The typology of variable-force modality

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Variable force: an exotic novelty?

- St’át’imcets (Salish) variable-force deontic *ka*: [Rullmann et al., 2008, (31)]

(1) lán-lhkacw ka áts’x-en ti kwtámts-sw-a
already-2sg.subj DEON see-dir det husband-2sg.poss-det
‘You {must/can/may} see your husband now.’

- Initial impressions: variable force is something strange, perhaps typologically very different from what we find in European languages.
The reality, visualized

- Variable force is not uniform semantically (≥3 major types)
- Variable force is not geographically restricted
- Variable force appears in modal systems of different shapes
- Variable force may diachronically precede or follow “usual” modality
The landscape of variable force

- At least three major types:
  - Type 1: unambiguous variable force (unvariable force proper)
    (St’át’imcets, Gitksan, Old English *motan)
  - Type 2: genuine ◊-□ ambiguity
    (Middle English *moten, Old Ukrainian)
  - Type 3: familiar ◊ or □ modality in a system unusually shaped
    (Nez Perce)

- Types 1 and 2 clearly have subtypes with different semantics:
  - Type 1: St’át’imcets is different from Old English
  - Type 2: Middle English is different from Old Ukrainian

- Cases with unclear type attribution: Danish; Baltic-Sea ‘get’; Washo.
Single-meaning vs. ambiguous variable force
What variable force may look like: Old Saxon

- Old Saxon *môtan* (cf. Dutch *moeten*, German *müssen*):

(2) **endi ús is firinun tharf, <...>** that wi it an thesumu lande at thi and us is urgent need that we it in this land from you

linôn *môtin.*

learn MÔTAN.SUBJ

‘And there is an urgent need for us <...> that we may learn from you (=Christ) in this land.’

(3) **thes môtun gi neotan forð, só huue só gerno uuili gode theonogean,**

that MÔTAN you.PL use forth whoever gladly will god serve,

uuirkean aftar is uuilleon.

do after his will

‘You **must** use that (=the saving force) from now on, every one of you who wants to serve God gladly and to do after God’s will.’
Three possibilities for variable-force semantics

- Possibility 1: variable-force modals have semantics different from either ♦ or □, with no perfect translation correlate
- Possibility 2: variable-force modals are ambiguous between ♦ and □
- Possibility 3: variable-force modals are regular ♦s or □s, but the overall system works so that their distribution ends up being wider

- It turns out that each of the three possibilities is actualized in some language.

- But how do we find out which we have in language X? Case study 1: Old English vs. Middle English *motan
Old English *motan

(4) bruc þenden þu mote manigra medo (Beo 1177-8)
  enjoy while you motan.3sg.subj many rewards
  ‘Enjoy, while you mot, many rewards’

The (near) consensus story:

1. Earliest recorded OE: *motan ambiguous between ♦ and □
2. Very few □-uses in Early OE (close to 0%)
3. Slow growth of □-uses, reaching 100% in the 15-16th cent.

Translation correlates of OE *motan

- Many OE and OHG texts are free translations from Latin, so we can look at the modal, if any, in Latin originals.

- In early OE prose (Alfredian translations, late 9th/early 10th cent.), modal correlates are rare:
  - Cura Pastoralis: 1 modal in Latin (◊ possum) out of 22 OE instances of *motan
  - Boethius: 5 instances out of 40, all ◊ (3 licet and 2 possum)

- The early laws of Alfred (the same one) and Ine were translated into Latin in Quadripartitus (early 12th century).
  - We have 21 modal Latin translations out of 22.
  - ◊: 19 cases (licet and possum), □: 2 cases (debeo)
Translation correlates of OHG *muozan

- [Lühr, 1997]: a similar situation in early OHG translations from Latin.
  - Latin necessity constructions like *opertet* and *debo* get many translations (*sculan*, *gilimpfit*, etc.), but not with *muozan*
  - But non-◊ examples for *muozan* also exist:

(5) [Lühr, 1997, ex. (25)]:
  joh mit thiu giwerkon thaz thu uns es muazis thankon
  ‘und damit wollen wir wirken, damit du [=Christ] uns es
  lohnen mußt’
Questions for the standard analysis: regularity

- Meaning change is **regular**.

