

the decline of argument structure.

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0. aims.

Each modal verb in German implies different types of modality. The following paper shows that each modal reading relates to a specific configuration of argument structure. The whole diversity of modal readings then reduces to differences in argument structure. Each modal verb provides a basic entry that may project various templates differing in their thematic grid and in the point whether or not they check an [+Acc] feature.

Adopting this analysis we can conceive grammaticalization in accordance with LEHMANN (1995) as the gradual loss of the integrity of the sign. While the original templates of modal verbs involve the full amount of case features and θ -roles, the most developed ones do not carry θ -roles or object case at all.

1. modal verbs in german – a class struggle.

The so called “modal verbs” (MV) in their traditional extension do not constitute a syntactic homogenous class in German. Not a single property can be found which is shared by all of the elements suggested and only by those, as shown in MACHÉ (2004).

- (1) **<können, mögen, dürfen, sollen, müssen, wollen>*
can may, like may shall must want

However there is one promising account to solve the problem of classification. There are only a few verbal items that are able to express epistemicity. Most of them are already mentioned in (1). Apart from these elements only *werden* (=will) and *brauchen* (=need) involve the ability to encode epistemicity. Accordingly we will consider here all those verbal elements as MV, which are able to express epistemic modality.

Note that there remains a second challenge to be met. Each modal verb invokes at least two forms belonging to different categories, as pointed out by DIEWALD (1999: 4; 49ff). The following sections will show, in which kinds of templates each modal may occur.

1.1 transitive templates.

In the beginning every MV started out as a (in)transitive verb, a verb lacking the ability to select an infinitival complement (see DIEWALD 1999 and DWB for further details). However, in New High German (NHG) only a minority of modal verbs retained their transitive nature. Note that *brauchen* acquired its modal abilities only centuries after the traditional MV did. For that reason it occurs more frequently as transitive verb than the remaining MV. Occurrences with an infinitival complement can be found only scarcely.

First of all they bear an [+acc] feature:

- (2) *Der Mörder mag [acc den Affen Honzo]*
the murderer likes the.ACC monkey.ACC Honzo
'the murderer likes Honzo the monkey'

- (3) *Der Mörder kann [acc Italienisch]*
the murderer can Italian.ACC
'the murderer speaks (some) Italian'

- (4) *Der Mörder braucht [acc den Schlachtschussapparat] nicht mehr*
 the murderer needs the.ACC slaughter-machine.ACC NEG more
 ‘the murderer doesn’t need the slaughter machine any longer’

Example (3) may raise objections. One might claim that it invokes an ellipsis of the infinitive. However, ÖHLSCHLÄGER (1989: 71) showed that there is no verb that is able to fill the elliptical gap in (3), for that denotes *talk, understand, read, write* etc. Volitive verbs on the other hand, as *wollen* or *möchte* could be considered as selecting an elliptical infinite complement, because in each case they could be completed with an infinitive denoting *get* or *have*. But this conclusion is not a compelling one.

A second argument for the transitive nature of (at least some) MV concerns their behaviour in passivization.

- (5) [nom *Der Affe*] *wird* *von vielen sehr gemocht*
 the.NOM monkey.NOM PASS.AUX by many very like.PASTPART
 ‘the monkey is very popular among them’
- (6) [nom *Italienisch*] *wird* *von den meisten gekonnt*
 Italian.NOM PASS.AUX by the most can.PASTPART
 ‘Italian is spoken by most of them’
- (7) [nom *Der Schlachtschußapparat*] *wird* *dringend gebraucht*
 the.NOM slaughter machine.NOM PASS.AUX urgently need.PASTPART
 ‘the slaughter-machine is urgently requested’

When these verbs occur with a nominal argument they allow passivization. Although ÖHLSCHLÄGER (1989: 68ff) discusses some good reasons that *wollen* has no real transitive use but includes an ellipsis, it can be passivized in particular contexts, as shown in (8). Nevertheless the passive of *wollen* is not fully productive.

- (8) *Die Grünen glauben, daß die Zeit reif ist, die Vorarlberger*
 the greens think that the time ripe is the Vorarlbergerian
Bevölkerung darüber abstimmen zu lassen, [nom welche Form
 people about vote INFPREP let which.NOM form.NOM
der Mobilität und des Verkehrs] gewollt wird.
 DET.GEN.FEM mobility.GEN and DET.GEN.MASC traffic want.PASTPART PASS.AUX
 ‘the green party thinks that the time has come to let decide the people of Vorarlberg which kind of traffic and mobility they would prefer’
 (COSMAS-corpus: V98/SEP.41217)

However, this is not surprising, if we adopt the assumption that MV started all out as full verbs selecting NPs as their arguments. We even predict that *wollen* should have had a transitive use at some point in history. It seems that this transitive template even hasn’t died out yet.

Third: As true transitive verbs they form prefixed past participles when used in periphrastic past tenses as in (9) to (12). Note that in some cases the infinitivus-pro-participio (IPP) effect is available as well (at least in some dialects). Once more this might be an interference with ellipsis of the infinitive.

- (9) *Der Mörder hat [acc den Affen Honzo] gemocht/?mögen.*
 the murderer PAST.AUX the.ACC monkey.ACC Honzo like.PASTPART/like.IPP
 ‘the murderer liked Honzo the monkey’

- (10) *Der Mörder hat* [_{acc} *Italienisch*] **gekonnt/können.**
 the murderer PAST.AUX Italian.ACC **can.PASTPART/can.IPP**
 ‘the murderer spoke (some) Italian’
- (11) *Der Mörder hat* [_{acc} *den Schlachtschussapparat*] **nicht gebraucht/*brauchen**
 the murderer PAST.AUX the.ACC slaughter-machine.ACC NEG **need.PASTPART/need.IPP**
 ‘the murderer didn’t need the slaughter-machine’
- (12) *Der Mörder hat* [_{acc} *so ein Ende*] **nicht gewollt/wollen**
 the murderer needs a.ACC end.ACC NEG **want.PASTPART/need.IPP**
 ‘the murderer didn’t intend that ending’

One might question the transitive nature of these verbs for they cannot occur in the imperative mood. But this lack seems to relate to the specific non-agentive type of θ -role those verbs assign. True transitives with EXPERIENCER-subjects do not form imperatives either.

- (13) * *Brauch den Schlachtschußapparat!*
 need.IMP the.ACC slaughter-machine.ACC
 intended reading: ‘*Need the slaughter machine’

Summary. Among the set of potential MV determined above four still occur in transitive templates: *können*, *mögen*, *brauchen*, *wollen* (and *möchte* – if we consider it as independent form). Accordingly they assign an internal and an external θ -role and involve an [+acc] feature.

1.2 control templates.

Some MV may be used as control verbs. Like transitive verbs they assign an internal and an external θ -role, but in contrast to transitives, control verbs lack an object case feature. The assumption that even infinitival complements may bear θ -roles is nothing that should bother us it even belongs to the core of generative framework, see CHOMSKY (1981: 93), HORNSTEIN (1999: 84) or REINHART & SILONI (2005: sect 4.1.2). for details. HAIDER (1993: 251) argues that verbal complements in clause union predicates occupy the position of the direct object. As a consequence it would be mere stipulation to assume that the verbal complement receives no θ -role. Moreover the transitive uses do not differ at all from control templates in semantic respects.

