



Imperatives as Future Plans

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Abstract. Disjoint imperative sentences like (*Nimm die*) *Hände hoch, oder ich schieße!*, literally (*take your*) *hands up, or I'll shoot!* intuitively present the addressee with all her alternatives for action. The speaker informs that all future worlds, as far as the speaker can foresee, are such that the addressee raises her hands or gets killed. I propose a semantic/pragmatic analysis for sentences in the imperative mood that adopts this exhaustive description of future alternatives as a semantic backbone. Different contextual instantiations of alternatives capture a wide range of uses of sentences in imperative mood, as well as coordinations of imperative and declarative sentences, in a uniform way.

1 Some Observations about Imperatives

1.1. Variety

It has frequently been noted that sentences in imperative mood (S_{imp}) can express a wide variety of speech acts, some directive, some not. I will take my starting point from the following range of examples.

- (1) Leave my garden! (*command/request*)
- (2) Lend me your bike, please! (*plea*)
- (3) Take a cookie! (*offer, invitation*)
- (4) Take an umbrella with you! (*advice*)
- (5) Ok. Go kill yourself. Smoke! (*concession, „giving in“*)
- (6) Get well soon! (*well-wish*)
- (7) Come and take the ball (if you dare)! (*dare*)

These are part of the agenda set by Condoravdi + Lauer (C+L, 2010a, b) in a recent series of talks, drawing on earlier literature (e.g. Schwager 2006a, 2008, Donhauser 1986, Bybee, Pagliuca+Perkins 1994).¹ It would be desirable to derive the different types of act compositionally from the literal

¹ Two more types of act that they include, namely WISH and ILL-WISH, will only be touched later in this paper.

content of the sentence, the semantics of mood, and knowledge in context that pertains to the interpretation of imperatives. Such an approach would certainly be preferable over stipulating a range of speech act operators and leave the choice of the correct operator subject to a holistic, noncompositional evaluation of the overall utterance situation (Searle, 1969). An operator approach would, for instance, force us to postulate categorical distinctions between different act types where in practice, we find a gradual continuum between e.g. command and request, request and plea, request and advice and so on. Schwager (2006) and Portner (2007) have led the way in demonstrating how compositional semantics for imperative mood in speech acts can look like, and in the present paper I will propose another analysis in this line.

1.2. Conjoining S_{imp} and S_{decl}

S_{imp} can be conjoined with sentences in declarative mood S_{decl} . The result are speech acts of different natures, including anti-directive acts such as threats, like in (10).

- (8) *Clean your room, and I will take you to the movies.*
(request + incentive)
- (9) *Open the newspaper, and you will find the king's picture on page 2.*
(conditional)
- (10) *Touch this glass, and I will kill you.* (threat + sanction)

Sometimes, the speaker wants the addressee to act as required by the imperative (*Do!*) but sometimes he aims to avoid exactly that, practically intending to say *Don't!* (see Schwager 2006a, Russell 2007, van Rooij+Franke 2010, quoting Bolinger). A commonality of examples like (8) to (10) seems to be that they all can equivalently be expressed by a conditional (*'If you clean your room, then I will take you to the movies'* etc.). This is why scholars have proposed to class S_{imp} as pseudo-imperatives here and propose a common *conditional* meaning for the construction. It would be attractive to have an analysis that relates the meaning of (8) to (10) to the interpretation of "normal" imperative sentences in a transparent manner.

1.3. Disjunctions S_{imp} or S_{decl}

S_{imp} can likewise enter disjunctions with a "face the consequences" clause, like in the following example.

- (11) *Freeze! or I'll shoot you.*

These intuitively present the addressee with

all her alternatives for action. The speaker informs that all future worlds, as far as the speaker can foresee, are such that the addressee raises her hands or gets killed.

It is not possible to add a disjunct that describes more promising alternative prospects, in order to prohibit the addressee from acting as specified by S_{imp} (Russell 2006, van Rooij+Franke 2010 a.o.).



(12) *Go on fighting, or you'll get chocolate.*

≠ 'If you stop fighting, you'll get chocolate' (ironically?)

Whenever the speaker seriously attempts to motivate the addressee to act according to S_{imp} , it is standardly possible to spell out his underlying incentives by an *or*-clause. Hence, while conjunctions like in 1.2. might be viewed as a deviant case, the use of disjunctions frequently just explicates the reasoning behind a typical directive uses of S_{imp} .² Again, it would be appealing to read that off directly from the semantics of imperative mood.

2. Modal Theories for Imperatives

2.1. Earlier Theories

I agree with earlier authors on imperatives who assume that literal meaning and speech act should be captured in one integral overarching theory. This leads naturally to analyses of S_{imp} that play on their semantic closeness to deontic necessity. A recent prominent example is Schwager (2006a, b and subsequent). We will generally assume that the sentential root $\llbracket S_{imp} \rrbracket$ denotes a property which gets instantiated by the addressee (A). I will use $S_{imp}(A)$ for the resulting proposition.

$$\llbracket Freeze! \rrbracket^{Schwager} = \forall w[\text{“BEST-WORLDS}(w, w_o)\text{”} \rightarrow \text{FREEZE}(A, w)]$$

I use BEST-WORLDS as a cover term for factors that determine the domain of quantification. These include the choice of a modal base (FUTURES which are CIRCUMSTANTIALLY POSSIBLE) and a partial ordering of the worlds which, among other criteria, refers to what ACCORDS.WITH.SPEAKERS.DESIRES(w_o, w).

