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# The Counterfactual Reading of Spanish haber

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## 1 Introduction

The configurational view of modals (Cinque 1999) proposes that epistemic modals join the derivation above the tense and aspectual projections, whereas the so-called *root* modals scope below them. It is by means of this syntactic assumption that the differences in behavior between these two groups are derived (speaker vs. subject orientation, temporal evaluation, etc.). In the light of this division, a sentence like (1) is predicted to only have an epistemic reading, given that what appears to be the Spanish perfect tense marker *haber* ("have") is embedded under the modal. This is contrary to fact, however, since the context provided brings up the ability interpretation[1].

> (1) (<u>Context</u>: María loves modern art. Last week she was in NYC visiting some friends who live in Manhattan. She had a lot of free time, but she felt lazy and she didn't leave her friends' apartment. Now I'm telling my parents about María's trip and I say:)
> *María pudo.*$_{perfective}$ *haber visitado el MoMA* (# *y lo hizo*).
> "María could have visited the MoMA. (# and she did it)."
> (Paraphrase: At some time in the past, María had the opportunity to visit the MoMA, <u>but she did not visit it</u>).

Moreover, this ability reading (explicitly ruled out by Hacquard (2010) for closely related languages like Italian, and apparently also impossible in French or Portuguese) gives rise to the interpretation that the event embedded under the modal did not take place in actuality. This counterfactual inference is interesting for (at least) three reasons: (i) it is non-cancellable and projective, (ii) it occurs in the absence of subjunctive or conditional morphology (the typical markers of counterfactuality in Spanish), and (iii) given the presence of perfective aspect on the modal, it is in stark opposition to the actuality effects presented in Hacquard (2006). For these reasons, I call these constructions non-conditional counterfactuals (NCC).

The data presented so far suggest the existence of two main puzzles in NCC. The first one of them is structural: given that the modal receives a root reading, is *haber* really perfect tense? Or is there a semantics vs. word order mismatch? A quick answer to this based on the proposal to be developed below is that *haber* in these cases actually marks the past tense on the modal. So there is indeed a word-order mismatch. The second puzzle has to do with the counterfactual inference: what brings it up? And what sort of inference is it? At this point, I will not be able to explain the exact mechanism that triggers it, but I will argue that cross-linguistic evidence suggests that *haber* must be involved. As for the nature of the inference, I will propose that it can be classified as Type C in Tonhauser et al.'s (2013) typology of projective content.

In the next section, I present the first (structural) puzzle in more detail and defend that the modal in NCCs does indeed have a root reading. In this paper, I will be focusing on the ability modal, even though these effects can be observed with different modal forces as well as modal bases. Section 3 summarizes the work of Condoravdi (2002), who focuses on a very similar reading in English. However, I will claim that her proposed mechanism to derive counterfactuality cannot be applied to NCCs. Section 4 contains the gist of my analysis: I explain the truth-conditional meaning of NCCS and provide a sample derivation. In section 5, I focus on the properties of the counterfactual inference and present a number of tests that show its conventional and projective nature. The paper finishes in section 6 with the conclusions and directions for further research.

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[1]I use perfective aspect on the modal in all NCCs in this paper, but imperfective aspect triggers the exact same counterfactual inference provided that *haber* is present below the modal.

