

Formal Approaches to the Syntax and Semantics of Imperatives

by

David J. Medeiros

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Linguistics)
in The University of Michigan
2013

Doctoral Committee:

Professor Samuel D. Epstein, Co-Chair
Associate Professor Acrisio M. Pires, Co-Chair
Assistant Professor Ezra R. Keshet
Professor Richard L. Lewis

“There are some enterprises in which a careful disorderliness is the true method.”

-Herman Melville

© David J. Medeiros 2013
All Rights Reserved

For Autumn, Hayden, and little Watson, too.

ACKNOWLEDGEMENTS

This dissertation has benefited from the support and mentorship of many individuals and institutions. First and foremost, I wish to thank my dissertation co-chairs, Acrisio Pires and Samuel Epstein. Without Acrisio and Sam, it is safe to say that I would not be a linguist, since they supported my application to graduate school despite my lack of background in linguistics. I feel incredibly grateful for their willingness to take a risk on my application and for their subsequent and unfailing support of my academic career.

Acrisio has always supported my intellectual pursuits and encouraged me to develop, present, and publish my ideas to the extent possible. At the same time, Acrisio has provided crucial guidance and mentorship with the more pragmatic aspects of graduate school that are so crucial to success in the academy, but which are rarely taught or even discussed. I am also grateful for Acrisio's genuine concern for the wellbeing and welfare of our department's graduate students, both personally and professionally.

Sam has also been an indefatigable mentor to me and any student who seeks him out. While Sam's humor and friendly demeanor are well-known and appreciated, those who know him understand his deep commitment to scientific rigor. I thank Sam for countless unscheduled discussions and for developing a way of thinking about linguistics that goes beyond understanding specific data sets and analyses.

Ezra Keshet has also been an ideal committee member and mentor since his arrival in our department; I honestly cannot image our department without Ezra. Several

of Ezra’s spontaneous comments about my work later inspired some of the major ideas in this dissertation, and I thank him for long and thoughtful discussions about semantics and linguistics generally.

Rick Lewis served as the cognate member of the dissertation committee, and I thank him for his contributions and discussion of this material. Beyond the dissertation, Rick has been an important influence for my understanding of linguistics from the perspective of cognitive science. I also thank Rick, Ezra, Sam, and Acrisio for facilitating a truly enjoyable and thought provoking dissertation defense.

The work presented here benefited from discussions with Ben Fortson and Rafella Zanutini. I also thank audiences at the Michigan Linguistic Society, the Chicago Linguistic Society, the SWAMP workshop at Ohio State, the University of Michigan Syntax/Semantics Research Group, and three anonymous *Syntax* reviewers for valuable insights on the ideas and analyses in this thesis. I am indebted to Jason Gilbert and other nameless contributors for their help in developing a L^AT_EX template which made formatting this dissertation relatively painless. I would especially like to thank Sashi Singh and Ales Alajbegovic for help with Bhojpuri and Slovene data.

Crucial funding for this project was granted by the University of Michigan Rackham Graduate School in the form of a Dissertation Completion Fellowship during my penultimate year of graduate school. The final year of my graduate studies was supported by an ACLS/Mellon Dissertation Completion Fellowship, which greatly assisted the completion of this dissertation.

Beyond work specific to the dissertation, I have benefited from the mentorship and friendship of many faculty in Michigan’s linguistics department; I am very thankful to have had such fantastic mentors from diverse subfields. I would particularly like to thank Marlyse Baptista, Pam Beddor, Andries Coetzee, Carmel O’Shannessy, and Robin Queen for support and mentorship. I also thank Steve Abney, Jon Brennan, Deborah Keller-Cohen, Elaine McNulty, and Sally Thomason for many excellent con-

versations about linguistics and beyond. Although not technically in the Michigan linguistics department, professors T. Daniel Seely and Hisa Kitahara have offered fantastic mentorship to me and all Michigan syntax students who seek them out. I also thank professors Malcolm Wilson, Mary Jagger, Lowell Bowditch and Steve Lowenstamm, as well as fellow students during my time at the University of Oregon's department of classics.

Many fellow students and friends supported my family and me. While I cannot thank them all, I particularly want to thank my cohort mates Jon Yip, Joseph Tyler, and Eric Brown. I've been happy to become friends with Terry Szymanski, Rachel Miriani, Lauren Squires, Matt Ides, Mike Opper, Stephen Tyndall, Harim Kwon, Tridha Chatterjee, and Anna Babel. I thank Christopher Becker and Cati Fortin for early and then more recent mentorship and friendship. I especially thank Kevin McGowan for many enlightening conversations, paradigm challenges, and collaboration; please come back as a syntactician in your next life. Finally, I thank the syntax and semantics grad student crew at Michigan, including current and former students Dina Kapetangianni (who also helped with Modern Greek data), Gerardo Fernández-Salgueiro, Miki Obata, Tim Chou, Tomislava Dragicevic, Sujeewa Hettiarachchi, Will Nediger, Jae-Young Shim, and Batia Snir — thank you for listening to so many of my presentations!

Finally, I thank my family for their support and encouragement. My mother, though she will not be able to read this, and my father have always supported me and instilled a love of learning in me at a young age. Because of my parents, I enjoyed the kind of childhood every child deserves, and I will always be grateful for that. I thank my brother Matt for being a great friend and also an inspiration for my academic career. Matt provided sage advice throughout graduate school, and gave invaluable assistance during fieldwork for a project on Hawaiian and Polynesian linguistics.

Most importantly, I thank my wife, Autumn, who has given love and support throughout my graduate program, starting with moving to Michigan with me. Autumn has encouraged and pushed me to succeed, in addition to making my life so much richer. I thank her for all of this and especially being a wonderful mother to our child, Hayden.

TABLE OF CONTENTS

DEDICATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	ix
CHAPTER	
I. Introduction	1
1.1 Introduction to the Formal Approach	1
1.2 Examples	4
1.3 Research Questions & Outline	6
II. A Feature Transfer Analysis of Embedded Imperatives	9
2.1 Introduction	9
2.1.1 Specifying the Topic of Inquiry	11
2.2 A Morpho-Syntactic Approach	16
2.2.1 Ancient Greek Imperative Embedding Is Not Con- strained by Properties of The Matrix Clause	16
2.2.2 Encoding Aspects of Imperative Meaning in the Syntax	21
2.2.3 TP and CP in Imperative Clause Structure	29
2.3 Extending Feature Transfer to Imperatives	34
2.3.1 Feature Transfer and Selection	35
2.3.2 Learning the Distinction from Primary Linguistic Data	39
2.3.3 Syntactic Licensing and Consequences for Imperative Interpretation in Ancient Greek	42
2.3.4 Divorcing Imperative Morphology from Directive Force: Consequences	45
2.4 Additional Cross-Linguistic Data and the Status of ‘Impera- tive’ in the Grammar	50
2.4.1 The Status of ‘Imperative’ in Generative Grammar .	52
2.5 Conclusion	54

III. The Morphological Imperative as a Weak Necessity Modal	56
3.1 Introduction	56
3.2 Defining the Topic of Inquiry	57
3.2.1 Clause Types and MIVs	60
3.3 Modals and Imperatives	68
3.3.1 A Typology of English Modals	70
3.3.2 A Paradox Concerning English Imperatives	76
3.3.3 Weak Imperatives: Permissions and Wishes	79
3.3.4 Modals and Imperatives: Interim Summary	83
3.4 Imperatives as Weak Necessity Modals	85
3.4.1 Kratzer’s Approach to Modality	86
3.4.2 Kaufmann 2012: Performativity and Modality	90
3.4.3 The Weak Necessity Proposal	94
3.5 Evaluating the Proposal	99
3.5.1 1st and 3rd Person Imperatives	103
3.5.2 Embedded Imperatives	106
3.6 Conclusion	109
IV. Re-Casting the Sentence-Type Hypothesis	112
4.1 Introduction	112
4.2 The CP Domain	113
4.2.1 Imperatives and the Syntactic Representation of Per-	
formativity	114
4.2.2 Imperative is Not A Sentence Type	115
4.2.3 Arguments For a Sentence-Level Operator	118
4.2.4 New Evidence For a Sentence-Level Operator	121
4.2.5 The Left-Peripheral Operator and Negation	123
4.2.6 Left-Peripheral Operator: Conclusion	126
4.3 Formal Re-Analysis of the Imperative Sentence Type Hypothesis	126
4.3.1 Bipartite Semantics and Performativity	129
4.3.2 Presuppositions, Verb Movement, and Variation	132
4.4 Conclusion	136
V. General Conclusion	137
BIBLIOGRAPHY	140

ABSTRACT

Formal Approaches to the Morphological Imperative

by

David J. Medeiros

Co-Chairs: Acrisio Pires and Samuel D. Epstein

This dissertation examines imperatives, defined as a morphological class, offering a set of interrelated, formal hypotheses regarding their syntactic and semantic analysis. Three major questions guide this research. First, the distribution of imperatives is addressed with respect to the possibility of occurrence in syntactically embedded clauses, a context often believed to exclude imperatives across languages.

It is shown that morphological imperatives productively occur in embedded clauses in languages with rich (person) imperative morphology. The independently motivated theory of Feature Transfer (Chomsky 2008) explains the cross-linguistic variation, in that imperatives with rich morphology are treated as finite verbs, while imperatives in e.g. English are selected by an operator with interpretable 2nd person features, following aspects of the analysis for English-type imperatives in Zanuttini (2008) and Han (2000).

The semantic properties of morphological imperatives constitutes a second research area. Embedded (non-performative) imperatives as well as non-command imperatives in English motivate an analysis in which imperatives have the semantic

value of a weak necessity modal. The operator which obligatorily selects imperatives in English-type languages and optionally selects imperatives in rich-morphology languages has as its semantic value a set of presuppositions (following Kaufmann 2012) which encode performativity. Imperatives in English therefore have two semantic components, a modal component (represented clause-internally) and a performative component (represented in the left-periphery).

Finally, I address suppletive imperatives and the hypothesis (Portner 2004) that these belong to a clause type which includes morphological imperatives. While I reject the clause-type hypothesis for imperatives, I argue that performative imperatives and suppletive imperatives share one aspect of meaning, namely the performative component. Suppletive imperatives and true imperatives can differ in terms of modal component, deriving the differences between suppletives and imperatives in terms of the fine-grained interpretive possibilities discussed by von Stechow & Iatridou (2010).

These hypotheses lead to the conclusion that imperatives do not have proto-typical semantic functions such as Ordering (Kaufmann 2012) or Requiring (Portner 2004). Instead, imperatives encode weak necessity modality and can (in some languages must) occur in performative contexts, with a syntactic distribution which is wider than previously thought.

CHAPTER I

Introduction

1.1 Introduction to the Formal Approach

This dissertation focuses on a particular kind of verbal morphology which is typically called ‘imperative.’ As such, I exclude, or only touch upon, several topics that are characteristically discussed in dissertations or other scholarly work on imperatives. In particular, ‘imperatives’ as functionally construed, for example as commands or as moves in a language game, are not discussed here as a topic of inquiry. The distinction is partially methodological; dissertations must be circumscribed somehow, so why not focus on a particular verbal paradigm?

Mostly, however, the distinction is grounded in a formalist understanding of syntax and semantics; the general method is to pick out a certain, purely linguistic category, examining its morphosyntactic distribution and semantic interpretation. The goal of this style of analysis is to provide a formal, and (in-principle) falsifiable characterization of the data, and, where possible, to explain or deduce properties of the formal analysis by reference to deeper principles. The alternative, functional view might, for example, start with a non-linguistic category, such as ‘command,’ and examine to what extent a theory of commands can explain imperatives, however construed. To the extent that the analyses developed here are empirically adequate and, at least to some extent, explanatory, this dissertation can also be read as an argument for the

formal approach.

Naturally, functionalist approaches to imperatives link this category to some non-linguistic category; for example, Aikhenvald (2010) claims that “imperative structures are commands par excellence,” although “in their meanings they often go beyond commands.” However, this functionalist perspective is not, I argue, limited to the functionalist literature, but in fact has correlates in linguistic philosophy (e.g. Hamblin 1987) and even formal semantics.

For example, Kaufmann and Portner are two researchers in formal semantics whose work has done much to advance the understanding of imperative interpretation, and whose work I will continually refer to throughout this dissertation. While their work on imperatives is of great value and formal precision, even here these authors maintain that “distinctions among subtypes of imperatives . . . all share the force of Requiring” (Portner 2004), or alternatively, that imperatives have a proto-typical use as orders (Kaufmann 2012, ch.1, ex. 4). Yet, it is unclear what empirical evidence underlies these claims; rather, I conclude that the analysis of imperatives in terms of ordering or requiring is based on common-sense, functionalist grounds (see chapter 3 for further discussion). For all of these authors, a major issue is how to relate the proto-typical function of imperatives — be it commands, orders, or requirements — to non-proto-typical functions such as suggestions, wishes, and others.

Three important hypotheses or empirical arguments (which I will ultimately reject) have been linked to the claim that imperatives are proto-typically orders. First, imperatives are thought to be addressee-oriented (Downing 1969, revised in Potsdam 1998); i.e. their grammatical subjects refer to either the (discourse) addressee or a subset of the addressees (Zanuttini 2008, Zanuttini et al. 2012). Second, since commands or requirements (broadly construed) are a kind of speech-act, and since speech-acts are generally represented at only the main-clause level, (morphological) imperatives are thought to be prohibited from appearing in syntactically embedded

positions (Katz & Postal 1964, Sadock & Zwicky 1985, Platzack & Rosengren 1998, Han 2000, Palmer 2001, Portner 2004, among others). Finally, and related to the purported prohibition on embedding, imperatives are thought to be subsumed under a particular type of clause (alternatively sentence type), the ‘imperative’ clause type (Sadock & Zwicky 1985, Portner 2007, 2011, Kaufmann 2012, among others). Subsuming imperatives under the ‘imperative’ sentence or clause type (which can include clauses headed by non-imperative verbs) makes sense if imperatives cannot occur in embedded clauses, since the force of the imperative could be analyzed entirely in terms of the force of the sentence (as opposed to e.g. indicatives or subjunctives, which in general occur freely in either matrix or embedded clauses); this point is elaborated further in chapter 4.

These relatively main-stream hypotheses regarding imperatives (i.e. addressee-orientation, non-embedding, clause type) have had consequences for the empirical domain which has been taken to be the topic of inquiry in prior literature. Generally, the topic of inquiry has been morphological imperatives in (specific) languages which lack 1st or 3rd person imperatives and prohibit embedded imperatives, and also ‘suppletive imperatives’ in these languages; suppletive imperatives are other verb forms (usually the subjunctive and infinitive) that can be used for commands. Many languages do, in fact, fit this empirical bill, for example English.¹

However, in the formalist approach taken in this dissertation, the topic of inquiry is not specific languages, such as English, but rather human language capacity (Chomsky 1965, 1986, 1995, 2005, *inter alia*). From this perspective, it would be problematic for the three main-stream hypotheses discussed above if any one specific language had morphological imperatives which are not addressee-oriented or which do occur in embedded contexts. In fact, specific languages exist in which morphological

¹Why it is the case that many languages have only 2nd person imperatives may in fact be related to pragmatic or functional properties, but *only*, I argue, as construed within appropriate models of language acquisition and diachronic or historical linguistics.

imperatives occur in the 1st (e.g. Slovene, Sanskrit) or 3rd (e.g. Bhojpuri, Ancient Greek) person; Slovene, Bhojpuri, and Ancient Greek also all allow morphological imperatives in embedded clauses. Within the generative framework pursued here, properties of any specific language are relevant for the analysis of human language capacity.

The existence of 1st and 3rd person imperatives, and embedded imperatives, makes it very difficult to maintain that imperatives can only be addressee-oriented, resist embedding, and are equivalent to a particular clause type. Maintaining these hypotheses would require loosening the relevant definitions to a point at which they no longer have any real predictive content. Alternatively, one could exclude these problematic imperatives with the claim that they are not ‘real’ imperatives. Under this approach (rejected here), even though the ‘problem cases’ have the same overt morphology as their addressee-oriented, matrix level and performative counterparts, the problematic cases do not have ‘imperative semantics.’ However, such a response begs the question as to the content of ‘imperative semantics.’ Instead, the approach taken here is to consider all exponents of the particular morphological class, and only then develop an appropriate semantics, while explaining morpho-syntactic variation at the level of specific languages to overt morpho-syntactic properties.

1.2 Examples

In many languages, imperative verbal morphology is indicated by overt (i.e. non-null) morphology. However, like any morphological class, imperatives have properties independent from the phonological realization of their features. This is an especially relevant point for English, in which imperative morphology is null. The non-phonological properties of imperatives can therefore serve as a heuristic for the identification of imperatives even when the relevant morphology is null.

One relevant property of imperatives is that their subject is case-valued; this is

crucial because in many (if not all) languages, imperative subjects are allowed to be null. That English imperative subjects are case-valued motivates the (now arguably consensus) view that subjects of imperatives, when null, are *pro* (Zanuttini 2008 and references therein). For example, quantifier subjects of English imperatives such as *everybody* are overt (1a), and therefore (by hypothesis) case-valued.² The syntactic representation of imperative subjects, whether overt or null, is evidenced by Condition A of the binding theory, since clause-internal anaphors are always allowed by subjects of imperative verbs. Crucially, this applies for both overt (1a) and null (1b) subjects, and therefore gives linguists a diagnostic for imperative morphology, even when null.

- (1) a. Everybody_i look at yourself_i/*you_i in the mirror!
 b. *pro*_i Look at yourself_i/*you_i in the mirror!

As discussed above, languages differ with respect to richness of person morphology and syntactic distribution of imperatives. As a brief example of the problematic (from the perspective of prior literature) imperatives, I present here data that is discussed in detail in chapter 2. Ancient Greek is a language that allows 3rd person imperatives and imperatives in embedded clauses. As an example, consider (2). Here, a ‘normal’ 2nd person imperative occurs in the matrix clause, while a 3rd person imperative occurs in the embedded clause.

- (2) Herodotus (1.89)

kation	...	phulakous,	hoi
station-2nd.sing.aorist.imp.active	...	guards	who
legonton	...	ta	khremata
collect-3rd.pl.present.imp.active	...	the	spoils

Station ... guards, who [shall] collect ... the spoils.

²‘Everybody’ in (1a) should not be taken as evidence that the imperative is of the 3rd person. Evidence that this is not the case comes from pronoun binding (discussed in chapter 2); quantifier subjects such as ‘everybody’ can bind 2nd person pronouns, e.g. *Everybody raise your hand*, which is only possible with imperative verbs.

In English, this is impossible; to convey a similar meaning, English must use an overt modal verb in the embedded clause (3).

- (3) a. *Station guards, who collect_{imp} the spoils.
b. Station guards, who shall/must collect the spoils.

Already these data, and the contrast between the two languages, raise important issues in terms of the prior literature on imperatives. Empirically, (2) appears to refute the claim that imperatives cannot be embedded. It is also hard to see how this imperative could be addressee-oriented under standard definitions (i.e. subject of the imperative verb refers to either the addressee or a subset of the addressees). Although (2) does not directly refute the hypothesis that imperatives can be reduced to a sentence type (because, here, the matrix verb is also an imperative), the existence of embedding calls into question this hypothesis. In this dissertation, I offer a new analysis for imperatives which can handle examples such as (2), giving a unified semantic analysis for imperatives across languages and offering an analysis of the cross-linguistic variation with respect to imperative syntax in embedded clauses.

1.3 Research Questions & Outline

Given the focus of this dissertation, outlined above, I pursue several interrelated hypothesis regarding morphological imperatives and their properties from the perspective of syntax, semantics, and the syntax/semantics interface.

In chapter 2, I address the issue of embedded imperatives. The primary question here is the following: why do some languages allow imperatives in embedded clauses while other languages do not? I tie this cross-linguistic variation to the presence of ‘rich’ imperative person morphology, where ‘rich’ is defined as having overt (verbal) forms beyond the 2nd person. I suggest that rich imperative morphology is a necessary condition for a grammar (or, equivalently, a child learner of a grammar) to allow

imperatives in embedded clauses. This hypothesis is formalized in terms of Chomsky’s (2007, 2008) independently motivated theory of Feature Transfer.

I argue that only in the rich-morphology languages can a C^0 head bearing uninterpretable *phi* features select imperative T; as a result, only in these languages will T^0 be able to case- and ϕ -agree with the subject. This analysis explains why an additional mechanism (with antecedents in Bennis 2006 and Zanuttini 2008) is involved in the selection of imperatives in ‘poor-morphology’ languages such as English. I identify this additional mechanism as a left-peripheral C-head, C_{dir} (i.e. ‘directive’), which obligatorily selects imperative T^0 in languages such as English; this head is specified for interpretable 2nd person features, building on work by Zanuttini (2008).

In chapter 3, I provide a semantics for imperatives that can account for imperative interpretation in both the embedded imperative data as well as English. In particular, I focus on ‘weak’ imperative interpretations in English, such as permissions and wishes, which have been problematic for recent proposals concerning imperative semantics (as discussed by von Stechow & Iatridou 2012). Following the intuition developed in chapter 2, I propose that imperatives are best explained in terms of modality, following aspects of Kaufmann (2012), who argues that imperatives in languages like English have two components, a modal component and a performative component, the latter represented by a set of presuppositions.

The proposal here differs from Kaufmann’s (2012) account in two fundamental ways. First, the presuppositional content (deriving performativity) and the modal content are separated into two different syntactic positions in the relevant syntactic representation. The presuppositions are located in C^0 , as the semantic value of C_{dir} , and the modal component is located in T^0 , which allows embedded imperatives (i.e. not selected by C_{dir}) to have an appropriate semantic value. Crucially, I also differ from Kaufmann (2012) in identifying the modal as a weak (not strong) necessity modal, adopting the model of weak necessity developed in Silk (2013). By identifying

imperatives with weak necessity modality, I straightforwardly account for the ‘weak’ imperative interpretations that have been difficult to characterize in prior accounts of imperative semantics.

Finally, in chapter 4, I reconsider the ‘imperative as clause type’ hypothesis. Here, I apply the formal tools developed in the prior two chapters and show that the data which motivates the clause type theory can be reanalyzed in a fully formalized way, given the separation of the performative and the modal components of matrix, performative imperatives. Under this analysis, suppletive imperatives have identical performative properties as performative imperatives, but are allowed to differ in terms of their modal component. This explains why many suppletive imperative forms do not allow permission readings, while all morphological imperatives do (von Stechow & Iatridou 2010).

The analyses developed in these chapters are intended to show that a cross-linguistically principled account of the syntactic distribution and semantic interpretation of morphological imperatives is possible, without determining beforehand which tokens of the morphological imperative count as ‘real’ imperatives. While open questions regarding imperatives certainly remain, I hope that this dissertation will suggest new avenues for empirical and theoretical investigation in the domain of imperatives, and especially new ways to explain the properties of imperatives in terms of deeper linguistic and even non-linguistic (e.g. Chomsky 2005) principles.

CHAPTER II

A Feature Transfer Analysis of Embedded Imperatives

2.1 Introduction

It is well known that English imperatives cannot appear in embedded clauses, such as finite complement clauses (1), or relative clauses (2).¹ This observation holds for some languages with overt imperative morphology, such as German (3) and Modern Greek (4) (Han 2000).²

- (1) *I think that leave! (intended meaning, ‘I think that you must leave.’)
- (2) *That professor, to whom introduce yourself, was my advisor! (intended meaning, ‘That professor, to whom you must introduce yourself, was my advisor.’)
- (3) *Hans schlägt-vor, dass du den Aufsatz schreib(e).
Hans suggests that you the paper write
Hans suggests that you write the paper.

¹This chapter is largely based on Medeiros (in press) and Medeiros (2011). I would like to thank three anonymous reviewers at the journal *Syntax* as well as the audience at the 2011 meeting of the Chicago Linguistic Society for helpful comments.

²Note that morphologically imperative verbs are not allowed in non-restrictive relative clauses in Modern Greek in examples parallel to (2). I consulted three native speakers who all rejected that possibility.

- (4) *O Yannis se dietakse grapse.
 the Yannis you ordered-2sg write-2sg.imp
 Yannis ordered you to write. (Han, 2000)

Given (1-4) and parallel judgments in a wide range of languages, it has been argued that such embedding is universally prohibited (Katz and Postal 1964, Sadock and Zwicky 1985, Platzack and Rosengren 1998, Han 2000, Palmer 2001, Portner 2004, among others). While analyses in this domain vary, the prohibition is often explained by appeal to the idea that morphologically imperative verbs are universally performative (i.e. they perform a speech act, in the sense of Austin 1962), and such performativity is disallowed in embedded contexts (see further discussion below). More recently, however, several researchers have argued for the possibility of embedded imperatives: Platzack (2008), Rognvaldsson (1998) (Old Scandinavian), as well as Rus (2005) and Sheppard and Golden (2002) (Slovenian). I review these data below.

In this chapter, I focus on examples of embedded imperatives in Ancient Greek, which exhibit embedding in the same type of constructions where embedding is prohibited in English. In (5), for example, a morphologically imperative verb occurs in a relative clause, parallel to the context in which a morphologically imperative verb is excluded in English (2). Given the consensus view that imperatives “teach us nothing about locality or complementation” because “they cannot be embedded” (Koopman, 1997), data such as (5) present an intriguing descriptive and explanatory challenge.

- (5) Sophocles, Oedipus at Colonus (472-473)

krateres eisin, andros eukheiros tekhne, hon krat'
 bowls are men deft skill of-which rim
 erepson kai labas amphistomous.
 cover-2nd.sing.aorist.imp.active and handle double-mouthed

There are bowls, the work of skilled men, whose rims and both handles you
 [must] cover.

While the verb in the relative clause in (5) is morphologically imperative, it is syntactically embedded and not performative. This suggests that performativity and imperative morphology are not as intimately linked in Ancient Greek as compared to English. Crucially, I argue below that this divorce between performativity and imperative morphology is not the result of language specific morphological variation unique to Ancient Greek, but rather part of a larger cross-linguistic pattern that can be explained in a principled way under the proposed analysis. If this analysis is on track, this suggests that the category ‘imperative’ is in fact a morpho-syntactic one, and not based on pragmatics, function, or sentence/clause type.

2.1.1 Specifying the Topic of Inquiry

In this chapter, the term ‘imperative’ is to be taken as a morpho-syntactic property, which applies only to verbs with imperative morphology (possibly null, as in English); in addition, the proposed analysis indicates that defining imperatives in morpho-syntactic terms is in fact necessary for cross-linguistic explanation. While a number of constructions which do not include morphologically imperative verbs are sometimes labeled ‘imperative’ due to their pragmatic functions, clauses which contain bona-fide morphologically imperative verbs are a rich topic of inquiry in their own right. This chapter therefore excludes from inquiry a number of different clause types and verb forms that can yield command or directive pragmatics cross-linguistically, such as infinitives, participles, declaratives, and others, because these lack imperative morphology.

Clauses with morphologically imperative verbs can result in a number of different pragmatic readings, such as command, advice, suggestion, among others (see e.g. Iatridou 2008, Portner 2007 for review). Clauses with morphological imperative verbs can even have the pragmatic interpretation of a prohibition in the right context (6).

(6) Take another step and I’ll shoot!

In (6), the clause ‘take another step,’ which contains an imperative verb, can be understood with a reading in which ‘taking another step’ is prohibited, not commanded.³ While developing a model of semantics/pragmatics which can accommodate the diverse pragmatic functions of imperatives is a rich area of current research (Iatridou 2008), there are nevertheless a handful of properties which distinguish clauses with morphologically imperative verbs from clauses with non-imperatives, regardless of their pragmatic function.⁴

The properties of morphological imperatives of special relevance for this paper concern issues which arguably involve the interface between syntax and semantics. These include:

- (7) a. The purported universal inability of grammars to syntactically embed clauses with imperative verbs; I re-cast this as a locus of cross-linguistic variation in this chapter
- b. The generalization that the grammatical subject of an imperative verb must refer to a subset of the addressee(s) (Downing 1969 and others; see also Potsdam 1998)
- c. The performative semantics of clauses with imperative verbs, which do not yield truth-conditional semantics (i.e. addressee(s) cannot respond with ‘that is true/false’)

One way in which some researchers (e.g. Han 2000, 2001, Zanuttini 2008) have attempted to unify (7a-c) is through a Directive Force operator (Han 2000, 2001) or a clausal projection associated with all and only directive force clauses (Zanuttini

³Interestingly, the ‘prohibition’ reading cannot occur with deontic modals such as ‘must’; e.g. “You must take another step and I’ll shoot.” Note also that the and-clause is generally taken to be required to obtain the prohibition reading; if this is the case, the prohibition reading cannot be licensed by imperative morphology alone.

⁴Note that bona-fide morphologically imperative verbs are sometimes referred to as ‘true imperatives’ (e.g. Iatridou 2011). This chapter is only concerned with such ‘true’ imperative verbs, where ‘true’ is understood as referring to their morpho-syntactic specification as imperatives, partially independent of their semantic/pragmatic interpretation.

2008) in the left periphery of clauses containing imperative verbs. I adopt aspects of these proposals, and explore how a Directive Force operator might interact with imperative morphology in light of (7a-c). Crucially, directive force is not to be equated with command pragmatics; rather, directive force is responsible for the performative nature of imperative clauses (7c), whether or not these are commands, suggestions, advice, or others. The label ‘directive force’ is therefore only meant to specify that the clause has specific performative properties (formally specified in chapter 3). In addition, for Zanuttini (2008) and Han (2000), all morphologically imperative verbs are associated with a Directive Force operator (Han) or syntactic projection associated with directive force (Zanuttini), regardless of pragmatic function.

