Perfective and Imperfective in French Kinds of abilities and Actuality Entailment (And some notes on epistemic readings)

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Abstract:
In French as in other languages differentiating the perfective and the imperfective morphologically, modal verbs sometimes behave like implicative verbs *in perfective sentences*. The account of the data presented here is purely semantical and pragmatical in nature, contrary to Hacquard's (2006) one who proposes a structural account in terms of a scopal difference between the aspectual and the modal operator. Our account relies on an ontological distinction that goes back to Aristotle between classical abilities and what we call action dependent abilities.

Perfective and Imperfective in French
Kinds of abilities and Actuality Entailment

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1. Introduction

This paper discusses the interaction between aspect and verbal polysemy. In French and in several other languages, modal verbs – but also illocutory or psychology verbs -- do not have exactly the same set of readings when used in perfective and imperfective sentences. To introduce the relevant facts, let us take the example of the modal verb *pouvoir* (*can*).

As is well known, modal verbs like *can* 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 like Italian or Hindi, 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.$_{PERF.}$ s'enfuir, #mais elle ne s'est pas enfuie. (abilitative reading)
Marie could escape, but she didn't do it.
(5) a. La carte m'a permis.$_{PERF}$ d'entrer dans la bibliothèque, #mais je ne suis pas entrée. (goal-oriented reading)
The card permitted. me to enter the library, but I didn't do it.

The AE does not arise in perfective sentences (with the *passé composé*)[1] on the epistemic and deontic 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.$_{\text{PERF.}}$ s'enfuir, comme elle a pu ne pas s'enfuir. (epistemic reading)
Marie could have escaped, as she could have not escaped
c. Marie pouvait.$_{\text{IMPERF.}}$ s'enfuir, OK mais elle ne s'enfuyait pas. (any reading)
Marie could escape, but she didn't do it.

(5) b. Le doyen m'a permis.$_{\text{PERF.}}$ d'entrer dans la bibliothèque, OK mais je ne suis pas entrée. (deontic reading)
The dean permitted me to enter the library, but I didn't do it.
c. La carte/le doyen me permettait.$_{\text{IMPERF}}$ d'entrer dans la bibliothèque, mais je ne suis pas entrée. (any reading)
The card/the dean permitted. me to enter the library, OK but I didn't enter it.

The paper is organised as follows. In Section 2, we introduce the solutions of Bhatt and Hacquard. Section 3 points some of their shortcomings and presents new data. It is shown in this section that non-modal illocutory verbs like *exiger* 'demand' or psychological verbs like *encourager* 'encourage' display a behavior similar to modal verbs. In Section 4, we present a new explanation of the facts. It relies on two hypothesis. Firstly, we follow Thomason (2005) on the idea that the abilitative *can* is a predicate modifier, and not a sentence modifier. Secondly, we introduce an ontological distinction between two kinds of abilities. *Generic abilities* correspond to the classical conception of abilities. An agent *i* has the generic ability to perform an action of type A if *i* can perform an action *a* of type A as soon as *i* wants to and the circumstances are normal. *Action dependent abilities* do not survive the action which manifest them. Imagine that Peter was able yesterday to jump 9.7 m high because he was in an extraordinary shape this day. However, he would totally be unable to

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1 A terminological note is in order here. The *passé composé* can either be used as a Perfect (it is then a function which operates on an eventuality *v* and returns the result state *s'* of *v*, *cf.* Kamp and Reyle 1993), or as an aoristic tense (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 like the *passé simple*, denotes a bounded eventuality. Crucially, all the contrasts presented below arise on the two readings of the *passé composé*, as well as when *the passé composé* is replaced by the *passé simple*. This suggests that it is a feature common to both tenses (on any of their readings) which plays a role here. However, as there is no common term which allows to contrast all the readings of these two tenses with the *imparfait*, we will stick with the tradition and oppose *perfective* to *imperfective* tenses, even if the *passé composé* does not have to be used as a perfective tense to trigger its particular behaviour under study here.

