

Bhatt, Rajesh (1999). *Covert modality in non-finite contexts*. PhD dissertation, U Pennsylvania

Preamble

- this is an unpublished dissertation submitted in partial fulfilment of the requirements for the PhD degree at a US university
- this is important to bear in mind when perusing it: PhD theses in the US are often much less polished and finished than PhD theses produced in Europe
- dissertations in the US are not seldom written in a hurry, esp. when the candidate already has a job offer under his/her belt (in Bhatt's case, the dissertation had to be defended in August 1999 because he was starting at UTexas at Austin in September 1999)
- this explains a few things about the dissertation which might otherwise have seemed puzzling

- the *semantic* side of the problem of covert modality in English infinitives is dominant in chapter 4 (on infinitival questions), but prominent throughout; syntax often gets short shrift
- the central *syntactico-semantic* claim of the thesis, which I stated in (I), is posited rather than carefully derived on the basis of a sustained argument

(I) the source of the covert modal semantics of (non-subject) infinitival relatives and infinitival questions is $C_{[+WH, +INF]}$

- there is some (mostly unoriginal) syntactic discussion of the difference between subject and non-subject infinitival relatives to support the hypothesis that CP is present only in the latter, which provides a syntactic basis for (1)
- BUT the semantics of the covert modality of infinitival relatives and questions proposed in chapter 4 does not, as far as I can tell, establish any kind of explanatory link with the C-head of the infinitival clause (let alone with its feature specification [+WH, +INF])

- these general comments should be kept in mind throughout the remainder of the discussion

- there is certainly a lot of interesting empirical material in the thesis, very much worth looking at in detail and trying to find deep(er) explanations for

NB1 Bhatt's syntactic discussion (mostly in chapters 2 and 3) is to a very significant extent focused on the internal syntax of relative clauses — the so-called '(head-)raising analysis'

- this analysis is said to be needed in order to be able to make sense of the availability of a *non-modal* interpretation for subject infinitival relatives:
 - 'The infinitival clause that receives a non-modal interpretation requires to be licensed locally at LF.' (p. 4)
 - 'By interpreting the highest IP-internal copy of the head NP and moving the degree head *est* from out of the NP and adjoining it to the IP, we get the LF in [(II)]' (p. 50; this LF is also presented arboreally there), for *the tallest person to walk on the moon*

(II) $[_{DP} \text{ the } [_{IP} \text{ -est } [_{NP} \text{ } d\text{-tall person}]] \text{ to walk on the moon}]]]$

- ‘for the non-modal reading to be available the infinitival clause needs to be the complement of the licenser’ (p. 111) — for the case of *the tallest person to walk on the moon*, the licenser is *-est*
- BUT in (II), *-est* does not take the infinitival clause as its complement: it is adjoined to IP
- in Appendix C to chapter 3 Bhatt (finally) considers what he calls an alternative ‘*in-situ* licenser analysis’ for non-modal subject infinitival relatives — an analysis in which ‘the licenser (*first/-est/only*) stays *in situ*, external to the relative clause’ (p. 110)
- ‘The empirical consequences of the *in situ* analysis and [(II)] overlap to a considerable degree. On the side of [(II)] is the fact that it is able to explain (i) the data regarding the licensing of the non-modal reading by a relative-clause internal ordinal [see p. 61: *the first student to finish the marathon* \approx *the student to finish the marathon first*], and (ii) the fact that the class of licensers is a subclass of elements that can reconstruct. The *in-situ* analysis is, on the other hand, able to provide a simple explanation for why relative clause-internal superlatives and *only* are unable to license non-modal interpretations.’ (p. 112)
- the way the above passage is written makes it look as if the head-raising analysis is better off, on balance, than the *in-situ* analysis
- BUT Bhatt’s requirement that ‘for the non-modal reading to be available the infinitival clause needs to be the complement of the licenser’ (p. 111) is actually MUCH easier to satisfy on the *in-situ* analysis than on the approach that Bhatt himself favours: movement cannot, in general, result in a complementation configuration
- ERGO *if* indeed the modally interpreted infinitival clause must be the complement of the licenser of the modal interpretation (*-est* and *only*), this (in conjunction with the fact that movement cannot create complementation structures) argues against the raising approach
- henceforth, I will set aside questions regarding the internal syntax of relativised noun phrases — it seems unlikely that these questions will bear in any fundamental way on a proper understanding of the covert modality of non-subject infinitival relatives and infinitival questions
- NB2** for a thesis about covert modality in infinitival constructions, it is perhaps surprising that such a large part of the discussion (chapter 3, which covers about half of the dissertation) is devoted to explaining why NO covert modality necessarily emerges in subject infinitival relatives
- the syntax here makes a simple cut: subject infinitival relatives lack the CP layer, hence cannot derive their covert modality from $C_{[+WH, +INF]}$; other infinitival relatives do have CP, and therefore have $C_{[+WH, +INF]}$ as a source for their covert modality
- but since it is not the case that subject infinitival relatives NEVER receive a modal interpretation, there must be some other source for covert modality within the infinitival clause — and this source is constrained in ways that chapter 3 zooms in on