- For *mōtan* in Germanic, there is indeed regularity: from a similar situation in OE, Old Saxon, OHG, we get similar situations in English, Dutch, German.

- But regular ◊ modals don’t just become ◊-□ ambiguous, and they don’t turn into □s either!

  ⇒ there must be something special about *motan* and its cognates
Questions for the standard analysis: specific mechanism

- Meaning change involves \textit{semantic reanalysis}.

- But why would speakers reanalyze $\diamond$ as $\Box$?

  Two explanations in the literature:

  - Through permission implying obligation (e.g. \cite{Traugott,1989})
    \begin{quote}
    “You may go” from an authority implies that “you must go”.
    \end{quote}
    ...but then any $\diamond$-deontics would be able to turn into $\Box$

  - Through “must not” $\approx$ “may not” (e.g. OED)
    \begin{quote}
    The speakers reanalyze the negative instances, and after that take care of the positive cases.
    \end{quote}
    ...but all $\diamond$ deontics have fixed scope $\neg > \diamond$ \cite{van der Auwera},
    so again, any $\diamond$ is predicted to be able to change into $\Box$
    \begin{quote}
    ...and besides, won’t work for German, as \textit{nicht müssen} is $\neg > \Box$
    \end{quote}
    ...finally, where would the pressure to reanalyze positive cases come from?
Variable-force analysis of [Yanovich, 2013, Ch.4]

Old English *motan
not a ♦, but a non-ambiguous variable-force modal

Early Middle English *moten
♦-□ ambiguity, with □ more frequent

Early Modern English must
pure □: the less productive ♦-uses have been lost
Two kinds of uses for *motan?*

6 is a typical “possibility example”, while 7 is a typical “necessity use”.

(6) Ac se se ðe unwærlice ðone wuda hiewð, & sua his freond ofsliehð, 
but that that which unwarily that wood hews, and so his friend slays,
him bið nidðearf ðæt he fleo to ðara ðreora burga anre, 
to.him is necessary that he flee.subj to those.gen three.gen city.gen one.dat 
ðæt on sumere ðara weorðe genered, ðæt he mote libban;
that in some of.those become.subj saved, that he motan.prs.subj live

‘But he who unwarily hews wood and by that slays his friend, it is necessary for him that he flee to one of those three cities, so that he be saved in one of them, so that he mote live.’

(7) ealneg hi wepað, & æfter ðæm wope hi gewyrecað ðæt hi moton 
always they weep & after the weeping they obtain that they motan.pres 
eft wepan.
again weep 

‘always they are weeping, and after the weeping they make it so that they moton weep again.’

(CP:21.167.15)
The main idea of my “collapse” analysis

- In both 6 and 7, both $\Diamond$ and $\Box$ translation may be appropriate.

- Imagine a set of accessible worlds uniform with regard to proposition $p$. Given that set, $\Diamond p \iff \Box p$. Either statement says the same.

- Now, in natural language it’s not so clean because of the pragmatics.

  When people talk about necessity, they often imply there is a force imposing it. When they talk about possibility, they often imply somebody is interested in that possibility.

  $\Rightarrow$ unlike in logic, people may find one rendering better than the other.
Possibility-necessity collapse: the intuition

(8) a. Hu mæg he Ḟonne beon butan gitsunge, how can he then be without avarice
    Ḟonne he sceal ymb monigra monna are Ḟencan, when he had.to about many men’s property think
    gif he nolde Ḟa Ḟa he moste ymb his anes? (CP:9.57.19)
    if he would.not when he motan.sg.past.subj about his only

b. Translation by [Sweet, 1871]:
   “How can he be without covetousness when he has to consult the interests of many, if formerly he would not avoid it when he had to consult his own interests alone?”

c. Translation by H.W. Norman, printed in [Giles et al., 1858]:
   “How can he be without covetousness when he must think about many men’s sustenance, if he would not when he might think about his own alone?”

