VERB RAISING, COVERT MODALS AND FLIP-FLOP CONSTRUCTIONS IN VIETNAMESE: A COMPARATIVE PERSPECTIVE[*]

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ABSTRACT

This paper pursues the issues surrounding Vietnamese flip-flop sentences in terms of verb raising and covert modals from a comparative point of view. We show that verb movement in flip-flop constructions is found in both matrix and embedded environments where the presence of modality is attested. Evidence is presented to show the bi-clausal nature of the so-called "flip alternative" construction, as well as the rightward nature of V-to-M adjunction. We also draw cross-linguistic support from Thai data to substantiate our syntactic analyses on empirical grounds.

Keywords: verb raising, covert modals, flip-flop constructions, comparative syntax, Vietnamese

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1. INTRODUCTION

The so-called flip-flop constructions in Mandarin Chinese are defined as constructions featuring a "bare" verb whose two arguments are both indefinite quantity noun phrases, as illustrated in (1). The two arguments can alternate between subject and object, a curious phenomenon motivating the moniker (Tsai 2001). We call (1a) the flip construction and (1b) the flop construction. Zhao and Tsai (2023) claim that the two constructions underlyingly exhibit the same argument structure as schematized in (2), and the difference in linear order only comes about when the need for labeling (Chomsky 2013) forces either of the two arguments to move out of its base-generated position. The movement of NP_1 derives the flip construction, while the raising of NP_2 yields the flop construction. Tsai and Phan (2022) (T&P henceforth) identify the landing site of these NPs as [Spec, MP (Modal Phrase)], and the head M is where the verb is subsequently raised to attach to. Note that the argument alternation as displayed when flip and flop constructions are compared is not free in reality, as the respective translations indicate. The semantic disparity observed is attributed to the presence of various covert modal elements permitted for each construction.

(1) a. *Yi-bu   che zuo wu-ge   ren.* (flip construction)
     one-CL   car sit   five-CL[1] person
     'A car seats five people.'
   b. *Wu-ge   ren   zuo yi-bu   che.* (flop construction)
     five-CL   person sit   one-CL   car
     'Five people may/should/must sit in one car.'

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[1] The abbreviations used in this paper are glossed as follows: CL: classifier; APPL: applicative marker; NEG: negation marker; PRT: particle; TOP: topic marker.

(2)

VP
NP₂   V'
'five people'   V   NP₁
'sit' 'a car'
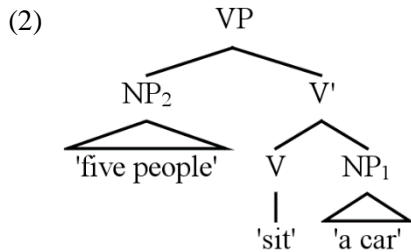
T&P show that a similar phenomenon is attested for Vietnamese. See (3) for an example.

(3) a. *Một chiếc xe ngồi năm người.* (flip construction)
   one CL car sit five person
   'A car seats five people.'
   b. *Năm người ngồi một chiếc xe.* (flop construction)
   five person sit one CL car
   'Five people may/should/must sit in one car.'

In both languages, the surface position of the verb in flip sentences such as (1a, 2a) is derived via an obligatory verb-to-modal (V-to-M) raising, where the host is an implicit capacity modal ENO(ugh), as illustrated in (4a,b). The explicit counterpart of ENO in Vietnamese is *đủ* 'enough' in (5a), on par with Mandarin *gou* 'enough' in (5b), where they trigger the verb raising in question. The same pattern of movement emerges when either explicit or implicit priority modal auxiliaries substitute for the capacity modal, a point to be returned to.

(4) a. *Một chiếc xe* [ENO-***ngồi***] *năm người <ngồi>*
   b. *Yi-bu che* [ENO-***zuo***] *wu-ge ren <zuo>* (T&P:190)

(5) a. *Một chiếc xe **đủ** ngồi năm người <ngồi>.*
   one CL car enough sit five person sit
   'A car is enough to seat five people.'
   b. *Yi-bu che **gou** zuo wu-ge ren <zuo>.*
   one-CL car enough sit five-CL person sit
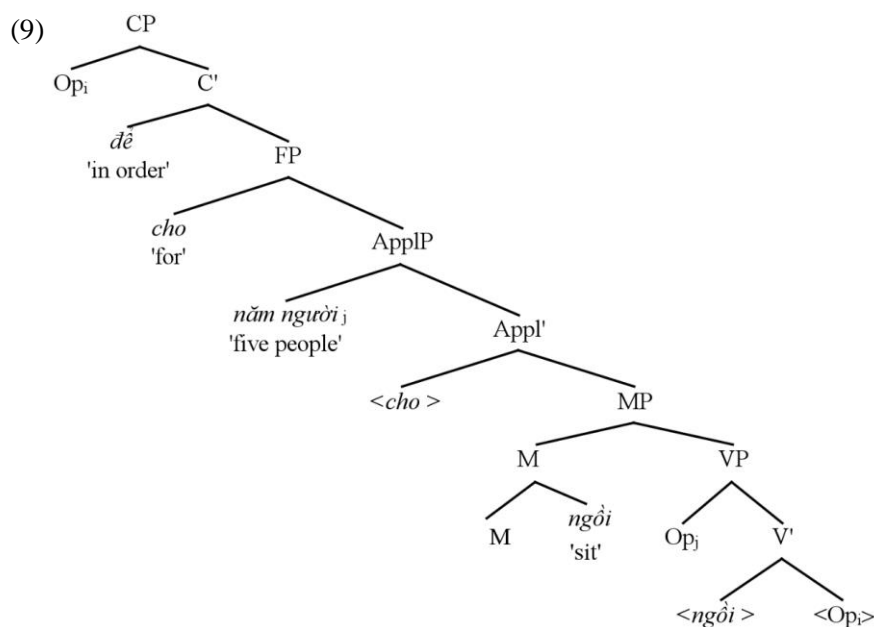   'A car seats five people.'