² See Schwager 2006a, 2008 for a very lucid discussion of the relation between sentence mood and *typical* associated speech acts.

Schwager proposes that this is further specified by context (“*In what sense does the speaker want this to happen?*”) which leads to different flavours of imperatives. The modal quantification is contributed by an imperative mood operator, and finally the scope of this quantification is contributed by the content $S_{imp}(A)$ (the basic setup follows Kratzer, 1981, 1991). Schwager’s analysis is attractive because it shows tight fit with necessity modals, it can be naturally extended to conditionals, and it has a smooth semantics-speech act interface. The theory doesn’t need extra components or ontology like TO-DO-LISTS, plans, action schemes or the like.

Another, more recent proposal in a similar line was issued by Condoravdi and Lauer (C+L, 2010a, b). They suggest that S_{imp} expresses the desire of the SPEAKER that the ADDRESSEE commit herself to act as if he (= A) preferred $\llbracket S_{imp}(A) \rrbracket$ (Condoravdi+Lauer 2010a, p. 10). Like Schwager, they assume that the information content of imperatives alone is sufficient to predict its speech act qualities, and envisage a smooth semantics – speech act interface. The last recent semantic approach I am aware of, Portner (2007), will be disregarded here because it stipulates the use of an extra list of propositions called the TO-DO LIST.³

2.2. Coverage of observations

Variety is accounted for by both approaches, where both fit more naturally for some cases than for others. Specifically, as both analyses rest on speaker desires, they will need to ascribe the speaker strangely desinterested and altruistic desires in some cases. Schwager captures flavours by different specific ACCORDS.WITH.SPEAKERS.DESIRES properties (capturing offer, warning, advice, wish, and several “deviant” uses). C+L (this volume) likewise attempt to derive known examples from their intricate mix of speaker and hearer preference, which I will discuss in section 4.

The **coordination** cases can not be captured easily by a naive extension of these modal analyses (Schwager, 2006a); perhaps to the exception of the S_{imp} and $S_{decl,good}$ cases. In view of the obvious problems that arise, Schwager (2006a) proposes very different, and much more sophisticated ways to interpret the respective conjunctions and disjunctions. The coordination S_{imp} and S_{decl} is simply interpreted as conditional. The imperative operator will contribute the modal quantification scheme:

³ While the components of Portner might be reconstructed in terms of the other two competing theories, a full comparison is beyond the scope of the present paper.

$$\forall w[\text{FUTURE}(w_o, w) \wedge \text{CIRC}(w_o, w) \wedge \dots P(w) \dots \rightarrow Q(w)]$$

In non-coordinate imperatives, the syntax-semantics interface instantiates $P(w)$ with speaker-desire, and $Q(w)$ is instantiated by $S_{\text{imp}}(A)$. In the conjunctive case, however, $P(w)$ gets instantiated by the speaker's desires *plus* the content of imperative (*if you do S_{imp} ...*) whereas $Q(w)$ instantiated by *and*-clause (*...then S_{decl} will happen*). The result is descriptively adequate, but the semantic derivation of dubitable legitimation. (It is claimed that a topical status of the imperative leads to its analysis in the restrictor of some quantifier; the topical status is attributed to the imperative on basis of prosodic cues that are inconclusive.)

According to Schwager on S_{imp} or S_{decl} , the idea that 'or' could mean Boolean disjunction has to be radically denied. Her treatment of S_{imp} or S_{decl} rests on the modal analysis of *or*. (Geurts, 2005) proposes that 'or' denotes a conjunction of modal quantifications where background and propositional slots get instantiated by the sentence to be interpreted. C_i are contextually given sets of worlds; $M_i \in \{\diamond, \square\}$ and $P_i =$ disjuncts.

$$(14) C_1 M_1 P_1 \wedge C_2 M_2 P_2$$

Schwager makes use of this scheme in a sophisticated way, assuming that $C_1 = \text{CG}$ (common ground); $M_1 P_1 = \diamond S_{\text{imp}}(A) \wedge \llbracket S_{\text{imp}} ! \rrbracket$, second context $C_2 = \text{CG} \setminus S_{\text{imp}}(A)$ and finally $M_2 P_2 = \square \llbracket S_{\text{decl}} \rrbracket$. The result can be spelled out as “*It is possible that S_{imp} ; and in all speaker-desirable worlds, S_{imp} actually happens; and in all worlds where it does not happen, S_{decl} will necessarily be true.*” This leads to a descriptively adequate semantic representation. However, Geurts' background theory and the cases at hand do not yet match perfectly. The first conjunct doesn't unify well with Geurts' scheme (14), likewise Geurts does not discuss changes between modal bases extensively (e.g. from epistemic to deontic to future-no-matter-what).⁴ Condoravdi + Lauer do not address coordinate constructions with imperatives. I will come back to their proposal and undertake a more detailed comparison once the Hands-Up theory has been presented.