One important observation is that *können*, *mögen*, *wollen*, *möchte* in their templates listed below indeed involve external θ -roles on their own. The following diagnostics indicate the existence of an external argument of the MV. First of all control verbs impose selectional restrictions on their subjects. In case of VOLITIONAL *wollen* and *möchte*, the PSYCH-reading of *mögen* and the ABILITY-reading of *können* an animated subject is required. This subject is selected by the MV. (Note that *mögen* in 14b is negative polar in most German varieties, in these cases it requires the presence of a negative element like the sentential negation *nicht*.)

- | | | | | |
|-------|-------------------|------------------------------|----------------|--------------------|
| (14a) | <i>Der Mörder</i> | <i>kann</i> _{ABIL} | <i>tanzen.</i> | MV = can, be able |
| (14b) | <i>Der Mörder</i> | <i>mag</i> _{PSYCH} | <i>tanzen.</i> | MV = like to |
| (14c) | <i>Der Mörder</i> | <i>will</i> _{VOL} | <i>tanzen.</i> | MV = want, intend |
| (14d) | <i>Der Mörder</i> | <i>möchte</i> _{VOL} | <i>tanzen.</i> | MV = would like to |
| | the murderer | MV | dance | |

(15a) * <i>Es</i>	<i>kann</i> _{ABIL}	<i>schneien.</i>	MV = can, be able
(15b) * <i>Es</i>	<i>mag</i> _{PSYCH}	<i>schneien.</i>	MV = like to
(15c) * <i>Es</i>	<i>will</i> _{VOL}	<i>schneien.</i>	MV = want, intend
(15d) * <i>Es</i>	<i>möchte</i> _{VOL}	<i>schneien.</i>	MV = would like to
it	MV	snow	

In (15) the matrix predicate involves a subject that never can bear a thematic role, but the MV needs to discharge its external θ -role. This leads to ungrammaticality. As AXEL (2001) pointed out this restriction holds as well for any type of non-thematic subjects. Accordingly a control verb never selects idiom chunks, expletives or sentential constituents as subjects.

Nevertheless each sentence in (15) has a grammatical readings as well, but this patterns with a clear shift in the denotation of the MV, so that we have to assume those readings belong to different templates. We come back to these readings in section 1.3.

The fact that the readings in (14), (15) require subjects is not surprising. The predicates *können*_{ABIL}, *mögen*_{PSYCH}, *wollen*_{VOLIT} and *möchte*_{VOLIT} each express a modal force that is located within the subject. These kinds of MV are commonly dubbed DYNAMIC modals (DynMV), see ERB (2001), WURMBRAND (2001) both following PALMER (1986).

Further diagnostics that control verbs need to fulfil. As STECHOW (2003: 203f.) points out control verb do only allow de re readings, that is the interpretation where a quantified subject has scope over the MV. De dicto readings (MV scopes over quantified subject)

(16a) <i>Kein Mörder</i>	<i>kann</i> _{ABIL}	<i>kochen.</i>	MV = can, be able
(16b) <i>Kein Mörder</i>	<i>mag</i> _{PSYCH}	<i>kochen.</i>	MV = like to
(16c) <i>Kein Mörder</i>	<i>will</i> _{VOL}	<i>kochen.</i>	MV = want, intend
(16d) <i>Kein Mörder</i>	<i>möchte</i> _{VOL}	<i>kochen.</i>	MV = would like to
NegQ	murderer	MV	cook

^{OK}*de re*: for no murder_i; X_i is able/likes/wants/ would like to cook

de dicto: X_i is able/likes/wants/ would like: that no murder_{ij} cooks:

The negative quantifier in (16) has to be interpreted in the position of the matrix subject not in the position where the subject of the embedded infinitive resides. This indicates that the negative quantifier is (merged and) θ -marked by the matrix predicate, clear evidence for the assignment of an external θ -role.

Moreover control verbs do not show voice transparency, cf HORNSTEIN (1999, 2003), STECHOW (2003: 203) or WURMBRAND (2001) for detailed discussion. When we passivize a standard transitive verb the situation denoted by the passivized verb remains the same as in 17 (a,b).

(17a) *Der Mörder schlachtet [den Hundling]*
the murderer slaughters the.ACC bad-guy.ACC

(17b) [*Der Hundling*] *wird vom Mörder geschlachtet.*
the.NOM bad-guy.NOM PASS.AUX by.+DET.DAT murderer.DAT slaughter.PASTPART

in both (17a,b): murderer slaughters, bad guy is slaughtered

In each of the sentences in (17) the murderer is the one that slaughters and the bad guy the one to be slaughtered. The picture changes if we embed (17) under a control construction. If we embed the active sentence the MV assigns its external θ -role to the subject *der Mörder* (corresponding the embedded AGENT) (18,19), but if we embed the passivized sentence the MV discharges its external θ -role onto the subject *der Hundling / die Torte* (corresponding the embedded THEME) (20,21). So we expect different readings for subordination of (17a,b)

under a control verb. This is exactly what happens. In (18,19) it is *the murderer* who is the source of ability or volition, but in (20) *the bad guy*. The examples in (21) get ungrammatical, because *the tart* is not a viable argument to receive the EXPERIENCER θ -role from the MV, for it is not animate. Consider the following examples (the θ -marked subject always in bold face):

- | | | | | | |
|--------|--|---------|-------------|-----------------------------|-------------------|
| (18a) | Der Mörder kann _{ABIL} | den | Hundling | schlachten. | MV = can, be able |
| (18b) | Der Mörder mag _{PSYCH} | den | Hundling | schlachten. | MV = like to |
| (18c) | Der Mörder will _{VOL} | den | Hundling | schlachten. | MV = want,intend |
| (18d) | Der Mörder möchte _{VOL} | den | Hundling | schlachten. | MV = would like |
| | the murderer MV | the.ACC | bad-guy.ACC | slaughter | |
| | 'the murderer is able to/ likes to... cut the bad guy into pieces' | | | | |
| | | | | | |
| (19a) | Der Mörder kann _{ABIL} | die | Torte | schlachten. | MV = can, be able |
| (19b) | Der Mörder mag _{PSYCH} | die | Torte | schlachten. | MV = like to |
| (19c) | Der Mörder will _{VOL} | die | Torte | schlachten. | MV = want,intend |
| (19d) | Der Mörder möchte _{VOL} | die | Torte | schlachten. | MV = would like |
| | the murderer MV | the.ACC | tart.ACC | slaughter | |
| | 'the murderer is able to/ likes to... cut the tart into pieces' | | | | |
| | | | | | |
| (20a)? | [Der Hundling] kann _{ABIL} | vom | Mörder | geschlachtet werden. | MV = can, be able |
| (20b) | [Der Hundling] mag _{PSYCH} | vom | Mörder | geschlachtet werden. | MV = like to |
| (20c) | [Der Hundling] will _{VOL} | vom | Mörder | geschlachtet werden. | MV = want,intend |
| (20d) | [Der Hundling] möchte _V | vom | Mörder | geschlachtet werden. | MV = would like |
| | [the bad-guy].NOM MV | by-the | murderer | slaughter.PASTPART PASS.AUX | |
| | | | | | |
| (21a)* | [Die Torte] kann _{ABIL} | vom | Mörder | geschlachtet werden. | MV = can, be able |
| (21b)* | [Die Torte] mag _{PSYCH} | vom | Mörder | geschlachtet werden. | MV = like to |
| (21c)* | [Die Torte] will _{VOL} | vom | Mörder | geschlachtet werden. | MV = want,intend |
| (21d)* | [Die Torte] möchte _V | vom | Mörder | geschlachtet werden. | MV = would like |
| | [the tart].NOM MV | by-the | murderer | slaughter.PASTPART PASS.AUX | |

in (18,19): murderer: {wants/ is able to...} – # bad guy, tart: {wants, is able to...}

in (20, 21): bad guy, *tart: {wants/ is able to...} – # murderer: {wants/ is able to...}

With respect to most verbal properties, control verbs behave just as usual lexical full verbs do they are possible in questions, w-questions they can be embedded in any kind of questions, in any past or future context and finally they may be subordinated by other modals.