- Not much contrast between the ◊ and □ readings:
  it was an open possibility for the subject to think only about their own benefit, but they also actually thought only about themselves before being promoted.
Possibility-necessity collapse: the intuition

(6) A typical “possibility example”:
‘But he who unwarily hews wood and by that slays his friend, it is necessary for him that he flee to one of those three cities, so that he be saved in one of them, so that he mote live.’

\[
\text{would} \approx \text{mote} \approx \text{may}
\]

(7) A typical “necessity example”:
‘always they are weeping, and after the weeping they make it so that they moton weep again.’

\[
\text{have to} \approx \text{moton} \approx \text{may}
\]
A focused Old English dataset: Alfredian prose

Early OE prose: core Alfredian texts (late 9th/early 10th cent.)

- *C(ura) P(astoralis)* (edition [Sweet, 1871])
- *Bo(ethius)* (edition [Godden and Irvine, 2009])
- *Sol(iloquies)* (edition [Carnicelli, 1969])

Best possible shot at geographical and temporal consistency for the period.

72 instances of *motan*
Dialectal variation may be huge

Present-Day English, the use of different deontics across the British Isles:

**Figure 2.** Distribution of variants of forms for DEONTIC MODALITY across communities.

from [Tagliamonte and Smith, 2006]
Why use a focused dataset II

2 Change may be very fast

The deontic system of Toronto English changed in 3 apparent-time generations:

![Graph showing the distribution of deontic modals over age groups]

Figure 4. Overall distribution of deontic modals in apparent time

from [Tagliamonte and D’Arcy, 2007], Toronto English
Alfredian *motan: the collapse analysis

- What we can say about *mōtan in the Alfredian dataset:

  **Observation**

  In all 72 examples, virtually no contrast between the ♦ and □ readings.

  - With a regular ♦, ♦p does not entail that p has to happen.
    
    (9) You **may** take this apple. But it’s not that you have to.
    
    (10) My electric bills **can** be paid online, though I never tried.

  - In Alfredian OE, possibilities expressed by magan ‘can, may’ and aliefed ‘permitted’ work the same way, being consistent with ¬p.

  - But not motan!
Alfredian *motan: the collapse analysis

Analysis for motan(p)

Acc. relation: metaphysical modal base, stereotypical ordering source

Presupposition: ♦p → fut(p) if p has a chance to actualize, it will

Assertion: ♦p

- Metaphysical modal base: all w′ sharing the history of the actual w
- Stereotypical ordering source: w′′ where things go normally
  E.g., the person in question doesn’t win a lottery, etc.
How the collapse analysis works

(6) A typical “possibility example”:

‘But he who unwarily hews wood and by that slays his friend, it is necessary for him that he flee to one of those three cities, so that he be saved in one of them, so that he mote live.’

(CP:21.167.15)

\( w \): “purpose” worlds where the purpose clause is true
\[ \downarrow \]
\( w' \): metaphysical correlates for each \( w \), sharing its history
\[ \downarrow \]
\( w'' \): those metaphysical correlates where things proceed normally

Presupposition: either he lives in all \( w'' \), or doesn’t live in all \( w'' \)
Assertion: he lives in all \( w'' \)

Paraphrase: “given that either in all possible futures lives, or in all of them he dies, it’s necessary for him to flee to one of those cities so that he may (would) live”.
How the collapse analysis works

- *motan(p)* conveys both inevitability (in the presupposition) and openness of possibility (in the assertion)

**Variable-force translation effect:**
- Inevitability is stressed ⇒ □ translation
- Openness of possibility is stressed ⇒ ♦ translation

**Rarity of *motan*:**
- Few contexts would support the collapse presupposition.
- And indeed, *motan* is rare in Alfredian OE:
  ≈70 *motan* vs. ≈700 *sculan* (>shall) and ≈1000 *magan* (>may)
Alternative explanations?

