'someone has said that Linda should come to lunch'.[13] Thus, the speaker of E18 tells the hearer that there is a command to that effect. The issuer of the command remains unidentified. It is normally some third person; but the speaker is a possible source of the obligation, too. Thus E18 may mean 'I want Linda to come to lunch'. Under normal circumstances, the hearer cannot be the modal assessor; i.e. apart from non-authentic uses, a sentence like E18 cannot mean 'you have said that Linda should come to lunch'. The generic meaning of *y soll P* is, then, 'x wants (that) P(y)' or 'x has said that P(y) should be realized', where *x* is to be instantiated by the modal assessor.

It will be observed that this paraphrase uses both of the verbs 'will' and 'say', as was anticipated in §2.5; *sollen* involves the same 'will/say' component as *wollen*. At the end of this section, further evidence of the complementary relation between *sollen* and *wollen* will be presented.

We return to the problem of the source of the obligation in sentences like E18. Replacing its subject by the other grammatical persons, we may gain more precision here.

E19. a. Ich soll essen kommen. 'I should come to lunch.'
GERM b. Du sollst essen kommen. 'You should come to lunch.'

Again apart from non-authentic uses, the source of the obligation of E19.a cannot be the hearer and can only be a third person. That is also the default interpretation of the obligation

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[13] According to an outdated account still hawked by teachers of German as a foreign language, *sollen* forms a minimal pair with *müssen* 'must', expressing a milder form of obligation than the latter. That has no relation to actual usage. As is shown below, the closest opposite of *sollen* is *wollen* 'will', not *müssen*. An adequate and exhaustive analysis may be found in Drosdowski et al. 1984:99-102. For the historical development, see Diewald 1999, esp. 120, 225.

reported in E19.b. However, there is one circumstance in which E19.b is used to mean 'I want you to come to lunch', viz. if I repeat my own command E20.

E20.   Komm essen! 'Come to lunch!'

In that particular circumstance, the general paraphrase 'someone has said that *p*' correctly applies even if that someone is the speaker. That is, if you were in doubt whether I said E20 to you, then I would report that command to you with the same sentence E19.b as anybody else would report it to you.

We may now summarize our findings on the modal assessor in declaratives of the structure *soll* (p): The modal assessor can be some third person in any case. It may be the speaker if the executor of *p* is third person or if it is second person and the speaker is reporting his own command. Apart from non-authentic uses, the modal assessor cannot be the hearer.

This changes radically if we form the interrogative counterparts of these examples.

E21.   a.   Soll ich essen kommen? 'Should I come to lunch?'
GERM   b.   Sollst du essen kommen? 'Should you come to lunch?'
        c.   Soll Linda essen kommen? 'Should Linda come to lunch?'

The speaker of E21 is asking whether there is a command to the effect that the participant in question should come to lunch. The issuer of the command may be some third person in all three cases.[14] It could not be the speaker in any case. However, it may well be the hearer. Although this is impossible in E21.b, it is even the default interpretation in the other two cases: in asking E21.a and c, I am typically asking 'do you want me/Linda to come to lunch?' This means that the modal assessor of *sollen* shifts according to whether it is used in declaratives or in interrogatives.[15] T2 summarizes these findings.

T2.   **Assessor shift for German *sollen***

sentence type / executor	declarative	interrogative
1	[2] 3	2 3
2	1 3	3
3	1 [2] 3	2 3

Paraphrasing what T2 says:
1. The modal assessor (*x*) of *y soll P* must be distinct from the executor *y*.
2. *x* may always be some third person.
3. In an independent sentence, *x* may be identified with a speech-act participant by pragmatic inference.
    a.   In a declarative sentence, that is the speaker.

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[14] Upon examining a disintegrated ball-pen, I uttered in soliloquy *Und wie soll das überhaupt halten?* "And how is this to hold, in the first place?" Here, a reference to those who produced the ball-pen may be inferred.

[15] It is not used in imperative sentences (cf. E59.c below), one of the reasons being that the conjugation paradigm of modal verbs is defective, lacking an imperative.

b. In an interrogative sentence, it is the hearer.
In other words, assessor shift applies.

From #1 it follows that the speaker cannot be the modal assessor of *sollen* in an independent declarative with first person subject, while the hearer cannot be its modal assessor in an independent interrogative with second person subject. This gives rise to the question why the modal assessor of *sollen* cannot be identical with the executor. In fact, E19.a cannot be used to mean 'I want to come to lunch', and E19.b cannot be used to mean 'you want to come to lunch'. That would have to be expressed by E22.a and b, respectively.

E22.   a.   Ich will essen kommen.
GERM   b.   Du willst essen kommen.

There is, thus, a tight paradigmatic relationship between *sollen* and *wollen* such that *wollen* is obligatory if the source of the volition is identical with the executor, and conversely *sollen* excludes that possibility. Thus, the most precise paraphrase of *y soll P* is 'x≠y wants / has said that P(y) (should happen)'. The paradigmatic relation between *wollen* and *sollen* is, thus, not privative in the sense that *wollen* fixes the identity of the source of the volition while *sollen* does not. Instead, they are in complementary distribution with respect to the source of volition. Referring to the grammaticalization of *sollen* from an OHG verb meaning 'owe', one may recognize here persistence of selection restrictions originally associated with the full verb: one can owe something only to somebody else.

3.3 Definite future in Yucatec Maya

Yucatec Maya has a rather large paradigm of auxiliaries that occupy the position of *X* in the finite verbal clause, schematized in S6.

S6. $[\, [\, X \,]_{Aux} \, [\, Y \,]_{VCC} \, (\, [\, \text{-}e' \,]_{DC} \,) \,]_{VC}$

X is an auxiliary or a modal verboid. Some of the auxiliaries condition a deictic clitic (DC) added at the end of the construction and parenthesized in S6. *Y* is a verbal clause core (VCC). The combination with *X* converts it into a finite, potentially independent, verbal clause (VC). E23 illustrates the construction.

E23.   he'l   in   bo't-ik   teech   ma'loob-e'
YUC   [[DEF.FUT]$_{Aux}$ [SBJ.1.SG   pay-INCMPL   you   good]$_{VCC}$ -D3]$_{VC}$
        'I shall pay you well' (HA'N_0023.05)

At the same time, E23 features the auxiliary that is going to occupy us here, *he'l* DEFINITE FUTURE. It is among the auxiliaries triggering a deictic clitic at the end.[16] The (traditional) label of this category points to an important semantic component: *he'l* (p) locates the proposition *p* in the future but, at the same time, says that it is certain.[17] However, this brings in a

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[16] It may be relevant to note that *he'l* has yet another function: it is a presentative (Engl. *lo*, French *voici/voilà*), as in *he'l le máak-a'/-o'* (PRSV DEF person-D1/D2) 'behold this/that man' (French *voici/-là l'homme*). Although in this function, *he'l* has a different distribution than as an auxiliary, the presentative function may be at the etymological base of the commissive function.

[17] Within the paradigm of Yucatec Maya auxiliaries, there is a subset of at least three more futures, comprising an immediate future (*bin … ka'h*), a debitive future (*yan*) and a predictive future (*bíin*).

subjective modal component, because it raises the question of who vouches for that certainty. Here are more examples from the text corpus, illustrating the use of *he'l* in declarative sentences with other persons in subject position.

E24.   ma'loob,   he'l   a   kan-ik-e'x-e'
YUC   good   DEF.FUT   SBJ.2   learn-INCMPL-2.PL-D3
       'okay, you (pl.) will learn it' (BVS_05.01.04.01)

E25.   Xeen   hóok'-en bik   u   yil-o'n   a   taatah!
YUC   go.IMP   exit-IMP   PROHIB   SBJ.3   see-ABS.1.PL   POSS.2   father

       Hach   he'l   u   kiins-ik-o'n   wal-e'.
       really DEF.FUT   SBJ.3 kill-INCMPL-ABS.1.PL   DUB-D3
       'Go, go out, lest your father see us! I guess he will definitely kill us.' (HK'AN_232)

E24 is uttered after the interlocutors said they want to learn Maya. The speaker says E24, thus explicitly granting their request, and then proceeds to linguistic exercises with them. Here, the vouching instance is obviously the speaker himself. In E25, on the other hand, the speaker is only saying that he is sure that the event in question will happen, but is not literally guaranteeing its realization. The generic meaning of *he'l* (p), then, appears to be 'I assure you that *p* will happen'. If the executor of *p* is the speaker, then this implies that the speaker vouches for *p*, that he commits himself to *p*. Otherwise, such an inference is still possible, depending on the sense of *p* and its context. *He'l* (p) thus marks commissive modality (Palmer 2001, §3.2.2).

The meaning that the speaker himself guarantees the event whose executor he is, is so strongly conventionalized that this construction is also used for threats, as in E26:

E26.   he'l-ili'   in   suut-e',   y-aal   x-káakbach,
YUC   DEF.FUT-IDENT   SBJ.1.SG   return-D3   POSS.3-offspring F-whore

       ka   in   ka'ns-ech ...
       CNJ   SBJ.1.SG   teach(SUBJ)-ABS.2.SG
       'I promise you to be back, daughter of a bitch, and I will teach you …'
       (HA'N_0017.04)

Incidentally, both E25 and E26 feature an intensifier on the auxiliary *he'l*, thus giving evidence of its relatively low degree of grammaticalization. Moreover, E25 combines the certainty expressed by the auxiliary with a dubitative particle, which is not logical, but grammatical.

Here is a set of interrogative sentences, featuring *he'l* with executors of the three persons:

E27.   he'l   wáa   in   kan-ik-e'?
YUC   DEF.FUT INT   SBJ.1.SG   learn-INCMPL-D3
       'will I learn it?' (CL)

E28.   he'l   wáa   a   bin   a   man-ik   xkabil   k'úum-e'?
YUC   DEF.FUT INT   SBJ.2 go   SBJ.2 buy-INCMPL   candy   squash
       'will you go and buy preserved squash?' (ACC_0272)

While an analysis of this subparadigm in terms of markedness may or may not be possible, it is at any rate clear that the definite future (*he'l*) would not be its unmarked member.

