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Imperatives and Tense

1. Introduction

At sentence level, many of the world's languages distinguish not only the form types of declarative and interrogative clauses with their canonical function of asserting and questioning, but also imperatives, which are often used for ordering or requesting (cf. Sadock and Zwicky 1985):

- (1) a. You are nice to Auntie.
 b. Are you nice to Auntie?
 c. Be nice to Auntie.

Nevertheless (just as with declaratives), many other speech act types are possible as well:¹ e.g., imperatives are used for giving advice (cf. 2a), expressing wishes or curses (cf. 2b,c), and even for giving permission (cf. 2d).

- (2) a. A: How do I get to Harlem? – B: Take the A-train.
 b. Get well soon!
 c. Go to hell!
 d. Take an apple if you like!

It is not easy to devise a semantics that is on the one hand compatible with this functional pluriformity, and, on the other hand, for individual imperative occurrences, helps to explain why they get associated with a particular function. At the same time, imperatives are not related in any straightforward way to a truth value or a particular informational unit, the two pivots of static or dynamic denotational semantics. In view of these challenges, while it is standardly assumed that declaratives denote propositions, and interrogatives denote either sets of propositions (Hamblin 1976, Karttunen 1977) or index dependent propositions (Groenendijk and Stokhof 1984), a standard semantics for imperatives has not yet been established.

Imperatives also differ from the other two main clause-types in that, cross-linguistically, the main verb (the imperative verb) is often morphologically meagre. In many languages, it lacks at least some temporal or aspectual oppositions encoded by other (finite) forms, or it is even just a verbal root. In addition to the apparent lack of a truth-value, this has sometimes been taken as evidence that imperatives do not allow for anchoring with respect

¹ This holds true not only for English, but also for numerous other languages, in particular also for languages like German that display distinct imperative morphology on the verb.

to a particular index of evaluation in general, or are at least severely deficient with respect to temporality. In this spirit, Huntley (1980) claims that imperatives express unanchored propositions; Platzack and Rosengren (1998) argue that, syntactically, imperatives correspond to CPs that lack TP, which leads to tense being absent in semantics, while future orientation is brought in by 'directivity' as associated with imperatives; similarly, Wrátil (2005) argues that, in imperatives, CP and IP are fused into a projection called MoodP, while TP is absent and temporal interpretation is determined by 'directivity'. In all of these accounts it is assumed that it is the speech act types of ordering, commanding, or requesting which bring in the future orientation that is perceived in the examples in (2).² In contrast to this semantic (and syntactic) parsimony, other approaches take it to be part of the semantic nature of imperatives that they update obligations or plans, and, in doing so, are strictly future oriented in their semantics (e.g. Zarnic 2002, Mastop 2005). Future orientation is also built into van Eijck's treatment of imperatives as denoting programs in propositional dynamic modal logic.

In this paper, I argue that a satisfactory semantic account of imperatives needs to explicitly represent temporality at the level of recursive semantics (cf. also Schwager 2006, Jensen t.a.). Nevertheless, the imperative semantics itself does not automatically enforce a strict future orientation; this is brought about as a property of speech act types like ordering or commanding. Consequently, imperatives used for other speech act types (e.g. advice, wish) are more flexible in their temporal orientation. Moreover, I will show that, in cases of quantificational adverbials, imperatives cannot be constrained to a strictly future oriented perspective. This pertains even to cases in which the imperative is used in a prototypical way, that is, as a command or request. To meet these requirements, I propose an analysis in terms of modalized propositions that is general enough to account for interaction with temporal adverbials, temporal quantification, and present perfect morphology in German.³

2. Imperatives, modals and temporality

2.1. There is still tense

Even if, in many languages of the world, imperatives do not express temporal oppositions, imperatives can easily co-occur with temporal adverbials that anchor them with respect to a

² In fact, it might not be indistputable that (2a-B) has a future orientation.

³ I consider this possibility to interact rather freely with temporal information I consider a straightforward advantage of the modal approach over approaches that build future orientation into the semantics of the imperative. While those accounts may still appeal to pragmatic mechanisms to overwrite the particular effect, such amendments risk depleting the original appeal of plans or To Do Lists as bearing a specific role in the discourse settings. Yet, the goal of this paper cannot be an in-depth comparison between various approaches and possible amendments. Instead, I confine myself to point out the necessity of circumventing strict future orientation and show that the relevant data can be captured satisfactorily by the modal approach.

particular interval⁴ in time, relative to a particular event, or relative to the trace of an event that is quantified over:

- | | | | |
|-----|----|---|---------------------------|
| (3) | a. | Call me next Tuesday. | <i>external anchoring</i> |
| | b. | Knock before entering! | <i>relative anchoring</i> |
| | c. | Be waiting at the gate when she gets there. | <i>relative anchoring</i> |
| | d. | Kiss her before every meeting! | <i>quantification</i> |

Such phenomena have been studied in detail for declaratives. The standard treatment adopts (covert) temporal expressions, e.g. temporal variables that can be related to particular instants of time, as well as to runtimes of events (if such entities are assumed to be part of the ontology, as I assume here; for details cf. e.g. von Stechow 2002a,b). In order to maintain a non ad-hoc, ideally compositional semantics for sentences as in (3), temporality needs to be represented in whatever semantic object is assigned to imperatives. In the following, I will show that an independently motivated semantics in terms of modalized propositions interacts in a straight-forward, compositional way with temporal modification, quantification, and negation.

2.2. Modalized propositions

In Schwager (2006), I have argued in detail that only an underspecified semantics is able to account for the pluriformity of usages that is observed with imperatives. At the same time, the semantics has to be specific enough to explain why certain functions remain strictly excluded (assertions, in particular), and why a particular imperative in a particular context is used for a particular conversational move, i.e., speech act type.

The starting point for my analysis of imperatives lies in the observation that modal verbs can be used performatively as well, as has been argued in detail by Kamp (1973,1978), Lewis (1979), van Rooy (2000), Schulz (2003), Ninan (2005). Most modal verbs can be used to describe a certain state of obligations, wishes, etc. – roughly, what is permissible (*descriptive modal verbs*), but they can also be used to change this situation w.r.t. such parameters, e.g. to enact a permission or a prohibition (*performative modal verbs*). Portner (2009) argues convincingly that the traditional label of *performative modal* should be weakened to include also usages of modalized propositions that behave non-assertorically without inducing actual change (e.g. modals used for giving advice). The difference between a descriptive and a performative reading for a the modal verb *may* in a sentence like (4) can be highlighted by the follow-ups in (4a) and (4b) respectively.