- Could Alfredian *motan* be genuinely ◊/□ ambiguous?
  - Nope. If it were, we would find *motan* not only where ◊ and □ collapse, but also where “must(p)” is different from “may(p)”

- Could Alfredian *motan* be regular ◊?
  - My analysis says that ◊ and □ collapse in the context where *motan* occurs. So a usual ◊ without a collapse presupposition would be just as good.

  But first, without the presupposition we cannot explain why *motan* only occurs in collapse contexts.

  Second, we know that at some point, *motan* cannot be analyzed as a pure ◊ any longer. So saying it was a ◊ in Alfredian OE doesn’t add any explanatory power.
Modal flavor of *motan

(11) Metaphysical: worlds sharing the same history
It might rain every day this summer.

(12) Circumstantial: worlds where a given set of facts is true
During the next hurricane, this tree can easily fall onto my roof.

(13) Deontic: worlds where the rules are followed
You may take this apple.

- Circumstantial and metaphysical are close: if the facts include everything about the world, the two collapse
- Deontic and metaphysical may be hard to distinguish in texts, especially when it is about what God or fate allow
- I found no examples that would clearly exclude the metaphysical analysis. Hence my claim about the modal flavor. But it’s more a reasonably-supported hypothesis than a proven fact.
The shape of the Alfredian modal system

Alfredian Old English

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<th></th>
<th>ability</th>
<th>circumstantial</th>
<th>deontic</th>
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<tbody>
<tr>
<td>♦</td>
<td>magan</td>
<td>magan</td>
<td>non-verbal</td>
</tr>
<tr>
<td>□</td>
<td>n/a</td>
<td>sculan</td>
<td>sculan</td>
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<th></th>
<th>metaphysical/circumstantial/deontic</th>
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<td>♦ + collapse presupposition</td>
<td>motan</td>
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- On the one hand, we have fairly regular ♦ and □ modals.
- On the other, we have a special, very restricted variable-force modal.
A focused Middle English dataset: ‘AB language’

Early ME prose: ‘AB language’ (first half of 13th cent.)

A group of texts written within a few miles from each other. Clearly the product of a single common writing tradition, written in the same dialect and sharing orthography.

- Seinte Margarete (SM)  
  (edition [d’Ardenne, 1977])
- Ancrene Wisse (AW)  
  (edition [Millett, 2005])

SM predates AW by several decades.

76 instances of *mōten.
The Middle English descendant of *motan

Try to translate Middle English *moten in this passage:

(14) Hwen-se ye moten to eani mon ea-wiht biteachen, the hond
whenever you moten to any man give the hand not
ne cume nawt ut
comes not out

“Whenever you mot give anything to anyone, the hand shouldn’t come out.”

This is a most typical kind of use of moten in AW.
The ME dataset: Ancrene Wisse and Seinte Margarete

- 58 instances of *moten* in *Ancrene Wisse* (only 2 in negative clauses)

- 5 main types of uses:
  - unavoidability (circ. ☐, ≈ modern *have to*) accounts for >50%
  - moral instruction (deontic ☐, ≈ modern *must*, *ought*)
  - wish, prayer
  - “open possibility”
  - under attitudes (*grant*, *swear*, etc.), with unclear semantic import

- 18 instances of *moten* in *Seinte Margarete* (only 1 in a negative clause)

A slightly different distribution:

- no strict demarcation between prayers and other ◊ types
- moral-instruction uses are emerging from circumstantial ☐ uses
Deontic □ reading

“Moral instruction”: deontic

(15) \(< ... >\) teke this, ha \textbf{mot} yet thurh hire forbisne ant thurh hire hali beoden yeoven strengthe othre, ant uphalden ham, thet ha ne fallen i the dunge of sunne.