E29. he'l   wáah u   páah-tal   a   ma'loobkíintik
YUC   DEF.FUT INT SBJ.3 possible-FIENT   SBJ.2 repair-INCMPL

      u   nu'kul-il   in   paax-a'?
      POSS.3 instrument-REL   POSS.1.SG music-D1
      'would you repair me this musical equipment?' (ACC_0165)

The generic meaning of *he'l* (p) in interrogative sentences like E27 – E29 is obviously 'do you assure me of *p*?' Whenever it is in the power of the addressee to make *p* happen, the implicature is 'do you vouch for *p* / commit yourself to *p*?', which in turn may implicate 'would you please *p*?', as in E28f. Summarizing, then: *he'l* (p) as an independent sentence means '*x* assures interlocutor of *p*', where *x* is a speech-act participant. Its identity is determined by assessor shift.

Observe also the position of the interrogative particle *wáa*. In general, it attaches enclitically to whatever is the focus of a polar interrogative, the predicate by default. In E27 – E29, it cliticizes on the modal auxiliary. So here we have structural evidence that the focus of the polar interrogative is the modal operator.

The effect of engaging a speech-act participant to commit himself to *p* disappears if a construction with *he'l* (p) is embedded under another operator. E30 is an example with negation:

E30.   Ma'   he'   máakanmáak ha's
YUC   NEG   soever any   banana

      he'l   u   páah-tal   u   meent-a'l
      DEF.FUT SBJ.3 possible-FIENT   SBJ.3 make-INCMPL.PASS

      u   ch'uhk-il   ha's-il-e'.
      POSS.3   sweet-REL banana-?-D3
      'you can't make banana candy with just any banana' (lit. it is not with just any banana that it is guaranteed for you to make banana candy) (ACC_0255)

Here no speech-act participant is involved in the prediction; and instead the speaker is involved in the negation, which is the highest operator in the scope of the declarative speech-act operator.

E31.b illustrates sentential embedding of a proposition modalized by *he'l*. Sentences E31.a and b are from the same narrative, but separated by a longer passage.

E31. a. he'l   in   t'aan y-éetel   le   nuxib   hala'ch wíinik-o'
YUC   DEF.FUT   SBJ.1 speak POSS.3-with   DEF old   ruler   man-D2
         'I will speak with that old chief' (HALA'CH 01.05)

    b. haah he'l   u   t'aan y-éetel-e'
        true DEF.FUT   SBJ.3 speak POSS.3-with-D3
        'it was true that he would talk with him' (HALA'CH 12.52.3)

E31.a features the use of *he'l* that we already saw in E23. In E31.b, *he'l* (p) has the syntactic function of a subject complement clause (to the predicate *haah*), which anaphorically resumes the earlier utterance. The literal meaning of the sentence is something like 'it was true that it was guaranteed that he would speak with him' (with temporal specifications added – there is no tense in Yucatec Maya). Here again, no speech-act participant is involved in the guarantee, and instead the locutor cedes the assessor role to the executor.

The pattern of occupation of the modal assessor for Yucatec *he'l* (p) is shown in T3.

T3. **Assessor shift for Yucatec *he'l***

sentence type executor	declarative	interrogative
1	1 (3)	2 3
2	1 3	2 (3)
3	1 3	2 3

In other words:

1. The modal assessor *x* of *he'l* may always be some third person.
2. In an independent sentence, *x* may be identified with a speech-act participant by pragmatic inference.
   a. In a declarative sentence, that is the speaker.
   b. In an interrogative sentence, it is the hearer.
3. If the modal assessor is identical with the executor, it is implied that the modal assessor commits to *p*.

It may be seen that these rules are simpler than for English *may* and German *sollen*, as there is no incompatibility between the modal assessor and the executor. On the contrary, the inference for the responsibility of the speech-act participant is strengthened if he is, at the same time, the executor, which is why the third person is parenthesized in these cases of T3.

3.4 Presumptive and volitive in Korean[18]

Korean[19] has a modal morpheme *-kess* which is suffixed to verbs in the slot after the aspect suffix and before the sentence-type suffix. It has a number of context-dependent readings, the two main ones of which are currently of interest. In the presumptive (or suppositive) reading, a proposition *p* marked with *-kess* means '*p* is to be presumed, presumably *p*, someone supposes that *p*'. In the volitive reading, (p)-*kess* means 'there is an intention to *p*, someone is willing to *p*'. These and the other functions may be derived, at least diachronically, from an original meaning '*p* is planned' or 'someone plans *p*'. This meaning does appear in some uses not to be illustrated here. We will rather focus on the presumptive and volitive function. The factors conditioning these two readings are essentially the following:

1. The volitive reading results if and only if the sentence in question meets the following three conditions:
   • the aspect is not perfective[20] (so that time reference is present or future)
   • the subject may control the situation, i.e. it is agentive
   • the subject is the modal assessor.
2. In all other cases, the reading is presumptive.

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[18] This section is a summary of Koo & Lehmann 2010.

[19] To the extent that current ways of transliterating Korean obey the idiosyncrasies of English orthography, they are absolutely desperate. Here the following transliteration conventions are used: /ɛ/ = <ae>, /□/ = <□>, /□/ = <□>, /p t k/ etc. = <p t k> etc., /p'/ = <pp tt kk> etc. All the other letters mean what they mean in languages using the Latin alphabet in the traditional way, e.g. /u/ = <u> etc.

[20] This excludes sentences whose aspect is perfective *-yøss*.

We will first observe some examples of the presumptive use. The series E32 – E34 shows the three persons in subject position. The a-versions are declarative, the b-versions are interrogative.

E32. a. pikonha-eso□   na-n□n cuk-kess-ta
KOR   be.tired-because   I-TOP   die-PRSMPT-DECL
           'I am dead tired' (lit. 'I think I will die of weariness')

      b. nae-ka   cuk-kess-o□yo?
           I-NOM   die-PRSMPT-INT
           'will I die?' = 'do you think I will die?'

E33. a. siho□m-e   hapkyo□kha-yo□ss-□ni   no□-n□n kipp□-kess-ta
KOR   exam-LOC pass-PST-because   you-TOP happy-PRSMPT-DECL
           'I guess you are happy because you passed the exam'

      b. k□lo□hke ha-myo□n   ne-ka   kipp□-kess-ni?
           so   do-if   you-NOM happy-PRSMPT-INT
           'in that case, do you think you will be happy?'

E34. a. nun-i   kot   naeli-kess-ta
KOR   snow-NOM soon fall-PRSMPT-DECL
           'it will presumably snow soon' = 'I think it will snow soon'

      b. nun-i   kot   naeli-kess-ni?
           snow-NOM soon fall-PRSMPT-INT
           'will it presumably snow soon?' = 'do you think it will snow soon?'

E35. a. suni-n□n   cik□m cip-e   ka-kess-ta
KOR   Suni-TOP   now   home-LOC go-PRSMPT-DECL
           'I guess Suni is going home now'

      b. suni-ka   cik□m cip-e   ka-kess-ni?
           Suni-NOM now   home-LOC go-PRSMPT-INT
           'do you think Suni is going home now?'

As the examples show, (p)-*kess* as a declarative may be paraphrased by 'I presume *p*', while as an interrogative it is to be paraphrased by 'do you presume *p*?' E34f demonstrate that control of the situation – absent in E34, present in E35 – plays no role for third person subjects.

We now turn to volitive -*kess*, limiting the exemplification to such contexts which render it possible (situations controlled by a third person executor, already illustrated in E35, are not among these).

E36. a. nai-ka   ka-kess-ta
KOR   I-NOM   go-PRSMPT-DECL
           'I will/would go'

      b. co□ngmallo nae-ka ka-kess-ni?
           certainly   I-NOM go-PRSMPT-INT
           'do you think I will actually go?'

E37. a. ne-ka   k□   il-□l   ha-e   cu-o□ya   ha-kess-ta
KOR   you-NOM that thing-ACC do-ADV BENEF-ADV do-PRSMPT-DECL
           'you will have to do that thing for me' = 'I presume you have to do that thing for

> me'[21]
>
> b. ne-ka   ka-kess-ni?
>   you-NOM   go-PRSMPT-INT
>   'will/would you go?'

The sentences in E36f share a non-perfective aspect and, correspondingly, a non-past time reference, a controlled situation and a speech-act participant as the executor. Given these preconditions, the volitive meaning arises only if, in a declarative, the executor is the speaker (E36.a), or in an interrogative, the executor is the hearer (E37.b). If these conditions are not fulfilled, as in E36.b and E37.a – or in E32 – E34, for that matter –, then the presumptive meaning prevails. Consequently, if the semantic preconditions for a volitive reading are fulfilled, then the meaning of (p)-*kess* is 'I will *p*' in the declarative, but 'will you *p*' in the interrogative.

It should be noted that the dependency of the modal assessor on the executor role is a semantic, not a grammatical condition. E38 is from a book preface.

E38. philca-ka   cikco☐p   suco☐ngha-kess-s☐pni-ta
KOR   author-NOM personally   correct-PRSMPT-HON-DECL
       'the author would (be honored to) correct it himself'

Although the subject is third person, the preconditions for the volitive reading of *-kess* are fulfilled, since the executor is the assessor.

T4 shows assignment of the modal assessor for *–kess*.

T4.   **Assessor shift for Korean *-kess***

sentence type executor	declarative	interrogative
1	**1**	2
2	1	**2**
3	1	2

This is, in principle, even more straightforward than for Yucatec *he'l*:
1. The modal assessor for Korean *–kess* is the speaker in a declarative, the hearer in an interrogative sentence.

