

TENSE, ABILITIES AND ACTUALITY ENTAILMENT

ALDA MARI & FABIENNE MARTIN

Institut Jean Nicod, Universität Stuttgart
alda.mari@ens.fr, fabienne.martin@ling.uni-stuttgart.de

In French as in other languages differentiating the perfective and the imperfective morphologically, modal verbs sometimes behave like implicative verbs *in perfective sentences*. We present new data that previous accounts cannot explain. The offered analysis relies on a distinction between classical abilities and what we call action dependent abilities.

1. Introduction

As is well known, modal verbs differ from what Karttunen, 1971 calls implicative verbs in that they do not entail an event satisfying the property denoted by their infinitival complement (hence the possibility to deny the occurrence of an event of this type, cf. (1)) :

- (1) He could open the door [OK but he didn't do it]. (modal verb)
↯ He opened the door.
- (2) He managed to open the door [#but he didn't open it]. (implicative verb)
→ He opened the door.
- (3) He was managing to open the door [#but he wasn't opening it].
→ He partly opened the door.

However, in French as in several other languages differentiating the perfective and imperfective morphologically, modal verbs sometimes behave like implicative verbs *in perfective sentences* (Bhatt, 1999, Hacquard, 2006). This is at least the case on their so called circumstantial readings (among others the abilitative and the goal-oriented ones). On these readings, denying the truth of the infinitival complement results in a contradiction, cf. (4a) and (5a). Following Bhatt, 1999, we will say that in these cases, modal verbs trigger an "actuality entailment" (AE).

- (4) a. Marie a pu s'enfuir, #mais elle ne s'est pas enfuie. (abilitative reading)
Marie could.PERF. escape, # but she didn't do it.
- (5) a. La carte m'a permis d'entrer dans la bibliothèque, #mais je ne suis pas entrée. (goal-oriented reading)
The card permitted.PERF. me to enter the library, but I didn't do it.

The AE does not arise in perfective sentences (with the *passé composé*) on the deontic and epistemic readings, cf. (4b) and (5b), neither in imperfective sentences (with the

imparfait), on no matter which reading, cf. (4c) and (5c). Examples (4)-(5) are taken from Hacquard, 2006.

- (4) b. Marie a pu s'enfuir, comme elle a pu ne pas s'enfuir. (epistemic reading)
Marie could.PERF. have escaped, as she could have not escaped
c. Marie pouvait s'enfuir, OK mais elle ne s'enfuyait pas. (any reading)
Marie could.IMPERF. escape, OK but she didn't do it.
- (5) b. Le doyen m'a permis d'entrer dans la bib., OK mais je ne suis pas entrée.
(deontic reading)
The dean permitted.PERF. me to enter the library, OK but I didn't do it.
c. La carte/le doyen me permettait d'entrer dans la bibliothèque, mais je ne suis pas entrée. (any reading)
The card/the dean permitted.IMPERF. me to enter the library, OK but I didn't enter it.

2. Bhatt's and Hacquard's analyses

Bhatt multiplies lexical entries to explain these discrepancies in the semantic behavior of modal verbs. According to his analysis, modal verbs like *pouvoir* are in their circumstantial readings implicative verbs in disguise (or "fake" modal verbs). The AE of *pouvoir* under the relevant readings (4a) and (5a) comes then for free. He then explains why the AE vanishes in imperfective sentences by positing that imperfective morphology comes with an extra modal element, the generic operator GEN. As GEN does not require verifying instances (Krifka et al., 1995), no AE arises.

Hacquard sees two problems in Bhatt's analysis. Firstly, as pointed out by Bhatt himself, it predicts that indisputably implicative verbs like *réussir à* (*manage to*) lose their implicative behavior when combined with imperfective morphology, which is not the case (cf. (3)). Secondly, it leaves unexplained the robust cross-linguistic trend to use the same lexical item to express the whole set of readings illustrated in (4) and (5).

Hacquard keeps the Kratzerian view according to which modals share a core semantics in all their readings, and provide a structural account of the data, close in spirit to the one provided by Piñón, 2003.¹ Roughly, her threefold hypothesis is the following. 1° Despite aspectual/temporal morphology appearing on the modal itself, it is interpreted *below* the modal with deontic and epistemic readings, hypothesis supported by the English translation of (4b). On the contrary, it is interpreted *above* the modal with circumstantial readings. 2° The AE arises when aspect scopes above the modal only. 3° The AE does not arise in (4c) and (5c) because the imperfective morphology comes with an extra modal component (as in Bhatt's proposal).

¹Piñón, 2003 already provides a structural account in terms of scope. But contrary to Hacquard, he does not take address directly the aspectual difference between perfective and imperfective sentences (although nothing in his analysis prevents an extension of it to account for these facts).