- COVERT MODALITY is found in English in
 - *wh*-infinitival complements
 - infinitival relative clauses
 - purpose clauses
 - the *have+to* construction
 - the *be+to* construction

- (1) a. Tim knows [how to solve the problem] [Bhatt (1999:1, (1))
 (≈ 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)

→ Bhatt: ‘What (1a–f) have in common is that they involve infinitivals’
 [‘The *have to* construction is discussed in Bhatt (1997)’]

Qs ‘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?’ (p. 2)

ASIDE ‘We will 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’ (*in those days, Brown was able to hit bulls-eye three times in a row*)

→ this is discussed in chapter 5; since it does not involve covert modality, I will set it aside here

• SUBJECT INFINITIVAL RELATIVES vs NON-SUBJECT INFINITIVAL RELATIVES

- infinitival relative clauses are not a unified class in syntax
 – subject infinitival relatives: similar to reduced relatives — no CP; no \bar{A} -movement
 – non-subject infinitival relatives: similar to non-reduced relatives — CP present

- (2) a. the man to fix the sink *cf.* the man who will fix the sink
 b. *the man for to fix the sink the man that will fix the sink
 c. *the man to assume will fix the sink the man who/that I assume will fix the sink

- (3) a. a book to read
 b. a book for you to read
 c. a book to tell your parents that you’re reading (Jones 1991:122)

- ‘Since subject infinitival relative clauses do not involve the infinitival [+WH] C^o, they are not necessarily modal. If they are modal, the source of the modality lies within the infinitival clause.’
 → in subject relatives, ‘only a limited class of modifier (superlatives, ordinals, and *only*) in a particular configuration can license the non-modal interpretation’
 → see (4) vs (5)

- (4) a. the first man to walk on the moon non-modal [not even futurity reading]
 b. the best book to appear until now non-modal [not even futurity reading]
- (5) a. the man to walk on the moon modal [SRel w/o *first*]
 b. the best book to read modal [non-SRel w/ superlative]

- ‘infinitival [+WH] C° is argued to be the source of the modality in a non-subject infinitival relative clause’
- since **all** non-subject infinitival relatives have [+WH, +INF] C, they **all** have modal semantics (in particular, $\diamond_{D,-}$ = deontic possibility modality)
- infinitival questions have C_[+WH,+INF] as well — hence, infinitival questions are also predicted to **all** have modal semantics (a point I will return to below, after the discussion of relatives)
- only (highest-)subject infinitival relatives could ever NOT have modal semantics

NB the strongly deterministic link between the presence in syntax of C_[+WH,+INF] and the presence in semantics of a modal interpretation is not explicitly supported in Bhatt’s (1999) thesis on the basis of consideration of any cross-linguistic data

[in section 3.7.5.7 ‘A Minimal Crosslinguistic Variation’ (p. 99), Bhatt makes a few brief remarks on Spanish, which has non-modal subject infinitival relatives but with temporal/aspectual restrictions not found in English; but it seems to me that the Spanish examples were misanalysed as infinitival *relatives* — note the *en* ‘in’ in *fue el primer en andar por la luna* ‘(he) was the first in walk on the moon’]

