Summary by the author

1. Issues
This dissertation investigates the distribution and interpretation of Covert Modality. Covert Modality is modality which we interpret but which is not associated with any lexical item in the structure that we are interpreting. This dissertation investigates a class of environments that involve covert modality. Examples of covert modality include wh-infinitival complements, infinitival relative clauses, purpose clauses, the have to construction, and the is to construction (cf. 1):

(1) a. Tim knows [how to solve the problem].
   (= Tim knows how one/he could/should solve the problem)
b. Jane found [a book to draw cartoons in] for Sara.
   (= Jane found a book for Sara one could/should draw cartoons in)
c. [The man to fix the sink] is here.
   (= The man whose purpose is to fix the sink is here.
d. Sue went to Torino [to buy a violin].
   (= Sue went to Torino so that she could buy a violin.)
e. Bill has to reach Philadelphia before noon.
   (= Bill must reach Philadelphia before noon.)
f. Will is to leave tomorrow.
   (= Will is scheduled/supposed to leave tomorrow.)

The interpretation of (1a–f) involves modality; however, there is no lexical item that seems to be the source of the modality. What (1a–f) have in common is that they involve infinitivals. Of the environments in (1a–f), we will investigate infinitival relatives and infinitival questions in this dissertation. (The have to construction is discussed in Bhatt, 1997.) The following questions about covert modality are addressed: what is the source of this modality, what are its semantic properties, why are some but not all infinitival relatives modal, and why are all infinitival questions modal?

We also discuss a case that is the inverse of the environments in (1): an environment where there is a modal word in the structure but not in the interpretation (cf. 2).

(2) (from Thalberg, 1969)
a. In those days, Brown was able to hit bulls-eyes three times in a row. (modal)
b. Brown was able to hit three bulls-eyes in a row. (context: Yesterday, Brown hit three bulls-eyes in a row. Before he hit three bulls-eyes, he fired 600 rounds, without coming close to the bulls-eye; and his subsequent tries were equally wild.) (non-modal)

This environment is interesting for the same reason as the environments in (1) – it involves a non-trivial mapping between the structure and interpretation. How is it possible that (2a) is modal when (2b) is non-modal (and vice-versa)? Our analysis of this environment (in Chapter 5) will analyze the difference between (2a) and (2b) in terms of a covert modal, which is identified as a generic operator. Crosslinguistic evidence is provided for this proposal by showing that in languages where the perfective/imperfective distinction reflects the absence/presence of genericity, the modal reading is available only in the presence of imperfective aspect. In the presence of perfective aspect, the ability modal behaves like an implicative verb (e.g. Bulgarian, Catalan, Hindi, Modern Greek etc.).

2. Dissertation Outline and Summary

2.1. Chapter 2: The syntax of infinitival relatives
The goal of this chapter is to determine what kinds of structures best represent different kinds of infinitival relative clauses. We begin with a discussion of the syntactic properties of different kinds of infinitival relative clauses. We argue that subject infinitival relatives (e.g. the man to fix the sink) differ structurally from non-subject infinitival relatives (e.g. the book to
Subject infinitival relatives, but not object infinitival relatives, share the following properties of reduced relatives: (i) the relativized element is always in subject position, (ii) the subject position does not receive case, (iii) the relativization is very local - only the matrix subject can be relativized, (iv) the clausal structure that functions as a reduced relative can appear as the complement of predicative be (cf. Embick 1997; Iatridou, Anagnostopoulou & Izvorski, 2000), (v) no complementizer is permitted, and (vi) no relative pronoun is permitted. Subject infinitival relatives are therefore assimilated with reduced relative clauses while non-subject infinitival relatives are assimilated with non-reduced relative clauses. A structure is proposed for reduced relative clauses that captures the properties of reduced relative clauses in general and subject infinitival relatives in particular. This structure differs from the structure proposed for full relative clauses in that it does not involve a CP projection and A'-movement to the specifier of a CP for predicate-formation. It has the advantage that we do not have to postulate A'-movement of an operator from a non-case marked position.

