Imperatives in dynamic pragmatics

ABSTRACT:

I offer a semantics and pragmatics for imperative grammatical mood, used to issue directions. The semantic content of an imperative clause is a (circumstantial and futurate) modal de se property indexed to the addressee, capturing the imperative’s realization conditions. 2nd person indexicality leads to natural constraints on the acceptability of overt imperative subjects, as in nobody move!, and facilitates their contributions to proffered content.

Deontic flavor and directive force are not semantic, but arise from the canonical role of imperatives in a dynamic pragmatics, updating a distinguished body of shared information G in the context of utterance. Unlike the common ground—consisting of propositions which the interlocutors (purport to) believe, and the questions which the interlocutors are committed to resolving—the QUD, G consists of goals and plans the interlocutors are committed to realizing, organized to reflect their priorities. Like CG and QUD, G both bears on interpretation and is updated as a consequence of the interpretation of an utterance, illuminating several features of the meanings of imperative utterances.

There are three central types of speech acts, observed in all human linguistic discourse. An assertion proffers a proposition for addition to the interlocutors’ shared information. A question poses an issue for discussion. A direction typically proposes that the addressee(s) behave in some fashion. Correspondingly, in all languages we find three different grammatical moods which are canonically used to issue such speech acts: the declarative, interrogative, and imperative, respectively. Following Portner (2004, 2007, 2018), these canonical uses of the grammatical moods are reflected in differences in the semantic types of the sentences in which they occur.

Declarative sentences denote propositions (functions from possible worlds to truth values, type <s,t>); interrogatives denote sets of propositions (the possible answers to the question, type <<s,t>,t>); and imperatives denote properties indexed to the addressee(s), type <s,<e,t>>. The Force Linking Principle of Portner (2004), Zanuttini et al. (2012) tells us that there is a default

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2 Portner cites as precursors to this approach Hausser (1980) and Ginzburg & Sag (2001).
correlation between these semantic types and the speech acts that sentences in these moods are canonically used to issue.

That this correlation is natural, in view of the pragmatics of the corresponding speech acts, is obvious in the case of the declarative and interrogative. What about the imperative, used to issue a direction? Illocutionary effects pertain to mental attitudes on the part of the interlocutors: purported belief in the case of assertion, a commitment to inquiry in the case of questions. A direction is a proposal to the addressee to adopt an intention, usually an intention to act in such a way as to realize the content of the imperative used to issue the direction. An intention is a mental attitude, one not reducible to belief and/or desire (Bratman 1987). Such an attitude is not a *propositional* attitude. One does not intend a proposition; the objects of intentions are not units of information. As Charlow (2012) puts it, “Imperatives tell agents how to plan, rather than what to believe.” Like the plans of which intentions are part, this mental state involves “an appropriate sort of commitment to action” (Bratman 1987:29). One intends *to do something*, which we can model as intending to realize a property. Moreover, one can only have an intention *de se*: one intends that one’s own self come to have the relevant property. In the case of a direction posed with an imperative utterance, the proposed *de se* intention is to self-realize the property denoted by the imperative’s VP.

Imperatives are a sub-type of jussive sentences (Zanuttini et al. 2012); in some languages, jussives may be targeted not to the addressee of the utterance, but to the speaker, as promises, or the join of the speaker and the addressee, as exhortatives. Note that in all these cases, the target is an interlocutor, so that jussives are all essentially indexical. And in all cases, the speech act canonically associated with a jussive involves an intention: If anchored to the 1st person, a Korean jussive promissive involves a commitment on the part of the speaker to intend to realize the property denoted by the VP, while an exhortative proposes that the interlocutors jointly adopt such an intention (‘let’s go!’).

Here we will focus on the imperative in English, with the expectation that this account characterizes its semantics in those languages in which an imperative is targeted solely to the addressee, and can be generalized to account for jussives more broadly. I offer a truth-conditional semantics and a pragmatics in the framework for dynamic pragmatics in the vein of Roberts (1996/2012, 2012b, 2017, 2018, 2022) and Portner (2004, 2018, 2018b). This proposed account has the empirical virtues of several of the best previous accounts of imperative semantics, in particular those of Portner (2004, 2007, 2011b); Kaufmann (2006 (as Schwager), 2012); and Charlow (2011, 2014), and in fact borrows features from those accounts while avoiding problems that arise in them and in others in the literature.

The semantic content of an imperative consists of realization conditions: the *de se* property that the targeted addressee would come to have were she to realize the proposed direction under the applicable conditions. As suggested by this paraphrase, the semantics is modal, conditional, and futurate. But other aspects of the account are essentially pragmatic: A central feature of the attested meaning of an imperative utterance—its apparent deontic flavor—is given not by its compositional, syntactico-semantic content, but instead arises from the interaction between that content and the pragmatics of its canonical use to issue a direction.
I begin in §1 by drawing on other recent work on imperatives to develop desiderata for a theory of imperative mood, thereby establishing benchmarks for the theory to be developed. In §2, after introducing the dynamic pragmatic framework, I offer a basic formal semantics for imperative-type clauses and the pragmatics of their default use as directions. In §3, I show how this account satisfies the desiderata from §1. In §4, I consider imperative clauses with overt subjects, modifying the formal semantics to reflect how these subjects contribute to the realization conditions. In §5 I compare this account with others in the literature. And in §6 I offer conclusions and prospects.

§1. Desiderata for a theory of imperative mood

Two of the most influential contemporary theories of the semantics and pragmatics of imperatives are those developed by Kaufmann (2006 (as Schwager), 2012) and Portner (2004, 2007, 2017). The central theses they adopt are summarized in Table 1:

<table>
<thead>
<tr>
<th>Features:</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts:</td>
<td>illocutionary force in semantic LF</td>
<td>semantic type of imperatives</td>
<td>modal in semantic content</td>
<td>flavor of semantic modality</td>
<td>uses dynamic pragmatics</td>
</tr>
<tr>
<td>Kaufmann (2006, 2012)</td>
<td>no</td>
<td>proposition</td>
<td>yes</td>
<td>semantic deontic</td>
<td>no</td>
</tr>
<tr>
<td>Portner (2004, 2007, 2018, 2018b)</td>
<td>no</td>
<td>indexed property</td>
<td>no</td>
<td>pragmatic deontic</td>
<td>yes</td>
</tr>
<tr>
<td>Failure to satisfy these Desiderata</td>
<td>a) not true/false; b) no evaluative adjectives; c) cannot be conditional antecedents; d) non-assertive</td>
<td>e) conditional imperatives; f) range of modal flavors</td>
<td>g) scope of deontic relative to negation at LF; h) futurate flavor</td>
<td>i) deontic parallels + missed explanatory potential</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Comparison of Two Prominent Theories of Imperative Semantics and Pragmatics

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3 Below we’ll discuss the important contributions of Charlow (2011, 2014, 2018), and others. For background on clause type, mood, and illocutionary force, see Portner’s excellent Mood (2018), especially the masterful exposition of the literature in Chapter 3, Sentence Mood, and his §3.3.3, pp.199-220 on imperatives. I have tried to respect his terminology and the careful distinctions he makes. Kaufmann (2021) is an excellent critical overview of the literature on imperatives.
In this section, we’ll go through a number of features of English imperatives, common across languages, which serve as desiderata for an empirically adequate account, and consider how Kaufmann’s and Portner’s theories measure up, using Table 1 as a scoreboard. In the last row of the table, we see features of the theories which are problematic relative to some of these desiderata, to be discussed below.

Neither Kaufmann nor Portner take imperatives to have their default illocutionary force—their use to issue directions—built into their semantic content and so present at LF, as reflected in Column I of the table. Both assume that the default use of a root imperative is directive, but that capturing this is a matter for pragmatics. In contrast, Krifka (2014, 2021), like many before him (see §5 below), argues for the presence of an illocutionary force operator in logical form.

There are many empirical problems with assuming that imperative mood itself has illocutionary force. One central issue is that like clauses in other grammatical moods, imperatives may occur embedded, and in that case they do not have their own illocutionary force. For example, in English an imperative clause can occur as the complement of a verb of saying, though always directed to the actual addressee. Uttering (1) does not contribute a directive to the addressee to eat John’s share of the chicken:

(1) Johni said eat hisi share of the chicken. He won’t get home til late.

In (1) the third person *his*, coreferential with the subject *John*, precludes a direct quotation interpretation. In some languages, complement imperatives may have a shifted target, not the actual addressee but the agent of the embedding attitude (Zanutinni et al. 2012).

Similarly, disjunction always takes narrow scope relative to illocutionary force, across all grammatical moods:

(2) Mary is happy or John is sad
   Can’t mean: either I assert that Mary is happy or I assert that John is sad.
(3) Do you want coffee or do you prefer tea?
   Can’t mean: either I ask whether you want coffee or I ask whether you prefer tea.
(4) My advice to you is: Keep together. Either everybody stay or everybody leave! [Mastop 2005] Can’t mean: either I advise you all to stay or I advise you all to leave.

In (4), the speaker clearly enjoins one goal upon the (group) addressee: keep together. She then proposes two ways in which this can be achieved—two kinds of intentions the group might adopt to realize the proposed goal: either the group all staying or the group all leaving, proposing (in a single imperative) that they adopt one plan or the other.

More generally, embedded uses of clauses in imperative (or declarative or interrogative) mood are not speech acts, have no independent illocutionary force. So illocutionary force is not triggered by grammatical mood alone.

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4 See the references cited in Portner (2017).
5 Starr (2020) offers *prima facie* counterexamples to this claim. We’ll discuss those in §5.
Take an **utterance** to be an ordered pair of a linguistic constituent (under syntactic analysis) and a context of utterance (Bar-Hillel 1971). Then only utterances whose content is understood to be that of maximal root clauses may have illocutionary force. (See Roberts 2018 for more discussion and argument.)

Representing directive illocutionary force in the LF of *root* imperative clauses is problematic for several reasons. For one thing, there’s a many-to-one mapping between sentence mood and speech act type, in both directions: Zanuttini & Portner (2003) show that there are multiple means of formally marking clausal mood even within a single language (e.g., Greek, Italian). It isn’t possible to identify any single morphosyntactic element(s) as identifying force. And the same morphological form may be used in different moods (Kaufmann & Poschmann 2013); e.g. colloquial German allows *wh*-interrogatives with imperative morphology and associated directive meaning.

Even when the imperative clause type is unambiguously given morpho-syntactically, there is no determinate correspondence between the clause-type of an utterance and the illocutionary force we understand its utterance to have: Utterances may involve evidently insincere uses of the utterance content; and a particular clause-type can be used to make a different kind of speech act than it canonically makes. Rising intonation may yield a marked interpretation of an imperative clause, as in (5), where B doesn’t so much propose that A ask her mother as tentatively suggest she entertain taking that action, implicating a question about whether to do this.