The only peculiarity in contrast to standard transitives is that in the control templates passive of the MV is no longer available:

- | | | | | |
|--------|---|----------|--------------------------|-------------------|
| (22a)* | [Den Hundling schlachten] | wird | gekonnt _{ABIL} | MV = can, be able |
| (22b)* | [Den Hundling schlachten] | wird | gemocht _{PSYCH} | MV = like to |
| (22c)* | [Den Hundling schlachten] | wird | gewollt _{VOL} | MV = want,intend |
| | [theACC bad-guy.ACC slaughter] | PASS.AUX | MV.PASTPART | |
| | intended reading 'cut the bad guy into pieces is been able to / liked to / intended to' | | | |

This is not surprising for the direct object is an infinitival complement thus unable to bear case features on its own. Correspondingly it cannot receive [+nom] after being moved into the position of the matrix subject. Therefore the derivation crashes.

Moreover the control templates of MV obligatorily show up with IPP when occurring in periphrastic perfect tense.

- (23a) *Der Mörder hat den Hundling schlachten können/*gekonnt* MV = can, be able
 (23b) *Der Mörder hat den Hundling schlachten mögen/*gemocht* MV = like to
 (23c) *Der Mörder hat den Hundling schlachten wollen/*gewollt* MV = want, intend
 the murderer PAST.AUX the. bad-guy. slaughter MV.PASTPART/MV.IPP
 ‘the murderer was able to/ liked to... cut the bad guy into pieces’

As their transitive counterparts control MV are not compatible with imperative mood for semantic reasons. A last property to be mentioned is their ability to licence clausal pronouns as pointed out first time by ROSS (1969). The pronoun is bound by the clausal complement in bold face.

- (24a) *Der Mörder will_{VOL} [die Torte schlachten]. Der Pülcher will_{VOL} **es** auch.*
 (24b) *Der Mörder mag_{PSY} [die Torte schlachten]. Der Pülcher mag_{PSY} **es** auch.*
 (24c) *Der Mörder kann_{ABIL} [die Torte schlachten]. Der Pülcher kann_{AB} **es** auch.*
 the murderer MV the. tart. slaughter the crook MV PRN too
 ‘the murderer is able to/ likes to... cut the tart into pieces, the crook does as well’

Yet there remains one big problem to be solved. Those instances of control verbs are biclausal from a semantic point of view (because they involve two independent events) but monoclausal from a syntactic point of view as put forward by REIS (2001) or WÖLLSTEIN-LEISTEN (2001). Apart from this it is far from clear how control construction could be implemented in a contemporary syntactic framework. See WURMBRAND (2001) or HORNSTEIN (1999, 2003) for recent discussion. For our matters we can skip the discussion on the exact manner of representing control. The only crucial thing is that control verbs (opposed to raising verbs) bear their own external θ -role.

Summary. Among the MV we find four items still occurring as control verbs: *können*, *mögen*, *wollen*, *möchte*. They all select an infinitival complement as direct object. Further they assign two θ -roles: an internal one to their clausal objects and an external one to their subjects. Opposed to their transitive counterparts their complements lost the ability to bear case features.

1.3 non epistemic raising templates.

The question where the line between control and raising modals should be drawn is subject to lively debate. FINTEL & IATRIDOU (200?) or ABRAHAM (2005) suggest to extend the group of MV with underlying control structure to remaining non-epistemic (= “circumstantial”) MV (CircMV) as well: *müssen*, *dürfen*, *sollen*. The majority of accounts however assume that CircMV can (or must) be threatened as raising verbs (ao. ÖHLSCHLÄGER 1989, WURMBRAND 2001, REIS 2001). The remainder of this section will discuss some convincing arguments that CircMV at least in some cases can involve raising constructions.

In contrast to control verbs raising verbs do not impose selectional restrictions on their subjects. Circumstantial *dürfen*, *müssen*, *sollen*, *brauchen* even tolerate non-thematic subjects, this indicates clearly that they cannot assign a proper external θ -role (see 25). The same holds as well for the particular readings of the verbs already common from section 1.2: the POSSIBILITY readings *mögen*_{POSS} and *können*_{POSS}, and the WEAK VOLITIONAL reading *wollen*_{WEAK} (it seems that *möchte* involves an weak volitional reading as well. For reasons of time I will skip the detailed discussion) Opposed to their uses in control constructions the latter show up with a clear semantic shift, when used as raising verbs.

- (25a) *Es darf ruhig schneien.*
 it may PARTICLE snow
 ,you needn’t worry if it starts to snow, it won’t cause any damage to your new car’

- (25b) *Es muß schneien.*
 (25c) *Es soll schneien.*
 it must/should snow
 ‚It has to snow (otherwise we can’t go out skiing)‘
- (25d) *Es braucht hier nicht (zu) schneien.*
 it need here NEG PARTICLE snow
 ‚It needn’t to snow here (because they have an artificial snow generating plant anyway)‘
- (25e) *Es kann_{POSS} hier schneien.*
 (25f) *Es mag_{POSS} hier schneien.*
 it can here snow
 ‚In principle it is possible that it snows here (it already happened once)‘
- (25g) *Es will_{WEAK} einfach nicht schneien.*
 it want simply NEG snow
 ‚It simply doesn’t happen to snow‘

Note that *brauchen* behaves particular with respect to two facts. First it is negative polar that is it can only occur in negated contexts or in questions. But this is nothing that should prevent us to regard *brauchen* as true MV. For negative polarity is a property that during the course of history often shew up with various modals. In that sense *dürfen* originally started out as negative polar item. As mentioned in 1.2 the control verb *mögen_{PSYCH}* is obligatorily negative polar as well in most German varieties. Moreover *brauchen* doesn’t select bare infinitives as other MV do but infinitives with *zu*. In spoken language however the infinitival preposition may be omitted.

The semantic analysis *wollen_{WEAK}* turns out to be intricate. In contrast to *wollen_{VOL}* the source of the volition is not encoded by the sentential subject but may remain covert as in (25g), where it seems that it is the speaker himself who is the source of volition. For a somewhat different reasoning see EHRICH (2001). Apart from subjects with out semantic content as *es* from weather verbs in (25) the seven MV enlisted above even allow a whole bunch of further non-thematic subjects as subject sentences or subjectless constructions as pointed out by AXEL (2001: 39).

One major argument against the raising analysis of CircMV was put forward by DIEWALD (1999: 62). She claims that the circumstantial modal assigns its external semantic role always to the matrix subject (bold face).

- (26a) [**Der Junge**] darf Paula besuchen
 the boy.NOM may Paula.ACC visit
 DIEWALD’s judgement: ‘the boy is allowed to visit Paula’
 #‘Paula is allowed to be visited by the boy’
- (26b) [**Paula**] darf [von dem Jungen] besucht werden
 Paula.NOM may by the. boy.DAT visit PASS.AUX
 DIEWALD’s judgement: ‘Paula is allowed to be visited by the boy’
 #‘the boy is allowed to visit Paula’

According to DIEWALD only the sentential subject can be interpreted as the bearer of the permission. However this is not the case. The examples in (27) clearly indicate that the BEAR may also be encoded as direct object or might be not present in the sentence at all.