Non-subject infinitival relative clauses are analyzed as full relative clauses. They involve a CP projection and movement of a relative operator to the specifier of this CP. Infinitival questions and non-subject infinitival relative clauses thus have essentially the same syntax which involves A'-movement of a phrase to the specifier of a [+rel/wh] C^0. Infinitival [+rel/wh] C^0 is identified as the locus of the modality that appears in non-subject infinitival relatives and infinitival questions. Since infinitival questions and non-subject relative clauses must involve the infinitival [+rel/wh] C^0 and the infinitival [+rel/wh] C^0 has modal semantics, all infinitival questions and non-subject relatives involve modality. Similarities in the behavior of the modality in non-subject infinitival relatives and infinitival relatives are captured by assigning the same semantics to [+rel] C^0 and [+wh] C^0. The details of the semantics of the infinitival [+rel/wh] C^0 are discussed in Chapter 4.

Some but not all subject infinitival relatives are interpreted as modal (cf. the modal the man to fix the sink vs. the non-modal the first man to walk on the moon). Our proposal that subject infinitival relatives do not involve the modally interpreted infinitival [+rel] C^0 is compatible with the fact that not all subject infinitival relatives are modal. We relate the modality in the modal subject infinitival relatives to a modality that can independently appear in the infinitival clause. Thus the modality in the subject infinitival relative the book to be read for class has the same source as the modality in The book is to be read for class. This source is internal to the infinitival clause; it is independent of the appearance of the infinitival clause as part of a (reduced) relative clause. Evidence for the difference in the nature of the modality in object infinitival relatives and subject infinitival relatives is provided by the presence of variable modality effects in object infinitival relatives, but not subject infinitival relatives. The force of the covert modality in object infinitival relatives seems to depend upon the determiner - the book to read vs. a book to read (cf. Hackl & Nissenbaum 1999). The modality in subject infinitival relatives does not seem to display such a dependency - the man to fix the sink vs. a man to fix the sink.

2.2. Chapter 3: Non-modal infinitival relative clauses

The infinitival clause in a subject infinitival relative can also be interpreted non-modally in certain environments. The precise characterization of such environments and the properties of such infinitival clauses are discussed in this chapter. The syntactic proposal in Chapter 2 is able to explain why only subject infinitival relatives can be non-modal. However, the non-modal interpretation is only available in the presence of a particular set of modifiers. This class of modifiers is identified as consisting of superlatives, ordinals, and nominal only cf. the first/last book to read that book on the moon. The infinitival clause that receives a non-modal interpretation is required to be licensed locally at LF. We argue that the appropriate licensing configuration is made available under reconstruction of the head NP into its relative clause-internal position. The reconstruction option is available to us if we assume a version of the head-raising analysis of relative clauses. Nominal modifiers like superlatives and ordinals are able to reconstruct back into the relative clause along with the noun phrase. This option is not available to determiners, and this is why determiners like the first/last are unable to license the non-modal reading.

The licensing configuration proposed requires that in addition to the relative clause-internal interpretation of the head NP, the licensing element (the superlative -est, ordinals, nominal only etc.) move from its NP-internal position to a position where it takes the infinitival clause as an argument. With the licensing configuration in hand, we are able to explain why both nominal first/last and relative clause-internal adverbial first/last are able to license a non-modal reading (cf. the first/last book to read that book vs. the man to read that book first/last). This is so because at LF, which is the point at which the licensing configuration applies, nominal first/last and the relative clause-internal adverbial first/last are in the same (relative clause-internal) position.

Further evidence is provided for the possibility of reconstructed interpretations of nominal modifiers in the form of the ambiguity of examples like the first book that John said that Antonia wrote. These examples permit a 'high' reading (first in saying) and a 'low' reading (the x s.t. John said that x was the first book that Antonia wrote). The head-raising analysis of relative clauses is required to derive the 'low' reading.