One major question under debate with respect to imperatives is to what extent ‘force markers’ should be represented in the syntax of imperatives. In particular, if all imperative verbs were associated with a Directive Force operator (or related projection), such an operator might in fact be redundant with imperative verbs themselves, and therefore eliminable from a theory of imperatives (Portner 2004, 2007). Under this view, ‘imperative’ would become a semantic/pragmatic category of clauses/sentences, and the prohibition on embedding would be derived, under the conventional assumption that sentential force is a property of (only) matrix clauses (Chierchia and McConnell-Ginet 2000). However, contrary to the view that all imperatives are associated with directive force, I present evidence, primarily from Ancient Greek but also other languages, in which morphologically imperative verbs appear in embedded clauses, where they are unable to influence the sentential force of the matrix clause. I discuss the semantic contribution of such a ‘force marker’ and how this interacts with a morphologically imperative verb in chapters 3 and 4.

On the theoretical level, the data and analysis presented in this chapter support a model of grammar in which some left-peripheral element ‘types’ the sentence, interacting at the same time with language-specific morpho-syntactic properties (see also

Cheng 1991, Rizzi 1996 for interrogatives and Rivero and Terzi 1995, Han 2000 for directives). While I argue that all imperatives are associated with directive force in English and many other languages, in Ancient Greek and other languages with rich (person) imperative morphology, imperatives can but need not be associated with directive force. Under the analysis presented here, a Directive Force operator is necessary to license imperative morphology in English, while morphologically imperative verbs in Ancient Greek pattern syntactically with verbs of other modalities, such as indicative or subjunctive, and are only optionally associated with directive force.

I propose that the embedding available for Ancient Greek imperatives can be explained by appealing to the rich morphological imperative paradigm of Ancient Greek within the independently motivated analysis of Feature Transfer (Chomsky 2008), in conjunction with recent theoretical advances concerning the syntax and semantics of imperatives (e.g. Zanuttini 2008, Portner 2007). While the analysis touches on the semantics of imperatives as this relates to imperative morpho-syntax, my focus in this chapter is not on providing a new account of imperative semantics or pragmatics (this is the focus of chapter 3). Rather, the primary question I address in this chapter regards how to account for the syntactic distribution of imperative morphology, given that its distribution is subject to wider variation than once thought. In the analysis developed below, the relevant difference between Ancient Greek and English imperatives is one of syntactic subcategorization (c-selection), such that a phi-valued C may select imperative T in Ancient Greek, but not in English.

Feature Transfer (in which the ability of T to phi- and case-Agree with a local subject is dependent upon the properties of its local selecting C) is relevant in this context due to unique restrictions on the properties of imperative subjects in languages such as English. Because the local C-head which selects imperative T in English is devoid of uninterpretable phi-features in the analysis proposed here, the subject of English imperatives must refer to the addressee in a given discourse context, as

independently proposed by Zanuttini (2008). I propose that the main relevant difference between languages such as English and those such as Ancient Greek is whether or not a C head with (uninterpretable) phi-features can select morphosyntactically imperative T. Because Ancient Greek allows a phi-valued C to select imperative T, the semantic and syntactic restrictions observed for English imperative subjects (e.g. addressee-orientation) should not hold for Ancient Greek.

Crucially, the appeal to Feature Transfer is made in order to explain how a language learner may come to develop a grammar that patterns with either English or Ancient Greek with respect to imperatives. I provide additional cross-linguistic evidence that Ancient Greek is not alone in allowing embedded imperatives, and that the relevant empirical generalization is that only languages with rich person imperative morphology allow embedding in the relevant sense. Adopting Feature Transfer therefore provides a language acquisition mechanism to explain the observed cross-linguistic variation, while at the same time theoretically grounding the empirical generalization, yielding an (in principle) falsifiable hypothesis regarding the connection between overt morphological variation and the variation with respect to syntactic embedding.

This chapter is structured as follows. In section 2, I discuss data from Ancient Greek and English, adopting aspects of the analysis of English imperatives presented in Zanuttini (2008), who takes the unique interpretive restrictions on English imperative subjects to be primarily a syntactic phenomenon. Claims regarding embedded imperatives in languages such as Korean, English, and Old Scandinavian are also discussed, and are argued to be distinct from the Ancient Greek examples. In section 3, I show how adopting a Feature Transfer analysis offers an explanation in terms of learnability for the contrast with respect to embedding. In section 4, I extend the analysis to other languages which, like Ancient Greek, have relatively rich imperative paradigms; languages considered here include Slovenian, Kobon, and Bhojpuri. I also

discuss implications for the category ‘imperative’ in generative grammar, given the proposed analysis. Section 5 offers a brief conclusion.

2.2 A Morpho-Syntactic Approach

2.2.1 Ancient Greek Imperative Embedding Is Not Constrained by Properties of The Matrix Clause

The fact that Ancient Greek imperatives can occur in embedded clauses in ways not possible in English has been known for quite some time among classical philologists (Goodwin 1875, Smyth 1920). Rivero and Terzi (1995) discuss properties of matrix imperatives in Ancient Greek, noting that imperatives may embed in this language, although this is rare cross-linguistically; they suggest that the restriction against embedding in languages such as English “may not be syntactic” (ft. 13). In this chapter, however, I develop a morpho-syntactic approach to the difference between these two types of languages, deriving Rivero and Terzi’s observation that Ancient Greek imperatives have distributions similar to Ancient Greek verbs of other modalities, although imperatives in many languages have unique distributions with respect to clitics, negation, and other functional elements.

Ancient Greek, which has overt and distinct imperative verbal morphology for both the 2nd and 3rd person, allows imperatives to be embedded in both relative clauses and verbal complement clauses. Examples of imperative verbs in finite verbal complement clauses include (8) and (9).⁵

⁵The Ancient Greek examples reported here are discussed in one or more of the following grammars: Goodwin (1875), Gildersleeve (1900), and Smyth (1920). Due to the difficulty in translating sentences with embedded imperatives into English, I occasionally include an English modal such as ‘must’ in brackets. I attempt throughout to provide translations which are as literal as possible; in some cases I also included an additional literary translation where appropriate.

(8) Lysias Fragment 75.3 (2.3 in Bude edition)

edethe hekein auton epi komon, legon hoti meth' hautou kai ton oikeion
beg to-go him to party, saying that with him and his family
pieto
drink-3rd.sing.aor.imp.active

He begged him to go to a party, saying that he [must] drink with him and his family.

(9) Thucydides (4.92.7)

deixai hoti hon men ephientai pros tous me amunomenous epiontes
to-show that who while attack against those not defending attackers
ktasthon...
acquire-3rd.pl.pres.imp.mid/pass

To show that while attackers who attack against those not defending themselves [will] acquire (wealth)...⁶

In both (8)⁷ and (9), imperative verbs appear in clauses headed by *hoti* 'that,' following verbs in the matrix clause which correspond to English 'say' and 'show,' respectively. The imperative verbs in these clauses are 3rd person singular, aorist and in the active voice for (8), and 3rd person plural, present, and either middle or passive voice (forms for the two voices being identical) in (9). Note that none of the Ancient Greek examples include modals, although these are included in the translation for clarity.

Ancient Greek imperatives in relative clauses are also attested. In addition to examples from drama (5) and (10), the latter of which is somewhat idiomatic, prose examples include (11) and (12).

⁶This passage is translated by Thomas Hobbes as "let them see that though they may gain what they covet when they invade such as will not fight..."

⁷The Bude edition reads as above. Some editions have *oiketon* 'slave' instead of *oikeion* 'family,' although this discrepancy is independent of the imperative verb.

with respect to properties of the matrix verb and grammatical subject of the embedded imperative) beyond those which hold for embedding of other non-imperative finite verbs, such as e.g. sequence of tense restrictions. These Ancient Greek data show that embedding imperatives is in fact a possibility made available by UG and also suggests that restrictions on embedding in languages such as English are not due to language-general semantic or pragmatic constraints. As discussed below, an additional and somewhat surprising property of Ancient Greek imperatives is that the referent of the subject of the embedded imperative does not necessarily depend on the arguments of the verb which selects the relevant CP; e.g. in (9), an impersonal verb selects the CP with the embedded imperative.

Given that Ancient Greek imperatives can occur in relative clauses and finite complement clauses, which are all, by hypothesis, CPs (Alexiadou et al. 2000), Ancient Greek embedded imperatives are somewhat distinct from other cases of embedded imperatives that have been discussed in the literature. These include the following cases discussed by Platzack (2008) and Rognvaldsson (1998) for Old Scandinavian (13), Crniãnd Trinh (2008) for English (14,15), and Pak et al. (2007) for Korean (16).

- (13) Ger pu annadhvort ad pu sel pa fram ella munum ver brenna
do you either that you deliver.imp it up or will we burn
up baeinn.
up house-the
Either you deliver it or we will burn the house. (Old Scandinavian, Rognvaldsson 1998)
- (14) John said (*that) call Mary.
- (15) John said to Watson call Mary. (grammatical if Watson is being ordered to call Mary, ungrammatical otherwise)

- (16) John-i Tom-ekey [(**Ney/*Mary-ka*) cip-ey ka-la]-ko
 John-NOM Tom-DAT [(you/Mary-NOM) home-to go-IMP]-comp
 mal-ha-ess-ta.
 say-do-PAST-DEC
 (Intended meaning) John ordered Tom to go home. (Korean, Pak et al. 2007)

Examples (13-16) are syntactically constrained in ways that suggest these are typologically distinct from the Ancient Greek cases discussed above. For example, embedded imperatives in Old Scandinavian such as (13) are subject to several restrictions according to Platzack (2008). First, these are allowed only embedded under that-clauses with an overt complementizer, such as *ad* in (13). Second, the pronoun subject of the imperative is required to be overtly realized, even though pronominal subjects of matrix imperatives are generally null in Old Scandinavian. Crucially, in all of the data provided by Platzack (2008), the subject of the embedded imperative must be coreferent with the matrix subject and include the addressee (Rus, 2005).

Another example of an embedded imperative which, I argue, is distinct from the Ancient Greek type, appears in Korean (16), which has properties similar to that of the English (14, 15). While Korean embedded declarative subjects may be freely overt or null, subjects of embedded imperatives must be either null or, if overt, must co-refer to the referent of the matrix indirect object or a subset thereof, and must also be combined with a topic marker (Pak et al. 2007). The English example is also highly constrained; this embedding is only possible under the matrix verb *say*, and prohibits the inclusion of an overt complementizer. As (15) shows, English is like Korean in that the referent of the subject of the embedded imperative must co-refer with the referent of the matrix indirect object or subset thereof, if present.

Given the differences between the more syntactically constrained cases (13-16) and the less restricted Ancient Greek examples, I develop an analysis of embedded imperatives below which focuses exclusively on the ability to embed in CP clauses without restrictions on (especially) the subject of the embedded imperative (for formal

analysis of imperative subjects as in (16), see e.g. Zanuttini et al. 2012). In the next few sections I focus exclusively on differences between Ancient Greek and English with respect to imperative verbs embedded in CPs; in section 4, I show that Ancient Greek is not alone cross-linguistically in allowing the relevant embedding. I further argue that richness of imperative morphology is the relevant distinction between these two language types.

2.2.2 Encoding Aspects of Imperative Meaning in the Syntax

Ancient Greek imperative inflection is comparatively richer than English. Within the present and aorist tenses, Ancient Greek imperative verbs conjugate for second and third person, singular, dual, and plural, as well as active, middle, and passive voices, with the middle and passive paradigms exhibiting some morphologically identical forms (Smyth, 1920). Excluding the rare (and therefore possibly spurious) perfect forms, Ancient Greek imperatives are standardly assumed to appear in 30 morphologically distinct realizations (Smyth, 1920).

The morphological situation is quite different for English imperatives. English imperatives have a single morphological realization which corresponds to two interpretations, 2nd person singular and plural, both forms in present tense and active voice. According to the cross-linguistic typology of imperatives presented in Mauck (2005), English represents the norm in terms of morphological richness; the majority of languages in his sample have special forms for 2nd person imperatives only.¹¹

Having discussed some basic properties of Ancient Greek imperatives and reviewed imperative paradigms for both Ancient Greek and English, I now turn to some English data and their analysis as presented in Zanuttini (2008). While a full review of the

¹¹An explanation for why so few languages have rich imperative morphological paradigms, when these paradigms are clearly UG available, is certainly relevant but beyond the scope of this dissertation. While I take the position in this paper that the possibility to embed imperatives is a morpho-syntactic issue, it is possible that semantics and pragmatics have also played a role in the reduction of imperative paradigms from the diachronic perspective, resulting in languages such as Modern Greek, which has far fewer forms than Ancient Greek (Rivero and Terzi, 1995).

literature on English imperatives is outside the scope of this chapter, many of the data examined by Zanuttini are also discussed within the syntax literature by Rupp (1999), Potsdam (1998), and Beukema and Coopmans (1989), among others.

Zanuttini (2008) notes several interesting properties of subjects in ‘core’ imperative cases, where ‘core’ refers to those cases in which all speakers whom she consulted agree on the grammatical status of the examples. These properties mostly concern interpretive properties of subjects of English imperatives. While it is well known that English imperative subjects can be phonologically null, null subjects of non-imperative verbs must generally be either generic (17) or controlled (18). Yet imperative null pronominal subjects can be specific (19).

(17) PRO hiking is fun. = (<for people in general/*for Mary> hiking is fun)

(18) He likes PRO to hike. = (John likes <John/*Mary> to hike)

(19) pro sit down! = (<John/*people in general> is commanded to sit down)

Subjects in English imperatives such as (19) are neither generic nor discourse controlled, referring instead “to a (possibly singleton) set of addressees, or a set containing the addressee(s)” (Zanuttini, 2008); i.e. the grammatical subject of the imperative must refer to the addressee or one or more of a group of addressees.

Subjects of English imperatives have second person features, as shown by the fact that tag questions of imperatives with null subjects can only have 2nd person pronouns.

- (20) a. Raise your hand, won’t you.
b. *Raise your hand, won’t he.

Additional evidence for the claim that imperative subjects in English always have 2nd person features (possibly in addition to 3rd person features) comes from quantificational subjects. As Zanuttini points out, quantificational subjects of non-imperative sentences cannot bind 2nd person pronouns.

- (21) a. Everyone_i should/must raise his_i/her_i/their_i/*your_i hand.
 b. Someone_i should/must raise his_i/her_i/their_i/*your_i hand.

Quantificational subjects of imperatives, however, may bind both 2nd and 3rd person pronouns.

- (22) a. Everyone_i raise his_i/her_i/their_i/your_i hand.
 b. Someone_i raise his_i/her_i/their_i/your_i hand.

Zanuttini notes that some treatments of these data attribute the quantificational properties of English imperative subjects to semantic agreement, whereby the grammatical subject in the relevant cases semantically ‘controls’ the relevant pronouns, (Potsdam 1998, Farkas and Zec 1993, Pollard and Sag 1994), but that these approaches don’t account for why such semantic agreement is unavailable in declarative (21) and interrogative sentences, even when the subject is interpreted as the addressee (as is the case in imperatives) and a deontic modal is present (21a). Zanuttini ties the ability of quantificational subjects to bind 2nd person pronouns to agreement between a functional head in the left periphery (discussed at length below) with the null D-head of the quantificational subject. Zanuttini tentatively suggests that “null determiners in English lack a value for the person feature, and therefore can acquire one from a functional head.” While Zanuttini does not address the ability of quantificational subjects to also bind 3rd person pronouns, this presumably follows from either the nature of the D-head selected from the numeration or from 3rd person features inherent to the quantifier.¹²

Additionally, allowable core English imperative subjects include bare nouns and proper names. These too can bind 2nd person pronouns when imperative, whereas

¹²A *Syntax* reviewer points out that characterizing the relevant binding possibilities in terms of D-head properties may explain cross-linguistic differences; not all languages allow quantificational subjects to bind 2nd person pronouns.

such binding is excluded for non-imperatives.¹³

- (23) a. Boys_i are often *your_i/their_i own worst enemy.
b. Boys_i raise your_i hands.
c. Gabriel_i combed her_{i,j}/*your_i hair, while Dani_j put on her_{i,j}/*your_i shoes.
d. Gabriel_i comb your_i hair, Dani_j put on your_j shoes.

In sum, Zanuttini (2008) argues that English imperative subjects have the following two related properties; they always have second person features and are always addressee oriented, based upon the English data presented above and additional data not included here (see Zanuttini 2008, p. 187-195).¹⁴

In addition to having second person features, Zanuttini (2008) follows Portner (2007) in suggesting that imperative subjects do not form a predicate with the imperative verb. Consider for a moment the relationship between deontic modals and imperatives; Portner (2007) notes that “the variety of subtypes of imperative clauses parallels the range of interpretations of modal verbs, in particular, priority modals,” in which ‘priority modals’ is taken to mean a range of modal types including deontic (i.e. what is possible or necessary given what is certain norms or rules), bouletic (i.e. what is possible or necessary given someone’s desires) , and teleological (i.e. what is possible or necessary relative to some goal) (note that Portner does not analyze imperatives as a kind of modal; his approach is reviewed in chapter 3). For example, consider the following pairs, based on similar data presented by Portner:

- (24) a. Sit down now!
b. Watson must sit down now! (order)

¹³Zanuttini (2008) is careful to distinguish imperative subjects like those in (20-21) from subjects of vocatives; see also Moro (2003).

¹⁴However, the ability of English imperatives to have quantificational and proper name subjects is not traditionally taken to mean that English imperative verbs can be morphologically 3rd person; note that the obligatory interpretation of an imperative null subject is 2nd person, and that English imperatives disallow many kinds of non-quantificational 3rd person NP/DPs as subjects, e.g. pronouns.

- (25) a. Have a piece of this tasty bread!
 b. Watson must have a piece of this tasty bread! (invitation)
- (26) a. Talk to your advisor more often!
 b. Watson really must talk to his advisor more often! (suggestion, advice)

In (24-26), the (a) examples differ from the (b) examples in that only in the (b) examples can an interlocutor plausibly respond ‘that’s true’ or ‘that’s false,’ which suggests that imperative clauses, such as the (a) examples, are not subject to conventional truth-conditional semantics, but are instead performative in nature, an intuition adopted here as well. Nevertheless, the parallels in meaning between the imperative and the modal sentences (24-26) have led some (e.g. Schwager 2006) to suggest that imperatives contain covert deontic modals. Following Ninan (2005), Portner (2007) suggests that “the interpretation of deontic ‘must’ in root clauses shows that it has a performative, imperative-like component of meaning in addition to its ordinary truth-conditional modal meaning.” When deontic must appears in non-root (i.e. embedded) clauses, it loses its performative meaning but maintains its truth conditional semantics (27).

- (27) Since John must go to confession, he should find a church soon.

On Portner’s (2007) account, the primary difference between root imperatives (i.e. all English imperatives) and deontic modals is that modal sentences “can be called ‘true’ or ‘false’, while imperatives intuitively cannot.” Consider (24b); the speaker in this case may be mistaken regarding e.g. the order to sit, such that truth conditional semantics can be applied in a conventional fashion. On the other hand, a response of “that’s false” to (24a) would be infelicitous. One way of formalizing this kind of semantics is pursued in Portner (2004, 2007) by means of the ‘To-do list’, a storage site for imperatives in the pragmatic component of the grammar (see also Iatridou 2008

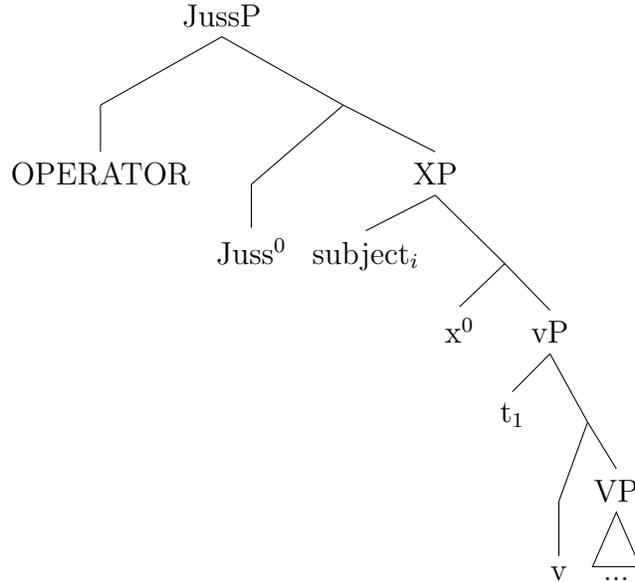
for extensive discussion). I further explore issues relevant for imperative semantics in chapter 3.

To account for restrictions on both imperative subjects and the inability of imperative clauses to be interpreted truth-conditionally, Zanuttini proposes that English imperatives are headed by a Jussive Phrase, which hosts the relevant semantic operator necessary to derive addressee-orientation (Zanuttini does not claim, however, that the Jussive Phrase contains a Directive Force operator). Specifically, “the Jussive Phrase has an operator in its specifier that acts as a lambda operator and abstracts over the subject” (Zanuttini 2008).

Adopting the Agree relationship proposed in Chomsky (2000) and modified by Pesetsky and Torrego (2007), who crucially argue that the probe for Agree need not have uninterpretable features, Zanuttini proposes that the head of the Jussive Phrase hosts interpretable 2nd person phi-features and is able to check/value case. When the Jussive Phrase is the most local probe and undergoes Agree with the subject of an English imperative, the subject’s uninterpretable case feature is valued for nominative (Zanuttini assumes an imperative clause structure lacking a node (e.g. T or Infl) which can case-value the subject independently; I recast this below as a point of cross-linguistic variation within the theory of Feature Transfer). Crucially for Zanuttini, undergoing Agree with the head of the Jussive Phrase causes the subject of the imperative to be valued for 2nd person features. This mechanism allows quantificational (22) and other inherently 3rd person (23) subjects to bind both 2nd and 3rd person pronouns just in case the main verb is morphologically imperative, because T is unable to phi-agree with the subject in jussive clauses.

Assuming, then, that English imperatives originate in VP and that subjects in these structures must raise to some higher projection (discussed below), Zanuttini proposes the structure in (28).

(28) Structure of English Imperative in Zanuttini (2008)



Within Zanuttini's system, Jussive Phrases have the following four properties:

- The Jussive Phrase heads all and only directive clauses (including all clauses with imperatives), although it has no directive force operator.
- Jussive⁰ lexically bears (only) interpretable 2nd person features.
- A lambda operator in Spec, Jussive Phrase abstracts over the subject, taking as input a proposition, consisting of the predicate saturated by the subject, and yielding a property as output.
- Given the properties of Jussive and the lambda operator in Spec, JP, Jussive Phrases are addressee oriented; this yields the 2nd person interpretation of imperatives in English (and, apparently, most languages (Zanuttini 2008)).

I return to Zanuttini's characterization of the Jussive Phrase below, amending her proposed structure of clauses headed by imperative verbs. First, however, I turn to properties of XP in (28).

Although Zanuttini remains agnostic as to the label of XP in (28), XP crucially has the following two properties: i) X attracts the subject to its specifier (where

the subject can undergo Agree with the head of the Jussive Phrase) and ii) X does not phi-Agree with the subject in Spec, XP. Given these properties, the trigger for movement to X must be an EPP feature, an argument I empirically motivate below. If X in (28) were able to agree with the subject (as in does with T^0 in e.g. finite indicatives), imperative subjects such as ‘everyone’ would be unable to acquire 2nd person features from Jussive, contrary to fact.¹⁵

Under Zanuttini’s analysis, the subject movement in (28) is purely structural, i.e. due to the EPP. That movement does indeed take place is independently confirmed by several tests (see also Potsdam, 1998). For example, Beukema and Coopmans (1989) argue that subjects of imperatives are in Spec, IP at S-Structure under their analysis of do-support in negative imperatives; Beukema and Coopmans claim that *don’t* in imperative clauses is in COMP based on (29).

- (29) a. You don’t write very often.
 b. *You don’t be foolish.
 c. Don’t you (ever) write. (compare You don’t ever write.)
 d. Don’t anybody ever forget that.
 e. [_{CP} Don’t [_{TP} anybody [_{T’} t_T [_{vP} ever [_{vP} t_{subj} [_{v’} forget...]]]]]]]

(29a-c) show that the structural position of *don’t* in imperatives differs from declaratives (29a). (29c) shows that the subject of the imperative is in Spec, TP, or at least some position higher than vP, given standard assumptions about the structural position of vP adverbs such as *ever*. Since the subject is in a vP external position, the position of *don’t* in (29c,d) is taken to be in the left-periphery. If *don’t* is in COMP and we assume that subjects are in Spec, TP, then we correctly predict that VP internal adverbs like *ever* will appear between the subject and the lexical verb (29c,d)

¹⁵Crucially for Zanuttini, the Jussive Phrase is required to license imperative morphology in English; if the C and T heads that select indicative morphology were able to license imperative morphology, we would expect there to be no special restrictions on English imperative subjects.

in a structure corresponding to (29e).

Additional independent evidence for subject raising in imperatives involves tag questions, already briefly discussed in (20) above. I assume first that the subject of a tag question (in any modality) must co-refer with the subject of the matrix clause (30).

- (30) a. Raise your hand, won't you?
b. *Raise your hand, won't they?
c. There's a man in the room, isn't there?
d. *There's a man in the room, isn't he?

Further, I argue that the subject of the tag question must correspond with a matrix subject that is in Spec, TP. Evidence for this claim can be found in existential constructions such as (30); only the pronominal equivalent of the subject in Spec, TP (i.e. *there*) is available for the tag question. If this analysis is on the right track, then the null matrix subject of (30a) is in Spec, TP, providing evidence that subject movement occurs in imperative clauses.

2.2.3 TP and CP in Imperative Clause Structure

In this section, I propose that many of the advantages of Zanuttini's (2008) system can be captured with syntactic projections that are not specific to imperative verbs or other jussive-type clauses. In particular, I adopt a representation of imperative clause structure which is closer to that presented in Han (2000, 2001), but with derivational properties similar to that proposed by Zanuttini. Returning now to (28), note that a functional head with the properties of Zanuttini's XP has been proposed independently of the grammar of imperatives, namely the Tense head in raising/ECM constructions, which by hypothesis has only an EPP feature (see e.g. Chomsky 2008 for discussion). In order to provide a maximally general grammar of imperatives while

maintaining the aspects of Zanuttini's system which are responsible for endowing subjects of English imperatives with 2nd person features, I propose that XP in (28) is a phi-less and case-less T (but which has an EPP feature). Given the nature of Agree as proposed by Chomsky (2000), a T lacking phi-features will also be unable to value case, meaning that the subject, once raised to Spec,TP, will be available to undergo Agree with the head of JussiveP (or a similar projection). As discussed above, Agree between the subject and the head of JussiveP results in nominative case valuation and 2nd person features on the subject in Zanuttini's proposal.

I additionally suggest that the advantages of Zanuttini's (2008) system, which assumes an expanded left-periphery in the sense of Rizzi (1997), may be captured without making reference to the Jussive Phrase and, as discussed above, by specifying Zanuttini's XP as a TP projection of phi-less T. The same facts about imperative interpretation (i.e. that they are addressee oriented, have second person subjects, and are preformative) can be captured by appeal to a C head with interpretable 2nd person features (like Zanuttini's Jussive), but with a Directive Force operator in its head.

The idea that a Directive Force operator is present in the syntax and occurs in C is not novel. In particular, Han (2001) advances several arguments suggesting this in her study of cross-linguistic asymmetries of imperatives under negation. I repeat one of her arguments here. Han (2001) discusses work by den Besten (1989) on the placement of verbs in polar (i.e. yes-no) questions as this relates to imperative word order. First, Han notes that the word order of yes-no questions matches the word order of imperatives in German, suggesting that the position of the imperative verb in German is the same as that in polar questions. According to den Besten (1989), the verb in German polar questions is in C based on the placement of weak object pronouns. For example, in embedded declaratives (31a) and in polar questions (31b), such pronouns can occur either before or after the subject.

- (31) a. ..., dass (ihm) Karl (ihm) ein Buch geschenkt hat.
 ..., that to-him Karl to-him a book given has
 ..., that Karl has given a book to him.
- b. Werden (sich) diese Leute (sich) verteidigen?
 will themselves these people themselves defend
 Will these people defend themselves?

According to den Besten (1989), the fronted verb in polar questions is in C, under the assumption that the possible positions for weak object pronouns are the same in both embedded declaratives (31a) and polar questions (31b) (also assuming that *dass* is in C).

Han (2001) then observes that imperative verbs behave in the same fashion as (31) with respect to weak object pronouns.

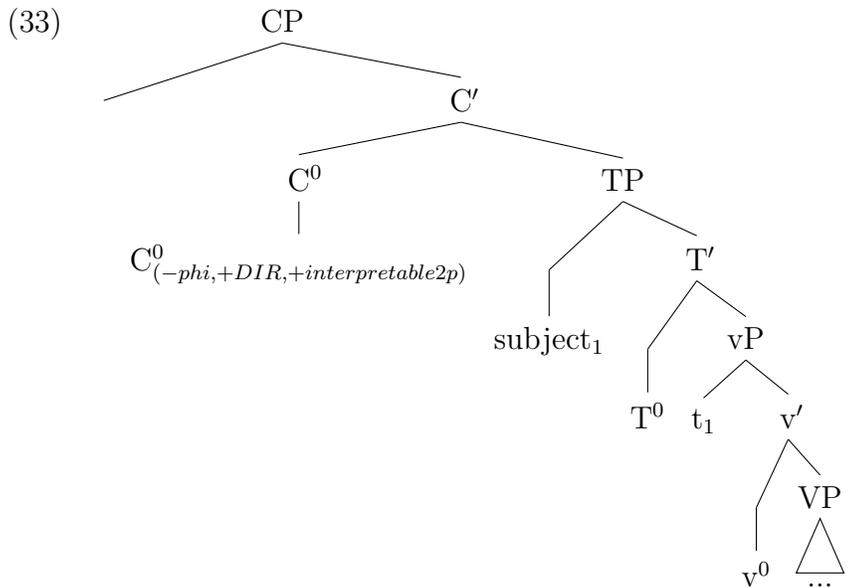
- (32) a. Schreib (es) du (es) heute!
 write it you it today
 You write it today!
- b. [_{CP} [OP_{directive}+ [T+V]] [_{TP} SUBJ [_{T'} t_[T+V] ...]]]

