ENGLISH MODAL *HAVE**

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1.   Introduction

We begin with the observation that in a variety of languages, modal necessity can be expressed with the same morphosyntax used to express predicative possession. This is true not only for *have*-possession languages like English, Spanish, and German, as in (1), but also apparently for *be*-possession languages like Hindi and Bengali, as in (2).

(1)   a.   The children have to do their homework now.   [English]

        b.   Juan tiene que comer esta   manzana.
                Juan has   that eat-inf this-f apple
                'Juan has to eat this apple.'   [Spanish]

        c.   Der Hans hat rechtzeitig in Wien   anzukommen
                the Hans has in-time   in Vienna to-arrive
                'Hans has to arrive in Vienna in time.'   [German: Bhatt, 1997, (6)]

(2)   a.   John-ko   seb   khaa-naa hai
                John-DAT apple eat-GER   be.PRES
                'John has to eat the apple.'   [Hindi-Urdu: Bhatt, 1997, (8)]

        b.   Ghor-ʈa-ke   poriʃkar korte   ho-be
                room-DEF-DAT clean   do-INF be-FUT
                'The room has to become clean.'   [Bengali: Neil Banerjee p.c.]

We argue here that the use of possessive morphosyntax to express modal necessity reveals something about the structure of both predicative possession and necessity. Specifically, we argue that a core meaning of possession is a relation of inclusion or containment in which the possessor includes the possessee, most obvious in sentences describing part-whole relations. We then show that the same inclusion relation is involved in modal necessity, but that while possession relates two individuals, modal necessity relates two sets of worlds.

      We thus propose that modal uses of possessive morphosyntax, of the types seen in (1) and (2), result from two things. The first is a broadening of the semantic interpretation of the possessive inclusion feature (INCL), so that it can relate not only individuals but also

arguments of other types, specifically sets of worlds. The second is the option of adding a feature contributing a modal base (ROOT, EPIST, etc.) to the head hosting INCL.

In §2, we discuss the possession relation, arguing that in the default case, it is a relation of inclusion. We then argue, in §3, that modal necessity also involves inclusion. In §4 we bring possession and modal necessity together, showing how the same features account for the semantics of both constructions. Finally, §5 provides an account of the syntax of modal *have*, relating it to the syntax of both possessive *have* and true modals like *must*.

2.   Possession as inclusion

We begin with the idea that inclusion is a basic meaning of predicative possession with *have*, and that this aspect of possessive meaning forms the basis for extension to modal necessity. This proposal is not entirely self-evident; many uses of predicative possession do not seem to involve inclusion or part-whole relations. Following Cowper (1989), we assume that the interpretation of *have* is in part contextually determined by the arguments it links.[1] When the arguments provide no pragmatic information to determine the interpretation, the inclusion / part-whole interpretation appears.

2.1   Interpretations of *have*

When *have* takes a nominal complement, the interpretation is determined largely by the complement itself.[2] When the complement describes an event or a state, the subject may be thematically or pragmatically related to the complement, as in (3) and (4).

(3)   Events:

    a.   Dr. Smith had three operations last week. (agent)
    b.   That patient had two operations last month. (patient)
    c.   Professor Jones has a class this morning. (agent/source)
    d.   All of the students have a class on Thursday afternoon. (patient/goal)
    e.   Mrs. Astor had a party on Saturday. (agent/host)
    f.   The catering company has four parties this evening. (agent/caterer)

(4)   States:

    a.   Sue has a bad headache. (experiencer)
    b.   Davey had the measles last winter. (experiencer)
    c.   Newt has some very odd beliefs. (believer)
    d.   The company has a new position on that issue. (proponent)

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[1]We set aside causative and experiencer uses of *have*, which resemble modal uses in that the complement of *have* is more than a single DP. Bjorkman and Cowper (2013) take a somewhat different approach to these uses of *have*, arguing that causative and experiencer interpretations arise due to the presence of a second "shell" of inflectional structure, in which *have* heads a second $Voice^0$ or $Appl^0$ head.

[2]For a superficially similar phenomenon, see Grimshaw and Mester (1988) on the Japanese light verb *suru*.

Cowper (1989) proposes that the verb *have* assigns two θ-roles, but that these are radically underspecified and thus inherit any content supplied by the event/state nominal. The difference between (3a) and (3b) shows that properties of the subject can also help to determine the content of the underspecified θ-role. In the current context, we say simply that *have* spells out a head (v_{have}) that expresses an underspecified relation between two arguments (rather than that *have* lexically encodes two underspecified θ-roles).

When the complement of *have* denotes an individual, again the range of possible interpretations is very wide, as illustrated in (5).