‘...besides this, she \textbf{must} also through her example and through her holy prayers give strength to others, and hold them up so that they do not fall in the filth of sin.’
...but Early ME *mōten is not yet a pure □

“Open possibility”: in \( \approx 5 \) out of 58 examples in \( AW \), and more in \( SM \), we seem to have a genuine existential meaning:

(16) Þah þe flesch beo ure fa, hit is us ihaten þet we halden hit up. Wa we moten don hit, as hit is wel ofte wurðe, ah nawt fordon mid alle;

\[ (AW \ 3:284-5) \]

‘Though the flesh is our foe, it is commanded to us that we hold it up. Woe we may do it as it is well often worthy of, but we should not destroy it altogether.’
Prayers:

(17) I þe wurðgunge, Iesu Crist, of þine tweof apostles, þet Ich *mōten* oueral folhin hare lare, þet Ich *mote* habben þurh hare bonen þe tweolf bohes þe bloweð of chearite,

‘In honor, Jesus Christ, of your twelve apostles, *may* I everywhere follow their teaching, *may* I have through their prayers the twelve branches that blossom with love’
*môt en under attitudes

- In attitudes: exact meaning unclear, but not empty; close to prayers

  (18) Thet ich thurh the lare of the Hali Gast mote halden foreward, he hit yetti me thurh ower bonen. (AW 3:644-5)
  ‘That I, through the teaching of the Holy Spirit, may keep the agreement, let Him (=God) grant it to me through your prayers.’

⇒ this type of use is most frequent in the late entries of Petersborough chronicle (under ask, agree, forbid, grant, decree)
*mōten’s modal neighbors in the AB language

- In OE, *mōtan was outside of the “regular” modal system:

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<th>ability</th>
<th>circ.</th>
<th>deontic</th>
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<tr>
<td>♦</td>
<td>magan</td>
<td>magan</td>
<td>non-modal</td>
</tr>
<tr>
<td>□</td>
<td>—</td>
<td>sculan</td>
<td>sculan</td>
</tr>
</tbody>
</table>

- But in the 13th cent., *mōten is an integral part of the system.

  - *moten
    - circumstantial necessity
    - deontic necessity
    - various non-

  - ahen (modern ought)
    - only deontic uses, mostly reportative

  - sculen (modern shall)
    - deontic uses, both performative and reportative
    - future uses
    - “subjunctive” uses (≈modern would)
"mōten in Ancrene Wisse: true ambiguity

- 5 main types of uses: circumstantial □, deontic □, prayer ♦-like use, “open possibility” ♦, unclear use under attitudes

- The □ readings are straightforward.

- The non-□ readings are less so.
  Consider prayers such as “May I everywhere follow the teaching of the apostles”. Here, *may* is not a typical ♦ semantically. But at the same time, once *mōten* loses its other ♦ uses completely, it is replaced in prayers with *may*.

- In Alfredian OE, all types of uses could be explained with one meaning. Not anymore in the AB language! □ and non-□ cannot be unified.

⇒ ME *mōten* is a genuinely ambiguous variable-force modal.
Intermediate summary

- **Old English** *motan*: type 1b
  - non-ambiguous “collapse” variable force, little flavor flexibility

- **Middle English** *moten*: type 2a
  - truly ambiguous between different □ and ♦ readings, significant flavor flexibility

**Empirical differences:**

- In type 2, individual examples allow straightforward ♦-□ disambiguation.
- In type 1, pseudo-□ and pseudo-♦ uses appear with the same modal flavors (naturally so, as they are in fact just one use). But in type 2, □ and ♦ do not have to come in pairs.

E.g., one can hardly argue for circumstantial-♦ uses for ME *moten.*
A different kind of unambiguous variable force
St’át’ímcets

St’át’ímcets (Salish family) is the only known language where all modals are variable-force.