(5)       
A:  I don’t know what to do!  
B:  Ask your mother ↑

And we see something similar with falling intonation in questions:

(6)       
[Context: A and B both know that A has no money to spend on non-essential items.]  
A:  I’m really tempted to buy this coat. It’s on sale!  
B:  Does it fit in your budget ↓

A rhetorical question may constitute a reminder. Speaker B in (6) isn’t proposing that the question that’s the semantic content of her utterance be addressed, but rather using the question to remind the addressee about the answer in their common ground. The falling intonation (though not necessary) can be used to indicate the speaker’s commitment to the question’s resolution: the answer is entailed by the previous discussion of the budget.

In general, there’s no way of determining whether the content of an utterance *is* asserted/asked/suggested without considering contextual factors like the question under discussion. Sometimes a root clause by itself has no illocutionary force, instead constituting a fragmentary answer, such that only the entire content retrieved has illocutionary force, as we see in (7) and (8).

(7)       
A:  What did John hear on Fox News?  
B:  The Democrats have stolen the election—there’s widespread fraud.
In neither the declarative (7B) nor the imperatives in (8B) does the content of the root clause uttered by itself constitute an assertion or a direction, though in other contexts that is how we would understand them. Here, in order to address the questions posed by A, we take these contents to be those of an assertion made on Fox News (7) or of a direction posed by Mrs. Johnson (8). So in these contexts, neither the declarative clause nor the imperatives have their own illocutionary force. And it is only relevance to the question that tells us that.

So even if we ignore embedded imperatives, the data argue that imperative grammatical mood is neither sufficient nor necessary to indicate that a given utterance is meant to be understood as a direction. Arguably, the consistent determinates of illocutionary force are contextual factors.

**Conclusion: Illocutionary force has no place in semantic content, none in Logical Form.**

Further desiderata for a semantics and pragmatics of imperative utterances:

In other columns in Table 1, we see that Kaufmann’s and Portner’s theories make different predictions, with resulting failures to meet some of the following desiderata for a semantics and pragmatics of imperative utterances.

For example, in column II, we see that Kaufmann takes imperatives to denote propositions, while Portner takes them to denote properties indexed to the addressee. Consider the data in (a):

a) Imperatives are not felicitously subject to judgments of truth or falsity, unlike asserted declaratives.

(9)   A: How do I get to Harlem?
   B: Take the A-train.
   C₁: #That’s false!
   C₂: No, take the M4 bus.

As a response to (9B), (9C₁) is infelicitous. The felicitous (9C₂) is not a truth value judgment, but a rejection of B’s directions, followed by a different proposed answer to A’s question. This looks like a problem for Kaufmann, but she addresses it by claiming that imperative statements are **performative assertions**, a type of assertion not subject to truth evaluation. However:

b) Unlike performatives (10) or deontic modal statements (11), imperatives cannot occur with evaluative sentential adverbials (12):

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Again, in (8) use of *your* precludes understanding B as a direct report of what the landlord said.
Unfortunately, I now pronounce you man and wife.
Unfortunately, you must go to bed!
#Unfortunately, go to bed!

This observation was initially due to Gärtner (2015), who didn’t restrict the constraint to the evaluatives. But Matt Moss (p.c.) pointed out the acceptability of the following:

[to a friend who’s considering not taking his meds:] Obviously, take them!

Ernst (2000) classifies obviously as an evidential (epistemic modal) speaker-oriented adverb, whereas unfortunately in (10)-(12) is an evaluative speaker-oriented adverb. I find Ernst’s other evidential adverbs to be acceptable with imperatives, as well: clearly, plainly can acceptably replace obviously in (13). Other evaluatives (luckily, oddly, significantly, unbelievably) and Ernst’s discourse oriented adverbs (frankly, honestly) are, for me, as unacceptable as unfortunately. Hence, Gärtner’s generalization seems a bit too broad. But all the evaluatives and discourse oriented adverbs are acceptable with performatives and deontic modal statements (the counterparts of (10) and (11)), but unacceptable with imperatives. Hence, Kaufmann’s claim that imperatives are performative deontic statements does not account for desideratum (b).

And there are other ways in which imperative clauses differ from declaratives, even deontic declaratives:

c) Imperatives cannot occur in the antecedent of a conditional, as illustrated in (14a), in contrast to the deontic declaratives in (14b):

a. */! If eat your vegetables, then you can’t have dessert til you do.
b. If you have to eat your vegetables, then you can’t have dessert til you do.

(14a) is ungrammatical or semantically anomalous, or—most likely—both.

d) Across languages, when imperative mood occurs in root clauses they strongly tend to be used with directive illocutionary force, just as declaratives tend to be used to make assertions, interrogatives to pose questions. This directive force has consequences for felicity, and leads to differences from deontic modal declarative statements. Consider Portner’s (2017) contrast:

You should not park in the dry cleaner's lot, because you'll get a ticket if you do. So,…
a. do not park in the dry cleaner's lot!
b. ??you should not park in the dry cleaner's lot!

(15a) contributes new content to the interchange, while at best (15b) sounds redundant, and odd because so suggests that what follows will be an informative conclusion.

I think this same difference results in the following contrast:
(16) You shouldn’t park in the dry cleaner's lot, because you'll get a ticket if you do. But who cares—it’s just a ticket and you’re in hurry. So,…
  a. park in the dry cleaner's lot!
  b. #you should park in the dry cleaner's lot!

The imperative in (16a) contributes advice to the targeted addressee willing to accept the consequences of disregarding her legal obligations. But (16b) sounds odd, presumably because once the law-based ordering source has been evoked for shouldn’t p in the first clause (Kratzer 1981), it seems inconsistent to immediately ignore it in order to conclude should p, and there is no other salient set of mores to restrict its domain.

(a) – (d) are problems for Kaufmann’s proposition-type account.
They favor Portner’s property-type approach.

Column III in Table 1 shows another important difference between Kaufmann’s and Portner’s theories: Kaufmann takes the semantic content of an imperative clause to contain a modal, assuming a Kratzer-style account of natural language modality, with a presupposed modal base f and ordering source g contextually retrieving conditional domain restriction. But Portner has no modality in the semantic content, the attested deontic flavor instead arising from his pragmatics of directive illocutionary force: adding the property denoted by the imperative to the addressee’s To Do list in the context of utterance. So both theories give imperatives deontic modal flavor, but derive it very differently. The next few desiderata bear on these assumptions:

e) Imperatives may be explicitly or implicitly conditional:

(17) If you’re hungry, have some cheese and crackers.
(18) [Army combat instructor to students:]
    Before you walk into an area where there are lots of high trees, if there might be snipers hiding in the branches, use your flamethrowers to clear away the foliage. [after von Fintel & Iatridou 2003]
(19) [two crooks planning a robbery:]
    A: What should I do if the cops arrive?
    B: Start shooting.
    modal subordination interpretation: ‘if the cops arrive, start shooting’

Since Portner’s imperative semantics has no modal, he cannot adopt a Kratzerian story about conditional imperatives, which Kaufmann develops. The next desideratum points to the same problem for Portner.

f) Imperatives display a range of flavors, with two main types (Kaufmann’s 2012 terminology), the Practical and the Expressive uses:

**Practical:** something the target can do. Only felicitous if it can be assumed that it’s possible for the target to realize the property denoted by the VP. The many sub-types include:
commands and prohibitions
(20) Boss [to tardy employee:] Tomorrow get to work on time!
(21) And don’t dawdle!
permission
(22) Take your time!
(23) Have a cookie.
suggestion
(24) [To a friend who’s been ill:] Take a day off to recuperate, why don’t you?
pleas: (24) above, or Please help me!
advice: speaker may be disinterested
(25) [Two friends chatting:]
    A: I’m worried that this contractor will put a lien on my property. But the guy’s completely unreasonable. I can’t talk to him.
    B: Hire an attorney.
instructions/directions
(26) A: How do I get to Harlem?
    B: Take the A-train.
(27) To prepare an artichoke, pull out the central leaves and the fuzzy part down to the heart.
warnings
(28) Be careful! There are sharks in the water!
concessives
(29) OK, go to the silly party! See if I care.

Expressive: nothing can be done; either the matter is already settled, or the target isn’t in a position to do anything about it. Grounded in the wishes, hopes, etc. of the speaker.

well-wishes
(30) Enjoy the movie! (Kaufmann 2012)
hopes:
(31) [In the short story “The lady or the tiger”, a captive must choose one of two doors, knowing that behind one is a beautiful lady, behind the other a vicious tiger. He prays silently before opening one of the doors:]
    Be the lady! [Carl Pollard, p.c.]

Note that expressives like (30) aren’t deontic in import. They are instead buletic, pertaining to the speaker’s preferences and priorities. Hence, expressives are not used to issue directives. I will assume that these uses of the imperative are optative in mood, rather than directive. A number of languages are said to have a morphological optative mood, including ancient Greek, Albanian, Armenian, Georgian, Turkish, and Yup’ik, among others. Since English does not, it uses imperative as one way of expressing wishes. I will not address this use of the imperative in what follows.
(e) and (f) are problems for Portner’s account, which cannot use the Kratzerian parameters \( f \) and \( g \) for modal interpretation. They favor Kaufmann’s assumption of semantic modality in imperatives.

So it seems that imperatives have semantic modal force. But other data argue that the deontic flavor is not itself semantic, as assumed by Kaufmann, bearing on the difference in Column IV of Table 1:

g) The deontic force of an imperative cannot occur under the scope (syntactic or semantic) of negation:

(32)  
   a. Don’t go out!  
      can’t mean: ‘there’s no obligation to go out’  
      Instead, constitutes a direction to not go out.  
   b. You needn’t go out.  
      ‘it’s not the case that you are obliged to go out’

If there were a deontic modal in the semantic content of an imperative, we would expect that it could occur under the scope of negation, like need in (32b).

h) Imperatives display evidence of temporal reference, always pertaining to a present or future time:

(33) Relax!
(34) Please have this done by the time I get back.
(35)  
   a) Vote tomorrow!  
   b) #Please vote by last night!

Several authors (including Katz & Postal 1964:74-79, Arbini 1969, Huddleston 1970) have noted that when a tag is added to an English imperative, one uses the future form will. And von Fintel & Iatridou (2017) note that in rejecting an imperative, one also uses futurate will, as illustrated in their examples:

(36)  
   a) Take out the garbage, will you?  
   b) Take out the garbage, won’t you?  
   c) A: Take out the garbage!  
      B: No, I won’t.

(g) and (h) argue that the semantic modal flavor of an imperative is not deontic.

Finally, for the Practical imperatives, Portner does seem to make the right predictions using a dynamic pragmatics, which has important explanatory potential in other respects:
Practical imperatives are closely related to deontic modal statements, in that they:

- permit one to infer their deontic modal counterparts, as in the following pairs:

(37) [father to son:] Finish your homework before you surf the web.
     You must finish your homework before you surf the web.

(38) [to a friend in trouble:] Hire an attorney.
     You should hire an attorney.

Of course, (37) is a command, while (38) is more like a helpful suggestion. Accordingly, should in (38) is a weak modal, since the directive does not imply that the addressee is necessarily under an obligation to hire an attorney. Rather, as Silk (2022) puts it, “weak necessity modals afford a means of entertaining and planning for hypothetical extensions of the context in which certain considerations (norms, values, etc.) apply”, without committing to these considerations actually obtaining, and hence without necessitating the modal’s prejacent in the actual world.

