

# The epistemic and the counterfactual interpretations of present perfect 'pouvoir' in French

Alda Mari

► **To cite this version:**

Alda Mari. The epistemic and the counterfactual interpretations of present perfect 'pouvoir' in French.  
Talk presented at LSRL 43 Cuny, New York, April 2013. 2013. <ijn\_00839362>

**HAL Id: ijn\_00839362**

**[https://jeannicod.ccsd.cnrs.fr/ijn\\_00839362](https://jeannicod.ccsd.cnrs.fr/ijn_00839362)**

Submitted on 27 Jun 2013

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

The epistemic and the counterfactual  
interpretations of present perfect *pouvoir* in  
French

**Alda Mari**

Institut Jean Nicod / UMR 8129

LSRL 43

*CUNY, NY*

April 17th-19th, 2013

# The contrast

Hacquard (2006):

*Pouvoir* in the present perfect ( $a_{pres} p_{mod} u_{perfect}$ ):

► Epistemic interpretation

- (1) Il a pu prendre le train  
He has can<sub>perfect</sub> take the train  
*He might have taken the train*

# The contrast

► Implicative interpretation

(2) Il a pu prendre le train

He has can<sub>perfect</sub> take the train

*He could the train*

*Actuality entailment: he took the train*

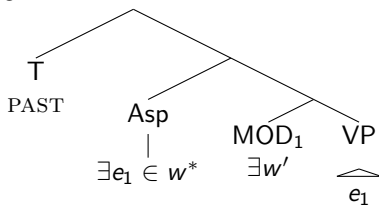
## Hacquard (2006,2009,2010)

The merit of Hacquard (2006,2009,2010) is to present a theory of the systematic ambiguity of the modal that, in her work, is solved as syntactic scope ambiguity.

Available works that do not address the question of the polysemy: Mari and Martin (2007); Demirdache, H. et Uribe-Etxebarria, M. (2008); Laca (2008); Mari and Schweitzer (2010); Homer (2010a,b); Mari (2011); Piñón, C. (2011).

# Implicative interpretation

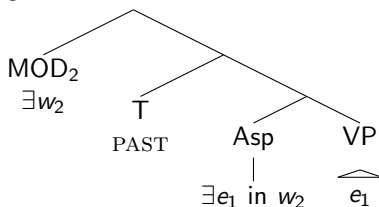
PAST > MOD.



PAST determines the time of the modal evaluation. Event variable closed at PAST, i.e. outside the modal. AE arises.

## Epistemic interpretation

MOD > PAST.



PAST determines the time of the eventuality and not the time of the conjecture.

## Major advantage

Hacquard, 2006: 26, ex. 20

- (3) Jean a très bien pu prendre le train  
*Based on what I know (now), he might have taken the train  
(in the past)*

Present evidence is used; if the modal is evaluated in the past, mismatch; hence the time of the modal evaluation is the speech time (hence movement).



## No movement: questions, questions, questions, ...

Without movement: modal is interpreted in the past, but epistemic alternatives are projected at the utterance time.

The modal evaluated in the past is **not epistemic** (i.e. #given the evidence I had then ...)

↪ **Question:** How open past alternatives and present uncertainty relate to each other ?

*Anticipating ... on the spirit of the solution*

→ Mari and Schweitzer (2010): rely on inferential mechanisms (**reasoning forward** from past alternatives to epistemic uncertainty).

◇*p* in the past allow to infer that both *p* or  $\neg p$  are available alternatives in the present. Since the speaker is in a state of epistemic uncertainty in the present, both *p* and  $\neg p$  are considered viable alternatives.

**The question:** *how are past metaphysical alternatives reconstructed given present uncertainty ? Reasoning backward*

## Major problem for the whole enterprise of Hacquard (2006,2009): the third interpretation

- ▶ Empirical: Mari and Martin (2007) first identify a root (that they call abilitative), non-implicative reading.

(4) Ce robot a pu repasser les chemises à un stade bien précis de son développement, mais cette fonction n'a jamais été utilisée.