The following abbreviations are used in the examples: PERF.= perfective and IMPERF.= imperfective; *v* is the variable standing for eventualities (state or event).

renew this exploit even if he strongly wanted to. We can then attribute him an *action dependent ability*, but not a generic ability. Section 5 concludes and presents future lines of research, concerning e.g. the intriguing distribution of the dative argument in sentences under study.

2. Bhatt's and Hacquard's analyses

Bhatt multiplies lexical entries to explain the 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 thus 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, in positing two lexical entries, 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 provides a structural account of the data, close in spirit to the one provided by Piñón (2003).[2] 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. 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).

3. Problems and new data

Hacquard's analysis is not completely satisfactory either for four 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

2 Piñón (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).

details, Hacquard adopts several non classical assumptions about Aspect.[3] Thirdly and more importantly, at least in French, modals do not *always* trigger the AE in perfective sentences under their circumstantial readings, contrary to what Hacquard 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 lap of time. Weird contexts are often needed to conceive *classical* abilities as bounded (cf. (7)), but as soon as this special context is obtained, the AE disappears.

(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.PERF 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 even iron shirts at a particular stage of its development. But we suppressed this function (which was never tested) for rentability reasons.

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 *obtenir* ('obtain'), the AE is again compulsory. It is thus the stativity which is responsible for the cancellation of the AE in (8).[4]

3 1°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 As the AE arises only when the infinitive is a non stative verb, it is important to compare the different readings of the modals with an infinitive of the same aspectual category. This is not systematically the case in the work of Hacquard, since she does not take into account the aspectual value of the infinitive. Interestingly, she tends to use stative infinitives when the modal has a reading which should not display the AE. For instance, for the deontic reading of *devoir* (triggering an AE), she uses an agentive infinitive (*Pour aller au zoo, Jane a dû prendre le train*, 'To go to the zoo Jane must-past-perf. take the train'), while for the epistemic reading of the same verb, she uses a stative infinitive (*Darcy a dû aimer Lizzie*, 'Darcy must-past-perf. love Lizzie'), cf. Hacquard *id*, pp. 23-24. We believe that this choice is not accidental and implicitly reveals that all other things being equal, AE arises less often with a stative infinitive. Note however that under its epistemic reading, *devoir* does not trigger the AE with an agentive infinitive either, as Hacquard expects. For instance, on the epistemological reading, "*Jean a dû*

(8) T'as pu.$_{PERF}$ avoir un repas gratuit, et tu ne t'es même pas levé !
You could have a meal for free, and you even didn't get up !

Finally, a fourth potential problem for Hacquard's account is that the same kind of alternations is displayed with verbs which do not have a modal component (at least according to their traditional analyses), namely Object Experiencer verbs like *encourager* ('encourage') and illocutory verbs like *inviter* ('invite', cf. Martin 2007). Under their *agentive* readings, these verbs do not trigger an AE, no matter which tense is used, while on their *non-agentive* ones, they trigger an AE in sentences with the *passé composé* only:

(9) Pierre m'a encouragé.$_{IMPERF.}$ à entrer, mais je ne suis pas entrée.
Pierre encouraged me to enter, but I didn't enter.
(10) Ce panneau m'a encouragée.$_{IMPERF.}$ à entrer, #mais je ne suis pas entrée.
This panel encouraged me to enter, but I didn't enter.
(11) Ce panneau m'encourageait.$_{IMPERF}$ à entrer, OK mais je ne suis pas entrée.
This panel encouraged me to enter, but I didn't enter.
(12) Pierre nous a invités$_{PERF.}$ à tout reconsidérer, mais on ne l'a pas fait.
Pierre encouraged us to reconsider everything, but we didn't.
(13) Ces nouvelles données nous ont invités.$_{PERF.}$ à tout reconsidérer, #mais on ne l'a pas fait.
These new data invited us to reconsider everything, but we didn't.
(14) Ces nouvelles données nous invitaient.$_{IMPERF.}$ à tout reconsidérer, OK mais on ne l'a pas fait.
The discovery of all these data invited us to reconsider everything, but we didn't