To explore the interpretive properties of the non-modally interpreted infinitival clause, the semantics
of the ordinal first is used as a probe. A semantics for first is proposed and applied to non-modal infinitival relatives. We observe that a temporal simultaneity requirement holds between the head NP and the infinitival clause in a non-modal infinitival relative. The first 80 yr. old to walk on the moon must have been 80 yrs. old when he/she walked on the moon. The description cannot pick out the first person who is 80 yrs. old and who walked on the moon. The temporal simultaneity facts fall out of the fact that the head NP and the infinitival clause are both interpreted as predicates of times and individuals and that they combine via intersective modification (Predicate Modification) causing their temporal variables to be simultaneous.

2.3. Chapter 4: The distribution and interpretation of infinitival questions

This chapter addresses two aspects of infinitival questions: (i) their distribution – what classes of predicates take infinitival question complements and what generalizations hold of these classes of predicates, and (ii) the interpretation of the modality that appears in infinitival questions – what is the nature of the modality that appears in infinitival questions, and why does its force seem to vary depending upon the environment in which it appears. The infinitival [+wh] C^0 was identified in Chapter 2 as the source of the modality in infinitival questions. We demonstrate that with the exception of a limited set of environments the modality in an infinitival question is always interpreted as deontic/bouletic modality. It cannot be interpreted as circumstantial or epistemic modality.

The force of the modality that appears in infinitival questions seems to vary depending upon the environment. A list is provided of the factors that influence the force of the infinitival modality. We argue that despite the seeming variability in the modality of infinitival questions, all infinitival questions involve the same modality. The semantics of the infinitival modality is formalized by the modal operator. The variation between could and should readings of infinitival questions comes from the contextually salient goals, the nature of the wh-phrase, and the semantics of the embedding predicate.

Finally, the proposal made to explain the variability in the force of the modality in infinitival questions is extended to non-subject infinitival relatives. It has been noted by Hackl & Nissenbaum (1999) that the force of the infinitival modality in a non-subject infinitival relative seems to depend upon the determiner that appears with the head of the infinitival relative clause: strong determiners permit only should readings, while weak determiners permit both could and should readings. We show that the mechanism developed for explaining the variation in the force of the modality in infinitival questions carries over straightforwardly to provide an explanation of the facts that Hackl & Nissenbaum (1999) observe for infinitival relatives.

Review by Anastasia Giannakidou

1. Central claims and evaluation

In this thesis Bhatt investigates the distribution and interpretation of structures with “covert” modality. Examples of such structures include wh-infinitival complements, infinitival relative clauses, purpose clauses, and be to constructions. The thesis concentrates on the former two, illustrated in (1) and (2):

(1) a Ariadne knows how to solve the problem.
   = Ariadne know how she should/could solve the problem.
 b Ariadne is wondering where to go.
   = Ariadne is wondering where she should/could go.

(2) a The man to fix the sink is here.
   = The man who will/whose purpose is to fix the sink is here.
 b The book to read is on the table.
   = The book that you should/could/must read is on the table.

As indicated in the paraphrases, these sentences receive modal interpretation although they do not contain an overt modal verb—hence the term covert modality. The modality involved is directive, i.e. deontic (and variants thereof), or purpose related (especially with subjects), and never epistemic.

One of Bhatt’s central claims is that, in terms of their syntactic and semantic properties, wh-infinitivals and object infinitival relatives (cases (1) and (2b)) are distinct from the subject infinitival relatives in (2a). The syntactic arguments are quite convincingly presented in chapter 2. Infinitival wh-clauses and object relative clauses are full CPs. A possibility modal operator is argued to reside in the C^0 of these structures with the deontic semantics defined and discussed in chapter 4. This semantics yields a family of readings that can be paraphrased with could, should, or even would, depending on the contextually salient goals, the nature of the wh-phrase, and the semantics of the embedding predicate; the latter is particularly relevant for wh-infinitivals. The important point is that the modality is semantically identical in all cases: the variations are derived pragmatically, by suppressing or making more salient certain aspects of the meaning of a single operator.

Unlike wh-infinitivals and object infinitival relatives, subject infinitival relatives such as (2a) are argued to lack a CP layer and exhibit properties of reduced relatives. Lacking the CP layer, subject infinitival relatives cannot host the deontic modal that non-subject infinitivals do. Their modality must thus be attributed elsewhere, and, crucially, is not always present: with certain items, e.g. superlatives, first, and only, modal readings of subject infinitival relatives are excluded:

(3) a I took a picture of the *first person to climb Mt. Everest last year.
b I took a picture of the *(only) person to climb Mt. Everest last year.
c I took a picture of the *(tallest) person to climb Mt. Everest last year.