The only complication here is that in certain specific constellations (marked by boldface in T4), the reading is not presumptive:
2. The modal meaning of *–kess* is volitive if and only if all of the following conditions are fulfilled simultaneously:
   a. Aspect is not perfective (consequently, time reference is to the future).
   b. The executor has control.
   c. The executor coincides with the modal assessor.[22]

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[21] The final occurrence of the light verb *ha* 'do' combines with a converb in *-o☐ya* to yield an obligative meaning.

[22] Without developing the matter to a full section here, it should at least be noted that the German modal particle *wohl* behaves in an analogous way to Korean *-kess* and would deserve a detailed study

Comparing this with T2 for German *sollen*, we can see that the latter's major complication in comparison with Korean *–kess* lies in its constraint on distinctness of modal assessor and executor. Observe that the bold-faced cells of T4 are just the same cells of T2 from which speech-act participants are missing. Those are the constellations in which German *sollen* has to be replaced by *wollen* 'will, want', whereas Korean *–kess* takes on a volitive reading.

3.5 The jussive in Amharic and Kambaata

The modal conjugation categories in Amharic (Ethio-Semitic[23]) are the jussive and the imperative. They are in complementary distribution: The imperative paradigm is limited to the second person (singular and plural) in affirmative sentences; the jussive occurs in the other categories, i.e. the first and third persons (singular and plural); and beside the positive, there are negative forms, even for the second person.[24] Furthermore, both of these conjugation categories occur only in independent sentences. Thus, the jussive and the imperative could in principle be joined into one paradigm. There is, however, one asymmetry: the jussive occurs in questions, while the imperative does not. Since we are here concerned with declarative-interrogative alternations, we will forego the imperative.

The jussive is signaled by a transfixal pattern of the root. E39 - E42 (all from Leslau 1995:349) illustrate the jussive in declarative sentences, E39f with a first person singular and plural subject, E41f with a third person singular and plural subject.

E39.   mäg□äm-märiya   pipa-ye-n   lə-läkk□əs
AMH   first.of.all   pipe-POSS.1.SG-ACC   1.SG-light\JUSS
      'let me light my pipe first' (or, 'I want to light my pipe first')

E40.   səra-w-ən   ahun   ənnə-g□ämmər
AMH   work-DEF-ACC now   1.PL-start\JUSS
      'let us start the work now'

E41.   gänzäb   əndi-nor-ä-w   yə-sra
AMH   money(M)   in.order.to-IMPF.EXIST-3.M-OBL.3.SG   3.SG-work\JUSS
      'if he wants to have money (lit. 'in order for money to exist for him'), he should work' (or 'let him work')

E42.   mäskot-u-n   a-yə-sbär-u
AMH   window-DEF-ACC   NEG-3.SG-break\JUSS-PL
      'let them not break the window'

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from the point of view of the modal assessor. Observe the declarative sentence 'I/you/she will presumably quit it', conjugated through the persons: a) *Ich werde wohl damit aufhören*, b) *Du wirst wohl damit aufhören*, c) *Sie wird wohl damit aufhören*. #a is volitive, the others are presumptive. Now the interrogative counterparts: a) *Werde ich wohl damit aufhören?* b) *Wirst du wohl damit aufhören?* c) *Wird sie wohl damit aufhören?* #b is volitive ('will you stop that, please!'), the others are presumptive.

[23] Examples with translation from Leslau 1995; interlinear morphological gloss added.

[24] The morphological form of the (positive) second person jussive is inferable from the corresponding negative form. Since the jussive is used not only in the literal volitive sense, but also to mark the concession in concessive constructions (Leslau 1995:352), there would be a set of possible uses for such a form beside the imperative. However, according to Ronny Meyer (p.c.), that morphological form is inexistent, and concessive clauses with a second person subject are formed in a different way.

In principle, the jussive in a proposition *p* has the same meaning as an imperative, viz. 'modal assessor wants *p*'. There are shades of this volition both depending on the context and on the person. In particular, the jussive of the first person, as in E39f, amounts to a hortative.

The following are interrogative jussive sentences. While E43 and E46 are polar interrogatives, E44f are pronominal interrogatives. Again, while E43 – E45 feature first person subjects, E46 has a third person subject.[25]

E43. gänzäb-u-n   ahun lə-wsad   wäyəss h□ala
AMH   money-DEF-ACC   now   1.SG-take\JUSS   or   later
        'should I take the money now or later?' (Leslau 1995:349, 351)

E44. mənlə-hun?
AMH   what   1.SG-do\JUSS
        'what should I do' (Leslau 1995:353)

E45. mənun lə-mṭa   mäkina   yäll-ä-n□n□-əmm
AMH   how   1.SG-come\JUSS car   NEG.EXIST-3.M-OBL.1.SG-NEGF
        'how can I come since I have no car?' (Leslau 1995:763)

E46. bärr-u-n   yə-kfät ?
AMH   door-DEF-ACC 3.SG-open\JUSS
        'should he open the door (or not)' (Leslau 1995:349)

Appropriate paraphrases in English would include 'what would you say I should do?' (E44) and 'do you {say he should / want him to} open the door?' (E46) (cf. §2.5). (German translations of all of these interrogative sentences would use *sollen*; cf. §3.2.) Thus it is clear that the hearer becomes the source of volitive modality here, so we have another case of assessor shift.

The Kambaata (Highland East Cushitic[26]) finite verb form has a layered morphological structure. The core is formed by the stem plus a slot for the inner paradigm of subject agreement suffixes. This suffices as a medial verb form (as in E52 below), but not in independent declaratives. There, it is followed by a tense/aspect/mood suffix and the outer subject agreement suffix. The latter complex is diachronically an inflected auxiliary or modal verb agglutinated to its former dependent verb (there is no infinitive in the language). Any object enclitics are appended to such a finite form.

Like Amharic, the language has an imperative and a jussive; and just as there, these might together form a complete paradigm as far as the persons are concerned. The jussive is marked by a suffix *-u(n)* which occupies the TAM position just mentioned, but the outer subject agreement slot is empty. Negative jussives have an additional suffix. Moreover, if an imperative or a jussive clause are subordinated, a dependent form of the jussive appears, subordinated by the suffix *-ta* appended to the jussive verb form. These subordinate forms present a complete paradigm including the second person.

There is, thus, no second person jussive in main clauses, not even in interrogative sentences. Its meaning is paraphrased by modal auxiliaries. Moreover, declarative sentences do not admit of the first person singular jussive. E47f are declarative sentences with first and third person subjects, resp. E49 – E52 are interrogative sentences. E49 – E51 show first person sub-

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[25] There is, in Leslau 1995, no example of negative second person jussive in an interrogative sentence. According to Meyer (p.c.), this construction does not exist.

[26] Analyses and examples without source reference from Treis 2010.

jects, E49f for the singular, E51 for the plural, and E52 shows a third person subject. E50 is a pronominal interrogative, while the others are polar interrogatives.

E47. kabár   annam-aakk-á-nne   kaa'll-í-n-un
KAM   today.M.OBL   parent-PL2-F.ACC-POSS.1.PL help-0-1.PL-JUSS
      'Let's help our parents today.'

E48. huj-íta   xóof-un
KAM   work-F.ACC finish(3.M)-JUSS
      'he should finish the job'

E49. had-áta   fúl-un-do?
KAM   outside-F.ACC   go.out(1.SG)-JUSS-INT
      'may I go out?'

E50. ánn-a   áchche m-á   kul-u-kki'nne-la?
KAM   father-M.VOC   alas   what-M.ACC   tell(1.SG)-JUSS-OBL.2.HON-so
      'father, so what should/can I tell you' (Treis 2008:384)

E51. ins-í-n-un-do?
KAM   start-0-1.PL-JUSS-INT
      'should/may we start'

E52. shukkaar-á   wórri-ndo   wor-ú'nna   éeb-un?
KAM   sugar-M.ACC   insert:MED.PFV.3.M-INT   insert-MED.NEG.3.M   bring(3.M)-JUSS
      'should he bring [the coffee] with sugar or without?' [lit. 'having inserted or not in-serting sugar should he bring it?'] (Treis 2008: 234)

As in Amharic, the force of the first person jussive in a declarative sentence is hortative, except that it does not exist in the singular. And in E49 – E52, it is the hearer's will that matters. Thus, once more, in interrogative sentences, the modal assessor shifts to the hearer.

The Kambaata jussive is in a partial paraphrase relationship with modal verb constructions coding necessity or ability, but differs from these in that the modal assessor is a speech-act participant, whereas in those modal verb constructions, the modal assessor is typically anonymous. In other words, with the jussive, the modal assessor is the speaker in declaratives, but the hearer in interrogatives; *tertium non datur*.

The pattern of the assignment of the modal assessor for Amharic and Kambaata positive jussives is, therefore, pretty much the same, viz. as shown in T5:

T5.   **Assessor shift for the Amharic and Kambaata jussive**

sentence type / executor	declarative	interrogative
1	1	2
2	-	-
3	1	2

As is obvious from a comparison, this is the simplest pattern of all, since only a speech-act participant may be the assessor, and the only intervening factor is the imperative, which causes the gap in the second person executor row. If it were included as a kind of declarative jussive, it would fit in the picture: there would be another '1' in the declarative column.

4   The meaning of interrogatives

The default use of an independent declarative sentence is making a choice among a set of alternatives. If the sentence has a focus, then that set of alternatives is a (possibly infinite) set of entities that might occupy a specific position in the speaker's proposition, and the speaker chooses one of these. If it does not, then there is a binary alternative between ascribing and not ascribing the comment to the topic, thus asserting or denying the proposition. Making this choice amounts to assessing which of the alternatives applies and thus derives from the speaker's assessment privilege.