⁴ Schwager herself comments on the analysis in much the same spirit. It should be kept in mind that all simpler mappings from syntax to semantics were inevitably bound to yield wrong results, so this analysis constitutes true progress.

3. Hands-Up theory for imperatives

3.1. The Backbone

I propose two kinds of imperative construction operators [!] and [;], each with syntactic requirements, denotation and presupposition. Given that I will not deal with conflicting desires or obligations explicitly, I will notate modal quantification in an entailment format. FUTURE, CIRC, DEONT etc are intended to deliver the future, circumstantial etc. alternatives of w_o and LEWIS-SIM is used to remind us of the fact that we want to exclude the more obscure of all logical possibilities sometimes. The notation should be reversible to one based on modal base and ordering source.

[!]: Syntax:

one obligatory argument: finite sentence in imperative mood S_{imp}

one optional argument: *or*-phrase with *or*-P \rightarrow ‘*or*’ S_{decl}

Semantics:

$\lambda p \lambda q \forall w [\text{FUTURE}(w_o, w) \wedge \text{CIRC}(w_o, w) \wedge \text{LEWIS-SIM}(w_o, w) \rightarrow p(w) \vee q(w)]$

Presupposition:

the speaker believes that the addressee, taking a choice in all life future options

$\lambda w. \text{FUTURE}(w_o, w) \wedge \text{CIRC}(w_o, w) \wedge \text{LEWIS-SIMILAR}(w_o, w)$

prefers p -worlds to q -worlds.

[;]: Syntax:

first obligatory argument: finite sentence in imperative mood S_{imp}

second obligatory argument: *and*-phrase with *and*-P \rightarrow ‘*and*’ S_{decl}

Semantics:

$\lambda p \lambda q \forall w [\text{FUTURE}(w_o, w) \wedge \text{CIRC}(w_o, w) \wedge \text{LEWIS-SIM}(w_o, w) \rightarrow p(w); q(w) \vee C(w)]$

Pragmatics:

C propositional variable to be instantiated in context

$C \subseteq \neg p$ and $C \cap \neg q \neq \emptyset$ (hence C -worlds might avoid the consequences presented in second conjunct⁵)

The coordinator itself does not get semantically interpreted. However, the respective operators show a clear reflex of *and* and *or*. In this sense, the coordinators feed the meaning. Coordinating *and* is reflected as narrative sequencing as in DRT. Usually, S_{imp} and S_{decl} are tightly linked anaphorically

⁵ thanks to Sven Lauer who suggested this specific version of restriction

under conjunction. I will not go into the details of $\llbracket S_{\text{imp}}; S_{\text{decl}} \rrbracket$ which would require dynamic lambda logic. The disjunction is strengthened to exclusive disjunction in most cases. I will in one case below refer to this strengthening. Finally note that the approach once again stipulates a semantic difference between *and*-coordinations and *or*-disjunctions. Unlike other analyses, the one defended here treats the two cases maximally parallel, differing only in how the same semantic parameters get instantiated in either case, and in the presence or absence of one presupposition.

3.2. Examples of [!]-imperatives

In this section, I will survey how the analysis can treat various kinds of uses of the imperative. We will see how different types of propositional OR arguments yield different flavours of imperatives. I assume throughout that if the second argument of [!] is not overtly realised, it will be instantiated in context. Let us start with *Command*, the most prototypical use of imperative mood.

(16) *Remove your car!*

The first argument of the [!] operator $\lambda w[\text{REMOVE}(A, \text{CAR-OF-A}, w)]$ is provided by the imperative sentence. The hearer understands the presupposition that the speaker believes that the addressee will prefer *REMOVE-CAR*-worlds to *q*-worlds. Depending on the situation at hand, the hearer might guess that leaving the car will cause trouble with the police, e.g. she will get a ticket. Hence, the overall proposition conveyed is this:

$$\begin{aligned} & \forall w[\text{Future}(w_o, w) \wedge \text{Circ}(w_o, w) \wedge \text{Lewis-Sim}(w_o, w) \\ & \quad \rightarrow [\text{Remove}(A, \text{Car-of-A}, w)] \vee \text{Ticket}(w)] \end{aligned}$$

This will also warrant the presupposition: *REMOVE*-worlds are better than *TICKET*-worlds. The “force” of the command derives from the threatening nature of the alternatives. The more likely the speaker holds the *TICKET* case, and the less she is inclined to lose money, the more likely will she comply to the command. Yet *whether* she does is her own decision, independent of the issuing of the command. Next, consider *Warning/Advice*, like in (17).

(17) *Wear a raincoat!*

It has been observed that the speaker in (17) need not have a personal desire for the addressee to comply. This is why theories that rephrase imperative sentences as reports about the speaker’s desires will find such examples worrisome. The present analysis fares quite well with these cases. [!] will take $\lambda w[\text{WEAR}(A, \text{RAINCOAT}, w)]$ as its first argument. The second derives

from common knowledge about the current weather, the health state of the addressee; let us assume a simple $q =$ ‘you will get wet’. The speaker conveys, and the hearer accepts the presupposition: RAINCOAT-worlds are better for the hearer than WET-worlds.

$$\forall w[\text{Future}(w_o, w) \wedge \text{Circ}(w_o, w) \wedge \text{Lewis-Sim}(w_o, w) \\ \rightarrow [\text{Wear}(A, \text{Raincoat}, w)] \vee \text{Wet}(A, w)]$$

In giving desinterested advice, the speaker points out certain facts and leaves it to A to act in the most reasonable way. We’d expect, however, that the speaker does not *mind* if A reacts in the indicated manner—or else, the speaker would not have pointed out these facts in the first place. We will come back to this fact.