- | | | |
|-----|----------------------|--|
| (4) | You may take a pear. | |
| | a. | ...At least according to what the guy in the uniform said. |
| | b. | ...But I won't allow you to take an apple! |

In their performative usages, modal verbs are a lot like imperatives in that they do not seem

⁴ Throughout the paper, I assume that temporal intervals can be instantaneous.

to form semantic objects that bear a truth value. Consider *must*, which according to Ninan (2005) is always used performatively when appearing in matrix sentences, cf. (5).

- (5) A: You must eat a pear. – B: #That's not true, I don't.

Given this parallelism, I assume that imperatives denote the same sort of semantic object as is expressed by a sentence containing a modal verb that is used performatively. Therefore, first, we need to settle the issue of whether performative and descriptive modal verbs correspond to the same semantic objects. Kamp (1978) and Schulz (2003) provide convincing arguments that they do.⁵ According to this view, the modalized sentences denote propositions that, under particular contextual constellations, can obtain non-assertoric effects in the above deontic sense (enacting a permission or a prohibition), but also in giving advice or in expressing a wish. For the different usages of imperatives we can now draw on the well-known context dependence of modal verbs (cf. Kratzer 1978).

- (6) You have to be well soon! (*according to what I want/according to what is necessary for us to go on vacation next week/according to what I infer from the doctors' behaviour/...*)

But, of course, we have to block imperatives from ever being used descriptively. For modal verbs, I assume that the difference of performative vs. descriptive use depends on the contextual setting. Therefore, the felicitous use of imperatives has to be constrained to exactly those contexts in which the corresponding proposition encoded by a modal verb could have obtained a performative use. This will be ensured by an additional presuppositional meaning component introduced in the imperative clause type. Once this is in place, we obtain a very natural interaction with the phenomena in the realm of temporality. At the same time, the similarity in the behaviour of imperatives and modal verbs as far as temporality is concerned supports the independently motivated modal operator approach to imperatives.

In general, modal verbs come with two types of temporal information. They express what is entailed by, or compatible with, a particular body of information (the *modal background*; to be modeled as a set of possible worlds). But this modal background is time dependent in two ways. Consider (7): First, the relevant background for necessity/possibility is considered at a particular interval. I will call this the *tense time* (cf. Musan 2000). E.g. in (7a), this is the utterance time c_T , in (7b), it is some moment t that precedes the utterance time.

- (7) a. Hedde has to call Joe. (w.r.t. the manager's wishes at c_T)
b. Hedde had to call Joe. (w.r.t. the manager's wishes at t preceding c_T)

Second, the event/state claimed to be necessary/possible w.r.t. the modal background is

⁵ Cf. Kamp (1973), Merin (1992), and van Rooy (2000) for the opposed view, that is, an analysis in terms of ambiguity.

(*teleological modality*), or what is wanted (*bouletic modality*).⁶ Following von Fintel and Iatridou (2005), the relevant set of worlds is introduced by a covert pronoun present in the syntactic structure (the first argument of the modal verb) that stands for a function from indices (worlds and times) to sets of propositions. Depending on the particular variable assignment g , $[[H]]^{c,g} = g(H)$ can, for example, be any of $H_{c-S-deontic}$, $H_{c-S-bouletic}$, or $H_{c-A-teleo}$ where for each world w and time t :

- (9) $H_{c-S-deontic}(w,t) = \{w' | \forall p [c\text{-speaker commands } p \text{ at } t \text{ in } w \rightarrow p(w')]\}$
 $H_{c-S-bouletic}(w,t) = \{w' | \neg \exists w'' [\text{of the wishes } c\text{-speaker has in } w \text{ at } t,$
 $w'' \text{ verifies all those that } w' \text{ verifies plus at least one more}]\}$
 $H_{c-A-teleo}(w,t) = \{w' | \forall p [p \text{ is a goal of } c\text{-addressee at } t \text{ in } w \rightarrow p(w')]\}$

The (standard) interpretation of a modal verb like German *muss* 'must' is given in (10).

- (10) $[[muss]]^{c,g} = \lambda H \lambda p \lambda t \lambda w. \forall w' \in H(w,t)[p(w')]$

Furthermore, I assume that imperative clauses contain a covert modal element IMPMOD, which is syntactically required to license the modal information on the imperative verb. At the propositional level, IMPMOD is interpreted exactly like *muss* in (10). Nevertheless, IMPMOD is constrained to performative usages only. To account for this, I assume that IMPMOD (but not German *muss*) comes with an additional presuppositional meaning component which requires in particular that the speaker be an (epistemic) authority on the background in question. Moreover, since imperatives are 'realistic' (indicative modals), the modal background has to constitute a subset of the worlds compatible with mutual joint knowledge of the interlocutors in the conversation in context c (the *Common Ground* of c , $CG(c)$; cf. Stalnaker 1978).

- (11) a. $[[IMPMOD]]^{c,g} = \lambda H \lambda p \lambda t \lambda w. \forall w' \in H(w,t)[p(w') = 1.]$,
presuppositions: authority(the speaker, H , c),
 $H(w,t) \subseteq CG(c)$.
 b. x is an authority on H in c (abbreviated as ,authority(x,H,c)') \leftrightarrow
 $\forall (w,t) \in CG(c)[\forall (w',t') \in Dox(x,w,t)[H(w',t') = H(w,t)]]$,
 where Dox_x assigns to (w,t) the set of indices (w',t') compatible with x 's beliefs at w, t

Why should epistemic authority ensure a performative effect? Assume someone issues an imperative *Call me!* (e.g. as a request), that is, she expresses the proposition *that in view of what I request, it is necessary that you call me*. Normally, unless there is a metalinguistic

⁶ Resorting to a simple function from indices to sets of worlds is a gross simplification. As in Kratzer (1991) the modal background should result from the combination of a modal base (fetching the worlds to be considered) and an ordering source given by preferences or stereotypes (narrowing down the set of worlds given by the modal base to a set of relatively best ones). Teleological modality may involve even more parameters, cf. von Fintel & Iatridou (2005). Cf. Schwager (2006) for an analysis of imperatives in terms of modal bases and ordering sources.