3. Problems and new data

Hacquard's analysis is not completely satisfactory either for three reasons. Firstly, it does not solve the first problem of Bhatt (any verb, included implicative verbs, is predicted to lose its implicative behavior in imperfective sentences). Secondly, in order for the analysis sketched above to work into details, Haquard adopts several non classical assumptions about Aspect.² Thirdly and more seriously, modals do not *always* trigger the AE in perfective sentences under their circumstantial readings, contrary to what Haquard assumes. The AE can be cancelled in at least two cases. Firstly, the AE is not compulsory when the context provides elements (in italics in (6) and (7) below) helping to make clear that the circumstances (or the ability, the opportunity to reach the goal) are temporally bounded. For instance, the durative adverbial in (6) triggers the relevant (magical) context where the card enabled the agent to use the library only for a precise laps of time. In the case of (classical) abilities, weird contexts are often needed to conceive them as bounded (cf. (7)), but as soon as this special context is obtained, the AE disappears. Secondly, the AE is not automatically triggered either when the infinitival complement contains a stative predicate (cf. (8)). Note that if *avoir* is reinterpreted as a dynamic predicate (to mean *obtain*), the AE is again compulsory. It is thus the stativity which is responsible for the cancellation of the AE.

- (6) La carte a permis *pendant dix minutes seulement* d'entrer dans la bibliothèque. OK Mais stupidement je n'en ai pas profité.
The card permitted.PERF for ten minutes only to enter the library. But stupidly, I didn't enjoy the opportunity.
- (7) Notre nouveau robot a même pu repasser les chemises à *un stade bien précis de son développement*. OK Mais on a supprimé cette fonction (qui n'a jamais été testée) pour des raisons de rentabilité.
Our new robot could.PERF even iron shirts at a particular stage of its development. But we suppressed this function (which was never tested) for rentability reasons.
- (8) T'as pu avoir un repas gratuit, et tu ne t'es même pas levé !
You could.PERF have a meal for free, and you even didn't get up !

²1° Aspect is supposed to be base-generated as an argument of the verb, a position from which it needs to move out for type reasons (above or below the modal). 2° Aspect comes with its own world argument, which has to be bound locally. 3° This world argument must be bound by the modal if the modal is immediately above it (no AE arises), but cannot be bound by the modal if the modal is below it. In the latter case, the world argument of Aspect is bound by a matrix world binder (if the world argument of Aspect is the actual world, this yields the entailed event through a principle of event identification across worlds).

4. A semantic (non structural) account

The alternative analysis proposed here explain the (new) set of data presented above without assuming a structural (scopal) difference between the two sets of readings of modals. Like Hacquard, we keep Kratzer hypothesis that *pouvoir* is monosemous. However, contrary to the previous accounts, we do not assume that the imperfective morphologically systematically comes with a modal operator cancelling the AE triggered at the lexical level; the fact illustrated in (3) – implicative verbs keep their implicative behaviour in imperfective sentences – is not problematic anymore. We admit with Hacquard that the Perfect is interpreted below the modal in the epistemic reading (4a), since on this reading – and only this one –, the available paraphrase makes the alleged syntactical move transparent (on this reading, *a pu.PERF fuir* is perfectly paraphasable by *peut avoir fui.PERF*).

There is an important property differentiating the *passé composé* and the *imparfait* which hardly plays a role in the previous accounts: sentences with the *passé composé* are *bounded* (they denote an event which has reached its final boundary)³, while sentences with the *imparfait* are *unbounded* (they denote an event which is by default supposed to continue afterwards). In a nutshell, our hypothesis is the following: *the AE is triggered when the eventuality described by the infinitive is the only one which can satisfy the "Boundedness Constraint" associated to the perfective* (HYP. 1). The proposed analysis rests on a distinction between two types of abilities, that we will introduce before showing how HYP. 1 can account for the data.

Generic abilities (GAs) correspond to the traditional conception (cf. eg Kenny, 1975): (i) GAs do not require verifying instances; (ii) GAs are ascribed to an agent *i* only if *i* could perform repeatedly the action if he wanted to; (iii) GAs are conceived by default as unbounded (if a GA is ascribed to *i* in *t*, it is typically assumed that *i* has the same GA in some $t' \supset t$).⁴ Now, let us suppose that this afternoon after lunch, Paul was able to hit three bull's eyes in a row. Besides, let us admit that this performance was not the result of a special training; therefore, Paul probably won't be able anymore to repeat its performance. On this use, *be able to* does not denote a GA, since (ii) is not fulfilled. What is proposed here is that on this use, the modal

³Note that this is true on the two readings of the *passé composé*. Used as a Perfect, it is a function which operates on an eventuality *v* and returns the result state *s'* of *v* (Kamp and Reyle, 1993). As de Swart, 2007 emphasises, on this use, it requires *v* to be bound, since it returns the resulting state of *v*. The *passé composé* also displays an aoristic reading (since the "pure" aoristic tense, the *passé simple*, is hardly used in spoken French). On this second use, the *passé composé* is a perfective past, and as the *passé simple*, denotes a bounded eventuality. Note that replacing the *passé composé* by the *passé simple* does not change anything to the contrasts above, which suggests that it is well and truly the *boundedness* (and not another feature of the Perfect) which plays a role here.