With regard to the flip construction, Mandarin also allows the main verb *zuo* 'sit' to stay *in situ* ("the flip alternative" henceforth), as in (6a). The same is observed with the overt presence of modal *gou* 'enough', see (6b). Despite that flip-flop constructions in the two languages strikingly mirror each other, Vietnamese however does not readily allow this free alternation. While (7a) and (6a) are equally degraded, (7b) is ungrammatical, unlike (6b). This leads T&P to argue that such a free alternation is but an illusion: when the verb appears not to raise, the structures at issue should be construed as bi-clausal instead. On the other hand, (6a) and (7a) induce a sense of incompleteness, although they are not technically ill-formed. To foreshadow, we will suggest in section 5 that these sentences are in fact derivationally unrelated to the flip construction, and can be improved when situated in an appropriate configuration.

(6) a. [%]*Yi-bu   che   wu-ge   zuo*.
    one-CL car five-CL   person   sit
    'A car seats five people.'

  b. *Yi-bu   che* **gou**   *wu-ge   ren   zuo*.
    one-CL   car enough five-CL person sit
    'A car is enough to seat five people.'

(7) a. [%]*Một chiếc xe   năm người   ngồi*.
    one CL   car five person   sit
    'A car seats five people.'

  b. **Một chiếc   xe   đủ   năm người   ngồi*.
    one CL   car enough five person   sit
    Intended: 'A car is enough to seat five people.'

One way to salvage (7b) is to have the purpose-like C-element *để* 'for, in order' inserted after *đủ* 'enough', see (8a). Alternatively, one can add *cho* 'for' in front of the second NP *năm người* 'five people' as in (8b). We assume in T&P that *cho* here does not have a verbal meaning such as 'give' or 'allow', but acts as an applicative head selecting the NP. Interestingly, *để* and *cho* can co-occur, see (8c). As long as at least one of the two elements is overtly present, the derivation will converge. Regardless of

how the subordinate clause following *đủ* is analyzed, it is safe to assume that the sentences in (8) are not mono-clausal, and *đủ* is better characterized as a lexical verb, not a modal auxiliary. V-to-M raising is still a possibility here, but this movement is locally constrained. The proposed structure for the embedded clause in (8) is illustrated in (9). Op_i is co-indexed with the matrix subject *một chiếc xe* 'a car', while Op_j refers to *năm người* 'five people', an argument introduced by the applicative head. For more discussions on this configuration, see T&P as well as section 3 below.

(8) a. *Một chiếc xe **đủ** **để** năm người **ngồi**.*
  one   CL   car enough for five person sit
  'A car is enough for five people to sit in.'
  b. *Một chiếc xe **đủ** **cho** năm người **ngồi**.*
  one   CL   car enough APPL five person sit
  'A car is enough for five people to sit in.'
  c. *Một chiếc xe **đủ** **để cho** năm người **ngồi**.*
  one   CL   car enough for APPL five person sit
  ' A car is enough for five people to sit in.'

(9)

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                    CP
            ┌────────┴────────┐
          Op_i              C'
                     ┌───────┴───────┐
                     đê             FP
                  'in order'  ┌──────┴──────┐
                            cho          ApplP
                            'for'    ┌─────┴─────┐
                               năm người_j      Appl'
                               'five people' ┌────┴────┐
                                          <cho>        MP
                                                  ┌─────┴─────┐
                                                 M           VP
                                             ┌───┴───┐   ┌────┴────┐
                                            M      ngồi Op_j       V'
                                                   'sit'      ┌─────┴─────┐
                                                           <ngồi>     <Op_i>
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(adapted from T&P:199)

Note that Mandarin in fact permits the overt realization of *gei* 'for' at the exact location Vietnamese *cho* is found, see (10). A multifunctional element itself (very much like *cho*), *gei* has been commonly associated with an applicative reading (see Tsai 2012, for example). These applicative heads are taken in this work to allow either an over or a covert realization.

(10) *Yi-bu   che **gou**   (**gei**) wu-ge   ren   **zuo**.*
    one-CL   car   enough APPL five-CL person sit
    'A car is enough for five people to sit in.'

This paper pursues the issues laid out by T&P, with special focus on Vietnamese flip-flop constructions and the manifestation of covert modals from the vantage point of comparative syntax. Section 2 and section 3 provide further evidence in support of the postulation of covert modals in

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both main clauses and subordinate clauses. We presume that this remarkable ability to encode modality in the absence of lexical modal auxiliaries in Vietnamese (and Mandarin) is partially due to their mood-prominent nature (cf. Tsai 2019). Section 4 provides supplemental comparative evidence to support our view of the bi-clausal nature of flip sentences when the verb apparently stays *in situ*. In section 5, we tackle the issue of the directionality of head movement when V is raised to M. We argue that the pattern observed in Vietnamese is further attested for Thai, another robust analytic language genealogically related neither to Vietnamese nor to Mandarin. This lends credible support to our claim about the existence of a distinct bi-clausal configuration and the obligatoriness of V-to-M raising. Section 6 concludes the study.

2. COVERT MODALS IN MAIN CLAUSES

2.1 Covert capacity patterns

Imagine a context where a customer asks a car dealer about the seating capacity of the sedans available in his dealership. Such a question could take a form as simple as (11). The dealer may respond with (3a), repeated here as (12). This is a covertly modalized generic sentence with a dispositional reading, which features an indefinite singular NP *một chiếc xe* 'a car' as its subject. The modal is evaluated with regard to an 'in virtue of' modal base *à la* Lekakou 2005. Accordingly, (12) can be understood along the lines of 'it is in virtue of some inherent properties of the cars in question that any of them is capable of seating five people.' These properties are essentially determined by those responsible for the making of the cars.

(11) *Một   chiếc   xe   ngồi   mấy   người?*
      one   CL   car   sit   how.many   person
      'How many people does a car seat?'

(12) *Một chiếc xe ngồi năm người.* (= (3a))
    one   CL   car   sit   five   person
    'A car seats five people.'