- let us take a quick look at Dutch [not in Bhatt’s thesis]
- Dutch infinitival relatives are arguably always CPs (introduced by the infinitival complementiser *om*), even in the case of subject relatives
- from Bhatt’s point of view, this leads to the prediction that Dutch infinitival relatives should never support a non-modal interpretation, not even in the presence of superlatives or *only*
- this is not borne out: Dutch (6a), like its English counterpart, is non-modal; the difference between (4b) and (6b) is real but does not hinge on semantics: it is a *grammaticality* contrast

- (6) a. ik zal de eerste zijn om toe te geven dat S (Dutch)
 I will the first be COMP PRT to admit that S
 b. *het beste boek om over dit onderwerp te zijn geschreven
 the best book COMP about this subject to have.been written

→ Dutch allows (non-modal readings of) subject infinitival relatives more readily in sentences with a matrix negation — a context Bhatt (1999:45) notes for English non-modal subject infinitival relatives, too (with reference to Kjellmer 1975:326)

- (7) a. the captain is not the man to bother about such things
 b. he is not a man to let his friends down
- (8) hij is niet de persoon om zich hier zorgen over te maken (Dutch)
 he is not the person COMP SE here worries about to make
 ‘he is not the (kind of) person to worry about this’

- Bhatt: licensing of non-modal readings by negation is different from the other cases of licensing; ‘I will set aside instances of licensing by a matrix negation’ (p. 45) → (20)

- that licensing by negation is indeed different is confirmed by the fact that Dutch has (8) but is otherwise not very good at subject infinitival relatives (e.g., no obvious equivalent to (4a))
- the non-modality of the infinitival relatives under negation seems unrelated to their size (CP or smaller) — though it does seem to remain true that only subject relatives allow for a non-modal interpretation: *this is not a/the book to read* remains firmly modal

- Bhatt’s **PROPOSAL** for non-modal readings of subject infinitival relatives (p. 59) ‘superlatives, ordinals, and only when they occur with Non-modal Infinitival Relatives appear in the configuration in (95) [in which *-est, only* ‘takes the infinitival clause as a complement’]. I **propose** that this is the configuration in which a non-modal reading of the infinitival clause is licensed.’ (boldface added, MdD)

(9) the [first/only [[person] to solve the problem]] (Bhatt’s (95a,b))

- an important observation about non-modal subject infinitival relatives: **simultaneity** (p. 80) ‘in a non-modal infinitival relative clause the head NP and the infinitival clause have to hold simultaneously. This can be seen in (144), where we have the intuition that in order for someone to qualify as the first 80 yr. old to walk on the moon, they must have been 80 yrs. old when they walked on the moon.’

(10) the first 80-year-old (person) to walk on the moon was American (Bhatt’s (144))

- ‘Central to the account of simultaneity in the interpretation of the head NP and the relative clause is the reconstruction of the head NP into the relative clause.’ (p. 84)
- it is argued that quite in general (i.e., regardless of whether the relative clause is finite or infinitival), there has to be reconstruction with *first*, for reasons having to do with the type requirements imposed by *first* (p. 85)

- FUTURE readings of subject infinitival relatives (section 3.7.6)

(11) a. a man from Arkansas will be the first man to walk on Mars
 b. the first man to walk on Mars will be American

- ‘My basic claim is that the the future interpretation of the non-modal infinitival clause is not ‘inherent’ but is inherited from the matrix clause’ (p. 100) – hence only available in the environment of *will*: ‘there is no ... “covert” future in the aspectual specification of the infinitival clause and [an] independent temporal variable setting a future point of time is generally unavailable. Therefore, for a non-modal future reading ..., a matrix future is necessary.’ (p. 102)

NB Bhatt here talks in terms of a ‘non-modal future reading’ — the question of whether futurity is tense or modality is relevant here

ASIDE section 3.7.5.3 on the possibility of a covert PERFECT in subject infinitival relatives

- adverbials that are otherwise acceptable only in combination with the perfect are acceptable in non-modal subject infinitival relatives