Interrogatives have sometimes been analyzed as a kind of imperatives, viz. requests that the hearer identify one of a set of alternatives offered by the speaker. However, accounting for the modality phenomena adduced in §3 requires a finer analysis.[27] The interrogative is characterized by the following semantic components:

1.   There are a number of alternatives concerning the proposition (two in polar interrogatives, a larger and possibly infinite number in pronominal interrogatives).
2.   I am making no choice among these alternatives.
3.   I am giving up the assessment privilege, thus ceding it to other instances.[28]

Components #1 and #2 are present in all interrogatives, independent and subordinate alike. Component #3 concerns the illocution and is therefore present only in independent interrogatives, since dependent clauses generally lack illocutionary force.

If an independent interrogative is used as a question at the end of a conversation turn, then semantic component #3 commonly has the following pragmatic implications:

4.   I give up the floor, thus turning over.
5.   I expect you to take over, to assume the assessment privilege and, thus, to make the choice I did not make.

The set of features 1 – 5 may be taken to characterize the prototype of a (genuine) question, of which various uses of interrogative clauses may fall short. For instance, in biased questions, component #2 comes accompanied by a propositional attitude towards one of the choices.

Now, the assessment may be differentiated by mood and modality. Whenever the modal assessor is personalized, speech-act participants are the first to be considered for that role. In independent declarative sentences, the modal assessor is then the locutor. In other words, in

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[27] Lyons (1977:754f) introduces a distinction between posing a question and asking a question, which prepares the analysis offered here. Specifically (p. 755), "the indication that the addressee is expected to give an answer is not part of the question itself."

[28] A forerunner of this analysis is found in Davies 1979. There (p. 48), the "secondary role" of "teller" is defined as follows: "The role of one who dominates the conversation at any given point, and holds and uses the conversional initiative." In an interrogative, the speaker transfers the role of teller to the addressee (p. 51). On the basis of the facts from Newari, Hargreaves (1991:33) puts it like this: "The attribution of epistemic authority to the address[ee] is constitutive of the interrogative speech act." Verstraete (2007, ch. 2) makes the same argument on the basis of an analysis of modality in English declaratives and interrogatives: "the declarative allows the speaker to take responsibility for the modal position in his/her own turn, whereas the interrogative allows the speaker to transfer this responsibility to the interlocutor in the next turn." Creissels (2008, §1) says that "the speech-act participant in charge of the assertion" is the speaker in declaratives, the hearer in interrogatives.

declarative sentences with subjective modality and in the absence of indications to the contrary, the modal attitude expressed is the locutor's. He has both the privilege and the responsibility for the assessment.

The fact that the assessor role shifts with the sentence type may be formalized as follows in a model with a layered operator-operand structure as introduced in §2.1: Subjective modality is a two-place predicate functioning as an operator on the proposition and is, thus, the outermost operator, subordinate only to the illocutionary operator (cf. fn. 4). In such a model, the (outermost) operator O_i of layer L_i has the entire operand of L_i in its scope. However, since the operand of L_i itself consists of an operator O_{i-1} and an operand of L_{i-1}, O_i relates directly to the application of O_{i-1} to its operand. In concrete terms: the illocutionary operator has the modal operator in its immediate scope. The illocution is concerned with applying the modal operator to the proposition.[29] Consequently, if semantic component #3 above is applied to a modalized proposition, then the modal operator is the pragmatic focus of the illocution. And if it is a subjective modal operator, semantic component #3 means that the speaker renounces to the role of modal assessor. If, moreover, the independent interrogative is a genuine question, the locutor cedes the assessor role to the hearer. In formal terms: If the highest operator below illocution (the proposition operator; s. fn. 4) has an argument place for the assessor, then the semantic effect of a question is that the hearer instantiates that argument.

In the light of this analysis, a rhetorical question is one which does not trigger components #4f because speaker and hearer are aware that component #1 is present only superficially because the set of alternatives reduces to one member. This will become relevant in §8.3.

As we have seen, certain modalities allow the speaker to treat the proposition of an interrogative sentence as if the hearer already had the assessment privilege. Naturally, the hearer's assessment privilege is delimited by the choices already made by the speaker. That is, the speaker chooses the modal operator and only then shifts the modal assessor role over to the hearer.[30] In biased and rhetorical questions, he also manipulates components #1 and #2 of the interrogative operation, constraining by that the assessment he entrusts the hearer with.

On the basis of the regularities found, we are now in a position to account for cases of a different nature, viz. the peculiar role of the hearer in utterances like E53 – E55:

E53.   Tí   na káno?
GREEK what   SR do:1.SG
       'What am I to do?'

E54.   In   beeteh?
YUC   SBJ.1.SG   do-SUBJ
       'Shall I do it?'

E55.   Lo faccio?
ITAL   it do.PRS:1.SG
       'Shall I do it?'

All three utterances ask for the hearer's volition – his instruction or advice, but none does it explicitly. A volitive modality is at least hinted at by the subordinator appearing in E53 and

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[29] Dik 1997:326 introduces the concept of operator focus.

[30] "The speaker asks the interlocutor to take a modal position, but retains the control over the choice of the modal position that serves as the starting point for the exchange." (Verstraete 2007:66)

the subjunctive mood appearing in E54. In E55, not even that much is coded; the sentence is just *lo faccio* 'I do it' with interrogative intonation. Needless to say, these are not anecdotal examples; they illustrate the constructions used in these languages in order to inquire about the hearer's will concerning the speaker's behavior. Expectably, *sollen* would show up in German translations of these examples; but none of the three languages possesses a modal conveying somebody else's will or pronouncement. Therefore, this sense is reached by inferencing: First, these being genuine questions, the assessor role shifts to the hearer. Second, his volitive attitude may be inferred from the Greek and Yucatec grammatical markers mentioned. The literal meaning of the Italian sentence asks for the hearer's opinion on whether the speaker does something. Here another inference comes in: In the speech situation, it is obvious that the speaker knows whether he does or does not do something. Thus, that cannot be the point of the question. The question asks the hearer to make a choice concerning *p*. That implies for him to 'say' whether *p* and, by inference based on the affinity of 'say' with 'will' (cf. §2.5), to pronounce his will concerning *p*.

5 Semantics of subjective modal operators

We have now observed the pattern of distribution of the modal assessor for a set of modal operators in different languages: English permissive *may*, German reported commands with *sollen*, the Yucatec definite future with *he'l*, presumptive and volitive *-kess* in Korean, Amharic and Kambaata jussive verb forms. These grammatical categories appear to form a heterogeneous set. However, each of the operators involved may be conceived as a two-place predicate whose first argument is an intentional human being – the assessor – and whose second argument is a proposition. Given the grammatical formatives coding these operators, none of which has a structural valency slot for the first argument, the first argument is not freely manipulable. It may remain anonymous, as is typically the case in non-subjective modality. In independent clauses, it may alternatively be identified with a speech-act participant, viz. the one who takes the role of the modal assessor for subjective modality according to the mechanism of assessor shift seen in the preceding section. In clauses subordinate to a predicate of mental or communicative activity, an analogous mechanism applies, as we will see in §6. This is true for all the phenomena reviewed irrespectively of the language-specific semantics of the operator.

While these semantic control relations provide a general frame, grammatical categories of individual languages impose further restrictions:

1) Once the assessor is a speech-act participant, the mechanism of assessor shift is the same for all the modal operators analyzed. They differ, however, in the rules which select a speech-act participant for assessor role. In the Korean presumptive and the Amharic and Kambaata jussive, only a speech-act participant can be modal assessor. For English *may*, German *sollen* and Yucatec *he'l*, this is a distinguished possibility. It is most prominent for Yucatec *he'l*, where it materializes whenever the modal operator is only subordinate to the illocutionary operator; in other words, only under other operators such as negation and in dependent clauses may some third person – contextually known or anonymous – be the assessor. Inference comes in only with respect to the extent of the commitment of the speech-act participant. For English *may* and German *sollen*, on the other hand, the language system does not force a speech-act participant into the assessor role, but only excludes them from this role in specific constellations: in declaratives with first person executor and interrogatives with second person

executor, no speech-act participant can be the assessor. This is a consequence of the peculiar volitive semantics of these two modals. In all other constellations, it is by inference on the basis of the speech situation that the assessor role is ascribed to a speech-act participant.

At the same time, the English and German modals are defective verbs, Yucatec *he'l* is a word, too, but does not inflect, and the Korean, Amharic and Kambaata operators are bound morphemes on the verb. Thus, both the semantic integration into the grammatical system and the structural dependence are further advanced for these latter three operators; they are more grammaticalized than the former three.

2) In several languages, special restrictions apply if the modal assessor is identical with the subject of the full verb, and especially so if the latter is agentive (thus, a true executor). These restrictions are loosest for Yucatec *he'l*: This modal may be used in any constellation of participants, always with the meaning that the modal assessor assures his interlocutor of *p*. And if context permits, there is a pragmatic inference to the effect that the modal assessor personally commits to the realization of *p*. The only effect of the constellation where the modal assessor is identical with the executor is that this inference becomes indefeasible. In Amharic, the jussive is possible for first persons, but then the reading is hortative; and for the first person singular, the resulting reading is hardly distinguishable from direct volition. Similarly for Korean *-kess*, identity of the modal assessor with the executor (under appropriate aspectual conditions) is the constellation which forces a volitive instead of the default presumptive reading. For English permissive *may*, a reading in which the permitter is identical with the executor is excluded. If *may* is used in such a constellation, it either has an epistemic sense or the sentence is meaningless. German *sollen*, too, excludes identity of the modal assessor with the subject, since if they are identical, *wollen* 'will' replaces *sollen*. A similar restriction applies to the Kambaata jussive: the person conjugation paradigm is defective just in those positions where the actor of the verb is identical with the modal assessor.