*The robot could have ironed skirts at a precise stage of its development, but this function has never been used.*

## Goal (I): explain the three-fold ambiguity

A unified theory for the three-fold ambiguity :

- (5)
- a. **Root, Implicative.** Jean a pu déplacer la table,  
#mais il ne l'a pas fait.  
*John could move the table, #but he did not do it.*
  - b. **Epistemic.** John a pu prendre le train (comme il a pu  
ne pas le prendre)  
*John might have taken the train (but he might not  
have taken it)*
  - c. **Root, non-implicative.** Ce robot a pu repasser les  
chemises à un stade bien précis de son développement,  
mais cette fonction n'a jamais été utilisée.  
*The robot could have ironed skirts at a precise stage of  
its development, but this function has never been used.*

## Goal (II): competition with past conditional

Speakers reports judgements that highlight a competition between the non-implicative reading of a *pu*-sentences and *aurait pu*-sentences (modal in the past conditional):

- (6) Ce robot **aurait pu** repasser les chemises à un stade bien précis de son développement, mais cette fonction n'a jamais été utilisée.

*This robot could have ironed skirts at a precise stage of its development, but this function has never been used.*

↪ **Why?**

## Goal (III): explain discursive properties

- (7) Qu'est-ce qu'il a fait Jean dans ce bureau ?  
Il a déplacé un meuble  
# Il a pu déplacer une table

*What did John do in this office ?*  
*He moved a table*  
*#He could move a table*

## Goal (III): explain discursive properties (continued)

Same property observed for other operators (VERUM operator, Gutzman and Castrovejo-Miro, Mari for the French future 2013)

- (8) Qu'est-ce qu'il a fait Jean dans ce bureau ?  
#Il a DÉPLACÉ un meuble  
Il a déplacé une table

*What did John do in this office ?*

*#He MOVED a table*

*He moved a table*

Gutzman and Castrovejo-Miro solution: assert  $p$  and downgrade  $?p$ .

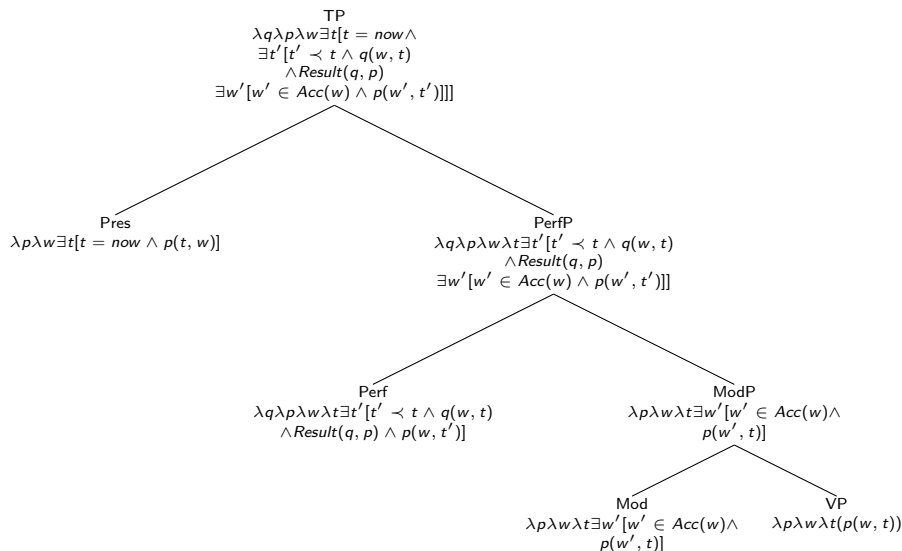
# Overview

New semantic / pragmatic theory:

- ▶ The **meaning**:
  - ▶ There is an underspecified semantic rule of interpretation of a *pu*-sentences, in which all the operators are interpreted *in situ*.
  - ▶ The present perfect is analyzed as a combination of present + perfect, hence as providing a **result state** (see Schaden, 2009).
- ▶ The **interpretations**:
  - ▶ The present perfect has an **abductive-inferential** use that exploit knowledge of the result state.
  - ▶ The variety of interpretations depends on what the speaker knows, compatibly with the semantics.