- display constraints on interpretation of sequences of imperatives parallel to those on sequences of modal statements (Portner 2007, his (27), modified (28)):

(39) a. Be there at least two hours early.
    b. Then, have a bite to eat.  [odd as permission after the order in (a)]

(40) a. You must be there at least two hours early.
    b. Then have a bite to eat at that cute little place on the corner.  [odd as suggestion after the moral injunction in (a)]

- display a variety of other deontic-like behaviors, including a Deontic Moore’s Paradox, and “Free Choice Disjunction”, a counterpart of “Ross’s Paradox” (1941).

(i) argues that practical imperative directions do have a deontic flavor, and suggest that deriving this pragmatically may be useful.

Portner’s pragmatics also offers a range of other explanatory benefits, e.g. some of the pragmatic principles governing imperative felicity that Kaufmann must stipulate simply fall out from the general nature of dynamic pragmatics in a language game; see Roberts (2018:§12.4).

In the next section, I’ll present a theory which borrows the best features of each of these two accounts to satisfy these desiderata, and more besides.

There is one more feature of English imperatives to note before we continue, one noted by both Kaufmann and Portner, as well as by Charlow (2012), though only Kaufmann and Charlow treat

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7 On weak deontic modals of necessity, see von Fintel & Iatridou (2008), Silk 2022) and further references therein. (56) below is a concrete example of how weak modal interpretations of imperatives are derived.

8 One reviewer doesn’t share these intuitions. However, I agree with Portner that the tone in (b) of each is odd, and in the same way after both imperative and modal (a)s.
it in detail: Imperative clauses may have overt subjects, which may be 3rd person and even quantificational. Here are typical examples:

(41) Everyone pick up their/your toys before naptime!
(42) Nobody move! [Veltman 2018]

This sort of data would seem prima facie to be a problem for the property-denotation approach to imperatives, like that of Portner. But imperative subjects offer challenges for the proposition-denotation approach as well, as discussed by Charlow (2012,2018) and Kaufmann (2012). We’ll postpone discussion of the full range of imperative subjects till §4.

§2. A theory of the semantics and pragmatics of imperatives

The basic intuition upon which the present proposal is based is that in issuing a direction to an addressee by uttering an imperative sentence, the speaker proposes to the addressee that they adopt an intention to realize the property denoted by the VP in any of the applicable circumstances.

I will offer a formal semantics and pragmatics of imperatives that aims to capture the following hypotheses:
(i) Imperatives denote properties indexically targeted (in English) to the addressee, as in Portner’s account.
(ii) Instead of truth conditions, imperative clauses have realization conditions, spelling out what the world would have to come to be like for the property to count as realized, in the applicable circumstance(s), by the addressee to which it’s directed.
(iii) Semantically, imperatives have Kratzerian modal force, as in Kaufmann’s theory; thus they are conditional, depending upon a modal base \(f\) and ordering source \(g\).
(iv) The modal flavor of an imperative is presupposed to be futurate and circumstantial (not deontic); a modal base \(f\) and ordering source \(g\) determine the applicable circumstances in which the property is to be realized, modeled as a set of accessible world/times in a branching future.
(v) The illocutionary force of an imperative is pragmatically determined, not represented at LF.
(vi) The default use of imperatives (as indicated by context) is as directions, proposals for addition to an independently motivated aspect of dynamic pragmatic context, the record of addressee’s evident intentions, plans, and preferences.
(vii) Practical directions, given (vi), pragmatically convey deontic force: an intention is teleological, something to achieve (and hence, in this respect, like an element on Portner’s ToDo list).
§2.1 Basic analysis of imperatives

§2.1.1 The notion of context

In any account in which pragmatics plays an explanatory role, we need a well-defined notion of context of utterance. Elaborating slightly on Roberts (1996/2012), I formalize the context of utterance as an idealized scoreboard for a language game, a tuple of bodies of information:

The **scoreboard K for a language game** at time t is a tuple, <I, M, <, CG, QUD, G>, where:

I is the set of interlocutors at t
M is the set of illocutionary moves made by interlocutors up to t, with distinguished sub-sets:

- A ⊆ M, the set of assertions
- Q ⊆ M, the set of questions
- D ⊆ M, the set of directions
- Acc ⊆ M, the set of accepted moves

< is a total order on M, the order of utterance
CG, the common ground, is the set of propositions treated as if commonly understood to be true by all i ∈ I at t.

For all a ∈ A ∩ Acc, a ∈ CG.
CG reflects all information about the current state of play in the scoreboard K itself.

QUD ⊆ Q ∩ Acc, the ordered set of questions under discussion at t, is such that for all m ∈ M at t:

a. for all q ∈ Q ∩ Acc, q ∈ QUD(m) iff CG fails to entail an answer to q and q has not been determined to be practically unanswerable.

b. QUD is (totally) ordered by <.

c. for all q, q' ∈ QUD, if q < q', then the complete answer to q' contextually entails a partial answer to q.

d. for all q ∈ QUD there is a g ∈ Gcom (see below) such that g is the goal of answering Q.

G is a set of sets of goals in effect at t, such that

for all i ∈ I, there is a (possibly empty) Gi which is the set of i's publicly evident goals, including those i is publicly committed at t to trying to realize; and

G = { Gi | i ∈ I }.

For all d ∈ D ∩ Acc, d indexed to interlocutor i, there is a goal g of realizing d such that

- g ∈ Gi iff the applicable conditions for i’s realization of d may yet arise and it has not been determined that the realization of d by i is impracticable.

Moreover, for all i ∈ I:

a. for all g ∈ Gi, g is a conditional goal, representing the intention to achieve the goal should certain conditions arise in the actual world at some t’ > t.

b. i’s priorities are reflected in additional structure(s) over Gi: Some goals sub-serve others, some goals are hierarchically organized into plans, and the way that the agent i prioritizes her goals is reflected in a partial order.

and we can define:

Gcom = { g | ∀ i ∈ I: g ∈ Gi }, the set of the interlocutors' common goals and plans at t.

GQ = { g ∈ Gcom | there is some Q ∈ QUD and g is the goal of answering Q }.
The central elements of the scoreboard are the common ground CG, the set of questions under discussion QUD, and G, representing the interlocutors’ evident goals and plans, organized to reflect their preferences and priorities. G will be especially important for the pragmatics of imperatives. G contains an organized set of goals for each interlocutor. Crucially, these goals are conditional. A teacher who tells you to finish your homework doesn’t typically expect you to do so come what may, but only if you can do it without harm to yourself or others: It is understood that staying alive and doing no harm are higher priorities than learning and pleasing a teacher.

Goals and plans reflect an agent’s intentions, and these, in turn, involve commitments. As Bratman (1979) spells out, commitments tend to endure and to be hierarchically organized. Some goals subserve others: In particular, plans are hierarchically organized with an overarching goal (finishing this paper), subgoals crucial to achieving it (finishing this section of the paper), etc. There are many constraints on what it means for an agent to rationally intend to achieve a given goal, or a set of goals; see Bratman and work on planning theory in artificial intelligence, the discussion of the relationship between CG and ToDo lists in Portner (2007), and the discussion of goals and plans in Charlow (2012). Among other things, the goals in G must be in principle possible for the agent to achieve at some time in the future, and consistent with each other. I assume that such constraints obtain on G and its sub-parts.

Interlocutors may share common goals and plans. By this, I mean goals and plans with the same outcome in the world, bringing it about that a given situation obtain, be it that a given question under discussion is satisfactorily addressed (a shared discourse goal in GQ) or that they bring about a particular state of affairs in the world (a common domain goal), like building a house for their new dog.

As in my earlier work, I define:

(43) **RELEVANCE:** Since the QUD reflects the interlocutors’ publicly evident discourse goals at any point in a discourse, in order for an utterance to be rationally cooperative it must address the QUD.

(44) An utterance $m$ **addresses a question** $q$ iff $m$ either contextually entails a partial answer to $q$ ($m$ is an assertion) or is part of a strategy to answer $q$ ($m$ is an interrogation) or suggests an action to the addressee which, if carried out, will presumably help to resolve $q$ ($m$ is a direction).

If you ask me where are my socks? and I reply look under the bed, my directive response is RELEVANT if I have reason to believe that its realization by you will help to resolve the question. In (9) from above, responses (9B) and (9D) are RELEVANT to the QUD denoted by (9A) because a how question is one about achieving a particular goal, here getting to Harlem.

(9) A: How do I get to Harlem?
   B: Take the A-train.
   C: #That’s false!
   D: No, take the M4 bus.
So **RELEVANCE** here leads us to understand the directive response to involve a tacit purpose clause: ‘to get to Harlem, take the A-train/M4 bus’. Thus, either answer purportedly constitutes a recipe for achieving the queried goal. **RELEVANCE** implies that if one carries out this recipe one will get to Harlem, achieving one’s domain goal, and therefore know the answer to the question.

§2.1.2 The formal semantics

Against this background we develop a semantics for the imperative.

A *circumstance* is a world/time pair \(<w, t>\).

A *proposition* is a set of circumstances.

Take \(\text{IRG}_S[VP]\) to be the logical form of an English imperative clause \(S\) without overt subject, and take it to be uttered in context \(K\) (the scoreboard, as above), indexed to the addressee \(x_i\), and relativized to a circumstantial modal base \(f\) and an ordering source \(g\). The functions \(f\) and \(g\) have their usual Kratzerian values: Each takes a circumstance (<\(w, t>\), the circumstance of issuance) to yield a set of propositions. Hence, with some constraints particular to the imperative, \(f\) and \(g\) will play the roles they have in Kaufmann’s modal theory of imperatives.

Recall that, like goals themselves, imperatives are conditional, the directives only to be realized in certain circumstances. We’re going to use \(f\) and \(g\) to retrieve the non-past applicable circumstances in which the target addressee is to realize the property denoted by the imperative clause.

We use \(f\) to contextually retrieve a set of propositions which characterize those futurate (non-past) circumstances that would practically allow for the realization of the property by the agent; their intersection \(\cap f(<w, t>)\) is the set of such circumstances. With futurity generally, we are interested in what will happen in the actual world, so the modal base should only yield circumstances in worlds exactly like the actual world up to the time of utterance. Hence, I adapt the **MODAL DOMIAN presupposition** for *will* from Cariani & Santorio (2018), Cariani (2021): “The modal domain in context \(c\) consists of all those worlds that exactly match the events in the world of \(c\) in all matters of particular fact up to the time of \(c\)” . Thus, we define a futurate circumstantial modal base \(f\) thus:

\[
\text{(45) } \text{SameHistory}(w', w, t) \text{ is true just in case world } w' \text{ is exactly the same as world } w \text{ in all matters of particular fact up to time } t.
\]

\[
\text{(46) } \text{A futurate circumstantial modal base } f \text{ is a function from circumstances to sets of propositions where for all } <w, t> \text{ and for all } <w', t'> \in \cap f(<w, t>): \text{SameHistory}(w', w, t) \& t < t'.
\]

A rational agent would try to realize the property associated with the imperative issued in \(<w, t>\) only in those circumstances \(<w', t'>\) which, besides allowing for its realization—being in \(\cap f(<w, t>)\), are such that the realization is consistent with the agent’s priorities at the realization time \(t'\). We use the ordering source \(g\) to pick out these best options. As usual with a Kratzerian
ordering source, $g(<w',t'>)$ also yields a set of propositions—e.g. the addressee’s wishes, their other priorities, plans, and risks, etc., as will be illustrated below—and we order circumstances in $\cap f(<w,t>)$ according to how close the realization of the directive in them would come to realizing all the ideal propositions given by $g(<w',t'>)$.