interest, we assume that speakers believe in the propositions they express in the conversation (e.g., this is part of asserting a declarative). Now, in this case, either her utterance itself is a request that makes the proposition true, or, the proposition is false – given that we take the speaker to believe in the truth of her propositions, the authority condition would be violated. Hence, imperatives are either true or violate authority. Now, nearly every context is such that for any individual *x*, authority(*x*,*H*,*c*) is met for *H* = *what x orders/what x wishes/what x requests,...* . We tend to assume that individuals know what they order, request or wish. A case where this is not born out with would be a case in which someone tries to command things she is not actually entitled to command: in such situations, the speaker tries to command something, but given a failure of social authority, does not actually command it (and the addressee is aware of this). Hence, the proposition expressed is false. Still, the imperative cannot be refuted by *That's not true*, but will be refuted by something like *You have no right to tell me so!*. This is predicted by the fact that such a case comes out as a presupposition failure. At the same time, a reply like *True indeed!* feels inappropriate in response to an utterance that is meant to give a command. I take this to be a pragmatic effect. The main interest of the speech act executed is not to give information about the truth of the proposition, but rather to get the addressee to behave in accordance with the imperative. Note that a reply like *True indeed!* becomes a lot better in reply to an imperative that serves to give advice, as evidenced by the following exchange in German.⁷

- (12) A: Um nach Hanau zu fahren, nimm am besten den Zug Richtung Hamburg.
to to H. to go.INF, take.IMP at best the train direction H.
'To go to Hanau, take the train in direction Hamburg.'
B: Stimmt./Das ist wahr./Das ist richtig. (Daran hatte ich nicht gedacht.)
Right./That's true./That's correct. (I hadn't thought of that.)

Schwager (2006) shows that the requirement of speaker authority has to be backed by three additional requirements that ensure (i) that the background *H* be related to preferences (instead of stereotypes, etc.; similarly, in a non-propositional account, Portner's (2007) restriction to dynamic modality); (ii) the speaker is assumed to consider the propositional complement epistemically possible, but not necessary, and (iii), the speaker affirms the preferences underlying *H* as a good guideline for acting (he is presupposed to assent to something like *I consider it good if you realize my wishes/my commands/your goals/...- depending on the value assigned to parameter H*).

Note that, in general, constraints on the contextually supplied value for *H* are widely accepted to account for the fact that different modal elements are restricted to different sorts of modality. E.g. English *can* is open to epistemic, deontic, and teleological sorts of modality, but *might* is restricted to epistemic modality; German *darf* is constrained to deontic or teleological possibility, its subjunctive *dürfte* has an additional, independent use as (weak) epistemic necessity, and many more (cf. Kratzer 1981).

⁷ Throughout the paper, in the glosses I use the following abbreviations: IMP (imperative), INF (infinitive), PRT (temporal, aspectual, or discourse particle), V-PRT (verbal particle).

3. Tensing imperatives

I adopt a deictic theory of tense (cf. Partee 1973, von Stechow 2003) and assume that morphological tense is normally interpreted as inducing a restriction on the time of evaluation (cf. von Stechow 2005 for a discussion of the syntax-semantics interface).

- (13) a. $[[\text{PRES}_i]]$ = $g(i)$, if $g(i) = c_T$, else undefined.
 b. $[[\text{PAST}_i]]$ = $g(i)$, if $g(i) < c_T$, else undefined.

VPs are properties of events or states and get located with respect to the time of evaluation by aspect (cf. Klein 1994, von Stechow 2003).

- (14) a. $[[\text{PFV}]]$ ^{c,g} = $\lambda P \lambda t \lambda w. \exists e [\tau(e) \subseteq t \ \& \ P(w)(e)]$
 b. $[[\text{IMPFV}]]$ ^{c,g} = $\lambda P \lambda t \lambda w. \exists e [t \subseteq \tau(e) \ \& \ P(w)(e)]$

A simple declarative as in (15a) has an LF as in (15b) and gets interpreted as in (15c).

- (15) a. You called Melli.
 b. $[_{CP} [_{TP} \text{PAST}_i [_{AspP} \text{PFV} [_{VP} \text{you} [_{\text{call}} \text{Melli}]]]]]]$
 c. $[[(15b)]]$ ^{s,c} = $\lambda w. \exists e [\tau(e) \subseteq g(i) \ \& \ e \text{ is an event of you calling Melli in } w]$
 if $g(i) < c_T$; else undefined.

Normally, imperative clauses speak of what is permissible/obligatory/recommended/wanted/... in the utterance context, hence they are like present tense modals.

Imperative subjects are always tied to the addressee. Following Wratil (2005) I assume that, in the absence of an overt second person subject pronoun, the subject position is occupied by a covert pronoun IMPPRO which is interpreted as referring to the addressee (this can be mediated by person agreement features to be checked in a corresponding functional position⁸). In the following I will just write *you*. Up to AspP, apart from the fact that the subject need not be realized overtly, the imperative looks just like the corresponding declarative. Above AspP, we find IMPMOD, and PRES (instead of PAST); the presence of both is required syntactically by the features on the morphological imperative.

- (16) a. Call Melli!
 b. $[_{CP} [_{TP} \text{PAST}_i [_{\text{IMPMOD}} [_{AspP} \text{PFV} [_{VP} \text{you} [_{\text{call}} \text{Melli}]]]]]]$

⁸ I assume that this is mediated by 2nd person-like agreement features on the morphological imperative. Examples like *Nobody move!* show that the requirement on the subject marking cannot simply be 2nd person (for a references and a detailed analysis, cf. Schwager (2006)),

So far, we have not said anything about the event time. In general, the event referred to in an imperative has to occur at an interval after c_T . In this, imperatives are again exactly like their modal verb relatives:

- (17) a. Call Melli tomorrow/*yesterday!
b. You can/must call Melli tomorrow/*yesterday.

Hence, the two can be treated similarly. von Stechow (2005) discusses two possibilities to account for the forward shift with modal verbs. Either the modal verb allows for the insertion of a covert relative future tense that, for some/each of the accessible worlds, asserts the existence of an interval after the tense time of the modal (which is compatible with a future adverbial, but incompatible with a past adverbial). Or, we can follow Condoravdi (2002) and let the modal itself induce a forward expansion of the modal's tense time. Therefore, the event frame is constituted by the future from c_T on, which is the interval $[c_T, _)$, which expands from c_T (infinitely) into the future. For the imperative modal, the entry spells out as in (19). Note that this corresponds to the future restriction of the action space for imperatives as envisaged e.g. by Portner (1997) and Mastop (2005).