The relative clause to climb Mt. Everest last year receives an episodic past interpretation: it makes reference to an event of climbing Mt. Everest which happened last year; the individual picked out by the head of the relative clause has the property of being the agent of that event. This is clearly not a modal interpretation— and the reference to the past is dependent upon the past of the matrix verb, a dependency expected of infinitives, and their cross-linguistic counterparts, the subjunctive (a point to which I return). Object infinitival relatives and wh-infinitivals do not have such episodic non-modal interpretations. The reason is that in non-subject infinitival relatives and wh-infinitivals, the covert modal is always present in C0; subject infinitivals lack C0, hence they only optionally allow for a modal interpretation.

Another important point is that without first, only, and superlatives the failure to “license” a non-modal interpretation leads to ungrammaticality, as we see in (3). In Chapter 3 the author proposes an explanation invoking argumentation reminiscent of polarity items. Though never stated explicitly, the non-modal reading is treated as a polarity item (PI) which must be licensed by an appropriate c-commanding licensor, e.g. first, only, or the superlative. This is an interesting way of looking at the phenomenon: it seems to provide an explanation for why only, first, and superlatives move out of an NP-internal position to a position where they take the infinitival clause as an argument; it is in this configuration that the PI non-modal reading can be licensed. (This movement does not leave a trace behind, and is assimilated to other cases argued to have the same property, see discussion on pp. 58–59. In Appendix C, 3.10, it is further shown that an in-situ analysis affords comparable results.) It also predicts an interesting interaction with matrix focus: if first, only, and superlatives associate with matrix focus they will not be able to license a non-modal reading, since this would require them to move out of the relative clause. Relative clauses are islands and such movement is impossible.

As a whole, the dissertation is an insightful contribution to the study of the syntax and semantics of relative clauses and modality. It provides detailed and clear discussions of many central issues in these areas, and is full of interesting ideas and analyses that are worked out in remarkable detail; the semantics of the modal operator which is interpreted as should, could, or even would in chapter 4 is a case in point. The claim that we have a single operator in all cases, and that the switch from one meaning to the other is a function of the context and the semantics of the wh-phrase and the embedding predicate is successfully argued for, and gives the correct results in a large number of cases. Moreover, the general approach, though designed for the covert modal of wh-infinitivals and object relative clauses, could actually form the basis for the analysis of the (as of yet, largely unexplored) overt modals could, would, and should.

The orientation is consistently compositional, with emphasis on the syntax-semantics interface, and this makes the argumentation particularly clear. (One exception is the discussion of ability modals in Chapter 5, the least worked out part of the work, which however contains material that merits further attention, as we will see below). The syntactic arguments for the existence of a CP layer hosting a covert modal operator in object infinitivals and wh-infinitivals are convincing; so are the arguments for the raising/matching analysis of relative clauses and the need to assume a relative clause internal position for the interpretation of the head NP of the relative clause both in reduced and full relatives. Many of these arguments for full relatives are to be found scattered in the literature but are nicely put together here; a novel argument is added in 3.6 based on ambiguities of first, only, and superlatives in embedded tensed clauses.

Along the way, a number of issues not directly related to modality receive attention, especially in Chapter 3, when the temporal ordering properties of first are analyzed, as well as the aspetual properties of infinitival clauses and the interaction between the types of quantifiers (strong, weak) and the availability of non-modal readings. The discussion is always clear and quite extensive, and manages to handle a vast array of quite complex facts.

Some basic puzzles still remain a mystery, however such as the syntactic fact that in infinitival relatives, unlike in finite relative clauses, overt material can be present in SpecCP only if it is a pied-piped PP (A knife with which to cut the bread versus A knife (*which) to cut bread with); and the semantic fact that the modality in both subject and object infinitivals is directive and not epistemic. One would like to have an explanation for at least the semantic fact; but the brief comments on p. 142 are not very satisfying. An explanation is indeed possible if we consider the possible modality of the to-infinitive itself, which seems to have received less attention than it could have.