The prototypical and simplest volitive situation is the one in which the source of volition is identical with the executor. In many languages, the syntax of volitive complement clauses is sensitive to identity vs. distinctness of the willer with the executor (formally: whether in WANT (x, (P(y)), x = y or x ≠ y); the complement often assumes a reduced (typically non-finite) form in the former case. Also, many languages have a modal like English *will* dedicated to the prototypical constellation. For volitive modal operators not confined in this way, there are, then, two possibilities: either they include or they exclude the prototypical volitive situation. The Yucatec, Korean and Amharic operators studied include it; the English, German and Kambaata operators exclude it. The latter cases, again, differ among each other: The German and Kambaata paradigms in question are just structured in such a way that the modal operators *sollen* and *-un* are reserved for the non-prototypical volitive situation and are in complementary distribution with operators dedicated to the prototypical volitive situation. The English restriction, in turn, is semantically motivated by the concept of permission itself: allowing oneself something is a secondary concept of enhanced complexity (it probably involves two selves, something like an ego and a super-ego) which is not grammaticalized in languages.

This, then, helps understand the sensitivity of several of the modal operators to agentive executors: For volitive modal predicates, identity of the assessor (the willer) with the agent of a dependent proposition with future time reference creates the constellation of the prototypical volitive situation. Thus, the reading 'modal assessor wants / commits to p' arises. This hap-

pens with the Yucatec definite future, the Korean presumptive and the Amharic jussive. It does not happen in the other cases just because the modal paradigm in these languages is organized in such a way that there is a different modal reserved for the prototypical volitive situation.

We are now in a position to provide rudimentary semantic representations for the modal operators examined. T6 summarizes the comparison of the six constructions analyzed. In the formulas, *x* represents the modal assessor, *P* is the predicate of the proposition in question, *y* is its executor. It is understood that the attitude 'x is assessor for p' is implied by the other modal attitudes.

T6.   **Semantics of modal operators**

language	construction	modal attitude of *x* to *P(y)*	conditions	
			$x = / \neq y$	*y* is agent
Amharic	y P-JUSSIVE	x wants P(y)	= or ≠	
Kambaata	y P-*un*	x wants P(y)	≠	
German	y *soll* P	x is says / wants P(y)	≠	
English	y *may* P	x is assessor for 'it is not the case that x does not want P(y)'	≠	
Yucatec	*he'l* P y	x assures interlocutor that P(y)	≠	
		x commits to P(y)	=	+
Korean	y P-*kess*	x presumes P(y)	≠	
		x wants P(y)	=	+

6   The assessor of dependent propositions

Illocution is the uppermost operation on a sentence in a layered-structure model. From this it follows that only an independent sentence has an illocution. As soon as a clause is embedded as a complement clause, it can conserve its sentence type, but it forfeits its illocutionary force. The same is not true for modality; it is generally conserved under subordination. However, just as some modals do not occur in all sentences types, they may also be excluded from a complement clause of the same sentence type. English *may*, for instance, can occur in declarative and interrogative, but not in imperative sentences, as shown in E56.

E56.   a.   Linda may go now.
        b.   May Linda go now?
        c.   *Linda, may go now!
             Intended: 'Linda, I order a permit to exist for you to go now.'

E57.   a.   Irvin said to me/you/him that Linda may go now.
        b.   Irvin asked me/you/him whether Linda might go now.
        c.   Irvin told Linda to go now.

Similarly, embedding E56.a and b as complements under a verb of communication that requires the corresponding sentence type works fine, as shown in E57.a and b. The complement in E57.c, however, cannot contain a modal. (Nor would it help to change the complementation

strategy and transform E57.c into *Irvin told Linda that she may/might go now*, since that changes the complement's sentence type.)

Leaving therefore imperative sentences aside, we now concentrate on embedded modalized declarative and interrogative clauses. The question is whether the notion of a modal assessor still applies and whether the mechanism that identifies him with one of the speech-act participants works in dependent clauses, too. Before approaching the analysis, let us recall that the locutor delegates the assessor role for dependent propositions to the agent of the superordinate communication predicate. Thus, the initial assessor of the dependent propositions in E57, including their modality, is Irvin. Taking now a semasiological look at the dependent clause of E57.a, we observe first of all that the modal assessor of the proposition (the permitter) may be Irvin. Second, he may be anonymous. Third, the assessor may well be a speech-act participant, but he cannot be identical with the addressee of Irvin's speech act. For instance, E57.a with you as addressee can implicate that I am the permitter, but hardly that you are the permitter. As we see, the acting assessor can, again, delegate the assessor role to other instances.

Passing now to E57.b, it is clear that Irvin is in no case the permitter. The permitter may, again, be anonymous. However, he is typically identical with the addressee of Irvin's question. For instance, E57.b with you as addressee typically implicates that you are the permitter. Thus, the agent of a question predicate delegates the assessor role for his question to the addressee of that predicate.

In sum, the assessor of *may* in a dependent clause may always be some third person, contextually known or anonymous. By inference, however, he may be identified with one of the participants of the communicative act designated by the superordinate predicate. (Henceforth, *communicative act/situation* will be used as a hyperonym of *speech act/situation*, covering also communicative acts/situations designated by sentences.) Namely, it may be its agent if declarative, but its addressee if interrogative. There is one condition blocking these latter inferences, illustrated by E58:

E58.   a.   You said to Irvin that you may go now.
        b.   Irvin asked you whether you might go now.

It is not easy to construe these examples as involving permissive *may*, but it is necessary in order to see the point. Then it is clear that you cannot be the permitter in either case. In E58.a, I delegated the modal assessor role to you. In E58.b, I delegated it to Irvin. He, by asking you a question, again delegates it to you. So in both cases, you have the modal assessor role for the dependent proposition. Now since you are the executor of the dependent proposition, but the modal assessor of *may* must be distinct from the executor, you cannot keep the modal assessor role, and instead the modal assessor of the dependent declarative must be somebody else (I or some fourth person).

Now recall that in the tables of §3, the numbers were primarily meant to represent the speech-act participants and only conditionally the grammatical persons. Then the above complex pattern is the same as we observed in §3.1 for *may* in independent sentences: Just as there, the modal assessor can always be some third person. Second, by inference, the assessor of the *may*-modality can be identical with the issuer of a declarative dependent proposition just as it may be the speaker in an independent declarative sentence. And he can be identical with the addressee of an interrogative dependent proposition just as he may be the addressee for an interrogative sentence. In both cases, the exception obtains that the modal assessor must not

be identical with the executor of the modalized proposition, this being a semantic peculiarity of *may*.

What is true for this English modal finds analogies in some of the other modals analyzed before and finds no counterevidence in any of them. Here is a short account of German *sollen* in subordinate clauses:

E59. a. Linda soll essen kommen.
GERM   'Linda should come to lunch.'

        b. Soll Linda essen kommen?
            'Should Linda come to lunch?'

        c. *Linda, soll essen kommen!
            Intended: 'Linda, I order there to be an order for you to come to lunch.'

        c'. Linda, komm essen!
            'Linda, come to lunch!'

E60. a. Erwin sagte zu mir, dass Linda essen kommen solle.
GERM   'Irvin said to me that Linda should come to lunch.'

        b. Erwin fragte mich, ob Linda essen kommen solle.
            'Irvin asked me whether Linda should come to lunch.'

        c. Erwin befahl Linda, sie solle essen kommen.
            'Irvin ordered Linda to come to lunch.'

        c'. Erwin befahl Linda, essen zu kommen.
            'Irvin ordered Linda to come to lunch.'

E59 features *sollen* in the three sentence types. The attempt to make it the highest operator in an imperative sentence (E59.c) again fails. The way of coding this meaning is much simpler, viz. by the imperative sentence E59.c'.

E60 presents the dependent counterparts to the clauses of E59. Here, the dependent imperative clause may, in fact, contain *sollen* (E60.c). This construction provides one way of regularly converting the imperative sentence E59.c' into its dependent counterpart (cf. the relationship between E20 and E19.b remarked in §3.2). The other alternative is E60.c', a construction with an infinitival instead of a finite clause. The perfect synomymy of the two constructions suggests that *sollen* adds nothing to the meaning of E60.c. And on the other hand, it cannot be omitted from E60.c by converting *essen* into the finite verb. This shows that *sollen* in E60.c is conditioned by the construction. And in fact, the general rules for the identification of the modal assessor of *sollen* do not apply here: He may not be some fourth person, and instead it must be Irvin. At any rate, it may be observed on this occasion that by the criterion of assessor shift, the sentence type 'imperative' sides more with the declarative than with the interrogative.

Concentrating now again on the declarative and interrogative clauses, recall that the modal assessor (the source of the reported pronouncement) for *sollen* just as for *may* cannot be identical with the executor. Under this proviso, he may be any other third person in both E59 and E60.a and b. And again, it is typically the speaker (Irvin) for the declarative proposition of E60.a, but the addressee (I) for the interrogative of E60.b. This is, once more, exactly the same pattern as for the independent sentences modalized by *sollen* and studied in §3.2.

It is unnecessary to apply the same analysis in detail to the other languages of the sample. An example of Yucatec *he'l* in a complement clause was seen in E31.b. Korean complement

clauses modalized with *-kess* are analyzed in Koo & Lehmann 2010, §3. There, the modal assessor is identified with a participant of the designated communicative situation by the same mechanism shown above to work for Engl. *may* and German *sollen*. That means that the restriction of the modal assessor to speech-act participants seen in §3.4 is the main-clause manifestation of a more general restriction that limits the modal assessor role of *-kess* to participants of the communicative situation that constitutes its scope; other instances are still excluded from that role. What little is known about the Kambaata jussive in dependent clauses points in the same direction. The Amharic jussive does not occur in dependent clauses.

The nature of the limitations on the assignment of the assessor role that were observed in §5 becomes clearer now that its assignment in subordinate clauses has been included in the analysis. T7 presents the modal operators of the sample according to the criteria of whether they occur in subordinate clauses and who may be their modal assessor.