Incidentally, (12) is semantically comparable to (13a), which employs the explicit modal *đủ* 'enough'. (12) can also be paraphrased as (13b), which features *có thể* 'can'. The two modal auxiliaries function to explicitly indicate the physical capacity of the referent of the subject NP. With or without an overt modal, (12) and (13) both communicate that the car's design allows it to seat (up to) five people.

(13) a. *Một chiếc xe **đủ** ngồi năm người.*
      one   CL   car   enough sit   five   person
      'A car is enough to seat five people.'
   b. *Một chiếc xe **có thể** ngồi năm người.*
      one   CL   car   can   sit   five   person
      'A car is capable of seating five people.'

Such a pattern of inherent modality is attested cross-linguistically. We take (13) to pattern with English dispositional sentences like (14a) in their ability to communicate modality despite the lack of any lexical means. Chierchia and McConnell-Ginnet (2000) claim that one of the main functions of generic sentences like (14a) is to express capability (or possibility). This is again shown by the overtly modalized paraphrase in (14b). That (14a) is easily paraphrasable as (14b) via the insertion of *can* reveals the covert modal nature of the former. The same goes with (15).

(14) a. *This program parses complicated sentences.*
   b. *This program **can** parse complicated sentences.* (Chierchia and
                                          McConnell-Ginnet 2000:234)

(15) a. *This car goes 200 kph.*
   b. *The car **can** go 200 kph.* (Menéndez-Benito 2013:284)

Kratzer (1981) points out that this covert pattern of modality is equally available for German. To illustrate, the German sentence (16) has a

modalized reading of (16b) albeit its non-modal appearance as reflected by the literal translation in (16a). Menéndez-Benito (2013) proposes to treat the covert possibility modal in these dispositional sentences as expressing 'inner dispositions'.

(16) *Dieses Auto fährt zwanzig Meilen pro Stunde.*
    a. *This car goes twenty miles per hour.*
    b. *This car **can** go twenty miles per hour*. (Kratzer 1981:39)

Interestingly, Thai appears to mirror Vietnamese and Mandarin in allowing a modal reading for bare flip sentences. The bare sentence (17) could be semantically equivalent to either (18a) or (18b), which explicitly feature the capacity *pʰɔ:* 'enough' and the dynamic *să:.mâ:t… dâ:j* construction respectively. Note that in (18b), both *să:.mâ:t* and *dâ:j* mean 'can'. We assume, modeling after Cheng & Sybesma's (2003, 2004) treatment of the Cantonese post-verbal modal *dak* and Phan's (2023) analysis of the Vietnamese *được*, that *dâ:j* as a cognate of both *dak* and *được* occupies the secondary modal position below VP, while the primary projection above VP is filled with *să:.mâ:t*. The higher licenses the lower via an Agree relation. When V-to-M raising occurs, movement targets this higher projection. See (19) for a rough schematization of (18b).[2]

(17) *Rót   kʰan   nùŋ   nâŋ   hâ: kʰon.*
      car   CL   one   sit   five   CL.person
      'A car seats five people.'

(18) a. *Rót   kʰan   nùŋ   **pʰɔ:**   nâŋ   hâ: kʰon.*
        car   CL   one   enough   sit   five   CL.person
        'A car is enough to seat five people.'
    b. *Rót   kʰan   nùŋ   (**să:.mâ:t**)   nâŋ   hâ: kʰon   **dâ:j**.*
        car   CL   one   can   sit   five   CL.person   can
        'A car is capable of seating five people.'

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[2] An anonymous reviewer wonders if there is syntactic evidence for such an Agree relation in Thai. A detailed discussion on this matter unfortunately goes beyond the scope of this paper and thus must await future research.

(19)
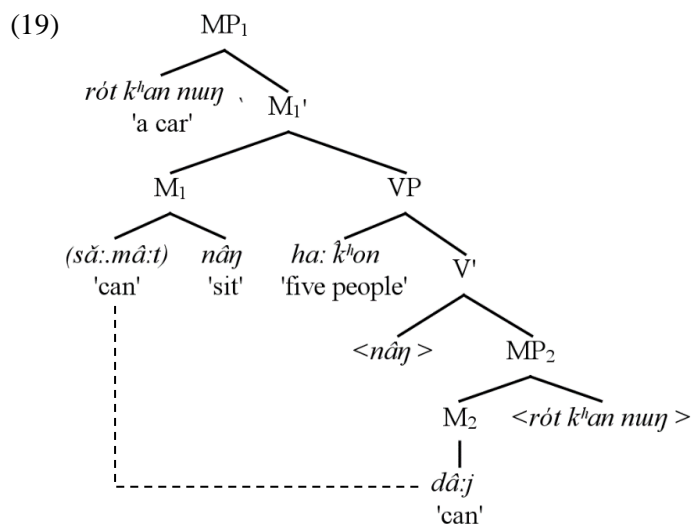
2.2 Covert priority patterns

Besides a capacity modal reading (in response to (11)), (3a/12) may as well communicate a range of priority modal flavors *à la* Portner (2009). That is, (3a) may correspond to any of the sentences in (20), depending on the prompting context. This patterns well with Mandarin since the latter also permits the overt realization of various priority modal auxiliaries, as shown in (21).

(20) a. *Một chiếc xe **có thể** ngồi năm người.* (permission)
        one   CL   car   may   sit   five   person
        'A car may seat five people.'
     b. *Một chiếc xe **nên**   ngồi năm người.* (suggestion)
        one   CL   car   should   sit   five   person
        'A car should seat five people.'
     c. *Một chiếc xe **phải**   ngồi năm người.* (obligation)
        one   CL   car   must   sit   five   person
        'A car must seat five people.'

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(21) *Yi-bu   che   **keyi/ yinggai/ bixu**   zuo   wu-ge   ren.*
     one-CL   car   may/ should/ must   sit   five-CL   person
     'A car may/should/must seat five people.'