- (18) *preliminary:*

$$[[\text{IMPMOD}]]^{c,g} = \lambda H_{\langle s,s \rangle} \lambda P_{\langle i,s \rangle} \lambda t \lambda w_s. \forall w' \in H(w,t)[P([t, _))(w')]$$

Under the assumption that relevance constrains the event to happen in the near future rather than the distant future, the result for a simple imperative like (16a), given in (19), is satisfactory:

- (19)
$$[[[\text{PRES} [[\text{IMPMOD} H] [\text{PFV} [\text{you call Melli}]]]]]^{c,g} =$$

$$[[\text{IMPMOD}]]^{c,g}(g(H))([[\text{PFV}]]^{c,g}(\lambda e. \lambda w. \text{call-melli}(c_A)(e)(w)))(c_T) =$$

$$\lambda w. \forall w' \in g(H)(w, c_T)[\exists e[\tau(e) \subseteq [c_T, _) \ \& \ e \text{ is an event of you calling M. in } w']]$$

If the event frame is modified by an overt adverbial, as in (17a), we need to pick out the relevant subinterval of the event frame, e.g. by allowing it to modify the property of events expressed by the VP (via *Predicate Modification*). Everything else is as in (19).

- (20) a.
$$[[\text{tomorrow}]]^{c,g} = \lambda P_{\langle i,s \rangle} \lambda e. \lambda w. \tau(e) \subseteq \text{the-day-after}(c_T) \ \& \ P(e).$$

b.
$$[[[_{VP} [_{VP} \text{you call Melli}] \text{tomorrow}]]]^{c,g} =$$

$$\lambda e. \lambda w. \tau(e) \subseteq \text{the-day-after}(c_T) \ \& \ \text{you-call-melli}(e).$$

Unfortunately, the account runs into problems in connection with quantification, negation, and imperfective aspect. All three problems pertain to imperatives and modals alike. I will focus on imperatives only, but my proposal extends to modal verbs as well.

For (18a), the adverbial modification constrains events happening in the future to events happening tomorrow. Given that all of tomorrow lies within the future, the adverbial picks out a subinterval of the event frame given by the imperative modal. But what happens if we take into account adverbials that pick out intervals that are not contained entirely within the

future? Consider (21).

- (21) a. Don't call Cecile while she is in Greece.
b. Don't call Cecile more than three times while she is in Greece.

Assume that we are right in the middle of a three week interval that Cecile spends in Greece. Intuitively, the imperative commands that this three week interval in total does not contain any/more than three phone calls of that particular type. E.g., if the addressee has already called Cecile on the day before the utterance, (21a) feels like an infelicitous command, given that it cannot be complied with anymore; (21b) amounts to allowing only two more calls to occur. Calls that have happened within the particular interval, but before c_T may not be ignored. In this, the imperative clearly differs from future tense (at least in German). (22) can only be verified by calls in the future.⁹

- (22) Meine Mutter wird mich dreimal anrufen, während ich hier in der Küche bin.
my mother will me threetimes call.INF, while I here in the kitchen am
'My mother will call me three times while I am here in the kitchen.'

The only way to save the Condoravdi-style account would be to adopt a long stretched version of c_T that covers Cecile's entire stay in Greece. This conflicts with the assumption that c_T is punctual in English, which is often used to account for the incompatibility of the English simple present with eventive predicates. The idea is that the English morphological simple present is punctual, but perfective. Hence, it would require the inclusion of an entire event of going home into a punctual/minimal (in any case, too short) interval (e.g. von Stechow 2005).¹⁰

- (23) #Ede goes home.

For German, stretching c_T would at least predict the present indicative to have the same reading. The facts are hard to test, because sentences like (24) immediately receive a modalized reading.

- (24) Meine Mutter ruft mich (bestimmt) dreimal/nicht an, während ich hier in der
my mother calls me (for sure) threetimes/not V-PRT, while I here in the
Küche bin.
kitchen are
'(Given what her usual habits are, I'm sure that) my mother will call me three

⁹ (25) is infelicitous if one or more calls have already happened in the part of my time in the kitchen that precedes the utterance. One has to insert the particle *noch* 'more' and adjust the number to the number of calls that are still to happen. I assume that this requirement is an instance of *Maximize Presupposition* (cf. Heim 1991).

¹⁰ Kaufmann (2005) offers an alternative account of the unacceptability of (23). His analysis is motivated by the availability of the English simple present for events that count as scheduled, as well as its occurrence in antecedents of indicative conditionals.

times/won't call me, while I am here in the kitchen.'

I am at least skeptical with respect to stretching c_T and will stick to the idea that c_T is very short.

Another problem arises with negation. Partee (1973) advocates a pronominal theory of tense (in contrast to the operator theory of tense), because no scopal order of quantificational PAST ('there is a $t < t'$ ') and negation derives the correct reading for (25a).

- (25) I didn't turn of the stove.
- a. 'There is a time t preceding the utterance time such that I didn't turn off the stove at t .' *too weak*
 - b. 'It is not the case that there is a time t preceding the utterance time and I turn off the stove at t .' *too strong*

The same holds for Condoravdi's theory of forward expansion. As far as I can tell, on her account, we can only derive the reading in (26a), which is clearly not what (26) means. The alternative theory of plugging in a covert relative future might in principle derive the alternative order (26b) as well, but this is equally unsatisfactory.

- (26) Don't turn off the stove!
- a. 'Don't ever turn off the stove!'
 - b. 'Don't turn off the stove all the time!'
- (i.e. 'Let there be an interval at which you don't turn off the stove.')

Modern operator theories of tense (more or less tacitly) resort to additional contextual restrictions. Something like that would be needed for modals and imperatives as well.

Last but not least, our semantics for the imperfective aspect ends up expressing that an infinite stretch of time (namely, $[c_T, _)$) is contained within the runtime of an event.¹¹

- (27) Be standing at the gate! *intended: when I come to pick you up*
 $\lambda w_s. \forall w' \in g(H)(w, c_T)[\exists e[\tau(e) \supseteq [c_T, _) \ \& \ e \text{ is an event of you calling M. in } w']]$

All three problems vanish if we take seriously the need for contextual restrictions arising from the operator theory. Given our deictic theory of tense, we can assume that the modal requires a further argument, which is an indication of when the event in question is to happen. I assume that the event frame is introduced by another temporal pronoun which is of (relative) non-past nature: it may not entirely precede the tense time of the modal. If the event frame could precede the utterance time, we would expect sentences like (28) to be acceptable.

¹¹ Note that Condoravdi (2002) does not run into this problem. For her, stative VPs are anchored to the time of evaluation by the overlap relation. If imperfective aspect is assumed to act as a stativizer, the state expressed by the imperfective AspP is said to have a non-empty overlap with the future interval, which is of course unproblematic.

- (28) #Geh da gestern hin.
 go.IMP there yesterday V-PRT
 'For all worlds accessible at c_T , within the salient event frame t , there is an event e of you going there and e happens yesterday.'