T7.   **Modal operators: assessor assignment and occurrence in subordinate clauses**

language	construction	occurs in dependent clauses	assessor may be
German	y *soll* P	+	anybody
English	y *may* P	+	anybody
Yucatec	*he'l* P y	+	anybody
Korean	y P-*kess*	+	participant of communicative act
Kambaata	y P-*un*	+	participant of communicative act
Amharic	y P-JUSSIVE	-	speech act participant

This pattern occasions the following hypothesis:

a. The assessor of a modal operator limited to main clauses is a speech-act participant.
b. The assessor of a modal operator that occurs both in main and in subordinate clauses may be limited to participants of the communicative situation, but cannot be limited to speech-act participants.

A modality subject to constraint #a, viz. the Amharic jussive, resembles, to that extent, an illocutionary force, which is restricted to independent clauses and to speech-act participants, too. It is not an illocutionary force because it can occur both in declarative and in interrogative sentences.

Summarizing, then, we can say that to the extent that operators of subjective modality occur in complement clauses, the mechanism identifying their modal assessor is a general one working both in dependent and in independent clauses: Whenever the modal assessor is at all a participant of the communicative situation, it is the assertor of a declarative and the addressee of an interrogative clause. This means that this mechanism does not primarily refer to the speech situation and its participants, but, more generally, to the communicative situation whose theme the modalized proposition is and to the participants of this situation. The facts concerning non-modal assessors of dependent clauses presented in §8.3 below point in the same direction.

In the heyday of generative semantics, abstract verbs and performative analysis,[31] the way to capture such a generalization by some kind of formal representation was to represent the speech situation with its participants as a "hyper-sentence" (Sadock 1974), with an abstract predicate of communication and its participants, the speaker, the hearer and the proposition surfacing as the coded sentence. While such an analysis neatly brings out the parallelism between independent and dependent sentences of a given sentence type and allows an easy formulation of those grammatical regularities that they share, there are several problems with it which need not be spelt out here.[32] The point is, instead, that the analysis presented up to now and in particular its formal representation in a hyper-sentence framework would seem to imply that the semantics and pragmatics of the speech situation are a special case of, and thus derivative from, the argument frame of verbs of communication. That is obviously the other way around: the semantics and the argument frame of verbs of communication are based on the constellation of the speech situation. The result is, in any case, that there may be mechanisms of grammar, semantics and pragmatics that the speech situation shares with designated communicative situations.

There is no room here to pursue the question to what extent these findings generalize to mental attitudes. As a suggestive example, consider English epistemic *may*, as in E61 (from Verstraete 2008).

E61.   Their fans are only tolerating it because it may stop Rangers winning.

Here, the assessor of the epistemic attitude coded by *may* is the referent of the main clause subject, similarly as in E57.a above. At the same time, the main clause of E61 does not designate a communicative situation, and the modalized subordinate clause is not a (declarative) complement clause, but a causal clause. Nevertheless, the inference works, on the basis of the analogy between mental and communicative acts mentioned in §2.2. The point here is not that the same mechanism for the identification of the modal assessor works as for the complement clauses seen before – in all probability, it does not. However, a weaker claim seems plausible, viz. that dissociation of the modal assessor role from the locutor, so that it becomes available to participants of the designated situation, occurs outside the domain of volitive modality and is typical for subordinate clauses.

7   Sentence-type sensitivity of modal operators

The foregoing has shown that some modal operators are sensitive to sentence type in that the modal assessor role changes from speaker to hearer in declarative vs. interrogative sentences. There is little to be said about modal operators in imperative sentences. Most of them are excluded. The English, German, Mayan and Korean modal operators analyzed in §3 may occur in declarative and interrogative, but not in imperative sentences. The Amharic and Kambaata jussive is in complementary distribution with the imperative, with the same consequence.

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[31] for younger readers: roughly between 1967 and 1975

[32] One is that if the semantic representation of the speech act is formally indistinguishable from the semantic representation of the designated situation, the illocutionary force associated with independent, but not with dependent clauses remains unaccounted for.

7.1 Valency of modal operators

Based on the evidence accumulated so far, we may now come back to the problem of distinguishing subjective from objective modality, briefly mentioned in §2.3. We have seen a set of modal operators that trigger assessor shift. We can now take a more informed look at the question of whether this is true for all modal operators or just a subset of them. E62 illustrates the English epistemic modal operator *can*.

E62.   a.   Linda can be in Cape Town already (the flight does not take longer).
       b.   Can Linda be in Cape Town already?

Such sentences do allow of paraphrases involving the speech-act participants, as in E63.

E63.   a.   I consider it possible that Linda is already in Cape Town.
       b.   Do you consider it possible that Linda is in Cape Town already?

However, the higher predicate *consider*, instead of explicating a feature inherent in the modal *can*, only makes explicit the default propositional attitude of a speech-act participant to just any proposition. That is, one might as well add it to non-modalized sentences such as *Linda is in Cape Town already*. Such a higher proposition is therefore redundant. No information is lost if we analyze the modal operator in question as a one-place operator POSSIBLE (p), instead of a two-place operator CONSIDER_POSSIBLE (x, p).

In §3.1, we saw that English *may* behaves differently in this respect. There are, therefore, two kinds of modal operators distinguished by their argument frame. They all have an argument position for a proposition. A subclass, however, has an additional argument position for the modal assessor. In §2.3, this was used as the defining criterion for subjective modality, distinguishing it from objective modality. The definition is now easy to operationalize: If a modal predicate triggers assessor shift, then it involves a first argument which is the modal assessor.

There is no general principle by which modal operators belong to either of these classes; and consequently the class of operators of subjective modality is not necessarily semantically homogeneous. Instead, this is, to a large extent, a matter of the language-specific meaning of such an operator.[33] Modal operators are commonly grammaticalized from lexical predicates, mostly verbs. Consequently, the argument structure of a modal operator sometimes reflects the argument structure of the diachronically underlying predicate, which persists through grammaticalization. That is, for instance, the case for German *sollen* and, apparently, for Korean *-kess*. However, argument structure is among the things that are subject to semantic change, and consequently there are also modal operators stemming from a predicate whose syntactic valency does not accommodate a person who could be the modal assessor, such as both English *can* and *may*, whose subject slot is occupied by the sentence subject, not by the modal assessor. The most one can say is that volitive modal operators are most prone to attribute the modal assessor to a speech-act participant (cf. Narrog 2005), since volition is most naturally conceived as springing from a human source (cf. Lehmann et al. 2004, ch. 5.2.1). However, other deontic and even epistemic modal operators that are subjective in this sense are not excluded, as shown by the Korean presumptive and as suggested by the evidence adduced in §7 below.

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[33] Cf. Narrog 2009, one of whose main theses is that the position of modality in the layered structure of the clause is not universal, but instead a matter of language-specific grammar.

Investigations of alternations of the form illustrated by E64 have shown that verbal meanings of a certain class may alternatively be conceived as underlyingly two-place, with an agent that can be suppressed by deagentivization (alias anticausativization), or as underlyingly one-place, with the option of adding an agent by causativization.

E64.   a.   The twig broke.
       b.   Linda broke the twig.

The same may be true for some modal operators (cf. Lyons 1977:836). Consequently, languages may differ by lexicalizing such a concept basically as an intransitive or as a transitive predicate; and by persistence, this semantic feature may still be relevant after the predicate has been grammaticalized to a modal morpheme.

7.2 Consequences of assessor shift

This finding about assessor shift has theoretical, methodological and descriptive consequences. The theoretical consequence concerns the structure of the domain of modality. Available theories of modality, starting with the well-known division between epistemic, deontic and dynamic modality, share the basic assumption that the domain is hierarchically structured. That is, any further modalities observed in languages (be it inferential, directive or whatever) must be assigned a place in this tripartition. That tends to be true even for those authors who resolve this ternary division into two binary ones (cf. §1). However, there is no logical necessity for such a hierarchical structure. The domain may instead be structured by two or more independent parameters. One of these is the presence of a modal assessor. This criterion does cut across the tripartition mentioned:

- There is (by definition) no modal assessor in dynamic (inherent, objective) modality.
- There appears to be generally a modal assessor in deontic modality (cf. fn. 10). At least, the modal operators analyzed in §3 instantiate commissive, directive and volitive modality and, thus, all of the types of deontic modality commonly acknowledged.
- Epistemic modality may or may not involve a modal assessor.[34] The Korean presumptive does involve one, but English *can* and epistemic *may* don't.

Subjective modality may be defined as that kind of modality which involves an assessor. This criterion is easy to operationalize: If the modal attitude in question is the speaker's in declarative, but the hearer's in interrogative versions of the same sentence, then the modality involves an assessor and is, thus, subjective. There remains, however, the question of whether there can be subjective modality without assessor shift. It was said in §2.3 that English inferential *must* should be analyzed as a two-place operator, since the inference is drawn by the speaker. E65.a repeats E8; E65.b is its interrogative counterpart.

E65.   a.   This whale must be over two years of age.
       b.   Must this whale be over two years of age?

It appears that inferential *must* is not naturally used in questions. If so, then there is no assessor shift, and this test does not allow us to say that inferential *must* codes a subjective modality. The case is even clearer for the German modal particle *eben*, illustrated by E66.

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[34] Epistemic modality is often characterized in terms of the speaker's judgement of the probability of the realization of the proposition. However, most of what is commonly meant by this comes under the generic subjectivity of speaking; cf. §2.3.

E66.   a.   Linda ist eben schlauer als Erwin.
GERM   'Linda is smarter than Irvin, as you should know.'

        b.   *Ist Linda eben schlauer als Erwin?
              'Is Linda smarter than Irvin, as you/I should know?'