- (27a) [*Der Panzer*] *darf* ([*von den Rekruten*]) *bemalt werden*.
 the tank.NOM may by the recruits.DAT painted PASS.AUX
 ‘The recruits are allowed to clean the tank’
 * ‘The tank is allowed to be cleaned by the recruits’
- (27b) [*Der Panzer*] *muß* ([*von den Rekruten*]) *bemalt werden*.
 (27c) [*Der Panzer*] *soll* ([*von den Rekruten*]) *bemalt werden*.
 the tank.NOM must/should by the recruits.DAT painted PASS.AUX
 ‘The recruits are obliged to clean the tank. (This is an order).’
 * ‘The tank is obliged to be cleaned by the recruits’
- (27d) [*Der Panzer*] *braucht* ([*von den Rekruten*]) *nicht bemalt zu werden*.
 the tank.NOM may by the recruits.DAT NEG painted INF.PRP PASS.AUX
 ‘The recruits needn’t to clean the tank’
 ‘The tank needn’t to be cleaned by the recruits’
- (27e) [*Der Panzer*] *mag*_{POSS} ([*von den Rekruten*]) *bemalt werden*.
 (27f) [*Der Panzer*] *kann*_{POSS} ([*von den Rekruten*]) *bemalt werden*.
 the tank.NOM can by the recruits.DAT painted PASS.AUX
 ‘The recruits can/may clean the tank’
 ‘The tank can/may be cleaned by the recruits’
- (27g) [*Der Panzer*] *will*_{WEAK} ([*von den Rekruten*]) *einfach nicht bemalt werden*.
 the tank.NOM happen to by the recruits.DAT simply NEG painted PASS.AUX
 ‘The recruits don’t happen to clean the tank’
 ‘The tank doesn’t happen to be cleaned by the recruits’

In (27a-c) the subject cannot be interpreted as the BEAR, because it is inanimate and consequently not a suitable target of a permission or obligation. Instead that BEAR need not be encoded syntactically at all. In each of the examples above the agentive *by*-PP [*von den Rekruten*] can be omitted.

The sentences (27d-g) do not involve the deontic concepts of permission and obligation, but even more abstract ideas as practical necessity or possibility. But still the subjects in those examples remain without any semantic relation to the MV. In none of these sentences *the tank* is conceived as particular source of modality as it is the case with volitional, psych or ability MV (see section 1.2), rather it is completely independent from the modal in any semantic respect. Note further that true control verbs do not allow infinitival complements with inanimate subjects. Those would require inanimate subjects as controllers, however this is ruled out. They cannot receive the type of θ -roles usually assigned by control verbs as AGENT or EXPERIENCER restricted to animate entities. For that reason control verbs involving inanimate subjects result in ungrammatical readings as already shown in (21).

As a consequence DIEWALD’s judgements in (26) cannot be correct. The BEAR need not necessarily be encoded as the overt subject of the CircMV. Instead even the objects *Paula* (26a) an *von dem Jungen* (26b) can be understood as the one and only BEAR. Further there are also split readings available, where both the subject and the object are concerned by the permission or obligation. Finally the BEAR can be identified with a third party. For example the obligation or permission in (26a,b) can be addressed to a baby sitter who is in charge of one of the two kids *Paula* or the boy. These readings evolve when you add a statement as *Das erlaube ich Dir*, (*I allow you to let it happen*), where the baby sitter is the addressee of that utterance. This data clearly suggests that the BEAR is not identified by θ -assignment but rather by discourse information or pragmatic principles.

Last but not least there is a third source of evidence that severely challenges the control analysis for CircMV: the distribution of de-dicto and de-re readings. As already shown in 1.2 only raising predicates allow de dicto interpretations. In order to demonstrate the affinity of all CircMV to raising constructions let me draw a further distinction. FINTEL & IATRIDOU (200?) suggest that circumstantial *müssen* needs to be split in two different uses. Deontic *müssen* (DEO) involves always a human imposer of obligation, which remains covert, whereas in the practical necessity *müssen* (PN) the circumstances impose the modality. This distinction makes sense for other MV, too, at least for *können* and *dürfen*, which involve true deontic uses as well as practical permission / possibility readings.

FINTEL & IATRIDOU argue that only PnMV generate de dicto-readings, while DeoMV are restricted to de re interpretations. As a consequence they conclude that the latter have to be conceived as control verbs. However there are examples where modality is imposed by a human being and scope of the MV over the quantified subject is possible. Imagine (28) is uttered by a harsh sergeant ordering a couple recruits to guard a newly painted tank from dusk till dawn. Note that (28) has de dicto reading, where the recruits are free to alternate in their duty:

- (28a) *Ein Mann muß immer wach bleiben. Das ist ein Befehl.*
 (28b) *Ein Mann soll immer wach bleiben. Das ist ein Befehl.*
 one man must always awake stay that is an order.
 ‘(At least) one of you has to stay awake. That’s an order.’

If the MV then is not deontic, what else could it be? Of course one could claim (28) is rather PN and the obligation-reading is only generated by pragmatic effects, but this reasoning undermines the distinction PnMV vs. DeoMV. Nevertheless there are good reasons to follow FINTEL & IATRIDOU in their finer graded classification of MV. While it was shown above that PnMV and DeoMV do not differ in whether or not they assign an external θ -role, it seems that only DeoMV encode the imposer of modality as covert argument, whereas PnMV lack this argument. The remaining CircMV allow de dicto interpretations as well:

- (28c) *Ein Mann darf immer wach bleiben.*
 one person may always awake stay
 ‘(At least) one of you is allowed to stay awake.’
- (28d) *Ein Mann braucht nicht immer wach zu bleiben.*
 one person need NEG always awake INF.PRP stay.
 ‘(At least) one of you need not to stay awake.’
- (28e) *Ein Mann mag_{POSS} immer wach bleiben.*
 (28f) *Ein Mann kann_{POSS} immer wach bleiben.*
 one person can/may always awake stay
 ‘(At least) one of you can/may stay awake.’
- (28g) *Ein Apfel will_{WEAK} nicht in den Panzer passen.*
 one person want NEG in the tank fit
 ‘One of the apples won’t fit. into the tank’

The sentence (28g) could be uttered during a manoeuvre where recruits had the duty to stuff a ton of apples into a tank. Imagine that the whole amount does not fit into the tank, how ever hard they try one apple remains outside.

The distribution of de dicto readings, voice transparency and the selection of non-thematic subjects provides overwhelming evidence to adopt a raising analysis for CircMV.

Still, following ABRAHAM (2005), one could suspect that CircMV have to be control verbs in assuming that they assign their external θ -role either to their subject or to a covert argument.

- (29) *Der Schlüssel_i muß [e_i immer am Haken hängen]*
 the.NOM key.NOM must.3PS always on.the hook hang
 ‘the key has to be on the hook all the time’

The analysis runs as follows: *müssen* assigns three θ -roles. One to the imposer, which remains always covert. A second one to the imposee, which normally is assigned to the subject but covert in (29) and one to the clausal complement. However, this analysis raises a big question: What is the exact relation of *der Schlüssel* to the MV *müssen*? Is there θ -marking? There are two possible solutions:

First *müssen*_{DEO} assigns optionally a fourth θ -role to the overt subject in case if the imposee remains covert, as in (29). But the nature of this role seems quite mysterious. Second the subject is only θ -marked by the embedded infinitive and then moved to the higher clause. Believe it or not but this is exactly the raising hypothesis put forward in this paper. It seems to be impossible to avoid the raising analysis for CircMV.