As it stands, our restriction that the event frame may not fully precede the utterance time does not account for the unacceptability of (28). If the event frame is long enough to span c_T and at least some time preceding the date line preceding c_T , it has a non-empty intersection with what counts as yesterday.¹² Hence, the embedded proposition becomes epistemically possible. One idea would be to relegate this problem to pragmatics and say that it is simply impossible to give commands that are to be verified in the past. If one cannot command something to happen in the past, a speaker who expresses that he commands something that happens in the past cannot express a true proposition and is violating authority and generating a presupposition failure. Unfortunately, the same grammaticality judgments hold for wishes (e.g. (29)); yet, wishes about what may have happened in the past are perfectly coherent (cf. section 4.4).

- (29) *Sei gestern dort!
 be.IMP yesterday there (for: 'I want you to have been there yesterday.')

A natural way out is to appeal to the context dependent nature of the silent event frame. I take it to be a pragmatic principle that one cannot make salient an event frame that is larger than a frame setting adverbial that is expressed overtly. Thus, expressing that an event is to happen within yesterday prevents an event frame that properly contains yesterday from being salient. Thereby, we require that t is contained within, or identical to, an overt frame setting adverbial rather than the other way round. This of course has implications for what are possible referents for (temporal) pronouns in general, which remains to be tested on larger grounds.

The resulting entry for the imperative modal is given in (30): after combining with the modal background (to be evaluated at tense time t and world of evaluation w), IMPMOD combines with the event frame t' and induces the presupposition that the event frame may not entirely precede the tense time t . Now the modal background is to be considered at the tense time t while the temporal predicate P expressed by the VP is predicated of the event frame t' .

- (30) *final version:*
 $[[\text{IMPMOD}]]^{c,g} = \lambda H_{\langle s, st \rangle} \lambda t' \lambda P_{\langle i, st \rangle} \lambda t \lambda w_s. \forall w' \in H(w, t) [P(t')(w')]$,
presuppositions: not $t > t'$,
 authority(the speaker, H , c),
 $H(w, t) \subseteq CG(c)$.

¹² Musan (2002) builds on such a possibility to account for historical present tense. In her case, it would make problematic predictions if the historical present can appear with imperfective aspect, as in that case, the event would be required to be still going on at the utterance time.

4. A cross-linguistic view on temporal modification in imperatives

The modal semantics for imperatives as spelt out in (30) opens up two main possibilities for temporal modification in imperatives: on the one hand, a language could allow for modification of the tense time (the interval at which the modal background is computed); on the other hand, a language could allow for modification of the event frame (the interval at which the event in question is supposed to take place).

4.1. Modifying the event frame

In his evaluation of temporal modifications in imperatives, Mastop (2005) discusses a distinction between imperatives for the remote and imperatives for the immediate future that has been reported for North American Indian languages. Mithun (1999) observes that Cheyenne encodes a contrast between imperatives that require the addressee to act in the near future (roughly, immediately after the imperative is issued) and imperatives that require the addressee to act at some later time. Similar effects have been reported for Maidu (Shipley 1964), and also for Tubatulabal and Takelma (cf. Wratil 2005 for discussion).

- (31) a. méseestse (Cheyenne)
 `Eat!'
 b. méseheo?o (Cheyenne)
 `Eat (later on)!'

On my account, such a distinction can be captured nicely in terms of restrictions on the event frame. For example, we can interpret the form in (31b) as carrying a restriction that its event frame does not abut the tense time c_T . In contrast, the form in (31a) either allows for an unrestricted event frame (relying on blocking to account for the difference to (31b)), or, the form in (31a) could itself carry a restriction that confines the event frame to overlap with/to a certain vicinity to the tense time. Unfortunately, the data need to be investigated in much more detail in order to decide what the actual restrictions are.

4.2. Tense time and event time in embedded imperatives in German and English

Thanks to the entry in (30), the semantics for the imperative modal interacts compositionally with the tense time (represented by the argument variable t). Consequently, we would in principle expect imperatives that come with past tense times. At first glance, this does not seem to happen. Like many other languages, e.g. German or English do not seem to allow for temporal oppositions with imperatives. Apparently, in these languages

the temporal argument of IMPMOD is invariably filled by c_T (we can assume that the imperative verb is marked as present tense, just like a present tense form of a modal verb). The tense time of the imperative modal is thus the utterance time; what is relevant is what is commanded, recommended, wanted,... at c_T .

Nevertheless, even in such languages, this is not the only possibility. It has been observed that colloquial variants of both languages allow for rudimentary embedding of imperative clauses in speech reports (for German, Schwager 2006, Poschmann & Schwager 2008; for English, Crnic & Trinh 2008). Crnic & Trinh (2008) show that, in these cases, the presuppositions of the imperative modal assumed in Schwager (2006) have to be anchored to the embedding speech event reported in the matrix clause. But likewise, the temporal orientation is bound by the matrix context. In particular, the tense time is set to the time within yesterday at which the reported utterance took place. Consider (32), which is an example from colloquial German.¹³ What is relevant is what I ordered yesterday, not what I might be ordering at utterance time. The felicity of a follow up like *but by now I don't think anymore that that's a good idea* shows that the tense time is truly past, that is, the commands need not be standing any more (as would be the case if this was some sort of a *double access* interpretation).

- (32) Ich hab dir zwar gestern gesagt, geh da heute hin, aber inzwischen
 I have you PRT yesterday told, go.IMP there today V-PRT, but in-the-meantime
 denk ich nicht mehr, dass es eine gute Idee ist, da hinzugehen.
 think I not anymore that it a good idea is, there go-to.INF
 'I told you yesterday that you should go there, but in the meantime I don't think
 anymore that that's a good idea.'

Nevertheless, matters deteriorate if the event frame is shifted to past (this has been pointed out to me for similar cases in English by Pranav Anand, p.c.).

- (33) *Ich hab dir zwar letzte Woche gesagt, geh da gestern hin, aber ich
 I a have you PRT last week told, go.IMP there yesterday V-PRT, but I
 bin froh, dass du's nicht gemacht hast.
 am happy that you-it not done have
 'Last week, I did indeed tell you to go there (*yesterday), but I am happy that you
 haven't done it.'

On the modal operator account of imperatives, this is a natural result if we assume that the tense time is index dependent, but the event frame is context dependent. Even if the tense time is shifted to a moment before c_T , the event frame is still required to have a non-empty overlap with the time following c_T (instead of with the interval starting with tense time t , which, of course, properly includes the actual future [$c_T, _$]).