(47) Given circumstances $c, c', c''$: $c' \leq_g (c')$ iff $\{p \in g(c): c'' \in p\} \subseteq \{p \in g(c): c' \in p\}$

‘at least as many of the propositions given by $g(c)$ are true in $c'$ as in $c''$’

Then for an imperative clause $\mathfrak{I}S$, with circumstance of issuance $<w,t>$, we define the set of applicable circumstances for the realization of $\mathfrak{I}S$ (assuming, for simplicity, that times are the same across worlds):

(48) For world $w$, time $t$, $\text{realize}(\mathfrak{I}S)(<w,t>)$ is the circumstance that immediately results from the targeted agent realizing $\mathfrak{I}S$ in $<w,t>$.

(49) For an imperative clause $\mathfrak{I}S$, with futurate modal base $f$ and ordering source $g$:

$$\text{APPLIC}_{f,g}(\mathfrak{I}S)(<w,t>) = \{<w',t'> | <w',t'> \in \cap f(<w,t>) \land \forall w''[<w'',t'> \in \cap f(<w,t>) \Rightarrow \forall \tau \geq t': \text{REALIZE}(\mathfrak{I}S)(<w',\tau>) \leq_{g(<w',t'>)} \text{REALIZE}(\mathfrak{I}S)(<w'',\tau>) ]$$

Paraphrasing, $\text{APPLIC}_{f,g}(\mathfrak{I}S)(<w,t>)$ yields the set of applicable circumstances for $(\mathfrak{I}S)$ in $<w,t>$ (the circumstance of issuance) under $f$ and $g$, a set which consists of those circumstances $<w',t'>$ satisfying all these conditions:

because $<w',t'> \in \cap f(<w,t>)$:

(a) $w'$ has exactly the same world-history as $w$ up to $t$, [by (45), (46)]
(b) $t < t'$, and [by (46)]
(c) the realization conditions obtain;
and the second conjunct guarantees that:
(d) the realization of $\mathfrak{I}S$ in $w',t'$ (yielding $<w',\tau>$) is at least as ideal (from the point of view of the agent’s other goals, plans and priorities, as reflected in $g$) as its realization in any of the other circumstances consistent with the modal base $<w'',\tau>$: i.e, the realization of the directive in $<w',t'>$ is among the agent’s best options overall at that particular future time $t'$.

Note that (49) guarantees that the order is $\leq_{g(<w',t'>)}$, so that the ideal is that which reflects the agent’s priorities in the realization circumstance $<w',t'>$. This is motivated by Thomason’s (1984) observation that what we ought to do at any given time in a given world is partly a function of what’s possible (here: and optimal) at that world-time, factors that may change as we go forward.

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9 I take it that the determination of what constitutes a comparatively ideal circumstance along these lines is a matter to be determined by planning theory in the philosophy of action, and not for linguistic semantics. Again, see Bratman (1987).
Now we can give the semantics of imperatives. First, note that clausal argument structure does not determine semantic type. The difference between declarative mood and interrogative is the type of the clause it heads: a proposition (type \(<s,t>>\)) vs. a set of propositions (type \(<s,<s,t>>\)). Just so, the type of an imperative clause—whether or not it has an overt subject, as we will see in §4 below—is that of a property: \(<s,<e,t>>\). In this preliminary semantics we’ll ignore imperative subjects. Imperative mood `!` takes a VP predicate of the standard type \(<s,<e,t>>\), to yield a property, also type \(<s,<e,t>>\).

As usual in contemporary formal semantics, the conventional CHARACTER of an imperative clause has two parts: its presupposed content and its semantic content. The semantic content of imperative mood constitutes the imperative’s contribution to the compositionally determined realization conditions for the clause in which it occurs:

\[
(50) \text{CHARACTER of English } \!_{f,g}: \quad \text{[preliminary, no overt subject]}
\]

Given context \(K\):

Presupposed content:
- \(x_i = \text{addressee}(K)\) [the targeted \(x_i\) is the addressee]
- \(f\) is a circumstantial modal base
- \(g\) is an ordering source that ranks actions relative to relevant goals, plans, and priorities in \(G_i \in K\)

Semantic content: (semantic type \(<s,<e,t>>\))

\[
\lambda P_{<s,<e,t>>} \lambda <w,t> \lambda x \leq_{\text{ind}} x_i : \text{APPLIC}_{f,g}(\!_{[s P]}(<w,t>)) \subseteq \{<w',t'> | x \in P(<w',t'>)\}
\]
[realization conditions: ‘in any of the applicable circumstances, the predicate is realized by \(x’\)]

The use of the imperative presupposes a targeted addressee, a modal base and an ordering source, such that the last two determine the future applicable circumstances.

The semantic content of the imperative takes as arguments a property (the denotation of its VP complement), the circumstance of evaluation \(<w,t>\) (the circumstance of issuance), and an agent \(x\). The relation \(\leq_{\text{ind}}\) is the individual-part relation in a plural lattice (Link 1983); so \(x \leq_{\text{ind}} x_i\) tells us that the property can only be realized by i-parts of \(x_i\), the latter presupposed to be the targeted addressee. The i-part relation is reflexive, so if the addressee is singular this guarantees that the target is that single individual. The use of the i-part relation to define the target is useful in case the addressee is plural, as we’ll see in §4 below.

In matrix clauses, the circumstance of evaluation will be the speech time/world \(<w^*,t^*>\), and in embedded clauses, it will be the world and time of the eventuality reported in the matrix, as standard in formal semantics since Montague. The semantic content tells us that in any of the applicable circumstances the property denoted by the VP is realized by the targeted agent. These realization conditions effectively involve a modal with the force of necessity: the subset relation between sets of circumstances makes it a generalized quantifier over propositions, with the force of necessity. And because of the way that the presupposed applicable circumstances are defined, this modal has the flavor of circumstantial futurity.

---

\(10\) The agent should be of type \(<s,e>\), but I simplify to type \(e\).
We can see how this works in the derivation of the simple imperative *Move!*, taking the denotation of *move* to be $\text{MOVE}'$:

\[
\| \text{Move} !_{f,g} \| = \\
\lambda P_{<s,<e,t>} \lambda <w,t> \lambda x \leq_{\text{ind}} d_i : \text{APPLIC}_{f,g}(<w,t>) \subseteq \{ x \in P(<w',t'>) \} \quad (\text{MOVE}')
\]

\[
\equiv \lambda <w,t> \lambda x \leq_{\text{ind}} d_i : \text{APPLIC}_{f,g}(<w,t>) \subseteq \{ x \in \text{MOVE}'(<w',t'>) \}
\]

‘the property of being an addressee $x$ s.t. $x$ moves in any of the applicable circumstances’

As in Kratzer, a modifying *if*-clause adds its proposition to the modal base determined by $f$.11

This, as in Kaufmann’s work, immediately predicts the correct interpretation for examples like (17) – (19):

(17) *If you’re hungry*, have some cheese and crackers.

(18) [Army combat instructor to students:] Before you walk into an area where there are lots of high trees, *if there might be snipers hiding in the branches*, use your flamethrowers to clear away the foliage. [after von Fintel & Iatridou 2003]

(19) [two crooks planning a robbery:] A: *What should I do if the cops arrive?*

B: Start shooting.

These utterances are not conditional speech acts. In each, the speaker issues a practical direction. But, just as goals in $G$ are generally conditional, so imperatives typically yield directions (or suggestions, etc.) to be realized contingent on certain conditions obtaining. An *if*-clause just makes explicit some of the conditions on applicability. If the addressee accepts one of these directives, they adopt the relevant conditional goal and hence have conditional commitments: intentions to realize the prejacent property *should the relevant conditions obtain*.12

---

11 The question of how these conditionals are to be realized compositionally is part of the much bigger issue of how to treat *if*-clauses compositionally in a Kratzerian semantics, a question too big to tackle here.

12 Thony Gillies (p.c.) asks how the tense in the antecedent of a conditional imperative bears on its interpretation, given (50). Consider:

i. If you find a good deal on a used car, buy it!

ii. If you found a good deal on a used car, buy it!

iii. #If you were given the candy before John ate it, eat it!

iv. If you will be leaving from LaGuardia tomorrow, visit the new sculpture in Terminal B.

In each, the *if* clause constrains the applicable circumstances. In (i) and (ii), that would mean that they are those in which the addressee finds (at some future time) or has found (at some relevant past time) a good deal, and (modulo any other tacit constraints) the addressee is enjoined to buy said car when these circumstances obtain: immediately if the deal has already been found, or at the relevant future time. (iii) is infelicitous because the past tense in the subordinate *John ate it* in the *if*-clause entails that the candy has been eaten, so that it’s impractical for the addressee to adopt the goal enjoined in the main clause. And in (iv), the visit cannot obtain before such time as the addressee is leaving from LaGuardia, if ever; so the tense in the prejacent again pragmatically constrains interpretation of the main clause. But this is all standard temporal interpretation, nothing special about conditional imperatives.
In some contexts of utterance, there may be but one applicable circumstance; e.g., if someone whose plane has been cancelled asks ‘what do I do now?’, one might answer ‘rent a car’, and in that case the current situation (now) is the single applicable circumstance. This is the case in (17), where the ‘now’ in the antecedent of the conditional is tacit; this is not understood as directions for taking care of hunger at any time. In others, as in a recipe or driving directions, the direction may constitute general instructions, intended whenever circumstances conform to the described scenario. This is the case in (18). (19) is neither specific to a particular moment nor completely general, but pertains to what A should do at any point during the robbery should the cops arrive. In (19), RELEVANCE to the QUD facilitates modal subordination (Roberts 1989)—i.e., the usual context-sensitive domain restriction of a modal, here guided by the assumption that the result should make the interpretation of B’s reply relevant to A’s question.

§2.2 The pragmatics of imperatives used as directions

The default use of a root imperative clause, the natural use in view of its semantics, is to issue a direction to the target agent—a suggestion to realize the imperative. Here is a general statement about the relationship between grammatical mood and illocutionary force:

(52) **Illocutionary Force Linking Principle**

a. The default illocutionary force of a root sentence S whose denotation ||S|| is a proposition is that of an assertion.

b. The default force of a root sentence S whose denotation ||S|| is a set of propositions is that of interrogation.

c. The default force of a root sentence S whose denotation ||S|| is an indexed property is that of direction.

Parallel to Stalnaker’s (1979) pragmatics for assertion (53), Roberts’ (1996) for interrogation (54), we have (55) the default pragmatics for a direction issued by uttering an imperative in context K:

(53) **Assertion:** (following Stalnaker 1979)

If a proffered proposition is asserted by the speaker and accepted by the interlocutors as true in a discourse K, the proposition is added to CG\(_K\).