(5) a. Mr. Romney has several houses and many cars. (ownership)
     b. The university has a farm outside of town. (ownership, abstract part-whole relation)
     c. That house has a beautiful tree in front of it. (proximity)
     d. I couldn't do my homework because I didn't have my notebook (with me). (physical possession)
     e. Freddie has two sisters. (inalienable possession)
     f. The car has a red roof. (part-whole)
     g. That dog has three legs. (part-whole)
     h. Katie has a new favourite song. (affinity)

With individual-denoting complements, the idea that thematic interpretation of the subject is "inherited" from the complement of v_{have} cannot be maintained, since individual-denoting nominals do not assign thematic roles.[3] Here, it seems that a greater semantic role must be attributed to v_{have}, although it still provides extremely minimal content, allowing the object argument to make a pragmatic contribution, as discussed in Cowper (1989).

We take from this earlier work the descriptive insight that v_{have} imposes very little restriction on the interpretation of its arguments. However, there is at least one limit on the possible relations expressed with *have*: the arguments are always asymmetrically related, so that when *have* expresses possession, the possessor is always the external argument, and the possessee the internal argument.[4]

The question, then, is exactly what content *have* contributes, and how that content is to be represented. Consider the sentences in (6), where both arguments are nonce words.

(6) a. That snarf has two blorks.
     b. That fring had a big shrack.

An informal consultation with several native speakers of English revealed that when the nominals themselves made no contribution, the object was interpreted as being in a physical part-whole relation with the subject.

It is not obvious, however, what the terms *inclusion* or *part-whole* ought to mean in the broader context of predicative possession. In some cases, as in (6), the interpretation

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[3]With the exception of inherently relational nouns like *sister* or *friend*.

[4]*Have* contrasts here with equative uses of *be*, where the two arguments are more symmetrically related.

involves a physical part-whole relation, but it is an open question whether more abstract cases like alienable possession and kinship could usefully be seen as involving some kind of inclusion. The idea that such relations should indeed be viewed as a kind of inclusion can be found in work on possession, as in the following lines from Boneh and Sichel (2010):

> "We take Part-Whole to be broader than inalienable possession and to include also social relations and inanimate Part-Whole" (pp. 2-3)

> "[T]he complement of the applicative head [=a subset of possessees] can be understood as **falling within the sphere** of the applied argument." (p. 28, emphasis ours)

The second quote, in particular, suggests a possible connection between possession and control over an entity or event (cf. Stassen, 2009). We set this question aside here, though it suggests an interesting approach to the lexical semantics of possession.

In what follows, we develop the idea that a literal part-whole interpretation for possession can form the basis for its extension to other contexts, in particular to modality. We demonstrate that the view that possession expresses inclusion (at least in part) provides a better explanation for the existence of possessive modal constructions than has otherwise been available.

2.2 Inclusion in syntax

There is a broad consensus in the literature that the syntax of possession involves a functional head relating two arguments, though the head itself has been variously identified. Some authors treat it as prepositional, either locative (Freeze, 1992) or a version of *with* (Levinson, 2011). Kayne (1993) calls it a hybrid D/P head. Others take it to be verbal, a flavour of v^0. Harley (1995) calls it v_{have}, while Ritter and Rosen (1997) call it simply v^0.

For our purposes here, there is no need to decide whether the syntactic head at the core of possession is prepositional or verbal. As we are concerned with clausal possession, which always has some kind of verbal morphology, a prepositional head would have to incorporate into a verbal head. For ease of exposition, we notate the relevant functional head in English as v_{have}, remaining agnostic as to whether it might, at a more abstract syntactic level, be better identified as prepositional.

This yields a structure as in (7) for predicative possession. The possessor and the possessee are arguments of v_{have}, with the possessor in the specifier position, c-commanding the possessee.

(7) **Structure of *have*-possession:**
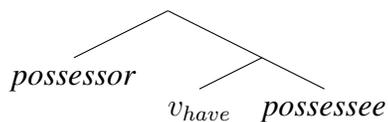
As stated earlier, we claim that alone, v_{have} expresses a very general relation of inclusion or containment. The external argument—the possessor—is the inclusive member of the relation, and the internal argument—the possessee—is the included member. The structure in (7) reflects the common view that *have* spells out a basic transitive head; see e.g. Hoekstra (1984); Cowper (1989); Harley (1995); Ritter and Rosen (1997).

We represent the semantic content of the possessive head—inclusion or containment—with the interpretable feature INCL. In predicative possession, this feature relates two individual-type arguments as shown in (8).

(8)

$$
\begin{array}{ccc}
possessor & & \\
<e> & v_{have} & possessee \\
& \text{INCL} & <e>
\end{array}
$$
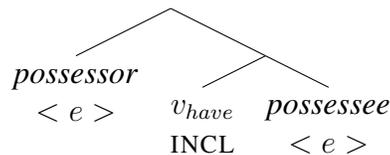
It is INCL that distinguishes v_{have} from other flavours of v. Assuming a realizational view of morphology (Halle and Marantz, 1993, 1994, et seq.), a head bearing this feature is spelled out postsyntactically as *have*.