Verbs like *exiger de* ('demand'), *demander de* ('ask'), *pousser à* ('push to', 'lead to'), *interdire de* ('to forbid to'), *décourager* ('discourage to') display the same contrast. To be sure, there are differences with the cases studied by Hacquard, but the similarity is also striking: an implication arises with the *passé composé* (vs the *imparfait*) and under a certain reading of the main verb only.
Finally, let's note that a very similar contrast is triggered with illocutory verbs which do not (systematically) categorize an infinitival complement, but have a *que*-clause describing a proposition, cf. (15)-(17) below, or an object describing an event, cf. (18)-(20) (Martin, *ibid.*). This suggests that the alternation is even more general than one could think at the first place:

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manger un sandwich ce midi, 'Jean must-past-perf. eat a sandwich this midday' does not entail that Jean ate a sandwich. It only states that from all what I know, it is necessary that John ate a sandwich, but it leaves open the possibility that I'm not aware of other decisive pieces of evidence.

(15) Pierre m'a suggéré.PERF. que la personne était sortie par la fenêtre, mais je ne pensais pas que c'était le cas.
Pierre suggested to me that the person went out through the window, but I didn't think it was the case.

(16) Ces traces m'ont suggéré.PERF. que la personne était sortie par la fenêtre, #mais je ne pensais pas que c'était le cas.
These ground tracks suggested to me that the person went out through the window, but I didn't think it was the case.

(17) Ces traces me suggéraient.IMPERF. que la personne était sortie par la fenêtre, OK mais je ne pensais pas que c'était le cas.
These ground tracks suggested to me that the person went out through the window, but I didn't think it was the case.

(18) Pierre a exigé.PERF. de l'attention, OK mais je ne lui en ai pas accordé.
Pierre demanded attention, but I didn't pay any to him.

(19) Ce travail a exigé.PERF. de l'attention, #mais je n'en ai pas accordé.
This work demanded attention, but I didn't pay any.

(20) Ce travail exigeait.IMPERF. de l'attention, OK mais je n'en ai pas accordé.
This work demanded attention, but I didn't pay any.

As illustrated by (15)-(17), with *suggérer*, the referent of the dative argument is committed to the truth of its *que*-clause with a non-agentive subject in sentences with *passé composé* only. On the other hand, *exiger* entails the occurrence of an event satisfying the event description provided by its object in the same conditions. We suggest that these two additional sets of data have the same roots as the more restrictive contrast studied by Bhatt and Hacquard. It is of course difficult to cover these two new sets of constrasts involving non-modal verbs if the explanation relies as in Hacquard's account on a scopal difference between the aspectual and the modal component.

4. A semantic (non structural) account

The alternative analysis proposed here explain the extended set of data presented above without assuming a structural difference between the two sets of readings of modals. Like Hacquard, we keep Kratzer's hypothesis that *pouvoir* is monosemous, in the sense that it has the same meaning on its implicative or non-implicative readings. 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 behavior in imperfective sentences – is not problematic anymore. We also give up the idea the under circumstantial readings, modal verbs systematically trigger the AE in perfective sentences.

Our account focuses on 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),[5] while sentences with the *imparfait* are *unbounded* (they denote an event which is by default supposed to continue afterwards). The idea explored below is that it is the "Boundedness Constraint" associated to the perfective which is responsible for the entailment. The proposed analysis rests on a distinction between two types of abilities. We will introduce this ontological distinction before showing how the proposed hypothesis can account for the data.