The analysis can nicely reflect speaker’s Authority and, more interestingly, the Lack of Authority. Let us see what happens when the hearer guesses the second disjunct q which the formal representation leaves vague.

(18) *Be quiet!* (or ... ?)

$$\forall w[\text{Future}(w_o, w) \wedge \text{Circ}(w_o, w) \wedge \text{Lewis-Sim}(w_o, w) \\ \rightarrow [\text{Quiet}(A, w)] \vee \text{Somehow-Bad}(A, w)]$$

Now, the hearer could draw on knowledge about speaker like “wow, this speaker is a fierce guy who could earlier think of nasty PUNISHMENTS”. The speaker conveys the presupposition: “I, the speaker, believe that you’ll like the QUIET-worlds better than PUNISHMENT-worlds”. Drawing on earlier knowledge, the hearer will believe this presupposition and accordingly hold her mouth. Speakers with little authoritative force are reflected by a different kind of hearer knowledge, e.g. “this speaker wasn’t able establish PUNISHMENTS”. Again, the speaker conveys the presupposition that ‘he believes that the hearer finds QUIET-worlds are better than PUNISHMENT-worlds’. The addressee, however, might disagree with the speaker and therefore opt for the worlds where $\lambda w. \neg[\text{QUIET}(A, w)]$. We can leave it open whether the speaker doesn’t come up to a commitment to do nasty things, or whether the mismatch rests on predicates of personal taste and the addressee doesn’t dislike BAD worlds to the extent hoped for by the speaker. In sum, Authority can be based on the experience that S was able to think about drastic measures in the “*or*”-case on earlier occasions. I will next address Permissions like the *cookie* invitation. The line below shows the semantic representation, with the second argument open.

(19) *Take a cookie!*

$$\lambda q \forall w [\text{FUTURE}(w_o, w) \wedge \text{CIRC}(w_o, w) \wedge \text{LEWIS-SIM}(w_o, w) \rightarrow \\ [\text{TAKE}(A, \text{COOKIE}, w)] \vee q(w)]$$

(19) suggests that—contrary to earlier belief of A—it is not forbidden to take a cookie. Why? Due to presupposition, the speaker commits to the belief that the addressee will prefer COOKIE-worlds to NO-COOKIE-worlds. If the speaker can be trusted, this includes a commitment to not punish Addressee if she takes a cookie. Conventionally, (19) is used in contexts where the only disadvantage of NO-COOKIE-worlds for A is that she does not get a cookie (which the speaker should believe a desirable thing to have). Consequently, the addressee can decide to decline this offer—for instance if she is on a diet or does not like cookies very much. Note that nothing in the semantics of [!] itself would force this weak kind of *or*-cases. They are just one possible instantiation of *q*. Or to put it the other way round—the more the addressee will fear other disadvantages of declining the cookie ('the boss will be mad at me', 'granny will be so sad') the less desinterested an invitation is (19). Let us finally look at Concessives. I will use an example in a naturally sounding pre-discourse.

(20) a. *Don't smoke (, or you'll die young)!*

b. *(nag nag nag) — Well, then do smoke! Kill yourself!*

Intuitively, (20) shows that speaker and addressee disagree in certain respects. This is reflected in the presuppositional discourse record. After (a.), we know that the Speaker believes that Addressee prefers NON-SMOKE-worlds (= LIVE-LONG-worlds) to DIE-YOUNG-worlds (= SMOKE-worlds). In (b.), [!] will meet a first argument $\lambda w [\text{SMOKE}(A, w)]$ with the second argument missing. With the presupposition conveyed in (b.), the Speaker acknowledges that Addressee prefers SMOKE-worlds (= DIE-YOUNG-worlds) to NON-SMOKE-worlds (= LIVE-LONG-worlds), or maybe believes that the DIE-YOUNG alternatives are highly improbable. As part of the discourse record, however, the speaker has made it clear that she does not share this preference and does not think it reasonable.

I will leave the remaining cases on our initial list to the reader. PLEAS are characterized by the moral pressure of the 'or'-alternative. The speaker hopes that the addressee will prefer making her happy to making her miserable. WELL-WISHES straightforwardly acknowledge addressee's preferences without that either addressee or speaker can do anything to drive the course of events towards such happier alternatives. DARE! cases, finally, convey an intricate conditional preference of the addressee: *If* A 'dares', i.e. overcomes her fear of bad consequences, then she will prefer worlds where she takes the

ball (ex. 7) to worlds where she doesn't take it. 'Daring' might be tantamount to 'countering the situation with enough strength and energy so as to overcome the obviously threatening dangers'. Sometimes, 'dare' only involves the transgression of cultural or psychological barriers. Depending on how realistic it is for the addressee to actually face the dangers that she has to 'dare', imperatives like *Come, and take the ball!* can carry the flavour of threats. We find a continuum of attitudes between the encouraging "*come, take the ball if you dare*" by the provocative coach and evident threats as *Dare! (and you will see what happens)*. As the present analysis assumes that the flavour of imperatives derives from contextual instantiation of the 'or'-cases, we'd expect such a continuum. The only breaking point is the one where, by language or mimicks, the speaker expresses an *and*-conjunct of threatening content. This is where we move to the [i] cases.