## 2  A Structural Mismatch

According to the configurational view of modals and the literature on modality that spawned under its umbrella (cf. Hacquard (2006, 2009), and references therein), the difference between epistemic and root modals is one of *height*. This means that their semantic properties are a direct consequence of the syntactic configuration in which they appear. The trees below illustrate this distinction:
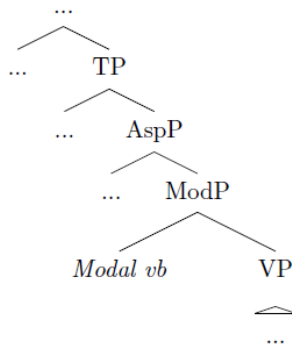
(2) a. <u>Root modals</u>                          b. <u>Epistemic modals</u>
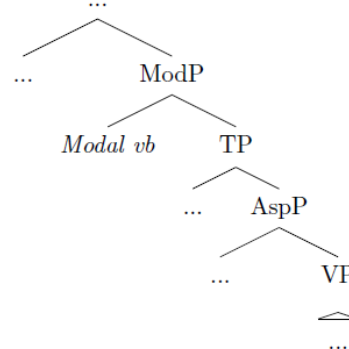
The motivation for this split can be easily seen in the differences between sentences (3) and (4) below. In (3), the modal "could" has an epistemic interpretation: it is evaluated with respect to the utterance time (rather than the morphological past tense that the modal carries), and expresses the judgment of the speaker (rather than that of the subject "John"). Hence, the modal here takes scope over the whole proposition "John be at home" (more syntactically, it takes a TP as its only argument: see (2b) above) and is evaluated with respect to a generic time binder at the top of the structure that corresponds to the utterance time. In (4), on the other hand, the modal has a root (deontic) reading: it is evaluated with respect to the topic time of the sentence (past), and expresses a permission that has "John" as its experiencer. Compositionally, this is captured by the modal taking two arguments: the embedded predicate "watch TV" (a VP, or predicate of events), and the experiencer "John" (see (2a)).

   (3) John could be at home. (But we don't know for sure).      [epistemic]
   (4) John could watch TV every night as a kid. (He was allowed to).     [root, deontic]

   In the light of this division, a sentence like (5) is predicted to have only an epistemic reading, since what looks as the Spanish perfect tense marker *haber* is embedded under the  modal (thus, it seems as though the modal is taking a TP as an argument).  This is contrary to fact, however, given that an ability interpretation[2] is indeed possible (the context of evaluation is intended to make the ability reading more salient):

   (5) (<u>Context</u>: María loves modern art. Last week she was in NYC visiting some friends who live in Manhattan. She had a lot of free time, but she felt lazy and she didn't leave her friends' apartment. Now I'm telling my parents about María's trip and I say:)
      *María pudo.$_{perfective}$ haber visitado el MoMA.*
      "María could have visited the MoMA."

   Evaluated with respect to this context, (5) does not convey the epistemic interpretation where, as far as we know, it is possible that María visited the museum. Rather, what we get is a root read-

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[2]Interestingly, Hacquard (2010) explicitly rules out the availability of such a reading for Italian. My own elicitations from other Romance languages like French and (Brazilian) Portuguese also pattern with Hacquard's claim. In these other languages, if their equivalent version of *haber* is embedded under the possibility modal, the sentence only has an epistemic reading.

ing where she had the opportunity to visit the museum in actuality, yet she did not do it. Again, the alternative continuations in (6) highlight the availability of the two readings:

> (6) a. <u>Epistemic reading:</u>
> *María pudo.$_{perfective}$ haber visitado el MoMA. Nunca lo sabremos. (Es decir,  quizá lo visitó o quizá no).*
> "Mary could have visited the MoMA. We will never know for sure." (i.e., She might/might not have visited it).
> b. <u>Root reading:</u>
> *María pudo.$_{perfective}$ haber visitado el MoMA. Cuando crezca lamentará haberse quedado en casa. (Es decir, no lo visitó).*
> "Mary could have visited the MoMA. When she grows up, she'll regret staying at home." (i.e., She didn't visit it).

I believe that the root reading exemplified in (6b) is actually analogous to the metaphysical one described in Condoravdi (2002), even though the mechanism she proposes to derive the counterfactual inference is not quite directly applicable in this case[3]. In order to see this more clearly, I introduce her framework in the next section.

## 3  Deriving Counterfactuality

Condoravdi (2002) deals with sentences like (7) which, under the relevant (root) reading, convey that the complement of the modal did not take place in the actual world. She refers to these constructions as "backward-then-forward-shifting" (BtF) and defines their at-issue component in terms of (8):

> (7) He might have won the tournament.                                [her example (7b)]
> (= At that point in time he might still have won, but he didn't in the end)
> (8) <u>Backward-then-forward-shifting modals:</u>
> MIGHT-HAVE$_{MB}$ $\phi$ is true at (w,t) iff there exist w', t', t'' such that t'< t, w'∈MB(w,t'), t'<t'' and $\phi$ is true at (w', t'').