- (12) John is the first American to visit us lately/since the war
- ‘the covert perfect that we have postulated does not pattern with the overt perfect’ (p. 96)
- (13) a. John is the first 80-year-old (man) to walk on the moon
 b. John is the first 80-year-old (man) to have walked on the moon
- while in (13a) (which supports a perfect reading), John must have been 80 years old at the time at which he set foot on the moon (simultaneity), in the latter this is not necessarily the case
- primarily based on this, Bhatt (p. 97) ends up giving up on the covert perfect idea; but he does not a clear alternative in its place

- INFINITIVAL QUESTIONS
 - apparent variability in covert modality (deontic vs circumstantial)
 - for Bhatt there is ‘**just one modality**’ in infinitival questions, with variation (between *could* and *should* readings) due to interaction between C and ‘contextual factors’
 - the modality of infinitival questions: $\diamond_{D,-}$
 - ‘the force of the modality in an infinitival question seems to vary. In some cases, a paraphrase with an existential modal (e.g. *could*) seems appropriate and in others, a paraphrase with a universal modal (e.g. *should*) seems appropriate’ (p. 114); but infinitival questions never have epistemic semantics: see (14)
- (14) a. John knows when to be at home
 b. John knows when he must/can be at home
- (14b) has an epistemic reading (imagine John being an amnesiac: in all/some of the worlds on which that he has managed to gather epistemic knowledge, he is at home); (14a) does not
- BUT although truly epistemic modality never seems attested in infinitival questions, there are infinitival questions that support a circumstantial/ability reading
- (15a) does not (in contrast to finite (15b)); but (16) does
- (15) a. Stuart knows how quickly to solve the problem
 b. Stuart knows how quickly he can solve the problem
- (16) John knows where to get gas
- Bhatt (1999:156): ‘when the second conjunct in the definition of $\diamond_{D,-}$ is trivially true, $\diamond_{D,-}$ reduces to $\diamond_{C,-}$ ’ (a circumstantial modal)
- (17) a. John knows where to get gas → any gas station will do
 b. John knows where to eat well → any place serving good food will do
- (18) John knows who to talk to → only talking to specific persons will do

- when *any* means will do to attain the goal, we get the *could* reading (circumstantial modality); if there are *specific* means to attain the goal, we get the *should* reading (deontic/bouletic modality)

[my own take on (17) would probably be that the infinitival question is itself headed by a silent verb GO, with the *get*-clause embedded underneath that: *John knows where to go to get gas, John knows where to go to eat well* — here the infinitival *wh*-question under *know* is again most plausibly interpreted deontically (‘where he should go’); the *get*-clause is not an infinitival question itself; the apparent circumstantial reading of (17) is then a red herring]

- ‘infinitival questions [as opposed to finite ones] are restricted to denoting sets of a restricted class of modal propositions: propositions involving the covert modality contributed by the infinitival [+WH] complementizer’ (p. 123)

- ‘Question formation involves \bar{A} -movement to the specifier of a [+WH] complementizer. In the case of infinitival questions, the \bar{A} -movement is to the specifier position of an infinitival [+WH] complementizer. This complementizer has modal semantics; it is the source of the modality in an infinitival question. More generally, it is due to the presence of such a complementizer that every structure that has \bar{A} -movement that terminates in an infinitival clause involves modality’ (p. 127)

NB note that the prose here states a connection between modality and $C_{[+WH]}$; but the analysis proposed does not derive this link (i.e., nothing about the semantics of the deontic modality needed ties it to C; and nothing about $C_{[+WH]}$ ties it to modal semantics: see finite questions)

- much of the discussion in chapter 4 is dedicated to a wide variety of **special effects**

(a) the effect of the *wh*-word: ‘*can/could* seems appropriate when the extracted element is *where* and *how*’; ‘With other *wh*-words like *who*, *whether*, *when*, the temporal use of *where*, *how many* N, *how*-Adj/Adv, and selected *how*, paraphrases with *should* seem more appropriate than paraphrases with *could*’; ‘*Should* paraphrases are also more appropriate than paraphrases with *could* with *which* phrases, singular or plural’ (p. 133)

- no attempt is made to explain this pattern in the thesis

(b) the effect of the embedding predicate: *know* (→ ‘could’) versus *agree on* (→ ‘should/would’) versus *decide* (→ ‘would’) in *the drivers knew/agreed on/have decided where to get gas*