Eben (p) means '*p*, as you (should) know'. Thus, its meaning does involve a speech-act participant taking the propositional attitude in question. However, that person is the hearer, not the speaker. Moreover, *eben* (in its modal sense) is ungrammatical in non-declarative sentences. There is, thus, no assessor shift. However, it would be a theoretical mistake to tie the notions of subjective modality and of modal assessor to the method of converting a sentence into its interrogative counterpart in order to observe assessor shift. Since the main argument of the present treatise does not hinge on the decision of whether there is a modal assessor in sentences such as E65f and, consequently, whether there are modal assessors and subjective modalities not subject to assessor shift, I will leave this question open.[35] So far, we have a (unilateral) implication: if the meaning of a modal operator is subject to assessor shift, then that is an operator of subjective modality.

The methodological consequence concerns this diagnostic function of assessor shift. The distinction made in §2.3 between the generic subjectivity of speaking and the specific subjectivity of certain modal categories has not often been made in the literature concerned with modality. As a consequence, the linguist confronted with claims about the subjectivity of modality is liable to ascribe this to the generic subjectivity of speaking and, henceforth, to ignore them. It is here that assessor shift gains its methodological importance: We recognize the genuine subjective character of a particular modal operator precisely if and because under controllable conditions, viz. in interrogatives, the role of the assessing subject shifts away from the speaker, viz. to the hearer.

The descriptive consequence follows from that. Up to now, descriptions of modal operators (moods, modal verbs, particles) often have either followed the philosophical practice of treating them as impersonal one-place operators or have summarily attributed the modal attitude to the speaker. Now finer distinctions may be made:

- A semantically one-place modal operator like English obligative *must* or potential *can* has no modal assessor at all.
- Semantically two-place modal operators like English permissive *may* have a modal assessor.
- For a two-place modal operator, occurrence in interrogative clauses should be tested. If it occurs in interrogative clauses, it should be tested for assessor shift.

Given the operationalization of the definition offered above, the analyst needs but to transform a declarative sentence containing the modal operator to be tested into an interrogative sentence. If thereby the source of the assessment becomes the hearer, then the analyst is dealing with a case of subjective modality and, by implication, with attitudinal modality.

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[35] Since subjective modality is a kind of attitudinal modality, those sentences and operators may instantiate non-subjective attitudinal modality.

8 Shifts of the assessor in other domains

8.1 Kinds of reference points

Looking at the phenomena in an onomasiological perspective, we can widen the picture a bit. An utterance conveys information at different levels. Several of the semantic components involved are relational in the sense of implying a (human) instance that serves as an anchor, a point of reference. The notion of such an instance is required at least for the following kinds of operation (instances in parentheses):

1. deixis (deictic *origo* [center])
2. illocution (locutor)
3. modality (assessor)
4. operations concerning coherence relations between propositions in discourse (wielder of the universe of discourse) (see below).

The system comprising these instances is not yet clear, but they cannot simply be identified with each other. In particular, we have seen that in questions, the speaker cedes the modal assessor to the hearer; but that does not include the deictic center.

E67.   a.   She means this book.
        b.   Does she mean this book?

The proximal demonstrative *this* refers to something in the sphere of the deictic center. That is the speaker both in the declarative sentence E67.a and in its interrogative version #b. Thus, deixis and (subjective) modality differ in the respect essential here: In deixis, the origo with the entire referential system centered around it shifts if the speaker changes, but is insensitive to sentence type. In modality, it is the other way round: While the assessor role may or may not be occupied by the speaker, the reference of modal categories (to the extent they have any) does not shift if the speaker changes (for instance, it is not the case that a proposition modalized with *must* or the indicative by me will be qualified by *can* or the subjunctive if you become the speaker); and instead shift of the assessor role between speaker and hearer depends on the sentence type. Therefore, modality is not a deictic category; it just shares with deixis, as with the other two operations enumerated above, its anchorage in the speaker.

For all of the four operations enumerated, the speaker himself is the reference point by default. Unless he indicates the contrary, he occupies the deictic center, lends illocutionary force to sentences, is responsible for modal assessments and determines the role of propositions in the universe of discourse. The operations by which he can shift that responsibility and that privilege away can be classified in various ways that we cannot here pursue systematically. Relevant parameters include the type of reference point in the set just mentioned and the instance that the speaker may delegate that reference point to. Appropriate instances can be found, in principle, either in the speech situation or in the situation designated. As we have seen, the speaker may transfer the assessment privilege to the interlocutor. Alternatively, he may cede it to the protagonist in the situation designated, as is typically the case if that is a communicative situation; cf. §6.

In manipulating causal conjunctions, the speaker can distinguish whether the proposition he is using as a justification is or is not yet in the universe of discourse, and if the former, whether it was himself who introduced it there (s. Goethals 2008). And again, he may turn the burden

of justification over to the interlocutor. That is what happens in the use of Latin *nam*, German *denn* (both 'for, to wit') in interrogative sentences.[36]

E68. illa …   nunc intus est   in aedibus;
LAT   that:F.NOM.SG now   inside is   in house:ABL.PL

namegomet cubantem   eam   modo offendi   domi.
for   I-EMPH lie:PART.ACT:ACC.SG her:ACC just   meet:PRF.1.SG   home:LOC
'she is now in the house; for I have just met her lying down at home' (Plaut. *Mil.* 484)

E69. a. imitatur   nequam bestiam …
LAT   imitate:PRS.3.SG useless   beast(F):ACC.SG
'She is imitating an obnoxious animal.'

b. quamnam, amabo?
which:to.wit please
'Which one, please?'

c. involvulum …:   itidem   haec
leaf.roller(M):ACC.SG   same.way   this.NOM.SG.F
'The leaf roller ...: she is'

exorditur   sibi   intortam   orationem.
start:PRS.3.SG herself:DAT   twisted:ACC.SG.F speech(F):ACC.SG
'wrapping herself in her discourse in the same way.' (Plaut. *Cist.* 728)

E70. Sie ist jetzt in ihren Gemächern; denn ich habe sie soeben zu Hause schlafend angetroffen.

E71. Sie ahmt ein Ungeziefer nach. – Welches denn? – Eine Wickelraupe: sie wickelt sich genauso in ihre Rede ein.'

E68 and E69.b are declarative and interrogative sentences, respectively, containing *nam*. As may be seen, the construction *nam* (p) in E68 says that *p* provides an explanation for the preceding sentence. In E69, the speaker using the same construction in an interrogative sentence is conveying the message: 'your answer, which should take the stead of *p*, is going to provide an explanation for the preceding sentence.' The same goes for the German versions E70f, containing *denn* as the functional equivalent of Latin *nam*.[37] The evidence shows that in questions, the speaker may not only shift the modal assessor to the hearer, but also the responsibility for coherence relations between propositions in the universe of discourse.

8.2 The assessor in evidentiality[38]

Just as grammatical modal markers code an attitude taken towards the proposition, but do not make explicit who takes that attitude, so evidential markers code the channel providing evidence for the proposition, but not its source. For some evidentials, the source is not at stake. These are typically the evidentials of indirect evidence, such as those of assumed or reported ("hear-say") evidence. Their source may remain anonymous. For other evidentials, the source matters. These are typically the evidentials of first-hand, sensory experience. For example, the

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[36] For Latin *nam*, cf. Holmes 2007, quoting earlier sources for an indication of the analogy between Latin *nam* and German *denn*.

[37] By the analysis of German *denn* offered in Diewald 2007:134-137, *denn* p*?* means something like: 'Question *p* follows from what is in the universe of discourse.'

[38] See Aikhenvald 2004, ch. 8.1 for evidentiality in interrogatives.

visual evidential in declaratives does not convey '*p* is seen', but 'I see *p*'. Thus, in E72 from Tariana (Northern Arawak, Vaupés), the visual evidence for what has happened is available to the speaker.

E72. kamarana-ñha-ka
TAR termite 3.PL-eat-REC.PST.VIS
     'termites have eaten [it]' (Aikhenvald 2003:290)

In E73, subject person, tense and evidential are the same as in E72, but it is an interrogative sentence.

E73. Kwana-nihka   nawiki   na:ka?
TAR who-REC.PST.VIS.INT   people   3.PL:arrive
     'What kind of people have been here?' (Aikhenvald 2004:245)

Here, the speaker himself drops out as a possible authority for visual evidence for the proposition in question, but he assumes that the addressee saw the people in question. Thus, the visual evidential assessor is the speaker in declaratives, but the hearer in interrogatives. A similar pattern holds for the other Tariana evidentials. Similarly, in Cuzco Quechua (Aikhenvald 2004:248), the addressee (not the source!) of reported evidence is the speaker in declaratives, the hearer in interrogatives.

On the other hand, there are languages like Eastern Pomo (Aikhenvald 2004:244) where the speaker remains the evidential assessor in interrogatives, too. Consequently, while generalizations about the evidential assessor in a given language (either way) appear to be possible, no simple cross-linguistic generalization is available.

It is also possible that the evidentials in a given language differ in their sentence-type sensitivity, just as the modals of a language may differ in that respect. An evidential operates on a proposition similarly as a modal operator, viz. as a predicate that takes the proposition as an argument (cf. Aikhenvald 2004:98f). The meanings of evidential formatives may be represented by such two-place predicates as SEE(x, p), HEAR(x, p), INFER(x, p), but also by such one-place predicates as REPORTED(p), where the addressee of the information is not at stake. Anyway, the available evidence suggests that the concept of the assessor is not confined to modality, but generalizes to evidentiality.

8.3 The assessor in egophora

Egophora is a system of referential marking, generally on verbs, which distinguishes an assessor from non-assessors.[39] The assessor is the speaker in declaratives, the hearer in interrogatives and a communicating participant of the superordinate clause in dependent clauses. The form specifying the assessor is called conjunct, the form specifying the non-assessor is called disjunct. Egophora is an alternative to person marking. Variants of such a system have been found in a variety of languages over the globe.[40] In Tibeto-Burman languages, conjunct marking is limited to agentive assessors as clause subject, while in Barbacoan languages, conjunct

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[39] In the terminology of Creissels 2008, it is an assertor involvement marking system which distinguishes an assertor from non-assertors.