(8) says that a sentence of the form "*X might have $\phi$-ed*" is true as long as there is a world *w'* accessible from the actual world in the past, such that $\phi$ is true in *w'* at a time in the future of the past reference point at which the Modal Base (MB) was established. The anchoring of the MB in the past follows from the author's assumption that the perfect "have" takes scope over the modal, thus modifying its evaluation time. Hence, Condoravdi (2002) does believe that BtF constructions exhibit a mismatch between semantics and the surface form.

Nevertheless, there is still nothing in (8) that explains why these sentences give rise to the additional counterfactual meaning, because nothing prevents the accessibility relations of the modal from being reflexive. That is to say, nothing prevents the actual world *w* at *t'* from accessing itself as *w'* at *t''* in (8), which would mean that the event did occur in actuality. In order to explain how counterfactuality arises, Condoravdi (2002) appeals to the branching time model illustrated in (9) and interpreted below:

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[3]Metaphysical (a.k.a. historical) modality refers to those readings where the event quantified over by the modal did not take place in the actual world. Given that this metaphysical flavor may arise not only with dynamic (ability) modal bases, but also deontic or circumstantial ones, I will take it as a cover term for any non-epistemic modal reading that conveys counterfactuality.

(9)
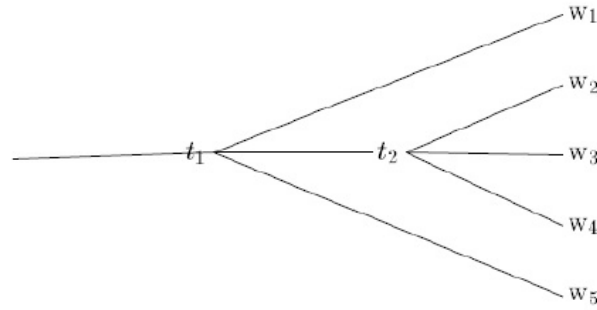


> "All five worlds [in (9)] are historical alternatives of one another through $t_1$. Worlds $w_2$, $w_3$, and $w_4$ are historical alternatives of one another through $t_2$. After $t_1$, $w_1$ and $w_5$ have no historical alternatives other than themselves, that is, after $t_1$ the future is completely deterministic for $w_1$ and $w_5$. The same is true for $w_2$, $w_3$ and $w_4$ after $t_2$." (Condoravdi 2002:81)

Given the temporal representation of the relationships between worlds in (9), it is easy to see that "[f]or any world w in the common ground, and any time $t < t_0$ [where $t_0$ is the utterance time], the set of historical alternatives of $w$ at $t_0$ [...] is a subset of the set of historical alternatives of $w$ at $t$." (Condoravdi 2002:85). This means that there are worlds at $t$ which are not in the common ground at $t_0$. By using a BtS construction like (7), the author argues, we are making the domain of quantification over worlds bigger so that we are also taking into account some worlds which are outside the common ground at utterance time. As Condoravdi (2002:86) points out, the speaker would only do this if he intends to communicate that

> "the relevant state of affairs could not be verified in the common ground. In recovering the speaker's intention, the hearer can reason as follows: why would the speaker use an expression that requires backtracking in order to enlarge the domain of quantification, unless the speaker cannot take it for granted that the relevant state of affairs is verified in a domain that is a subset of the common ground?"

By assuming that the speaker is being co-operative, the hearer thus concludes that the said relevant state of affairs cannot be verified in the common ground. That is to say, that the event embedded under the modal did not take place in actuality. The calculation provided in the quote above certainly suggests that counterfactuality in Condoravdi's model arises as a Quantity-implicature: in backtracking, the speaker widened the common ground, which made it weaker (i.e. more general) than the common ground at utterance time. In effect, this creates a Horn-scale between the two common grounds and the Quantity-reasoning invoked above gives rise to the additional counterfactual meaning[4].