3. Necessity as inclusion

We now ask whether modal necessity, like possession, might reasonably be treated as deriving from a basic relation of inclusion; in other words, whether both constructions have at their core the same basic semantic element, the interpretable feature INCL.

Modal necessity, and modal possibility, have long been understood in terms of quantification over sets of possible worlds (Kripke, 1963; Lewis, 1973; Stalnaker, 1975). With modal possibility ($\Diamond$), the proposition is true in some possible worlds, while with modal necessity ($\Box$), the proposition is true in all possible worlds. This raises the question of which worlds the modal quantifies over: what determines the relevant set of possible worlds?

A now-standard view (Kratzer, 1981, 1991, et seq.) is that modals are generalized quantifiers built from three elements: a proposition P, a modal base $B(w)$, and an ordering source $O(w)(B(w))$. The proposition denotes the set of worlds in which it is true. The modal base is the set of worlds accessible (epistemically, deontically, dynamically, etc.) from the actual world w. Finally, the ordering source is a function that ranks the accessible worlds in the modal base according to some set of criteria (the law, the speaker's preferences, probability, etc.), returning the set of 'best' worlds. For simplicity, we refer to this set as $BB(w)$—mnemonically, the "best base worlds accessible from w".

Modals are thus functions that take one set of worlds, $BB(w)$, and then another set of worlds (the proposition) and yield a truth value. This makes it possible to restate necessity and possibility as universal / existential quantification, as Kratzer does.

(9)   a.   Possibility: **Some** of the worlds in $BB(w)$ are also in P. $\rightarrow$
          The set of 'best' worlds in the modal base overlaps with the proposition worlds.

     b.   Necessity: **All** of the worlds in $BB(w)$ are also in P. $\rightarrow$
            The set of 'best' worlds in the modal base is a **subset** of the proposition worlds.

Though for Kratzer the modal base is supplied contextually as part of a conversational background, the fact that its composition can involve overt syntactic elements (as in the case of *if*-clauses, modelled as directly restricting the modal base) has led others to represent it as a silent pronominal in the syntax, as for example in von Fintel and Heim (2011).

    Assuming that the modal base is indeed represented in the syntax, the modal operator (e.g. Op_{nec}) combines first with $BB(w)$, then with a proposition, as in (10).

(10)

$$
\begin{array}{ccc}
 & & P \\
Op_{nec} & BB(w) & <s,t> \\
 & <s,t> &
\end{array}
$$
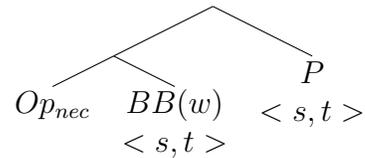
Both the modal operator and the modal base are spelled out by the lexical modal in English, which, from a syntactic perspective, makes $BB(w)$ a head modifier, while the proposition P is the syntactic complement of the modal.

    Essentially, then, modal operators express a relation between two sets of worlds. They combine first with $BB(w)$, and then with a proposition. With modal necessity, $BB(w)$ is a *subset* of the proposition worlds. In terms of semantic composition, this is precisely the relation of inclusion discussed above for predicative possession.

4.   Connecting possession to necessity

Comparing the syntax of predicative possession and the semantics of modal necessity, it is clear that the two structures are compositionally similar. We saw in §2 that with the default meaning of possessive v_{have}, the first, or internal argument (possessee) is **included** in the second, or external argument (possessor). In §3, we showed that with modal necessity, the first semantic argument of the modal operator, $BB(w)$, is included in (i.e. a subset of) the second argument (the proposition).

    However, the two constructions are syntactically quite distinct. A modal like *must* is syntactically intransitive: the first semantic composition is head-internal, as in (11a). In contrast, possessive *have* is syntactically transitive: the first semantic composition is between the head and the syntactic complement, as in (11b), repeated from (8).

(11)   a.

$$
\begin{array}{cc}
\text{"must"} & proposition \\
 & <s,t> \\
BB(w) \quad \text{NECESSITY} & \\
<s,t> &
\end{array}
$$

b.

$$
\begin{array}{cc}
possessor & \\
<e> \quad v_{have} & possessee \\
\text{INCL} & <e>
\end{array}
$$
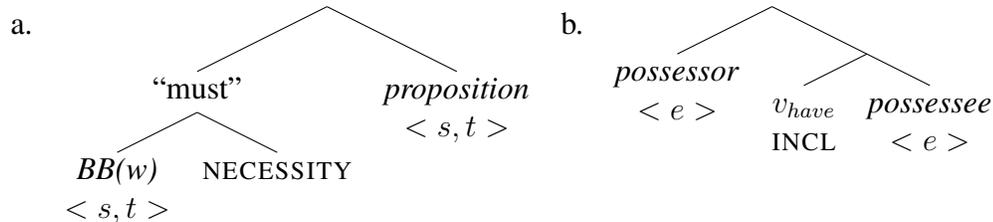
There is also a semantic difference between the two constructions: the two heads take ar-

guments of different syntactic types—sets of worlds in (11a), and individuals in (11b). We claim that these two differences explain why not all languages use possessive morphosyntax to express modal necessity. The similarities explain why extension is possible, but since the structures are not identical, predicative possession cannot automatically be used to express necessity; some extension of the possessive head is required. In §5 we explore the nature of that extension.