(54) **Interrogation:** (Roberts 1996)

If a question, a set of propositions, is posed by the speaker and accepted by the interlocutors in a discourse K, then the question is added to QUD\(_K\).

A question is removed from QUD\(_K\) once its answer is entailed by CG\(_K\), or it is determined to be practically unanswerable, or it is no longer relevant to some question or goal it subserves in the strategy of inquiry reflected in QUD\(_K\) (so the super-question or goal has been answered or abandoned).

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(55) **Direction:**
If a targeted property is issued to the addressee \( i \) in a discourse context \( K \) and is accepted by \( i \), then revise \( G_i \) in \( K \), \( i \)'s evident goals and plans, to include the realization of the property by \( i \) in any applicable circumstances.

\( G_i \) is revised to remove the goal of realizing the targeted property once it is no longer potentially applicable (it has been realized, or it is determined that it cannot be practically realized) or if the over-arching goals and plans it subserves have been otherwise realized or abandoned.

Recall that the goals in \( G \) on the scoreboard are themselves all conditional: We generally commit to achieving something conditional on certain assumptions and preconditions. So the conditional character of the semantic content of imperatives is not coincidental. The fact that the plans in \( G_i \) are **evident** to the interlocutors implies that \( i \) is publicly committed to their realization under the applicable circumstances, i.e. that \( i \) **intends to realize** them.

In summary, the semantics of clause-type merely determines the semantic type of the clause in which it occurs. It is the pragmatics of sincere use that makes it an update.

§3 **Satisfying the Desiderata from §1**

We generally expect that clauses of all types can be embedded; other accounts of embedded imperatives (e.g. Pak et al. 2004, Crnič & Trinh 2009, Charlow 2010, Zanuttini et al. 2012, Kaufmann 2012, Kaufmann & Poschmann 2013, Portner 2012) can readily be modified to work with the theory in §2. Crucially, since the imperative semantics given here includes no illocutionary force, this correctly predicts that such embedded uses, including those as sentential complements, will not be understood to issue directions.

Other desiderata from §1 are satisfied very straightforwardly by the account in §2:

- Desiderata (a) (not felicitously subject to judgements of truth or falsity) and (b) (cannot occur with evaluative sentential adverbials) follow from the semantic type of an imperative clause: Imperatives do not denote propositions, hence cannot be evaluated for truth or falsity.
- This also explains desideratum (c) (do not occur in the antecedent of a conditional). Conditional antecedents denote propositions, and imperatives are not propositional in semantic type, explaining their semantic anomaly in that position.
- Differences in felicity between uses of imperatives and deontic declaratives (d) follow from their distinct pragmatic functions, captured by the Illocutionary Force Linking Principle. The explanation for the contrast noted by Portner between (15a) and (15b) follows from the present account just as it does in Portner’s: One can reasonably issue a direction, a new **suggestion**, based on the asserted truth of the corresponding deontic (especially in view of the fact that people often don’t do what they should do). Re-asserting the same declarative would be redundant, explaining the infelicity of (15b). In (16a) the speaker has just given an excuse for the addressee to ignore what she should do (after all, the consequences aren’t that bad), so the imperative is acceptable; but this doesn’t change the truth of the original negative deontic, explaining the sense of contradiction in (16b).
• The satisfaction of desiderata (e) (the conditional character of imperatives) and (h) (evidence of present/future time) will be obvious in (50), since the imperative’s semantic content is explicitly conditional and (via the definition of applicable circumstances) futurate. The use of will in English for imperative tags like those in (36) is even more natural if we take futurate will to be a modal, in such examples undergoing modal subordination via a modal base implied by the initial imperative.

• The satisfaction of desideratum (f), explaining the variable flavor of modals, is illustrated via informal application to a few examples from above, where \(<w^*,t^*>\) is the circumstance of utterance, and for simplicity we only consider the relevant priorities \(g(<w^*,t^*>)\) rather than its value at the realization time:

a command:
(20) [Boss7 to tardy employee11:] Tomorrow get to work on time!
\(f_{13}(<w^*,t^*>) \subseteq CG:\) \{\ldots, that x7 has power over employees, that employees serve at the pleasure of x7, that x7 is x11’s boss, that x11 has been late several times, that being late is unacceptable and displeases x11, that it is in principle possible for x11 to be on time tomorrow, that x11 will come to work the day after the utterance time, \ldots\}
\(g_{13}(<w^*,t^*>):\) \{\ldots, \(p = \) that x11 should continue to be employed, \(q = \) that x11 should please x7, \ldots\}
- \(p, q\) correspond to goals in the employee x11’s G11, where q subserves p
- \(q\) corresponds to a goal in the boss x7’s G7, though x7 may be indifferent to p

Given these values for \(f\) and \(g\), the applicable circumstances are those in \(\cap f_{13}(<w^*,t^*>)\) which come closest to the ideal in which x7 pleases x11 and thereby retains her position. Then the realization conditions, what the world would have to come to be like in order for this command to be realized by the target employee, are that in all the applicable circumstances (where x11 is on the way to work the next day), x11 gets to work on time.

a conditional instruction:
(18) [Army combat instructor to students:] Before you6 walk into an area where there are lots of high trees, if there might be snipers hiding in the branches, use your6 flamethrowers to clear away the foliage.
\(f_{11}(<w^*,t^*>) \subseteq CG:\) \{\ldots, that you\textsubscript{generic} are in a combat situation with a high likelihood of enemy in the vicinity, that if your\textsubscript{generic} enemy sees you before you see them, there is a greater chance that they’ll kill you than that you’ll kill them, that hiding in high trees gives snipers an excellent vantage point over the entire area—better than that of someone entering on the ground level, that flamethrowers can destroy foliage at a distance from a sheltered position, that it is possible for you\textsubscript{generic} to use the flamethrower, \ldots\}
\[ g_{11}(<w^*,t^*>) : \{ \ldots, p = \text{that one should survive}, q = \text{that one should kill as many enemy as possible}, r = \text{that one should refrain from killing innocent non-combatants}, \ldots \} \]

- for all addressees \( x_{60} \in x_6, p, q, r \) all correspond to goals in \( G_{60} \), where presumably \( p < r < q \), and \( q \) subserves \( p \).

The underlined propositions in \( f_{11}(<w^*,t^*>) \) are about a hypothetical type of situation, hence do not obtain at the issuance time; (18) might be uttered, e.g., in a classroom, describing how to behave in a combat situation. The remaining propositions are general knowledge in the CG. The applicable circumstances are those in \( \cap f_{11}(<w^*,t^*>) \) which come closest to the ideal in which \( x_{60} \) both survives and kills as many enemy as possible, preferably while not killing non-combatants. In order to realize these instructions in such a circumstance, \( x_{60} \) would use the flamethrower to exfoliate the trees.

**an invitation (a type of permission):**

(56) [The hostess7 has just baked a batch of cookies. Speaking to her guest3:] Have a cookie.

\[ f_{16}(<w^*,t^*>) \subseteq CG : \{ \ldots, \text{that x7 is hostess}; \text{that x3 is a guest}; \text{that a guest in someone's home has only those rights there that are granted by the host(ess), and, in particular, may only eat what is offered by the hostess}; \text{that the smell of fresh-baked goods tends to make one hungry}; \text{that most people like cookies}; \text{that bakers tend to be proud of their baking and enjoy praise of its virtues}; \text{that both x7 and x3 seem to be well-intentioned and want to meet their obligations as hostess and guest}, \ldots \} \]

\[ g_{16}(<w^*,t^*>) : \{ \ldots, p = \text{that x7 should strive to satisfy x3's reasonable desires during the visit to her7 home (especially by offering food)}; q = \text{that x3 should attempt to please x7}, r = \text{neither hostess nor guest should impose their will on the other unnecessarily}, \ldots \} \]

The applicable circumstances are those during the visit: the time of issuance \( <w^*,t^*> \) and immediately thereafter. \( \cap f_{16}(<w^*,t^*>) \) reflects the assumption that the guest is likely to want to eat a cookie, but that, since he would only be within his rights to do so if he were given permission by the hostess and he is well-intentioned, he (a) will not eat a cookie without permission but (b) would like to be given permission to do so. Then given the hostess’s obligations, as partly given by \( p \), and the observation that she seems to be positively inclined toward her guest, it can be inferred that offering the guest a cookie is intended by the gracious hostess to invite him to do something pleasing. Then we understand the utterance to amount to a proposal that the guest adopt the goal of eating a cookie, should he wish to do so. Though this is merely an invitation, and a hostess is not supposed to impose her will on a guest, note that the ideal guest who wants to satisfy the goal in \( q \) of pleasing a hostess who is proud of her cookies, having been given permission will, in fact, eat a cookie and praise it. So even though, by \( r \), the hostess’s offer is not an obligation come-what-may, the guest’s own desire to be a good guest may tend to impose on him an obligation to be polite in this respect. Due to the social roles that underlie them, invitations can be complicated. But in any case, they aren’t orders.
Desideratum (g) (the imperative modal does not occur under the scope of negation) is satisfied for two reasons. First, the imperative clause denotes not a proposition but a property. Hence, it is the wrong semantic type to serve as argument of standard propositional negation. As we will see in §4, negation can be introduced by one of the arguments of the imperative, but this yields only narrow scope relative to the imperative. We conclude that the negation in examples like (32a) cannot take wide scope over the futurate modal contributed by imperative mood, only yielding a NEG-V interpretation:

(32) a. Don’t go out!
   can’t mean: ‘there’s no obligation to go out’
   Instead, constitutes a direction to not go out.

Second, actionable (32a) is understood as a practical direction, and hence it has a deontic flavor contributed by its pragmatic function: proposing a goal which the addressee is committed to achieving. This pragmatic deontic flavor is not part of the semantic content of the utterance. But logical operators like negation only take as their scope semantic content in the utterance in which they occur, as attested by the failure of presupposed and conventionally implicated content to interact with operators in semantic content (Karttunen & Peters 1979, Heim 1983, Potts 2005, etc.). Thus, pragmatic contributions like the deontic flavor of a practical direction do not interact logically with semantic negation.

With respect to the desiderata in (i), pertaining to parallels between imperatives and deontic declaratives, Portner (2004, 2007, 2018b) offers an account of these examples that can be readily realized in the present account for all the practical directions. Recall that in his account:
- Directions are intended to update the ToDo lists of the addressee.
- A ToDo list in a dynamic pragmatic context is a reflection of the target’s public commitments. Accordingly, these commitments are also reflected in the CG as deontic propositions: If I’m committed to realizing $\delta$, then it’s true that I should do $\delta$.

In the definition of the Scoreboard in §2.1, it is specified that all content in QUD and G are reflected in CG, guaranteeing the public character of these elements of the conversational context. Substituting G for ToDo, this accounts for the deontic-like behavior of the imperatives in (37) – (39), in a way parallel to Portner’s account. For example, in (37), it is not that the semantic content of the imperative clause by itself entails the corresponding deontic, for the former is not itself a proposition:

(37) [father to son:] a) Finish your homework before you surf the web.
     b) You must finish your homework before you surf the web.