Apart from the peculiarities sketched above CircMV behave as most lexical verbs. They can occur embedded in questions past or future contexts and selected by both EpMV and non-epistemic MV. Like DynMV they cannot be passivized and they have an obligatory IPP (see section 1.2). But these are common facts, consult ÖHLSCHLÄGER (1989) for a comprehensive overview.

Consider finally that CircMV like DynMV license clausal pronouns:

- (30a) *Der Apfel darf [im Panzer liegen]. Die Birne darf es auch.*
 (30b) *Der Apfel muß [im Panzer liegen]. Die Birne muß es auch.*
 (30c) *Der Apfel soll [im Panzer liegen]. Die Birne soll es auch.*
 (30d) *Der Apfel mag [im Panzer liegen]. Die Birne mag es auch.*
 (30e) *Der Apfel kann [im Panzer liegen]. Die Birne kann es auch.*
 the apple MV in.the. tank. lie the pear MV PRN too
 ‘the apple may/has to/shall/can lie in the tank, the pear does as well’
- (30f) *Der Apfel braucht nicht [im Panzer zu liegen]. Die Birne braucht es auch nicht.*
 the apple need NEG in.the. tank. lie the pear need PRN too NEG
 ‘the apple needn’t to lie in the tank, neither the pear does’
- (30g) *Der Apfel will nicht [in den Panzer passen]. Die Birne will es auch nicht.*
 the apple MV NEG into.the. tank. lie the pear MV PRN too NEG
 ‘the apple won’t fit into the tank, neither the pear does’

Summary. Quite a big range of potential MV might occur as CircMV: *dürfen*, *müssen*, *sollen*, *brauchen*, as well as *mögen*_{POSS}, *können*_{POSS}, *wollen*_{WEAK}. The latter show a clear semantic shift as opposed to their DynMV counterparts discussed in 1.2. Evidence concerning selectional restrictions, voice transparency and de dicto readings suggests that CircMV have to be analyzed as raising verbs. That is, verbs that do not assign an external θ -role to their subjects. CircMV hence only involve an internal θ -role that is assigned to the clausal complement.

1.4 epistemic templates.

Opposed to the case of CircMV there is no doubt about the syntactic status of EpMV in German they are unanimously regarded as raising verbs. Nevertheless capturing the exact nature of epistemicity turns out not to be too easy, especially in cases where the (Circ)MV denotes a possibility. The most fruitful approach is put forward by WESTMORELAND (1996,

1998) and ZIEGLER (2006), where they propose that the use of an EpMV indicates that the speaker doesn't explicitly know whether the content of the uttered proposition is true or not. Sentences like *Sarah might have seen the movie – I saw her watching it* violates some crucial maxims of communication. Consider (31) a familiar advice about the dangers of smoking.

- (31) *Rauchen kann tödlich sein*
 smoking can lethal be
 CircMV: 'Smoking kills'
 EpMV: 'Smoking might kill, (but I do not really know if this is indeed the case)'

In order to employ the circumstantial use the speaker needs to know that the event embedded under the MV happened at least once before and is happening regularly. This is the intended reading. However, (31) generates an absurd interpretation as well. Using an epistemic modal the speaker would indicate that she/he doesn't know whether the uttered proposition holds but that she/he has good reasons to assume that it is true, see WESTMORELAND (1998) for details.

Further criteria to distinguish between EpMV on the one hand and DynMV, CircMV on the other hand concern the internal structure of the embedded clause. While epistemic verbs may embed clausal complements of all kinds, dynamic and circumstantial ones are restricted to clauses containing a DO or BECOME operator. As ROTHMAYR (2006) pointed out, true stative verbs lack both a DO and a BECOME operator. In most cases EpMV occur with stative infinitives. Opposed to that DynMV or CircMV can only scarcely be found with these types of complements. In case the embedded verb involves stative semantics we will find a DO/BECOME operator at a different place in the predicate. As in (31), where the operator is located in the predicate *lethal*. The operator might even remain covert as in examples (32). But note that the presence of this operator changes the event type of the embedded clause. Accordingly with a CircMV the infinitival complement never denotes a permanent state, rather a process or event, even if it involves a stative verb.

This generalisation holds at least when only singular DP's are involved which are discourse bound. It seems that plural or negative quantifier may manipulate the relation between modals and the DO/BECOME operator. Consider the ambiguous examples (32). Note that *sollen* according to my knowledge hasn't been discussed as EpMV yet, only as quotative verb. But as you see it generates an epistemic reading as well, at least in its subjunctive form:

- (32a) *Auf der Insel kann es kalt sein.*
 (32b) *Auf der Insel mag es kalt sein.*
 on the island can it cold be
 CircMV: 'It can GET cold on that island'
 EpMV: 'It might be (always) cold on that island'
- (32c) *Auf der Insel muß es kalt sein.*
 on the island must it cold be
 CircMV: 'It must GET cold on that island'
 EpMV: 'It must be (always) cold on that island'
- (32d) *Auf der Insel soll(te) es kalt sein.*
 on the island should it cold be
 CircMV: 'It should GET cold on that island'
 EpMV: 'It should be (always) cold on that island'

Whenever a CircMV (or DynMV) is employed the stative V *sein* refers to an intermediate state, but never to a permanent one. EpMV however even embed permanent states. Imagine there are a couple of explorers discovering an unknown island. Before they reach the coast they speculate about climate on that island. One of them has good reasons to assume that it is

the nature of that island that it is always cold there, so he could utter some sentence of (32) depending on how firm his knowledge is.

The reason why DynMV and CircMV require complements containing a DO/BECOME operator is simple. They function as modifiers for that kind of operators. I assume here that in order to assign an internal θ -role to its clausal complement the MV needs to access the DO/BECOME operator. Accordingly the θ -marking of the internal argument roughly can be conceived as a semantic relation between the MV and the DO/BECOME operator.

Apart from the four examples just mentioned German knows at least four more templates that have to be considered as EpMV. Sentences (32e-g) show similar ambiguities as above but they are not suitable to demonstrate the interaction of CircMV and DO/BECOME operator because *brauchen* always involves an intervening negative quantifier, *dürfen* can only be epistemic in subjunctive mood hence not really ambiguous, the counterpart of epistemic *werden* is not a circumstantial modal but a future auxiliary. Example (32h) is unambiguous.

(32e) *Auf der Insel braucht es nicht kalt zu sein.*
 on the island need it NEG cold INF.PRP be
 EpMV: ‚It need not to be (always) cold on that island’

(32f) *Auf der Insel dürfte es kalt sein.*
 on the island might it cold be
 EpMV: ‚It might be (always) cold on that island’

(32g) *Auf der Insel wird es kalt sein.*
 on the island will it cold be
 EpMV: ‚It will be (always) cold on that island’

(32h) *Die Ausstellung will ein Erfolg gewesen sein*
 the exhibition.NOM wants a success be.PAST.PRT BE
 EpMV ‚It seems that the exhibition has been a success.’

It is often contested whether *brauchen* can be attributed an epistemic use or not, see ÖHLSCHLÄGER (1989:). Although rare in written language they do occur.