**Model-theoretic side:** branching time framework (Thomason, 1984; Condoravdi, 2002; Mari, 2013).

# Composition





# Composition

*VP*: provides a proposition; its truth is relativized to worlds and times.

*ModP*: provides a possible world in which  $p$  is true.

*Perfect*:

- Perfect treated as operator over properties of events (e.g. de Swart, 2007; Schaden, 2009). It locates the event at a past time w.r.t. a reference time (which can be present, past or future) and provides a result event.

- Here, we treat it as a propositional operator.

*Perf*: provides a past time at which  $p$  is true (in possible world  $w'$ ) and provides a result proposition, which is true at a time  $t$  in world  $w$ .

*Pres* provides the now. Proposition  $q$  (the result proposition) is true at *now* in world  $w$ .

$\leftrightarrow$   $p$  is true in a possible world  $w'$  (accessible from  $w$ ) at a past time  $t'$  (for short  $\diamond p(t')$ ); the result proposition  $q$  is true at *now* in world  $w$ .

## The $q$ world

'Result' event-related notion, we use it here improperly for propositions.

(9) Let  $t', t \in T$ ,  $t' \prec t$ :

$$\text{Result}(p, q) = 1 \text{ iff } \forall w' \in W(p(w', t') \rightarrow q(w', t))$$

- If  $q$  is the result of  $p$ , then all worlds in which  $p$  is true are worlds in which  $q$  is true.
- $p$  is evaluated at a time that precedes the time of evaluation of  $q$ .

# Decidedness

The key notion is (non)-decidedness defined in a branching time framework, Mari, 2013.

and the relations between epistemic and metaphysical (un-)decidedness, evaluated at different times.

## Branching time: basics

We employ a  $W \times T$  forward-branching structure (Thomason, 1984). A three-place relation  $\simeq$  on  $T \times W \times W$  is defined such that (i) for all  $t \in T$ ,  $\simeq_t$  is an equivalence relation; (ii) for any  $w, w' \in W$  and  $t, t' \in T$ , if  $w' \simeq_{t'} w$  and  $t$  precedes  $t'$ , then  $w' \simeq_t w$  (we use the symbols  $\prec$  and  $\succ$  for temporal precedence and succession, respectively).

In words:  $w' \simeq_{t'} w$ :  $w$  and  $w'$  are historical alternatives (i.e. are identical) at least up to  $t'$  and thus differ only, if at all, in what is future to  $t'$ .

## Branching time: basics

Assume two worlds  $w'$  and  $w$  in  $W$  and two times  $t', t''$  in  $T$  such that  $t' \prec t''$ . In both partial models in Figure 1,  $w'$  and  $w$  are equal up to and including  $t'$  (Thomason, 1984). Worlds that stand in the equivalence relation  $\simeq_{t'}$  need not branch at  $t'$ ; they can branch at a time after  $t'$  (e.g.,  $t''$  in Figure 1b).

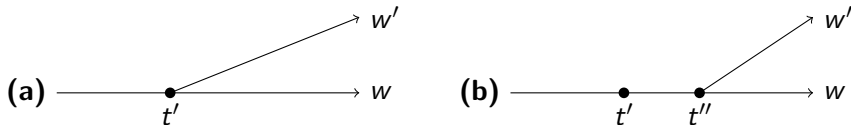


Figure:  $w \simeq_{t'} w'$

## Branching time: common ground

For any time  $t \in T$ , we define the *common ground*  $cg(t)$  as the set of worlds that are identical to the actual world  $w_0$  at least up to and including  $t$ .