⁴Condoravdi already proposes to consider that *individual level predicates* (ILP) like *be intelligent* trigger an inference of this kind (and generic abilities are very similar to the dispositions denoted by ILP): "ILPs are associated with an inference of temporal persistence [...] [which] specifies the following: if an eventuality is going on at time *t* and you have no information that it is not going on at some later time *t'*, then infer it is going on at that later time *t'* as well. Note that this is a default inference, surfacing only if there is no information to the contrary."(Condoravdi, 1992, p.92)

verb denotes what we call an *action dependent ability* (ADA): (i') ADAs require an action to exist — actually, an ADA *ontologically depends* on the corresponding action;⁵ (ii') ADAs are weaker abilities than GAs because a unique and non-repeatable performance suffices to imply the corresponding ADA⁶; (iii') ADAs have the same temporal boundaries than the action on which they depend and are thus bounded (Paul was able to hit three bull's eyes in a row exactly at the interval t he hit three bull's eyes in a row).

We can now see how HYP. 1 explains the relevant data. Let us first illustrate the idea with abilitative readings. Being imperfective, (4c) can easily describe an (unbounded) GA (cf. (iii) above), and thus does not force to assume a performance of this ability (cf. (i)). The AE is therefore not triggered. By contrast, being perfective, (4a) is by default understood as denoting an ADA, because ADAs are by definition bounded (cf. (iii') above). As an ADA taking place in t depends on a co-temporal action (cf. (i') and (iii')), (4a) entails an action in t .

The robot's example (7) contains a perfective sentence too. But it still manages to describe a GA, because the context helps to conceive the generic ability as bounded (the adverbial in italics cancels the inference triggered by default that the ability is temporally persistent). Thus, given (i) (GA does not require instances), the AE disappears. Finally, when the infinitival complement contains a stative predicate like in (8), it is even easier to avoid the interpretation where the modal verb denotes an ADA (and thus the AE), since there is no ADA without an action. However, if the stative predicate is coerced in an agentive one, then the modal verb has to be interpreted as denoting an ADA, and as a result, the AE is triggered.

Let us now turn to the non abilitative readings. The example (5b) does not yield an AE because the action a of the dean already provides the bounded v needed to satisfy the Boundedness Constraint associated to the perfective tense. By contrast, in (5a), the only candidate to fulfil this role is precisely an action a described by the infinitive (the only other possibility would be the state s of which the card is the Theme, but there is no reason to think that s is bounded). The AE is thus triggered. However, if the context indicates that the *situation* or the *opportunity* enabling the action a is itself already bounded, as in (6), then it is not necessary anymore to assume the occurrence of a to satisfy the Boundedness Constraint of the perfective tense.

⁵The dependence relation between an ADA and the action through which it occurs may be defined as a generation relation (Goldman, 1970), as a case of supervenience (Kim, 1974) or aggregation (Kratzer, 1989).

⁶Elgesem, 1997 already proposes that abilities do not always require repeatability.

In conclusion, it is possible to explain when and why implicative readings of modal verbs are compulsory without appealing to syntactical movements, on the basis of the classical semantic analysis of the perfective and imperfective tenses, and of a difference between two types of abilities.

Acknowledgements

We would like to thank Cleo Condoravdi, Jacques Jayez, Valentine Hacquard, Nathan Klinedinst and Christopher Piñón for discussions, as well as the audience of the *Semantics In Paris 2* workshop. All mistakes are ours. Fabienne Martin is funded by the *Deutsche Forschungsgemeinschaft (SFB 732, Teilprojekt B5)*. Author order is purely alphabetical.

Bibliography

- Bhatt, R. (1999). *Covert Modality in Non-Finite Contexts*. PhD thesis, University of Pennsylvania.
- Condoravdi, C. (1992). Individual-level predicates in conditional clauses. Conference presented to the *LSA Meeting*, Philadelphia, PA.
- de Swart, H. (2007). A cross-linguistic analysis of the perfect. to appear in *Journal of Pragmatics*.
- Elgesem, D. (1997). The Modal Logic of Agency. *Nordic Journal of Philosophical Logic*, 2(2):1–46.
- Goldman, A. (1970). *A Theory of Human Action*. Prentice-Hall.
- Hacquard, V. (2006). *Aspects of Modality*. PhD thesis, Massachusetts Institute of Technology.
- Kamp, H. and Reyle, U. (1993). *From Discourse to Logic : Introduction to Model-theoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory*, volume 42 of *Studies in linguistics and philosophy*. Kluwer Academic, Dordrecht; Boston.
- Karttunen, L. (1971). Implicative verbs. *Language*, 47:340–358.
- Kenny, A. (1975). *Will, Freedom and Power*. Basic Blackwell, Oxford.
- Kim, J. (1974). Noncausal connections. *Noûs*, 8:41–52.
- Kratzer, A. (1989). An Investigation in the Lump of Thoughts. *Linguistics and Philosophy*, 12(5):607–653.
- Krifka, M., Pelletier, F. J., Carlson, G. N., ter Meulen, A., Chierchia, G., and Link, G. (1995). Genericity: An introduction. In Carlson, G. N. and Pelletier, F. J., editors, *The Generic Book*. University of Chicago Press, Chicago.
- Piñón, C. (2003). Being able to. In Garding, G. and Tsujimura, M., editors, *WCCFL Proceedings*, pages 384–397. Cascadia Press, Somerville.