Unfortunately, there are at least two reasons why such a conversational implicature analysis is not translatable to the kind of counterfactuality seen in NCCs. First and foremost, if counterfactuality were indeed a conversational implicature in NCCs, it would be cancellable. But this is quite clearly not the case, as (10) below shows[5]. Given that cancellability is arguably the defining feature of conversational implicatures, the deviance of (10) should be taken as an important sign that the backtracking model cannot be extended to NCCs[6].

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[4]Horn-scales are typically assumed to arise between lexical items, so suggesting that it can also take place between common grounds is rather unusual. A way around this could be to propose that the Horn-scale is actually established between a bare modal and a modal+*have*: <might, might have>.

[5]Note that the suggested continuation *is* grammatical when the modality is epistemic.

[6]Actually, this is a problem even for the constructions that Condoravdi (2002) focuses on, an issue that Portner (2009:226) already called attention to.

(10) *María pudo haber visitado el museo. # De hecho, lo visitó.*
    "María could have visited the museum. # In fact, she did visit it."

Secondly, as mentioned in Portner (2009:226), having the perfect take scope over the necessity modal would make the past form stronger than the present form. So the Quantity-reasoning invoked here would not be triggered. But this is not what is attested given that counterfactuality does not disappear when the modal bears universal force:

(11) *María debió haber visitado el museo* (# *y lo hizo / pero no lo hizo*).
    "María should have visited the museum ( # and she did / but she didn't)."

In the light of this evidence, I conclude that the backtracking mechanism does not accurately predict the properties of the kind of counterfactuality found in NCCs. In the next section, I present evidence that suggests that the scope reversal mechanism is on the right track and that *haber* must be understood as marking past tense on the modal rather than on its complement.

## 4  The Truth-Conditional Meaning of NCCs

The main proposal in this section is the following: *haber* is actually a past tense morpheme that modifies the modal, whose past morphology is nothing but a reflex of sequence of tense[7]. There are two pieces of evidence that suggest that this observation might be on the right track. First, when the modal bears present tense, the only available reading is the epistemic one: the root interpretation is absent. This is predicted under a configurational view of modals like the one assumed here. Epistemic *poder* will not be affected by *haber* because it joins the derivation above the tense projection anyway. On the other hand, root *poder* does occur below tense. Therefore, if the functional head bears a past feature, it should not be possible for the modal to show present tense without creating a mismatch that results in ungrammaticality.

(12) *María puede.$_{present}$ haber visitado el MoMA.*                [only epistemic reading]
    "María might have visited the MoMA."

The second argument in favor of *haber* outscoping the modal is that the embedded event can be temporally modified independently of *poder*. In the absence of any temporal adverbs, the time of evaluation is identical for both modal and embedded event (as in (13)). However, it is also possible to have an adverb like *tomorrow* in the structure, which must unambiguously modify the visiting event in (14) because the modal already bears part tense. Assuming from (12) that *haber* marks past tense, it must be the case that it does not modify *visitar* in (14) or an uninterpretable temporal mismatch would ensue.

(13) *María pudo* [ *haber visitado el MoMA* ].
    "María could have visited the MoMA."

(14) *María pudo* [ *haber visitado el MoMA mañana* ].
    "María could have visited the MoMA tomorrow."

Since, as (14) shows, modals and their complements need not be located in the same temporal region, it seems promising to suggest that modal verbs come with their own event variable. This was indeed proposed by Homer (2011:109), who understands modals as stative predicates whose accessibility relations are relative to an event that expresses "the existence of certain conditions, rules or circumstances" and which apply to an individual in the role of experiencer. I provide my proposed denotation for *poder* below:

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[7]I thank Paul Portner (p.c.) for suggesting this possibility to me.