There are also points in need of further refinement; for example, in Chapter 4, the exclusive link between the uniqueness presupposition of a singular wh-phrase and the should reading must be relaxed a little, in view of examples like (4b) below, indicating that the matrix verb also plays a role:

(4) a Mary knows which professor to talk to = which professor she should talk to
   b Mary is wondering which professor to talk to = ... (should|could) talk to

It is uniqueness in conjunction with the factivity of know that forces a should reading in (4a); should is not forced in (4b), with wonder. Additionally, it would be nice to be able to predict which question-selecting verbs will be compatible with wh-infinitivals and
which not. The discussion in chapter 4 merely states the generalization that some verbs, e.g. *guess, depend on*, and *matter*, do not c-select wh-infinitival complements; but, obviously, we would like this to follow from the analysis, for example as a mismatch between the semantics of these verbs and that of the modal operator. Finally, the very brief comments in 4.3.5 on why embedded negation forces a *should* reading, as in *Bill knows where not to get gas*, do not give an adequate explanation of why the switch takes place. As I said, the analysis is successful in many ways; we can thus hope that some of the residual issues can be accommodated in future developments.

Another area for a possible productive extension concerns the consequences of the basic proposals in the larger crosslinguistic picture. Languages that do not have infinitives, e.g. Greek, naturally do not exhibit infinitival relatives or wh-questions. (Note that I use “Greek” here and not “Modern Greek”, as the language is occasionally referred to in the text. The addition of “modern” was common in earlier linguistic works on Greek, which thought it necessary to identify the current stage of the language as opposed to earlier ones. Yet this distinction is generally unnecessary for other languages, and most linguists do not see a reason to keep it for Greek: unless there is explicit discussion and contrast with earlier stages of Greek, the term Greek alone suffices to identify the language, just as is the case for other modern languages (e.g. English, Chinese, etc.).) Lacking infinitives, however, Greek employs other forms that are used for functions the infinitive is for in English—the subjunctive and have no such restriction); and (c) the connection between ability modals, veridicality, and perfection aspect.

2. The syntax of subject infinitivals and the modality of to-infinitives

Chapter 2 addresses the basic point of the thesis: that modal infinitival relatives and non-obligatorily modal ones are structurally distinct. It is argued that the former are reduced relatives, whereas the latter are full CPs, hosting a modal operator in C. In either case, a “head raising” analysis is proposed, where the head NP is moved out of an XP, but only full relatives involve CP-internal A’-movement. The two structures are given below:

(8) Finite relative clauses, object infinitival relative clauses (Bhatt 1999: (53a))

\[
D'\ [NP \{CP \{Rel-NP \{C0 \ldots Rel-NP \ldots \} || \ldots \} \}]
\]

the [book [CP [which book]], C0 [Bill likes [which book]], ]]

(9) Reduced relative clauses, subject infinitival relatives

\[
D'\ [NP \{x' \{NP \{NP \{NP \ldots \} \} \} \}]
\]

the [philosopher [NP philosopher reading Dworkin]] (Bhatt 1999: (53b))

The structure in (9) is that for reduced relatives containing participle, gerunds, adjectives, and comparable categories, and is the one that Bhatt intends for reduced infinitival relatives. Interestingly, no illustration is provided with this category in Chapter 2. Under standard assumptions infinitives are at least IPs, and in Chapter 3 PrtP is in fact replaced by IP for this case. With this proviso, in reduced PrtP/IP structures, PrtP/IP is a predicate, type \(<v,t>\), and combines with the head NP via intersective modification, using Heim and Kratzer’s (1998) predicate modification rule. Unlike Heim and Kratzer, in Bhatt’s structure no A’-movement is required to create the predicate; predicate formation happens with the mechanism of *direct predication*, which is strictly local and which can only relativize the topmost unsaturated argument of the predicate—the subject.