5.   The syntax of modal *have*

So far, we have argued that there are similarities between the compositional semantics of possession and that of modal necessity, and that these similarities form the basis of extension from possession to necessity. What remains is to account for the syntax of *have-to* sentences, deriving it from the same structure as their semantics.

5.1   From the syntax of *have* to the semantics of *must*

We begin with the syntax of possessive *have*, assuming that it spells out the possessive light verb v_{have}. A sentence like (12a) has the syntactic structure shown in (12b).

(12)   a.   The cat has green eyes.
         b.
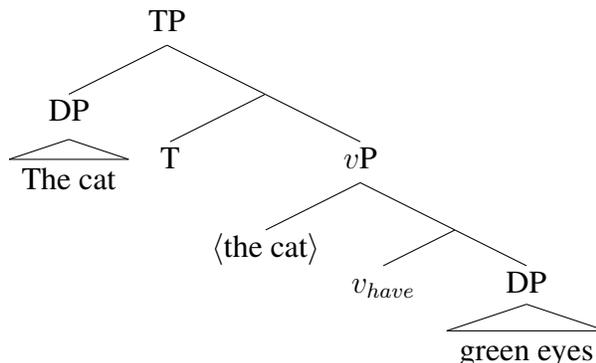
A sentence with a true modal, by contrast, has a structure like that in (13b).[5]

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[5]We assume raising for both epistemic and deontic modals. Though it is sometimes claimed that deontic/root modals involve control, consider the following types of examples:

(i)   There must be an answer by 5 p.m.

(ii)   Dinner must be ready when we return. (instructions to a cook)

The availability of expletive subjects of deontic modals, and of a surface subject distinct from the holder of an obligation, show that the subject of a deontic modal is not the thematic holder of the obligation, arguing in favour of a universal raising analysis of modal subjects. See also discussion by Wurmbrand (2003) and Hall (2002) for further discussion of the raising analysis of modals like *must*.
This reasoning applies to modal *have* as well as to *must*, as observed by Bhatt (1997), further undermining the idea that modal *have* continues to express possession, but possession of an obligation rather than an object.

(13) a. The sky must be blue.
      b.

```
                              TP
                    ╱                  ╲
              The sky
                            ╱              ╲
                          T                  vP
                        "must"          ╱          ╲
                      ╱      ╲      ⟨the sky⟩ BE blue
                  $Op_{nec}$  $BB(w)$
```
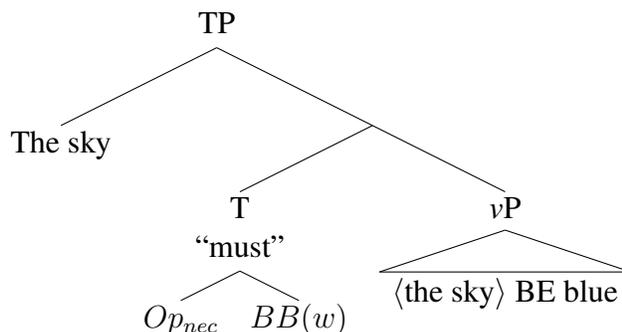
These structures illustrate the syntactic difference described in §4: the first argument of possessive *have* is a syntactic complement, while the first (semantic) argument of a true modal composes head-internally. Let us now consider the syntactic structure of (14).

(14) The sky has to be blue (when we film this scene).

Simply mapping the arguments of *must* from (13b) onto the syntax of v_{have} gives (15a). The two most plausible PF outputs of such a structure are (15b) and (15c); both are ungrammatical.

(15) a.

```
                                    vP
                         ╱                    ╲
                 TP = PROPOSITION
                    ╱            ╲      $v_{have}$    $BB(w)$
               The sky BE blue
```
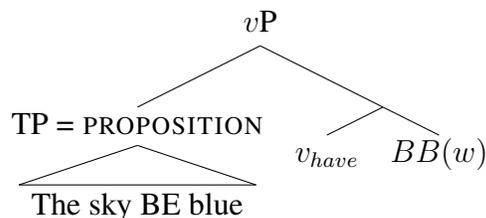
      b. *The sky (to) be blue has.
      c. *For the sky to be blue has.