(15) || poder || = λP. λe. λx. ∃w'∈Acc(e, x) [P(w')]

To complete my semantic machinery, I make two further assumptions that I take to be rather uncontroversial. The first one is a bi-clausal analysis of sentences with root modals analogous to obligatory control constructions. And the second one is the existence of an Existential Closure operation that is a universal part of the semantic component and is generalized across types[8]. Here the objects that will make use of this mechanism are the event and time variables in the embedded clause. With all these ingredients in place, I now propose the syntactic derivation and semantic denotation for (14):

(16) a.
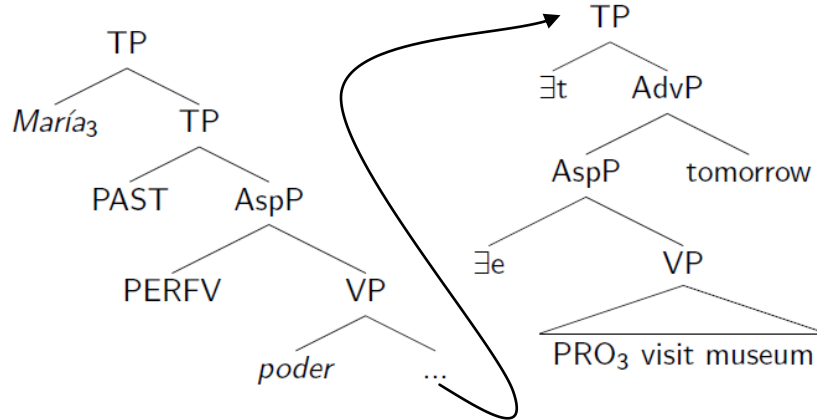


b. || María PAST PERFECTIVE poder ∃t tomorrow ∃e PRO visit MoMA || = 1 iff
   ∃t'' [t'' < t* & ∃e' [τ(e') ⊆ t'' & ∃w'∈Acc(e',María) [∃t' [t'⊆ tomorrow & ∃e [τ(e) ⊆ t' & visit(e, PRO, MoMA) in w' ]]]]]
c. In words: There is an ability/opportunity event in the past whose agent is María and according to which María's visiting the MoMA happens tomorrow in some possible world.

Note that the denotation above does not exclude the possibility for *w'* to be the actual world. That is indeed a good thing, because the counterfactual inference that she did not visit the MoMA can be explicitly stated without causing redundancy, as (17) shows. Hence, it seems clear that this inference is not part of the asserted meaning component (i.e., it is not an entailment).

(17) *María pudo haber visitado el MoMA* (*pero no lo hizo*).
     "María could have visited the MoMA (but she didn't do it)."

Unfortunately, at this point I cannot provide a well motivated answer as to how this counterfactual meaning arises. Still, I would like to point out that other scholars (Komoto 2011) have highlighted the relationship between internal past (i.e., past marking under a modal in the surface) and non-cancellable counterfactuality. Given that this trend finds support cross-linguistically, I believe this line of investigation to be in the right track.

Having dealt with the at-issue meaning of NCCs, I move on to detailing the characteristics of the counterfactual meaning they convey in the next section.

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[8]Note that this has the consequence that a root modal takes a TP as its complement, just like epistemics do and unlike what the standard configurational view proposes. The difference between the two kinds of modals is not obliterated though, for two reasons. First, root modals still take a second argument (the experiencer). And second, root modals still occur below the tense and aspect projections.

## 5  Properties of Counterfactuality in NCCs

At a very coarse-grained level, meanings can be divided into two categories based on whether they contribute to the truth of a sentence or not: at-issue, and non-at-issue. Unfortunately, there isn't much agreement in the literature about what falls under which category:

> "Presupposition and implicature are defined in part by their collective opposition to the regular semantic content. I henceforth refer to this content as at-issue. At-issue content corresponds to what Frege (1892/1980) calls the "sense" and what Grice (1975) calls "what is said". It is often labeled "truth-conditional content", though that is confusing, since presuppositions and implicatures can generally be evaluated for truth and will thus affect the conditions under which a speaker's utterance is judged true." (Potts 2014:2)

As far as counterfactuality is concerned, there seems to be a general tacit agreement that it must be part of the non-at-issue, conversational component (cf. Condoravdi (2002), Iatridou (2000)[9], a.o.). But there is of course variation and other authors (cf. vonFintel (1998) and references therein) have argued in favor of a presuppositional view of counterfactuality. And yet there is a third group that has attempted a middle way that combines insights from the two previous groups (cf. Ippolito (2013)).