4.1. Two types of abilities

Generic abilities (GAs) correspond to the traditional conception of abilities, as it is developed for instance by Kenny (1975). They can be defined by three ontological properties (cf. [i]-[iii] above) and an epistemological one (cf. [iv]):

[i] GAs do not require verifying instances (one does not have to kill a rabbit to have the GA to kill a rabbit);
[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 (temporally persistent): if a GA is ascribed to *i* in *t*, it is typically assumed that *i* has the same GA in some $t' \supset t$;[6]
[iv] GAs are a positive explanatory factor in accounting for the agent's performing an action (attributing to the agent *i* the GA to perform the action *a* can explain the fact that he performs *a*; "he was able to do it, so he did it")

Note that the English predicate *have the ability to* (and the French one *avoir la capacité de*) seems to denote exclusively abilities satisfying the three points [i]-[iv] just mentioned, while *be able to* (and the French predicate *être capable de*) has a broader extension. Let us compare for instance the two examples below:

(21) Brown was able to hit three bull's eyes in a row.

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5 Note 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*. On its aoristic use, the *passé composé* is a perfective past, and as the *passé simple*, denotes a bounded eventuality. Recall that as emphasised in note 2, replacing the *passé composé* by the *passé simple* does not change anything to the contrasts above. This suggests that it is well and truly the *boundedness* (and not another feature of the Perfect) which plays a role here.

6 Condoravdi already proposes to consider that *individual level predicates* (ILPs) like *be intelligent* trigger an inference of this kind (and generic abilities are very similar to the dispositions denoted by ILPs): "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 1992:92)

(22) Brown had the ability to hit three bull's eyes in a row.

As Thalberg (1972) and Piñón (2003) already noticed, (21) does not entail (22). (22) is true only if Brown could repeat his performance if he wanted to (the act of hitting three bull's eyes in a row is conceived as the non accidental result of a previous training which would allow Brown to repeat it). On the contrary, (21) can be true if the performance of Brown is conceived as accidental (vs. as the result of a previous training) and non-repeatable: he did it *and thus* could do it.
The question is now the following: what does *be able to* (or *être capable de*) denote when the performance is conceived as accidental and non-repeatable?
The answer offered by Thalberg (1972) is that on this reading, *be able to* is a predicate of action, whose meaning is roughly similar to the one of *to do*, *modulo* some additional implicatures. However, this solution raises difficulties. Firstly, as already emphasised by Piñón (2003), the link between the two *be able to* is not transparently conveyed in the lexicon anymore. Secondly, neither *be able to* nor *être capable de* can be used as typical action predicates in discourse. For instance, the C is not a felicitous answer to A:

(23) A. Qu'est-ce que Pierre faisait quand tu es entrée?
B. Il mangeait un sandwich.
C. #Il pouvait manger un sandwich
A. *What was doing Pierre when you entered?*
B. *He was eating a sandwich.*
C. *#He was able to eat a sandwich.*

Besides, they cannot be used in perception reports, which is unexpected if they are semantically equivalent to an action predicate:

(24) *J'ai vu Paul pouvoir manger un sandwich.
*I saw Paul be able to eat a sandwich

The answer proposed here is that on the relevant reading, (21) denotes what we propose to call an *action dependent ability* (ADA). They have four properties differentiating from GAs (again three ontological ones, and an epistemological one):

[i'] ADAs require an action to exist — actually, an ADA *ontologically depends* on the corresponding action[7]

7 The 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). Engelberg (2005) uses the Kimian concept of supervenience of define the relation taking place between the eventuality denoted by German verbs like *helfen* ('help') and the one described by the action through which the help is performed. Martin (2006) uses the generation relation to define the relation between two eventualities described in sentences like *In doing the dishes, he was clever* (the temporary 'in action' state of cleverness is

[ii'] ADAs are weaker abilities than GAs because a unique and non repeatable performance suffices to imply the corresponding ADA[8]
[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)
[iv] The attribution to the agent *i* of the ADAs to do the action *a* is not typically used as an explanation of the fact that *i* did *a*. It is rather because *a* performs an action *a* that we attribute him the ADAs to perform *a* ("he did it, so he was able to do it").