A possible context for the 'permission' reading of (3a) is as followed. A group of ten tourists flags down two cabs. Since the local regulations dictate that a cab can only allow up to four passengers, the two drivers are at first reluctant to take them. After they offer to pay more, the drivers accept the deal and one of them utters (22). The relevant priority here is based on the personal wish of the drivers.

(22) (*Được   rồi.*) *Một   chiếc   xe   ngồi   năm   người.*
     okay   PRT   one   CL   car   sit   five   person
     '(Alright then.) A car may seat five people.'

Now consider another context. Towards the end of their trip, the same group of tourists plans to get back to the airport. Someone suggests they call three cabs so that three to four people can take one. Another raises the concern that the fare might be too high, then utters (23). A 'suggestion' reading for (3a) based on a (teleological) goal of saving money is felicitous in such a context. Alternatively, he may utter (24) knowing that the company sponsoring the trip will not reimburse the fare for the third cab since the plan is not as economical as possible. In this context, (3a) has an 'obligation' reading, with the priority based on certain rules or regulations.

(23) (*Muốn tiết kiệm   thì*) *một   chiếc   xe   ngồi   năm   người.*
     want   save.money then   one   CL   car   sit   five   people
     '(If we want to save money,) a car should seat five people.'

(24) (*Công ty   không duyệt   đâu.*) *Một chiếc   xe   ngồi năm người.*
     company NEG   approve PRT.   one CL   car   sit   five people
     '(The company won't approve this.) A car must seat five people.'

Thai data provides us with exactly the same picture. That is, a bare flip sentence like (25) could be semantically equivalent to any of the overtly modalized sentences in (26), as long as the context is clear about which

priority modal flavor and strength are at play. Similar to what suggested for Mandarin and Vietnamese, it is reasonable to assume (25) also involves an implicit priority modal auxiliary which allows for V to raise to M from its usual clause-final position. In 3.2 we will demonstrate that implicit priority modals are also attested in subordinate environments.

(25) *Rót   kʰan   nùŋ   nâŋ   hâ꞉   kʰon.*
     car   CL   one   sit   five   CL.person
     'A car seats five people.'

(26) a. *Rót   kʰan   nùŋ   **ʔàat.cà/nâa.cà**   nâŋ   hâ꞉   kʰon.*
        car   CL   one   may   sit   five   CL.person
        'A car may seat five people.'
    b. *Rót   kʰan   nùŋ   **kʰuan**   nâŋ   hâ꞉   kʰon.*
        car   CL   one   should   sit   five   CL.person
        'A car should seat five people.'
    c. *Rót   kʰan   nùŋ   **tɔŋ**   nâŋ   hâ꞉   kʰon.*
        car   CL   one   must   sit   five   CL.person
   'A car must seat five people.'

3. COVERT MODALS IN SUBORDINATE CLAUSES

3.1 Covert dynamic patterns in *để*-clauses

T&P argue that even when V is confined to a subordinate environment, V-to-M raising is still possible. It amounts to saying that a *để*-clause as in (8) contains a modal auxiliary, be it overt or covert. Such a position helps explain why (27) allows the displacement of *ngồi* 'sit' from its clause-final position. This line of thinking is backed by the overt realization of modal *có thể* 'can' between *để* and the raised verb in (28), with virtually no change in semantics compared to (27).

(27) *Một   chiếc   xe   đủ   để   ngồi   năm   người. .*
     one   CL   car   enough   for   sit   five   person
     'A car is enough to seat five people.'

(28) *Một   chiếc xe   đủ   để   **có thể** ngồi năm   người.*
    one   CL   car   enough for can   sit   five   person
    'A car is enough to be able to seat five people.'

(29)