3.3. Examples of [i]-imperatives

I will now turn to the conjunction S_{imp} -*and*- S_{decl} which are analysed with [i]. Recall that the second argument is obligatorily instantiated (i.e. we overtly see the *and* clause) and there is no presupposition as to what is good or bad for the addressee. The content of the second argument alone determines whether the worlds where $S_{imp}(A)$ is true are better or worse for A. We will start with an Offer:

(21) *Come in, and you will get coffee.*

[i] = $\lambda p \lambda q \forall w [\text{FUTURE}(w_o, w) \wedge \text{CIRC}(w_o, w) \wedge \text{LEWIS-SIM}(w_o, w) \rightarrow p(w); q(w) \vee C(w)]$ will apply to the first argument $\lambda z. \text{COME-IN}(A, z)$ and the second argument by dynamic update: $\lambda z. \text{GET}(A, \text{COFFEE}, z)$. Pragmatics requires that C is a proposition to be instantiated in context

where $C \subseteq [[\text{NOT } S_{imp}]] = \lambda z. \neg \text{COME-IN}(A, z)$ and moreover $C \cap [[\text{NOT } S_{decl}]]$

$= C \cap \lambda z. \neg \text{GET}(H, \text{COFFEE}, z) \neq \emptyset$.

Here, the elsewhere-case C describes a missed occasion: Speaker believes that Addressee prefers COFFEE-worlds to NO-COFFEE-worlds.⁶ As in the cookie example, the "force" of the offer depends on the addressee's eagerness not to miss an occasion to get coffee—plus, possibly, more disadvantages for the addressee that are clear in context but left unexpressed by the speaker.

⁶ (In a richer account, the not-getting coffee needs to be tied to a limited interval of time; the time that would correspond to the time after the non-occurring entry.)

Note that it sounds incoherent to add both a motivational conjunct and a threatening disjunct in the same sentence.

(21.a) #Come in, and you will get coffee, or I won't talk to you for days.

The rough syntactic analysis that I sketched here is meant to capture this. Given that the coordinate clause $S_{imp}and/orS_{decl}$ as a whole does not count as S_{imp} , the structure is not recursive.

More interestingly, perhaps, is what happens in the Threat case.

(22) Touch this cookie, and I will kill you.

(22.a) $[i] = \lambda p \lambda q \forall w [FUTURE(w_o, w) \wedge CIRC(w_o, w) \wedge LEWIS-SIM(w_o, w) \rightarrow p(w); q(w)]$
 first argument: $\lambda z. Touch(A, Cookie, z)$
 second argument, dynamic update: $\lambda z. Kill(S, A, z)$
 Pragmatics: (i) $C \subseteq \lambda z. \neg Touch(A, Cookie, z)$
 (ii.) $C \cap \lambda z. \neg KILL(S, A, z) \neq \emptyset$

The speaker assumes that Addressee prefers not being killed to being killed. The imperative informs her that if she avoids touching the cookie there is a chance to stay alive. (Depending on the nature of the threat, it can be very likely that it never occurs in the otherwise cases.)

Predominant alternative analyses interpret $S_{imp}and-S_{decl}$ as straightforward conditionals. The present analysis treats $S_{imp}and-S_{decl}$ maximally similar to other imperative clauses but it predicts that $S_{imp}and-S_{decl}$ entail conditional statements. The example in (23) is a typical conditional case, but the reasoning holds for all examples.

(23) Open the newspaper, and you'll see the king on page 2.

$[i] = \lambda p \lambda q \forall w [FUTURE(w_o, w) \wedge CIRC(w_o, w) \wedge LEWIS-SIM(w_o, w) \rightarrow p(w); q(w)]$
 $\vee C(w)]$
 first argument: $\lambda z. \exists x (NEWSPAPER(x) \wedge OPEN(A, x, z))$
 second argument, dynamic update $\lambda z. SEE(A, KING, PAGETWOOF(x), z)$
 Pragmatics: C in context,
 (i) $C \subseteq \lambda z. \neg \exists x (NEWSPAPER(x) \wedge OPEN(A, x, z))$
 (ii.) $C \cap \lambda z. \neg \exists x (NEWSPAPER(x) \wedge SEE(A, KING, PAGETWOOF(x), z)) \neq \emptyset$
 i.e. there is a chance for A to see the foto of the king.

The instantiation of C, the “elsewhere” worlds, is restricted to subsets of the worlds where A doesn't open a newspaper. This means that the overall modal quantification states that all relevant future courses where newspapers get opened by A are such that the king's picture is on page 2. This is tantamount to the conditional “If you open the newspaper, you'll see the king”.