In summary, the meaning of a predicate like *être capable de* or the abilitative *pouvoir* has a broader extension than the predicate *avoir la capacité de* because it can either denote an GA or the corresponding ADA. We do not assume two lexical entries for *être capable de* or the abilitative *pouvoir*, but assume instead that the semantics of these predicates (provided in section 5) is underspecified and that the relevant reading is chosen through contextual factors like tense, aspect or rhetorical relations.

4. New proposal

Let us now turn back to the new analysis of the data to be explained. We assume that modal verbs are stative and introduce a state *s* (which corresponds eg to an ADA or a GA). Recall that as emphasised above, the *passé composé* requires the eventuality *v* (or, when they are several, *one* of the eventualities) denoted by the sentence to be bounded, ie to have reached its final boundary. In a nutshell, our hypothesis is the following: *the* AE *is triggered when the eventuality* v *described by the matrix verb (i) is the only one which can satisfy the "Boundedness Constraint" associated to the passé composé under its two readings and (ii) ontologically depends on an action* a *satisfying the description given in the infinitive. If another eventuality* v' *which does not depend on such an action* a *can satisfy the Boundedness Constraint, the* AE *is not compulsory* (HYP. 1). We will now show how HYP. 1 accounts for the relevant data.

Abilitative readings of modal verbs: ADAs vs GAs. Let us address first to classical case of modal verbs on their abilitative readings. The idea is roughly the following: it is only when the modal verb is forced to denote an ADA that the AE arises, since ADAs ontologically depend on an action (of the type denoted by the infinitive) whereas GAs do not require any instantiation. *Ceteris paribus*, the choice of the *passé composé* will then invite the modal verb to denote an ADA rather than a GA, since ADAs are by default conceived as bounded, and GAs as unbounded.

'generated by' the action of doing the dishes). This relation is very similar to the one at study here: again, the state *s* has the same temporal boundaries as the action on which it depends.

8 Elgesem (1997) already proposes that abilities do not always require repeatability.

Let us now go through the examples in more details. When the sentence is imperfective as in (4c), it can easily describe a GA, since it is naturally conceived as unbounded. As a GA does not require a performance, no AE arises:

(4) c. Marie pouvait s'enfuir, OK mais elle ne s'enfuyait pas.
Marie could escape, but she didn't do it.

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']), (4a) entails an action *a* in *t:*

(4) a. Marie a pu.$_{\text{PERF.}}$ s'enfuir, #mais elle ne s'est pas enfuie.
Marie could escape, # but she didn't do it.

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 GA 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:

(7) Notre nouveau robot a même pu.$_{\text{PERF}}$ 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 even iron shirts at a particular stage of its development. But we suppressed this function (which was never tested) for rentability reasons.

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 triggers the AE):

(8) T'as pu.$_{\text{PERF}}$ avoir un repas gratuit, et tu ne t'es même pas levé !
You could have a meal for free, and you even didn't get up !

In fact, with a stative verb, the predicate *pouvoir* cannot receive its abilitative reading, because there is no ability to be in a certain state. This restriction reflects on the distribution of "abilitative-only" modal verbs like *avoir la capacité de*, which cannot combine with stative verbs:

(25) #J'ai la capacité d'avoir les cheveux longs.
I have the ability to have long hair.

Thus in (8), what is bounded is not an ability, but a *circumstance*. As a bounded circumstance does not ontologically depend on an action satisfying the infinitive, no AE arises.
However, if the stative predicate is coerced in an agentive one (which is possible in (8), where *avoir* 'to have' can be reinterpreted as meaning *obtenir* 'to obtain'), then the modal verb can instantiate its abilitative reading again. In a sentence with *passé composé*, the abilitative reading denotes preferentially an ADA (*cf.* above), and as a result, the AE is triggered.