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                        CP
                      /    \
                   Opᵢ      C'
                          /    \
                        để      MP
                    'in order' /   \
                              M      VP
                            /  \    /   \
                     (có thể) ngồi năm người  VP
                      'can'  'sit' 'five people' / \
                                          <ngồi >   <Opᵢ>
```
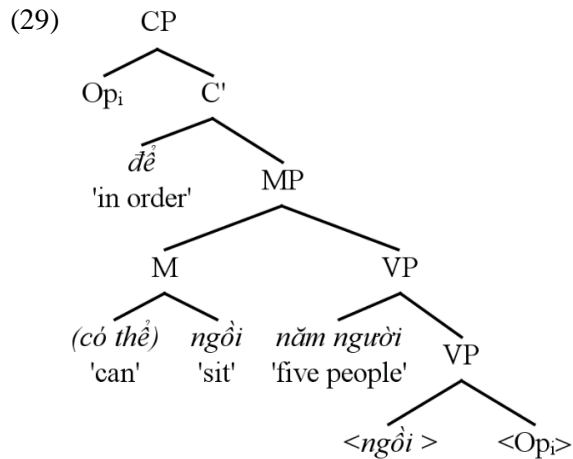
When V appears to stay *in situ* as in (30), such a raising still cannot be ruled out. That is, we could assume that *ngồi* 'sit' still raises to modal, and the NP in the subordinate clause is simply merged higher than MP. This proposal is supported by the possibility to have *có thể* 'can' inserted between the NP and the verb in (31). We assume further that the NP *năm người* 'five people' is introduced by the applicative head *cho* in (30-31), and not by V as in (27-28). In the former case, the external argument of V is a null operator co-indexed with this NP.

(30) *Một   chiếc xe   đủ   cho   năm   người ngồi.* (= (8b))
    one   CL   car   enough APPL five   person sit
    'A car is enough for five people to sit in.'

(31) *Một   chiếc xe   đủ   cho   năm   người **có thể** ngồi.*
    one   CL   car   enough APPL five   person can   sit
    'A car is enough for five people to be able to sit in.'

A similar situation is observed for Thai. In (32), the overt modal *sǎː.mâːt* precedes the verb but succeeds the NP introduced by *hâj* (as head of ApplP). Note that Thai native speakers might opt to omit *sǎː.mâːt*, but this is only because *dâːj* is more commonly used in colloquial Thai, and the inclusion of *sǎː.mâːt* leads to wordiness. That being said, (32) are grammatical. In addition, even if *sǎː.mâːt* is omitted, the presence of post-verbal *dâːj* is assumed to always guarantee the presence of a higher MP that licenses it.

(32) *Rót kʰan nùŋ pʰɔː hâj hâː kʰon (**sǎː.mâːt**) nâŋ (**dâːj**).*
    car CL one enough APPL five people can   sit can
    'A car is enough for five people to (be able to) sit in.'

It is instructive to note that infinitival purpose clauses are in fact typically associated with modal interpretation cross-linguistically. As Bhatt (2006) points out, the *to*-clause in (33a) can be paraphrased with an explicitly modalized expression featuring *can*. The same is observed for Italian and Romania by Coniglio & Zegrean (2012), see (33b,c).

(33) a. *Sue went to Torino to buy a violin.*
      (≈ 'Sue went to Torino so that she could buy a violin.')
      (English, Bhatt 2006:2)
  b. *Gianni è andato a Torino per/a comprare un violin.*
     Gianni is gone to Turin for/to to.buy a violin
     'Gianni went to Turin to buy a violin.'
     (Italian, Coniglio & Zegrean 2012:95)
     (≈ 'Gianni went to Turin so that he could buy a violin.')
  c. *Ion a sunat pentru a afla noutăţile.*
     Ion has called for to find.out news-the
     'Ion called so that he could find out the news.'
     (Romania, Coniglio & Zegrean 2012:95)

Interestingly, Grosz (2011, 2014) also argues that German infinitival clauses like the *um*-clause in (34) contain a possibility modal operator. This is evidenced by the presence of modal particle *ruhig*, which as a modal modifier functions to increase the degree of possibility expressed

in a modalized utterance, and is thus a diagnosis of the existence of a modal operator.

(34) Diese australische Kannenpflanze ist groß genug, **um** {**ruhig**
     this   Australian pitcher.plant   is big   enough for   ruhig
     auchmal/ auch mal   **ruhig**} eine Ratte zu verschlingen.
     also once also   once ruhig a   rat   to devour
     'This Australian pitcher plant is big enough in order to [ruhig] devour
     a rat every now and then.' (Grosz 2014:277)

3.2. Covert priority patterns in subordinate clauses of mandative/ directive verbs

Recall in 2.2 that we can express various priority modal meanings through a flip main clause in its bare form as long as the context is clear. Priority modal auxiliaries also appear to have a special affinity with a class of predicates expressing anything from order and request to prohibition and permission. This class goes by many names, including *directive verbs* (Comrie 1974), *desideratives* (Wurmbrand 2001; Landau 2013), and *mandatives* (Barrie and Pittman 2010). Burukina (2020) analyzes Russian mandative verbs like *velet* 'order' or *razrešit* 'allow' as the lexical realizations of a verb of communication embedding a silent deontic modal head. In Vietnamese, these verbs guarantee the presence of embedded (overt or covert) priority modals. For example, the modal is taken to be covert MUST in (35a) but is explicitly pronounced in (35b) by *phải* 'must'. In the same vein, the embedded clause in (36a) is assumed to contain an implicit SHOULD, whose explicit counterpart *nên* 'should' is attested in (36b).