$$(10) \quad cg(t) := \{w \mid w \simeq_t w_0\}$$

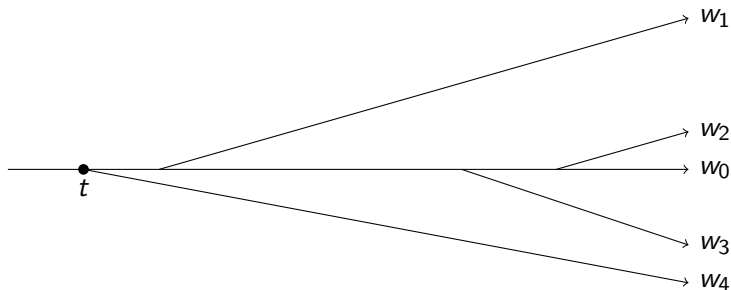


Figure:  $cg(t)$

## Branching time: reasonable futures

- (11)  $\text{ReasFut}(t) :=$   
 $\{w_i \in \text{cg}(t) \mid w_i \text{ is such that the set of rules fixed at } t$   
 $\text{continue to hold in } w_i\}$
- (12)  $\text{ReasFut}(t) = \{w_1, w_2, w_0, w_4\}$

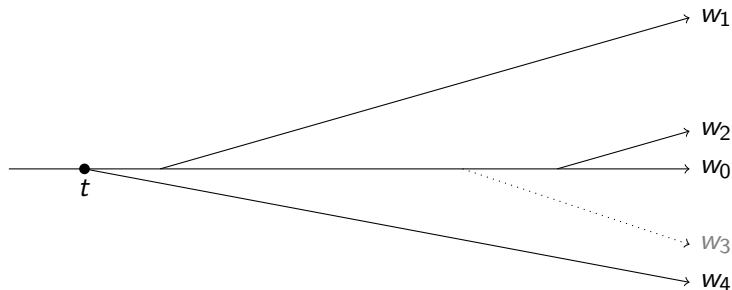


Figure: Reasonable Future Worlds (ReasFut)

## Branching time: (un)decidedness

- ▶ The actual world exists only until the utterance time.
- ▶ The actual world is metaphysically **decided** until and including the utterance time.

Condoravdi, 2002; Mari, 2013:

- ▶ **Epistemic interpretation**: is compatible with metaphysical decidedness (options can be metaphysically closed but epistemically open).
- ▶ **Metaphysical interpretation**: is available with metaphysical un-decidedness.  
→ Given a branching point  $t$ , the actual-world-to-be at  $t$  is metaphysically undecided at  $t$ .



## Representing the semantics in the reasonable-future branching framework

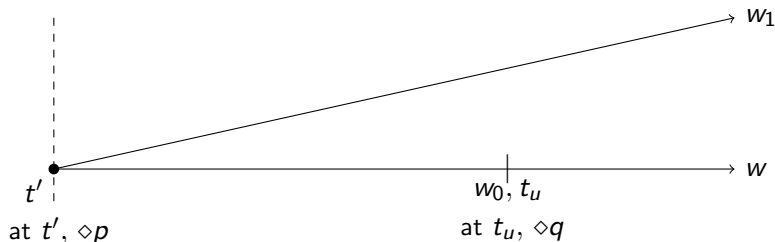


Figure: Semantics

- $\diamond q$  is true at  $t_u : w_0$  decided at  $t_u$ .  $\diamond q(t_u)$  : **epistemic** alternatives ( $q, \neg q$ ).
- Since  $\diamond p$  is true at  $t'$  which is a branching point,  $\diamond p(t')$  has a **metaphysical** interpretation.  $p$  and  $\neg p$  are metaphysical alternatives.

## The inferential use of the present perfect

Present perfect across languages has an inferential use. (see among many others: Comrie, 1976; Apotheloz and Nowakowska, 2010 for French and Polish, DeLancey, 2001 for Bulgarian).

Various typologies for the 'inferential use': illative, abductive, explicative, based on direct/direct evidence ....