The epistemic and pure circumstantial reading of modal verbs. Let us now address the other readings of modal verbs, and firstly the "pure circumstantial"[9] one (under which *pouvoir* is roughly paraphrasable by *avoir la possibilité de*). On this reading, the state *s* denoted by the modal verb corresponds to a certain state of the world enabling the agent to do something. As this state does not ontologically depend on an action, *pouvoir* does not trigger the AE. For instance, (25) does not entail that Pierre took the train when *pouvoir* is paraphrasable by *avoir la possibilité de* ('have the ability to'):

(26) Pierre a pu prendre le train pour Londres, et cet imbécile ne l'a pas fait.
Pierre could take the train for London, and *this imbecil didn't do it.*

Note however that for this reading to be completely natural with the *passé composé*, one should provide a particular context which justifies that the circumstances at hand are conceived as bounded. After all, in a default context, if Pierre missed a train for London, we generally assume he can take the following one; in other words, circumstances of this type are conceived as unbounded. But (26) is perfectly fine in a less normal world where having the possibility to take the train for London is quite an exceptional thing. Without this context, either the *imparfait* fits better the speaker's intention, or the interpreter tends naturally to interpret *pouvoir* on its abilitative reading as denoting an ADA, and then the AE is triggered.[10]
When the modal instantiates its epistemic reading in a perfective sentence as in (4b), we assume that it denotes a state *s* corresponding to a certain epistemic possibility (the state *s* during which *p* can be true, from all what the speaker knows, *p* being the proposition described by the infinitive). Arguably, epistemic possibilities are easily be conceived as bounded. The Boundedness Constraint associated to the *passé composé* is thus already satisfied. As an epistemic

9 The "pure circumstantial" reading is one of the circumstantial readings, which also count the abilitative and the goal-oriented one. What we propose for the pure circumstantial reading can roughly be applied to the goal-oriented reading of modal verbs, which is sometimes quite difficult to distinguish from the pure circumstantial reading, except the fact that a constituant from the sentence (like a *in order*-phrase) specifies the goal of the agent.

10 Hacquard (2006) assumes that the AE is triggered in the pure circumstantial reading. We disagree with her judgement.

possibility certainly does not depend on an action to take place, no AE arises either.[11]

Psych-verbs and illocutory verbs. As emphasised below, our proposal also aims to account for the fact that the implicativity of non modal verbs like *encourager* or *inviter* also covaries with the choice of the tense. Examples (9)-(14) built with such verbs are repeated below for convenience:

(9) Pierre m'a encouragé.$_{\text{IMPERF.}}$ à entrer, mais je ne suis pas entrée.
Pierre encouraged me to enter, but I didn't enter.

(10) Ce panneau m'a encouragée.$_{\text{IMPERF.}}$ à entrer, #mais je ne suis pas entrée.
This panel encouraged me to enter, but I didn't enter.

(11) Ce panneau m'encourageait.$_{\text{IMPERF}}$ à entrer, OK mais je ne suis pas entrée.
This panel encouraged me to enter, but I didn't enter.

(12) Pierre nous a invités$_{\text{PERF.}}$ à tout reconsidérer, mais on ne l'a pas fait.
Pierre encouraged us to reconsider everything, but we didn't.

(13) Ces nouvelles données nous ont invités.$_{\text{PERF.}}$ à tout reconsidérer, #mais on ne l'a pas fait.
These new data invited us to reconsider everything, but we didn't.

(14) Ces nouvelles données nous invitaient.$_{\text{IMPERF.}}$ à tout reconsidérer, OK mais on ne l'a pas fait.
The discovery of all these data invited us to reconsider everything, but we didn't.

The easy cases are the agentive readings (9) and (12) with the *passé composé*, and the stative readings (11) and (14) with the *imparfait*. Examples (9) and (12) do not yield an AE simply because the action *a* of Pierre (his encouragement or invitation) already provides the bounded *v* demanded by the *passé composé*. Example (11) denotes a state *s* of the subject, for instance the panel's state consisting of encouraging visitors to enter (through eg a *welcome* inscription). In this example, the choice of the *imparfait* is plainly justified, because this state *s* is by default conceived as unbounded: one does not assume that the panel endures a change of state during my visit. Precisely because *s* is conceived as unbounded in the default context, sentence (10) is by default not understood as denoting the same state as (11), since the *passé composé* needs a bounded eventuality. The most obvious way to feed the *passé composé* with such an eventuality is to interpret *encourager* as denoting this time the *psychological effect* that the panel triggered on me. Now, it would be rather odd to describe the panel as triggering the effect of encouraging me to enter if I