(10) the [man [IP man to fix the sink]]

\[\Rightarrow \text{(by direct predication)}\]

the [man [\(x\) [x to fix the sink]]]
Besides direct predication, it is argued that the head NP originates inside the relative clause in both cases, allowing thereby interpretation of the NP-content in either of two positions: externally or internally to the relative clause. Depending on where we interpret NP, we get the effects of the head external analysis (the higher copy gets interpreted), or the head raising analysis (the lower, relative clause internal copy gets interpreted). We need to allow for the second option because of the particular features of the non-modal readings discussed in Chapter 3, most prominently simultaneity– and for independent reasons, e.g. in order to explain narrow scope readings with modals, because of the particular features of the non-modal analysis (the lower, relative clause internal copy gets interpreted), or the head raising analysis we get the effects of the head external analysis (the higher copy gets interpreted). We need to allow for the second option because of the particular features of the non-modal readings discussed in Chapter 3, most prominently simultaneity– and for independent reasons, e.g. in order to explain narrow scope readings with modals, as in the student likely to win the race.

Although direct predication does not require movement, the need to allow for a lower copy does; but this forces a chain created by an, in the author’s own words, unorthodox movement– unorthodox in that it is a movement where the moving phrase, and not the target, projects. This seems a less attractive part of the analysis, especially if we consider that such movements are not attested elsewhere. But, more seriously, in the context of the syntactic analysis as it stands, a basic question seems to remain unanswered: how the modal interpretation in the infinitival IP is compositionally derived. Direct predication and predicate modification alone do not suffice to make the distinction between a man fixing the sink, which is not modal, and a man to fix the sink, which is. In both cases direct predication, predicate modification and iota would give back the unique individual that is both a man and has the property of fixing the sink now. But a man to fix the sink is a man whose purpose is to fix the sink (and he might end up not fixing it after all). In other words, there is obviously modality inside the infinitival relative, and there seems to be no way to account compositionally for it without invoking the infinitival I0.

Going back to the general point, then, invoking “covert” modality– with the implication that there is absolutely no overt expressor of modality – is not entirely accurate. The relative and wh-clauses at hand involve to-infinitivals, and to-infinitivals are modal forms: they can be used as complements to intensional verbs, and in isolation, expressing future orientation, purpose, and the like:

(11) a John arrived early to talk to me first.
    b John left the room to leave me alone.

In unselected positions, to-infinitivals convey directive/deontic, and at any rate non-epistemic modality. In this light, the fact that both types of infinitivals involve non-epistemic modality receives a natural explanation since in both cases we have a to-infinitival.

It seems necessary, then, to assume that the infinitival itself contributes a modal operator in reduced relatives: either to or a head above it (recall the purpose ja in the Greek example (7b)) can be argued to host this modality (consistent with some comments on p.16). But the implementation of this idea has an interesting consequence for the analysis of the non-modal reading in Chapter 3. If subject infinitival relatives are inherently modal, then the non-modal readings must be reconsidered not in terms of licensing but blocking: the modal reading, which should be available because of the infinitival I0 is in fact blocked in these cases.

3. Restrictions on the QP types

Object and subject infinitival relatives differ in another important way: in the types of QPs they can modify. Object infinitival relatives modify various kinds of QPs, weak and strong ones (with certain differences discussed in chapter 4.4).

(12) a Every pen to write with is in the top drawer.
    b Norman’s mother saw [many/few/some/two women] for him to marry at the party.

Subject infinitival relatives, however, can only modify definites. This difference escapes attention, but some relevant examples are given in Chapter 3 (ex. (63)), where it is claimed that they are “either ungrammatical altogether or are only grammatical under a modal reading” (Bhatt 1999:43). These, and similar, examples were judged uniformly ungrammatical by my informants:

(13) *I took a picture of [every boy/most boys/three boys/few boys/many boys/a boy] to climb Mt. Everest.
(14) *I just saw [a man/every man/most men/few men/some man/three men] to fix the sink.