Han argues that the imperative verb in (32a) undergoes head movement analogous to that observed in (31), concluding that this movement to C is triggered by a Directive Force operator in that position, as in (32b), in which the verb undergoes head movement to C⁰ through T⁰, triggered by the directive force operator (see Han (2001) for additional argumentation, especially with respect to clitics; this topic is also discussed in chapter 4).

While I agree with Han (2001) that a Directive Force operator is located in the head position of a left-peripheral syntactic projection of imperatives, I also agree with Zanuttini (2008) that this left-peripheral head contains interpretable 2nd person features and can undergo Agree with the subject of the imperative clause, provided the subject and relevant head occur in a local relation (again assuming subject raising for EPP satisfaction). I also concur with Zanuttini that the head which attracts the

imperative subject (her XP as in (28), which I define as TP) should not be able to independently undergo Agree with the imperative subject (in English), which is to say that this XP/TP has no phi-feature content.

Looking ahead to the following section’s Feature Transfer analysis, this means that both C and T will be devoid of uninterpretable phi-features (i.e. T will not be able to case-value the subject). I propose, therefore, that the clause structure of an English imperative is (33), in which C hosts interpretable 2nd person features along with a Directive Force operator.



(33) encodes facts about imperative interpretation into the syntax of imperatives, following closely the analysis presented in Zanuttini (2008), while also capturing evidence concerning subject raising (29,30). Crucial for both Zanuttini’s and my analysis is the hypothesis that the head of CP/JussiveP values the subject for second person features; this is to say that the Directive Force operator is addressee-oriented and 2nd person, given the presence of interpretable 2nd person features. Since T in (33) or X in (28) is devoid of phi-features, the subject undergoes Agree with the directive operator (and not T), yielding the performative force of English imperatives.

However, (33) offers some conceptual and empirical advantages over Zanuttini’s

(2008) analysis, which argues for (28) as the structure of English imperatives. First, (33) is explicit about the categorical status of the head which attracts the subject to a specifier position; this is identified as a T head similar to that proposed for raising/ECM constructions in Chomsky (2008) with respect to phi-feature content (note that this head is not identical with raising/ECM T, as discussed below). Additionally, (33) assumes that a Directive Force operator is in the C position, essentially following the representation of imperatives in Han (2000, 2001), allowing Han's analysis of negated imperatives to be maintained within the current proposal (see also footnote 15, above). Further empirical advantages with respect to Ancient Greek are discussed below.

The nature of directive force also raises questions as to the featural content of the head of the Jussive Phrase within Zanuttini's system. While I do not develop a new analysis of imperative semantics in this chapter, I tentatively follow Han in assuming that the Directive Force operator contains at least some semantic features (for Han these are +[directive] and +[irrealis], although I offer a different characterization here and in the following chapters). In Zanuttini's model, Jussive⁰ contains only interpretable syntactic features, but no semantic features. This is somewhat puzzling, given that all directive clauses are headed by a Jussive Phrase; within Zanuttini's system, the only feature relevant for semantic interpretation which distinguishes JussiveP is in a specifier position. If Jussive⁰ is devoid of any semantic features, with only a semantic operator in its specifier, one wonders if and how Jussive⁰ c-selects a TP (XP for Zanuttini) that contains an imperative verb, and conversely, why Jussive⁰ is (correctly) barred from selecting non-directive clauses.

To conclude this section, I proposed (33) as the structure for English imperatives, considering proposals by Han (2000, 2001) and Zanuttini (2008), who argue that the syntax of imperatives in English should encode aspects of interpretation. I formalized this by a Directive Force operator, which I located in C, following Han (2000, 2001).

(33) therefore accounts for facts about imperative subjects and the type of word-order effects discussed by Han, without recourse to a projection unique to directive clauses. In the next section I argue that (33) is the only structure in which we may expect to find imperatives in languages such as English, where the imperative morphological paradigm is relatively impoverished.

2.3 Extending Feature Transfer to Imperatives

In this section, I argue that the difference between English and Ancient Greek with respect to the grammar of embedded imperatives (allowed only in the latter) can be characterized in terms of c-selection and agreement. While I have adopted a representation of English imperative clauses resembling that of Han (2000, 2001), I argue that the derivation of an English imperative clause proceeds along the lines proposed by Zanuttini (2008), by which T is devoid of phi-feature content and the subject undergoes case- and phi-agree with the head of a left-peripheral projection. I identified this element as a C which contains a Directive Force operator and also interpretable 2nd person features.¹⁶

On the other hand, I will argue (following the intuition of Rivero and Terzi 1995) that Ancient Greek imperatives pattern with other finite verbs in this language, and are selected by a C that contains uninterpretable phi-features which are then transferred to T by the operation Feature Transfer (Chomsky 2008). Feature Transfer cannot apply to the interpretable, 2nd person features associated with the directive force operator in the proposed analysis of English, since these phi-features do not meet the structural description of the operation; namely, the relevant head contains interpretable 2nd person features, while Feature Transfer applies to uninterpretable phi-features only.¹⁷ To the extent that Feature Transfer cannot apply to English-type

¹⁶Recall that, following Zanuttini, I adopt the Agree relationship proposed by Pesetsky and Torrego (2007), according to whom Agree does not require uninterpretable features.

¹⁷The idea that uninterpretable phi-features are subject to Feature Transfer is empirically moti-

imperatives, an explanation is forthcoming for why imperatives in English must be licensed by a special directive operator (Han) or projection (Zanuttini).

Under the assumption that any first language learner can acquire any natural language, adopting Feature Transfer provides a mechanism by which the learner can distinguish between the two language types based on overt morphological evidence. This offers a principled way to explain the observation that Ancient Greek imperatives do not have unique syntax as compared to other modalities (i.e. they can be embedded). Further, adopting Feature Transfer provides a means to go beyond a construction-specific characterization of the two grammars by offering a falsifiable hypothesis regarding the availability of embedded imperatives in CP-headed clauses (e.g. relative and verbal complement clauses). In this section, I first review Feature Transfer, and then apply it to characterize the difference in selectional properties between English and Ancient Greek.

2.3.1 Feature Transfer and Selection

The theory of Feature Transfer was proposed by Chomsky (2007, 2008; see also Richards 2007) to offer an explanatory, non-lexical account for the empirical generalization that raising/ECM T differs from finite/control T, in that raising T is unable to value case- and phi-features on the subject. Chomsky achieves this by assuming that T is not specified for phi-features in the lexicon, but rather inherits phi-features from C. In other words, T is unable to act as a phi-probe without a local, c-commanding C head that selects it, such that “the availability of C determines the potential of T” (Obata and Epstein, 2008). Within Feature Transfer, then, the crucial difference between English finite T and English raising/ECM T is one of selection; the former is selected by C while the latter is not. In other words, finite T in English is always

vated by e.g. suppression of certain subject island effects (Chomsky 2008, p. 147); this does not entail, however, that all features on C should be subject to Feature Transfer. In particular, interpretable features in general (including e.g. category features but also interpretable person features, if present) would presumably not be subject to Feature Transfer.

selected by a C head that contains uninterpretable phi-features; once these uninterpretable phi-features are transferred to T, the subject of a finite clause can case- and phi-Agree with T (construing case-agreement as a reflex of phi-agreement).¹⁸

A prediction of this theory is that an embedded T will have phi-features only if selected by C which bears phi-features (34a,b), but will lack phi-features when not (34c,d).

- (34) a. I believe [_{CP} (that) [_{TP} Mary is smart]].
 b. It seems [_{CP} (that) [_{TP} Mary is smart]].
 c. I believe [_{TP} Mary to be smart]].
 d. Mary seems [_{TP} t_{Mary} to be smart]].

In this section, I extend this Feature Transfer analysis to the domain of imperatives in order to explain the contrast between English and Ancient Greek imperatives discussed above; to the extent that this analysis is successful, it also lends support to the Feature Transfer theory by increasing its empirical coverage.

Consider again the structure of English imperatives proposed by Zanuttini (28). According to this analysis, both the head of JussiveP and the head of XP are devoid of uninterpretable phi-features, and the subject of the imperative undergoes Agree with the interpretable 2nd person features in Jussive⁰ (note that I follow Zanuttini and others (e.g. Potsdam 1998) in assuming that the subject of an imperative clause needs to be case-valued, even when null). Within this system, Zanuttini derives the fact that English imperative subjects have 2nd person features. This is so because the subject of the imperative must undergo Agree with the higher head (above Zanuttini's Spec,

¹⁸Note that even for Chomsky's (2008) proposal, a distinction must be made between C which bears uninterpretable phi-features and a C which does not, to account for data such as (i):

- (i) I prefer for John to go.

Under the standard analysis, the embedded clause is a CP, but nevertheless non-finite. Given (i), the crucial relationship in Feature Transfer theory is in fact selection; only phi-bearing C can select finite T. This point will be relevant for the analysis developed below.

XP hosting the subject); crucially, the head of XP in Zanuttini’s system is unable to case and phi-Agree with the subject of the imperative clause. If we can assume that JussiveP = a CP without uninterpretable phi-features (though with *interpretable 2nd* person features) and XP = TP, as argued above, the fact that X cannot phi-agree with the subject (in English) is deduced within the Feature Transfer model, since X⁰ in (28) or T⁰ in (33) is devoid of phi-features.¹⁹

However, I argue that in a subset of languages, a C-head endowed with uninterpretable phi-features (i.e. ‘normal’ finite C⁰) selects imperative T. In this case, imperative subjects would not be constrained by the properties of a directive C-head which does not bear uninterpretable phi-features but does bear interpretable *2nd* person features. Crucially, in a language in which a C-head with uninterpretable phi-features can select imperative T, T could phi- and case-agree with the subject, allowing imperative embedding. I argue that this selectional relationship between a C-head bearing uninterpretable phi-features and T is allowed in Ancient Greek, while this is prohibited in English.

To see how Feature Transfer can account for the difference between English and Ancient Greek both with respect to subject restrictions and CP-embedding, consider another Ancient Greek example with imperative verbs in both the matrix and embedded clause. Recall that a long-standing generalization among researchers on imperatives is that subjects of imperative clauses must refer to a sub-set of the addressee(s), a fact that is related to jussive force in Zanuttini’s analysis.

¹⁹This proposal fits into a larger class of analyses regarding functional projections within imperatives. For example Rupp (1999) and Jensen (2003) propose a special imperative Infl/T and Bennis (2006) a special imperative C. Appealing to Feature Transfer makes it possible to deduce some of these properties.

in-depth discussion of English imperative interpretation), and that this property of English imperatives should be related to the prohibition on embedding. Given this contrast, an adequate account of imperative syntax should offer an explanation as to why Ancient Greek allows imperatives in embedded clauses, while English does not.

2.3.2 Learning the Distinction from Primary Linguistic Data

As concerns the learnability of this difference between Ancient Greek and English, it is standardly expected that child learners do not receive negative evidence such as (36a). Given this, the difference between the two grammars must be learned from other overt morpho-syntactic data that are available to the learner. Further, we should like to explain why English TPs that contain an imperative verb must be associated with a special left-peripheral head or phrase under the analyses offered by Han (2000), Zanuttini (2008), and the proposal in this paper.

I propose that the relevant morpho-syntactic difference between these two languages is the imperative paradigm, which, as discussed above, is relatively rich in Ancient Greek and relatively poor in English. Because imperative subjects have 2nd person features by default within the directive force analysis developed above, I argue that ‘rich imperative morphology’ in this context is defined as having overt and distinct morphological imperative verb forms beyond the 2nd person.

In order to leverage the difference between the Ancient Greek and English imperative paradigms within the theory of Feature Transfer, consider again the structure proposed in (33) for English root imperatives. Imperative T in (33) is selected by a C head without uninterpretable phi-features, but with both a Directive Force operator and interpretable 2nd person features; I will call this C_{dir} for ease of exposition. Because C_{dir} contains, by definition, a speech act operator, it may only appear in root clauses, following the conventional approach to speech act operators as discussed by e.g. Sadock and Zwicky (1985). Ancient Greek imperatives, on the other hand,

can appear in embedded CPs such as relative clauses and finite verbal complement clauses, which are headed by phi-complete C heads under Chomsky’s independently motivated (2008) Feature Transfer analysis. For the sake of exposition, I will refer to a C head containing unvalued phi-features as C[+phi]; I restate the two types of relevant C heads in (37).

- (37) a. C_{dir} = a C head with interpretable 2nd person features and a Directive Force operator
 b. $C_{[+phi]}$ = a C head with uninterpretable phi-features (subject to Feature Transfer)

Maintaining Chomsky’s intuition that the phi-feature properties of T are completely dependent upon the properties of the C that selects it, I propose the following contrast, which distinguishes languages which disallow embedded imperatives (English) and those which allow them (Ancient Greek).

- (38) a. $C_{[+phi]}$ cannot select imperative T (English)
 b. $C_{[+phi]}$ can select imperative T (Ancient Greek)

I also assume that ‘imperative T’ hosts at least some specification for mood and/or tense, either present or irrealis future (I argue specifically for a modal meaning associated with T in chapter 3).²⁰ Note that in the context of Feature Transfer, we need not assume that T is devoid of all features in the lexicon, as Feature Transfer only concerns phi-features. In particular, if we were to assume that T is devoid of features altogether “it is not clear what would be the status of an LI [lexical item]

²⁰Rivero and Terzi (1995) similarly argue that mood features are in INFL for Ancient Greek. The current proposal may also help explain a further aspect of the analysis in Rivero and Terzi (1995); they, and others (e.g. Han 2000) have noted that imperative verbs in Ancient Greek can appear in T, while these cannot in Modern Greek (which has only 2nd person imperatives), in which imperatives must raise to C. Feature Transfer may help explain this fact, since this analysis predicts that T in Ancient Greek behaves like T in other non-imperative modalities, while T in Modern Greek has unique syntax. I thank an anonymous *Syntax* reviewer for this observation.

with no features (one of the problems with postulating Agr and other null elements)” (Chomsky 2007).

Considering (38) from the perspective of learnability, suppose that the learner advances the most restrictive hypothesis about selection given the available data in accordance with the Subset Principle (see e.g. Wexler and Culicover, 1980). Accordingly, the child learner begins with (38a). For the case of the child learning English, there will be evidence that e.g. indicative finite T assigns nominative case, has a range of tense and aspect feature values, with some person and number agreement, with minimal restrictions on possible subjects; these facts motivate the hypothesis by the learner that indicative T in English is selected by $C_{[+phi]}$. Available data for the English imperative, a relatively common construction in child directed English (Cameron-Faulkner et al. 2003), is quite different. In English, imperatives have only one morphological form, and the subject of an imperative clause uniformly has 2nd person features (see discussion of English imperative subjects in section 2.2.2.). In essence, there is no principled reason for child learners of English to reject the initial hypothesis (38a).

While the Ancient Greek learner also starts with the most restrictive hypothesis (38a), the rich imperative paradigm in Ancient Greek provides evidence that the restrictive hypothesis is in fact not correct, and the Ancient Greek learner will revise their hypothesis to (38b). As a result, child learners of Ancient Greek will develop a grammar in which imperative T patterns with finite indicative T, yielding the observation made by Rivero and Terzi (1995) that Ancient Greek has “imperative V’s that distribute like any other V” (they do not extend their analysis to embedded imperatives, however).

Consider (38) again in the context of learnability. Given the positive evidence available, the child learner either maintains (38a) or develops (38b). However, for the grammar (alternatively, child) which maintains the more restrictive (38a), such as

English, morphologically impoverished imperatives and restrictions on embedding are the result of $C_{[+phi]}$ being unavailable as a possible selector for imperative T under the proposed Feature Transfer analysis. The grammar which adopts the less restrictive (38b), such as Ancient Greek, will have imperative clauses which have a syntactic distribution more akin to other phi-complete structures, and specifically with respect to syntactic embedding. To the extent that $C_{[+phi]}$ cannot select TPs containing imperative verbs in English-type languages, we have explained why imperatives in English require a licensing head (or phrase, in the analysis of Zanuttini) unique to directive clauses.²¹ Because the licensing mechanism for indicatives, subjunctives, etc. is unable to apply to imperatives in English, the observation that all imperative verbs are associated with directive force (in English) is derived.

2.3.3 Syntactic Licensing and Consequences for Imperative Interpretation in Ancient Greek

The analysis presented above follows Zanuttini’s (2008) intuition that a functional head on the left periphery is associated with imperative morphology in English, undergoing agreement with the imperative clause subject. I argued (contra Zanuttini) that this functional head is C_{dir} , which lacks uninterpretable phi-features but contains a Directive Force operator and interpretable 2nd person phi-features. I conjecture that C_{dir} is universally able to license imperative morphology, although Directive Force is restricted to root clauses, and that C_{dir} is in fact required to license imperative verbs in English.

I also propose that $C_{[+phi]}$ can license imperative morphology in some languages, but that this is postulated only by learners who are exposed to rich imperative morphology (with minimal restrictions on imperative subjects, discussed below). Because C_{dir} values imperative subjects for second person by definition, I take ‘rich’ imperative

²¹While the licensing head for English-type languages is unique to directive clauses, note that it is available as a default setting under the subset principle, and is widely available given UG.

morphology to mean an imperative paradigm with forms beyond the second person. Under this analysis, the only difference between (the adult-state grammar of) Ancient Greek and English with respect to imperatives is whether or not $C_{[+phi]}$ is available to select imperative T. This analysis is consistent with the ‘Borer-Chomsky Conjecture’ (Borer 1984, Chomsky 1986, see also Baker 2008) that the locus of syntactic variation is feature content on functional heads.

Crucially, the selectional differences defined in (38) refer only to the phi-feature content of the selecting C. This allows directive force to be associated with $C_{[+phi]}$ in clauses that are both directive and which exhibit agreement between T and the subject in Spec, TP. Although space limits me from a full discussion of this phenomenon, this recasts another intuition presented in Zanuttini (2008), which argues that while JussiveP is associated with all imperatives, JussiveP can also head clauses with non-imperative verbs but with directive interpretation. These include, for example, Italian directive sentences with quantificational or referential subjects, in which a subjunctive verb is required (39).

- (39) Nessuno si muova!
 nobody self move_{subj}.
 Nobody move!’

As Zanuttini points out with respect to (39), “the verb is inflected; this makes it plausible to think that the sentence must have a functional head with person features ... blocking the Agree relation between it and the Jussive Head.” Recall that in the model developed here, clauses like (39) are not headed by JussiveP, but rather by a CP headed by a C with both unvalued phi-features (subject to Feature Transfer) and a Directive Force operator: $C_{[+phi,+DIR]}$.

Returning to morphological imperatives, (40) represents licensing possibilities for Ancient Greek and English imperatives.

- (40) a. English root imperative (C_{dir} selects T): [$_{CP} C_{[-phi,+DIR]} [_{TP} DP T_{imp} [_{VP} \dots]]]$]]
- b. Ancient Greek directive imperative ($C_{[+phi,+DIR]}$ selects T): [$_{CP} C_{[+phi,+DIR]} [_{TP} DP T_{imp} [_{VP} \dots]]]$]]
- c. Ancient Greek non-directive imperative ($C_{[+phi]}$ selects T): [$_{CP} C_{[+phi]} [_{TP} DP T_{imp} [_{VP} \dots]]]$]]

(40a) represents all English clauses with morphological imperatives, and accounts for the unique ability of quantificational and proper noun subjects to bind 2nd person pronouns in English only in case the main verb is an imperative (21-32). Because of the nature of the Directive Force operator in (40a), this clause cannot be embedded; this is essentially the same mechanism employed by Han (2000) to prohibit embedded imperatives in English and other languages. In addition, given that C_{dir} has interpretable 2nd person features which the subject must agree with in order to be case valued, (40a) also derives the addressee-orientation of imperative subjects.

(40b) represents directive imperatives in Ancient Greek, for example the matrix clause imperative in (35). The mechanism by which the imperative verb is associated with directive force is essentially the same as for English imperatives. The prediction here is that (some) matrix imperatives in Ancient Greek are both directive (i.e. performative, such that they cannot be called ‘true or false’ in the sense of Portner 2007), but that these also have a syntax which is unremarkable from the perspective of the other moods, such as indicative. As discussed above, this is exactly the conclusion reached by Rivero and Terzi (1995) in their study of matrix Ancient Greek imperatives.

b. Thoas:

son to semainein tode
you those give-pres.inf.active this

You are to give this instruction. / It is for you to make it known.

In (41a), an embedded imperative occurs in a relative clause, much like in example (10) above. Despite the presence of an imperative, the sentence is interpreted as a question, as the response in (41b) shows. While developing a complete semantic analysis for imperatives that can cover these data is beyond the scope of this chapter, the imperatives in the embedded clauses discussed here indicate that the imperative verb (or imperative verbal morphology) itself is associated with semantic features independent of a system of clause types (contra Portner 2004). Instead, it is likely that imperative verbal morphology is associated with a modal (possibly along the lines of Schwager 2006), which may interact with a directive force operator (obligatory in English, optional in Ancient Greek), if present. In the next chapters, I argue that a system of clause types is motivated independently of morphological imperatives, and I explore how a modal treatment of imperative verbs might interact with system of clause types.

Possibly more intriguing are Ancient Greek examples in which an imperative stands in a root clause but appears to lack directive force. Addressee-orientation may be used as a diagnostic of directive force; if the subject of an imperative is not addressee-oriented, it is reasonable to suspect that the imperative is not directive (see (35) for a non-addressee oriented imperative in an embedded context). This should be possible for matrix Ancient Greek imperatives (but not English), if $C_{[+phi]}$ can license imperative morphology. (42) confirms this prediction.

(42) Plato Symposium 201c

ego, phanai, o Sokrates, soi ouk an dunaimen antilegein,
I say VOC Socrates me not APODOSIS be-able to-contradict
all' houtos ekheto hos su legeis
but in-this-way be-3rd.sing.pres.imper.act as you say

I, he said, see no way to contradict you, Socrates, but [let] it be this way as you say.

In this example, the 3rd person subject of the imperative (which is phonetically null and translated as ‘it’ in this example) refers to a philosophical point established in the context of a Platonic dialogue. Given this discourse context, it is hard to see how the referent of the subject of this imperative can be the addressee or subset of the addressee(s), under standard definitions, a result not predicted by Zanuttini’s or Han’s system, but possible under the current analysis.

While the referents of subjects of the embedded imperative in (35) and matrix imperative in (42) are not addressee oriented under standard definitions, they are arguably addressee-oriented under the more relaxed definition of Potsdam (1998), who states that the addressee of an imperative must only be in a “control relationship” over the referent of the imperative subject, such that the addressee has “potential control” over the subject in some real-world domain (e.g. military, social, political). In the following example, the subject of the imperative does not appear to be addressee-oriented even under Potsdam’s definition; in (43), the speaker uses a 3rd person middle or passive (these forms overlap in Ancient Greek) imperative, the subject of which refers to laws, which the speaker believes should be established (note that neuter 3rd person plural subjects regularly agree with singular verbs of all moods in Ancient Greek (Smyth, 1920)).

(43) Plato, Laws (801e)

Oukoun nun, o xene, keistho
then now VOC foreigner-voc establish-3rd.sing.pres.imp.mid/pass
tauta.
these-things

Shall these points be established? (Smyth, 1920)

The addressee in (43) is clearly *xene*, as established via overt vocative morphology, while the referent of the subject of the imperative, *tauta*, is in fact inanimate and 3rd person, neither addressee nor able to fulfill a command, which may explain why the translator chose to interpret this as a question.²² Indeed, according to Smyth (1920, p. 409), Ancient Greek imperatives may “be used in questions ... assumptions (hypothetical imperative), to make a concession, or to grant opinion.” Crucially, the vocative addressee *xene* ‘foreigner’ has no control relationship over the imperative subject *tauta* ‘these things’ which refers to laws in this discourse context; this is because a *xenos* in Ancient Greek is defined as an individual with no political power in a given context. Data such as (35,42-43) suggest that Ancient Greek imperatives may take a non-addressee-oriented interpretation in both embedded and root contexts. Additionally, while (35) shows that root imperatives in Ancient Greek can be directive, they need not be (42-43).

(41-43) confirm the predictions made by (40c), namely that Ancient Greek imperatives pattern with verbs of other modalities with respect to constraints on syntactic context (embedding) and also interpretation (disassociation with directive force, lack of addressee-orientation). The model developed here explains why clauses with imperative verbs in English (and other languages) are often thought to be headed by a special left-peripheral element; the proposed analysis deduces this from morphological facts independent of interpretation. This proposal also differs from that of Jensen

²²Given that (43) is a passive, it is certainly possible that the suppressed agent may be related to the imperative via something like Potsdam’s (1998) Control Relationship, although this is less relevant for the analysis of imperative subjects in Spec, TP.

(2003), who locates feature-content in T for imperatives in English-type languages, such that T has interpretable 2nd person features. While this solution works for English and could, in principle, be extended to account for the difference between Ancient Greek and English (whereby Ancient Greek would have a both 2nd and 3rd person interpretable features), it lacks explanatory depth.

Instead, the current proposal explains the differences between Ancient Greek and English by fully assimilating Ancient Greek imperatives with verbs of other modalities in that language, within the theory of Feature Transfer; Ancient Greek imperatives can be selected by C which bears uninterpretable phi-features, according to the selectional differences in (38). Given the Feature Transfer model, this correctly predicts that Ancient Greek imperatives should not have special syntactic properties (including with respect to embedding) or restrictions on imperative subjects, since these undergo Agree with T. Alternatively, a C bearing uninterpretable phi-features cannot select imperative T in English, a property I tied to the absence of rich person morphology in that language, parallel to the inability of a C bearing uninterpretable phi-features to select non-finite T more generally within Chomsky's (2008) proposal. In English, only C_{dir} can license imperative morphology, which is in turn related to the prohibition on embedding, since C_{dir} is a locus of performativity. As discussed above, understanding the difference between the two types of grammars within the Feature Transfer model provides a mechanism by which the selectional differences between the two languages can be learned, while also relating this property to more general (and not construction-specific) grammatical principles.

2.4 Additional Cross-Linguistic Data and the Status of ‘Imperative’ in the Grammar

I turn now to some data outside of Ancient Greek to show that other languages with rich imperative paradigms, while apparently few in number, allow embedded imperatives with similar properties to embedded imperatives in Ancient Greek (i.e. in CPs without special restrictions on subject interpretation). While a full cross-linguistic typology is beyond the scope of this chapter, the following cases have been chosen to show that imperative embedding (long thought to be cross-linguistically impossible) is in fact attested in languages which meet the ‘rich imperative morphology’ criteria set forth above. For example, Sheppard and Golden (2002) and Rus (2005) discusses cases of embedded imperatives in Slovenian. Data such as (44a,b) show that imperatives in this language behave similarly to those in Ancient Greek.

- (44) a. To je avto, ki ga prodaj / prodajta / prodajte
 this is car which it sell.2SG.IMP / sell.2DU.IMP / sell.2PL.IMP
 čimprej.
 as-soon-as-you-can
 This is a car which you [must] sell as soon as you can. (Rus, 2005)
- b. Zakaj te moj nasvet, da bodi pameten, tako jezi?
 why you my advice that be.imp.2sg sensible so angers
 Why does my advice that you [must] be sensible make you so angry?
 (Sheppard and Golden, 2002)

Like the Ancient Greek cases, the embedded imperative in (44) appears to have minimal morho-syntactic restrictions, leading Rus to state that in Slovenian, “embedded imperatives are ‘fully-blown clauses (CPs)’” (Rus, 2005). Crucially for the analysis given here, Slovenian imperatives are relatively morphologically rich; imperatives are fully distinct from other moods in Slovenian and conjugate for 2nd person singular, 1st and 2nd person dual, and 1st and 2nd person plural, yielding 5 distinct morphological realizations. Given the correspondence between the Slovenian and An-

cient Greek data, I propose that Slovenian imperative morphology is sufficiently rich to allow embedding under C, specifically because of the overt 1st and 2nd person morphological distinctions. While Rus (2005) offers a primarily semantic account of (44), Sheppard and Golden (2002) suggest that “the presence of an imperative verb does not necessarily correlate with imperative illocutionary force,” in agreement with the analysis proposed here, and instead locate the matrix C as the location for sentential force, following Han (2000).

Two additional languages which have rich morphological paradigms include Kobon and Bhojpuri; to my knowledge, these languages have not been discussed with respect to imperative embedding. Kobon (Trans-New Guinea) imperatives are also inflected for all persons, yet the data here are somewhat complex; according to Davies (1981), imperatives are not allowed in embedded clauses. Yet, Davies (1981) includes several data points that pattern with (45) in his discussion of conditionals in Kobon.

- (45) Nipe ning-nig g-ang ning-ang.
 3RD-SING eat-PURPOSE do-imp.3rd.sing eat-imp.3rd.sing
 If he wants to eat it he can eat it.

While Davies (1981) does not provide clausal bracketing for this example, it is not unreasonable, I think, that this example may be analyzed as (46), with an embedded *if*-clause forming the protasis of the conditional.