11 We thank Michael Hegarty (c.p.) for his suggestion about the epistemic readings of modal verbs.

didn't enter.[12] Hence the AE. An alternative way to fill the Boundedness Constraint in (10) is to provide a context which forces to conceive some *bounded* state *s* of the same type as the one denoted in (11), for instance with the help of a durative adverbial. For instance, let us imagine an electronic panel displaying a welcoming message for fifteen seconds only. Then, a sentence like *Le panneau m'a encouragé pendant 15 secondes à entrer* ('The panel encouraged.$_{\text{PERF}}$ me to enter for 15 seconds') does not trigger the AE, because the Boundedness Constraint imposed by the *passé composé* is this time filled by the panel's state *s*. The contrast (13)-(14) can be accounted for exactly in the same way.

Hacquard's examples containing the illocutory verb *permettre* can also be explained independently of its modal component. The relevant contrast (5a)-(5b) are repeated below:

(5) a. La carte m'a permis.$_{\text{PERF}}$ d'entrer dans la bibliothèque, #mais je ne suis pas entrée.
The card permitted me to enter the library, but I didn't do it.
b. Le doyen m'a permis.$_{\text{PERF}}$ d'entrer dans la bibliothèque, OK mais je ne suis pas entrée.
The dean permitted me to enter the library, but I didn't do it.
c. La carte me permettait.$_{\text{IMPERF}}$ d'entrer dans la bibliothèque, OK mais je ne suis pas entrée.
The card permitted me to enter the library, but I didn't do it.

In (5b), the action of the dean provides the bounded *v* asked for by the *passé composé*. As an agentive permission to do *a* does not entail a performance of *a*, no AE arises in (5b). In (5c), *permettre* denotes a state *s* of the card, namely the state consisting of having the properties of enabling its user to enter the library. As a card is usually assumed to keep these properties through time, *s* is conceived by default as unbounded, hence the *imparfait*. Precisely because of this, (5a) -- which contains a *passé composé* -- is typically not understood as denoting the same state *s* as (5c), except if a durative adverbial helps us to magically conceive this state *s* as bounded, which is the case in (6):

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12 Rather odd but not impossible. For instance, I could say *Le panneau m'a encouragé à entrer* ('the panel encouraged-past-perf. me to enter') just to report the psychological effect triggered by the panel on me, and add that nevertheless, I finally decided to go against this feeling and chose not to enter. In this very particular context, (10) does not trigger the AE anymore, and the presence of the *passé composé* is still justified because the reported psychological effect is bounded. So *stricto sensu*, one does not deal with an *entailment* in (10), but rather with a strong implicature.

Note that an important difference between the interpretation of *encourager* in (10) and (11) is that in the second case, the verb denotes an "objective" encouragement, in the sense that the encouraging properties of the state does not depend on what the Experiencer thinks of it. On the contrary, in (11), *encourager* denotes a "subjective" encouragement, in the sense that the effect induced by the panel on the Experiencer depends on the way the Experiencer evaluated it. On this point, see Martin (2006 & forthcoming).

(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.*

As such a state *s* does not ontologically depend on an action *a*, no AE arises. A natural way to fill the Boundedness Constraint in (5a) without the help of an adverbial consists in interpreting *permettre* as denoting the *enabling effect* resulting from the use of the card (namely the effect of enabling me to enter the library). Indeed, such an eventuality is this time easily conceived as bounded, since it shares the boundaries of an action. But this of course implies that I performed the action *a*, hence the AE.