The brute-force approach, combining the syntax of possession with the arguments involved in modality, clearly does not work. We therefore take a different tack, modelling the syntax of modal *have* on the syntax of *must*. Suppose that as with *must*, the first argument of modal *have* combines head-internally, leaving the syntactic complement position available to be filled by the second argument, the proposition.

Making this move requires some discussion of how, from a syntactic perspective, the first argument of a modal operator—$BB(w)$—enters into construction with the operator, assuming the compositional semantic structure in (16).

(16) **The compositional semantic structure of modals:**

$$
\begin{array}{c}
\text{"must"} \qquad\qquad \textit{proposition} \\
\qquad\qquad\qquad\qquad\qquad < s, t > \\
Op_{nec} \quad BB(w) \\
\qquad\quad < s, t >
\end{array}
$$
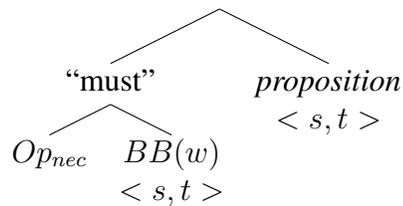
The syntactic composition of Op_{nec} with $BB(w)$ cannot be accomplished by Merge. By definition, the first element that undergoes Merge with a head is the syntactic complement of that head. If we assume that all semantic composition depends on syntactic structure, and that complex syntactic structure is created only by Merge, we are led inexorably to the conclusion that syntactic heads can never have internal semantic complexity.[6]

Maintaining the view that (external) Merge cannot create complex head-internal structure, there are two ways a semantically complex head could be created. First, such a head could be the result of head movement, combining what entered the syntax as two distinct, semantically atomic, heads. Second, semantic complexity within a head could result from the presence of more than one interpretable feature on that head.

Under the first approach, $BB(w)$ would merge as the head of a lower projection, and undergo head movement to adjoin to the modal operator.[7] The serious problem with such an account, however, is that there is no evidence whatsoever for such a lower projection. The modal base in English is phonologically null, and its only semantic import is the set of worlds denoted by the head, $BB(w)$. Crosslinguistically, we have found no evidence for two separate syntactic heads in modal constructions in a single language, one corresponding to the modal base and the other to modal force. Such evidence might come in the form of a language in which modals consisted of two morphemes, or indeed two words, one spelling out the modal base, and the other spelling out the modal force. If modal constructions do involve two syntactic projections, it is somewhat surprising that only one is ever spelled out.

In the absence of such evidence, we prefer a simpler structure with a single syntactic head, and thus pursue the second approach, in which a single syntactic head carries more than one interpretable feature. Once we assume that multiple interpretable—and thus interpreted—features occur on a single head, it is necessary to account for how those features are semantically composed. Two "bottom-up" modes of composition suggest themselves. Under the first, multiple features on a head compose in turn with the head's complement. We adopt the second view—at least for the case of modal features—under which the features corresponding to $BB(w)$ and Op_{nec} compose with each other before composing

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[6]Pursuing this line of thinking would lead to an extreme version of the cartographic hypothesis (cf. Cinque and Rizzi, 2008).

[7]This assumes that head movement can have semantic consequences, contra Chomsky (2001) but following much subsequent work, including Lechner (2006, 2007), Hartman (2010), and Iatridou and Zeijlstra (2010), among others.

with the complement of the modal head.

This general approach to the composition of features within heads is in line with much recent work in which interpretable features define systematic contrasts within a particular category (Harley and Ritter, 2002; Béjar, 2003; Harbour, 2007; Cowper, 2005, 2011, among others). The components of modal meanings, like the feature systems characterizing domains like tense, person, number, and definiteness, can be fruitfully decomposed in this way. Crosslinguistically, modal systems track at least two dimensions of meaning: modal force (possibility and necessity), and modal flavour (epistemic, deontic, circumstantial, etc.). The morphological expression of modality can be sensitive to either of these dimensions: Matthewson et al. (2005) demonstrate that while modals in languages like English are distinguished by modal force (i.e. *must* uniformly expresses necessity, while *may* uniformly expresses possibility), modals in St'át'imcets are instead distinguished by modal type, as illustrated in (17) and (18), with specific modal particles being compatible with both necessity and possibility readings.

(17)   Epistemic[8] modality, either necessity or possibility: [Matthewson et al. 2005:3]

    a.   t'ak   **k'a** tu7 kents7á ku míxalh
        go.along **EVID** then DEICTIC DET bear
        'A bear must have gone by around here.'

    b.   wa7 **k'a** séna7 qwenúxw
        IMPF **EVID** CF   sick
        'He may be sick.' (Context: Maybe that's why he's not here.)