The difference does not follow readily from the analysis as it stands, but the discussion in the relevant portions of Chapters 3 and 4 could give us, I believe, a context in which to address it. But note first some further worries. In Chapter 3 it is observed that, unlike first, only and superlatives, weak quantifiers embedded under the are “degraded”:

(15) ???I have met [the many/few/two people to climb Mt. Everest last year].
    (Bhatt’s (67a–c))

‘Degraded’ here means not just lacking the non-modal reading, but ungrammatical. The proposed explanation for the unacceptability of these examples relies on the assumption that weak quantifiers are not real quantifiers but predicate modifiers (type <<e,t>, <e,t>>, hence unable to take a propositional complement in the standard way quantification elements do, thus also unable to license the modal interpretation (p. 110). This does not explain, however, why they are ungrammatical. In order to answer this question we have to think of these examples in conjunction with the ones in (13) and (14), without the definite
determiner but with an intended modal reading, which are equally bad.

By contrast, in Chapter 4 (4.4) it is shown that CP-infinitival relatives pose no restrictions on the accompanying QPs; strong and weak quantifiers are fine, yielding only a difference in the interpretation of the covert modal. A strong quantifier forces a should-equivalent reading which coincides with a covert partitive reading of the quantifier. The author notes that covert partitivity ‘allows us to reduce all strong quantifiers and strong readings of weak quantifiers to the core case with the’ (which is then subject to a uniqueness condition, which, if satisfied, allows the should reading) (p. 169). If partitivity allows reduction to a definite, then why doesn’t this ‘rescue’ subject infinitival relatives modifying non-definites? If a partitive interpretation is forced shouldn’t the subject infinitivials be fine with a modal reading? Yet subject infinitivials can only modify definites and nothing else.

4. Non-modal readings of subject infinitival relatives and tense

As I mentioned earlier, non-modal readings are treated as PIs which must be licensed in the c-command domain of their licensers first, only, and superlatives. This is coupled with the idea that these items undergo QR-like movement (proposed originally by Szabolcsi). Another important feature of the analysis is that the head NP reconstructs into the relative clause; this allows us to capture simultaneity:

(16) The first 80 year old {to walk/who walked} on the moon was American.

(17) The first person who walked on the moon at the age of 80 years was American.

The analysis here builds heavily on ideas from Musan (1997) and Enc’s work where NP’s have temporal arguments that can be set independently of the matrix tense. The restriction 80 years old must be interpreted in the relative clause internal position, and this is actually used as an additional argument against the head-external analysis. This seems necessary, at least for finite clauses (which also exhibit simultaneity, but optionally) because otherwise the time of the relative clause would be set prior to the time of the restriction 80 years old, allowing the sentence to be good in the reading in which the person walked on the moon at a time prior to his becoming 80 years old. This is indeed an option with finite relatives, but not with infinitival ones; the restriction, therefore, in these structures must be interpreted in the lower relative clause internal position.

I will not consider further syntactic details here. I would only like to note a few things on the temporal interpretation of non-modal readings, discussed in careful detail in 3.7. It is argued that first (P) can be evaluated at any contextually salient present or past time, but in predicative positions, the time is completely determined by the matrix clause. This, in conjunction with the head-internal assumption, explains why the following sentence requires that (a) Neil Armstrong has walked on the moon, (b) the walking is happening right now or happened very recently, in an interval that still counts as now, and (c) the walker is 80 years at the time of the walking:

(18) Neil Armstrong is the first 80 year old to walk on the moon.

The key assumption, from Musan (1997), is that in predicative positions the NP time is not independent, but set by the matrix time. The triple simultaneity thus follows. The explanation (in Bhatt’s 3.7.5.6) works well, because now is interpreted as an extended interval, starting at some time in the (relatively recent) past, a common assumption in tense semantics. Additionally, Bhatt invokes an alleged perfective operator inside the infinitive, to signal the beginning of the now interval; but invoking the perfective seems unnecessary, since the correct truth conditions are derived from the fact that now denotes an extended interval.

Note, in this connection, that the purely temporal semantics Bhatt gives is not the semantics of a perfective proper (as we know it from cross-linguistic work, involving an event argument with culmination; see Kamp and Reyle 1993, and references therein). The semantics used is that of a purely temporal operator like the extended now we know from the perfect (Dowty 1979). The difference between the recent-now interval we need for infinitival relatives and that of the perfect is that the latter can go back to a quite remote past. But the closeness explains why perfect adverbials (e.g. since-adverbials), but not perfective simple past adverbials (e.g. definite adveriabls like in 1967, yesterday) are good with subject infinitivals. If the operator is perfective this fact remains unexplained.