Influence of aspect on the meaning of other verbs. As mentioned in Section 3, choosing the *passé composé* instead of the *imparfait* may also have a comparable effect to the one previously described on verbs which do not systematically subcategorise an infinitival complement (cf. the examples (15)-(20) partly repeated below). For instance, recall that tense interacts with the interpretation of *suggérer* also when this verb is used with a *que*-clause, as in (15)-(17):

(15) Pierre m'a suggéré.PERF. que la personne était sortie par la fenêtre, mais je ne pensais pas que c'était le cas.
Pierre suggested to me that the person went out through the window, but I didn't think it was the case.
(16) Ces traces m'ont suggéré.PERF. que la personne était sortie par la fenêtre, #mais je ne pensais pas que c'était le cas.
These ground tracks suggested to me that the person went out through the window, but I didn't think it was the case.
(17) Ces traces me suggéraient.IMPERF. que la personne était sortie par la fenêtre, OK mais je ne pensais pas que c'était le cas.
These ground tracks suggested to me that the person went out through the window, but I didn't think it was the case.

Let us call *p* the proposition denoted by the *que*-clause of *suggérer*. The *que*-clause of the verb *penser* 'think' of the second sentence roughly denotes the same proposition *p* (because of the anaphorical link provided by *ce*). Besides, let us call *A* the Experiencer denoted by the dative of *suggérer* (which corefers with the subject of *penser* 'think' in the second part of the sentence). The facts illustrated in (15)-(17) can be restated as follows: *A* must assume *p* to be true if and only if the subject of the matrix verb *suggérer* is non-agentive *and* the sentence is perfective.
Basically, these data can be explained in the same way as for *encourager*. In (15), the action of Pierre (namely a speech act having *p* as its content) provides

the bounded *v* demanded by the *passé composé*. Roughly, the effect *f* that the performer of such a speech act is pursuing is that his addressee believes that *p* (generally, one suggests that *p* to A because one wants A to believe *p*). As this kind of speech act can obviously be performed without the desired effect *f* to be triggered, A does not have to believe that *p*. In (17), the verb is this time interpreted as denoting a state *s* of the ground tracks, namely simply the state of being present there and thereby suggesting that *p* to the perceiver of these tracks. As this state is by default conceived as unbounded – the tracks are not assumed to disappear suddenly -- the choice of the *imparfait* is justified. Precisely for this very reason, (16) is not interpreted as reporting the same state as (17), since the *passé composé* needs a bounded eventuality. A natural way to fill the Boundedness Constraint of this tense is to interpret *suggérer* as denoting the psychological effect *v* that the ground tracks triggered on *A*, namely that they made *A* think by their presence that *p*. But again, it would odd to report such an effect in *A* if *A* is presented as not believing that *p*. Hence the oddity in (16).[13] The examples (18)-(20) can be accounted for in the same way too.

6. Conclusions and perspectives

In summary, we have tried to show that 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, which is independently philosophically motivated. Another advantage of our proposal is that it does not rely on a fine-grained typology of non-abilitative readings of modal verbs, which are sometimes not so easy to differentiate (whereas this fine-grained typology is vital for approaches *à la* Hacquard).

To conclude, we would like to present two problems related to the one under study here. As far as we know, they have never been addressed in previous literature and are thus unsolved.

The dative argument. The first one concerns the syntactical status of the dative argument in previous examples. As a general rule, this argument behaves like an adjunct in sentences with the *passé composé* which do not trigger the AE (or a similar inference), as well as in sentences with the *imparfait*. For instance, its presence is not compulsory in (5b), (5c), (6), (9), (11), (14), (15) and (17). However, in every case studied here, the dative argument behaves like an argument in sentences with the *passé composé* which trigger the AE (or a similar inference). For instance, its presence is obligatory in (5a), (10), (13) and (16).

13 Again, (16) can be acceptable in a very particular context where the tracks induced in *A* the thought that *p*, but where *A* finally rejected this precise thought. So again, we are dealing with a strong implicature and not with an entailment.

The imparfait. second problem concerns the distribution of the *imparfait*.

The semantics. A proper semantics remains of course to be developed.

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