Rather, it is the pragmatics of an imperative, how its acceptance as a directive contributes to G that is deontic. Adding the directive (37a) to the son’s set of goals and plans $G_{son}$ will automatically be reflected in the CG as the truth of (37b). Thus, the deontic effect will only be reflected in the CG, not in the LF of (37a) itself.
This bears generally on the question of the logic of imperatives. Geach (1958) argues that it is quite distinct from that of deontics, and I concur.\textsuperscript{15} And the explanation Portner proposes is consistent with the underlying insights of Mastop (2011), who offers a sophisticated logic of imperatives in Update Semantics. For $\varphi$, ‘the message conveyed by some expression’, she offers a mood-neutral logical relation of SUPPORT for $\varphi$ by an interlocutor’s “commitment slate”, which is effectively another form of scoreboard not unlike that in §2.1 above:

$$S \text{ supports } \varphi: S \models \varphi \iff S[\varphi] = S$$

‘a commitment slate supports some expression if accepting the message it conveys does not have any effect.

The scoreboard that results from adding (37a) to the son’s “commitment slate” $G_{\text{son}}$ and automatically updating CG will support the truth of (37b) in Mastop’s terms. So acceptance of (37a) supports the truth of (37b).

Similarly, two directives are consistent at a given time if both can be practically realized by the targeted addressee at some future time; that is, the realization of each is consistent with the realization of the other—which might be tested by seeing whether the CG can be updated with the two propositions reflecting those realizations. Mastop (2011) takes consistency of directives to require that a commitment slate updated with both directives must not be absurd, which I think amounts to much the same thing.\textsuperscript{16} Similarly, a directive $d$ issued at a given time is consistent with proposition $p$ just in case the realization of $d$ at some future time is consistent with the truth of $p$.

All this, and the treatment of the deontic flavor of imperatives as solely pragmatic, is broadly consistent with Geach’s view of the logic of imperatives, which he takes to be “fairly trivial” (1958:51):

\[\ldots \text{ For every proper imperative, there is a future-tense statement whose ‘coming true’ is identical with the fulfillment of the imperative. This is the source of everything that can be said about the inferability, incompatibility, etc. of imperatives; their being imperatives does not affect these logical interrelations. } \ldots\]

There is, of course, much more to be said about the logic of imperatives, especially about disjunctive imperatives. But I hope this brief discussion will suffice to suggest that the proposal here is compatible with sophisticated views currently on offer.

In this connection, note that embedding our account in a dynamic pragmatics of the sort sketched in §2 affords considerable explanatory potential. For example, consider the role of RELEVANCE to the QUD in determining both realization conditions and intended illocutionary force: Recall examples (7), (8) above, where a declarative is not asserted, an imperative is not directive, as

\begin{itemize}
  \item \textsuperscript{15} I was made aware of Geach (1958) late in the development of this one by an anonymous reviewer, to whom I am grateful.
  \item \textsuperscript{16} This discussion is grossly simplified: See also Charlow’s (2011) discussion of logical and practical constraints on plans and how these bear on the felicity of directives.
\end{itemize}
evident from the QUD. And in (19), the QUD affects our understanding of the realization conditions:

(19)  [two crooks planning a robbery:]
   A: What should I do if the cops arrive?
   B: Start shooting.

B replies to A’s question using an imperative clause, thereby issuing a direction. But we don’t understand B to direct A to start shooting in the present circumstance. Rather, in order to take B’s utterance to be RELEVANT to A’s question, we understand it to mean ‘if the cops arrive, start shooting’, borrowing the content of the if-clause from the question to add it to the modal base for the futurate modal.

In addition, I have argued in Roberts (2018) that all of Kaufmann’s pragmatic constraints on felicitous utterance of imperative clauses, including her Epistemic Certainty Condition, follow from RELEVANCE and other features of the pragmatic framework in §2. Space precludes repeating those arguments here; please see that discussion.

§4. Imperative Subjects

In English, as in many other languages (see the overviews and literature cited in Mauk et al. 2005, Zanuttini 2008, and especially Kaufmann 2012), we find a variety of overt imperative subjects, like those in (57) – (59) and (42):

(57) a. You get moving!
   b. You boys get moving!
(58) Boys be the cops and girls be the robbers!     [Schmerling, 1982]
(59) Somebody help me!       [Portner 2017]
(42) Nobody move!        [Veltmann 2018]

While there is still some controversy about the data to be accounted for, the most empirically promising view to date is of the sort proposed by Zanuttini (2008), Zanuttini et al. (2012), and Kaufmann (2012), and endorsed by Portner (2017), all of whom use an agreement feature to restrain acceptable imperative subjects. This section will briefly sketch how the agreement approach to imperative subjects might be integrated with the semantics in §2, and then address Charlow’s (2018) critique of the agreement approach.

Portner (2017:597) describes the general approach as follows:

[T]he key idea is that there is a person feature [person: 2] on the imperative verb or a functional projection which enters an agreement relation with the subject, thereby making sure that the subject has this feature. In simple cases [like (57a) and (57b)], the second person feature ensures that the subject refers to the addressee. More complex are cases with non-pronominal subjects like [(58)] and quantified subjects like [(59) and (42)]. . . [Kaufmann] (2012). . . shows how it is possible to integrate a semantics of person
agreement with generalized quantifier theory [to yield a] meaning for the person feature on which it makes sense to say that the subject of [(58), (59) or (42)] is second person.

Kaufmann takes imperative subjects to be generalized quantifiers; as usual, pronouns and other non-quantificational DPs can be type-raised to this type. Her central insight is that imperative mood selects for a subject which lives on the addressee, a notion from generalized quantifier theory. The set of quantifiers that live on some set (Barwise & Cooper 1981) is the set of conservative quantifiers (van Benthem 1983, 1984):

**conservativity:** if \( A,B \subseteq E \), then \( D_{E,AB} \iff D_{E,A \cap B} \)  

**lives-on:** for all sets of individuals \( A \), Determiners \( D \), we say that the GQ \( \|D\|_e(A) \) lives on \( A \) just in case for all sets of individuals \( X \): \( X \in \|D\|_e(A) \iff (X \cap A) \subseteq \|D\|_e(A) \)  

Kaufmann notes that since the set of sets that a conservative GQ lives on is a filter (Johnsen 1987), we can assume that these subjects all have a smallest element, the intersection of the sets that live on GQ. For any given conservative quantifier \( Q \), Kaufman defines \( SL(Q) \) as the smallest set \( Q \) lives on. Then:

(60) **Conservativity constraint on imperative subjects:** [after Kaufmann 2012]

An imperative subject DP denotes a conservative generalized quantifier \( Q \) that lives on the set of addressees: \( SL(Q) \) is the set of addressees.

This constraint guarantees that these DPs either denote the addressee, as in (57a), (57b), (58), or take the addressee as their quantificational domain, as in (59) or (42).\(^{17}\)

Zanuttini et al. (2012:fn.59) consider cases like (58) with bare noun subjects. They suggest that “The subjects in [(58)] can . . . be treated like overt modified pronouns (e.g. you boys, cf. Lyons, 1999)”, and hence of the same sort as (57b). I’ll assume this is the correct analysis.

Mauk et al. (2005), Zanuttini (2008), and Kaufmann (2012) adopt agreement features on the functional projection associated with imperative mood in LF. Kaufmann’s feature requires that the subject satisfy the conservativity constraint. However, an anonymous reviewer points out that capturing the constraint via agreement seems stipulative, since this would not behave like normal syntactic agreement. Instead, we will capture (60) via a presupposition on the imperative mood.

We can assume a uniform semantic type for imperative subjects if we take pronominal you to have the higher, Montagovian generalized quantifier type \(<s,<e,t>>,t>\), with the interpretation

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\(^{17}\) I focus here on the conservativity constraint. Kaufmann also requires that imperative subjects be automorphism invariant (van Benthem 1983, 1984, Peters & Westerståhl 2006), which ensures that quantificational subjects of imperatives are logical, properly precluding imperative subjects like Mary’s four friends, more male than female students or no student but Mary. And she requires that an imperative subject not be degenerate, which means that its domain is not null and for some \( X \) the domain is not the entire domain of the model. Non-degeneracy will be captured in our characterization (80) below by the presupposition that there is an addressee. It seems to me that we might also want to preclude proportional quantifiers like those in (i), but I won’t pursue that intuition here:

(i) #/* A few/few/many (of you) move!
\( \lambda P.P(x^2), x^2 \) indexically anchored to the (set of) addressee(s). We can posit a null imperative subject with the semantics of overt you, either licensed by the indexical presupposition of \(!\) or represented as a null pronoun at LF:

\[
\text{(61) } \text{pro}^2 \text{ a 2nd person pro, s.t. } \|\text{pro}^2\|^K = \lambda P.P(x^2), \text{ where } K(x^2) = \text{Addressee}^K
\]

Of course, this pronoun lives on the addressee, so satisfies (60).

Given that imperative clauses bear subjects, what does this tell us about their semantic type? As noted above, clausal argument structure does not determine semantic type. As in §2, the type of an imperative clause—whether or not it has an overt subject—is that of a property: \(<s,<e,t>>\). In order to yield this result, in the formal semantics for imperatives in (62) below, the mood \(!\) itself will take first the predicate, then the DP subject as arguments to yield a property, type \(<s,<e,t>>\).

I assume the standard types for its arguments, taking the subject to have the higher type of a generalized quantifier so as to unify across the types of subjects observed and facilitate type-driven composition with the imperative mood operator:

- **VP:** \(<s,<e,t>>\) type of variable \(P\) below
- **DP subject:** \(<<<s,<e,t>>,t>\) type of variable \(\varnothing\)

Hence, we have the following type for \(!\):

the imperative \(!\): \(<<s,<e,t>>,<<s,<e,t>>,t>,<s<e,t>>>>\)

Then we offer the following, revised semantics for English imperative mood, assuming the types just given and the definition of \(\text{APPLIC} \) from §2:

\[
(62) \text{CONVENTIONAL CHARACTER of English } !_{f,g}:
\]

Given context \(K\) with \(\otimes^@ = <d_i,t^*>\), modal base \(f\), ordering source \(g\), then \(!_{f,g}\) has:

Presupposed content:
- for subject DP\(<s,<e,t>>,t>\): \(\text{SL}(||DP||^K) = \text{addressee}(K) = d_i\) [Conservativity Constraint]
- \(f\) is a futurate circumstantial modal base
- \(g\) is an ordering source that ranks actions relative to relevant goals, plans, and priorities in \(G_i \in K\)

Semantic content:
- type \(<<<s,<e,t>>,<<s,<e,t>>,t>,<s,<e,t>>,t>>,<<s,<e,t>>,t>,<s<e,t>>,t>,<s<e,t>>,t>>\)

\[
\lambda P \lambda \varnothing \lambda <w,t> \lambda x \leq \text{ind } \text{SL}(DP_i) : \text{APPLIC}_{f,g}(<w,t>) \subseteq \{ <w',t'> | \| \varnothing (P) \|^w'^{t'} \}
\]

\[
\equiv 
\lambda P \lambda \varnothing \lambda <w,t> \lambda x \leq \text{ind } d_i : \text{APPLIC}_{f,g}(<w,t>) \subseteq \{ <w',t'> | \| \varnothing (P) \|^w'^{t'} \}
\]

The first, Conservativity presupposition guarantees that the subject lives on the targeted \(d_i\)—the addressee. This is effectively a selectional restriction of the imperative. If the subject does not live on \(d_i\), failure of this presupposition will result in infelicity. The presuppositions on \(f, g\) are as in (50) in §2.