(18)   Deontic modal, either necessity or possibility: [Matthewson et al. 2005:3]

    a.   wa7 **ka**   s-lep'   i   k'ún7-a   ku pála7 máqa7
        IMPF **DEON** STV-bury DET.PL fish.egg-DET DET one   snow
        'The eggs have to stay in the ground for a year.'

    b.   lán-lhkacw   **ka**   áts's-en ti   kwtámts-sw-a
        already-2SG.SUBJ **DEON** see-TR DET husband-2SG.POSS-DET
        'You must/can/may see your husband now.'

The different alignments of English and St'át'imcets are illustrated in (19), from Matthewson et al. (2005, 12).

(19)   a.   English:

	epistemic	deontic	circumstantial	future
strong	*must*			*will*
weak	*can*			*might*

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[8]The relevant morphemes are glossed as "evidentials", but Matthewson et al. (2005) argue that many evidential systems should be understood in terms of epistemic modality.

b. St'át'imcets:

	epistemic	deontic/irrealis	circumstantial	future
strong	*k'a*	*ka*	−	*kelh*
weak			*ka-a*	

This morphosyntactic variation, which has been further developed in much subsequent work, is consistent with the view that modal heads bear two cross-classifying formal features, one corresponding to the (ordered) modal base and the other to the modal force:[9]

(20) a. T
         NEC   EPIST
      b. T
         NEC   ROOT
      c. T
         POSS   EPIST
      d. T
         POSS   ROOT
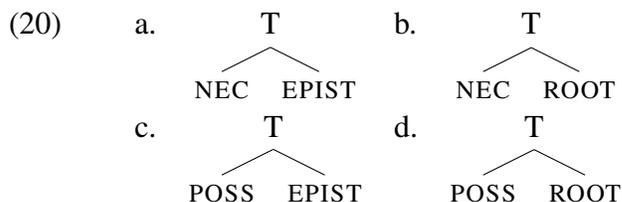
Here, we use the familiar terms NECESSITY and POSSIBILITY as the values for a modal force feature. On a Kratzerian approach, NECESSITY would be interpreted as *x includes y*, where x is the set of P-worlds, and y is $BB(w)$. POSSIBILITY, not discussed further here, would be interpreted as *x overlaps with y*.

This featural account permits a straightforward account of the syntax of modal *have*. Compare the structures in (21) and (22).

(21) Possessive *have*:

vP
  DP
    The house
  v^0
    [INCL]
  DP
    a red roof

(22) Modal *have*:
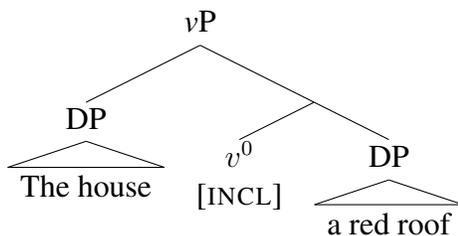
vP
  v^0
    [INCL]
    [EPIST]
  proposition
    the sky BE blue

---
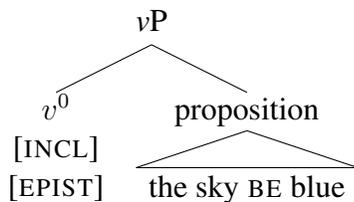
[9]The features shown here are placeholders. It remains to be shown, for example, whether the distinction between necessity and possibility is best represented by the presence or absence of a single privative feature, two values of a binary feature, or two equipollent monovalent features (Cowper and Hall, to appear). It is also not clear exactly how many features are required to represent the various modal types, or indeed how many modal types are required.

In (21), v^0 carries the feature INCL and takes two syntactic arguments denoting individuals. The external argument (*the house*) includes the internal argument as a subpart (*a red roof*). In contrast, in (22), v^0 has no syntactic external argument, and its syntactic complement is a non-finite clause rather than a DP. Both of these differences are accounted for by the presence of the modal type feature, in this case [EPIST] on v^0. This feature provides $BB(w)$, the set of best epistemically accessible worlds in the modal base. Since interpretable features on a single head compose with each other before the result composes with the syntactic complement, the composition of [EPIST] and [INCL] happens first. This saturates the internal argument position of INCL, giving a monadic predicate requiring a second argument denoting a set of worlds. The clausal complement to v^0 supplies this argument, saturating the argument structure of v^0 and precluding the possibility of a syntactic external argument.[10]

5.2   Interim summary

We have shown that extending predicative possession to modality involves both syntactic and semantic changes to the head carrying the feature INCL. Initially, INCL occurs independently on v^0, and takes two arguments of type e; i.e., individuals. Once extended to necessity, INCL still occurs on v^0 but now co-occurs with a second feature that provides $BB(w)$.[11] When both features are present, INCL takes two arguments of type $< s, t >$; i.e., sets of worlds. The first argument, $BB(w)$, is provided by the new feature on v^0_{have}, and the syntactic complement provides the second argument.

The modal meaning of the construction thus arises directly from the extended semantic content of the v^0 spelled out by *have*. This proposal contrasts with those of Bhatt (1997) and Cattaneo (2009), in which modal *have* expresses the possession or existence of an obligation, but the actual semantics of obligation arise from the presence of a covert modal operator.