Apotheloz and Nowakowska (2010) identify an inferential-abductive use of the present perfect: (free translation, A&N, *ibid.*:4): **from a present result state one can infer a past event that has produced this state.**

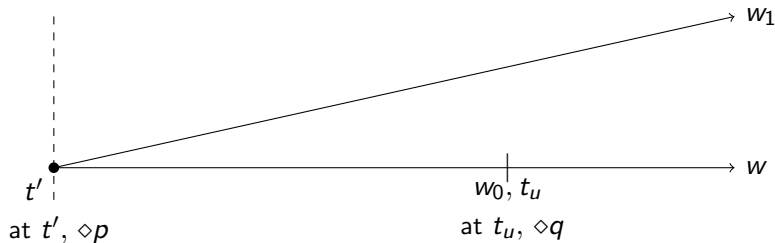
↔ **We exploit here the inferential-abductive use of the present perfect. I will use the term inferential for short.**

## The inferential use of *pouvoir* in the present perfect

- Result state  $\diamond q(t_u)$
- Knowledge supporting  $\diamond q(t_u)$
- But also ... Knowledge **compatible** with  $\diamond q(t_u)$ :
  - ▶  $\diamond q(t_u) \wedge q(t_u)$
  - ▶  $\diamond q(t_u) \wedge \neg q(t_u)$

# Epistemic in picture

Semantics:



**Pragmatics:** at  $t_u$  knowledge compatible with  $\diamond q(t_u)$ ; infer  $\diamond p(t')$ .

- $\diamond q$  is true at  $t_u$  :  $w_0$  decided at  $t_u$ .  $\diamond q(t_u)$  : **epistemic** alternatives.
- Since  $\diamond p$  is true at  $t'$  which is a branching point,  $\diamond p(t')$  has a **metaphysical** interpretation.

## Epistemic: example

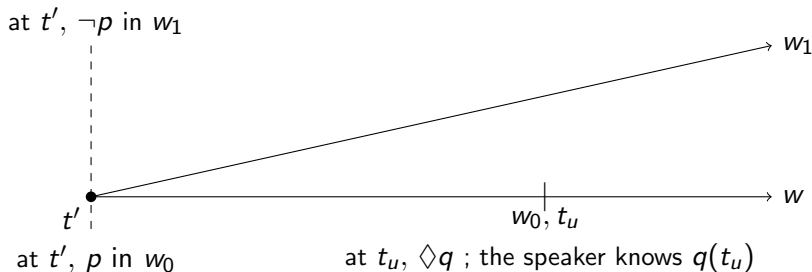
(13) Le voleur a très bien pu rentrer par la fenêtre  
*The thief might have entered through the window*

- My parents never close the windows; knowledge compatible with the thief having passed (result state) through the window ( $\diamond q(t_u)$ ):
  - Present settledness (the thief passed through the window or did not pass through the window).
  - Both plausible, given what I know.
  - The thief passing through the window or not passing through the window were available continuations of the actual world at the branching point.
- Backward (i.e. abductive) Inference: it was undecided at the branching point whether the actual-world-to-be was such that the thief would pass through the window or not.
  - Given what I know, there were metaphysical alternatives such that  $p$  and  $\neg p$  were both possible continuations of  $w_0$  at  $t'$ , the branching point.

## Implicative in picture

**Semantics:** as above.

**Pragmatics:**



Know at  $t_u$ :  $q(t_u)$ ; infer  $p(t')$  is true in  $w_0$ . Implies that  $\neg p(t')$  is true in  $w'$ . Counterfactual interpretation: knows that  $p$  but knows that the actual world could have evolved in a way such that  $\neg p$ .