Admittedly, the entailment is again hard-wired in the interpretation of [!] and maybe therefore no less stipulative than in competing analyses. However, the stipulation here echoes the strengthening of disjunction in the plain imperative case. [!]-imperatives typically inform the addressee what happens if, and what happens if she does not engage in certain actions (e.g. freezes). In the simple case, this dichotomy can be modeled by exclusive disjunction. In the [!] case, exclusive disjunction will not be sufficient to maintain this division of worlds into cases. The condition that $C \subseteq \neg p$ therefore simply transfers exclusivity of cases to the [!] denotation.

This concludes the discussion of examples. The basic analysis covers a core inventory of uses of imperative sentences in coordinations and without. What is missing so far are pure ill-wishes like “Die!”, “Eat shit!”. These obviously rest exclusively on what is desirable for the speaker. They therefore do not fit into the basic version of the analysis as used here. I will return to the trade-off between speaker and hearer desire in section 4.2.

4. Other analyses, a second look

4.1. Van Rooij and Franke, 2010

In making the assumption that there are two imperative operators [!] and [!], I stipulate a fundamental difference between *and* and *or* in imperatives. Of course, it would be desirable to derive the different behaviours from more basic facts about imperatives and coordination. In a recent paper, van Rooij+Franke propose that it can be predicted on a game theoretic basis. They address the fact that only *and* can be used to “reverse” the intention of an imperative, as illustrated again in (24). Only (24.b) conveys a serious invitation to eat spinach.

- (24) a. **Don't eat your spinach, or I will give you a dollar.*
 b. *Leave your spinach, and I will beat you.*

The basic idea is strikingly simple. Both imperatives in (24.a) and (b.) state what the speaker wants *not* be done. Both erroneously prime the listener to not eat spinach. (24.a) counteracts by promising a reward for the elsewhere case; (24.b) counteracts by promising a punishment in the imp! case. Now the reward case competes with other ways to call out similar rewards, e.g. (25).

- (25) *If you eat your spinach, I will give you a dollar.*

Van Rooij and Franke argue that the reward in (25) can be somewhat lower than the one in (24.a) because in (25), it only needs to overcome the addressees reservations against spinach whereas (24.a) has to overcome these

plus the additional priming to not eat spinach, caused by the imperative. Therefore (25) systematically wins over (24.a).

In principle, the dual threat in (24.b) faces a similar competition. The speaker likewise could decide to say ‘*If you eat your spinach, I will not beat you.*’ or such. And again, cheaper threats are required here because priming of the unwanted action has been avoided. However, van Rooij and Franke say, a costly punishment is not as binding a social commitment as a costly reward. Society will sanction those who promise big rewards and do not pay. In contrast, society rather rewards those who lower punishment. Therefore, false priming is not equally uneconomic when it only raises punishment costs: You can always lower your costs again by simply not punishing so badly.

This argument would certainly be appealing, if it were not for parallel examples where speakers indeed offer promising vs. unpromising alternatives, with the intention to drive the addressee away from unwanted behaviour, sometimes at high cost. This is possible both with disjoint declaratives and with disjoint imperatives. (26) demonstrates the strategy in a common parent-child interaction (where the parent wants actually to get home).

(27) *You can either stay on the playground longer, or we’ll have time to have an ice cream on our way home.*⁷

(27) is to be understood in a context which advertises cosmetic surgery. (Of course, I do not submit to the argument.)

(28) *It’s your decision: Remain an unremarkable average person for the rest of your life, or make an appointment with Dr. Knock’s cosmetic surgery clinics today!*

Such examples show that speakers are indeed willing to make suggestions in ways where priming has to be countered with higher rewards, even suggestions that are worded in the imperative mood. The pattern is just conventionally not available for the S_{imp} or S_{decl} coordination. I therefore conclude that the asymmetric behaviour of *and/or* coordination is a conventional part of the pragmatics of S_{imp} coord S_{decl} and needs to be coded in grammar.

⁷ Thanks to Manfred Sailer who brought up this type of example.

4.2. More on Condoravdi and Lauer

Condoravdi + Lauer (2010a,b,2011) argue in favour of a general model for speech acts in terms of public beliefs and commitments. Specifically, they propose that “the utterance of an imperative $p!$ commits the speaker to act as if he had a preference for the hearer committing himself to act as if he preferred p ” (C+L, 2010b). They assume that commitments are part of public beliefs in common ground update (Stalnaker, 2002). Public commitment to p will add p to a (public) list of the agent that reveals his preferences that drive his decisions for action. Such preference lists can feed modal quantification and offer a natural link to statements like ‘ $I\ must\ p$ ’ that seem to follow, once an imperative has been accepted by the hearer. On the other hand, the public eye will watch whether the agent’s behaviour is in line with his public commitments. If discrepancies get too large, the general public can decide on sanctions, thereby taking responsibility for the ‘elsewhere’ worlds that are part of the imperative’s meaning in my approach. While either of the two approaches will have its merits, I will briefly list some differences as I understand them at this point.

C+L’s analysis is a sophisticated variant of a speaker-buletic modal. It is therefore ideally suited to analyse imperative uses for wishes, including ill-wishes, which all report speaker’s preferences. These are hard for my own proposal, according to which the speaker basically asserts that it would be in the hearer’s own interest to take a certain action. Arguably, this does not fit the ‘*drop dead*’ example.