5.3   Against Possession of Obligation

Previous work on possessive modality constructions, especially Bhatt (1997) and Cattaneo (2009), treat sentences like (23a) along the lines of either (23b) or (23c). Setting aside some technical details, *have* expresses only the possession or existence of the obligation; semantic modality comes from a covert necessity operator in the complement of *have*.

(23)   a.   John has [to eat an apple.]
       b.   John has an obligation [to eat an apple.]
       c.   There is an obligation [for John to eat an apple.]

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[10]We assume that the propositional argument is nonfinite for whatever reason the complements of other modals in English are non-finite. This may be linked to the relation between modality and clausal deixis, as in the feature system of Cowper (2005).

[11]Since v^0_{have} is still used in ordinary predicative possession, we assume that this modal force feature is optional.

Bhatt (1997) projects this covert operator in a structure adapted from Kayne (1993), wherein a copular element takes a possessive DP complement headed by a nominal/prepositional element, with the "possessum" (structurally the complement of the nominal/prepositional head), being a nonfinite clause. The subject of that clause raises through Spec-DP—the "possessor" position—to Spec-BeP in order to be Case-licensed. The second step of that movement, from from Spec-DP (an A'-position) to Spec-BeP (an A-position) is normally illicit, but is repaired in this construction by the incorporation of D/P to Be^0.

We do not adopt Kayne's structure for possession here. Setting aside questions about the syntax of possession, however, Bhatt's account still leaves at least two questions open. First, if the modal interpretations of *have* arise from a covert modal, why is this always a *necessity* modal? Presumably the covert operator could equally easily be a possibility modal or a necessity modal. Second, given the possible universality of covert modal operators, why don't *all* languages have a modal use of their possessive morphosyntax?

Both of these questions are answered under our account by locating the modal meaning of sentences like (23a) in the head spelled out by *have*, i.e. by relating it directly to the interpretation of possession. First, the absence of possibility readings is expected, since necessity is the automatic result of applying the feature INCL to sets of worlds. Second, by recognizing, and representing in the structure, the semantic difference between possessive and modal *have*, we leave room for a role to be played by language change: possession does not automatically extend to necessity, since the extension requires the addition of a modal base feature to the head bearing INCL.

Our account also provides a more elegant unification of possessive modality with the other uses of *have* catalogued in section 2, by probing the interpretive featural content underlying syntactic possession. Although in one sense Bhatt completely unifies possessive modality with possession simpliciter, he does this by reducing modal possession to an abstract case of predicative possession, an approach that in some ways only deepens the mystery surrounding the range of interpretations available to possessive syntax, rather than casting light on its modal uses. Because our account focuses on the relation of inclusion, we are able to use possessive modality as a means to illuminate the meaning of possession itself, a domain of meaning that has remained persistently obscure to semantic analysis in both linguistic and philosophical traditions.

6. Conclusion

We began with the observation that the morphosyntax of possession is often used to express modality. This is particularly interesting to those working on constructions containing *have*, because the modal *have to* construction is often set aside in attempts to unify the constructions in which *have* appears. The core of our proposal is that possessive modality reflects an underlying semantic similarity between possession and necessity: a relation of inclusion between two arguments.

The differences between possession and necessity arise from two things: the semantic type of the arguments, and the syntactic status of the internal argument. Possession

constructions take two arguments of type $< e >$, and the internal argument is the syntactic complement, while necessity modals take two arguments of type $< s, t >$, and the internal argument is saturated within the modal head by a modal base feature.

A central aspect of our account was thus the featural decomposition of modality, building on robust typological work looking at lexical divisions within modal systems (Matthewson et al., 2005, et seq.).

In addition, we have answered two previously mysterious questions. First, we have explained why possessive modality always expresses necessity, rather than possibility. Under our account, when INCL is applied to sets of worlds, the semantics of modal necessity arises automatically. Second, we explain why not all languages have possessive modality constructions, even if they have a robust predicative possession construction. We have shown that there is a semantic difference between possessive and modal light verbs, whether the light verb is realized by a verb like *have* or by an ordinary copula: they take arguments of different semantic types, and arrange those arguments differently in the syntax. Possession therefore does not automatically extend to modality; language change plays a role.

If our account is correct, it suggests a new source of evidence for work on grammatical systems of possession: the ways in which possessive morphosyntax is extended in a given language should help to reveal the formal properties underlying possession in that language. The range of crosslinguistic variation is yet to be fully determined, but we predict that it should be fairly limited.

References

Béjar, Susana. 2003. Phi-syntax: A theory of agreement. Ph.D. Thesis, University of Toronto.

Bhatt, Rajesh. 1997. Obligation and possession. In *Proceedings of the UPenn/MIT workshop on argument structure and aspect*, MIT Working Papers in Linguistics 32.