¹³ Not all speakers of German accept embedded imperatives of that sort. The parameters are not entirely clear to me, even though there is a higher acceptance among Southern speakers, neither regional provenience nor age of the speaker provide a clear cut distinction.

4.3. Past tense times and irrealis imperatives for reproaches in Dutch

An entirely different argument in favor of the compositional interaction between modality and tense time in an imperative clause comes from Dutch pluperfect and past imperatives (cf. Beukema & Coopmans 1989, Mastop 2005). I will focus on the more productive pluperfect forms. They are formed with the auxiliary *zijn* 'be' or *hebben* 'have' in the past plus a past participle and express a reproach that the addressee did not perform an action in the past though he should have done so. The irrealis interpretation is ensured by presuppositional particles *toch*, *dan ook* (cf. Mastop 2005, his examples (14a,b)).

- (34) a. Was toch naar huis gegaan toen Jan het foto-album opende.
 was PRT to home gone when J. the photo-album open.PAST.SG
 'You should have gone home when Jan opened the photo-album.'
 b. Had je telefoonnummer dan ook niet aan di vent gegeven.
 Had your phone-number PRT PRT not to that guy given
 'You shouldn't have given your phone-number to that guy.'

Mastop (2005) argues that these are truly imperative because they occur with an implicit second person subject, and allow for particles that can only appear with second person, but are disallowed in constructions that are unambiguously optative. In terms of his analysis of updating plans, he suggests backshifting and updating a plan from a past perspective. According to him, it is the past participle that is responsible for the anteriority effect.

On the modal account, we can draw directly on the similarity to counterfactual readings for English subjunctive modals. Consider the two readings of (35):

- (35) a. John might have won the race.
 a. *epistemic*: 'By now, John may have won the race.'
 b. *counterfactual*: 'at the salient time *t* (before c_T), it was still possible for John to win the race'

Condoravdi (2002) treats the two readings as a scopal ambiguity of PERF and MIGHT; her LF for the counterfactual reading (35b) and its interpretation are given in (36). Intuitively, the PERF-operator causes a back-shift to a time *t* at which there are still metaphysical alternatives (worlds with identical histories) of *w* which contain a winning of John at some point after *t*. The counterfactual interpretation is argued to arise from pragmatic considerations.

- (36) a. [PRES [PERF [MIGHT [he win]]]]
 b. $\lambda w. \exists w' \exists t [t < c_T \ \& \ w' \in H(w, t') \ \& \ \exists e [\text{he win}(w')(e) \ \& \ \tau(e) \subseteq [t, _]]]$,
 where *H* assigns to *w* and *t'* all worlds *w''* that are metaphysically equivalent (agree on all facts) to *w* up to *t'*

Condoravdi points out that subjunctive modals can be outscoped by perfect, but indicative modals cannot. The difference is thus relegated to syntax. Given the explicitly indicative semantics we have assigned to IMPMOD in (30), for Dutch counterfactual pluperfect imperatives, outscoping by PAST has to go together with a removal of the requirement that the modal background pick out a subset of the actual common ground (e.g., those worlds in the common ground that are optimal according to my wishes/optimal according to my commands/etc.). In contrast to ordinary present tense imperatives, Dutch pluperfect imperatives compare realized and unrealized possibilities, hence they also consider worlds that are already excluded from the common ground at utterance time. To get this right, I assume that mood marking on modals is visible at the syntax-semantics interface, and in particular Dutch imperatives come in an indicative and a counterfactual variant.¹⁴ Ordinary, indicative imperatives require their argument proposition to be possible with respect to CG, and require their modal background to be a subset of the common ground (all contributed by indicative IMPMOD as in (30)). Additionally, Dutch allows for counterfactual imperatives that require the presence of counterfactual IMPMOD^{+i-counter}. The correct LF can be ensured if counterfactual imperatives carry the uninterpretable features [+u-impmod, +u-counter, +u-past] which require the presence of their interpretable counterparts in the form of IMPMOD^{+i-count}, and a temporal pronoun PAST_i, giving rise to an LF as in (37) for (34b).¹⁵

(37) [PAST [IMPMOD^{+i-counter} H t] [you had not given the guy the number]]

Dutch IMPMOD^{+i-ind} is just IMPMOD as we know it from languages that do not have the opposition (cf. (30)). IMPMOD^{+i-counter} differs in that it requires a particular modal background $H_{\text{counter-cg}}$, and that the argument proposition of the imperative $\lambda w.P(t)(w)$ be incompatible with the common ground.

- (38) a. $[[\text{IMPMOD}^{+i\text{-ind}}]]^{c,g} = \lambda H_{\langle s, st \rangle} \lambda t' \lambda P_{\langle i, st \rangle} \lambda t \lambda w_s. \forall w' \in H(w, t) [P(t')(w')]$,
presuppositions: (i) not $t > t'$,
(ii) authority(the speaker, H, c),
(iii) $H(w, t) \subseteq \text{CG}(c)$.
- b. $[[\text{IMPMOD}^{+i\text{-counter}}]]^{c,g} = \lambda H_{\langle s, st \rangle} \lambda t' \lambda P_{\langle i, st \rangle} \lambda t \lambda w_s. \forall w' \in H(w, t) [P(t')(w')]$,
presuppositions: (i) not $t > t'$,
(ii) $H = H_{\text{counter-cg}}$,
(iii) $\text{CG}(c) \cap \lambda w.P(t')(w) = \emptyset$.
- c. $H_{\text{counter-cg}}(w, t) = \{w' | w' \text{ is optimal according to the addressee's goals at } w, t \text{ and } \exists w'' \in \text{CG}[w''] \text{ and } w' \text{ share the same history up to } t\}$

¹⁴ Note that, surprising as this is, it is in line with imperatives containing covert modal verbs, instead of being on a par with mood marking in the sense of indicative, subjunctive, and counterfactual. So far, I have nothing to say on why in Dutch, less productive past and highly productive pluperfect forms alternate as the phonological realizations of counterfactual imperatives.

¹⁵ I leave it open what is contributed by the auxiliary and what by the past participle (cf. Musan (2002) for detailed discussion with respect to the German perfect).

Due to the morphological marking of the Dutch pluperfect imperative, its tense time t can only be a past interval. This means that the modal background will be fetched (at the world of evaluation w) not at the utterance time c_T , but at the tense time t that precedes it. Moreover, the only modal background that is acceptable with the pluperfect imperative is the special modal background $H_{\text{counter-cg}}$ that assigns to each index (w,t) the set of worlds that are optimal w.r.t. the addressee's goals at (w,t) , and, up to t , are identical to a world in the common ground. The imperative modal expresses that the argument proposition holds at all these t -historical alternatives to the CG that are optimal w.r.t. the addressee's goals at (w,t) . Last but not least, the counterfactuality presupposition ensures that the imperative's coming true is incompatible with the common ground.