## Implicative reading: deriving the AE

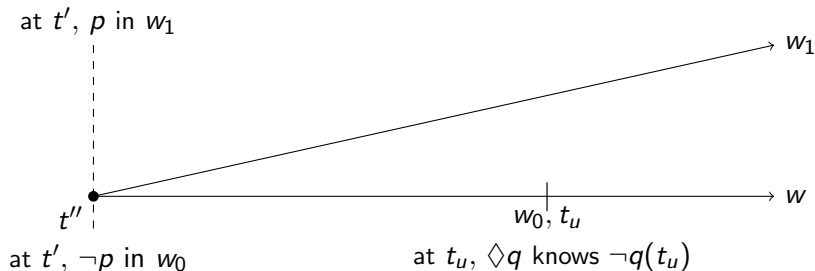
(14) Il a pu prendre le train  
*He managed to take the train*

- *Know*:  $q(t_u)$ ; *Infer*  $p(t')$ .
- Ex. John is on the train  $q(t_u)$ ; Abductive inference:  $p(t')$ : he took the train. No actuality entailment.
- Knowledge that  $q$  and hence that  $p$ , in the context of utterance.  
BUT:
- **Asserts**:  $\diamond p(t')$  (**is the speaker being informative ?**): since he knows  $q(t_u)$  he knows  $p(t')$ . Why does he choose to use the modal ?
- $\neg p(t')$  true in a possible continuation of the actual world at  $t'$ .  
 $\Leftrightarrow$  Counterfactual use. He took the train, but the actual world could have evolved in a way such that  $\neg p$ .  
 $\Leftrightarrow$  And also .... Abilitative flavor (see Belnap, 1991).

## Root non-Implicative in picture

**Semantics:** as above.

**Pragmatics:**



Know at  $t_u$ :  $\neg q(t_u)$ ; infer  $\neg p(t')$  is true in  $w_0$ .

Hence conveys that  $p(t')$  is true in  $w'$ , branching from  $w_0$ .

Counterfactual interpretation: knows that  $\neg p$  but knows that the actual world could have evolved in a way such that  $p$ .



## Root non-Implicative

- (15) Il a pu s'échapper à ce moment là, mais il ne s'est pas échappé  
*He could escape at that moment, but he did not escape*

- *Know*  $\neg q(t_u)$ ; *Infer*  $\neg p(t')$ .
- *Asserts*:  $\diamond p(t')$  (is the speaker being informative?):  $p(t')$  true in a metaphysical alternative at  $t'$ .
  - $\leftrightarrow$  Counterfactuality.
  - $\leftrightarrow$  'Occasion': at the time of the branching, the actual world could have evolved in such a way that he escaped.

## Chess player 1

Scenario: John could have won at move 39, but he misses the chance.

(16) Il a pu / aurait pu gagner à ce moment là, #mais il a perdu sa chance

*He could have won at that precise moment, #but he missed his chance*

Same analysis for both (knowledge that  $\neg p$  at  $t_u$ , and opening up of the alternatives at the past time  $t'$ ) !

Strong set of constraint: present knowledge + constraint on identity of worlds up to  $t'$  (à la Condoravdi, 2002).

## Chess player 2

Scenario: John never played the game which is under discussion.

(17) Il #a pu / aurait pu gagner, s'il avait joué  
*He could have won, if he played*

No constraint on identity (à la Abush, 2012).

## Preference for the past conditional

- In general: the preferred form is the one that conveys specific information. We would have expected complementary distribution.
- However, for now (possible evolution ? See Spanish), the conditions on the use of present perfect *pouvoir* seem too constraining and require very precise knowledge.
- In particular, present perfect *pouvoir* cannot be used when the adverb denoting a bounded period of time are absent, *providing the branching time*.  
↔ Preference for the conditional as it requires only taking into account a certain body of evidence and poses no constraints on branching points.

## In discourse

- (18) What did John do ?  
(#) Il a pu déplacer la table  
*He could move the table*

The theory: the speaker conveys that (i) John moved the table and (ii) it was not taken for granted.

*Without previous expectation/doubt* of the hearer, the speaker is being too informative.

- If previous expectation is presupposed (*What did John do, finally?*), then the sentence is felicitous.

## Conclusion

Main features of the semantic-pragmatic theory:

- ▶ Operators in situ.
- ▶ Result state of the present perfect.
- ▶ Inferential use of the present perfect.
- ▶ Knowledge of/compatible with the result state.