- (29) *Please, be blond!* (wish in absence of addressee)
Drop dead!(ill-wish)

For the same reason, however, C+L’s analysis has problems with imperatives used for desinterested ADVISE, cookie INVITATIONS, CONCESSIVES and DARE! imperatives. They do not discuss the use of imperatives in threats of the S_{imp} and S_{decl} form, but given that the speaker will not have an interest for the listener to follow $S_{imp}!$ in these cases either, these coordinations should be extremely problematic in that approach.

One appealing vision in C+L’s approach is that we might be able to reconcile ordering sources in modal logic with preference lists in action planning. In accepting an imperative $p!$, the addressee is assumed to rank p high on his (existing) list of preferences. The actual ranking of preferences will not be fully determined by the imperative utterance, because the hearer could have other aims that he pursues with even higher priority. This underspecification is certainly adequate.

If we compare the approach to the *hands-up* analysis of imperatives, the latter contributes in a more local, but also more explicit way to the facts that determine the addressee's actions. The speaker—according to the *hands-up* analysis—points out a local and specific preference ordering between two possible future branches of worlds. The ordering reflects the (assumed) addressee's preferences. In this setting, the speaker does not attempt to make p compete directly with an unknown earlier agenda of the addressee. It is a *local* preference that is conveyed by the imperative. Moreover, the information conveyed by the imperative sentence is suited to update the addressee's belief state in ways in which some of his earlier plans and preferences might simply become obsolete. Take the drastic initial *Freeze, or I will kill you!* Before hearing and believing the content of this imperative, the addressee A might have planned (= preferred with high priority) to not freeze but have a coffee. By learning that his next future options are either to freeze or to get killed, A does not simply demote his earlier plan '*I will now have a coffee*' to a somewhat lower rank. What A indeed faces is a quite drastic belief revision: He learns that the coffee plan is not part of any possible future at all, and that his choice is a quite different one. Whether he returns to his original plan to have a coffee when the hold-up incident is over should not be part of the semantics of imperative sentences. One advantage of this self-contained way to model preferences could be this: Whatever the eventual ties between deontic modals and such choices may be, the assumption that the relevant choice is encapsulated in the imperative semantics itself could give us a useful basis for reasoning about planning and action.

5. Ross' paradox

The proposed analysis for imperatives assumes that sentences in imperative mood express modal necessities. Ross (1944) is quoted as the first to observe that simple-minded modal analyses of imperatives carry the danger of falsely predicting that in all situations where (30) can be commanded, (31) should also be truthfully assertible.

(30) *Come!*

(31) *Come, or stay!*

This is intuitively incorrect. The problem arises due to the fact that any world that has property p also has the weaker property $p \vee q$. In this section I will argue that the present analysis, though another modal approach, does not support this false entailment. In the following, I will use the proposition

SANCTIONS as a cover predicate for any contextually given sanctions that the hearer could understand.

$$\begin{aligned}
 (30') \llbracket [!] \text{ Come!} \rrbracket &= [!] (\lambda w. \text{COME}(A, w)) (\lambda w. \text{SANCTIONS}(A, w)) \\
 &= \lambda z. \forall w [\text{FUTURE}(z, w) \wedge \text{CIRC}(z, w) \wedge \text{LEWIS-SIM}(z, w) \\
 &\rightarrow \text{COME}(A, w) \vee \text{SANCTIONS}(A, w)]
 \end{aligned}$$

Presupposition: Speaker believes that A will like worlds in $\lambda w. \text{COME}(A, w)$ better than worlds in $\lambda w. \text{SANCTIONS}(A, w)$.

$$\begin{aligned}
 (31') \llbracket [!] \text{ Come, or stay!} \rrbracket \\
 &= [!] (\lambda w. \text{COME}(A, w) \vee \text{STAY}(A, w)) (\lambda w. \text{SANCTIONS}(A, w)) \\
 &= \lambda z. \forall w (\text{FUTURE}(z, w) \wedge \text{CIRC}(z, w) \wedge \text{LEWIS-SIM}(z, w) \\
 &\rightarrow (\text{COME}(A, w) \vee \text{STAY}(A, w)) \vee \text{SANCTIONS}(A, w))
 \end{aligned}$$

Presupposition: Speaker believes that A will like worlds in $\lambda w [\text{COME}(A, w) \vee \text{STAY}(A, w)]$ better than worlds in $\lambda w. \text{SANCTIONS}(A, w)$.

There are two ways to argue against entailment. The first way is to assume, as we did in earlier places, that the *or* which separates the sanction case from the Imp! cases is an exclusive *or* \vee_e . (Note: this does not affect our reading of the explicit 'or' in (31).) With this assumption, (30') no longer entails (31') and Ross' paradox is avoided.

$$\text{Exclusive disjunction: } (\phi(x) \vee_e \xi(x)) \rightarrow \neg ((\phi(x) \vee \psi(x)) \vee \xi(x))$$

Assume that there is a world which is both a STAY(A)-world and a SANCTION-world. Then (30') can be true but (31') will be false. Hence, (31') is not entailed by (30').