It is disputable if we want to call the resulting clause types imperatives, since by their grammatical nature they can never be used as commands (the suggested prototypical usage used for individuation of imperative clause types). We could easily individuate them as a related though distinct clause type of *reproachatives*. Yet, this issue is purely terminological: Dutch reproachatives contain IMPMOD but come with past tense marking. Hence, the tense time is set to past and the ordering source is evaluated there. Typically, a context will make the current judgments of the speaker w.r.t. such a previous point in time meet the authority condition.

Note that the absence of past imperatives used as reproaches/reproachatives in (as it seems) most languages of the world is no more surprising than the fact that many modal verbs are also defective in their morphological paradigms in general, and in particular very often lack temporal oppositions as well (cf. Palmer 2001).

4.4 Imperatives and present perfect in German

In contrast to Dutch, imperatives in English and in German seem to be unambiguously present tense. Yet, they can participate in the formation of analytic tense or aspect forms that as a main auxiliary employ *haben* 'have'.¹⁶

¹⁶ Imperative formation is strictly impossible with the future auxiliary *werden*.

- (i) a. Ich werde hingehen.
I will go-there.INF
- b. *Werd hingehen!
will.IMP go-there.INF

This may be due to the modal nature of future *werden*. Passive auxiliary *werden* is compatible with the formation of imperative clauses, even if the resulting forms are idiosyncratic in use. Depending on particles we obtain wishes (ii-a) and, with contrastive subject pronoun, ironic suggestions to make a particular experience (ii-b).

- (ii) a. Werd bitte bloß nicht von einem Haifisch gebissen!
get.IMP please PRT not by a shark bitten
'Don't you please get bitten by a shark!'

For present tense imperatives, a use as wish follows immediately under the assumption of speaker bouletic modality.¹⁷

- (39) a. Enjoy the film!
 b. $\lambda w. \forall w' \in H(w, c_T) [\exists e [\tau(e) \subseteq t \ \& \ \text{you-enjoy-the-film}(w')(e)]]$

Similarly, present perfect imperatives receive an interpretation Culicover & Jackendoff (1997) dub *absent wishes*:

- (40) a. Please don't have broken another vase!
 b. Bitte hab nicht noch eine Vase zerbrochen!
 please have.IMP not PRT a vase broken

These are used naturally to express – to oneself – an urgent wish that the addressee, or rather the person one is thinking about should not have broken another vase. Of course, this use of second person in a merely imaginary conversation is by no means special to imperatives. Yet, contrary to what is claimed by Culicover and Jackendoff (1997) and Mastop (2005), for the use of sentences as in (40), there is no need for the addressee to be absent. Imagine a child walking up to her father with a face that does not augur well. Thinking of previous incidents of such a destructive type, the father may well address his daughter with an utterance of (40a/b). One might be tempted to argue away the past reference of such imperatives by resorting to paraphrases (e.g. as coercion) as in (41). The idea is to assimilate the unexpected past relatedness to the occurrence of individual level predicates as in (42). Given that – apart from absent wishes – (42a) is understood as an order to dye one's hair, we can paraphrase it as in (42b) (cf. Barwise, Persloff and Xu 2005 for an agent logic that accounts for such types of coercion).

- (41) a. Please, don't turn out to have broken another vase!

-
- b. Werd du mal von einem Haifisch gebissen!
 AUX.IMP you PRT by a shark bitten!
 (*I'd like to see what you say after having made this experience*)

Obviously, passive *werden*, but not future *werden*, possesses a morphological imperative. Again, this difference w.r.t. gaps in the paradigm is not confined to imperatives: while passive *werden* does have an infinitive, future *werden* does not.

¹⁷ In general, bouletic interpretations are harder to get than deontic or teleological ones. I take this to be due to the following: for a bouletic interpretation, the background is constituted by the speaker's wishes; thanks to the presuppositional meaning component that the speaker is an authority w.r.t. what he wishes and takes his wishes to be a good guideline for action, to express a wish that p become true (qua them being the modal basis of an imperative) to be a good guideline for action, is to indicate that the addressee is to make p true. Therefore, a reading as a command or request results. Only propositions that clearly do not underlie the active control of the addressee can be used freely in wish-imperatives (*get well soon, have fun, enjoy, etc.*). No such restrictions apply for utterances muttered by the speaker in the absence of the thus merely imagined addressee.

b. Please, don't say that you have broken another vase!

- (42) a. Be blond when you come tomorrow!
b. See to it that you are blond when you come tomorrow!

For (42a) the re-interpretation follows automatically from adopting a deontic background, and it is indeed blocked by a follow up like *but don't you do anything about it* (here, we are left with a speaker who obviously counts on magic for his wishes to be fulfilled). In contrast, no effects of awkwardness result if (40) is followed by *but if you did, tell me immediately*, clearly incompatible with either of the reinterpretations in (41). I take this to indicate that no re-interpretation takes place and (40) is interpreted straightforwardly as expressing that it is necessary w.r.t. the speaker's bouletic background that the addressee has not broken another vase. Note that this is the *perfect of result* interpretation of the German present perfect, which renders the predicate stative and is thus entirely unproblematic with imperatives. The perfect of result expresses that a particular result state holds at utterance time, hence, its tense time is still present. Matters become more complicated though if we consider more cases. Assume that the speaker has endorsed a bet with Arnim and finds himself depending on the addressee's prior actions in order not to lose a bottle of champagne. While waiting for the relevant piece of information, he may well utter to himself, or even to the addressee, any of (43a,b,c) (depending on the content of the bet).