(35) a. *Tí* **yêu cầu** *(là)* *một* *chiếc* *xe* *ngồi* *năm* *người.*
     Tí demand that one CL   car sit   five   person
     'Tí demands that one car seat five people.'
   b. *Tí* **yêu cầu** *(là)* *một* *chiếc* *xe* **phải** *ngồi* *năm* *người.*
     Tí demand that one CL   car must sit   five   person
     'Tí demands that one car must seat five people.'

(36) a. *Tí **gợi ý**   (là) một chiếc xe ngồi năm người.*
       Tí suggest that one CL car sit five person
       'Tí suggests that one car seat five people.'

    b. *Tí **gợi ý**   (là) một chiếc xe **nên** ngồi năm người.*
       Tí suggest that one CL car should sit five person
       'Tí suggests that one car should seat five people.'

Again, the same pattern is attested for Thai, as exemplified in (37). That is, Thai priority modal *kʰuan* 'should' and *tɔ̂ŋ* 'must' are optional in the clauses respectively selected by mandative verbs *nɛʔ.nam* 'suggest' and *kʰɔ:* 'demand'.

(37) a. *Tí **nɛʔ.nam** wàa rót kʰan nùŋ (**kʰuan**) nâŋ hâ: kʰon.*
       Tí suggest that car CL one should sit five CL.person
       'Tí suggests that one car (should) seat five people.'

    b. *Tí **kʰɔ:**   wàa rót kʰan nùŋ (**tɔ̂ŋ**) nâŋ hâ: kʰon.*
       Tí demand that one CL car must sit five person
       'Tí demands that one car (must) seat five people.'

The phenomenon exemplified in (35-36) fits the description of Trinh's (2017) 'pleonastic modals' in Vietnamese, as shown in (38-39). Here it is claimed that the embedded modals are semantically transparent as sentences featuring them (e.g. (38a) and (39a)) are semantically equivalent to the ones without them (e.g. (38b) and (39b)).

(38) a. *Mary **bắt**   John **phải** đọc sách*
       Mary require John must read books
       'Mary required John to have the obligation to read books'/
       'Mary required John to read books' (Trinh 2017:429)

    b. *Mary **bắt**   John đọc sách*
       Mary require John read books
       'Mary required John to read books' (Trinh 2017:429)

(39) a. *Mary **cho phép** John **được** đọc sách*
      Mary allow   John may read books (Trinh 2017:431)
   b. *Mary **cho phép** John đọc sách*
      Mary allow   John read books (Trinh 2017:431)

Taken together, sections 2 and 3 argue for the presence of modal auxiliaries, both covert and overt, in main and subordinate clauses in Vietnamese, and further show that a similar phenomenon is attested for Thai. We propose that it is these modal elements which induce the V-to-M raising in flip-flop constructions. The movement of V to M is taken to be both obligatory and local.

4. MONO/BI-CLAUSALITY AND THE FLIP ALTERNATIVE

We claim in section 1, following T&P, that when the main verb of a flip sentence appears to stay in its clause-final position instead of surfacing immediately after *đủ* 'enough', V-to-M raising does take place, although it is constrained to the local domain which is a purpose-like clause. This clause is introduced by either the left-peripheral element *để* 'for, in order' or its implicit equivalent. The postulation of such a bi-clausal configuration receives empirical support from Thai data. (40a) illustrates a Thai flip sentence with no overt modal marking. This sentence is semantically equivalent to (40b) which is explicitly modalized with *pʰɔ:* 'enough'. When the main verb *nâŋ* 'sit' surfaces clause-finally to form the flip alternative, the Thai pattern of grammaticality is the same as the Vietnamese one in (7), see (41).

(40) a. *Rót kʰan nùùŋ nâŋ hâ: kʰon.*
      car   CL   one   sit   five   CL.person
      'A car seats five people.'
   b. *Rót kʰan nùùŋ **pʰɔ:** nâŋ hâ: kʰon.*
      car   CL   one   enough   sit   five   CL.person
      'A car is enough to seat five people.'

(41) a. ᵒ⁄ᵒ*Rót* *kʰan* *nùŋ* *hâ:* *kʰon* *nâŋ.*
 car CL one five CL.person sit
 'A car seats five people.'

 b. **Rót *kʰan* *nùŋ* ***pʰɔ:*** *hâ:* *kʰon* *nâŋ.*
 car CL one enough five CL.person sit
 Intended: 'A car is enough to seat five people.'

More interestingly, (41) can be salvaged by the insertion of the purpose-like C-element *sămràp* 'for, in order' and/or an applicative *hâj* 'for' (which incidentally also means 'give' or 'allow' as a lexical verb, similar to the Vietnamese *cho*), see (42). This is also the pattern observed for Vietnamese in (8). Given the configurational similarity between the two languages in this respect, the syntactic analysis sketched out in (9) for Vietnamese bi-clausal construction is extended to the Thai data in (42).

(42) a. *Rót* *kʰan* *nùŋ* ***pʰɔ:*** *sămràp* *hâ:* *kʰon* *nâŋ.*
 car CL one enough for five CL.person sit