- (46) [_{CP} [_{CP} Nipe ning-nig g-ang] ning-ang].
 [_{CP} [_{CP} 3RD-SING eat-PURPOSE do-imp.3rd.sing] eat-imp.3rd.sing]
 If he wants to eat it he can eat it.

If this analysis of Kobon conditionals is on the right track, then Kobon in fact does allow syntactic embedding of imperatives and behaves as expected given the current proposal. Note also that, given the translation provided by Davies, it is likely that neither imperative is directive, as allowed given the current analysis.

Finally, Bhojpuri (Indo-Aryan) has been claimed to have rich imperative morphology. According to Zanuttini (2008) and Mauck (2005), Bhojpuri has imperatives

inflected for at least 2nd and 3rd person, given (47). According to a native speaker consultant, (48) is also possible.

(47) Layke tini baje aave.
children three o'clock come.imp

The children [must] come at 3 o'clock!

(48) Tu David-se milai-hai je ihaan tini baje aaye.
you David-the met who here three o'clock come.imp

Have you met David who [must] come here at 3 o'clock?

To the extent that (47,48) are genuine morphological imperatives,²³ (48) shows that Bhojpuri has imperative inflection beyond the 2nd person and that such imperatives are allowed in embedded contexts, supporting the hypothesis in this paper.

I will note finally that Modern Greek (2b) does not allow embedding of imperatives in the sense discussed above (Rivero and Terzi, 1995).²⁴ This is to be expected given the imperative paradigm in that language. While the Modern Greek imperative paradigm distinguishes voice, number, and aspect, it is restricted to the second person, although this is an overt morphological form (see Rivero and Terzi 1995 for discussion).

2.4.1 The Status of 'Imperative' in Generative Grammar

The analysis developed above raises several questions about the status of the category 'imperative' for generative grammar. First, if embedded Ancient Greek imperatives are not performative, can these really be called imperatives at all? Second,

²³I add this qualification because the primary published grammar of Bhojpuri (Shukla, 1981) does not discuss imperatives inflected beyond the 2nd person; the author of this grammar was, however, the consultant for example (47) and others like it (see Zanuttini, 2008). According to Shukla (1981), Bhojpuri imperatives do inflect for different degrees of honorific.

²⁴Latin represents a complicated language with respect to the current proposal. Gildersleeve and Lodge (1895) divide Latin imperatives into First and Second Imperatives, only the latter of which has 3rd person forms, and which "looks forward to contingent fulfillment, and is chiefly used in laws, legal documents, maxims, recipes, and the like." To my knowledge, imperative embedding in the relevant sense (in clauses headed by a complementizer) has not been reported for classical Latin; imperative verbs can occur in logical protases, but these may be cases of parataxis (Gildersleeve and Lodge, 1895, p.379).

is the analysis developed in this paper justified, given that the unexpected properties of Ancient Greek imperatives may simply be an example of superficial morphological variation between languages? I addressed the latter question by presenting empirical evidence which shows that Ancient Greek is not alone in allowing imperatives embedded in CP clauses. In each language, the imperative paradigm is morphologically rich in the sense developed above. To the extent that a cross-linguistic pattern exists, a goal of linguistic inquiry should be to explain this pattern. The analysis developed above, which includes a (in principle) falsifiable hypothesis based on learnability, explains the cross-linguistic pattern.

As for the status of the category ‘imperative,’ this is often taken to be synonymous with the sentential force category ‘directive.’ If it were the case that all imperatives were directive, we might say that a ‘force marker’ (e.g. Directive Force operator, Jussive Phrase, etc.) is eliminable from a theory of imperatives (Portner, 2004). While I support the elimination of potentially redundant theoretical machinery, the data presented above suggests that such theoretical elimination is not justified under a wider cross-linguistic view.

While I have argued that imperatives are best understood as a morphological class, one way in which researchers have understood imperatives under a semantic or pragmatic definition is to postulate that ‘imperative’ is a clause or sentence type (Sadock and Zwicky 1985, Portner 2004, 2007, König and Siemund 2007). Understanding imperative as a sentence type, however, introduces an asymmetry in the relationship between morphology and sentence type, when other sentence types and verbal moods are considered. In particular, morphological moods such as indicative and subjunctive are typically understood as being distinct from sentence types, such as declarative or interrogative. Data does not support the conflation of the two categories; consider for example the question/answer pair (49) in German, in which both the question and answer contain subjunctive verbs.

- (49) Q: Was hätten Sie getan? A: Ich würde verlassen haben.
what have.SUBJ you done I become.SUBJ left have
Q: What would you have done? A: I would have left.

The fact that subjunctive verbs can appear in both declaratives and interrogatives strongly suggests that subjunctive is not to be understood as a sentence type.

Understanding the nature of the imperative mood is somewhat more complicated in this respect, because imperatives seem to always be associated with directive force in the subset of the world's languages which have undergone more detailed formal analysis in this domain. A broader cross-linguistic view, however, shows that some languages, such as Ancient Greek, Slovenian, and Bhojpuri, allow imperative verbs in embedded, finite clauses (which are, by hypothesis, unable to affect sentential force), and even in matrix clauses of different sentence types (42-43) (see also Sheppard and Golden, 2002). With this wider cross-linguistic perspective, I have attempted to offer an explanation, based on overt morphological evidence, for why English imperatives are consistently associated with directive force. Under the proposed analysis, 'imperative' now patterns with the other verbal mood classes, eliminating a potential asymmetry in the grammar that would arise if 'imperative' represented the only verbal mood to also define a sentence type. Note that this understanding in no way precludes formal semantic and pragmatic analysis for imperatives or directive force (see e.g. discussion of Ninan (2005) and Portner (2007), above). I return to the issues briefly discussed in this subsection as the primary focus of inquiry in the following two chapters.

2.5 Conclusion

The analysis above is concerned with what may license imperative morphology, where the focus is on 'true' morphological imperatives. The answer to this question

is somewhat novel in that it divorces imperative morphology from directive force;²⁵ the latter is not in all cases necessary to license the former, although it may be a sufficient condition, in terms of selection. The fact that many prior analyses conclude that imperatives are only allowed in non-embedded contexts and are necessarily associated with directive force is, according to the view presented here, an artifact of the morphological properties of the languages that have previously been subject to more extensive formal analysis in this domain. The proposed analysis also further informs the relationship between verbal morphology and semantic interpretation.

In addition to the Ancient Greek data, a small but diverse cross-linguistic sample of languages supports the hypothesis put forth in this paper, that rich imperative morphology is a necessary condition for a language to allow embedding of imperative clauses in CP contexts, with minimal interpretive restrictions on the subject of an embedded imperative verb. This hypothesis was formalized in terms of the independently motivated theory of Feature Transfer (Chomsky, 2008), expanding the empirical domain of that theory while at the same time providing an account of embedded imperatives based upon overt morpho-syntactic features. Adopting Feature Transfer additionally made it possible to state the difference between languages such as English and those such as Ancient Greek with reference to selection and overt morphological properties which are known to vary among languages, thereby adding minimal complexity to the task of learning.

²⁵I thank Chung-hye Han for insightful discussion on this point.

CHAPTER III

The Morphological Imperative as a Weak Necessity Modal

3.1 Introduction

In this chapter, I continue to focus on morphological imperatives, turning now to how these are interpreted. I argue that morphologically imperative verbs contribute to semantic interpretation in a way separate from meanings associated with clause type or sentential force. Specifically, and related to the proposal in chapter 2, I locate the semantic feature associated with MIVs in T^0 , and define this as a weak necessity modal. Under this hypothesis, according to which MIVs are semantically equivalent to weak necessity modals, the semantics of MIVs are separated from the analysis of clause type and performativity. The performative aspect of matrix clauses that are headed by MIVs is understood in terms of presuppositional meaning, following aspects of Kaufmann (2012).¹ These presuppositions are associated with the directive force operator, C_{dir} , located in C^0 , the syntactic properties of which were discussed in chapter 2.

The structure of this chapter is as follows. First, I review some prior accounts of imperative semantics, focusing particularly on the different ways in which the term

¹Note that throughout, Kaufmann's (2012) book-length treatment of imperatives is to be understood as superseding her dissertation, written under the surname Schwager (2006).

‘imperative’ has been interpreted by different sub-fields of linguistics. Second, I focus on one current idea in semantics, namely that ‘imperative’ is best understood as a clause or sentence type, such that the ‘imperative clause type’ includes as a proper subset all clauses headed by MIVs. I reject the hypothesis that ‘imperative’ is best understood as a clause type, arguing that this hypothesis explains only a subset of attested MIV interpretations. In particular, I argue that defining ‘imperative’ as a clause or sentence type does not explain the semantics of MIVs in embedded clauses (in those languages that have them) and that the clause type definition of imperatives makes wrong predictions with respect to possible interpretations of MIVs and suppletive imperatives.

I then focus on a comparison of modals in English, and show that English imperatives have performative properties which are comparable to performative, main-clause tokens of *must* (a strong necessity modal), but also that English imperatives have modal properties comparable to *ought*, a weak necessity modal. This apparent paradox motivates a bipartite analysis of imperative semantics, such that MIVs themselves are analyzed as weak necessity modals, but that the performative properties of main clauses headed by MIVs are related to a force operator represented in C^0 . After a brief introduction to the Kratzerian understanding of modality, I offer the relevant definitions of weak necessity and performativity, adopting the former from Silk (2013) and the latter from Kaufmann (2012). Finally, I evaluate the proposal from the perspective of data which has been problematic from the perspective of several mainstream analyses of imperatives in formal semantics.

3.2 Defining the Topic of Inquiry

In this section I briefly review some recent approaches to imperatives. The primary issue I discuss here involves the topic of inquiry when the term ‘imperative’ is used in the prior literature, as well as some of the formal approaches used to account

for ‘imperatives,’ however construed. Given the immense literature on imperatives (and the confusion regarding the term itself), I limit discussion here to recent and/or particularly influential research.

Within the literature on morpho-syntax, the topic of inquiry with respect to imperatives has generally been verbs that bear a particular type of morphology (possibly null, as in English). In essence, what distinguishes the imperative from any other linguistic category from the morpho-syntactic perspective is the presence of inflectional morphology of a certain kind. This line of research is justified, because verbs bearing imperative morphology often have specific syntactic distributions with respect to e.g. clitics (Rivero and Terzi 1995, Isac 2012), negation (Zanuttini 1997, Han 2000), subjects (Beukema and Coopmans 1989, Potsdam 1998, Zanuttini 2008), adverbs (Potsdam 2007) and complementation (Han 2000, Medeiros to appear), to name just a few phenomena which are (more-or-less) non-controversially syntactic in nature.

One crucial observation within the morpho-syntactic literature on imperatives is that morphologically imperative verbs (MIVs, henceforth) in a number of languages raise to a particularly high position within the clausal structure (C^0 or related left-peripheral projection, e.g. the head of ForceP (Rizzi 1997, Haegeman 2004)), often accounted for by means of a ‘force-marker’ in the left periphery which triggers V-T-C head-movement (Cheng 1991, Rivero and Terzi 1995, Rizzi 1997, Han 2000). According to this literature, a directive or imperative force marker is thought to determine the clause type of its complement, and the directive force marker is in complementary distribution with interrogative and declarative force markers. Since force is represented in the left-periphery of main clauses only, these force markers therefore distinguish between different sentence-types. The term ‘sentence type’ is justified in this context because the force of the main clause determines the force of the sentence, insofar as embedded clauses do not affect the speech act status of the main clause. In short, MIVs have been a rich topic of inquiry within the literature on

morpho-syntax, and are generally understood as the topic of inquiry when the term ‘imperative’ is used by researchers in this sub-field.

By contrast, research within philosophy sometimes takes ‘imperative’ to mean any linguistic (or possibly even non-linguistic) act that can be used performatively as a “conduct-guiding act in conversation,” according to Kaufmann (2012) (note that Kaufmann does not herself subscribe to this view). The strongest exponent of this definition of imperative is arguably Hamblin (1987), who takes imperatives to include not just clauses with MIVs but certain types of sentences with modal verbs, interrogative sentences used directly, or (to the most extreme case) certain kinds of gestures (e.g. pointing at the door in anger). In other words, imperatives in this literature are understood as ‘commands,’ which is itself a non-linguistic category. This more or less functional definition of imperative (i.e. understood in terms of their supposed function as commands) is also entertained (along with discussion of MIVs) in descriptive work such as Aikhenvald (2010). Given the extremely broad notion of imperative discussed by e.g. Hamblin (1987), it may be expected that there is little explanatory power for the far narrower category of MIVs within functional approaches, although it is certainly the case that directive and performative acts are an extremely interesting topic of inquiry.

Research within formal semantics and pragmatics constitutes a third and very active line of research on imperatives. While different analyses have been offered within the formal semantics literature, here I particularly highlight what has been taken to be the *topic of inquiry*, and not specific analyses, in this literature (specific analyses are discussed below). This is a crucial point, because the different analytical approaches taken by different authors can obscure the more central question regarding the topic of inquiry. For example, while the modal approach to imperatives taken in Kaufmann (2012) is contrasted with the pragmatic, clause typing approach offered in Portner (2004, 2007) by reviews of the literature in e.g. Iatridou (2008) or Zanuttini et

al. (2012), Kaufmann and Portner both offer (I argue) a unified view with respect to the topic of inquiry, which is distinct from both the morpho-syntactic and philosophy of language approaches briefly discussed above.

In particular, Kaufmann (2012) and Portner (2004, 2007) both view the topic of inquiry as a particular clause type - i.e. ‘imperative’ is to be understood as a clause, specifically the “third clause type” (Kaufmann 2012) along with the (arguably better understood) ‘declarative’ and ‘interrogative’ clause types. Portner is also very clear about the imperative clause type being the topic of inquiry in a pair of recent handbook articles, according to which “imperatives constitute one of the major clause types of human language,” along with the declarative and interrogative clause types (Portner to appear, see also Portner 2011). It could be additionally argued that clause type is the topic of inquiry in Mastop (2011), for whom imperatives encode ‘instructions’ on a semantic par (but distinct from) propositions. In other words, for this line of research, clause type and not morphological class is at issue with respect to imperatives. Sadock & Zwicky’s (1985) cross-linguistic survey of clause types represents an important early influence for this understanding of imperatives. In the following section I present some of the data which motivates the clause type analysis of imperatives and argue that the clause type analysis cannot explain properties of MIVs.

3.2.1 Clause Types and MIVs

According to Portner (2004, 2007, 2011) and others, ‘imperative’ is properly understood as a particular clause type, a view I reject below. The clause type view carries theoretical import with respect to the analysis of MIVs, because under the clause type analysis of imperatives, clauses with MIVs are a proper subset of ‘imperative clauses.’ Therefore, under the clause type view, defining MIVs as a unique semantic element is redundant. Rather, within the clause type analysis, the relevant

semantic value is assigned to the clause level, and not the verbal level. In syntactic terms, this means that imperative morphology, located in T^0 (or possibly some other projection dominated by CP) has no semantic value within the clause type analysis, with all relevant semantic features located in the left periphery, e.g. CP (Kaufmann 2012) or JussiveP (Zanuttini et al. 2012).

Portner (2011) offers the clearest motivation for why MIVs are in fact inappropriate as a topic of semantic inquiry as compared to an imperative clause type (note that I provide counter-evidence for Portner’s view below). According to Portner, two types of evidence support the view that MIVs have no special semantic meaning, but should instead be subsumed under a semantics of clause-type. First, Portner claims that suppletive imperatives, which differ from MIVs morpho-syntactically, have the same semantic value as MIVs. Suppletive imperatives are verb forms, usually the subjunctive or infinitive, that appear to have identical performative properties as MIVs. For example, in many Romance languages, MIVs are not licensed under sentential negation, and a suppletive imperative must be used instead (1) (Zanuttini 1997). Following traditional grammarians, I will refer to the special class of suppletive imperatives that stand under negation where MIVs are not licensed as ‘prohibitives.’

- (1) a. ¡Lee lo!
 read.imp it.cl
 Read it!
- b. $*\text{¡No lee lo!}$
 neg read.imp it.cl
 Read it!
- c. ¡No lo leas!
 neg it.cl read.subj
 Don’t read it!

However, suppletive imperatives are not thought to only appear under negation. Suppletive imperatives can occur in sentences without negation, for example in Italian

(2), in which indicatives, subjunctives, and infinitives can occur as suppletive imperatives. English infinitives (3) can also be suppletive imperatives in certain contexts.

- (2) a. Telefona!
call.imp.2sg
Call (her)!
- b. Telefonatele tutti i giorni!
call.indic.2pl-her every the days
Call her every day!
- c. Lo dica pure!
it say.subj.3sg indeed
Go ahead and say it!
- d. Non telefonarle! / Non le telefonare!
neg call-inf-her / neg her call-inf
Don't call her!
- (3) a. Read this book by Monday!
- b. This book is to be read by Monday!

If suppletive (prohibitive) imperatives “really are imperatives” (Portner 2011), then this is strong evidence that imperative morphology does not constitute a unique semantic class, since (under this view) MIVs have the same denotation as e.g. prohibitive subjunctives (1) in many Romance languages. (Note that I return to an analysis of (1-2) in chapter 4).

A second, perhaps more crucial, argument that MIVs have no special meaning comes from their apparent overlap with sentence type. In particular, MIVs in better studied languages can only appear in sentences that have a performative, directive force (broadly construed — the range of possible directive interpretations is discussed below). This close form-meaning mapping has been taken to explain the prohibition against MIVs in syntactically embedded clauses, since embedded clauses do not (generally, if at all) affect the force/type of the root sentence of which they are part (Han 2000); likewise, examples of MIVs in embedded clauses discussed in the prior

literature (e.g. Crnić and Trinh 2008, Zanuttini et al. 2012) exhibit strict syntactic and semantic constraints. If only unambiguous CP complements are considered, the consensus view is that MIVs cannot appear in embedded clauses (Katz and Postal 1964, and much subsequent research); this means that MIVs can appear in only matrix clauses, and never in embedded CP clauses. Since embedded clauses (uncontroversially) cannot determine sentence type, an explanatory theory of imperatives, under Portner’s view, should explain why MIVs always appear in a certain type of matrix-only clause, i.e. the imperative clause type.²

While I ultimately reject the clause type view of imperatives as being unable to explain properties of MIVs, I state here what I take to be the central predictions for MIVs within the clause type hypothesis for imperatives as discussed by Portner (2011).

- (4) Properties of the clause type analysis of imperatives
 - a. Clauses with MIVs are a proper subset of imperative clauses
 - b. MIVs and suppletive imperatives have the same semantic value
 - c. Imperative clauses are always performative

I take (4a) to be necessarily entailed by the view that ‘imperative’ is a clause type; if this is too strong, than (4a-4c) are at least necessarily entailed by the research program outlined in Portner (2004, 2007, 2011). I additionally suggest that a clause type analysis of imperatives that did not entail (4a) would be a rather weak theory, since such a theory would say very little about the distribution or semantic contribution of MIVs, given that MIVs have no independent semantic value (by definition) within a clause type analysis of imperatives.

However, both (4a) and (4b) can be falsified, showing that the clause type analysis

²Note also that sentence type is sometimes referred to as *sentence mood*, by e.g. Chierchia & McConnell-Ginet (2000), also discussed by Portner (2004), although the meaning of this term is effectively equivalent to ‘clause type’ for those who assume that imperatives are restricted to main clauses only.

of imperatives does not explain the semantic properties of MIVs. Focusing now on (4a), data in which MIVs appear in embedded CP clauses (5-7) show that (4a) is false when (4c) is maintained. This evidence supports a view of MIVs such that imperative morphology has a semantic ‘life of its own,’ beyond the performative properties of the imperative clause type. In (5-7), MIVs occur in embedded CP clauses which are clearly declarative or interrogative, including Ancient Greek (5), Slovenian (6), and Bhojpuri (7); modal verbs are included in the English translations for clarity.

(5) a. Demosthenes 20.14 (Against Leptines)

oude gar ei panu khrestos esth', hos emou g' henek'
 not for if altogether good be which mine at-least account
 esto, beltion esti tes poleos to ethos.
 be-3rd.sg.pres.imp.act better be the.gen city.gen the character

For if he is altogether good, which on my account he [must] be, he is not better than the character of the city.

b. Lysias Fragment 75.3 (2.3 in Budé edition)

edethe hekein auton epi komon, legon hoti meth' hautou kai ton
 beg to-go him to party, saying that with him and his
 oikeion pieto.
 family drink.imp.3rdsg

He begged him to go to a party, saying that he [must] drink with him and his family.

c. Plato, Laws (801e)

Oukoun nun, o xene, keistho
 then now VOC foreigner-voc establish-3rd.sing.pres.imp.mid/pass
 tauta.
 these-things

Shall these points be established? (Smyth, 1920)

(6) a. To je avto, ki ga prodaj / prodajta / prodajte imprej.
 this is car which it sell.imp.2nd.sg / 2nd.du / 2nd.pl as

soon as you can

This is a car which you [must] sell as soon as you can. (Rus, 2005)

- b. Zakaj te moj nasvet, da bodi pameten, tako jezi?
 why you my advice that be.imp.2sg sensible so angers
 Why does my advice that you [must] be sensible make you so angry?
 (Sheppard and Golden, 2002)

- (7) Tu David-se milai-hai je ihaan tini baje aaye.
 you David-the met who here three o'clock come.imp.3rdsg
 Have you met David who [must] come here at 3 o'clock?

These data show MIVs occurring in embedded clauses of declarative sentences (5a,5b,6a), interrogative sentences (6b,7), and as matrix verb in an interrogative sentence (5c).

In previous research (Medeiros 2011, to appear, chapter 2 above), I have argued that (5-7) show that MIVs can occur in embedded CPs in languages with morphologically rich imperative paradigms (and are therefore impossible in English, or at least very restricted both syntactically and semantically (Crnič and Trinh 2008)). Summarizing briefly, I adopt the (arguably consensus) view that imperative subjects, even when null, require case valuation (i.e. imperative subjects, when null, are pro) (Potsdam 1998, Zanuttini 2008, among others). However, the relatively impoverished imperative verbal paradigm in languages that have been formally analyzed with respect to imperatives suggests that clauses with imperative verbs cannot case-mark subjects (i.e. via agreement with T^0), but rather the subject undergoes case-agree with the head of some left peripheral projection which is limited to matrix clauses, an idea also found in Bennis (2006) and Zanuttini (2008). In essence, imperative T has some syntactic properties of infinitivals, yet allows and requires a case-marked subject, resulting in a very limited syntactic distribution (in English). By contrast, imperative T^0 in languages with rich imperative morphology patterns with the other finite modalities, a view already expressed in Rivero and Terzi (1995). Nevertheless, the proper syntactic analysis of (5-7) is less relevant for current purposes, which is simply to show that a cross-linguistically unified analysis of imperatives should not

reduce this category to clause or sentence type, i.e. to falsify hypothesis (4a).

Returning to the issue of suppletive imperatives, Iatridou (2010) shows that these differ from MIVs in at least some languages based on data from the ‘Imperative-and-Declarative’ (IaD) construction, and in particular IaDs in which the second conjunct is undesirable (i.e. undesirable in ‘real world’ contexts). For example, Catalan MIVs allow IaDs (8a) with undesirable second conjuncts. However, for syntactic reasons Catalan does not allow MIVs under (syntactic) negation, but must use a suppletive (prohibitive) form, the subjunctive; surprisingly, these suppletive imperatives do not allow the relevant IaD (8b). However, for those languages in which MIVs can occur under negation, MIVs are fine in the relevant construction, for example in the English translation of (8b).

- (8) a. Menja aix i d’aqu vint-i-quatre hores sers mort.
Eat.imp this and within twenty-four hours will-be dead
Eat this and within twenty four hours you will be dead.
- b. ??/*No vagis a fisioterpia i et quedars coix
not go.subj to physiotherapy and you will-stay crippled
Don’t go to physiotherapy and you will stay crippled. (Iatridou 2011)

While I do not offer an analysis of IaDs in this dissertation (see Kaufmann 2012 for discussion and analysis), (8) suggests that MIVs have different semantic properties as compared to prohibitives. Since, to my knowledge, no independent property has been proposed to account for the difference between (8a) and (8b), I take these data to show that MIVs should not be equated to prohibitives, falsifying hypothesis (4b), because MIVs and prohibitives have different properties.

The embedded MIV data (5-7) and the non-equivalence between MIVs and suppletive imperatives (8) suggests that MIVs have unique semantic properties over and above the semantic properties of their clause. For this reason, I reject the analysis of Hausser (1980), repeated in Portner (2004, 2007), according to which ‘imperative clauses’ are given a non-propositional semantic denotation, such that MIVs have

no unique semantic properties (see also Cormany 2013 for additional argumentation against the notion that imperatives denote semantic properties and not propositions). Instead, I pursue the idea that imperatives are modalized propositions, as recently proposed in Kaufmann (2012). While Kaufmann (2012), like Portner (2004, 2007), takes the view that imperatives should be analyzed as a clause type (a view which I reject), a modal account of imperatives is amenable to an analysis of MIVs, without reference to clause type, since the relevant modal can be assigned to the MIV itself (i.e. syntactically represented in T^0). Under the modalized proposition view, two primary questions for analysis now concern (i) the properties of the relevant modal, and (ii) how to derive performativity for those MIVs which occur in performative contexts. These questions are taken up in sections 3.3-3.5.

However, before turning to the analysis, I address a final methodological concern regarding the status of ‘canonical’ versus ‘non-canonical’ imperatives. For example, in her typological survey of imperatives, Aikhenvald (2010) refers to imperatives that have a “second person addressee” as canonical, while other uses are non-canonical. This distinction also has correlates in the formal literature, for example Kaufmann (2012) makes the methodological choice to focus on “the clearly addressee-related constructions.” A consequence of this distinction is that languages with imperative verbal paradigms beyond the 2nd person are often ignored in the study of imperatives. While it is true that 1st and 3rd person imperatives are absent in many languages (e.g. English), these forms are attested in languages such as Sanskrit (Portner, accessed 2013)³, which has MIVs for all persons, including 1st (9a) and 3rd (9b).

- (9) a. aavyeSam jaagrtaat aham
 daybreak watch-imp-1s I
 I will watch until daybreak (AV 144)

³These data are available at the following web address:
<http://www9.georgetown.edu/faculty/portnerp/nsfsite/indic.htm>

- b. tau ... shiStaam
the-two ... rule-imp.3d.dual
Let the two (of them) rule. (Maal.5)

A possible response to ‘non-canonocal’ MIVs, for example those in (5-7) and (9), is the (potential) claim that these do not have imperative semantics, despite their imperative morphology. In my view, this possible response to non-canonical imperative data certainly begs the question as to the content of ‘imperative semantics,’ and is therefore counter-productive. Rather, I agree with the sentiment regarding non-canonical imperatives, such as 3rd person MIVs, expressed by Mastop (2011), i.e. that while “typological data on third person imperatives ... are difficult to evaluate and often questioned, as it is not quite clear how there could be third person imperatives, ... it is precisely semantics that should explain the peculiarities of the interpretation of third person imperatives.” With this sentiment in mind, and given the semantically independent status of MIVs demonstrated in (5-8), I offer an analysis of the semantic knowledge state that underlies the diversity of attested MIV interpretations, without recourse to a canonical/non-canonical distinction. The analysis presented below can therefore account for 1st and 3rd person MIVs in addition to 2nd person cases, and I return to the analysis of (9) specifically in section 3.5. Given the analysis in chapter 2, language-specific restrictions on possible imperative interpretations reduce to differences in overt morpho-syntax, which I take to be a desirable result from the perspective of learnability.

3.3 Modals and Imperatives

Given the amenability of a modal approach to the embedded imperative data which is discussed in chapter 2 and above (5-7), I will pursue a modal account of MIVs here. What is at issue now is the proper characterization of the modal, developed within a framework that can also explain the performativity of main clause

MIVs. In fact, I argue below that the model developed by Kaufmann (2012) comes close to a proper account. Kaufmann in fact argues that two semantic devices are needed to account for (matrix) imperatives: a modal component and a set of presuppositions which ensures performativity. I adopt this general framework, associating Kaufmann's presuppositional content with a left-peripheral sentence-typing (i.e. matrix-only) element in C^0 , while placing the modal component in T^0 . In this model, there is no *semantic* reason why the imperative modal needs to be associated with the performative, presuppositional content, exactly as desired from the perspective of the embedded imperative data (i.e. I argued in chapter 2 that the necessary association of a left-peripheral operator in e.g. English follows from a syntactic principle, subject to cross-linguistic variation).

Turning now to the specifics of the proposed model, in this section I first present an analysis of some English modal verbs, describing them in terms of two parameters, modal strength and performativity. Then, I discuss how imperatives might fit into the discussion of modal verbs. I argue that matrix imperatives in English are performative, which I take to be an uncontroversial claim. I also make the novel argument that the modal strength of imperatives is weak, despite claims that the modal strength of imperatives has been taken to be strong in prior modal accounts of imperatives (e.g. Kaufmann 2012). Understanding imperatives as weak necessity modals offers a solution to some of the persistent problems that have complicated prior modal accounts of imperatives, in which imperatives are equated to strong necessity modals. I focus primarily on English data in this section, but also consider cross-linguistic data presented in von Stechow & Iatridou (2010) in the discussion of permission, wish, and advice readings of imperatives.

3.3.1 A Typology of English Modals

Before turning to the more technical aspects of the analysis and the data which motivate them, consider by way of introduction the meaning of three different English modals, namely *must*, *supposed-to*, and *ought*. Crucially, I only consider the matrix clause use of these modals for the time being. While my purpose in this section is to draw empirical contrasts, prior to offering a formal analysis, I will first define three crucial terms: *strong necessity modality*, *weak necessity modality*, and *performativity*. All of the definitions here are informal, since they are only able to be formally defined within a theory of modality; I present Kratzer's (1981, 1991) theory of modality in section 3.4.1 and formally define *weak necessity* afterward. While I do not offer a formal definition of *performativity* as it applies generally, I formalize the relevant notion of performativity used in this dissertation in section 3.4.2.