- (43) a. Bitte sei seit Weihnachten mal in Frankfurt gewesen *Extended Now*
please be.IMP since Xmas once in Frankfurt been
roughly: 'I wish for the following to bet rue: you've been to Frankfurt at least
once since Christmas!'
- b. Bitte sei noch immer dort angestellt! *Result*
please be.IMP still there employed
roughly: 'Please, be still employed there!'
- c. Bitte hab 1990 in Tübingen gewohnt! *Past*
please have.IMP 1990 in Tübingen lived
roughly: 'I wish for the following to bet rue: in 1990, you lived in Tübingen'
... *else I have to buy Arnim a bottle of champagne!*

On any popular account of the German perfect, (43a) and (43b) come out as unproblematic. Clearly, in all three cases, what is of interest are the wishes of the speaker at utterance time, hence, the tense time has to be present. The present perfect of Extended Now expresses that being in Frankfurt has to happen within an interval that starts with the last Christmas preceding the utterance time and reaches up to the utterance time. Arguably, this is compatible with an event frame that overlaps c_T (maybe it requires some consideration if the Extended Now interval is argued to not overlap the utterance time; but, at least, no overt adverbial renders salient an event frame that would be properly past). Even more unproblematically, the Perfect of Result definitely claims that a certain post state holds at utterance time. What turns out to be problematic, though, is what von Stechow (2002a)

calls the Past-reading of the German Present Perfect. On his account, the present perfect appearing in sentences like (44a) is interpreted as simple Past (cf. (44b)).

- (44) a. Wir sind gestern ins Theater gegangen.
 we AUX.PRES yesterday in-the theater gone
 'Yesterday we went to the theater.'
 b. [CP [TP PAST_i [AgrSP [AspP PFV [VP we [go to the theater]]]]]]

If this were correct, the imperative in (43c) should behave like a past modal. Yet, no such effect occurs. Clearly, the imperative speaks about the wishes of the speaker at utterance time and asserts that he wants for the year of 1990 to contain a period (or be entirely covered by a period) of the addressee living in Tübingen.

In contrast to what is predicted by the ambiguity analysis, all these facts result naturally from a uniform analysis for the German perfect as proposed by Musan (2000). In a nutshell, the present perfect is interpreted as containing an ordinary present tense and a stative predicate expressing the property of intervals to be preceded by an interval characterized by an event/state of the VP-kind. From the entries in (45), for a declarative sentence like (44a), we obtain the interpretation in (45c).^{18,19} ($t < t'$ expresses that t' is the right border of interval t).

- (45) a. [[PERF]] = $\lambda P \lambda t'. \exists t [t < t' \ \& \ P(t)]$
 b. [TP PRES [PERF [AspP PFV [VP gestern [VP wir ins Theater gehen]]]]]
 c. $\lambda w. \exists t [t < c_T \ \& \ \exists e [\tau(e) \subseteq t \ \& \ \tau(e) \text{ in yesterday} \ \& \ \text{we-go-to-the-theater}(w)(e)]]$

Applying this to the imperatives in (43), what is predicated of the event frame is its being a post state of the addressee having visited Frankfurt before Christmas, the addressee having become an employee with some salient institution, or the addressee having lived in Tübingen in 1990. The problematic past-like (43c) comes out as in (46).²⁰

- (46) [[[TP PRES [[IMPMOD H t] [PERF [AspP AT [VP 1990 [VP you live in Tüb.]]]]]]]]^{c,g}
 = $\lambda w. \forall w' \in H(w, c_T) [\exists t' [t' < g(t) \ \& \ \exists e [\tau(e) \subseteq t' \ \& \ \tau(e) \text{ in yesterday} \ \&$

¹⁸ The entries constitute an adaptation of Musan's relational temporal framework to my deictic system. Moreover, her VPs invariably express properties of intervals, never of events. In order for my VP denotations to be compatible with Perf, I have to assume that there is an AspP below Perf, while Musan assumes Asp to be present above Perf. This is in line with her assumption that cross-linguistic observations necessitate the presence of aspect below Perf in many languages, which is to be accounted for by the possibility of multiply instantiating Asp, as long as it is semantically relevant. In our case, Asp has to occur below Perf and the higher instantiation can be left out as it would not make a semantically relevant contribution.

¹⁹ Drawing on arguments from possible focus alternatives depending on accent patterns, Musan argues that Perf is realized as the morphosyntactic complex of auxiliary and participle morphology. These syntactic details do not affect our semantic investigation.

²⁰ I ignore the ambiguity arising from the direction of the inclusion relation between the time introduced by aspect and the state of living in Tübingen that is anchored with respect to it.

Musan's uniform interpretation for the perfect as introducing a post state not only solves the problem with the invariably present tense time of the imperative, it also obviates a problem with an apparently past event frame. The temporal adverbial *1990* does not constrain the event frame itself, but the run time of the VP. What is predicated of the event frame is not for it to have this VP property (which would require a non-empty intersection with the bygone 1990), but rather that it is a post state of an interval that has the VP property. Thanks to the persistence of post states, if the addressee has lived in Tübingen for some or all of 1990, any subsequent interval has the respective post state property. The utterance time itself (or an interval surrounding it) can easily serve as a pragmatically salient event frame.

The event frame can also be located in the future, as under the most prominent reading for (47).

- (47) *(I will to talk to my boss at 8.)*
 Bitte hab mich dann schon angerufen!
 please have.IMP me then already called
roughly: 'Please have called me by then!'

In this case, the event frame is in the future, and the truth or falsity of the imperative's argument proposition is not only unknown in the utterance context, but can easily be taken to be metaphysically undecided. Therefore, in case of a truly future event frame, the imperative is not confined to a usage as a wish, but can also be used felicitously as a command.

I take the facts from present perfect imperatives to constitute evidence for a uniform analysis for the German present perfect. Combining the modal semantics for imperatives and Musan's uniform analysis of the present perfect allows for a straightforward account of an otherwise puzzling and seemingly non-compositional phenomenon.

5. Conclusions and outlook

In this paper, I have argued that the temporal behaviour of imperatives can be analysed naturally and in a compositional way, if we adopt a modal operator account for imperatives. Imperatives are interpreted as propositions that express necessity of a contextually given flavor that underlies certain restrictions. The latter confine it to performative, that is, non-descriptive usages. In particular, it is required that the addressee be an authority on the relevant sort of necessity. As for other modal operators, we have to distinguish between when the background of the necessity is to be calculated – the tense time (mostly, the

utterance time, but cf. sections 4.2, 4.3), and the interval, at which the event/state in question is to hold – the event frame. In present tense imperatives, the latter is required not to be properly past. German and English keep this requirement, even if the tense time is shifted by a speech report. In contrast, Dutch counterfactual imperatives require precedence with respect to the shifted tense time. Data from North American Indian languages suggest that they possess morphological forms that distinguish between how far in the future the event state is situated. Last but not least, I have discussed present perfect imperatives in German that are used to express wishes. I have argued that we can account for these facts if we adopt a uniform analysis of the perfect that takes it to describe post states of particular events/states.

I hope to have shown that the context dependent modal semantics for imperatives, together with the consideration of speech act properties brought in by particular settings for the parameters of the corresponding modal operator, provides a seminal starting point for the discussion of temporality in imperatives across languages.

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