 'A car is enough to seat five people.'

 b. *Rót* *kʰan* *nùŋ* ***pʰɔ:*** *hâj* *hâ:* *kʰon* *nâŋ.*
 car CL one enough APPL five CL.person sit
 'A car is enough for five people to sit in.'

 c. *Rót* *kʰan* *nùŋ* ***pʰɔ:*** *sămràp* *hâj* *hâ:* *kʰon* *nâŋ.*
 car CL one enough for APPL five CL.person sit
 'A car is enough for five people to sit in.'

Note that in both Vietnamese and Thai, the order of the C-element and the applicative head is fixed, as the former must always precede the latter, see (8c) for Vietnamese and (42c) for Thai. When the applicative head surfaces higher than the C-element, ungrammaticality ensues, as shown in (43).

(43) a.**Một *chiếc* *xe* ***đủ*** ***cho*** *để* *năm* *người* *ngồi.*
 one CL car enough APPL for five person sit
 Intended: 'A car is enough for five people to sit in.'

b. **Rót kʰan nùuŋ pʰɔ: **hâj** sǎmràp hâ: kʰon nâŋ.*
   car CL   one enough APPL for   five CL.person sit
   Intended: 'A car is enough for five people to sit in.'

Furthermore, if the main verb of the embedded clause appears between the applicative head and the second NP, the resulting sentence is also ill-formed, see (44). This ungrammaticality is straightforward if the second NP is indeed introduced by the applicatives *cho* in Vietnamese and *hâj* in Thai.

(44) a.**Một chiếc xe **đủ** **cho** ngồi năm người.*
   one CL   car enough APPL sit five   person
   Intended: 'A car is enough for five people to sit in.'
 b. **Rót kʰan nùuŋ pʰɔ: **hâj** nâŋ hâ: kʰon*
   car CL   one enough APPL sit five CL.person
   Intended: 'A car is enough for five people to sit in.'

Our proposal of a bi-clausal configuration for the flip alternative also has the advantage of explaining a number of syntactic facts otherwise obscure with a mono-clausal analysis. First, for the incompleteness of flip alternatives in (45), our position is as follows. While these flip alternatives are widely acknowledged to be able to contain an implicit capacity modal ENO as covert modal, it is unmotivated to assume that a proper lexical verb *đủ* 'enough' could somehow be implicit in the construction. It is therefore reasonable to take (45) as instances of mono-clausal construction featuring an implicit modal (not a bi-clausal sentence with a covert lexical verb). If it is the case, then the raising of the verb over the second NP is expected (as it must raise to attach to the modal, which is syntactically higher than this second NP). The clause-final position of the main verbs thus should logically lead to ungrammaticality. These sentences are however not straightforwardly out, as they appear to be salvageable once construed with a right configuration, thus the incompleteness effect.
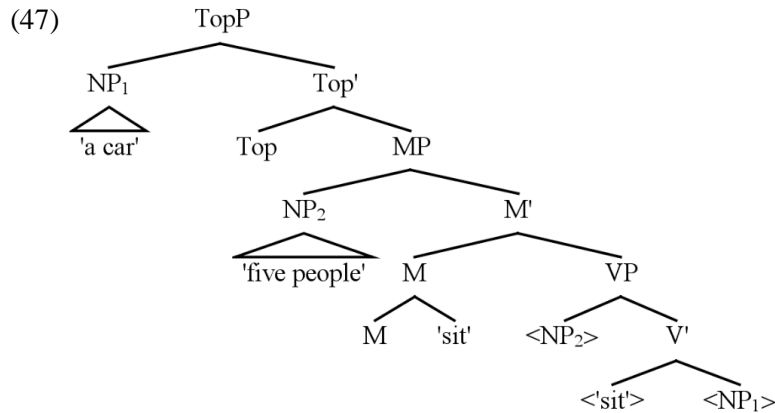
(45) a. [%]*Một chiếc xe năm người **ngồi**.* (Vietnamese)
   one CL   car five person sit
   'A car seats five people.'

b. %*Yi-bu   che   wu-ge   ren   **zuo***. (Mandarin)
   one-CL   car   five-CL   person   sit
   'A car seats five people.'

c. %*Rót   kʰan   nùŋ   hâ: kʰon   **nâŋ***. (Thai)
   car   CL   one   five   CL.person   sit
   'A car seats five people.'

Specifically, the sentences in (45) become fully grammatical once NP$_1$ is marked for topicalization, see (46). Note that this topicalization needs to be overtly marked (with a topic marker, a pause, or both) for the feeling of incompleteness to disappear. We propose that (45) are derivationally unrelated to the flip construction, albeit their linear resemblance to one. The derivation yielding (45) goes as follows: the main verb first raises to MP, then NP$_2$ is moved to [Spec, MP]; NP$_1$ is subsequently raised to a higher functional projection, which we identify as TopP (Topic Phrase). Because the topic-comment configuration is not sufficiently marked in (45), in contrast to (46), it leads to a possible confusion with some variant of the flip sentence where the verb stays *in situ*. Now note how these former two movements in the aforementioned derivation, as claimed in T&P, essentially derive a flop construction. This amounts to saying that (46) are instances of flop sentences with a twist of topicalization. The derivation for (46) is illustrated in (47).[3]

(46) a. *Một   chiếc   xe   **thì**   năm   người   ngồi*. (Vietnamese)
    one   CL   car   TOP   five   person   sit
    'A car, it seats five people.'

b. *Yi-bu   che   **a**,   wu-ge   ren   zuo*. (Mandarin)
    one-CL car   TOP   five-CL   person   sit
    'A car, it seats five people.'

c. *Rót   kʰan   nùŋ,   hâ: kʰon   nâŋ*. (Thai)
    car   CL   one   five   CL.person   sit
    'A car, it seats five people.'

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[3] We thank an anonymous reviewer for urging us to clarify how topicalization can eradicate the incompleteness effect in (45).

(47)