Another point has to do with the property of anaphoric tense that characterizes the infinitival, an issue discussed only in passing in 3.7.6. It is mentioned that subject infinitivals also allow future readings, as long as the matrix tense is future too:

(19) Nicholas will be the youngest boy to walk on the moon in 2004.

Here Nicholas hasn’t walked on the moon yet, but he will in 2004. Interestingly, if we look at the past non-modal readings we discussed previously, we see that the past reference coincides with the past tense of the matrix verb. Adding the predicative cases into the picture, we have to conclude that the tense of the infinitival is always dependent on that of the matrix—a well-known property of infinitival clauses in general. The property of anaphoric tense might shed more light into how the modal reading is blocked with matrix simple past.
5. Ability modals and their veridicality entailments
The proposal in Chapter 5 is an interesting one: it is argued that ability modals are ambiguous between a purely modal reading, licensed by genericity, and an implicative episodic reading which does not necessarily convey ability, but renders the ability modal equivalent to manage:

(20) a (In those days) John was able to lift a 200 pound table.
    b Last night at the contest, John was able to lift a 200 pound table.
    = John managed to lift a 200 pound table.

In the b sentence John actually lifted the table, so was able allows what the author calls an ‘actuality’ entailment; but in (20a) John didn’t actually have to have lifted the table even once, though he might have, so we have no ‘actuality’. The actuality contrast is reminiscent of Giannakidou’s (1998, 1999) (non)veridicality: a truth entailment is available with a veridical implicative, but the ability modal is nonveridical. The difference can be further strengthened by the fact that PIs are licensed in the scope of nonveridical was able but not in the scope of the veridical one and manage, as shown in Giannakidou, 1998, 1999:

(21) a (In those days) John was able to lift any table.
    b * Last night at the contest, John was able to lift any table.
    c * Last night at the contest, John managed to lift any table.

So the intended equivalence to manage is confirmed by, and fits nicely with the hypothesis that PIs are licensed by nonveridicality. The additional link to perfective and imperfective aspect also fits nicely, since we know that PIs are good in imperfective habitual and generic sentences but are bad in episodic perfective sentences.

However, the compositional derivation of implicative was able remains sketchy. The proposal is that the two readings of be able to are “one predicate which combines with two different operators to yield the two readings. I will call this predicate ABLE.” (Bhatt, 1999:182). ABLE is further argued to be a non-stative implicative verb, but no more details of its meaning are formalized. As it stands, the proposal makes it hard to see how a stative form like ABLE turns out to be a non-stative, unless we assume a perfectivization on top of ABLE—similar to the way stative verbs are perfectivized and coerced into eventive readings in languages with perfective aspect. This may seem desirable for the case at hand, but once we open up the possibility of a covert perfective with ABLE we have to find a way to restrict it: we must explain why the operation is not generally available with other modal verbs, or intensional predicates, in other words, why we don’t generally have veridical and nonveridical pairings beyond be able to.

Finally, there seems to be a contrast between implicative be able to and manage in terms of the conventional implicature of effort. While was able to is odd in a context out-of-the-blue, manage seems fine:

(22) #A woman from Watertown was able to win 3 million in the lottery yesterday.
    (Bhatt’s (325))
(23) A woman from Watertown managed to win 3 million in the lottery yesterday.
    (Bhatt’s (327))

Conventionally implicates: It took some effort for the woman to win the lottery, e.g. she was buying tickets regularly for several years now.

Bhatt assumes the same status # for both sentences; but to the extent that the contrast is real, it suggests that with be able to the proposition of effort is a presupposition that cannot be easily accommodated.

6. Conclusion
In sum, Bhatt’s thesis is an important contribution to the study of the syntax and semantics of relative clauses and modality. It provides great impetus for further explorations in this area, and people working in this and related areas will benefit greatly from reading it.

References