While I ultimately present a definition of *weak necessity* that differs from that discussed in (von Stechow & Iatridou 2008), I draw on this work for preliminary definitions. Adopting the general framework of Kratzer (1981, 1991), I assume that modals quantify over a set of worlds. The worlds in the relevant set are determined by the modal base, a conversational background fixed to context, and an ordering source, which ranks the worlds in the modal base (formal definitions for modal base and ordering source are given in 3.4.1). Using the terminology of von Stechow & Iatridou (2008), the worlds in the modal base that are highly ranked by the ordering source are the *avored worlds*. Modals apply to *prejacent*s, which are propositions embedded under the relevant modal. From this perspective, strong necessity modality can be defined as (10a) and weak necessity modality can be defined as (10b), although I ultimately adopt a slightly different definition of weak necessity below.

(10) Informal Definitions of Strong and Weak Necessity Modals

- a. Strong Necessity Modals = modals which require the prejacent to be true

in all favored worlds

- b. Weak Necessity Modals = modals which specify that the prejacent is true
in all of the best favored worlds

I base an informal definition of *performativity* (11a) on the definition given in Portner (2009) with respect to performative modals, although where Portner applies the definition to ‘declarative sentence’ I apply it to ‘propositions.’ The definition of performativity invokes the term *speech act*, in the sense of Austin (1962); I include the definition of Yule (2006) in (11b).

(11) Informal Definitions of Performativity and Speech Act

- a. Performativity = a property which causes propositions to perform a speech act
- b. Speech Act = an action performed by a speaker with an utterance (Yule 2006)

With respect to speech acts (11b), relevant actions that can be performed by a speaker include ‘requesting,’ ‘commanding,’ ‘questioning,’ or ‘informing,’ among others (Yule 2006). I ultimately formalize the relevant notion of performativity associated with main clause tokens of MIVs in terms of presuppositions in section 3.4.2.

Returning to a comparison of different English modals, and considering only matrix-clause tokens, the modals *must*, *supposed-to*, and *ought* can be described in terms of two parameters: modal strength on the one hand and performativity on the other. For example, (matrix clause) *must* has been argued to be strong and performative (Ninan 2005, Portner 2007), while *supposed-to* is likewise strong and not performative.⁴ In contrast, *ought* is generally considered weak (von Stechow & Iatridou 2008), and is, I argue, not performative. I represent these distinctions in (12),

⁴p.c. Ezra Keshet, citing Eric Swanson, p.c.

which also illustrates a gap in the paradigm, followed by the empirical arguments that motivate the relevant distinctions.⁵

(12) Some English Modal Verbs Classified by Modal Force and Performativity

- a. must = strong, performative
- b. supposed-to = strong, non-performative
- c. ? = weak, performative
- d. ought = weak, non-performative

What motivates the distinction between a performative and non-performative modal? Empirically, sentences with performative modals like *must* disallow certain follow-ups while non-performatives like *supposed-to* are less restrictive (see Ninan 2005 for discussion and justification of the relevant tests). Consider in this context a discourse in which a decision is being made about how to get to the Bronx. Suppose that there are two ways to get to the Bronx, the Z-train or the Y-train.⁶ The Z-train is faster but the Y-train is safer. In a parent-child interaction, in which the parent stands in a position of sufficient authority to make a successful performative utterance, it would be quite odd for a parent to retract a command to take the Y-train by means of a follow-up commanding that the child not take the Y-train, as in (13).

(13) # You must take the Y-train, not the Z. But take the Z anyway.

While an in-depth discussion of performativity is well-beyond the scope of this chapter (see e.g. Austin 1962, Searle 1969, for early and representative works), the intuitive explanation for the oddity of (13) is that performing a speech-act is a kind of forceful action, which would be odd to immediately ‘take back,’ in the same way

⁵While Ninan (2005) uses *should* (as opposed to *ought*) as an example of a weak necessity modal, I use *ought* in this chapter as its properties are arguably better understood in light of von Stechow & Iatridou’s (2008) examination of *ought*.

⁶Harlem and the A-train will be discussed in due course, below.

as giving a gift and then asking for its return is extremely odd. The performativity analysis of imperatives presented here is formalized in section 3.4 below.

Unlike matrix uses of *must* (13), *supposed-to* allows exactly the kind of follow-up which is resisted by *must*. Consider again a situation similar to the set-up for (13), but this time the father is speaking to the child immediately after the mother leaves the room. The father believes that, while the Z-train is indeed less safe than the Y, the actual chance of getting mugged at this time of day is so low as to be negligible, and the Z is indeed much faster. In this context, the father can say (14a) without the oddity observed in (13), though *must* in this same context is strange (14b).

- (14) a. You're supposed to take the Y-train, not the Z. But take the Z anyway (if you want).
- b. # You must take the Y-train, not the Z. But take the Z anyway (if you want).

The contrast in follow-up possibilities between *must* and *supposed-to* plausibly follows from a distinction in performativity, not modal force, especially in light of data and argumentation regarding matrix versus embedded *must* presented in Ninan (2005). In particular (and similarly to (13, 14a)), Ninan shows that the restriction on follow-ups for matrix *must* doesn't hold in embedded contexts, exactly the context in which performativity has been argued to not be able to apply. In other words, performativity is a property of matrix clauses, but not embedded clauses. We can therefore compare Ninan's (2005) data regarding *must* to *supposed-to*, showing that these modals are essentially synonymous only in the embedded context (15); here *must* and *supposed-to* differ in matrix contexts but pattern together in embedded contexts.

- (15) a. # I must go to confession, but I'm not going to. (Ninan 2005)
- b. I'm supposed to go to confession, but I'm not going to.

- c. You believe that you must go to confession, but you don't.
- d. You believe that you're supposed to go to confession, but you're not.

Ninan (2005) characterizes matrix *must* as having a ‘practical feature’, which has speech-act status, in addition to truth-conditional meaning; for Ninan (2005), the relevant performativity in these cases “seems to involve some sort of *speaker authority* or some attempt by the speaker to *initiate action*.” As for (15c), Ninan (2005) points out that in this context, i.e. “in the scope of attitude verbs and in the antecedent of certain conditionals, the [practical] feature is ‘stripped off’.” Portner (2007) also discusses (15a,c) and embedded, non-performative correlates, and concludes “that *must* has truth conditions, though they are obscured in unembedded contexts,” by their performative, speech-act force. Therefore, for both Ninan and Portner, performativity (at least for modals like *must*) is a matrix level phenomenon only.

I argue that in embedded contexts, where performativity cannot apply, *must* and *supposed-to* become synonyms. In summary, *must* and *supposed-to* are equivalent in modal strength - both are strong necessity modals - but differ in terms of signaling performativity in matrix contexts.⁷ For this reason, the two modals are synonymous in embedded contexts.

What about *ought*, then? According to (12), this is a weak necessity modal (following von Stechow & Iatridou 2008), which is at the same time non-performative. Since weak necessity is crucial to the analysis of imperatives which appears below, much more will be said about the behavior of weak necessity, including also a formal semantics of *ought* as developed by Silk (2013). As a first pass, however, *ought* differs from strong necessity modals in that the prejacent (i.e. propositional argument of the modal) is a preferred course of action, but only contingently. In other words, weak necessity signals contingent necessity according to Silk (2013), whose analysis of weak

⁷Recall from the discussion in the previous section that the matrix clause is the only place one would expect to find distinctions in performativity.

necessity I adopt here.⁸ Along similar lines, Williams (1981) informally characterized the difference between the relative modal strengths as follows: “*Ought* is related to *best* as *must* is related to *only*.”

The contrast between *must* and *ought* in terms of contingent necessity is clear when these two modals are spoken in sequence — only certain orderings are felicitous. For example, *ought* is naturally followed by *must* (holding the prejacent constant), but not vice versa (16), as observed by Silk (2013).

- (16) a. I ought to help the poor. In fact, I must.
b. # I must help the poor. In fact, I ought to.

The relation between the two modals pointed out by Williams (1981) can be likewise illustrated by follow-ups; *ought* but not *must* allows other possible courses of action besides that specified by the prejacent (17).

- (17) a. You ought to take the A-train to get to Harlem. But there’s also a bus.
b. # You must take the A-train to get to Harlem. But there’s also a bus.

These data illustrate that while *ought* picks out a best or preferred possible world, *must* picks out one best or necessary possible world. For this reason, the former is considered weak while the latter is strong.

Ought also contrasts with *must*, but patterns with *supposed-to* in lacking performativity. By the same tests considered above for the strong necessity modals, *ought* does not signal performativity, even in matrix contexts.

- (18) You ought to take the (safer) Y-train, but take the (faster) Z (if you want).

The data regarding *ought* (16-18) show that *ought* can be understood as a non-performative, weak necessity modal, filling in one of two possible logical possibilities

⁸A similar distinction can be made for epistemic uses, although only ‘prioritizing’ uses (Portner 2007) are discussed here. Prioritizing uses include e.g. deontic (necessary or desirable due to customs or laws) and bouletic (necessary or desirable due to speaker desires) modal flavors.

for weak necessity modals (i.e. weak, not performative) indicated in the mini-typology of modals (12) discussed above.

The remaining gap in (12) is a performative weak-necessity modal. This modal, if it exists, would have a performative element analogous to that observed in matrix uses of *must*, but the modal force of weak necessity, as with *ought*. I argue in this chapter that a matrix imperative — e.g. all English imperatives — have exactly these properties, indicating at the same time performativity and weak necessity. This hypothesis is spelled out in (19); the formalization of this hypothesis is the concern of section 3.4.

- (19) Matrix imperatives (in English) encode weak necessity modality and are performative.

Given that imperatives are often associated with commands in the literature on imperatives, sometimes even to the point of allowing indicatives into the definition of imperatives (Hamblin 1987), (19) does not necessarily align with common-sense views of what imperatives are or do, from a pragmatic or functionalist (Aikhenvald 2010) perspective. More importantly, recent modal accounts of imperatives (especially Kaufmann 2012) characterize imperative modality in terms of strong necessity. Nevertheless, in the next section I offer some arguments that a modal semantics of imperatives which utilizes weak necessity is empirically superior to a strong necessity account.

3.3.2 A Paradox Concerning English Imperatives

In this section I discuss English imperatives and some issues which have posed persistent complications for researchers of imperatives more generally. While most of the basic empirical facts have been discussed in prior literature, I characterize the facts as a paradox, in order to justify the eventual analysis of imperatives in terms of weak necessity. In order to briefly illustrate these challenges, I first demonstrate

several facts regarding the comparison between deontic *must* and deontic *ought* on the one hand, and imperatives on the other. Here I continue the comparison of the modals *must*, *supposed-to*, and *ought* begun in the last section, and now add imperatives to the comparison set. These data suggest that imperatives are not as strong as *must* in all contexts. Ultimately, these data will motivate a semantics of imperatives in which a weak element can be strengthened in pragmatic contexts. The ‘weak-to-strong’ analysis which is developed below therefore contrasts with Wilson & Sperber (1988), Portner (2007), Kaufmann (2012), and Condoravdi & Lauer (2012), which (despite their differences) all propose analyses in which a “strong meaning is weakened in context,” according to von Stechow & Iatridou (2011).

As a performative strong necessity modal (Ninan 2005), a command with deontic *must* resists a follow-up in which the speaker acknowledges that the addressee won’t fulfill the command, whereas this is fine with *ought* (20), which has been characterized as a weak necessity modal (von Stechow and Iatridou 2008). The sentence with the imperative (21) patterns with *must* in this case; if anything (21) is even worse than (20a).

- (20) a. # You must go to the store. But I know you won’t.
 b. You ought go to the store. But I know you won’t.
- (21) ## Go to the store! But I know you won’t.

These facts indicate that the force a (main) clause with an imperative is at least as strong, if not stronger, than deontic *must*. Ninan (2005) discusses the relative strength of *must* as compared to both *should* and imperatives in English, presenting additional data that patterns with (20-21).

In contrast to (21), English imperatives are also weaker than *must* in other tests. For example, as a strong necessity modal, *must* used as a suggestion or advice has an effect of exclusivity not present for imperatives. When *must* is compared with *ought* in the context of advice about how to achieve a goal, *must* is used when only one

possibility can satisfy the desired goal, whereas *ought* crucially indicates a *preference* among options; the difference between the two modals is illustrated by the differing felicity of the follow-ups in (22a).

(22) Q: How do I get to Harlem?

a. # You must take the A-train. But there's also a bus.

b. You ought to take the A-train. But there's also a bus.

(23) Take the A-train! But there's also a bus (*e.g. if you're not in a hurry*).

Although unexpected from the perspective of (21), the imperative in (23) patterns with *ought*, not *must*. Note also that the imperative is similar to *ought* in indicating a preference; I discuss this property of imperatives further below, also in light of Condoravdi & Lauer's (2012) analysis of English imperatives in terms of preference.

The data in (20-23) therefore introduces a paradox, such that English imperatives appear to be both as strong (or possibly stronger) than *must* and weaker than *must* at the same time. However, the relative strength of imperatives as compared to *must* should, I argue, be characterized along two different dimensions; as indicated above, imperatives are as strong (or possibly stronger) than *must* in terms of performativity (21), but weaker in terms of modal necessity (23).

A solution to this paradox is forthcoming if the performative force of imperatives, on the one hand, and the modal force of imperatives, on the other, is separated into two distinct semantic elements. In fact, exactly this type of 'bipartite' analysis has already been offered for *must* by Ninan (2005) and for imperatives by Han (2000) and Kaufmann (2012). While I follow Kaufmann's (2012) analysis for the performative aspect of imperative interpretation (characterized formally below), I differ from Han (2000) and Kaufmann (2012) in developing an analysis in which the modal aspect of imperative interpretation is characterized as weak (not strong) necessity. Given that the current proposal differs from (especially) Kaufmann (2012) in only the modal as-

pect of imperative interpretation, in the next section I continue to focus on imperative interpretations that support the weak necessity treatment of imperatives.

3.3.3 Weak Imperatives: Permissions and Wishes

It is probably safe to assume, as do von Stechow & Iatridou (2010), that imperatives have historically been assumed to generally encode a very strong kind of order, imposing a requirement upon the addressee; this is reflected, as von Stechow & Iatridou note, even in the category label *imperative*, which takes its root from the Latin verb meaning ‘to command’. However, and again as indicated by von Stechow & Iatridou (2010), imperatives can indicate a wide range of meanings beyond commands. More recently, researchers have begun to attempt unified semantic analyses for imperatives, such that the linguistic category imperative (however construed) is linked to a single formal device which has the appropriate flexibility to cover the attested semantic functions.

Given the current (and, I believe, entirely appropriate) interest with unified analyses of imperatives, it has become quite fashionable in recent literature to enumerate the non-command uses of imperatives, assigning names for each use. Here, I will focus on just a few of the relevant uses, adopting the terminology of Condoravdi & Lauer (2012), although similar discussion can be found in Han (2000), Portner (2007), Iatridou (2008), von Stechow & Iatridou (2010), and Kaufmann (2012). The specific names for each use do not, however, carry any theoretical import, but rather serve only to keep track of different interpretative possibilities for expository reasons. Note that in the following examples I depart from the convention of including an exclamation mark after the sentences with imperative verbs, which do not seem to be appropriate for the following examples.

One relevant ‘weak’ use of imperatives is similar to that illustrated in (23), although in this case, the so-called *disinterested wish*, the speaker-addressee interaction

is different. For example, a tourist might ask a stranger how to get to Harlem, to which the speaker replies (24).⁹

(24) Take the A-train. (But you can also take the bus...) [*disinterested wish*]

The speaker here isn't imposing a requirement on the addressee, nor even indicating a necessary course of action (assuming Harlem is to be reached). Rather, the speaker is taken to be giving an example of the *best* way for the addressee to get to Harlem.¹⁰

Another possible interpretation of an imperative is the *absent wish*, in which the speaker is indicating a strong preference, but in absence of any addressee who could bring about the preference in the real world. In this example, the speaker has been listening to his child cry over a baby monitor; suddenly, the monitor falls silent, and the speaker whispers (25) to the (one-way) monitor. Of course, the baby can't even hear the utterance, and if he could, he wouldn't be able to act on it anyway.

(25) Be asleep. [spoken by an exhausted parent to a suddenly quiet baby monitor] [*absent wish*]

Along similar lines, an absent wish need not have a human addressee. For example, if a baseball fan were to see a pop fly from her favorite hitter, she might utter (26).

(26) Be a home run!

Condoravdi & Lauer (2012) note how problematic examples like (25-26) are for theories of imperatives which reduce this category to commands; their solution is to analyze imperatives in terms of *preference sets*, which are similar to modals in many respects. I argue below that *absent wishes* can be equally captured via weak necessity modality, which are required in a linguistic theory of modality independently of imperatives.

⁹I assume non-generic subjects for the examples in this section. For example, in (24), the grammatical subject refers to a specific addressee in the relevant discourse context.

¹⁰Again, compare (24) to a similar utterance with *must*, i.e. *You must take the A-train*.

Advice interpretations are also hard to reconcile with the notion of ‘command.’ In (27a), suppose the speaker is a doctor giving instructions to her patient. While the doctor is certainly in a position of authority, giving (27a) the feeling of a speech act, the patient is under no obligation to follow the doctor’s advice.

- (27) a. Take two of these and call me in the morning. [*advice*]
 b. You must take two of these and call me in the morning.

If we compare (27a) to (27b), the latter seems to be far more appropriate when, for example, a life-threatening ailment motivates the relevant medical advice. *Must* therefore suggests a stronger form of advice as compared to the imperative.

Permissions are a final class of imperative interpretations which I will highlight here. Permissions are also problematic for ‘command’ theories of imperatives as well as those, such as Kaufmann (2012), which are framed within strong necessity. For example, if somebody says that the room is too hot, a speaker can respond with a sentence with an imperative (28a), whereas an otherwise identical sentence with *must* is very odd in the context of a permission (28b).

- (28) a. Open the window, if you find it too hot in here. [*permission*]
 b. #^{as permission}You must open the window, if you find it too hot in here.
 c. You ought to open the window, if you find it too hot in here.

While *must* is excluded in the kind of simple permission illustrated in (28), *ought* is just fine in this context, as expected given the weak necessity interpretation of imperatives discussed above.¹¹

¹¹However, *must* is not excluded from permissions altogether. Consider (i), which includes permissions that one can easily imagine hearing at a party. Nevertheless, the example with the imperative (ia) contrasts with the example with *must* (ib), in that the former resists modification with *simply*.

- (i) a. #(simply) Try this dessert.
 b. You (simply) must try this dessert.

I take the contrast with respect to *simply* to derive from a difference in modal strength, because the imperative, but not *must*, allows for a greater range of possible actions. On the one hand, while the speaker believes that the addressee of the imperative will be best-off trying the dessert,

In addition to permission cases such as (28), von Fintel & Iatridou (2010) discuss additional cross-linguistic data which show that the availability of a permission reading is likely inherent to morphological imperatives. First, von Fintel & Iatridou (2010) note that while infinitives and subjunctives can be used as commands, these vary with respect to whether they support permission interpretations, depending on the specific language. For example, infinitives in Hebrew and Catalan can be used as commands, but not permissions; the same holds for English as well, for which infinitives can be used as commands (29a) but not permissions (29b).

- (29) a. This book is to be read by Monday!
 b. #^{as permission}If the room is too hot, the window is to be opened.

von Fintel & Iatridou report similar facts for the morphological subjunctive. For example, in Slovenian, the subjunctive can be interpreted as a command but not a permission. Note however that these facts surrounding the infinitive and subjunctive are not universal generalizations, as von Fintel & Iatridou report counter-examples in other languages, i.e. languages exist in which infinitives and subjunctives can be interpreted as permissions.

Crucially, von Fintel & Iatridou (2010) show that a generalization regarding imperatives is possible from their data set of 13 languages, to which English and German (Kaufmann 2012), at least, can be added.¹² In particular, von Fintel & Iatridou show that for all of the languages they survey, imperatives can function as permissions (in addition to other functions, such as commands). This cross-linguistic evidence

the imperative implies that some other course of action (i.e. not trying the dessert) is contingently permissible. On the other hand, *must* indicates a greater obligation placed upon the addressee in that it allows only one exclusive course of action. Within the hypothesis that imperatives encode weak necessity, the contrast in (i) can be reduced to the observation that strong necessity (*must*) picks out one possible world, while weak necessity is linked to (possibly more than one) best possible worlds. If the discussion here is on the right track, then this provides a further argument that imperatives pattern with weak necessity modals.

¹²The languages surveyed by von Fintel & Iatridou (2010) include the following: (modern) Greek, Turkish, Hebrew, Palestinian Arabic, Moroccan Arabic, Spanish, Catalan, French, Italian, Slovenian, Serbian, Croatian, and Albanian.

suggests that while commanding is sometimes thought to be the distinctive property of clauses headed by MIVs, this is not necessarily the case. On the one hand, various types of verbal morphology (including non-finite morphology) can be used in clauses with command interpretations, and indeed clauses with MIVs can function as commands cross-linguistically (Aikhenvald 2010). On the other hand, if the various types of verbal morphology that *can* function as commands are considered, the imperative appears to be unique in that only imperative morphology *can always* function as a permission cross-linguistically, given the proper pragmatic context. Therefore, if one distinctive property of imperatives is to be picked out, the cross-linguistic data presented by von Stechow & Iatridou (2010) suggest that permission is at least as strong a candidate as command, even if this does not align with the common-sense view of what an imperative is.

3.3.4 Modals and Imperatives: Interim Summary

This chapter began with a discussion of the terminological confusion regarding the term ‘imperative’ in both the functional and the formal literature. In section 3.2, I argued that within formal approaches, imperatives have been understood either as a particular type of verbal morphology (or equivalently, a verb bearing this morphology), or as a particular clause type. Embedded imperative data suggested that the former approach is on the right track, because morphological imperatives can (contrary to prior claims) appear in embedded clauses of sentences which are either declarative or interrogative (i.e. the MIV does not trigger directive force given its position in an embedded clause). While most recent research within formal semantics regards imperatives as a clause type, I argued that a modal analysis for imperatives, such as that presented in Kaufmann (2012), is suitable for an analysis in which MIVs are given a specific semantic meaning.

This section (section (3.3)) began with a discussion of several modal verbs in En-

glish. Following aspects of Ninan (2005), I argued that modals should be understood in terms of (at least) two parameters, namely modal strength and performativity. I then argued that with respect to performativity, imperatives pattern with matrix clause tokens of *must*; i.e. matrix imperatives have performative force. At the same time, data showed that imperatives differ from *must* in modal strength. With respect to modal strength, I advanced the hypothesis that imperatives have the modal strength of a weak necessity modal, such as *ought*. Therefore, in languages (such as English) where MIVs are disallowed in embedded CPs, imperatives are effectively equivalent to performative, weak necessity modals.

While equating imperatives to performative, weak necessity modals is, to my knowledge, a novel hypothesis, all of the theoretical machinery which is needed to implement the hypothesis is independently motivated. This is crucial for a theory of linguistic knowledge which eschews construction specific analyses and, at the same time, attempts to reduce the number theoretical postulates to the extent possible. In particular, any complete theory of natural language semantics requires an account of modality; the framework I adopt here is that developed by Kratzer (1977, 1981, 1991). Also, the idea that a particular modal can encode both modality and performativity is presented by Ninan (2005) with respect to *must*. Along the same lines, Kaufmann (2012) adopts a bipartite semantics for imperatives, according to which imperatives encode both performativity and strong necessity modality. Finally, an adequate theory of natural language modality requires as a subpart a theory of weak necessity; I adopt the theory of weak necessity developed by Silk (2013).

In the following section, I formalize the hypothesis that main clause MIVs are performative, weak necessity modals. I also present the analysis of imperatives developed by Kaufmann (2012). Closely examining Kaufmann's model is instructive, because she formalizes the notion of performativity as this relates to imperatives, and also because the performative aspects of imperatives are treated as presuppositions

to a more central meaning of imperatives, namely strong necessity modality. In this respect, the hypothesis set forth in this chapter can be implemented rather straightforwardly, by adopting the performative aspects of Kaufmann’s (2012) proposal, while changing the analysis of the modal postulated in her proposal from a strong to a weak necessity modal.

3.4 Imperatives as Weak Necessity Modals

In this section I formalize the proposal that imperatives should be treated as weak necessity modals. Specifically, the modal element is syntactically represented in T^0 (although the analysis presented here is also compatible with a syntactic representation in which the modal is in a dedicated modal phrase represented above TP (Isac 2012)). The left peripheral element that obligatorily selects matrix imperatives in many languages, such as English, encodes performativity; in this sense, the left-peripheral element that has been postulated to account for V-C movement in (matrix) imperatives (Cheng 1991, Rivero & Terzi 1995, Rizzi 1997, Han 2000, Medeiros to appear) contributes to the semantics of matrix clauses which are headed by MIVs.

An advantage of this bipartite model for (matrix) imperatives is that embedded imperatives are handled straightforwardly. These are not selected by the C-head which is the locus of performativity, therefore predicting that embedded MIVs have all of the modal meaning but none of the performative meaning of their matrix, performative counterparts. To the extent that the selection of MIVs by the performative C^0 head is explained in chapter 2, there is no need to distinguish between ‘non-canonical’ embedded or non-addressee oriented imperatives from ‘canonical’ imperatives. From this perspective, and to the extent that the proposal is successful, the ‘canonical’ versus ‘non-canonical’ distinction is eliminable from a theory of MIVs.

Before turning to my proposal, I first give a brief overview of relevant aspects of Kratzer’s approach to modality. I then discuss Kaufmann’s (2012) account of

imperatives. While Kaufmann treats imperatives as a clause-type, her model is, as far as I understand it, well equipped to give an account of imperatives understood as a morphological property. Finally, I modify Kaufmann’s proposal by recasting the modal component of imperative meaning as a weak necessity modal.

3.4.1 Kratzer’s Approach to Modality

As discussed above, Kaufmann’s (2012) account of imperatives already has in place many of the elements which, I argue, are desirable for an account of imperatives. Kaufmann’s analysis of imperatives crucially relies on modality, and is situated within the framework of modality developed by Kratzer, specifically Kratzer (1981), which presents a theory of natural language modality which has arguably become standard within the field of natural language semantics (see e.g. Portner 2009, Hacquard 2011). While a full exposition and justification of Kratzer’s modal semantics is beyond the scope of this chapter, the basic elements of the Kratzerian approach are discussed here for expository purposes. (Kratzer 2012) contains relevant collected works and discussion of the framework; the discussion here is also based partially on the introduction to Kratzer’s modality which appears in Kaufmann 2012).

Modal verbs are highly ambiguous, and this is a central problem which Kratzer’s approach to modality addresses. Kratzer’s initial focus was on *must* and *can* and their German correlates, although the ambiguity observed for these modal verbs has been observed cross-linguistically (Hacquard 2011). For example, consider again *must*. *Must* can range in interpretation from epistemic (30a), to advice, to more ‘prioritizing’ (Portner 2007) meanings such as deontic (30b) and bouletic (30c). In current literature, the variants of meaning a given modal can have are sometimes called *modal flavors*.

- (30) A non-exhaustive list of ‘modal flavors’ for *must*:
- a. (In light of the fact that it’s 3:00,) Watson must be in his office. [*epistemic*]

- b. (In light of the law,) Watson must pay his taxes. [*deontic*]
- c. (In light of his desire to become a millionaire,) Watson must invest wisely.
[*bouletic*]

There are (at least) two ways in which the ambiguity of *must* can be resolved. First, and as illustrated in (30), some linguistic device such as an ‘in light of’ clause can indicate the intended reading. (31) shows the same phenomenon more clearly; here, the main clauses are identical with respect to all non-semantic factors, but the correct meaning of *must* is clarified by the ‘in light of’ clause.

- (31) a. (In light of the fact that it is 1:00AM,) Watson must be in bed. *epistemic*
- b. (In light of his parents’ orders,) Watson must be in bed. *deontic*

However, the ambiguity of *must* can also be resolved by context. Clearly it is not the case that an ‘in light of’ clause or some similar linguistic device is required to disambiguate a modal verb in all cases. Therefore, if one lexical entry is to cover all of the possible meanings of a modal verb like *must*, this entry needs to be sensitive to context, whether indicated linguistically or not.

A second problem Kratzer addresses involves the interpretation of necessity modals with respect to available possible worlds. Some theories of modality prior to Kratzer used *accessibility relations* to understand modal flavors such as deontic. According to this kind of theory, use of deontic *must* is understood by considering all and only worlds in which laws are not broken; i.e. deontic necessity is computed by reference to possible worlds made available by a deontic accessibility relation.

However, this kind of pre-Kratzerian understanding runs into problems for examples such as (32).

- (32) a. John must not murder. *deontic*
- b. *John has murdered, therefore* John must go to prison. *deontic*

Here, (32b) can be interpreted even though the law, as stated in (32a), has been violated. Since (32b) is perfectly acceptable, it must be the case that worlds in which some law has been broken can, in fact, be considered even for clear-cut cases of deontic *must* such as (32b); in other words, if the deontic accessibility relation is defined in terms of worlds in which the law is not broken, then (32b) should be uninterpretable in any world in which murder is unlawful, contrary to fact. Therefore, a simplistic account of deontic necessity in terms of a deontic accessibility relation cannot account for the acceptability of (32b).