We saw deontic *ka* in 1. And here is metaphysical/future *kelh*:

(19) lh-tq-álk’-em-an ka-gúy’t-kan-a kélh tu7
    COMP-touch-string-MID-1SG.CONJ CIRC-sleep-1SG.SUBJ-CIRC FUT then
    ‘If I drive I might (accidentally) fall asleep.’ [Rullmann et al., 2008, (20)]

(20) o, xílh-ts-kan kelh áti7, nilh t’u7 s-lh-nás-acw
    oh do-CAUS-1SG.SUBJ FUT DEIC FOC just NOM-COMP-go-2SG.CONJ
    í7wa7
    accompany
    ‘Oh, I’ll do it, if you come along.’ [Rullmann et al., 2008, (25)]
A different kind of unambiguous variable force

The place of St’át’ímcets in the variable-force typology

- The modal system of St’át’ímcets:

<table>
<thead>
<tr>
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<th>deontic</th>
<th>metaphysical/future</th>
<th>epistemic and evidential</th>
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<tbody>
<tr>
<td>♦-□</td>
<td>ka</td>
<td>kelh</td>
<td>k’a; ku7 (?); -an’ (?)</td>
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</table>

Properties of variable force in St’át’ímcets

- “Possibility” and “necessity” readings with the same flavors, suggesting no true ambiguity
- “Necessity” readings are the default ([Rullmann et al., 2008, Sec.2.4])
- With negation: at least “possibly not”, sometimes also “necessarily not”
- No collapse presupposition! See 19 and 20.

⇒ a different kind of unambiguous variable force than in Old English
## Old English vs. St’át’ímcets

### Alfredian Old English

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<tr>
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<td>□</td>
<td>—</td>
<td>sculan</td>
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| | circ./deontic |
| ♦ | + collapse presup. |
| | motan |

### St’át’ímcets ([Rullmann et al., 2008])

<table>
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<tr>
<th></th>
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<th>various epistemic</th>
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<tr>
<td>♦</td>
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<td>kelh</td>
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<td>□</td>
<td>-an’ (?)</td>
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Consultants select □ paraphrases for variable force modals more often
A usual modal in an unusual system
Nez Perce

- Nez Perce (Sahaptian): a circumstantial/deontic variable-force *o’qa*.

- [Deal, 2011]’s analysis for *o’qa*
  - Observation 1: in downward-entailing contexts, *o’qa* behaves as a ♦
  - Observation 2: no would-be □ dual for *o’qa*
  - Claim: *o’qa* is a regular ♦

- Deriving variable force: without a dual, no scalar implicature ¬□
  - Speaker says *o’qa*(p). That simply means that there’s an accessible world where *p* is true.
  - Suppose that *p* is true in all accessible worlds. In English, you can assert *must*(p) in this case. So when you say instead *may*(p), it’s implicated that there are accessible ¬*p* worlds.
  - But in Nez Perce, there is no way to say *must*(p). Even if all worlds are *p*-worlds, the only expression you have is *o’qa*. 
The place of Nez Perce in the variable-force typology

- **Nez Perce vs. St’át’ímcets:**
  - In Nez Perce, *o’qa* with negation only means “necessary not”
  - \( \Rightarrow \) not as St’át’ímcets variable-force modals do

- **Nez Perce vs. Old English:**
  - Interaction with negation is similar
  - Nez Perce has no collapse presupposition
  - Moreover, Old English *motan* has a would-be dual: *sculan*

- **Nez Perce vs. Middle English:**
  - Interaction with negation is different: in Middle English, both scopes are attested
  - Modal flavors for \( \square \) and non-\( \square \) readings of ME *moten* do not have the same range of modal flavors, unlike \( \Diamond \) and \( \Box \) uses of *o’qa*
Diagnostics for type 3 variable force

- St’át’imcets: type 1a
  Old English *motan: type 1b

- Middle English *moten: type 2a

- Nez Perce o’qa: type 3, usual ◊, but without a dual

Empirical differences:
- In DE contexts, a type-3 ◊ shows it is really not a □ (unlike with type 1a; but the collapse type-1 meaning also results in ¬◊ inferences).
- Type 3 ◊ and □ readings appear with the same modal flavors (like type 1, but unlike type 2).
- If a variable-force modal has a would-be dual, it cannot be type 3 (so Old English *motan cannot be type 3, but Nez Perce o’qa can).
“Triangular” ambiguous variable force
Ukrainian: a HAVE-based variable-force modal