It may turn out that we need to leave the opportunity for inclusive 'or' in the representation of imperatives in the *hands-up* format. In this case, an alternative way to block the inference from (30) to (31) could run via presuppositions. (30) is conveyed with the presupposition that the speaker believes that the addressee prefers worlds in $\lambda w. \text{COME}(A, w)$ over worlds in $\lambda w. \text{SANCTIONS}(A, w)$. (31) presupposes that the speaker believes that the addressee prefers worlds in $\lambda w (\text{COME}(A, w) \vee \text{STAY}(A, w))$ over worlds in $\lambda w. \text{SANCTIONS}(A, w)$. We can model these preferences by universal statements of the following kind: All worlds in $\lambda w (\text{COME}(A, w) \vee \text{STAY}(A, w))$ are better than any world in $\lambda w. \text{SANCTIONS}(A, w)$. With this spell-out of preference, the person who utters (30) will not be committed to the content of the presupposition of (31) because s/he believes that some STAY worlds are also SANCTION worlds and therefore not any better than other SANCTION worlds. The details of such a weighing worlds against worlds

would need to be worked out in detail, but the approach opens up an alternative argument against Ross' paradox in the present framework.

6. Summary and outlook

6.1. The Hands-up analysis of imperatives

In the present paper, I suggest a semantics for imperatives as future modals. While the literal content of the sentence in the imperative mood describes one possible way in which the future could develop, imperatives explicitly or implicitly include a characterization of the *other* way in which the future could develop. The speaker presupposes that the addressee should prefer the options suggested by the imperative over the "other" options. It regularly makes sense to assume that these two options are mutually exclusive, but the present analysis leaves this still to pragmatic strengthening.

I also suggest how the analysis can extend to coordinations S_{imp} and S_{decl} a pattern that can be used for directive speech acts, for conditional assertions and threats. Conjunctions of this kind require their own semantic/pragmatic treatment which, however, differs from other imperatives only in that it is no longer automatically the case that the addressee should prefer the S_{imp} worlds to the alternatives. Notably in the case of threats, this is not so.

Various shades of imperatives can be derived from different types of alternatives that are presented to the addressee. If the alternatives are bad and if the speaker commits herself to bring them about, the utterance has a directive, command-like flavour. Alternatives that are characterized by bad feelings of guilt (on the side of the addressee) count as pleas and begging, alternatives where bad things happen just due to the course of nature count as warnings or recommendations. This analysis brings the meaning of imperatives close to deontic necessities for the addressee, thereby bringing all those uses of imperatives to the fore which are used to drive the addressee's behaviour on a utilitarian basis. The model is thereby close in spirit to game-theoretic approaches to imperatives like van Rooij and Franke (2010).

Due to the conservative truth-conditional analysis, the proposed semantics for sentences in imperative mood should allow extensions to cover conditional uses like (32) and quantified imperatives like (33). I do not include the respective analyses for reasons of space.

(32) *If you come to Rome, have an ice-cream at Lorenzo's!*

(33) *Always smile if your boss enters your office!*

6.2. Modals, Futures, Speech Acts

In view of the semantic closeness of utterances like (34) a. and b., it seems tempting to analyse imperative mood as yet another modal operator in the deontic-buletic spectrum.

- (34) a. *Show me your photos!*
 b. *You must show me your photos!*

The present approach is different in that utterances of sentences in the imperative mood cause an information updates about all future options. The speech act just consists in making the utterance, with the serious intention to cause an update by the addressee. The update gains its special “act” character from the fact that the speaker *S* informs *A* about her (= *S*’s) commitments. *Freeze, or I will shoot you!* has an information content that could also be paraphrased as: “*Look, this is how I seriously plan to act: I will watch whether you freeze soon. And if this is not the case, I am now honestly determined to shoot you. The latter isn’t just some odd fact about the world, it expresses my own intentions to take active part in shaping the world’s future course*”. This paraphrase seems to embrace the deontic alternatives of the addressee as one alternative (“*If you act as you should, you will freeze*”) but this is less important than the function of the utterance: to inform the addressee about the future, with the intention to make *A* rethink her choices for action. The specific relations between imperative sentence, modal statement with directive intention, and modal statement in the sense of “speaker informs addressee about her obligations” remain to be investigated. The advantage of the futurate format could lie in the fact that this format can be extended to more complex speech acts, for instance acts where speaker and addressee undertake mutual commitments (e.g. *accepted invitation, bet*) or where the speaker alone undertakes a commitment and the hearer’s choice is less important (e.g. in *promise*). It also allows to integrate complex plans for the future where societal institutions and individual commitments interact in complex manners (e.g. *marriage, baptizing*, basically Bach and Harnish’s class 6 speech acts) . Condoravdi and Lauer (2010) include an interesting proposal for belief update that spells out these ideas in terms of Stalnaker’s common ground update (Stalnaker 2002), as does Jary (2007) and Truckenbrodt (2009). The exciting perspective that opens up here is that speech acts and truth conditional semantics can be integrated seamlessly. Without being able to list all the advantages of such an integrated account, I can just state that it could go way beyond traditional theories of speech acts (since Austin 1972 and Searle 1969, 1989), the vast majority of which are completely disconnected from semantic theory.

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