Given problems raised by (30-32), Kratzer developed a ‘doubly-relative’ formalism for modals. According to Kratzer’s formalism, modals are understood in terms of two types of contexts, called ‘conversational backgrounds.’ Conversational backgrounds can be given by linguistic devices or inferred from non-linguistic context. One conversational background is called the *modal base*, a necessarily consistent body of information, and the other conversational background is the *ordering source*, which “induces an ordering amongst the worlds that comply with the modal base” (Kaufmann 2012). A modal verb is interpreted in terms of these two conversational backgrounds, the modal base f and the ordering source g ; the ordering source serves to induce a pre-order on the set of possible worlds introduced by the modal base (33).

(33) For any possible world w , the conversational background g induces the ordering relation $\leq_{g(w)}$:

$$\forall v, z \in W: v \leq_{g(w)} z \text{ iff } \{p | p \in g(w) \& z \in p\} \subseteq \{p | p \in g(w) \& v \in p\}$$

In (33), the ordering source g forces the relevant pre-order with respect to v and z , which are sets of worlds. According to (33), v is better than z (i.e. $v \leq_{g(w)} z$) iff the worlds in $g(w)$ where z is true are a subset of those in $g(w)$ where v is true.

Because the ordering source orders possible worlds introduced by the modal base, this allows evaluation of best possible worlds for a modal verb such as *must*. Crucially, this allows speakers to understand how to interpret an example such as (32b);

although the best world for deontic evaluation is a world in which murder does not occur, if murder *has* occurred, there is a second best world which can be used for evaluation, in which all murderers go to prison.

Kratzer’s system is usually simplified in terms of the *limit assumption* (Lewis 1973). The limit assumption formalizes the notion that for any non-empty modal base, there will always be a non-empty set of worlds for the ordering source to optimize. This is formalized as (34).

$$(34) \quad \text{The limit assumption (Lewis 1973)} \\ (\forall f, g, w)[\cap f(w) \neq \emptyset \rightarrow O(f, g, w) \neq \emptyset].$$

In (34), $O(f, g, w)$ is defined, in Kaufmann’s (2012) words, as “the set of worlds conforming to the modal base f at w (i.e. in $\cap f(w)$) that are best according to the ordering source g at w .” Without considering temporal distinctions, this is formalized as (35).

$$(35) \quad O(f, g, w) := \{v \in \cap f(w) \mid \forall z \in \cap f(w): \text{if } z \leq_{g(w)} v \text{ then } v \leq_{g(w)} z\}$$

Focusing still on *must*, these definitions allow human necessity to be understood as (36a). In formal terms, Kratzer defines *must* as (36b).

- (36) a. A proposition p is a human necessity in a world w with respect to a modal base f and an ordering source g iff $(\forall w' \in O(f, g, w))[p(w')]$. (Kaufmann 2012)
- b. $[[\text{must}]]^c = \lambda f \lambda g \lambda p \lambda w. (\forall v \in O(f, g, w))[v \in p]$ (Kratzer 1981)

The lexical entry (36b) therefore solves the problems for modal verbs which are inherent to a theory which appeals to accessibility relations only. Additionally, because the modal base f is understood in terms of context, this system is able to derive the correct modal flavor for a given context. The following section presents Kaufmann’s (2012) analysis of imperative semantics, which relies on the Kratzerian analysis of modal verbs.

3.4.2 Kaufmann 2012: Performativity and Modality

Kaufmann (2012) presents a theory of imperative semantics according to which imperatives (for her these are clause types) are modalized propositions. From the perspective of prior accounts of imperatives, such as Portner (2007) and Han (2000), Kaufmann notes that her system could be criticized for assigning truth-values to imperatives. She counters this potential objection on two accounts. First, some performative uses of modal verbs can behave as if they do not have truth values; some (but not all) of the relevant data was covered in section 3.3.1. Second, Kaufmann argues that treating imperatives as modalized propositions allows for “a much more natural interaction between imperatives and information about the world as expressed by declaratives or as requested by interrogatives.” To Kaufmann’s two defenses of a truth-conditional model of imperatives, I add a third; namely, if the embedded imperative data discussed above (5-7) are to be assimilated into a general theory of imperatives (and I argue above that they should), these data provide an argument of the strongest type that imperatives (now understood as a verb type) should be assimilated into truth-conditional semantics.

Because Kaufmann considers main clause imperatives in languages such as English and German, she is concerned with ensuring that all imperatives are also performative. In other words, while imperatives are modalized propositions for Kaufmann, all of the imperatives she considers are also performative in nature. In order to ensure that imperatives are performative, Kaufmann builds the performativity into imperatives as a set of presuppositions separate from the modal content. As discussed above, this general approach will work well for the embedded imperative data to the extent that the embedded imperatives carry all of the modal meaning but none of the performative meaning of their matrix counter-parts.

To implement this system, Kaufmann proposes an imperative operator with propositional (modal) and presuppositional ingredients. Note that in this respect Kauf-

mann’s system stands in contrast to the system I propose below, in which the propositional and presuppositional elements are separated in terms of their syntactic representation. Kaufmann’s imperative operator is defined in (37): I present her entire definition first and discuss its features afterward (note that this definition includes temporal distinctions).

(37) Imperative Operator as Defined in Kaufmann (2012)

$$[[OP_{imp}]]^c = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(f_{CG(c)} \cup f, g, c_T, w)) [P(t)(w')],$$

presupposes:

a. $\neg(t < c_T)$

b. Authority Condition: $f, g \in AUTH'(c_s)(c)$

c. Epistemic Uncertainty: for the precontext c' of c ,

$$CS(c') \subseteq \lambda w. (\exists w' \in Bel'_{c_s}(c'_T)(w)) (\exists w'' \in Bel'_{CS}(c'_T)(w))$$

$$[\neg P(t)(w') \& P(t)(w'')]$$

d. Ordering Source Restriction

either (i) in c there is a salient decision problem $\Delta(c) \subseteq P(W)$ such that in c the imperative provides and answer to it, g is any prioritizing ordering source, and the speaker and addressee consider g the relevant criteria for resolving $\Delta(c)$;

or else, (ii) in c there is no salient decision problem $\Delta(c)$ such that the imperative provides an answer to it in c , and g is speaker bouletic.

(37) includes a modal component as well as four presuppositions which ensure performativity for imperatives. First, the modal component functions almost identically to the lexical entry for *must* (36b) above, although (37) includes a temporal aspect as well. Therefore, (37) is a proposal that relies crucially upon strong necessity to characterize imperatives.

The presuppositions, taken together, ensure that the imperative (sentence) is per-

formative; this performativity is argued by Kaufmann (2012) to obscure the truth-conditional force of the imperative. First, presupposition (a) ensures that the imperative can or will occur in the future (more formally, at or following utterance time). Presupposition (b) ensures that speaker in the context in an “epistemically privileged position” with respect to the conversational backgrounds f and g ; this definition for authority is based in part upon Zimmermann (2000).

The final two presuppositions are required to preclude an imperative such as (38) from having any of the interpretations in (39).

(38) Be home at 5!

- (39) a. The alternatives that are *most plausible according to what I know*, are such that you are at home at 5.
- b. The alternatives that are *most plausible according to what rumors say*, are such that you are at home at 5.
- c. The alternatives that are *most plausible according to what I take to be the usual course of events*, are such that you are at home at 5. (Kaufmann 2012)

Clearly, we do not want any of the interpretations in (39) to be the interpretation of (38). All of the impossible interpretations for (38) in (39) share the two properties that (i) the modal base is assumed to be the common ground interacting with the presence of (ii) a non-empty and impersonal ordering source. Presupposition (c), the presupposition of epistemic uncertainty, therefore ensures that the speaker believes that fulfillment of the imperative (construed as the entire sentence) is possible, but not a foregone conclusion. In short, epistemic readings of performative imperatives are correctly excluded given Kaufmann’s presuppositional content.

The final presupposition, presupposition (d) or the ordering source restriction, is formulated to exclude discourses which contain imperatives such as (40a), even while

similar discourses which do not contain imperatives, such as (40b), are fine.

- (40) a. Call Melli! #But I don't want you to call her.
b. Given how things are and given Melli's wishes, it is necessary that you call her. But I don't want you to call her.

To account for this contrast, Kaufmann (2012) defines the ordering source restriction such that the ordering source g must be prioritizing (Portner 2007) if the imperatives addressees a decision problem (van Rooy 2003), where prioritizing ordering sources are bouletic, teleological, or deontic. However, this presupposition is formulated as a disjunct, because not all imperatives address decision problems; consider e.g. (41).

- (41) Enjoy your meal!

Here there is no decision problem (i.e. the speaker of (41) wishes only that the addressee enjoy his/her meal), such that the ordering source need not be prioritizing from the addressee perspective. However, in such cases, the imperative must be bouletic from the perspective of the speaker (i.e. it is the speaker's desire that the addressee enjoy the meal, regardless of the addressee's wishes).

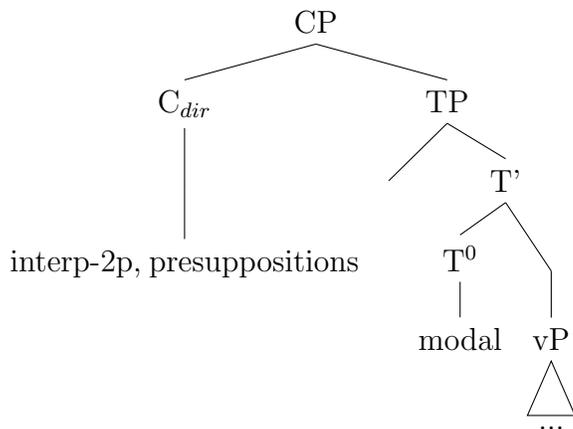
By combining modal and presuppositional content, Kaufmann (2012) is able to give an account of imperatives in which they are modalized propositions which are at the same time performative. Although I will not cover Kaufmann's account of how her semantics is implemented in the syntax in detail, the relevant details of her model are that: (i) the imperative modal and the presuppositional content are encoded in the same element, the imperative operator, and (ii) this operator is represented in the left-periphery of the sentence, i.e. within CP. In the following section I will maintain Kaufmann's set of presuppositions straightforwardly, but I will modify the modal aspect of Kaufmann's proposal. I also maintain Kaufmann's analysis according to which the presuppositions are represented in CP, but I will place the modal element in T^0 .

3.4.3 The Weak Necessity Proposal

In this section I propose a new analysis of imperatives, which differs from Kaufmann’s in two primary ways. First, I will maintain her analysis of the presuppositional content of imperatives, but will associate these presuppositions with the imperative operator which has been argued by Cheng (1991), Rivero & Terzi (1995), Rizzi (1997) and others to be represented in C^0 and force (possibly covert) V-T-C movement of imperative verbs (V-T-C movement of MIVs is discussed in more detail in chapter 4). I will then place Kaufmann’s modal component of meaning within TP, separate from the presuppositional content.

While I reserve a more detailed discussion of the syntactic location of the modal aspect of the meaning for the following chapter, I propose a structure roughly along the following lines.

(42)



Associating C^0 with Kaufmann’s presuppositional content, as in (42), now allows a far more semantically grounded understanding of the content of C_{dir} , which was introduced in chapter 2. While C_{dir} maintains all of the syntactic properties developed in chapter 2, such as 2nd person features, the semantics of what makes it ‘directive’ are now in place, i.e. the presuppositions listed in (37). As desired from the perspective of wish and advice readings of imperatives, clauses with MIVs are not so much ‘directive’

as performative in a (now) formally defined way, specifically by the constraints on interpretation that follow from the presuppositions in (37). These presuppositions constrain aspects of imperative interpretation in terms of temporal and contextual parameters, as discussed in 3.4.2 above.

While I maintain the performative aspects of (matrix) imperative interpretation as defined by Kaufmann’s presupposition content in (37), I depart from her proposal by arguing that the modal content of imperatives should be understood in terms of weak necessity. Here, I present the semantic value of the modal. Specifically, I adopt the formal treatment of weak necessity as presented in Silk (2013). While the choice of Silk’s (2013) formalism is not crucial, this formalization is convenient because it is both recent and makes explicit the comparison between strong and weak necessity; furthermore, this formalism is more directly comparable to the semantics of modality adopted by Kaufmann (2012) as compared to the theory of weak necessity suggested by von Stechow & Iatridou (2008), since the latter introduces a third ordering source.

A minor, and purely technical, disadvantage of Silk’s proposal (from the perspective of the current chapter) is that Silk further simplifies the Kratzerian modal model by reducing the interaction of the modal base and the ordering source into *premise sets*, P . This only complicates the analysis here to the extent that the presuppositions defined in (37) are defined in terms of modal bases f and (especially) ordering sources g .

While I won’t attempt a full translation of Silk’s proposal into definitions with modal bases and ordering sources, brief discussion of the role of premise sets can help explicate how these are related to Kratzer’s conversational backgrounds (and also serve as an introduction to Silk’s system). Premise sets P describe functions that context supplies for the interpretation of modals; an *unsaturated* premise set P supplies this context. The value of P given a world of evaluation is a *saturated* premise set P_w . By adopting premise sets, Silk is able to offer simplified definitions, without

distinguishing between modal bases and ordering sources. However, looking ‘under the hood’ at premise sets, Silk offers the following explanation of the relationship between premise sets and Kratzer’s conversational backgrounds:

... what follows from P_w can be understood as short for talk about what follows from all maximally consistent subsets of $F_w \cup G_w$ that include F_w as a subset, where F_w is a modal base that describes some set of relevant background facts and G_w is an ordering source that represents the content of the relevant ideal evaluation world. (Silk 2013, ft. 9).

Note that Silk maintains the limit assumption (34) in his discussion of modal bases, ordering sources, and their relation to premise sets.

With an understanding of premise sets in place, including the relationship between premise sets on the one hand and modal bases and ordering sources on the other, I turn to Silk’s definitions of strong necessity *must* and weak necessity *ought*. Note that in these definitions, Silk defines the modals in terms of their relationship to the *prejacent*, ϕ , the sister of the modal operator, or alternatively the proposition which the modal ranges over. Silk gives strong necessity modals like *must* “their usual semantics of necessity” in the definition (43).

$$(43) \text{ ‘Must } \phi \text{’ is true at } w \text{ iff } \cap P_w \subseteq [[\phi]] \text{ (Silk 2013)}$$

Given this definition, “the truth of ‘Must ϕ ’ thus depends on the value of P at the world of evaluation” (Silk 2013). In other words, the truth of a sentence with *must* is checked by comparing whether the conditions in the evaluation world w are such that the P_w verifies the necessity of ϕ .

Silk relates weak necessity to strong necessity in terms of conditional or contingent necessity; weak necessity therefore defines what is necessary if certain conditions hold. Formally, and making use of a selection function s which selects a set of χ -worlds that are closest to w , weak necessity *ought* is defined as (44).

- (44) ‘Ought ϕ ’ is true at w iff ‘Must ϕ ’ is true at all worlds $w' \in s(w, \chi)$ iff $\forall w' \in s(w, \chi) : \cap P_{w'} \subseteq [[\phi]]$ (Silk 2013)

Silk’s definition of weak necessity (44) can therefore be thought of in the following way:

Roughly, ‘Ought ϕ ’ is true iff ‘Must ϕ ’ would be true were it to turn out that certain relevant norms, values, goals, etc. that bear on the necessity of ϕ are in force and not defeated. ‘Ought ϕ ’ makes a claim about the necessity of ϕ at all closest relevant χ -worlds, for some contextually supplied condition χ . (Silk 2013)

With a suitable definition of weak necessity in place, the presuppositional and modal components of the current proposal can now be considered in tandem. First, I propose that all MIVs encode weak necessity as defined in (44). Second, I propose C_{dir} , syntactically defined in chapter 2, is associated with a set of presuppositions which ensure a performative reading; given the performative properties of C_{dir} , it is, by hypothesis, restricted to matrix clauses only. Clauses in which MIVs are selected by C_{dir} , according to the proposal in chapter 2, are performative given their association with the presuppositions defined in (37).¹³ A matrix clause with an MIV is therefore syntactically represented as in (45), where \Box_{wn} represents weak necessity.

¹³Note that C_{dir} can also select a T^0 which is not associated with MIVs, for example directive uses of overt modals or suppletive imperatives. This topic is discussed more extensively in chapter 4.

result, since ‘directive’ alone is both vague and, in its common sense usage, somewhat misleading with respect to several of the ‘weak’ readings for imperatives, such as wish or permission. With formal definitions in place, in the next section I briefly discuss how the proposal handles various interpretations of MIVs.

3.5 Evaluating the Proposal

In section 3.3, several contrasts were presented which motivated equating imperatives with weak necessity modality, such that all imperatives in a language like English have the interpretation of performative, weak necessity modals. In this section I discuss some of the predictions for the analysis of imperatives as represented in (45). In particular, I consider the fact that (45) does not build addressee-orientation into the definition of imperative or C_{dir} , in contrast to the proposal in Zanuttini (2008, see also Zanuttini et al. 2012), in which an addressee restriction is placed in the specifier of the left-peripheral projection which heads all clauses headed by MIVs. Under my reanalysis, MIVs and clauses that contain them should not, therefore, have obligatory addressee-orientation. Further, I consider the interpretation of MIVs in embedded clauses, which should not be constrained by the presuppositional content of C_{dir} , given that C_{dir} is (by hypothesis) only a matrix level operator.

Two types of data have suggested to prior researchers that imperatives should be treated as a very strong modal or even non-propositional object. These data include (i) the fact that imperatives resist a truth-conditional interpretation, and (ii) imperatives resist certain types of follow-ups (21), and also (40a). Specifically, imperatives resist follow-ups in which the speaker acknowledges the fact or possibility that the addressee might or may not fulfill the request made by the imperative. However, in light of Ninan (2005) and following Kaufmann (2012), I argued that these two types of data should be explained by appeal to a certain type of performativity, which I formalized in terms of Kaufmann’s (2012) proposal regarding presuppositions

with constrain imperative interpretation.

While imperatives are sometimes thought of as commands, additional data suggest that equating imperatives with commands is not empirically justified. According to von Fintel & Iatridou's (2011) review of the literature on imperatives, all of the proposals they survey suffer from making the imperative too strong, forcing the proposals to adopt additional theoretical postulates to handle permission and wish interpretations. For this reason, I adopt an approach in which MIVs are associated with a relatively weak element, a weak necessity modal. The straightforward equation of MIVs with weak necessity modality allows an equally straightforward comparison between MIVs and a non-controversial weak necessity modal such as *ought*. In other words, MIVs and *ought* should have the same interpretation once performativity (present for matrix imperatives but not *ought*) is factored out.

Consider in this context three of the 'problem cases' for prior analyses of imperatives as discussed in von Fintel & Iatridou (2011). Permission is a major hurdle for strong necessity treatments of imperatives. This imperative interpretation was already discussed as example (28), which I repeat here as (46).

- (46) a. Open the window, if it's too hot in here. [*permission*]
b. #^{as permission}You must open the window.
c. You ought to open the window.

As desired, *ought* allows a permission interpretation, suggesting that the comparison between weak necessity modality and MIVs is on track, and does not require additional theoretical machinery.

The 'dare' or 'taunt' reading of imperatives can also be assimilated into the weak necessity proposal; however, for both the imperative and the modal, something more (arguably pragmatic) must be said to account for dares. Nevertheless, consider (47).

- (47) a. Try it - just you dare.

- b. You ought to try it - just you dare.
- c. #You must try it - just you dare.

Here, the imperative and *ought* pattern together in their taunt interpretation, to the exclusion of *must*. Again, something more must be said to account for the fact that in both (47a) and (47b), what might be expected to be a command is (roughly) a kind of prohibition. To the extent that the counter-intuitive prohibitory status of (47a) and (47b) can be explained, taunts give further evidence that imperatives pattern with *ought*.

The absent wish is another problematic case for imperative analyses covered in von Stechow & Iatridou (2011). While this type of example was discussed briefly with respect to (25), here I present another example in an alternative context. Consider, for example, a speaker who has purchased a lottery ticket. As the speaker watches the broadcast in which the winning numbers are revealed, he reflects on his recent financial difficulties and wishes that his ticket is a winner. For this context, clauses with an MIV (48a), *ought* (48b), and *must* (48c) are all appropriate.

- (48)
- a. Be a winner!
 - b. You ought to be a winner!
 - c. You must be a winner!

The comparison between imperatives and non-controversial weak necessity modals such as *ought* holds in (48), but here, *must* is also allowed. Why imperatives, weak necessity modals, and strong necessity modals all pattern together in this context has to do with the definition of weak necessity adopted here, according to which weak necessity is contingent necessity. In (48), there is no contingency (that the speaker entertains) such that losing the lottery is superior to winning it.

The lack of contrast between imperatives and both strong and weak modals in the absent wish also helps explain the behavior of these items in commands. While linking

imperatives to weak necessity modals provides a satisfactory account of permissions, absent wishes, and taunts, weak necessity is still able to handle very strong commands. Consider in this context a threatening command, such as (49).

- (49) a. Get the hell out of my office before I shoot you!
b. You ought to get the hell out of my office before I shoot you!
c. You must/need to get the hell out of my office before I shoot you!

Given the right pragmatic context, weak necessity modals can be used as commands, along with imperatives and strong necessity modals such as *must* or (perhaps more idiomatically) *need to*. In other words, the imperative in (49) patterns with both strong and weak necessity modals, such that all of the commands in (49) can have similar illocutionary force, given the appropriate context.

The ability of weak necessity modals to approach strong necessity, but not the other way around, follows from the definition of weak necessity which is framed in terms of contingent necessities. Consider again in this context Silk's (2013) informal translation of (44), according to which the prejacent ϕ of a weak necessity modal is true iff the prejacent ϕ of a strong necessity modal would be true "were it to turn out that certain relevant norms, values, goals, etc. that bear on the necessity of ϕ are in force and not defeated".

For example, in (49b), the command reading follows from the assumption that the addressee does not want to die, generally a safe assumption (i.e. there are no possible worlds in which it is more desirable to be dead versus alive, under normal assumptions).¹⁴ In contrast to weak necessity modals, strong necessity modals are not contingent necessities. This follows from the definition of strong necessity in (43), according to which the truth of '*must* ϕ ' is checked directly against the premise set P_w ; in (49c), for example, this sentence is therefore true only in the world in which

¹⁴For this reason, it can be appropriate, as I do in section 2, to translate certain imperative uses with *must* instead of *ought*.

the referent of the subject leaves the office. Given this relationship between weak and strong necessity, it follows that strong necessity modals work fine as commands but cannot naturally express permissions and wishes without recourse to additional theoretical machinery.

3.5.1 1st and 3rd Person Imperatives

This section briefly shows how the current proposal can handle performative imperatives of the 1st and 3rd person. The data in this section are from Sanskrit (repeating (9)), a language with an imperative paradigm that inflects for all persons. The Sanskrit data presented here are discussed in Portner (accessed 2013).

First person singular imperatives in Sanskrit are sometimes called ‘promissives.’ (50) is a representative example (I maintain the translation with *will* presented by Portner).

(50) aavyeSam jaagrtaat aham
 daybreak watch-imp-1s I
 I will watch until daybreak (AV 144)

Understanding (50) as encoding strong necessity does not seem quite right for this example, likely because promises are a kind of self-imposed necessity. For this reason, *must* is impossible for a promise in English.

However, *ought* is not quite right for a promise in English either. Nevertheless, the inability of *ought* to function as a promise in English easily follows from the fact that *ought* is not performative, while promises are non-controversially performative (Austin 1962). This being the case, the question now is whether (50) can be understood via the combination of weak necessity and presuppositions that were offered in section 3.4 as the definition of imperatives.

I answer this question affirmatively first by noting that, as discussed above, weak necessity modality can handle necessity ranging from quite weak to very strong, de-

pending on the contingencies of the particular situation. As such, an utterance with a weak necessity modal (though not a non-performative like *ought*) can be understood as a promise given the proper pragmatic context. More crucially, (50) attains speech act status given the presuppositional content of imperatives as defined by Kaufmann (2012) and adopted here (45). As desired, Kaufmann’s presuppositions ensure that the promise (i) is to be fulfilled (if fulfilled) in the future (presupposition (a)), (ii) epistemically uncertain (presupposition (c)), and speaker bouletic (presupposition (d)); most importantly, Kaufmann’s presupposition (b) ensures that the speaker of a promissive has the relevant authority to order referent of the subject of the imperative (in this case also the speaker) to fulfill the promise. Speaker authority is, of course, a crucial component of any (non-empty) promise. Proper application of the performative presuppositions can therefore yield the desired promissive reading for an example such as (50).

Finally, 3rd person imperatives can be understood within the current proposal. Consider in this context (51) which has a 3rd person dual MIV.

- (51) tau ... shiStaam
 the-two ... rule-imp.3d
 Let the two (of them) rule. (Maal.5)

The discourse context is also relevant. According to Portner, “in this case, the two who are supposed to rule are not members of the conversation; rather, this is addressed to someone who is to see to it that they rule.” As with the strong command (49), weak necessity can properly characterize a wide range of modal strength, approaching strong necessity, given the nature of the relevant contingencies that make up the premise set. Weak necessity should therefore be sufficient to yield the correct interpretation of (51). As for the performative aspect of this example, this can only be a successful utterance insofar as the speaker’s authority to make such a command meets the criteria set forth by Kaufmann’s presupposition (b).

Assuming sufficient speaker authority, (51) can be compared with an English correlate. For example, it is not hard to imagine an absolute monarch uttering (52) with respect to the local governance of some province (e.g. the bald king of France assigns the rule of Brittany to his two sons).

(52) The two of them ought to rule.

In the described context, (52) is effectively a command, despite the presence of the weak necessity modal *ought*.

Examples such as (51) are especially relevant since many theories of imperatives build addressee-orientation directly into the analysis, either directly into the denotation or alternatively into the syntax (Portner 2004, 2007, Zanuttini 2008, Zanuttini et al. 2012, and others). While Portner is an exponent of such theories, he concedes that (51) “could present a problem for the theory, given the proposal that all imperatives have a syntactically realized reference to a hearer” (Portner accessed 2013). While an expanded notion of addressee, e.g. the one involving some sort of pragmatically defined control relationship (Potsdam 1998) could account for the reading of (51), I argue that these data are much more naturally covered by a theory in which addressee-orientation is not built in to the semantics or syntax of MIVs. While the notion of addressee-orientation, as this relates to imperatives, can in principle be ‘stretched’ (as in Potsdam 1998) in such a way as to preserve the long-held claim that imperatives are addressee-oriented, attributed to Downing (1969), cross-linguistic data suggest that addressee-orientation should not be considered a property inherent to imperatives, but rather be construed as a language-specific, morpho-syntactic property of imperatives, arguably following from person features associated with subjects of imperatives.

As proposed in chapter 2, certain languages require the head bearing imperative morphology, T^0 , to be selected by a C^0 head which bears interpretable 2^{nd} person features, an idea also discussed in Bennis (2006), Zanuttini (2008), and Zanuttini et al.

(2012).¹⁵ Therefore, in the model presented in this dissertation, imperatives are not inherently addressee-oriented in terms of their semantics or syntactic representation, which I argue is desirable from the perspective of examples such as (51) and also 3rd person imperatives discussed in chapter 2. According to the proposal in chapter 2 and also Zanuttini (2008) and Zanuttini et al. (2012), since the 2nd person feature associated with the relevant left peripheral head is interpretable, it need not agree with the subject, so long as the subject can phi-agree with T⁰ (see chapter 2 for more details).

3.5.2 Embedded Imperatives

The bipartite analysis for imperatives developed here makes the prediction that MIVs in embedded clauses should have all of the properties of weak necessity modals but without the presuppositional restrictions which, according to Kaufmann (2012), induce performativity.¹⁶ Consider in this light Bhojpuri (7), repeated here as (53).

- (53) Tu David-se milai-hai je ihaan tini baje aaye?
 you David-the met who here three o'clock come.imp.3rdsg
 Have you met David who [must] come here at 3 o'clock?

While this example shows that reduction of imperatives to speech acts at the sentential level (e.g. Portner 2007) is inappropriate for a theory of morphological imperatives, (53) also shows that MIVs in the embedded clause do not have the same restrictions as matrix imperatives in e.g. English.

Specifically, the presuppositions developed by Kaufmann (2012) to account for the interpretation of imperatives in English and other languages which prohibit embedded MIVs do not (all) apply to (53). For instance, it is not at all clear whether the

¹⁵Zanuttini (2008) and Zanuttini et al. (2012) has obligatory 2nd person features for English imperatives in addition to a syntactically represented addressee restriction.

¹⁶In fact, given the proposal in chapter 2, even matrix imperatives are predicted to be non-performative in (only) those languages with rich-imperative morphology. While I do not discuss matrix, non-performative examples here, (5c) is a relevant example.

authority condition, presupposition (b) in (37) applies, which requires that the speaker is in an epistemically privileged position with respect to the imperative interpretation, given that the (grammatical) subject of the MIVs denotes an individual who is not necessarily present in the discourse context.

More clearly, and with respect to presupposition (d), the embedded clause in (53) does not represent a decision problem, given its status as an embedded question; in this context, presupposition (d) states that an imperative must be speaker bouletic. In contrast, the obligation placed upon the referent of the grammatical subject in (53) need not follow from the speaker, but could follow from requirements outside the speaker's control (e.g. both the speaker and the referent of the subject of the imperative are colleagues, and their boss has required that the subject of the imperative arrive at the specified time).

Another novel aspect of the analysis presented in section 3.4.3 is the prediction that MIVs in embedded contexts can have an epistemic interpretation. The impossibility of an epistemic reading for English imperatives has already been discussed with respect to (39a), and this is accounted for by Kaufmann (2012) with presupposition (d), the Ordering Source Restriction. Of course, epistemic readings are certainly possible for weak (as well as strong) necessity modals, though these are not performative in the sense developed here; (54) are relevant examples.