What seems clear is that neither of these approaches is able to capture the properties of the counterfactuality present in NCCs. It was already argued in section 3 and shown in (10), repeated below for clarity, that this inference is not cancellable. Thus, it certainly cannot be a conversational implicature, but something more conventional in nature:

(10) *María pudo haber visitado el museo. # De hecho, lo visitó.*
    "María could have visited the museum. # In fact, she did visit it."

However, while conventionalized, the possibility to reinforce the counterfactual meaning without leading to redundancy suggests that it is not an entailment or a presupposition either. If it were, (18) would sound just as deviant as (19), where the first conjunct already presupposes what is made explicit in the second conjunct, or (20), where the first conjunct entails the second one:

(18) *María pudo haber visitado el museo y no lo hizo.*
    "María could have visited the museum and she didn't do it."
(19) # The king of France is bald, and there is a king of France.
(20) # Fido is a dog and an animal.

Another characteristic of this kind of counterfactuality is that it is projective. That is to say, even when it is embedded, it survives to become an inference associated with the whole construction. The standard test to show this is the so-called "family of sentences" diagnostic from Chierchia and McConnell-Ginet (1990) and exemplified below[10]. When the modal is interpreted as root, all these sentences convey that the visiting event did not take place in actuality:

(21) a. *Es María quien pudo haber visitado el museo.*
      "It's María who could have visited the museum."
   b. *¿Es María que pudo haber visitado el museo?*
      "Is it María who could have visited the museum?"
   c. *No es María quien pudo haber visitado el museo.*
      "It's not María who could have visited the museum."

At this point we are left somewhat at a loss, because the properties of this inference do not seem to fit any of the most well-know meaning categories. However, because conventionality and

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[9]But see Iatridou (2000:fn.2).

[10]I purposely focused the subject (*María*) because otherwise the epistemic interpretation becomes much more salient in (21b-c). I don't have an explanation for why this is the case.

projection are properties that counterfactuality in NCCs displays, it fulfills the pre-requisites to be classified along the taxonomy of projective content that Tonhauser et al. (2013) proposed. In their study, they considered two dimensions along which projective content may vary: obligatory local effects, and strong contextual felicity. The former diagnostic checks whether the projective content contributes its meaning "to the local context of interpretation" (Tonhauser et al. 2013:94). In order to understand this better, let's have a look at an example:

(22) Jane believes that Bill has **stopped smoking**.                    [adapted from their (38a)]

In (22), the presuppositional trigger "stop" is embedded under the propositional attitude verb "believe". To say that the presupposition that "stop" triggers is *obligatorily local* means that this presupposition is attributed to the belief holder (and not to the speaker, for example). Hence, if Jane believes that Bill has stopped smoking, it is Jane who believes that Bill smoked at some point in the past. The unacceptability of (23) demonstrates that this is the case, because it leads to a presupposition failure:

(23) # Jane believes that Bill has stopped smoking and that he never smoked.

Just like presupposition triggered by "stop", counterfactuality in NCCs also has an obligatory local effect. (24) is deviant because the belief holder *María* is attributed two contradictory thoughts: that Jon did not win the race, and that he was given a medal for arriving first.

(24) # *María cree que Jon pudo haber ganado la carrera y que le dieron una medalla por llegar el primero.*
       # "María thinks that Jon could have won the race and the he was given a medal for arriving first."

The second diagnostic, strong contextual felicity, refers to the information that is already stored in the common ground. A given projective content requires strong contextual felicity, if the context of utterance must entail said projective content for the utterance to be felicitous. That NCCs do not require such an informative context is shown in (25), where the body of knowledge accessible to my friend is agnostic with regards to whether the athlete won a medal or not:

(25) (<u>Context:</u> A friend and I are walking down the street when I spot a retired athlete who, in a sudden twist of bad luck, infamously did not win a competition he was sure to. My friend is from a different country and generation, so he is totally unaware of the story. I turn to him and say:)
       *Aquel hombre pudo haber ganado una medalla en los Juegos Olímpicos.*
       "That man could have won a medal in the Olympic Games."