(33) *Es muß etwas vorgefallen sein, was ihn kränkte.*
 It must something happen.PASTPART aux REL.PRN him offend

Frisch brauchte das gar nicht bewußt gewesen zu sein.
 Frisch.DAT need.PAST that PRT neg conscious be.PASTPART INF.PRP be
 ‘Something must have happened. Frisch needn’t have noticed it.’
 (COSMAS-corpus: R99/JUN.46269)

In this example *brauchen* has an undeniable epistemic interpretation, even if its temporal specification remains quite mysterious. In oral communication they are used much more frequently.

When CircMV modify DO/BECOME what exactly do EpMV then? HÖHLE (1992) pointed out good reasons for the existence of an assertive operator located obviously in C^0 . Depending on its value this operator may indicate that the speaker considers the sentence he utters. That is any usual assertive sentence contains an assertive operator valued “true”. Already ERB (2001) showed that the function of EpMV is quite similar to those of the assertive operator (AST) and concludes that they are generated at the same projection (MP below CP).

This conclusion is not compelling. The crucial fact is that EpMV and AST operate in the same position, usually in C^0 – but there is nothing said about where they originally were merged. I argue now that EpMV emerged because they lost the ability to modify the DO/BECOME operator. Instead they entertain a relation with the AST operator, which has roughly the meaning ‘it is factive that Φ ’.

- (34) *must* [Φ ...**DO/BECOME** [BE (...)]]: *it is necessary that x becomes/does y*
must [**AST** [Φ]]: *it is necessary that Φ is factive*
- (35) *can* [Φ ...**DO/BECOME** [BE (...)]]: *it is possible that x becomes/does y*
can [**AST** [Φ]]: *it is possible that Φ is factive*

To put it shortly, while DynMV and CircMV need to modify a DO/BECOME operator, that is need to discharge an internal θ -role on their clausal complement, EpMV lost this ability of modification, in different words, they do not assign internal θ -roles anymore.

The assumption that only DynMV and CircMV may assign internal θ -roles but not EpMV is corroborated by the behaviour of clausal pronouns. As it seems they need to be licensed by some syntactic means. It was shown in sections 1.2 and 1.3 that both DynMV and CircMV allow pronominalization of their clausal complements. EpMV, however, do not license clausal pronouns.

- (36a) * *Der Affe kann_{Ep} [Fieber haben]. Der Biber kann_{Ep} es auch.*
(36b) * *Der Affe mag_{Ep} [Fieber haben]. Der Biber mag_{Ep} es auch.*
(36c) * *Der Affe muß_{Ep} [Fieber haben]. Der Biber muß_{Ep} es auch.*
(36d) * *Der Affe soll(te)_{Ep} [Fieber haben]. Der Biber soll(te)_{Ep} es auch.*
(36e) * *Der Affe dürfte_{Ep} [Fieber haben]. Der Biber dürfte_{Ep} es auch.*
(36f) * *Der Affe wird_{Ep} [Fieber haben]. Der Biber wird_{Ep} es auch.*
(36g) * *Der Affe will_{Ep} [Fieber haben]. Der Biber will_{Ep} es auch.*
the monkey MV fever have. the beaver MV PRN too
‘the monkey can/must/should/might/will/seems to have fever, the beaver too’
- (36h) * *Der Affe braucht_{Ep} nicht [Fieber zu haben]. Der Biber braucht_{Ep} es auch nicht.*
the apple need NEG feaver have the beaver need PRN too NEG
‘the apple needn’t to lie in the tank, neither the pear does’

The reason why (36) gets ungrammatical should be obvious. Whereas DynMV and CircMV include internal θ -roles thus are potential licensors of clausal pronouns EpMV do not. Moreover DynMV and CircMV due to their argument structure constitute independent events in the external world, in linguistic terms they are propositions. Again, EpMV lost their argument structure completely, which is reflected by the fact that they cannot be conceived as events in the external world any more neither as independent proposition.

However there have been suggested alternative diagnostics to decide whether a clausal complement is θ -marked or not. KENESEI (2001: 85) argues that in a clausal complement is assigned an internal θ -role if and only if it is at least a CP or IP. Smaller verbal complements never can bear θ -roles. But nevertheless German seems to be a different case. It is a commonly known fact that there are German verbs that are biclausal from a semantic point of view, but monoclausal from a syntactic one. A lexical item like *versuchen* constitutes a proposition on its own and embeds another proposition. On the other hand it forms together with its infinitival complement a monosentential construction that involves phenomena like clitic climbing and unified domain of negation and adverb interpretation. As a consequence the infinitive is analyzed as VP (or vP) or V head in a verbal complex. See HAIDER (1993: 252), WÖLLSTEIN-LEISTEN (2001) or WURMBRAND (2001) for extended discussion. At least

for the German case we need to assume that even elements that are smaller than CP/IP may constitute independent propositions.

Apart from this there has to be a moment in the process of grammaticalization where the verb loses its ability to assign the internal θ -role. The French Future Simple provides an interesting example. The future morphemes evolved out of the finite present forms of *avoir* (*have*). Still the majority of the future morphemes correspond fully to the paradigm of *avoir*.

- (37) *Je chanter-ai*
 I sing.INF-**have.1PS**
 ‚I will sing’

In that case it is far from plausible to regard the allomorph */-ai/* as independent θ -marker of the infinitive. It seems then that even internal θ -roles can get lost in the course of grammaticalization. Of course German EpMV’s aren’t as grammaticalized as the French Future Simple morpheme, but still they are alike in that both completely lost their argument structure. Above I put forward a couple of good reasons that the loss of the internal θ -role happened in the development from CircMV to EpMV. I will proceed in that in the following section.

Summary: At least eight MV templates have to be considered as EpMV in German: *kann*, *mag*, *muß*, *soll(te)*, *dürfte*, *wird*, *will* and finally *braucht*. Opposed to the items discussed in the section 1.1-1.3 EpMV totally lost their argument structure. As a consequence became operators that modify the AST-operator usually located in the C^0 head.

1.5 quotative templates.

A last type of modality remains still to be discussed. QuotMV are often considered as a subclass of EpMV as by ÖHLSSCHLÄGER (1989), DIEWALD (1999) or REIS (2001). In the framework of WURMBRAND (2001) *wollen*_{QUOT} would rather be treated as lexical verb. The classification turns out to be quite intricate for different reasons. In contrast to EpMV quotative modals do not signal that the speaker doesn’t really know if the proposition holds but indicate that the proposition is claimed to be true by a different person.

If QuotMV indeed are epistemic verbs they are expected to embed stative verbs denoting permanent states. Consider the ambiguous examples below:

- (38a) *Der Kanzler will ein Außerirdischer sein.*
 the chancellor wants a alien be
 DynMV ‚**The chancellor** wants to BECOME an alien’
 QuotMV: ‚**The chancellor** claims to BE an alien (by nature)’
- (38b) *Der Kanzler soll ein Außerirdischer sein.*
 the chancellor shall a alien be
 CircMV ‚(somebody wants) that the chancellor BECOMES an alien’
 QuotMV: ‚(somebody claims) that the chancellor IS an alien (by nature)’

Indeed QuotMV behave exactly as EpMV do. Whereas stative complements of their dynamic and circumstantial counterparts always get an BECOME/DO reading, QuotMV (like EpMV) may embed stative verbs referring to permanent states, as demonstrated in (38). It seems that QuotMV do not assign internal θ -roles neither. If this is the case we predict that they fail to license clausal pronouns, as well.