```
              TopP
            /      \
         NP₁        Top'
         /\        /    \
      'a car'    Top     MP
                       /     \
                     NP₂      M'
                     /\      /   \
            'five people'   M      VP
                          /  \    /    \
                        M   'sit' <NP₂>  V'
                                        /   \
                                    <'sit'>  <NP₁>
```

Second, in the presence of explicit priority modals, see (48), the clause-final position of the verb leads to ungrammaticality. Unlike the case of (8) where the existence of verbal *đủ* 'enough' guarantees the presence of a subordinate clause, there is no evidence for the bi-clausality of the sentences in (48). One way to salvage these sentences is to make them bi-clausal via the addition of, for example, the verbal *cho* 'allow'. This way, the inability of the verb to move (to the main clause) is justified. Note that *cho* as a verb is distinct from *cho* as an applicative head: verbal *cho* can be replaced by *cho phép* 'allow', see (49). On the contrary, *cho phép* 'allow' cannot replace the applicative *cho* in (30-31) as evidenced in (50).

(48) a. **Một   chiếc   xe   **có thể** năm   người   ngồi.*
　　　　 one   CL   car   may   five   person   sit
　　　　 'A car may seat five people.'

　　 b. **Một   chiếc   xe   **nên**   năm   người   ngồi.*
　　　　 one   CL   car   should   five   person   sit
　　　　 'A car should seat five people.'

　　 c. **Một   chiếc   xe   **phải**   năm   người   ngồi.*
　　　　 one   CL   car   must   five   person   sit
　　　　 'A car must seat five people.'

(49) a. *Một chiếc xe **có thể cho/ cho phép** năm người ngồi.*
   one   CL   car may   allow   five person sit
   'A car may allow five people to sit in.'

   b. *Một chiếc xe **nên cho/ cho phép** năm người ngồi.*
   one   CL   car should allow   five person sit
   'A car should allow five people to sit in.'

   c. *Một chiếc xe **phải cho/ cho phép** năm người ngồi.*
   one   CL   car must allow   five person sit
   'A car must allow five people to sit in.'

(50) a. *Một chiếc xe đủ   **cho/ *cho phép** năm người ngồi.*
   one   CL   car enough APPL allow   five person sit
   'A car is enough for five people to sit in.'

   b. *Một chiếc xe đủ   **cho/ *cho phép** năm người có thể ngồi.*
   one   CL car enough APPL allow   five person can sit
   'A car is enough for five people to be able to sit in.'

The same pattern is observed for Thai. The three sentences in (51) are ungrammatical as the verb appears to stay *in situ* instead of raising to attach to the modal auxiliaries. To salvage these sentences, we again could turn them into bi-clausal constructions. The addition of verbal *hâj* 'allow' (to be distinguished from applicative *hâj*) significantly improves the grammaticality of these sentences, as shown in (52).

(51) a. **Rót   kʰan   nùùŋ   **kʰuan**   hâ: kʰon   nâŋ.*
   car   CL   one   should five   CL.person sit
   'A car should seat five people.'

   b. **Rót   kʰan   nùùŋ   **ʔàat.cà/nâa.cà** hâ: kʰon   nâŋ.*
   car   CL   one   may   five CL.person sit
   'A car may seat five people.'

   c. **Rót   kʰan   nùùŋ   **tɔ̂ŋ**   hâ: kʰon   nâŋ.*
   car   CL   one   must   five CL.person sit
   'A car must seat five people.'

(52) a. *Rót   kʰan   nùŋ   **kʰuan**   **hâj**   hâ: kʰon   nâŋ.*
       car   CL   one   should   allow   five   CL.person   sit
       'A car should allow five people to sit in.'

   b. *Rót kʰan nùŋ **ʔàat.cà/nâa.cà hâj**   hâ: kʰon   nâŋ.*
       car CL one may   allow   five   CL.person   sit
       'A car may allow five people to sit in.'

   c. *Rót   kʰan   nùŋ   **tôŋ**   **hâj**   hâ: kʰon   nâŋ.*
       car   CL   one   must   allow   five   CL.person   sit
       'A car must allow five people to sit in.'

5. DIRECTIONALITY OF HEAD MOVEMENT

It is established in T&P that head movement in Vietnamese and Mandarin flip-flop sentences results in V adjoining rightwards to M. This direction of adjunction is apparently problematic in view of Kayne's (1994) Antisymmetry, which requires that the moving head adjoins to the left of the head hosting it. Adopting Chomsky (2001), Tsai (2020) suggests that the verb raising we are dealing with is a PF-movement, thus considerations normally applied to narrow syntax are not of concern. The notion of Late Insertion (Marantz 1997) is instead appealed to, by which the M-V order is established after syntax (during the process of Spell-Out) from a language-specific Vocabulary List.

For Mandarin, rightward adjunction is in fact the only option. To wit, only the M-V order (5b), and not the V-M order (53), is allowed. At first blush, a similar claim for Vietnamese and Thai seems to meet with obvious counterexamples, however. That is, the main verb appears to be found preceding *đủ* (54a) and *pʰɔ:* (54b) as well.

(53) a. **Yi-bu   che   zuo **gou**   wu-ge   ren.*
       one-CL   car   sit   enough   five-CL   person

   b. *Yi-bu   che   **gou**   zuo   wu-ge   ren.* (= (5b))
       one-CL   car   enough   sit   five-CL   person
       'A car seats five people.'

(54) a. *Một   chiếc   xe   ngồi   **đủ**   năm   người.*
     a   CL   car   sit   enough   five   person
     'A car seats as many as (= up to) five people.'
     (= The greatest capacity a car reaches is five people.)
   b. *Rót   kʰan   nùŋ   nâŋ   **pʰɔː**   hâː   kʰon.*
     car   CL   one   sit   enough   five   CL.person
     'A car seats as many as (= up to) five people.'
     (= The greatest capacity a car reaches is five people.)

Despite an apparent similarity in the capacity reading, we suggest that the sequence [*sit enough*] in (54) resembles a Resultative Verbal compound with a potential modal reading (cf. Wu 2004): Vietnamese *đủ* and Thai *pʰɔː* realize the Result component to be potentially achieved by the activity the Verb denotes. *Đủ* and *pʰɔː* in this context are therefore still non-modal, and we can maintain that no rightward adjunction of V to M occurs. Further evidence to dismiss a leftward adjunction of V to *đủ* comes from the potential presence of an element like the negative marker *không* 'no(t)' in (55) which scopes over *đủ*. In such a configuration, *không* legitimately intervenes between *đủ* and the preceding V *ngồi* 'sit', which shows that V does not attach to *đủ* in the manner of V-to-M raising. To compare, no intervening element is permitted between *đủ* and the verb to its right in the mono-clausal flip sentence (5a).

(55) *Một   chiếc   xe   ngồi   **không đủ**   năm   người.*
     a   CL   car   sit   NEG   enough   five   person
     'A car seats not as many as five people.'
     (= The greatest capacity a car reaches is less than five people.)

Note that V also never appears to the left of other modal verbs such as *có thể* 'can', *phải* 'must', and *nên* 'should', see (56). This is straightforward if all modal verbs behave alike when it comes to verb raising, and instances of *đủ* following the verb are indeed non-modal in nature.

(56) **Một chiếc xe ngồi **có thể/ nên / phải** năm người.*
      a   CL   car sit   can   should must five person
      Intended: 'A car can/should/must seat five people.'

The last piece of evidence concerns the height of modal interpretation. That is, while *có thể* 'can' has both an epistemic and a capacity reading if V precedes *đủ* (57a), only the epistemic reading survives if V follows it (57b). The prohibition of a capacity reading in (57b) is straightforward if *đủ* in the pre-verbal position is already a root modal, and the preceding *có thể* is simply too high in the functional spine to be interpreted with a capacity reading. Conversely, *đủ* in the post-verbal position is lexical, which explains why *có thể* can be interpreted as low as a root modal.

(57) a. *Một chiếc xe có thể ngồi **đủ** năm người.*
        a   CL   car can   sit   enough five   person
        'A car can seat as many as (= up to) five people.'
        (*có thể*: epistemic/capacity)
    b. *Một chiếc xe   có thể **đủ**   ngồi năm   người.*
        a   CL   car   can   enough sit   five   person
        'A car can seat five people.'
        (*có thể*: epistemic/*capacity)

All in all, we maintain that V-to-M raising in Vietnamese flip-flop sentences results in rightward adjunction only. In the presence of a modal auxiliary (both overt and covert), V invariably attaches to its right.

6. CONCLUSION

This paper draws the insights from T&P, and provides a fine-grained analysis based upon the interaction between verb movement and covert modals from the vantage point of comparative syntax. We offer a rationale for postulating covert modals to motivate the V-to-M analysis of Vietnamese flip-flop sentences. It is further argued that the mono/bi-clausal distinction between flip sentences is a necessity when apparent verb-raising is observed, and that rightward adjunction is the sole option

for V-to-M raising. Finally, we explore the cross-linguistic aspect of this study, and present evidence from Thai to support our syntactic treatments of flip-flop constructions across languages.

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越南語中的動詞提升，隱性模態詞及乾坤挪移句—
一個比較句法的觀點

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本文從比較句法的角度切入，來研究越南語中乾坤挪移句的動詞提升及隱性模態詞。我們發現動詞移位跟此類結構的模態性有密切的關連，主句、從句皆然。此外，證據顯示某些乾句的變體其實是由雙層句構組成，而動詞到模態詞的移位則屬右向加接。最後在實證層次上，我們也從泰語找到了平行現象來支持本文的句法分析。

關鍵字：動詞移位、隱性模態詞、乾坤挪移句、比較句法、越南語