Let's take stock. I have argued that the kind of counterfactuality expressed by NCCs is not conversational, that it projects, it has an obligatory local effect, and it does not require of strong contextual felicity. These properties suggest a classification of this projective meaning within the so-called Type C in Tonhauser et al.'s (2013) taxonomy. This is a rather broad group that also includes projective lexical items like the presuppositional "stop", the factive verb "know", or the adverbs "only" and "almost". The heterogeneity of the elements in this group certainly calls for further work to tease it apart into smaller subsets. At this point, however, given the aforementioned lack of agreement about where to place the boundaries between the at-issue and non-at-issue meaning components, this is probably a coarse enough division from which to begin a deeper exploration of the facts that I will leave for the future.


# 6  Conclusions

In this paper, I have presented a modal structure in Spanish that gives rise to two interesting puzzles. The first one has to do with the unexpected relative position between the possibility root

modal and the tense marker *haber*. I suggested that a possible solution to this problem is to appeal to a word order mismatch between semantics and surface structure. The second puzzle deals with the counterfactual inference that these constructions convey and which does not seem to fit into any of the traditional categories of meaning (conversational implicature, presupposition, etc.). For this reason, I opted for a more coarse-grained approach that resulted in its classification as a Type C kind of projective content.

Much work is still needed to complete the project started out here. Most importantly, I have not provided an explanation as to how the counterfactual meaning arises, which is probably the most interesting puzzle. Moreover, this investigation will only remain a partial one unless NCCs are compared to constructions that, while similar in form, lead to different nuances of meaning like those where the modal bears conditional tense, or the ones leading to the so-called actuality entailments. I intend to tackle these issues in upcoming research.

## References

Chierchia, Gennaro, and Sally McConnell-Ginet. 1990. *Meaning and Grammar: An Introduction to Semantics.* Cambridge, MA: MIT Press.

Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: A Cross-Linguistic Perspective*. Oxford: OUP.

Condoravdi, Cleo. 2002. Temporal interpretation of modals: Modals for the present and for the past. In *The Construction of Meaning*, ed. D. Beaver, S. Kaufmann, B. Clark, and L. Casillas, 59-88. Stanford, CA: CSLI Publications.

von Fintel, Kai. 1998. The presupposition of subjunctive conditionals. In *MIT Working Papers in Linguistics 25*, ed. O. Percus, and U. Sauerland.

Hacquard, Valentine. 2006. Aspects of Modality. Doctoral dissertation. MIT.

Hacquard, Valentine. 2009. On the interaction of aspect and modal auxiliaries. *Linguistics and Philosophy* 32: 279-315.

Hacquard, Valentine. 2010. On the event relativity of modal auxiliaries. *Natural Language Semantics* 18: 79-114.

Homer, Vincent. 2011. French modals and perfective: A case of aspectual coercion. In *Proceedings of the 28th West Coast Conference on Formal Linguistics*, ed. M. Byram Washburn, K. McKinney-Bock, E. Varis, A. Sawyer, and B. Tomaszewicz, 106-114.

Iatridou, Sabine. 2000. The grammatical ingredients of counterfactuality. *Linguistic Inquiry* 31, 2: 231-270.

Ippolito, Michela. 2013. *Subjunctive Conditionals. A Linguistic Analysis*. Cambridge, MA: MIT Press.

Komoto, Naoko. 2011. Internal past, external past, and counterfactuality: Evidence from Japanese. In *Proceedings of SALT 20,* ed. N. Li, and D. Lutz, 618-635.

Portner, Paul. 2009. *Modality*. New York: OUP.

Potts, Christopher. 2014. Presupposition and implicature. Draft. URL
    `http://web.stanford.edu/~cgpotts/manuscripts/potts-blackwellsemantics.pdf`

Tonhauser, Judith, David Beaver, Craige Roberts, and Mandy Simons. 2013. Toward a taxonomy of projective content. *Language* 89, 1: 66-109.

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