- (39a)* *Der Kanzler will_{Quot} [Fieber haben]. Der König will_{Quot} es auch.*
 (39b)* *Der Kanzler soll_{Quot} [Fieber haben]. Der König soll_{Quot} es auch.*
 the chancellor MV fever have. the king MV PRN too
 ‘the chancellor claims/is said to to have fever, the king does too’

It appears then that QuotMV are identical to EpMV, but however they differ in a crucial respect. While EpMV totally lack argument structure, QuotMV involve arguments. *wollen_{QUOT}* has roughly the meaning of *to claim*, a undeniable control verb. As that control verb *wollen_{QUOT}* imposes severe restriction on its subject: an adequate ‘*claimer*’ has to be animate. That indicates that there is some kind of semantic relation (θ -marking). In the case of *sollen_{QUOT}* the *claimer* is not encoded as the subject, but is represented by a covert argument as already suggested by DIEWALD (1999). Thus it is a raising verb like other EpMV as well. But still *sollen_{QUOT}* is different from the latter for it involves a covert argument. Take a look at the scheme for *wollen_{QUOT}* (40) and *sollen_{QUOT}* (41). ‘x’ represents an overtly encoded argument whereas ‘a’ stands for a covert one.

- (40) x want [_{Φ} ...DO/BECOME [BE (...)]]: x wants that x becomes/does y
 x want [AST [Φ]: x wants that Φ is factive
- (41) a want [_{Φ} ...DO/BECOME [BE (...)]]: a wants that x becomes/does y
 a want [AST [Φ]: a wants that Φ is factive

Again the dynamic and circumstantial uses modify the DO/BECOME operator while the quotative ones modify the AST operator of a proposition Φ . Note that the peculiarity of QuotMV is that they involve arguments exterior to the proposition they modalize (Φ). In different word, while EpMV being mere operators do not constitute independent events in the external world QuotMV do. This allows the latter to occur in environments where epistemic uses are ruled out (questions, future contexts, past contexts, epistemic contexts). Due to the different state of their arguments *wollen_{QUOT}* and *sollen_{QUOT}* differ as well in their distribution. The fact that *wollen* involves an overt argument makes this verb more resistant to more marked environments. These new insights enable us to understand REIS’ (2001: 294) observation that QuotMV may occur in a broader distribution than EpMV.

Summary. There are only two broadly accepted QuotMV: *wollen* and *sollen*. Some authors like FRITZ (1997) argue that *dürfte* might come up with such readings as well. Furthermore it is possible that *möchte* being semantic identical to *wollen* is able to encode quotative modality, too. The peculiarity of QuotMV is that while they lack an internal θ -role (as EpMV do) they still involve a second argument, which is classic a external argument in the case of *wollen_{QUOT}* and a covert one in the case of *sollen_{QUOT}*.

1.6. conclusions.

Up to now we encountered five distinct templates of MV. The table below gives a sketch on how the overall situation seems to look like. Note that all of the nine lexical items involve epistemic uses. The ability to encode epistemic modality seems thus to be viable as the class defining property for MV.

	without infinitive		with infinitive			
	Pred	(in)trans	DynMV	CircMV	QuotMV	EpMV
<i>können</i>	×	ABIL	ABIL	DEO,POSS	×	√
<i>mögen</i>	×	PSYCH	PSYCH	POSS	?	√
<i>brauchen</i>	×	REQU	×	DEO,PN	×	√
<i>wollen</i>	×	VOL	VOL	WEAK	√	√
<i>möchte</i>	×	VOL	VOL	?WEAK	?√	?√
<i>sollen</i>	×	×	×	DEO	√	√
<i>dürfen/ dürfte</i>	×	×	×	DEO	?√	√
<i>müssen</i>	×	×	×	DEO,PN	×	√
<i>werden</i>	√	×	×	×	×	√

2. towards a syntactic analysis of modal verbs.

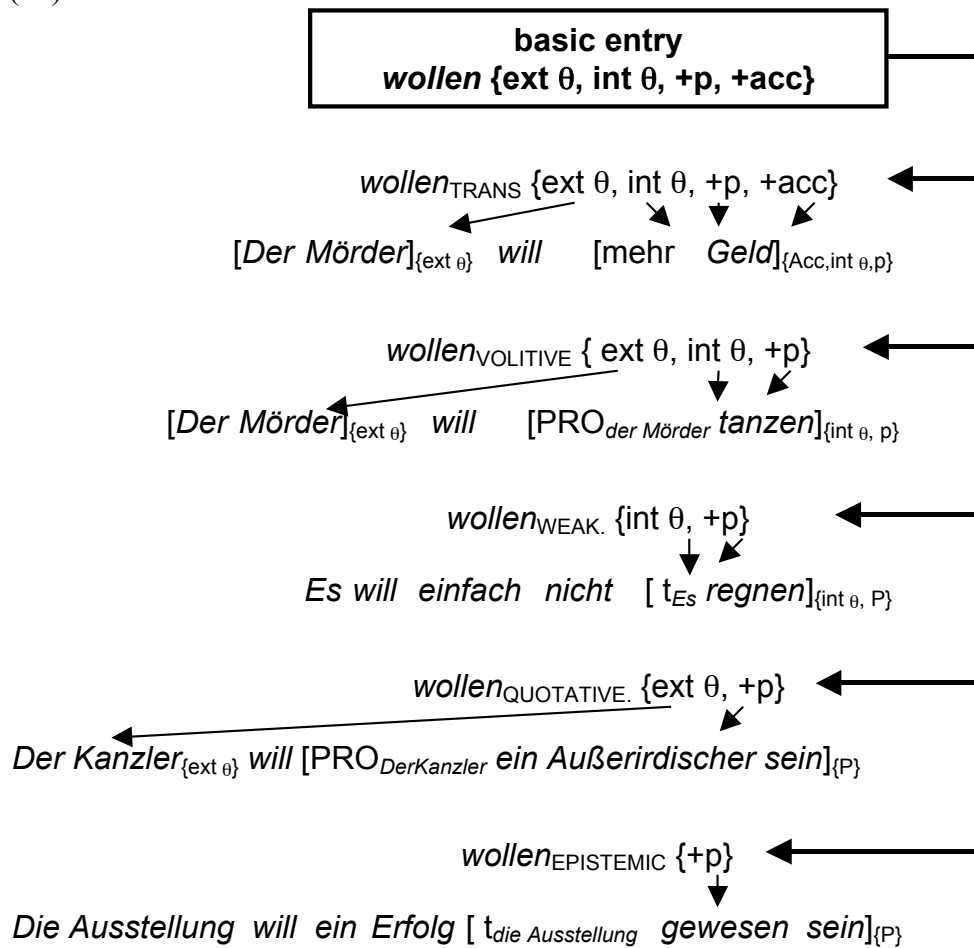
Is there a way to represent the multitude of templates in a descriptive adequate way? WURMBRAND (2001), ERB (2001) both assume that different modal templates have to be generated as different syntactic categories that are ordered in strict Cinque-style hierarchies: *Aux⁰>Mood⁰>v⁰* (WURMBRAND) or *functional>semi-functional>lexical* (ERB). Both analyses however face severe challenges. First of all it is not very attractive to stipulate that different but clearly related templates have to be considered as different lexical items. As a consequence one would need to assume multiple lexicon entries, which would be clearly against the intuition of CHOMSKY (1981) and the Principle of Lexicon Uniformity by REINHART (2002).

Moreover these accounts fail to explain the evident difference between EpMV and QuotMV. It remains unclear where they are generated. If QuotMV were functional elements (*Aux⁰, Mood⁰*) they shouldn't be able to assign θ -roles at all, but as shown in 1.5 they do. If QuotMV were lexical elements like their dynamic and circumstantial counterparts it is mysterious how the quotative semantic does evolve.