As for the semantic content, since \(\text{SL}(DP_i) = \text{Addr}^K, x \leq \text{ind } \text{SL}(DP_i)\) guarantees that the bound \(x\) is an i-part of the (group of) addressee(s), as shown in the equivalence. Compare the semantic content in (62) with that of the subjectless imperative (50) in §2.1:
(50) tells us that in any of the applicable circumstances the VP is realized by \( x \), an i-part of \( x_i \), the latter presupposed to be the addressee. Similarly, in (62), \( x \) is required to be an i-part of the addressee. What may not be obvious in (62) is how the targeted variable \( x \) bound by \( \lambda \) is the entity that is to realize the property denoted by the VP in the applicable conditions, since unlike in (50), where the bound \( x \) occurs in the superset specification, no \( x \) appears in the scope of lambda in (62). However, here the presuppositions on the subject DP come into play to guarantee the correct result. To see how this works, it is easiest to work through an example. Consider how this works for (42) _nobody move!_.

In order for (42) to be felicitous, in view of the conservativity presupposition on \( \downarrow \) in (62), _nobody_ will have to live on the addressee. That is, its use as an imperative subject effectively presupposes that its domain is restricted as in (63):

\[
\text{(63)} \quad \text{Nobody} \downarrow^2 \quad \lambda Q_{<s,<e,t>} \quad \forall x_j : x_j \leq_{\text{ind}} \text{Addr}^K \quad [\neg Q\{x_j\}]
\]

This takes a property \( Q \) to yield a quantification over the set of addressees, saying of the individual parts that in the relevant circumstance (extensionalization of the property abbreviated by Montague’s ‘\{x\}’ annotation), they fail to have \( Q \). This restricted _nobody_ is a suitable subject for the imperative \( \downarrow \), which takes _move_ (with translation \( \text{MOVE}' \)), and _nobody\downarrow^2_ to yield the following semantic content for (42) (which should be compared to subjectless (51) above):

\[
\text{(42')} \quad || \text{Nobody} \downarrow^2 \text{move} \text{ \downarrow_{fg}} || = \\
\lambda P \lambda \varphi \lambda <w,t> \lambda x \leq_{\text{ind}} d_i : \text{APPLIC}_{fg}(<w,t>) \subseteq \{<w',t'> | ||\varphi(P)||_{w',t'}\} \\
\quad \equiv [\text{by lambda conversion}]
\lambda <w,t> \lambda x \leq_{\text{ind}} d_i : \text{APPLIC}_{fg}(<w,t>) \subseteq \\
\quad \{<w',t'> | ||\lambda Q_{<s,<e,t>}||_{\text{w'},t'}\} \forall x_j : x_j \leq_{\text{ind}} \text{Addr}^K \quad [\neg Q\{x_j\}] (\text{MOVE}') \\
\quad \equiv [\text{by lambda conversion}]
\lambda <w,t> \lambda x \leq_{\text{ind}} d_i : \text{APPLIC}_{fg}(<w,t>) \subseteq \\
\quad \{<w',t'> | ||\forall x_j : x_j \leq_{\text{ind}} \text{Addr}^K \quad [\neg \text{MOVE}'\{x_j\}]||_{w',t'}\} \\
\quad \equiv [\text{notational convention}]
\lambda <w,t> \lambda x \leq_{\text{ind}} d_i : \text{APPLIC}_{fg}(<w,t>) \subseteq \\
\quad \{<w',t'> \forall x_j : x_j \leq_{\text{ind}} \text{Addr}^K \quad [\neg \text{MOVE}'(<w',t'>)(x_j)]\}
\]

This property targets the addressee(s) in \( K \) (the \( x \leq_{\text{ind}} \text{SL}(DP_j) \)), and is the property that they have if in all the applicable conditions at some non-past time \( t' \) all the addressees are s.t. they do not move at \( t' \). The boldfaced presupposition is what guarantees that when this targeted property is issued as a direction the targeted addressees are enjoined to adopt an intention to so refrain: In a felicitous context the addressees recognize themselves _qua_ addressees, and hence as those who are directed to realize these conditions by not moving in the applicable circumstances. Thus the relation between \( x \) and the domain of the quantifier in the realization conditions is _de se_, epistemically binding the non-movers to the targeted addressees.

Charlow’s problem:
Charlow (2018) criticizes Kaufmann’s (2012) and Portner’s (2017) agreement-based proposals for the semantics of imperatives with QP subjects like *nobody* or *everybody*, arguing that their semantic contents would impose the deontic onus on the entire group when it should only be imposed on its individual members. Mastop (2011) offers a similar critique in a more general form. But I think that matters are rather more complicated.

Consider (64):

(64) Everyone gather in the center of the room!

(64') \( \lambda <w,t> \lambda x \leq \text{SL(DP)} : \text{APPLIC}_{\text{f,g}}(<w,t>) \subseteq \{<w,t'>| \forall x_j : x_j \leq \text{ind AddrK} \text{ GATHER}(<w,t'>)(x_j)\} \)

The predicate *gather* can only be true of a group consisting of at least (say) three or more individuals. This selectional restriction pragmatically limits the \( i \)-parts of \( x \) over which the universal ranges to subgroups of cardinality three or more. Then the realization conditions require that all such subgroups of the addressees gather in the middle of the room.

Assuming that the set of addressees for such an utterance is a plural group, what is it for a group to adopt such an intention? In a sense, it is reasonable to assume that an intention is something that only a singular sentient being can adopt: We can jointly intend to come to the party only if we each singly so-intend. So the addressees accept the direction as a group, but must adopt the intentions as individuals. But singly intending to realize this direction is not sufficient to satisfy the group’s acceptance: Jointly intending to do something puts some onus on each member of the relevant group to ensure that the group all follow through. An individual \( a \) who accepts the directive must adopt the intention to behave in such a way as to promote its realization, in this case by moving themself to the middle of the room, just as in (42) one can only promote group realization by refraining from movement.

Similarly with *Four of you lift this piano!*: If a group of twenty addressees accepts this direction, each is committed to cooperate as need be to see that it is realized. If some one member of an original sub-group of four lifters drops out, others would need to step up. That is, the intentions adopted are to promote realization, one’s particular role in doing so pragmatically determined. If I spill my soup in a restaurant and call out *Somebody clean up this mess!* the job of the maître d’ among the addressees is not so much to do the cleaning, but to see that it is done. Etc.

I think examples like (64), and the question of individual obligations for others’ behavior in a group, argue that Charlow’s (2018) criticism is misguided. As an addressee who accepts a direction, one is to add the intention to see that the proffered realization conditions are realized, and one must develop a practical plan for how one would contribute to that realization.

In fact, Charlow’s proposed solution to this problem runs into its own difficulties. On his account, imperatives display illocutionary force in their logical forms, and hence at LF a quantificational subject can take wider scope than the illocutionary force operator. In this way, (42) could have an LF with the semantic content ‘for all addressees, adopt the intention not to move’, and *somebody help me* could mean ‘for some addressee, adopt the intention to help me’.
That is appealing for those matrix imperatives, but it fails to deliver an acceptable analysis of embedded examples like (65), reporting on Steve’s direction:

(65) Stevei demands no one move your baggage or touch hisi until it’s all been inspected!

The lack of declarative verb agreement on move and the 3rd person his bound by Steve argue that the complement sentence is imperative but not a direct quotation. However, embedded imperatives have no illocutionary force, so taking force to have narrow scope relative to the tacit subject cannot provide a solution for how to distribute the direction over multiple addressees in the embedded clause in (65) while leaving the negation associated with nobody to act as predicate term negation of the embedded predicate. The proposal here doesn’t encounter this problem.

§5. Comparison with other accounts

The present account adopts important features of the most linguistically sophisticated, complete accounts on offer, especially those of Portner (2004, 2007, 2011b); Kaufmann (2006 (as Schwager), 2012); and Charlow (2011, 2014). Here I will focus on a few ways in which this account improves on others, resulting in empirical superiority.

The proposal developed in §§2 and 4 differs from earlier accounts in several important ways.

• Though there is a modal in the semantic content of an imperative, it is circumstantial and futurate, not deontic. Pragmatically, the proffered content of an imperative, with its realization conditions, is to be added to the addressee’s goals; since rational intentions are always practical and oriented toward future realization, this is a natural character for the imperative’s modal force. The frequently attested deontic flavor of imperatives is introduced only pragmatically: Just as in Portner’s (2007) account, given the commitment associated with intending to realize a goal (Bratman 1987), it is natural that deontic onus should attach to adopting a new intention for addition to G.

• Central to the pragmatics is the role of G, an organized body of the interlocutors’ goals, plans, and priorities on the conversational scoreboard. G is independently motivated in the general pragmatic framework I assume (Roberts 2012b), borrows directly from the insights of planning theory (Bratman 1987), and, like Charlow’s plans of the interlocutors, is richer and more complexly organized than Portner’s ToDo lists, so is consistent with the rich variety of modal flavors displayed by imperatives. In the course of interpretation of an imperative, the ordering source g both draws from the interlocutors’ evident goals and priorities in G to contribute to the imperative’s realization conditions (as we saw in the examples worked out in §2.2), and is in turn enriched by that proffered content when a direction is accepted. This dynamic interaction is parallel to the way that the common ground CG both bears on and is enriched by the interpretation of a declarative assertion, and with the way the QUD both constrains the interpretation of and is updated by an accepted question.

• The proposed account of imperative subjects in §4 offers new insights into the relevant linguistic data and an original way of utilizing Kaufmann’s agreement feature to constrain the range of permissible subjects and guarantee the attested realization conditions, in both matrix and embedded imperatives.
• The discussion of imperative subjects also brings out additional benefits of deriving their semantic content via abstraction over a subject indexed to the addressee: The result is an indexical property that is the appropriate sort of object of an intention, both because of its semantic type (cf. the usual locution for describing an intention: \textit{intend to VP}), and because it is guaranteed to be \textit{de se} (because of the addressee’s special epistemic status as addressee) and intentions are always self-directed, constraining one’s own behavior.

We have already seen some of the problems with Portner’s and Kaufmann’s accounts in Table 1 in §1. In the last row of the table are listed desiderata which proved problematic for those theories. In §3 we saw that in the present proposal, all these problems are overcome.

Portner (2007, fn.2) acknowledges that not all imperatives are actionable and says that because of these “the name “To-Do List” is a bit inaccurate; it would be more accurate to call it the “To-Make-True-of-Me List”.” Still, without a modal in the semantic content of an imperative, he cannot bring the interlocutors’ priorities to bear in a regular way on semantic content or the modality of imperatives, as the account in §2 does via the futurate modal and ordering source $g$. And he doesn’t give To-Do the complex internal organization assumed for G in the scoreboard in §2.1, as in Charlow’s (2012) plans.