[40] See Creissels 2008, §2 for the most recent survey.

marking appears in a clause whenever an assessor is a participant. Here we will briefly review a Tibeto-Burman case.

Newari (also called Nepal Bhasa and Newār) verbs fall into three semantic classes: control verbs (i.e. those which have an agentive/controlling subject), non-control ("impersonal" in Hale 1980) verbs and fluid verbs, whose subject may or may not control the situation. This trichotomy cuts across the distinction between monovalent and bivalent verbs. That is, there are not only intransitive verbs of either semantic class, but also transitive verbs, with an ergative and an absolutive actant, whose ergative actant is not agentive.

Newari verbs do not conjugate for person and instead for egophora. The paradigm comprises two forms called conjunct vs. disjunct.[41] The disjunct form is formally unmarked; the conjunct form is marked by a vocalic element which in the conjugation class represented in the example series materializes as lengthening of the tense suffix vowel. Finite verbs inflect for this category only if they are control verbs. Therefore, only this verb class is presently of interest.

Disjunct forms are unmarked semantically, too; i.e. they provide no information on reference. The conjunct form appears under two seemingly unrelated conditions. The first is in indirect speech, as in E74.

E74. a. wąą waana wan-a dhakāā dhāl-a
NEW   he:ERG [he there go-PST.DISJ QUOT] say-PST.DISJ
     'he$_i$ said that he$_{j \neq i}$ went there'

   b. wąą waana wan-ā dhakāā dhāl-a
     he:ERG [he there go-PST.CONJ QUOT] say-PST.DISJ
     'he$_i$ said that he$_i$ went there'

E74.a shows the disjunct form of the subordinate verb, #b shows its conjunct form. The conjunct form marks identity of the subordinate (agentive) subject with the assessor. Newari prefers direct over indirect speech; thus no examples with other constellations of persons of assessor and subordinate subject are available.

In independent declarative clauses, as well as in some subordinate constructions including relative and nominalized clauses, with first person agentive subject, as in E75.a, the conjunct form appears, while with other persons in subject position, as in E75.b and c (as well as with non-agentive subjects), the disjunct form appears.

E75. a. ji ana wan-ā
NEW   I there go-PST.CONJ
     'I went there'

   b. cha ana wan-a
     you there go-PST.DISJ
     'you went there'

   c. waana wan-a
     he there go-PST.DISJ
     'he went there'

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[41] Data and orthography from Hale 1980, analyses from Hale 1980 and Hargreaves 1991. The terminology originates in Tibeto-Burman studies, but is applied to Awa Pit (ISO kwi, Barbacoan, Colombia and Ecuador) in Curnow 2002.

The interrogative counterpart to this paradigm is shown in E76:

E76.   a. ji ana wan-a   lā ?
NEW   I   there go-PST.DISJ   INT
           'did I go there?'[42]

       b. cha ana wan-ā   lā ?
           you there go-PST.CONJ INT
           'did you go there?'

       c. waana wan-a   lā ?
           he   there go-PST.DISJ   INT
           'did he go there?'

As may be seen, the verb is in the conjunct form if the subject is second person, otherwise it is in the disjunct form. This is the pattern both in polar and in pronominal interrogatives, but only in true questions. In rhetorical questions, instead, the same pattern as in declaratives applies (s. §4 for the semantic basis of this affinity). Thus, in independent agentive sentences, the conjunct form marks identity of the assessor with the executor. As in the languages seen before, the assessor role switches to the hearer in true questions. Moreover, a generalization is possible covering the two contexts in which the conjunct finite form is used: in independent as well as in dependent clauses, it marks identity of the executor with the assessor.[43] This is also corroborated by the pattern of declarative sentences marked with an evidential that indicates a different source than the speaker: the conjunct marking then disappears from first person verbs (Hargreaves 1991:34).

The Newari conjunct form is neither modal nor evidential. At the same time, it is strongly grammaticalized. The conjunct form is in a binary opposition with zero, the disjunct form. Formally, it is a vowel change. Semantically, it marks coreference in one particular constellation of participants; and then it is obligatory. Thus, it is strictly subject to rules of grammar. Now recall from §2.5 that 'will' is semantically akin to 'say'. An assessor who says *p* to the addressee with a volitive relation to *p* is a narrower concept than an assessor who just says *p* to the addressee. Thus, the content of the propositional operator itself is desemanticized, too. The modal assessor is a special case of the assessor. The Newari conjunct verb thus is a further step on a grammaticalization scale that leaves the modal assessor behind. It is apparently close to the end pole of a grammaticalization scale whose initial section was hinted at in §5, but whose overall shape is presently unknown.

9   Conclusion

From the data analyzed, we may draw the following conclusions concerning attitudinal modality: An attitudinal modality may or may not be subjective. An operator of non-subjective modality is a one-place operator taking the modalized proposition as its argument. Subjective modality involves an assessor of the modalized proposition; thus, an operator (or predicate) of such a modality has an additional first-argument place for the assessor.

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[42] The actual example provided in Hale 1980:100 is *Ji ugu ilea ana wana lā?* 'Did I go there at that time (I don't recall)?', thus making sure that an independent interrogative concerning an intentional act of the speaker is interpreted as a genuine information question. A similar example is constructed in Hargreaves 1991:31.

[43] Hale (1980:97) would formulate this in terms of the hyper-sentence framework mentioned in §6.

The meaning of subjective modal predicates may be spelled out by such two-place predicates as English *want, allow* or *assume*. To the extent they are grammaticalized, as those analyzed in §3, their semantic valency is not reflected in their structural valency. Such a modal operator may combine with a clause whose proposition is in its semantic scope; but there is no structural valency position for the assessor, and consequently this is not coded. In such cases, the semantic argument position for the modal assessor is occupied by the following principle:

1. Some subjective modal operators allow both speech-act participants and non-participants as the assessor; others allow only speech-act participants. For the former class, construal of the assessor as a speech-act participant is a matter of inference, whose force depends on language-specific conventions. Whenever no such inference is made, the assessor remains anonymous.

2. If there is a subjective modal operator in an independent sentence whose assessor is construed as a speech-act participant, then that is the speaker in a declarative, the hearer in an interrogative sentence (provided, of course, the operator does at all occur in interrogative clauses).

3. If the modalized proposition is coded as a dependent clause, then its modal assessor is not (automatically) occupied by a speech-act participant, and instead its occupation depends on the nature of the higher predicate and the argument relation of the proposition to that predicate:

    a. If the modalized proposition is the complement of a communicative act predicate, then one of the latter's arguments becomes the modal assessor in analogy to #2. I.e., with some simplification: it is the agent of a predicate of saying, but the addressee of a predicate of asking.

    b. Otherwise the modal assessor may remain anonymous, so that, in effect, the two-place modal operator is treated like a one-place modal operator.

This mechanism may function at the pragmatic level by way of implicature, or at the level of compositional semantics guided by grammar. This is, in general, a question of the degree of grammaticalization of the modal operator in question.

The mechanism generalizes from deontic to epistemic modality and from there to evidentiality and even to unmodalized clauses where egophora obtains. The latter system may be understood as exhibiting the maximum degree of grammaticalization of the principle of assessor shift which is functionally motivated only for less grammaticalized constructions.

For some of the modals, a particular sensitivity to agentivity of the subject of the modalized clause was observed. This, too, is semantically motivated where the modal is volitive in character, since volition extending to p is more natural if the primary argument of p is agentive. Again, the fact that such a dependence obtains even in the egophoric system of Newari speaks to its advanced degree of desemanticization.

Finally, an intimate connection between 'say' and 'will' emerged from several of the analyses, to wit in German *sollen* (and *wollen*) and in the jussives. Even Korean *-kess* is a case in point, since its volitive reading may be paraphrased by 'x wants p', while its presumptive reading is closer to 'x says p'. The relationship is based on the intentional feature of 'say' and on the communicative nature of 'will'.

Once the analysis required at the end of §7 will have been performed in descriptive grammars of more languages, a genuine typological comparison of the modal operations studied here

will become possible; and it will then be seen to what extent the hypotheses brought forward hold up.

Abbreviations in interlinear glosses
1. Languages

AMH	Amharic	LAT	Latin
GERM	German	NEW	Newari
GREEK	Modern Greek	NAN	Nànáfwê
ITAL	Italian	TAR	Tariana
KAM	Kambaata	YUC	Yucatec Maya
KOR	Korean		

2. Grammatical category labels

0	[no meaning]	INCMPL	incompletive
1,2,3	first/second/third person	INT	interrogative
ABL	ablative	JUSS	jussive
ABS	absolutive	LOC	locative
ACC	accusative	M	masculine
ACT	active	MED	medial
ADV	adverbial	NEG	negative
BENEF	benefactive	NEGF	negative (final part)
CNJ	conjunction	NOM	nominative
CONJ	conjunct	OBL	oblique
D1	first person deictic	PART	participle
D2	non-first-person deictic	PASS	passive
D3	non-deictic	PFV	perfective
DAT	dative	PL	plural
DECL	declarative	POSS	possessive
DEF	definite	PRF	perfect
DISJ	disjunct	PRS	present
DUB	dubitative	PROHIB	prohibitive
EMPH	emphatic	PRSMPT	presumptive
ERG	ergative	PST	past
EXIST	exist	QUOT	quotative
F	feminine	REL	relational
FIENT	fientive	SBJ	subject
FUT	future	SG	singular
HON	honorific	SR	subordinator
IDENT	identificative	SUBJ	subjunctive
IMP	imperative	TOP	topic
IMPF	imperfective	VOC	vocative

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