[note that this shows that the modality of the *wh*-infinitive is unlikely to be determined locally, within the infinitival clause — unless the selecting verb attributes some property to the C-head of its complement]

- ‘The discussion in this chapter will be limited to infinitival question complements of *know*.’ (p. 134)

(c) the effect of the infinitival question predicate: ‘it seems that *could* paraphrases are appropriate for predicates which imply attainment of a goal’ (p. 135) [telicity]

- this is not explicitly explained in the thesis

(d) the effect of context

- there is a LOT of discussion devoted to this in chapter 4

- (e) the effect of singular *vs* plural *wh*-phrases
- (19) a. he knows which classes to skip
 (i) ‘which classes he can get away with skipping’ OR
 (ii) ‘which classes he should skip’
 b. he knows which class to skip
 ONLY ‘which class he should skip’
- the discussion on p. 153 capitalises on the specificity and exhaustiveness of *which*-phrases: ‘From the presupposition of the *which*-phrase, we know that this is the only way of achieving the goals’; but it seems that ultimately, the effect is not traced to the presupposition associated with *which* — which is probably a good thing because, as far as I can tell, the same effect holds for *what*-phrases, which do not have this presupposition of specificity/exhaustiveness
- (f) the effect of negation: ‘The presence of negation in the embedded infinitival clause brings out the *should* reading.’ (p. 158)
- (20) a. John knows where to get gas → *could* any gas station will do
 b. John knows where not to get gas → *should* specific gas station(s)
- no explicit explanation for this is offered in the thesis (p. 161: ‘It is puzzling that a *could* reading is never available with a negated infinitival question.’)
 → we learn that ‘the modality takes scope over negation’ (i.e., (20b) is interpreted as ‘John knows which gas stations he should avoid’), and that this scope ‘follows from our syntactic assumption that the source of the modality in infinitival questions is the infinitival complementizer’ (p. 159) — but as I mentioned before, nothing about the semantic analysis causes the modality to be linked to C
- the **GENERAL POINT** of chapter 4: ‘it is not necessary to postulate the existence of different underlying modals to explain the apparent variability in the interpretation of infinitival questions’ (p. 136)
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- ‘Similarities in the behavior of the modality in non-subject infinitival relatives and infinitival questions are captured by assigning the same semantics to [+REL] C⁰ and [+WH] C⁰.’ (p. 3)
 → whatever differences we may find between non-subject infinitival relatives and infinitival questions would ideally follow from independent properties of the constructions involved
 - one independent property that makes (all) infinitival relatives differ from infinitival questions is the fact that only the former are in the local scope of a determiner
 → this turns out to be significant: ‘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’ (p. 8) — Hackl & Nissenbaum (1999)

- (21) a. the book(s) to read
 b. every book to read
 c. most books to read
 d. some books to read [with strong *some*]
- (22) a. some books to read [with weak *sm*]
 b. many books to read
 c. a book to read
 d. books to read

NB this determiner effect is not confined to non-subject infinitival relatives: we find it in subject infinitival relatives as well (*a/the man to fix the sink*)
 [Hackl & Nissenbaum (1999) note a systematic class of exceptions to their determiner generalisation: instrument relatives are apparently insensitive to the determiner; see Bhatt's fn. 22 on p. 166]

- Hackl & Nissenbaum: the *should* and *could* readings reflect different underlying structures — 'Infinitival relatives with *could* readings obligatorily involve a relative clause-internal interpretation of the head NP, while *should* readings permit both a relative clause-internal and an external interpretation of the head NP' (Bhatt 1999:171)
 [this is supposed to be supported by the distribution of Condition C effects; but Bhatt rightly calls this into question]
- Bhatt: 'Within the system I have proposed the difference between *could* and *should* interpretations does not translate into a structural difference' (p. 171)
- 'The *should* readings found with strong quantifiers and the strong readings of weak quantifiers have a 'structural' source while the *should* readings available with weak readings of weak quantifiers have a 'contextual' source' (p. 166)

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- chapter 5 (pp. 173–88) is on overt modals not giving rise to modal semantics (i.e., having so-called 'actuality entailments')
 - this is irrelevant for our purposes in this seminar, and will not be discussed

[there is no general conclusion to the thesis]