The central difference between Kaufmann’s account and that presented here is her assumption that an imperative denotes a proposition. I take this to be conceptually problematic, as suggested in the introduction: The attitude we adopt toward a directive is that of an intention, and we do not intend propositions: We intend to do things, to realize properties. The empirical problems in Kaufmann’s otherwise excellent account, as noted in Table 1, arise from this aspect of her theory.

In several respects, Charlow’s (2011, 2014, 2018) theory is conceptually quite similar to the account proposed here. He includes a modal in the semantic content, though like Kaufmann, his is a deontic modal, so encounters the same problems noted for her above (desiderata (g) and (h)). But he differentiates the semantic type of an imperative clause from that of clauses in other grammatical moods, so that they are not propositional, taking the semantic content to be a property of plans. He uses the term \textit{plan} to denote a set of propositions, like the value of the ordering source $g$ at any given circumstance of evaluation in Kaufmann’s/our account. The value of that function is correlated with a preference ordering over worlds, as in Kratzer: Worlds which realize more of those propositions are ranked higher than others. So a property of a plan is a function from plans to propositions: “the property a plan has when it is in line with how the imperative tells the agent to plan”. In our terms, if the proposition resulting from the addressee realizing the imperative is among those characterizing the addressee’s ideal plan—something they intend to realize as given by $g$, then it is “in line with” that plan. Thus, whereas in (50) or (62) we effectively abstract on the subject of a modal proposition to derive a property (targeted to the addressee), Charlow starts with the modal proposition and abstracts on the ordering source presupposed by the modal. Though he doesn’t offer a dynamic pragmatics, one could readily adopt something like that in §2.1 and characterize his resulting plan-property as a modification to $G$. Charlow (2011) offers a sophisticated characterization of the ways that plans and priorities are organized and how this comes to bear on the attested flavor of a given direction, one compatible with my understanding of $G$. And unlike Portner, he does not assume that the plans in question
are always actionable, leaving room for “soft” imperatives like invitations and idle inquiries. Finally, though Charlow (2011) assumes that quantificational subjects can scope over illocutionary force (discussed and criticized in §4, above), if willing to give that up, he could just as well adopt the Force Linking Principle (52).

However, I question Charlow’s derivation of the semantic content of a clause containing a modal operator by abstraction on the ordering source $g$. $g$ is a presupposed parameter of evaluation rather than a syntactically subcategorized argument of a modal; hence I take it to be non-semantic, used to retrieve a speaker’s presupposition. It strikes me as linguistically implausible to derive the semantic content of a clause-type by abstracting on a lexically presupposed parameter for interpretation of one of its sub-constituents, the imperative mood operator !. Also, as noted above, by abstracting on the addressee-indexed subject, the present account offers up a semantic content that seems to be the appropriate sort of object of an intention. Charlow could stipulate the resulting indexicality and the de se character of the content, but I don’t see how it would fall out naturally, as on the present account.

There are, of course, many other linguistically-informed theories of the imperative worthy of careful consideration. Among recent work I note the following: Han (1998) is notable for its cross-linguistic emphasis. And Condoravdi & Lauer offer an excellent account of performative speech acts; see Roberts (2018) where I adopt their view of these and discuss its implications for speech act theory. Barker (2012) takes imperatives to denote actions. The current account verifies the underlying intuition: but instead of denoting actions, here (non-expressive) imperatives are used to propose actions.

Han (1998), Truckenbrodt (2006), Condoravdi & Lauer (2012), Krifka (2014, 2021), Starr (2020), and Moltmann (to appear) all build illocutionary force into semantic content at LF, e.g. into a functional head. For this, Starr (2020,§2) offers the most compelling arguments. But Starr fails to observe certain features of their crucial data. For example, in (66) they take the if-clause to have wide scope over the imperative in the second conjunct:

(66) If Chris tries to leave, I’ll distract him and you close the door! [Starr 2020]

The entire conjunction is a proposal to the addressee for how the interlocutors should behave if Chris leaves. But on an account where the imperative has its own modal force, we can get the attested interpretation via modal subordination: The first conjunct in (66) is if Chris tries to leave, I’ll distract him, the modal base enriched by the if-clause; the modal in the imperative 2nd conjunct takes as part of its modal base that of the first conjunct, a commonly observed pragmatic accommodation (modal subordination) that yields the attested reading without wide scope of the if-clause. The example is still interesting because it involves a conjunction with mixed mood: a (conditional) declarative and an imperative. But it isn’t evidence of a conditional scoping over mixed mood conjuncts.

As for conjoined and disjoined examples with mixed mood: All the felicitous examples offered by Starr (and others I know from the literature), including (66), are used by the speaker to propose complex joint plans, typically involving the speaker and addressee (67) (effectively
exhortative), but sometimes involving a 3rd person (68), with either conjunction (66)/(68b) or disjunction (67a)/(68a):

(67) [At a used book sale, trying to decide with one’s partner what to buy, since we don’t have enough money for all the books we’ve chosen:]
   a.  Me: Put back Waverly or I’ll put back Naked Lunch. I don’t care which.
   b.  You: I’m fine with either too.  [Starr 2020]

(68) [Mom talking to one of two kids squabbling over a toy:]
   a.  Give Chris back his toy or he can take one of yours. I don’t care which.
   b.  Apologize to Chris and he can decide whether to accept your apology.

Crucially, I don’t know of any other types of (non-conditional) readings with mixed imperative and declarative mood. In each of (66) – (68), it seems important that the speaker is proposing joint plans: i.e., that the addressee and other party cooperate to carry out the relevant actions (conjunction) or to decide which alternative to realize (disjunction). In general, conjuncts/disjuncts must address the same QUD (Roberts 1989). In these examples, the proposed plans address a single decision problem, where a decision problem can be modeled as a QUD, following Kaufmann & Kaufmann (2012): how to keep Chris from leaving (66), which books to get (67), how to stop squabbling (68). And because the problem is joint, so is the plan for action. The declarative conjunct is, like an exhortative, an (alternative) proposal for adoption of an intention, rather than an assertion.

In support of this contention, note that and and or are often used as discourse connectives, rather than as Boolean operators in the logical form of a single utterance. And this use is severely constrained by coherence of the resulting text. We see this in the use of and or in (69):

(69) [Two roommates are planning their shopping. One says:]
   You go get the vegetables at the farmer’s market. Oh, and buy some bucatini at Milano’s on the way home. I’ll get the milk.
   [addressee looks overwhelmed]
   Or stay home and finish your work here. OK? And I’ll go to Milano’s later when I go to the bookstore. We can get the veggies at Union Square tomorrow.

As in (66) – (68), the speaker in (69) proposes two alternative plans: One plan is outlined in the first three utterances; then or is used to introduce an alternative to the first plan. That is, here or effectively has “scope” over three utterances prior and three after its utterance. In the specification of each of the two complex plans (one sketched before, the other after or), and is used to give cohesion—indicating continuation of the specification of a plan. Each plan is one possible answer to the QUD of how to get the shopping done. There is no compositional semantics that can adequately address such uses of conjunction. And I claim that the conjunction and disjunction in examples like (66) – (68) is of this sort.

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18 Asher (2007:212) also takes the connectives in examples like Starr’s to have a non-Boolean, discourse function, and notes that they are constrained by discourse coherence. But so far as I know, no one else has noted that all the parts of a complex sentence with mixed force have to address the same decision problem, a joint problem for the agents targeted in the different disjuncts/conjuncts.
Starr assumes that the challenge is “to interpret these constructions without positing ambiguous connectives and without blurring the differences between imperatives and declaratives,” and argues that only an account that assumes a dynamic semantics, wherein the contextual update (and hence illocutionary force) associated with grammatical mood is part of the semantics, can meet this challenge. But since all of the data they consider is of the sort reviewed just above, I do not think they have made their point. Arguably, the account offered here does a better job than the previous literature of explaining the tight constraints on occurrence of conjoined/disjoined examples with mixed force, without assuming that imperative mood takes narrow scope under logical connectives.

§6. Conclusions and prospects

In the preceding sections I have emphasized the empirical superiority of the account proposed in §§2 and 4 above. Here I would emphasize some respects in which the present approach offers certain theoretical advantages.

The assumption that the difference between the clause types is grounded in their differing semantic types is an elegant alternative realization of the intuition underlying the use of force operators in logical form from Frege till today, which is that there is some kernel content in common between sentences like those in (70), and that the basic content is that observed in the declarative (70a):

(70)  a. You will finish your paper.
     b. Will you finish your paper?
     c. Finish your paper!

We capture Frege’s intuition by deriving the content of the interrogative in (70b) and that of the imperative in (70c) from that of the declarative in (70a) by abstraction: In (70b) we abstract over the polarity in (70a) to derive a set of propositions, one being (70a) and the other its negation—reflecting the alternative values for a yes/no question. With a wh-question like What will you finish?, we would instead abstract over the wh-element to derive a set of propositions differing in the value of the object. In the imperative (70c) we abstract over the indexical subject to yield an indexical property.

As encoded in Portner’s Force Linking Hypothesis, these abstracted contents play distinct natural roles in discourse: If accepted, each updates one of the three central elements of a context of utterance—CG, QUD and G. In turn, the latter play different functions in dynamic interpretation and represent different kinds of attitudes that play a central role in the exchange of linguistic information: belief, inquiry, and intention. The natural object of belief is a proposition, that of inquiry is a question (set of alternative possibilities), and that of intention is a self-directed property. Correspondingly, we find that the three central types of speech acts call forth different responses: the assertion of a proposition is to be evaluated for truth; a question is posed with a view to inquiring into its resolution; and issuance of a direction calls for adoption of an intention to realize the indexically targeted de se property.
On such a view of the content and function of an imperative, the modality I have argued we find in the semantic content of an imperative clause like (70c) is a natural reflection of the essential future orientation of an intention. We find the same futurate modality in (70a) and (70b)—on a modal view of the future, all these clauses will involve the kind of modal relation we see in the imperatives. It’s just that imperatives are always futurate. This constraint follows not from any stipulation about their LF, but from their pragmatic function: intentions can only be realized in the future.19

As noted above, it is ultimately important to see how the present proposal can be realized in a satisfactory logic of imperatives and consider how it bears on our judgments of semantic relations between imperative utterances, and between directives and assertions. Important in this respect is the treatment of free choice disjunction and Ross’ paradox in imperatives, about which no consensus has as yet arisen. See Portner, Mastop, Charlow, Champollion et al. (2019), Harris (forthcoming), and the extended literature cited in those papers for an idea of where things stand.

Bibliography


19 In some languages (e.g. French) we find a past subjunctive imperative. But I take it these are effectively counterfactual, with a future orientation relative-to-some counterfactual past time. See also Mastop’s (2011) Dutch counterfactual imperative.


Veltman, Frank (2018) Notes on imperatives (Compilation 2018). Available at https://staff.fnwi.uva.nl/f.j.m.m.veltman/papers/CompilationImp.pdf