Finally WURMBRAND cannot explain why DynMV (in her terms *v⁰*) may select CircMV or tense auxiliaries (*Aux⁰*). While ERB's approach can handle this she admits that her model doesn't solve the iteration problem in a satisfying way.

A convenient way to avoid those difficulties is to assume that all modal templates are of the category V and indeed all of them display typical verbal properties like temporal inflection or agreement with the subject. The differences between those modal templates then need to be accounted for in other terms. As we have seen the transitive uses of MV, DynMV, CircMV, QuotMV and EpMV differ in the amount of θ -roles and case features they need to satisfy. As a consequence each modal template can be conceived as different instantiation of the argument structure features contained by the lexicon entry. Consider (42), where {+p} is a projection feature in the sense of HAIDER (1993) that licences the projection of the direct object.

(42)



The transitive use is the full projection of the basic entry {ext θ , int θ , +p, +acc}, the dynamic use lost the case feature but still assigns the internal θ -role {ext θ , int θ , +p}, circumstantial modals are raising verbs thus lacking an external θ -role {int θ , +p}, epistemic templates lost the ability to assign the internal θ -role as well {+p} and finally quotative *wollen* assigns only an external θ -role.

One difficulty remains to be still accounted for. The QuotMV selects clausal complements not bigger than vP/VP (because it is a verb involving clause union). Anyway it is an element modifying the AST of an embedded proposition. We therefore have to conclude that some assertive element has already to be included in a vP/VP . This shouldn't cause too much troubles since CHOMSKY (2001:12) and subsequent work assume that a complete vP already constitutes a proposition. HAIDER (1993:274) argues that even V^0 heads can be interpreted as propositions, if they are complement of a verbal complex.

As a consequence ERB's AST operator could be reconsidered as a result of an interplay of an interpretive feature (iF) π provided by the lexical infinitive and an uninterpretive feature (uF) π located in C^0 . Every lexical (θ -assigning) verb is equipped with an interpretive feature π . In converging derivations the uF π in C^0 will be checked against the iF π on the finite (lexical) verb or against an iF π of an embedded predicate via agree or move.

Finally EpMV and QuotMV lacking internal θ -roles can accede the iF π of the embedded predicate and copy its values, as the uF π in C^0 does. But this mechanism still requires further investigation.

As shown above, functional categories for MV turn out to be of epiphenomenal character and can be reduced to feature configurations within lexicon entries. The predictions of a lexicalist approach briefly sketched in the preceding sections correspond much evidence found in corpora than split category accounts. Adopting the lexicalist view we gain insights on the nature of grammaticalization.

3. modal verbs and grammaticalization.

One of the crucial principles in LEHMANN's (1995) influential work states that signs subject to grammaticalization tend to lose their integrity. This holds for the history of modal verbs as well. According to the DWB of the brothers Grimm when they became preterite presents all of the present MV started out as transitive verbs with the exception of *müssen* which seemed to be intransitive in the beginning. In that time all of those verbs used to be items equipped with a highly specified argument structure containing at least the following features {ext θ , int θ , +p, +acc}. Whereas most of the transitive templates interfere with the elliptical dynamic uses in modern German, they were much more productive in earlier stages of German. In Middle High German *kunnan* had roughly the meaning of to *master*.

- (42) *ich enkan decheinen buochstap*
 I NEGCL.can any.ACC letter.ACC
 'I don't know any letter – I'm illiterate'
 (wolfram: pârzival,115,27)

The transitive use of *dürfen* was still common in the XVIth century, see (43). Note that at that time *dürfen* only scarcely occurred with a clausal complement. And in case it selected an infinitive it was obligatory negative polar. It appears then the transitive use disappeared as soon as *dürfen* gained the ability to occur in non-negated contexts. I assume that the transitive use had to appear because it didn't fit in the unified basic lexicon entry any more. While *dürfen*_{TRANS} denotes a need, *dürfen*_{CIRC} denotes a permission, quite the contrary thus. The negative polar use remains ambiguous.

- (43) *Aber die buecher seines Gesetzes hette er nicht mit sich*
 but the.ACC books.ACC his.GEN law.GEN has.PAST he.NOMNEG with REFL
gefuehrt / denn dieweil er auff dem wasser were /
 carry.PASTPART for during he.NOM on the.DAT water.DAT is.SUBJPAST
duerffte er jr nicht.
 need he.NOM them.GEN NEG
 'But he did not carry along the codes of law, for during his time on at sea he won't need them'
 (ulrich schmid: die neue welt, leaf 8)

Applying the theory developed in the preceding section we can think of the grammaticalization of modal verbs as follows: In a first step the [+acc] feature got lost, in second the ext θ -role. These two processes of erosion already happened before the Old High German period as AXEL (2001) pointed out, proving the existence of non epistemic raising verbs. In contrast the emergence of epistemic and quotative templates is commonly regarded as a very recent development that took only place in the XVIth century, see FRITZ (1997), DIEWALD and MÜLLER (2001) for details.

According to the theory presented here EpMV differ from CircMV in that that they lost the ability of assigning θ -roles. This appears to be corroborated by data of the Early New High German period, the point of time when EpMV are said to have evolved systematically in

German. The sample consisting of the first fourteen chapters of ULRICH SCHMID's *Die Neuwe Welt* (1567) contains about 20.000 words. That corpus provides altogether 175 occurrences of modals. Seven of them have to be considered as epistemic uses. It merits special attention that six out of seven epistemic modals embed statives denoting permanent states (individual level predicates). As we know from chapter 1.4 only EpMV allow that kind of complements, whereas CircMV and DynMV require always the presence of a DO/BECOME operator. Once the clausal complement lacks the DO/BECOME operator it cannot be θ -marked by the MV anymore. This is how epistemic templates were born. The selection of predicates referring to permanent states then turns out to be the crucial point in the grammaticalization of EpMV.

4.conclusion.

Opposed to split category approaches in the spirit of WURMBRAND or ERB the account presented here accounts with ease for the grammaticalization of MV. Combining the ideas of LEHMANN (1995) with the findings published in the DWB and the insights of recent grammar theories we gain an approach that manages to unify all the different templates of a MV within a basic lexicon entry.

Moreover grammaticalization need not to be regarded as categorical reanalysis but can furthermore conceived as loss of the integrity of a sign. For the multitude of templates differ only in the configuration of argument structure. While the original transitive templates projected the full amount of θ -roles and case features, the highly grammaticalized epistemic templates project only poor structure. The path of grammaticalization for MV can be represented as follows:

$$(44) \text{ TRANS } \{\text{ext } \theta, \text{int } \theta, +\text{p}, +\text{acc}\} > \text{ DynMV } \{\text{ext } \theta, \text{int } \theta, +\text{p}\} > \\ > \text{ CircMV } \{\text{int } \theta, +\text{p}\} > \text{ EpMV } \{+\text{p}\} \\ (> \text{ QuotMV } \{\text{ext } \theta, +\text{p}\})$$

A new promising insight discussed here, is to conceive the selection of individual level predicates as crucial trigger in the grammaticalization of epistemic modality. Earlier attempts on casting light into the emergence of epistemicity suspected clause union (REIS 2001), the loss of the external argument (ROSS 1969) or shifts in the aspectual system (ABRAHAM 2005) to be the main cause for the development of EpMV. Still they face some mysteries they cannot account for yet. I hope that my work contributes to a better understanding of the intricate but intriguing matter of epistemic modality

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