Main results:

- ▶ Explain in a unified way the three available interpretations of *a pu*-sentences.
- ▶ Explain why there is a competition between the non-implicative reading and the counterfactual.
- ▶ Explain in a principled way how indirect evidence at the utterance time and metaphysical alternatives relate to each other.
- ▶ Explain the behavior of implicative *a pu* sentences in discourse.

Thank you !

## References

- Abush, D. (2012) Circumstantial and Temporal Dependence in Counterfactual Modals. *Natural Language Semantics* 20.3, 273-297.
- Apothéloz, D. and Nowakowska, M. (2010) La résultativité et la valeur de parfait en français et en polonais. *Cahiers Chronos* 21: 1-23.
- Bhatt, R. (1999). *Covert Modality in Non-Finite Contexts*. PhD thesis, Philadelphia: University of Pennsylvania.
- Boogaar, R. (2007). 'The Past and the Perfect of Epistemic Modals'. in L. de Saussure, J. Moeschler and G. Puskas (eds.) *Recent advances in the syntax and semantics of tense, mood and aspect (Trends in Linguistics Vol. 185)*. Berlin : Mouton De Gruyter, pp. 47-70.
- Condoravdi, C. (1992). Individual-level Predicates in Conditional Clauses, paper presented at the LSA meeting, Philadelphia, PA.
- Condoravdi, C. (2002). Temporal interpretation of modals : Modals for the present and for the past. In Beaver, D., Kaufmann, S., Clark, B., et Casillas, L. (eds), *The Construction of Meaning*. Stanford, CA : CSLI, pp. 59-88.
- Demirdache, H. et Uribe-Etxebarria, M. (2008). Scope and anaphora with time arguments: The case of 'perfect modals'. *Lingua* 118: 1790-1815.



- Hacquard, V. (2006). Aspects of Modality. PhD thesis, Cambridge, MA: MIT.
- Hacquard, V. (2009). On the interaction of aspect and modal auxiliaries. *Linguistics and Philosophy* 32 : 279-315.
- Homer, V. (2010a). Actuality Entailments in French: A Case of Aspectual Coercion *Proceedings of WCCFL 28*.
- Homer, V. (2010b) Epistemic Modals: High ma non troppo *Proceedings of NELS 40*.
- Mari, A. (2010). Temporal reasoning and Modality. *Invited talk at 'Temporality: Typology and acquisition'*, Paris VIII, March 2010.
- Mari, A. (2011). *Modalités et temps. Des modèles aux données*. HDR, Paris-Sorbonne. To appear as a book at Bern: Peter Lang.
- Mari, A. (2013). *Each other, asymmetry and reasonable futures*. *Journal of Semantics* doi:10.1093/jos/fft003 also available at semantics archives.
- Mari, A. et Martin, F. (2007). Tense, abilities and actuality entailment. In Aloni, M., Dekker, P., et Roelofsen, F., (eds.), *Proceedings of the XVI Amsterdam Colloquium*, pp.151-156.

- Mari, A. et Schweitzer, S. (2010). "Calculating the epistemic interpretation of past modals via K." *Online Proceedings of the 29th West Coast Conference on Formal Linguistics*.  
<https://sites.google.com/site/wccfl28pro/mari-schweitzer>
- Piñón, C. (2011). The pragmatics of actuality entailment. Talk presented at *Aspect and Modality in Lexical Semantics*, Stuttgart, 30 Sept. 2011.
- de Swart, H. (2007). Cross-linguistic discourse analysis of the perfect. *Journal of Pragmatics* 39(12), 2273-2307.
- Schaden, G. (2009). Present perfect compete. *Linguistics and Philosophy* 32(2) : 115-141.
- Thomason, Richmond (1984). Combinations of tense and modality, in D. M. Gabbay et F. Guenther (eds.), *Handbook of Philosophical Logic: Extensions of Classical Logic, vol. II*, pp. 136-165. Dordrecht: Reidel.