- (54) a. (Since it's noon and John usually eats lunch in his office), John **ought** to be in his office.
- b. (Since John left 30min ago and his house is only 5min away), John **should** be home by now.

A native speaker consultant confirmed that an epistemic reading is possible for embedded MIVs in Slovene. While sufficient context was given in eliciting example (55), a 'because' clause was included in order to bias an epistemic interpretation via an overt linguistic device.

- (55) Rekel je, da pojej jabolka, ker si tako zdrav.
said he that eat.imp apples because you-are so healthy
He said that you [must] eat apples because you are so healthy.

Given the epistemic reading of (55), this is by hypothesis not performative. More specifically, it is not constrained by Kaufmann's Ordering Source Restriction, in that this presupposition forces MIVs to have 'prioritizing' ordering sources. (55) is therefore strong evidence that the presuppositions which constrain the interpretation of MIVs do not (necessarily) affect embedded MIVs, as expected under the analysis of C_{dir} presented here.

The non-performative nature of these embedded imperative data challenge the reductive view of imperatives developed by Portner (2007), in which imperatives are taken to be a (performative) clause type. Specifically, Portner (2007) criticizes analyses of imperatives in which imperatives are taken to be modalized propositions, such as Han (2000), Schwager (2006), and, by extension, Kaufmann (2012) and the proposal in this chapter under the following logic:

... we might then say that imperatives contain a modal which can only have a performative use, whereas regular modals can have either a performative or a non-performative use ... The basic problem with this way of looking at things is that once we have come to understand what the performative use accomplishes over and above the truth-conditional semantics of the modal, we see that this additional meaning is just what we need in order to analyze imperatives. The basic, truth-conditional semantics of the modal doesn't contribute at all, and might as well be left out of our analysis of imperatives. (Portner 2007, p. 363)

However, if an analysis of imperatives is to be reduced to a performative component only, as Portner suggests, it is unclear how examples such as (53) and (55) can be

interpreted, because the MIV and the embedded clause containing the MIV in these and related examples are not amenable to a performative analysis. As mentioned above, one solution is to suppose that the MIVs in (53-55) are not ‘real’ imperatives, or do not have imperative semantics; this approach, however, leaves MIVs completely unanalyzed by the theory of imperatives. In this light, it is apparent that while Portner’s (2007) theory is indeed reductive in one respect (i.e. the modal component is eliminated), in another respect it is additive in that it would, upon adoption, demand a completely new analysis for embedded MIVs, separate from the analysis of matrix MIVs. Instead, the analysis developed here can handle both matrix and embedded MIVs within a ‘modalized proposition’ analysis.

3.6 Conclusion

This chapter has focused on offering a unified semantic analysis for morphologically imperative verbs. Consideration of syntactically embedded imperatives suggested that the topic of inquiry with respect to imperatives must be a particular type of verbal morphology (alternatively, verbs which bear this morphology) and not a clause type, for any unified analysis of MIVs. I argued that modal approaches to imperatives are amenable to the imperative-as-verb topic of inquiry. I further argued that imperatives fit into a paradigm of modals upon adoption of the hypothesis that (matrix) clauses with imperatives encode two separate meanings: (i) a performative component, and (ii) a modal component. The interpretation of MIVs in embedded CP clauses showed that these MIVs have only the modal, but not the performative meaning of main clause MIVs.

I adopted aspects of Kaufmann’s (2012) account of imperatives, according to which a strong necessity modal, which crucially carries with it a set of performativity-inducing presuppositions, is associated with imperatives (defined as a clause type for Kaufmann, but recast as a verbal type here). I associated the presuppositional

content with a C^0 head, which relates the performative aspects of imperatives to clause types. As for the modal meaning of imperatives, I argued that this should be separated from the presuppositional content, and syntactically represented within TP. Crucially, I characterized the modal as a weak necessity modal, adopting Silk's (2013) formalization of weak necessity.

This analysis offers a natural way to understand non-command interpretations of imperatives such as permissions, wishes, taunts, and others. Since weak necessity as formalized by Silk (2013) is defined in terms of contingent necessity, imperatives (and weak necessity modals generally) can also handle command readings, given contextual contingencies. Consideration of 1st and 3rd person imperatives also supported the analysis, according to which modality and presuppositions combine in the interpretation of imperatives, but without building addressee-orientation into the system. Rather (and from the synchronic perspective), addressee-orientation can be viewed as a by-product of the reduced imperative paradigms in many (but not all) languages, such as English.

More generally, this chapter supports a view of imperatives understood within propositional and modal semantics, without developing new types of denotata for imperatives which, in turn, only serve to describe imperatives. Instead, the analysis developed here relies on independently motivated theoretical tools, such as (weak necessity) modality, and performativity defined in terms of presuppositions. To the extent that the analysis presented here is successful, this proposal supports a formal, non-functional approach to the study of imperatives. Specifically, I argued against the position that an adequate analysis of imperatives should explain their proto-typical function as commands; the idea that imperatives proto-typically command has not, to my knowledge, been empirically substantiated and, if it were, it is unclear whether this should have any bearing on semantic analysis. Rather semantic analysis should (in my view) characterize possible interpretations of a given linguistic object, and not

their use-frequency.

CHAPTER IV

Re-Casting the Sentence-Type Hypothesis

4.1 Introduction

Two novel hypotheses regarding the distribution and interpretation of morphologically imperative verbs (MIVs) were advanced in the prior two chapters. In chapter 2, I argued that relatively rich person morphology is a necessary condition for a learner to posit a grammar in which a C-head endowed with uninterpretable phi-features can select an imperative T-head, framed in terms of Chomsky's (2008) theory of feature transfer. According to the hypothesis in chapter 2, English imperatives (which are morphologically poor) have some properties of non-finite verbs, most importantly that T^0 is unable to case-value its subject, where subject is defined as the DP in Spec, TP.¹ This does not mean that T^0 is necessarily empty (also given the understanding of feature transfer presented in Chomsky 2007), a crucial point from the perspective of the selectional relationship discussed in chapter 2, according to which C-heads with certain feature specifications can select 'imperative T^0 .' The presence of features in T^0 is also important from the perspective of morphology, because (ideally) these features should trigger imperative morphology for those languages in which imperative verbal morphology is overt.

¹Nothing depends upon the specific category labels in this definition of subject; I include a definition here for expository purposes.

Chapter 3 presents a handful of interrelated arguments regarding imperative interpretation. Following Kaufmann (2012), chapter 3 argues that imperatives should be understood in terms of two distinct parts, namely a modal component and a presuppositional component. The analysis presented in chapter 3 differs from that presented in Kaufmann (2012) in two ways. First, the modal component is re-articulated in terms of weak, and not strong necessity. Second, the modal component and the presuppositional components are separated in terms of their syntactic representation; the modal is represented clause internally, i.e. dominated by CP, while the presuppositional component is associated with C^0 .

In this chapter, I consider some of the ramifications of these hypotheses from the perspective of syntax and the syntax-semantics/pragmatics interface. First, I defend the claim that matrix-clause imperatives in languages like English involve a syntactically represented left-peripheral element (e.g. C_{dir} as proposed in chapters 2 and 3); this is a relatively uncontroversial claim in the syntax literature which has recently been disputed within the semantics literature. I will also address issues surrounding clause-type analyses of imperatives and suppletive imperatives in the discussion of the left-periphery, attempting to reanalyze aspects of the ‘imperative as clause type’ hypothesis, which I have rejected, in terms of the proposals developed thus far.

4.2 The CP Domain

In this section I argue that a syntactic element, which is intimately linked to MIVs and related verb forms, is represented in the head position of CP. This element is responsible for various movement phenomena and interacts with the syntax of negation in such a way as to explain the impossibility of combining morphological imperatives with syntactic negation in a number of languages. While I do not develop a new analysis of the interaction between MIVs and negation, I show that existing analyses

of this phenomenon depend upon the presence of a C^0 element which drives V-T-C movement for MIVs; i.e. eliminating the left-peripheral element which has been taken to account for V-C movement of MIVs would at the same time eliminate previously established theories (e.g. Han 2001, Zanuttini 1997) regarding the distribution of suppletive imperative forms.

I additionally discuss the hypothesis (rejected in chapters 2 and 3) that ‘imperative’ can be understood as a clause type. While this hypothesis cannot be maintained as a theory of imperatives, the imperative-as-clause type hypothesis nevertheless offers an explanation of several important syntactic and semantic phenomena. I therefore recast the clause-type hypothesis in terms of the left-peripheral element which is involved in the selection of matrix MIVs in languages such as English.

4.2.1 Imperatives and the Syntactic Representation of Performativity

As discussed extensively in chapter 3, recent approaches to imperatives in the semantics literature have defined the category ‘imperative’ in terms of sentence type (or more recently, clause type). Sadock and Zwicky’s (1985) typological study of sentence types represents an early influence on this mode of thought. Specifically, Sadock and Zwicky claim that three sentence types are universal, namely declarative, interrogative, and imperative (they also define several possibly non-universal minor types). Portner (2011) links these sentence types to the notion ‘sentence mood,’ which is “the semantic side of the opposition among clause types,” an idea presented in Chierchia & McConnell-Ginet (2000), Zanuttini & Portner (2003), and others. In this subsection, I begin by arguing that classifying the category ‘imperative’ within the natural class that contains ‘declarative’ and ‘interrogative’ fails to explain the distribution and interpretation of morphologically imperative verbs.

After establishing that imperatives are not analogous to declaratives and interrogatives (which I maintain as sentence types/sentence moods), I argue that some

left-peripheral element is syntactically represented in (matrix) clauses which contain morphologically imperative verbs. This left-peripheral element, which I analyze as located in C^0 ,² is an operator which drives V-C movement of morphological imperative verbs; this operator therefore plays a roll in both sentence typing and sentence mood, although it is not to be equated with imperatives or imperative force. While the existence of some left-peripheral operator is relatively non-controversial in the syntactic literature (reviewed below), recent work on semantics and the syntax/semantics interface, in particular by Portner (2004, 2007, 2011), Zanuttini (2008) and Zanuttini et al. (2012), has claimed that this operator is redundant and therefore eliminable. I argue that this theoretical reduction, while well intentioned, is neither motivated from the empirical perspective nor successfully reductive from the theoretical perspective, insofar as elimination of the relevant operator would require additional theory development to explain phenomena formerly understood in terms of the operator under discussion.

4.2.2 Imperative is Not A Sentence Type

For the sake of presentation, I repeat several arguments and data points from chapter 2 and 3 here; I also offer new (brief) discussion of the relationship between verbal mood and sentence type from a largely empirical perspective.

Portner (2011) argues that ‘imperative’ should be considered a sentence type given that the relevant type is instantiated by verbs bearing different kinds of verbal morphology, including the indicative, subjunctive, and even non-finite verb forms, in addition to the morphological imperative. Portner cites the following Italian data from Zanuttini (1997) to illustrate this point.

- (1) a. Telefona!
 call.imp.2sg
 Call (her)!

²I leave open the possibility of a more highly articulated CP domain.

- b. Telefonatele tutti i giorni!
 call.indic.2pl-her every the days
 Call her every day!
- c. Lo dica pure!
 it say.subj.3sg indeed
 Go ahead and say it!
- d. Non telefonarle! / Non le telefonare!
 neg call-inf-her / neg her call-inf
 Don't call her!

For Portner (2011), all of the examples in (1) fall under the sentence type category ‘imperative.’ According to Portner (2011), imperatives, construed as a clause type, are somewhat unique regarding the variation with respect to verbal morphology, i.e. “verbal mood shows a correlation with sentence type: Both declarative and interrogative clauses are expressed using the indicative, while imperative clauses show variation” (Portner 2011). Taking this claim at face value, two predictions emerge: (i) declaratives and interrogatives contain indicatives, and (ii) imperative is a clause type.

Prediction (i) is falsified by consideration of subjunctives in root clauses. These exist in both declarative and interrogative sentence types (2) (repeated from chapter 2).

- (2) Q: Was hätten Sie getan? A: Ich würde verlassen haben.
 what have.subj you done I become.subj left have
 Q: What would you have done? A: I would have left.

While the subjunctives in (2) have been linked to modality by several researchers (Farkas 1992, Giannakidou 1997, Portner 1997, Quer 2001, among many others), the crucial point is that if declarative and interrogative are to be clause types, and if (2) represents both a declarative (in the answer) and interrogative (in the question), then the verbal mood indicative cannot be as intimately linked to sentence type as Portner (2011) suggests.

Again holding declarative and interrogative constant as sentence types (following Portner 2011), the sentence-type analysis of imperatives suggests that morphological imperatives should be excluded from declarative and interrogative sentences.³ Nevertheless, morphological imperatives (apparently in those languages with relatively richer imperative morphology) can appear in sentences which are interrogative, as (3) shows (repeated from chapters 2 & 3); while the English modal *must* is used in the translations of these examples, the embedded clauses of these sentences contain bona-fide morphological imperatives (i.e. of the same morphological form that would be expected in matrix clauses).⁴ See chapter 2 for further analysis of these data as well as examples of MIVs in declarative sentences.

- (3) a. Zakaj te moj nasvet, da bodi pameten, tako jezi?
 why you my advice that be.imp.2sg sensible so angers
 Why does my advice that you [must] be sensible make you so angry?
 (Sheppard and Golden, 2002)
- b. Tu David-se milai-hai je ihaan tini baje aaye.
 you David-the met who here three o'clock come.imp.3rdsg
 Have you met David who [must] come here at 3 o'clock? (author notes)

(3) is problematic from the perspective of the hypothesis that imperative is a sentence type. In particular, within the hypothesis that imperative is a sentence type, these data entail (at least) one of the two following conclusions: (i) the sentence type analysis of imperatives does not explain the distribution of morphological imperatives, (ii) embedded morphological imperatives, while morphologically identical to their matrix counterparts, are not ‘real’ imperatives in some way yet to be defined. I find

³Recall that Portner (2004, 2011) uses the term ‘clause type,’ not ‘sentence type,’ as the relevant category. However, for Portner, the relevant ‘imperative clause type’ is limited to root contexts, and therefore is properly understood as a sentence, not clause, type; for this reason, Portner (2011), though calling imperatives a ‘clause type,’ in fact links the clause type to what he calls ‘sentence mood.’ See also discussion of (8) below.

⁴Note that while the English translation of (3a) is grammatical without *must*, this token of *be* is not an imperative (but is likely a subjunctive). Pronoun binding facts show MIVs are excluded in this context in English, e.g. **Why does my advice that everybody₁ raise your₁ hand make you all so angry?*

both of these conclusions unsatisfactory and therefore conclude that imperative is a property of verbal morphology and not sentence type.

Rejecting the sentence-type hypothesis for imperatives is relevant for recent claims that there is no distinct functional head in the matrix C^0 position of clauses which contain morphologically imperative verbs. For example, Zanuttini et al. (2012) argues that while morphological imperatives “have properties suggestive of an imperative operator imperatives containing subjunctive, indicative, or infinitival verb forms ... in general do not.” If however, ‘imperative’ is a category on a par with the categories subjunctive and indicative (among others), and not a sentence type (as suggested by (3)), an imperative is not a clausal category and can no more contain a subjunctive than an indicative can contain an infinitive. Nevertheless, I agree with Portner (2011) that a sentence-type style analysis should account for the facts in (1), but crucially without conflating the sentence-level phenomenon with morpho-syntactic properties; I propose a way to understand these data in section 4.3 below.

4.2.3 Arguments For a Sentence-Level Operator

V-T-C movement has long been taken to be evidence for a left-peripheral, matrix (i.e. sentence level) operator which selects TPs containing MIVs. While the relevant operator is often called an ‘imperative operator,’ this label may be a misnomer in light of the discussion above; nevertheless, the movement properties are relatively well understood.

A number of authors have observed that MIVs move to a very high position, i.e. C^0 or related projection, given the relationship between MIVs and other syntactic elements such as negation and clitics (Cheng 1991, Rivero & Terzi 1995, Rizzi 1997, Zanuttini 1997, Han 2000, 2001, Isac 2012; see also Chomsky 1955/1975 for early analysis of English imperatives under negation in terms of subject-auxiliary inversion, echoed by Beukema & Coopmans 1989 and Potsdam 2007). Focusing now only

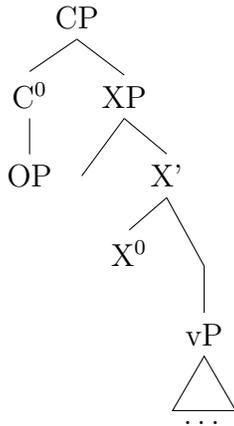
on the distribution of MIVs with respect to clitics, in many languages an inversion process takes place by which clitic-verb word order, which is expected when the verb is e.g. indicative, surfaces as verb-clitic when the verb has imperative morphology; (4) demonstrates this for a handful of languages which have clitic-verb word order for non-imperative verbs.

- (4) a. Citeste - le (Romanian)
read.imp.2sg - them.cl
Read them!
- b. Lee lo! (Spanish)
read.imp.2sg it.cl
Read it!
- c. Faites le! (French)
do.imp.2pl it.cl
Do it!

Crucially, the examples in (4) would be ungrammatical with the (otherwise normal) clitic-verb word order.

In a syntactic framework in which movement is motivated by features, e.g. as proposed by Chomsky (1995) and both earlier and subsequent research, the facts in (4) can be captured by reference to an operator which drives head movement, located in Spec, CP, as in (5), which only includes relevant projection labels (see also Matushansky 2006 for arguments that head movement is feature driven).

(5)



Note that an analysis of clauses containing MIVs which includes an operator, such as (5), forces the conclusion that the relevant operator drives movement which is obligatorily overt for some languages (4) and non-obligatorily overt for others. For example, Serbo-Croatian (6) allows imperatives to precede or follow clitics. Although English doesn't allow the relevant test with clitics, negated imperatives in English, which require do-support, exhibit similar optionality, according to Potsdam (2007); in (7), features in the highest clause-internal position (e.g. T^0 or X^0 in (5)) can optionally surface before or after negation (see most recently Potsdam 2007 for discussion).⁵

(6) a. Čitajte je!
read.imp.2pl it.cl
Read it!

b. Knjige im citajte!
books to-them.cl read.imp.2pl
Read books to them! (Rivero & Terzi 1995)

(7) a. Don't everybody leave!

b. Everybody don't leave! (Potsdam 2007)

Nevertheless, the existence of movement optionality (i.e. languages vary with re-

⁵While (7) is evidence for movement optionality for Potsdam (2007), (7b) could also be analyzed as having a preposed topic. If the preposed topic analysis for (7b) is on track, contra Potsdam (2007), English would then be a language in which imperative features (in T^0) obligatorily move to C^0 , though this does not affect the overall argumentation in this chapter.

spect to whether movement is obligatory) should not itself be taken to falsify a theory in which a left-peripheral operator is syntactically represented in sentences containing MIVs. For example, many established theories of wh-movement posit a left-peripheral operator represented in all (matrix) interrogatives, despite the fact that overt wh-movement is obligatory in only a subset of attested languages. More importantly, a theory of imperatives that does not posit a left-peripheral operator will have no ready explanation for V-C movement of MIVs for those languages in which movement is obligatory.

4.2.4 New Evidence For a Sentence-Level Operator

More germane evidence bearing on the presence of a left-peripheral operator must ‘factor out’ language specific movement properties. This is in principle possible given the hypothesis that the relevant left-peripheral operator is licit in the matrix CP-domain only. The matrix-only nature of the relevant left-peripheral operator has been related to the speech-act, performative status of (matrix) imperatives (Han 2000); performativity which signals sentence-type status is sometimes referred to as ‘illocutionary force’ or ‘speech-act status,’ a convention I maintain here. That illocutionary force is properly construed only with the matrix level is not particular to imperatives; for example, interrogative is also a kind of illocutionary force, but only (and obligatorily) questions at the matrix level signal interrogative speech-act status at the sentence level; i.e. a matrix question with an embedded assertion is (still) a question (8a), whereas a matrix assertion with an embedded question is (still) an assertion (8b).⁶

- (8) a. Who thought [that Watson bought a car?] [interrogative]
b. I wondered [who bought a car.] [assertion]

⁶Note that the matrix-only property of speech-act status is not, to my knowledge, a logical necessity, while it nevertheless appears to hold as a universal property of natural language.

While I agree with Han (2000) that matrix imperatives (in most languages) obligatorily have speech-act status, Han's (2000) linking of the relevant operator's speech act-status to the (purported) cross-linguistic prohibition on embedded imperatives is not empirically justified in the face of embedded imperative data such as (3). However, the possibility of embedded imperatives in a subset of languages suggests a new way to test the hypothesis that a left-peripheral, speech-act operator drives movement in matrix imperatives. Specifically, if a language has obligatory V-C movement for MIVs in matrix contexts but prohibits this movement in embedded contexts, this would be very strong evidence that a speech-act operator drives the relevant V-C movement.

Slovene is exactly a language of this type. In Slovene, matrix MIVs must precede clitics (9), an inversion of the more normal verb-clitic word order in this language (Sheppard & Golden 2002). In contrast, embedded imperatives in Slovene cannot precede a clitic, but obligatorily follow clitics (10); the clitics in these examples are in capitals for expository purposes.

- (9) a. Poslusaj GA, ce hoces.
 listen.imp him.clit.dat if you-want
 Listen to him, if you want.
- b. *GA posluj, ce hoces.
- (10) a. Vztrajal je, da GA poklici.
 insisted.part is.3sg that him.clit.acc call.imp
 He insisted that you much call him.
- b. *Vztrajal je, da poklici GA. (Rus 2005)

Note that this matrix/embedded asymmetry with respect to verb-clitic ordering in Slovene is easily captured by an analysis which posits a left-peripheral operator in matrix clauses which contain MIVs. Since the operator can only be associated with matrix clauses, nothing motivates the movement of MIVs in embedded clauses, even for a language like Slovene in which V-C movement of MIVs is obligatory in matrix

clauses. Within the Minimalist framework pursued here, lack of motivation for V-T-C movement in the relevant Slovene embedded clauses prohibits V-T-C movement, correctly predicting ungrammaticality for (10b).

The Slovene data (9, 10) therefore provide very strong evidence for the proposal in chapter 2, i.e. that a left-peripheral operator, which is associated with performativity, selects matrix but not embedded imperatives. This operator was labeled C_{dir} for expository purposes in chapter 2, and was formally specified for syntactic content (with interpretable 2nd person features) in chapter 2 and formally specified for semantic content in chapter 3 as the locus of a set of presuppositions.

Under this analysis, the matrix Slovene (9a) is represented by (11a); this structure reflects the fact that the imperative verb raised first to the T^0 position and then (attracted by C_{dir}) to C^0 . Under Chomsky's (2008) Feature Transfer proposal, C^0 heads of finite clauses (i.e. clauses in which T^0 can case- and ϕ -agree with the subject) are specified for a complete set of phi-features, therefore the embedded (10a) is represented by (11b) in which the C^0 head is labeled C_{phi} . In (11b) the verb has raised only as far as T^0 , since there is no left-peripheral operator which motivates movement to C^0 .

- (11) a. [CP [V+ T_{imp}]+ C_{dir} [TP SUBJ [T' $t_{V+T_{imp}}$ [VP ... t_V ...]]]]
 [matrix]
- b. [CP C_{phi} [TP SUBJ [T' V+ T_{imp} [VP ... t_V ...]]]] [embedded]

4.2.5 The Left-Peripheral Operator and Negation

Although not addressed extensively in this dissertation, a major topic in the prior literature on imperative syntax involves the incompatibility of negation and MIVs in some languages (Zanuttini 1997, Han 2000, 2001, von Stechow & Iatridou 2010, Isac 2012). For example, Spanish (12a) has a morphological imperative, but this is incompatible with negation (12b). Instead, a subjunctive must be used as in (12c).

(Note also that the subjunctive in (12c) can not precede the clitic.)

- (12) a. ̣Lee lo!
read.imp it.cl
Read it!
- b. *̣No lee lo!
neg read.imp it.cl
Read it!
- c. ̣No lo leas!
neg it.cl read.subj
Don't read it!

Han (2001) provides a syntax/semantics interface solution for this pattern of data, which crucially relies upon the presence of a left-peripheral operator (what she calls an ‘imperative operator’). First, Han (2001) shows that sentences with MIVs under negation are unambiguous with respect to scope; the performativity (which Han identifies as a type of illocutionary force and translates as ‘I require’ in (13)) has scope over negation (13). Han notes that these facts hold not just for the illocutionary force associated with imperatives, but with interrogatives as well, an observation attributed to Frege (1884/1960).

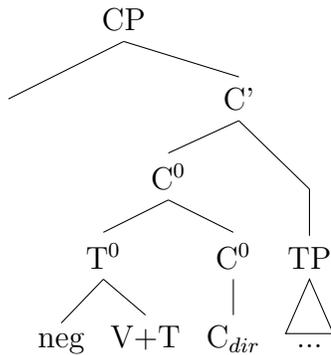
- (13) *Don't call!*
 \approx I require that you not call.
 \neq I do not require that you call.

These data show that a left-peripheral operator, if present, has scope over negation. Although not stated formally by Han (2001), she assumes, given (13), that speech-act operators such as C_{dir} must c-command negation. While Han adopts the segment-domination definition of c-command in Kayne (1994), I reframe Han's argument within a ‘first branching node’ definition of c-command (Reinhart 1976), stating the relevant principle as (14).

(14) Speech-act operators must asymmetrically c-command negation at LF

While the scope properties in (13) appear to be universal, the morpho-syntactic properties of negation are not. For example, in Spanish, Modern Greek, and Italian — all languages which prohibit imperatives under negation — sentential negation is a type of clitic which attaches to the verb; as such, negation is treated as a unit with the verb (Zanuttini 1991, 1997, Rivero 1994, Cinque 1999). Therefore, if the verb in question is an imperative, and if this is attracted to C^0 under the influence of C_{dir} , an adjunction structure such as (15) is the result.

(15)



Given the structure in (15), there is no syntactic relationship such that C^0 , which hosts C_{dir} , asymmetrically c-commands T^0 , which hosts negation as a clitic. This results in an ill-formed LF according to (14). According to Han (2001), in those languages for which negation is not a clitic (e.g. English), negation is compatible with MIVs, because negation stays ‘low’ in the structure, asymmetrically c-commanded by the relevant operator in C^0 .

While this section provides only an overview of approaches to restrictions on MIVs under negation, it is included to show that analyses of this phenomenon such as Han (2001) explain the data by reference to language-specific, morpho-syntactic properties of negation. Crucially, some left-peripheral operator which conveys illocutionary force (a kind of performativity) interacts with negation. Therefore, analyses of imperatives

which do away with a left-peripheral operator would also need to provide a new analysis for the interaction between negation and imperative verbs.

4.2.6 Left-Peripheral Operator: Conclusion

In this section I argued against analyses, e.g. Portner (2007) and Zanuttini et al. (2012), which do away with a left-peripheral operator that is linked in some way with MIVs. While elimination of the operator from the theory attempts reduction, this reduction is unsuccessful insofar as both new and previously described patterns of data are left without explanation. In particular, I showed that V-C movement asymmetries in Slovene are explained by postulating a sentence-level operator; in Slovene, MIVs move from V to C in matrix but not embedded clauses. In addition, existing accounts of restrictions on MIVs under negation, such as Han (2001), depend upon the presence of the relevant operator. Assuming now that such an operator exists, in the next section I discuss how adoption of the relevant operator allows a formal re-analysis of the data, such as (1), which motivate the sentence-type analysis of imperatives.

4.3 Formal Re-Analysis of the Imperative Sentence Type Hypothesis

A major theme of the prior chapters is that ‘imperative’ is best understood as a morphological property of verbs, as opposed to a sentence or clause type. In particular, embedded imperative data showed that a sentence-level analysis of imperatives would necessarily leave unexplained the semantic properties and syntactic distribution of embedded, morphological imperatives. This was argued to be an undesirable state of affairs, i.e. a state of affairs in which a morphological class ‘imperative’ is only partially explained by a sentence-level category ‘imperative.’

Nevertheless, the ‘imperative as sentence type’ hypothesis, which I have rejected, is motivated by the observation that multiple morphological verb classes — not just imperative but also subjunctive, infinitive, and others — have similar, if not identical, properties in terms of performative, illocutionary force. Data from Italian (1), repeated here as (16), illustrates the relevant pattern.

- (16) a. Telefona!
 call.imp.2sg
 Call (her)!
- b. Telefonatele tutti i giorni!
 call.indic.2pl-her every the days
 Call her every day!
- c. Lo dica pure!
 it say.subj.3sg indeed
 Go ahead and say it!
- d. Non telefonarle! / Non le telefonare!
 neg call-inf-her / neg her call-inf
 Don’t call her!

Similar data can be found in English as well; while English differs from Italian in allowing MIVs under negation, infinitives can work equally well as commands (17).

- (17) a. Read this book by Monday!
- b. This book is to be read by Monday!

Kaufmann (2012) discusses data similar to (17) in German and von Fintel & Iatridou (2010) discuss cross-linguistic data patterning with both (17) and (16).

(16) and (17) motivate a sentence-level analysis given that the same performative act is achieved by means of various different types of verbal morphology, according to Portner (2004, 2007). For this reason, all of the non-morphological imperatives in (16) and (17) are sometimes called ‘suppletive imperatives.’⁷ The sentence-level

⁷As with the term ‘imperative,’ there is plenty of terminological confusion surrounding the term

analysis of imperatives is therefore tailor-made to explain the (what I will argue to be incorrect) “intuition that suppletive imperatives really are imperatives” (Portner 2011).