Bjorkman, Bronwyn and Elizabeth Cowper. 2013. Inflectional shells and the syntax of causative *have*. In *Proceedings of the 2013 CLA*, ed. Shan Luo. Canadian Linguistic Association.

Boneh, Nora and Ivy Sichel. 2010. Deconstructing possession. *Natural Language & Linguistic Theory* 28:1–40.

Cattaneo, Andrea. 2009. It is all about clitics: The case of a Northern Italian Dialect like Bellinzonese. Ph.D. Thesis, New York University.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A Life in Language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Cinque, Guglielmo and Luigi Rizzi. 2008. The cartography of syntactic structures. *Studies in Linguistics* 2:42–58.

Cowper, Elizabeth. 1989. Thematic underspecification: The case of *have*. *Toronto Working Papers in Linguistics* 10:85–94.

Cowper, Elizabeth and Daniel Currie Hall. to appear. Reductiō ad discrīmen: Where features come from. *Nordlyd* 40.

Cowper, Elizabeth A. 2005. The geometry of interpretable features: Infl in English and Spanish. *Language* 81:10–46.

Cowper, Elizabeth A. 2011. Flavours of v_{GO}: Auxiliaries of motion in Brazilian Portuguese. In *Proceedings of ACL/CLA*.

von Fintel, Kai and Irene Heim. 2011. Intensional semantics. Lecture Notes, MIT.

Freeze, Ray. 1992. Existentials and other locatives. *Language* 68:553–595.

Grimshaw, Jane and Armin Mester. 1988. Light verbs and theta-marking. *Linguistic Inquiry* 19:205–232.

Hall, Daniel Currie. 2002. A subject must scope. *Snippets* 6:8–9.

Halle, Morris and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, eds. Ken Hale and Samuel J. Keyser, 111–176. Cambridge, MA: MIT Press.

Halle, Morris and Alec Marantz. 1994. Some key features of Distributed Morphology. *MIT Working Papers in Linguistics* 21:275–288.

Harbour, Daniel. 2007. *Morphosemantic number: From Kiowa noun classes to UG number features*. Dordrecht: Springer.

Harley, Heidi. 1995. Subjects, events and licensing. Ph.D. Thesis, Massachusetts Institute of Technology.

Harley, Heidi and Elizabeth Ritter. 2002. Person and number in pronouns: A feature-geometric analysis. *Language* 78:482–526.

Hartman, Jeremy. 2010. The semantic uniformity of traces. *Linguistic Inquiry* 42:367–388.

Hoekstra, Teun. 1984. *Transitivity: Grammatical relations in Government-Binding theory*. Dordrecht: Foris Publications.

Iatridou, Sabine and Hedde Zeijlstra. 2010. Modals, negation, and polarity. Sinn und Bedeutung 15, Universität des Saarlandes, Saarbrucken, September 9-11.

Kayne, Richard. 1993. Toward a modular theory of auxiliary selection. *Studia Linguistica* 47:3–31.

Kratzer, Angelika. 1981. The notional category of modality. In *Words, worlds and contexts: New approaches in word semantics*, eds. Hans-Jürgen Eikmeyer and Hannes Rieser, 38–74. Berlin/New York: Walter de Gruyter.

Kratzer, Angelika. 1991. Modality. In *Semantics*, eds. Arnim von Stechow and Dieter Wunderlich, 639–650. Berlin/New York: Mouton de Gruyter.

Kratzer, Angelika. 2012. *Modals and conditionals*. Oxford: Oxford University Press.

Kripke, Saul A. 1963. Semantical considerations on modal logic. *Acta Philosophica Fennica* 16:83–94.

Lechner, Winfried. 2006. An interpretive effect of head movement. In *Phases of interpretation*, ed. Mara Frascarelli, 45–71. Berlin/New York: Mouton de Gruyter.

Lechner, Winfried. 2007. Interpretive effects of head movement. LingBuzz/000178.

Levinson, Lisa. 2011. Possessive WITH in Germanic: HAVE and the Role of P. *Syntax* 14:355–393.

Lewis, David. 1973. Counterfactuals and comparative possibility. *Journal of Philosophical Logic* 2:418–446.

Matthewson, Lisa, Hotze Rullmann, and Henry Davis. 2005. Modality in St'át'imcets. In *40th international conference on Salish and neighbouring languages*, 93–112.

Ritter, Elizabeth and Sara T. Rosen. 1997. The function of *have*. *Lingua* 101:295–321.

Stalnaker, Robert. 1975. Indicative conditionals. *Philosophia* 5:269–286.

Stassen, Leon. 2009. *Predicative possession*. Oxford: Oxford University Press.

Wurmbrand, Susi. 2003. *Infinitives: Restructuring and clause structure*. Berlin/New York: Mouton de Gruyter.