- Proto-Slavic имьти > Old Ukrainian имати > Mod. Ukrainian мати

- In Old Ukrainian (14-16 centuries):
  - necessity (at least deontic)
  - futurate
  - possibility (at least deontic)

- In Pre-Modern Ukrainian (late 19-early 20 centuries):
  - deontic and epistemic necessity
  - futurate
  - possibility

- My sources: The book of Lutsjk castle, 1560-1; Documents from Volynj, 16th century; the letters of Lesya Ukrajinka, late 19th cent.; the parallel Ukrainian-Russian corpus at the Russian National Corpus www.ruscorpora.ru.
maty and its cousins

- Proto-Slavic имъти ‘have’ ⇒ future and/or obligation in many Slavic
  - Old Bulgarian (a.k.a. Old Church Slavonic) имъти (10-11th centuries):
    - futurate
    - very few non-futurate meanings
  - Middle Russian имъти (14-17th centuries):
    - futurate (sometimes with modal overtones)
    - however, virtually no clear modal meanings
    - lost by the 17th-18th century
  - Old Czech jmieti (13-15 centuries):
    - obligation
    - futurate
  - Old Polish miec (14-15 centuries):
    - obligation
    - futurate
    - possibility — but not clear if it’s the same as in Old Ukrainian
‘Regarding my novel, I truly don’t know what will happen with it, as I don’t understand what I have to think about how “Zorya” [a literary journal] views me.’

NB: a possibility translation would also make some sense here (what I may think), but hardly a future one.
(22) Січова кна-кна зайнята страшенно зборами радикалів, що мають бути близько априля, через те кна-кна в ажитації, немов мату быть close.to April because.of that кна-кна in excitement as.if перед виборами.
before elections

‘The Sich kna-kna (family term for Ukrayinka’s brothers — IY) is greatly interested by the gathering of radicals which will take place some time around April, and because of that the kna-kna is excited as if before the elections.’

- Not pure future, but rather planned future and predicted future.

NB: a necessity translation would also make some sense here (the elections must occur around April), but not a possibility one.
Pre-Modern Ukrainian: possibility *maty*

(23)  Ну, та *es ist eine alte Geschichte*, і, певне, вона Вам так вже сприкрилась досі, але мене жаль бере, що у нас на Україні не скінчаться одвічні сії спори, та й як мати скінчитись, коли сперечники одно одного не розуміють.

‘Well, *es ist eine alte Geschichte*, and surely by now you’ve had enough of it already, but still it pities me that for us in the Ukraine, those eternal quarrels never end, and indeed how could they end if the quarreleres don’t understand each other.’

NB: a future translation possible (*how they would end*), but not a necessity one.

- No reading “it’s abstractly possible” for such examples
- Instead: “There are enough resources for the possibility to be realizable”
The loss of possibility *maty*

- Present-Day Ukrainian speakers often do not give possibility paraphrases for what I call possibility *maty*. It seems to have disappeared (from Standard Modern Ukrainian), except perhaps in the fixed construction “What I *maty* to do?” (=‘What can I do?’).

- I used a parallel Ukrainian-Russian corpus to find out when that happened. The loss occurred around the mid-20th century.

(24) (1905) Так це тога одна річ, що має бути для всіх вас добра?
    Then this that one thing which *maty* be.inf for all you good
    ⇒ (1951) Значит, це і є та єдинственная вещь, которая может всем принести пользу?
    ‘Then this is that single thing which *can* be of use for everyone?’

- In the Russian translation, *moč* is used to render *maty*, which is an unambiguous modal.
Obligation *maty*(p): in all worlds where the current world’s obligations are met, *p* takes place.