However, and focusing now on interpretation, while it may be tempting to equate suppletive imperatives with MIVs, this is in fact not empirically justified. In chapter 3 it was noted that some suppletive imperatives do not necessarily allow permission readings, a point discussed in detail by von Fintel & Iatridou (2010). According to von Fintel & Iatridou (2010), MIVs represent the simple case with respect to permission; all MIVs can support a permission reading. As for suppletive imperatives, which can take such diverse forms as infinitive, subjunctive, or even future (e.g. Hebrew), these are far more complex with respect to permission readings. In fact, it appears that these suppletive imperatives must be examined on a case-by-case basis in terms of both verbal morphology and specific language to determine whether a permission reading is possible.

For example, according to von Fintel & Iatridou (2010) Italian infinitives, e.g. (16d), can support a permission reading. In contrast, Hebrew and Catalan infinitives, when used performatively in the relevant way, do not support permission readings; to this English infinitives such as (17b) can be added. As for subjunctives, these can be permissions in e.g. Albanian but not in Slovene (von Fintel & Iatridou 2010). In short, the claim that suppletive ‘imperatives’ “really are imperatives” is false when taken at face value (and from a cross-linguistic perspective), given that these various forms do not have (exactly) the same interpretive properties in terms of availability of permission readings.

‘suppletive imperative.’ Sometimes ‘suppletive imperative’ is used only for the special case in which an MIV would be used but cannot be due the presence of negation, although I have called these ‘prohibitives’ in chapter 3 in an attempt at clarity. The use of ‘suppletive imperative’ here follows von Fintel & Iatridou (2010), who use the term for any verb type in a performative and directive sentence.

4.3.1 Bipartite Semantics and Performativity

While I argued above that Portner (2011) is not empirically justified in equating suppletive imperatives with MIVs, in this section I argue that Portner's claim may be partially correct from the perspective of performativity. In chapter 3, I argued that performative imperatives (e.g. matrix imperatives, and all English imperatives) are composed of two elements, a set of performative presuppositions associated with C_{dir} , in C^0 , and a modal component represented in T^0 .

Given the prior literature on suppletive imperatives, including von Stechow & Iatridou (2010) and Portner (2011) (among others), I propose that performative sentences with MIVs and with suppletive imperatives (whether or not the specific verb form allows a permission interpretation) are unified with respect to one component of meaning, namely the performative component. While this hypothesis has not undergone rigorous empirical testing (e.g. by testing with different kinds of follow-ups), this is (as far as I know) what Portner means when he equates suppletive imperatives to MIVs.

According to chapter 3, MIVs are associated with a weak necessity modal, a separate component from the presuppositions which encode performativity. Within this bipartite framework, it is certainly possible that other verb forms, such as suppletive imperatives or even overt deontic modals such as *must*, encode a different type of modality. For the set of suppletive imperatives which do not allow permission readings, the appropriate modal might, for example, encode strong necessity, which (as shown in chapter 3) does not allow permission readings. (18) restates this set of hypotheses reading the bipartite nature of suppletive imperatives.

- (18) a. Performative MIVs and performative suppletive imperatives have identical performative properties.
- b. MIVs encode weak necessity modality. Suppletive imperatives can encode

permission readings) is derived from their modal meaning, which is left unspecified in (20).

More importantly, the analysis in this section allows for a fully formal characterization of directive, performative force. This is so because (to the extent that the analysis is on track) labels such as ‘imperative sentence’ or ‘directive sentence’ are reduced to superficial naming conventions for the formalized set of presuppositions in (20). In this respect, if it were asked, *What is a directive sentence?*, the response would be *A sentence with a modal component in TP, the interpretation of which is constrained by the specific presuppositions listed in (20)*. By leaving the specific modal that is associated with suppletive forms unspecified, this analysis allows for the kind of interpretive differences between suppletive forms and MIVs (e.g. with respect to permission) discussed by von Stechow & Iatridou (2010).

4.3.2 Presuppositions, Verb Movement, and Variation

The analysis developed thus far provides some new ways to understand the interpretive relationship between imperatives and suppletive imperatives, on the one hand, and sentence types, on the other. Here I very briefly discuss some of the syntactic consequences of the proposal. Specifically, I address three questions: (i) why do MIVs in only a subset of languages move (overtly) to C^0 , and (ii) why do suppletive forms differ from MIVs in terms of obligatory movement to C^0 for those languages in which V-C movement for MIVs is obligatory?

I propose here that movement to C^0 is, in fact, obligatory for all MIVs and suppletive imperatives when selected by C_{dir} , but that this movement is only optionally overt. This hypothesis yields a cross-linguistically uniform relationship between C_{dir} and the verb form selected by C_{dir} at the LF interface, thereby reducing variation in movement properties to morpho-phonological properties.

If we limit our view to MIVs only, some languages require overt V-C movement

in (only) performative contexts while other languages do not. For example, Serbo-Croatian (6) MIVs appear to exhibit optional V-C movement. In English, while the lexical verb appears not to raise (probably due to the lack of verb-raising in English generally (with the exception of finite *have* and *be*)), imperative features in T⁰ (obligatorily supported by *do* under negation) optionally exhibit T-C movement (7). By contrast, other languages require overt V-C movement for MIVs (4).

Focusing now on the subset of languages that require V-C movement for MIVs, the data become even more complex when MIVs are compared to suppletive forms. For example Italian MIVs obligatorily raise to C, but suppletive-imperative subjunctives obligatorily do not (16); yet, Italian suppletive-imperative infinitives show optional movement to C (16d).⁸

These data can be given an explanation by the adoption of two separate hypotheses. First, suppose that V-C movement, when required, can be either overt or covert; while this hypothesis isn't particularly explanatory, it appears to at least have correlates with other syntactic phenomena, e.g. wh-movement. Next, consider the (more substantial) hypothesis regarding V-C movement in German set forth in Truckenbrodt (2006). According to Truckenbrodt, clauses with V-C movement are associated with illocutionary force, such as assertion, interrogative, and imperative/directive. Truckenbrodt (2006) formalizes the various illocutionary forces, crucially, in terms of sets of presuppositions, understood within Stalnaker's (1978) model of discourse contexts.

Truckenbrodt's (2006) account of German V-C is motivated by presuppositions; in his analysis, the presence of presuppositions triggers illocutionary force and movement. Since most matrix clauses are associated with a set of presuppositions that

⁸Kayne (1992) accounts for the optionality with respect to Italian suppletive infinitives by proposing a null element which attracts the clitic in those cases which exhibit (apparent) T-C movement (i.e. the relevant distinction is a result of variation in clitic, not verb, movement). However, as shown here, optional movement to C is independently observed even for MIVs in e.g. English and Serbo-Croatian.

(crucially) characterize illocutionary force, most matrix clauses in German exhibit V-C movement.⁹ In other words, most matrix clauses (an exception is discussed immediately below) express an illocutionary force/sentence-type such as declarative, interrogative, or directive, and these matrix clauses require V-C movement. While Truckenbrodt provides several different types of evidence to show that illocutionary force, represented in C^0 , drives V-T-C movement, he presents a very novel pattern of data involving interrogatives of ‘mutual ignorance,’ a type of non-information seeking question.

First, note that interrogatives which are not ‘mutual ignorance’ interrogatives exhibit V-T-C movement in German (21).

- (21) Strengt Peter sich an?
 effort Peter himself PREP
 Is Peter making an effort?

However, when all parties in a discourse are known to be ignorant with regard to possible answers to the relevant question (i.e. the question is not information seeking), standard V-T-C interrogatives are infelicitous (22).

- (22) a. Stefan:
 Ich hab seit Jahren nichts mehr von Peter gehört.
 I have for years not much of Peter heard
 I haven’t heard from Peter in years.

⁹Only a very narrow set of embedded sentences allow V-C movement. For example, *glauben* ‘believe’ in German allows optional V-C in its complement, whereas this is impossible for *möglich* ‘possible’ (i).

- i a. *Es is möglich, Peter geht nach Hause.
 it is possible, Peter goes to home.
 It is possible that Peter is going home.
 b. Maria glaubt, Peter geht nach Hause.
 Maria believe Peter goes to home.
 Maria believes that Peter is going home.

Summarizing, Truckenbrodt’s analysis suggests that certain embedding verbs such as ‘believe’ can pass their epistemic presuppositions to the embedded clause.

b. Heiner:

Ich auch nicht.

I also not

Me neither.

c. Stefan:

#Mag er immer noch kubanische Zigarren?

like him always still Cuban cigars

Does he still like Cuban cigars?

While a normal question, with V-C movement, is infelicitous in this ‘mutual ignorance’ context, a question with embedded, V-final, form is just fine as a final sentence in the above discourse (23).

(23) Stefan:

Ob er immer noch kubanische Zigarren mag?

whether he always still Cuban cigars likes

I wonder whether he still likes Cuban cigars? (Truckenbrodt 2006)

(21-23) show that V-C movement is likely related to illocutionary force, which Truckenbrodt formalizes in terms of presuppositions. This is relevant for the current proposal because this suggests that MIVs and their suppletive kin all undergo V-C movement, if Truckenbrodt’s analysis is cross-linguistically valid. In other words, when suppletive imperatives or MIVs do not move overtly, they do so covertly. As a result of this analysis, it is possible to give all sentences with directive force the same syntactic representation in terms of CP operator, i.e. the representation in (20). While the presence of obligatory overt movement varies by language and verb form, this variation reduces to language specific, phonological properties which are crucially linked to overt morphology.

4.4 Conclusion

In this chapter I extended the analysis of MIVs and performativity given in chapters 2 and 3 to several of the patterns of data which motivated the hypothesis (which I rejected) that ‘imperative’ reduces to a sentence type. In fact, these data can be re-analyzed within the semantics for MIVs given in chapter 3, according to which imperative interpretation relies upon both a modal component and (for MIVs in performative contexts) a set of presuppositions. I proposed in this chapter that so-called suppletive imperatives (in performative contexts) have the same presuppositional content, represented by a sentence-level operator, as MIVs in performative contexts. Suppletive imperatives and MIVs may differ in terms of modal content, however, which explains why some suppletive imperatives pattern with MIVs in terms of allowing permission readings while others do not. Finally, the presuppositional content of directive force was argued to trigger V-T-C movement; where such movement is not apparent in the overt syntax, this movement is hypothesized to be covert.

CHAPTER V

General Conclusion

In this dissertation, I considered the syntactic properties and semantic interpretation of the morphological imperative from a formal linguistics perspective. I also considered ramifications for the analysis of imperatives and their kin, so-called ‘suppletive imperatives,’ at the syntax/semantics-pragmatics interface.

To the extent that the analyses are successful, these have several consequences for the characterization of imperatives. First, cross-linguistic variation with respect to the distribution of imperatives was deduced from differences in overt morphological properties within the theory of Feature Transfer (Chomsky 2008). This is a crucial point, because (within the generative tradition) whenever cross-linguistic variation is found, this should be explained in terms of an overt, and therefore learnable, difference.

I additionally argued that all of the elements which are needed to characterize imperatives, both within and outside of performative contexts, are independently motivated properties of human semantic knowledge. For example, performativity (formalized as a set of presuppositions) and modality are properties of human semantic knowledge generally. On the empirical side, I showed that new ways of looking at classic problems for imperative semantics can arise from consideration of problematic or (so-called) non-canonical cases.

Finally, I argued that several prior analyses of imperatives which I rejected in chapters 2 and 3 are built upon valid insights regarding imperatives and suppletive imperatives. Application of the analyses developed in chapters 2 and 3 to these insights showed that the hypotheses which I rejected (in particular that ‘imperative’ is or can be understood as a clause type) can in fact be reformulated in terms of the current proposal. The former clause-type hypothesis is now understood in terms of the very presuppositions which characterize the performative aspect of imperatives which occur in performative contexts.

From a broader perspective, the analyses developed here are formalized in terms of fundamental (possibly atomic) linguistic devices. For example, syntactic features, lexical semantic entries for modals, and presuppositions are difficult to reduce to even deeper linguistic categories. From this perspective, this dissertation has attempted to get to the heart of an appropriate characterization of imperatives with respect to the data which came under discussion. If possible, future research should ideally try to reduce even these very basic linguistic elements to principles of natural or biologic law, in the sense of Chomsky (2005). In this context, the work presented here is as much of a beginning step as it is a final step.

Finally, and as I argued in the general introduction, the approach taken here has at all points attempted to characterize imperatives in formal terms, without appeal to common-sense (but arguably false) notions regarding the proto-typical function or use of imperatives. A particular linguistic category was chosen — the morphological imperative — and its properties were examined without excluding or privileging any particular token of this category, and without regard to claims (although not empirical substantiated) of possible proto-typical use. This methodology was deliberately pursued in order to characterize one aspect of human linguistic competence; to the extent that the analyses developed here are successful, this thesis is an argument for formalist and generative approaches to the study of morpho-syntactic and semantic

knowledge, sharply distinguishing knowledge systems from their use.

BIBLIOGRAPHY

- Aikhenvald, A. 2010. *Imperatives and Commands*. Oxford: Oxford University Press.
- Alexiadou, A., P. Law, A. Meinunger and C. Wilder. 2000. Introduction. In *The Syntax of Relative Clauses*, ed. A. Alexiadou, P. Law, A. Meinunger and C. Wilder, 1-52. Amsterdam: John Benjamins.
- Austin, J. L. 1962. *How to Do Things with Words*. Cambridge: Harvard University Press.
- Baker, M. 2008. The macroparameter in a microparameter world. In *The Limits of Syntactic Variation*, ed. T. Biberauer, 351-374. Amsterdam: John Benjamins.
- Bennis, H. 2006. Agreement, pro and imperatives. In *Arguments and Agreement*, ed. P. Ackema, P. Brandt, M. Schoorlemmer and F. Weerman, 101-123. Oxford: Oxford University Press.
- Beukema, F. and P. Coopmans. 1989. A government-binding perspective on the imperative in English. *Journal of Linguistics* 25:417-436.
- Borer, H. 1984. *Parametric Syntax: Case Studies in Semitic and Romance Languages*. Dordrecht: Foris Publications.
- Cameron-Faulkner, T., E. Lieven and M. Tomasello. 2003. A construction based analysis of child directed speech. *Cognitive Science* 27:843-873.
- Cheng, L. 1991. *On the Typology of Wh-questions*. Ph.D. dissertation, MIT, Cambridge, MA.
- Chierchia, G. and S. McConnell-Ginet. 2000. *Meaning and Grammar: An Introduction to Semantics*. Cambridge, MA: MIT Press.
- Chomsky, N. 1955. *The Logical Structure of Linguistic Theory*. Ms., Harvard University, Cambridge, Mass. [Revised 1956 version published in part by Plenum, 1975.]
- Chomsky, N. 1965. *Aspects of the Theory of Syntax*. Cambridge, Mass.: MIT Press.
- Chomsky, N. 1986. *Knowledge of Language: Its Nature, Origin, and Use*. New York: Praeger.
- Chomsky, N. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, N. 2005. Three factors in language design. *Linguistic Inquiry*, 36:1-22.
- Chomsky, N. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. R. Martin, D. Michaels and J. Uriagereka, 89-155. Cambridge, MA: MIT Press.

- Chomsky, N. 2007. Approaching UG from below. In *Interfaces + Recursion = Language?*, ed. U. Sauerland and H-M. Gartner, 1-29. Berlin: Mouton de Gruyter.
- Chomsky, N. 2008. On phases. In *Foundational Issues in Linguistic Theory: Essays in Honor of Jean-Roger Vergnaud*, ed. R. Freidin, C. Otero and M. L. Zubizarreta, 133-166. Cambridge, MA: MIT Press.
- Cinque, G. 1999. *Adverbs and Functional Heads: A Cross-Linguistic Perspective*. Oxford: Oxford University Press.
- Condoravdi, C. and S. Lauer. 2012. Imperatives: meaning and illocutionary force. In *Empirical Issues in Syntax and Semantics 9*, ed. C. Piñón, 37-58.
<http://www.cssp.cnrs.fr/eiss9/>
- Cormany, E. 2013. *A Preference Analysis of Imperatives Connecting Syntax, Semantics, and Pragmatics*. Ph.D. dissertation, Cornell University, Ithaca.
- Crnič, L. and T. Trinh. 2008. Embedding imperatives. In *Proceedings of the 39th Meeting of the North East Linguistics Society*, ed. S. Lima, K. Mullin and B. Smith, 227-238. Amherst: GSLA.
- Davies, J. 1981. *Kobon*. Amsterdam: Lingua Descriptive Studies.
- Den Besten, H. 1989. *Studies in West Germanic Syntax*. Ph.D. dissertation, Katholieke Universiteit Brabant, Tilburg.
- Derbyshire, D. 1979. *Hixkaryana*. Amsterdam: Lingua Descriptive Studies.
- Downing, B. T. 1969. Vocatives and third-person imperatives in English. *Language and Social Interaction* 1:570-592.
- Farkas, D. 1992. On the semantics of subjunctive complements. In *Romance Languages and Modern Linguistic Theory*, ed. P. Hirschbühler and K. Koerner, 69-104. Amsterdam, Benjamins.
- Farkas, D. and D. Zec. 1993. Agreement and pronominal reference. *UCSC Linguistics Research Center Report* 93-01.
- von Stechow, K. and S. Iatridou. 2008. How to say *ought* in foreign: The composition of weak necessity modals. In *Time and Modality*, ed. J. Guéron and J. Lecarme, 115-141. Dordrecht: Springer.
- von Stechow, K. and S. Iatridou. 2010. What is in a Mediterranean Imperative? Talk delivered at the 2nd Mediterranean Syntax Meeting, Athens Greece.

- von Fintel, K. and S. Iatridou. 2011. Imperative puzzles. Talk delivered at Yale, Current Work in Cognitive Science.
- Frege, G. 1960. *The Foundations of Arithmetic: A Logico-Mathematical Enquiry into the Concept of Number*. New York: Harper. Translated by J. Austin, originally published 1884.
- Giannakidou, A. 1997. *The Landscape of Polarity Items*. Ph.D. Dissertation, University of Groningen.
- Gildersleeve, B. 1900. *Syntax of Classical Greek from Homer to Demosthenes*. New York: American Book Company.
- Gildersleeve, B. and G. Lodge. 1895. *Latin Grammar*. London: MacMillan.
- Goodwin, W. 1875. *Syntax of the Moods and Tenses of the Greek Verb*. Boston: Ginn Brothers.
- Han, C. H. 2000. *The Structure and Interpretation of Imperatives: Mood and Force in Universal Grammar*. Outstanding Dissertations in Linguistics. New York: Garland.
- Han, C. H. 2001. Force, negation and imperatives. *The Linguistic Review* 18:289-326.
- Hacquard, V. 2011. Modality. In *Semantics: An International Handbook of Natural Language Meaning*, ed. C. Maienborn, K. von Stechow, and P. Portner, 1484-1515. Berlin: Mouton de Gruyter.
- Hamblin, C. 1987. *Imperatives*. New York: Blackwell.
- Hausser, R. 1980. Surface compositionality and the semantics of mood. In *Speech Act Theory and Pragmatics*, ed. J. Searle, F. Kiefer, and M. Bierwisch, 71-95. Dordrecht: Reidel.
- Haegeman, L. 2004. Topicalization, CLLD, and the left periphery. *ZAS Papers in Linguistics* 35:157-192.
- Heim, I. and A. Kratzer. 1998. *Semantics in Generative Grammar*. Oxford: Blackwell.
- Iatridou, S. 2008. *De Modo Imperativo*. Ms. distributed at Ealing6, ENS.
- Iatridou, S. 2011. *What is an Imperative?* Ms. distributed at the EGG summer school 2011.
- Isac, D. 2012. Decomposing force. In *Towards a Bilingual Understanding of Grammar: Essays on Interfaces*, ed. A. Di Sciullo. Amsterdam: John Benjamins.

- Jensen, B. 2003. Syntax and semantics of imperative subjects. *Nordlyd* 31:150-164.
- Katz, J. and P. Postal. 1964. *An Integrated Theory of Linguistic Descriptions*. Cambridge, MA: MIT Press.
- Kaufmann, M. 2012. *Interpreting Imperatives*. Dordrecht: Springer.
- Kayne, R. 1992. Italian negative infinitival imperatives and clitic climbing. In *De La Musique à La Linguistique: Hommages à Nicolas Ruwet*, ed. L. Tasmowsky, and A. Zribi-Hertz, 300-312. Ghent: Communication and Cognition.
- Kayne, T. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.
- König E. and P. Siemund. 2007. Speech act distinctions in grammar. In *Language Typology and Syntactic Description*, ed. T. Shopen, 276-324. Cambridge: Cambridge University Press.
- Koopman, H. 1997. Imperatives. Talk given at National Institute of Advanced Studies.
- Kratzer, A. 1977. What “must” and “can” must and can mean. *Linguistics & Philosophy* 1:337-355.
- Kratzer, A. 1981. The notional category of modality. In *Words, Worlds, and Contexts*, ed. H.-J. Eikmeyer & H. Rieser, 38-74. Berlin: de Gruyter.
- Kratzer, A. 1991. Modality. In *Semantik: Ein Internationales Handbuch der zeitgenössischen Forschung*, ed. A. Stechow, and D. Wunderlich, 639-650. Berlin: de Gruyter.
- Kratzer, A. 2012. *Modals and Conditionals: New and Revised Perspectives*. Oxford: Oxford University Press.
- Lewis, D. 1973. *Counterfactuals*. Oxford: Blackwell.
- Mauck, S. 2005. *Notes on the Typology of Imperatives*. Ms., Georgetown University.
<http://www.georgetown.edu/faculty/portnerp/nsfsite/nsfframeset.htm>
- Mastop, R. Imperatives as semantic primitives. *Linguistics & Philosophy* 34:305-340.
- Matushansky, O. 2006. Head movement in linguistic theory. *Linguistic Inquiry* 37:69-109.
- Medeiros, D. to appear. Embedded Ancient Greek imperatives: a feature transfer analysis. *Syntax*.

- Moro, A. 2003. Notes on vocative case: A case study in clause structure. In *Romance Languages and Linguistic Theory 2001*, ed. J. Schroten, P. Sleeman and E. Verheugd, 251-265. Amsterdam: John Benjamins.
- Ninan, D. 2005. Two puzzles about deontic necessity. In *New Work on Modality*, ed. J. Gajewski, V. Hacquard, B. Nickel, and S. Yalcin, 149-178. Cambridge MA: MIT Working Papers in Linguistics.
- Obata, M. and Epstein, S. D. 2008. Deducing improper movement from phase-based C-toT phi transfer; feature splitting internal merge. In *Proceedings of the 27th West Coast Conference on Formal Linguistics*, ed. N. Abner and J. Bishop, 353-360. Somerville, MA: Cascadilla Proceedings Project.
- Palmer, F. R. 2001. *Mood and Modality* (2nd edition). Cambridge: Cambridge University Press.
- Pak, M., P. Portner and R. Zanuttini. 2007. Agreement and the subjects of jussive clauses in Korean. In *Proceedings of the 37th Meeting of the North East Linguistics Society*, ed. E. Efnér and M. Walkow, 127-138. Amherst: GLSA.
- Pesetsky, D. and E. Torrego. 2007. The syntax of valuation and the interpretability of features. In *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation. In Honor of Joseph E. Emonds*, ed. S. Karimi, V. Samiian and W. K. Wilkins. Amsterdam: John Benjamins.
- Platzack, C. and I. Rosengren. 1998. On the subject of imperatives: A minimalist account of the imperative clause. *The Journal of Comparative Germanic Linguistics*, 1:177-224.
- Platzack, C. 2008. Embedded imperatives. In *Imperative Clauses in Generative Grammar: Studies in Honor of Frits Beukema*, ed. F. Beukema and W. van der Wurff, 181-203. Amsterdam: John Benjamins.
- Pollard, C. and I. Sag. 1994. *Head-driven Phrase Structure Grammar*. Chicago: University of Chicago Press.
- Portner, P. 1997. The semantics of mood, complementation, and conversational force. *Natural Language Semantics* 5:167-212.
- Portner, P. 2004. The semantics of imperatives within a theory of clause types. In *Proceedings of Semantics and Linguistic Theory 14*, ed. K. Watanabe and R. B. Young, 235-252. Cornell University: CLC Publications.
- Portner, P. 2007. Imperatives and modals. *Natural Language Semantics* 15:351-383.

- Portner, P. 2009. *Modality*. Oxford: Oxford University Press.
- Portner, P. 2011. Verbal Mood. In *Semantics: An International Handbook of Natural Language Meaning*, ed. C. Maienborn, K. von Stechow, and P. Portner, 1262-1291. Berlin: Mouton de Gruyter.
- Portner, P. to appear. Imperatives. In *Cambridge Handbook of Semantics*, ed. M Aloni and R. van Rooij. Cambridge: Cambridge University Press.
- Potsdam, E. 1998. *Syntactic Issues in the English Imperative*. Outstanding Dissertations in Linguistics. New York: Garland.
- Potsdam, E. 2007. Analyzing word order in the English imperative. In *Imperative Clauses in Generative Grammar*, ed. W. van der Wurff, 251-272. Amsterdam: Benjamins.
- Quer, J. 2001. Interpreting mood. *Probus* 13:81-111.
- Reinhart, T. 1976. *The Syntactic Domain of Anaphora*. Ph.D. dissertation, MIT.
- Richards, M. 2007. On feature inheritance. An argument from the phase impenetrability condition. *Linguistic Inquiry* 38:563-572.
- Rivero, M.-L. 1994. Clause structure and V-movement in the languages of the Balkans. *Natural Language and Linguistic Theory* 24:567-575.
- Rivero, M.-L. and A. Terzi. 1995. Imperatives, V-movement and logical mood. *Journal of Linguistics*. 31:301-332.
- Rizzi, L. 1996. Residual verb second and the wh-criterion. In *Parameters and Functional Heads: Essays in Comparative Syntax*, ed. A. Belletti and L. Rizzi, 63-90. Oxford: Oxford University Press.
- Rizzi, L. 1997. The fine structure of the left periphery. In *Elements of Grammar: Handbook of Generative Syntax*, ed. L. Haegeman, 281-337. Dordrecht: Kluwer.
- Rognvaldsson, E. 1998. *The Syntax of the Imperative in Old Scandinavian*. Ms., University of Iceland.
- van Rooy, R. 2003. Questioning to resolve decision problems. *Linguistics & Philosophy* 26:727-763.
- Rupp, L. 1999. *Aspects of the Syntax of English Imperatives*. Ph.D. dissertation, University of Essex.

- Rus, D. 2005. Slovenian embedded imperatives. In *Georgetown Working Papers in Linguistics*, ed. C. Brandstetter and D. Rus, 153-183. Georgetown University.
- Sadock, J. and A. Zwicky. 1985. Speech act distinctions in syntax. In *Language Typology and Syntactic Description, Vol. 1: Clauses Structure*, ed. by T. Shopen, 155-96. Cambridge: Cambridge University Press.
- Schwager, J. M. 2006. *Interpreting Imperatives*. Ph.D. Dissertation, Johann-Wolfgang-Goethe Universitaet zu Frankfurt am Main.
- Searle, J. 1969. *Speech Acts*. Cambridge: Cambridge University Press.
- Sheppard, M. and M. Golden. 2002. (Negative) imperatives in Slovene. In *Modality and its Interaction with the Verbal System*, ed. S. Barbiers, F. Beukema and W. van der Wurff, 245-259. Amsterdam: John Benjamins.
- Shukla, S. 1981. *Bhojpuri Grammar*. Washington DC: Georgetown University Press.
- Silk, A. 2013. Ought and must: some philosophical therapy. Expanded version of SALT 22 paper.
- Smyth, H. 1920. *Greek Grammar*. Cambridge, MA: Harvard University Press.
- Stalnaker, R. 1978. Assertion. In *Syntax and Semantics 9: Pragmatics*, ed. P. Cole, 315-332. New York: Academic Press.
- Svenonius, P. 1994. C-Selection as feature checking. *Studia Linguistica* 48: 133-155.
- Truckenbrodt, H. 2006. On the semantic motivation of syntactic verb movement to C in German. *Theoretical Linguistics* 32:257-306.
- Wexler, K. and P. Culicover. 1980. *Formal Principles of Language Acquisition*. Cambridge, MA: MIT Press.
- Williams, B. 1981. Practical necessity. In *Moral Luck*, ed. B. Williams, 124-131. Cambridge: Cambridge University Press.
- Wilson, D. and D. Sperber. 1988. Mood and the analysis of non-declarative sentences. In *Human Agency: Language, Duty and Value*, ed. J. Dancy, J. Moravcsik, and C. Taylor, 77-101. Stanford: Stanford University Press.
- Yule, G. 2006. *The Study of Language*. Cambridge: Cambridge University Press.
- Zanuttini, R. 1991. *Syntactic Properties of Sentential Negation: A Comparative Study of Romance Languages*. Ph.D. Dissertation, University of Pennsylvania.

- Zanuttini, R. 1997. *Negation and Clausal Structure: A Comparative Study of Romance Languages*. Oxford: Oxford University Press.
- Zanuttini, R. 2008. Encoding the addressee in the syntax: evidence from English imperative subjects. *Natural Language and Linguistic Theory* 26:185-218.
- Zanuttini, R., Pak M. and P. Portner. 2012. A syntactic analysis of interpretive restrictions on imperative, promissive, and exhortative subjects. *Natural Language and Linguistic Theory* 30:1231-1274.
- Zanuttini, R. and P. Portner. 2003. Exclamative clauses: at the syntax-semantics interface. *Language* 79:39-81.
- Zimmermann, T. 2000. Free choice disjunctions and epistemic possibility. *Natural Language Semantics* 8:255-290.