Future *maty*(p): in all worlds that develop according to the current plans or predictions, *p* takes place

Possibility *maty*(p): the preconditions are met for bringing *p* about in every accessible world (where one would try doing so)

There are discussions in the literature as to whether ability modals are pure ♠s, and the conclusion is that they are in fact more complex. See [Portner, 2009, pp. 201-3] and references therein.
Variable force *maty* in Old Ukrainian

- Two examples from a short gift deed for a property, by Mikhailo Svinuskiy to his servant Pavlo Chernevskiy (year 1569):

(25) *Necessity*: After (save God) my mortal hour, then he himself with that said property Voinin *maty*.pres.3sg serve my wife Fedora Fedorovna until her death.

(26) *Possibility*: That servant of mine Pavlo Chernevskiy himself, (his) wife, children and descendants of his, *maty*.pres.3sg keep and use that property forever ⟨...⟩ and he himself, (his) wife, children and descendants are free to give away, sell, write off, and deal with that property in their best interest.

- Futurate uses are not hard to find either.

(They are easy to identify in conditionals: “If it *maty*.cf.impers to ever happen that \( p \), then...” ≈ ‘If it would ever happen that \( p \), then ...’)

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*Igor Yanovich  (Universität Tübingen)   The typology of variable-force modality  54 / 61*
Different kinds of ambiguous (=type 2) variable force

- For ME *moten, no clear futurate uses.
- In Slavic in general, futurate uses are common for maty, incl. Ukrainian.
- When ME loses ♦ uses, all that remains is pure □.
- When Ukrainian loses ♦, we retain stable obligation-futurate ambiguity.
- In Germanic, *motan developed along roughly the same lines.
- In Slavic, the Ukrainian case is definitely not universal, and possibly unique.

⇒ We need more research to figure out what parameters of variation exist between type-2 variable force systems. But we can already say that they differ empirically.
The landscape of variable force

- Three major types:
  - Type 1: unambiguous variable force (or variable force proper)
  - Type 2: genuine ♦-□ ambiguity
  - Type 3: familiar ♦ or □ modality in a system unusually shaped

- Types 1 and 2 clearly have subtypes with different semantics:
  - Type 1: St’át’imcets vs. Old English
  - Type 2: Middle English vs. Pre-Modern Ukrainian
Variable force and diachrony

- English: type 1 → type 2 → regular □
- Other Germanic seem similar

- Ukrainian: ‘have’ → type 2 with futurate → □ with futurate
- Other Slavic for the most part didn’t develop the variable-force stage

- Variable-force of different kinds may be diachronically related to regular modality.
- Some variable-force modals seem to have predetermined trajectories (Germanic); others allow for many possibilities (Slavic).
More variable force modals

- Danish *måtte* ([Brandt, 1999, pp. 51-54]): apparently a variable-force modal developed from the cognate of *may* and *mögen*

- ‘GET’-based modals in the languages along the Baltic-Sea coast (Swedish, Norwegian, Finnish, Estonian, smaller Finnic, Latvian): in some languages, both ♦ and □ uses occur.


- ‘GET’-based modals in South-East-Asian languages seem to also feature such ambiguity: [Vittrant, 2004, p.313] for Burmese *ya’,* [van der Auwera et al., 2009] for a brief general discussion

- Washo copula -e?- [Bochnak, 2014a], [Bochnak, 2014b]: when it appears with the same agreement as in individual-level characterizing sentences (“I am a doctor”), -e?- may be translated with ♦ and □ for a wide range of modal flavors.
Conclusion and future directions

The current outlook on variable force (repeated)

- Variable force is not uniform semantically ($\geq 3$ major types)
- Variable force is not geographically restricted
- Variable force appears in modal systems of different shapes
- Variable force may diachronically precede or follow “usual” modality
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Corpora used:

- York-Toronto-Helsinki Parsed Corpus of Old English prose (YCOE)
- Penn Parsed Corpus of Early Middle English (PPCEME)
- Parsed Corpus of Early English Correspondence (PCEEC)
- Russian National Corpus (www.ruscorpora.ru)

The extensive commentary to *Boethius* in [Godden and Irvine, 2009] was of great help in identifying the correspondences between the Latin original and the OE translation.
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