

Actuality entailments and an additional meaning component *

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1 Introduction

- Circumstantial modality expresses the possibility or necessity of some state of affairs given some set of circumstances surrounding an individual.
- One interpretation of (1) is that the PREJACENT, taking the train, is a possibility for Jane, perhaps because she can afford the tickets, there is a train that goes to London, the train fits her schedule, etc.

(1) Jane **peut** prendre le train pour aller à Londres.
'Jane **can** take the train to go to London.'

- In certain languages with a perfective-imperfective distinction (e.g., Hacquard 2006 for French; Bhatt 1999 for Greek and Hindi), circumstantial modals can be marked with perfective aspect to generate a so-called ACTUALITY ENTAILMENT (AE).¹
- (2) below contains two circumstantial modal constructions from Hacquard (2006). Perfective (PFV) aspect appears in (2a), and imperfective (IMPF) appears in (2b).

(2) a. Jane **a pu prendre** le train pour aller à Londres, #mais elle a pris l'avion.
'Jane was able (**could-PFV**) to take the train to go to London, #but she took a flight.'

b. Jane **pouvait prendre** le train pour aller à Londres, mais elle a pris l'avion.
'Jane had the ability (**could-IMPF**) to take the train to go to London, but she took a flight.'

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¹AE also occurs in English, to a certain extent, with *be able to* sentences even though it does not overtly distinguish between perfective and imperfective.

- (2a) with PFV generates an AE, so the prejacent is entailed to have occurred. In other words, (2a) entails the non-modal sentence (3) below.

(3) Jane **a pris** le train pour aller au zoo.

‘Jane took the train to go to the zoo.’

- The same cannot be said of (2b) with IMPF. A continuation suggesting that the prejacent didn’t take place causes a contradiction with (2a), but not (2b).
- There is some sense in which the AE-containing sentence (2a) has lost its modal meaning. Making it more like the non-modal sentence (3).
- Speakers nevertheless judge the two sentences to be different, with the AE-containing sentence carrying some additional nuance of difficulty or desirability. I will refer to this as the extra meaning component.

Q: How can we characterize and derive this difference in an account of AE?

2 An Asymmetry

- Not all prejacentes are good with AEs out of the blue.

(4) a. Alex **a pu gagner** le jeu.

‘Alex could-PFV win the game.’

b. # Alex **a pu perdre** le jeu.

‘Alex could-PFV lose the game.’

- This asymmetrical behavior is restricted to AE contexts. *Perdre* is fine in non-modal contexts as well as *imparfait*-marked modal contexts (where there are no AEs).

(5) a. Alex **a gagné** le jeu.

‘Alex won the game.’

b. Alex **a perdu** le jeu.

‘Alex lost the game.’

(6) a. Alex **pouvait gagner** le jeu.

‘Alex could-IMPF win the game.’

b. Alex **pouvait perdre** le jeu.

‘Alex could-IMPF lose the game.’

- I argue that it is this extra meaning component is the cause of this asymmetry. It seems to convey that there was some difficulty or obstacle to attaining the prejacent
- Recent analyses of AE (e.g., Hacquard 2006, Kratzer 2011) account for this entailment relationship in a general way, but fail to capture the facts in (4-6).
- Other analyses (e.g., Bhatt 1999) capture the extra meaning component but do not capture the crosslinguistic generality of AE well.

3 Hacquard (2006)

- **Main Goal:** Frame AE as the result of the interaction between aspect and modality as they are found elsewhere in the grammar.
- Modality is treated as quantification over sets of possible worlds that satisfy particular criteria à la Kratzer (1981).
- Hacquard’s Innovations: a world-anchoring property for aspectual operators (7), and a principle of event identification across worlds (8).
- She furthermore proposes the LF in (9a), generating the truth conditions in (9b).

$$(7) \quad \llbracket \text{PFV} \rrbracket = \left[\lambda w_s. \left[\lambda t_i. \left[\lambda P_{\langle e, t \rangle}. \exists e [e \text{ is in } w \wedge \tau(e) \subseteq t \wedge P(e) = 1] \right] \right] \right]$$

(8) **Event Identification Across Worlds**²

For any w_1, w_2 : If an event e occurs in w_1 and w_2 and e is described as a P-event in w_1 , it will be identifiable as a P-event in w_2 as well.

- (9) a. [PAST [PFV [can [Alex win the game]]]]
 b. $\exists e [e \text{ is in } w^* \wedge \tau(e) \subseteq t_{past} \wedge \exists w' \in \text{Acc}(w^*) [\text{win-game}(w')(e)(\text{Alex})]]$

- Derivation of the AE:
 - The truth conditions in (9b) assert that event e takes place both in the actual world w^* and an accessible world w' .
 - e is also described to be a game-winning event in w' .
 - Because of the Event Identification principle, e is identifiable as a game-winning event in w^* .

3.1 Proposal for the extra meaning component

- Extra meaning component is a scalar implicature. Saying (10) implies $\neg(11)$. The intuition here is to generate a “some but not all possible worlds” implicature.

$$(10) \quad \text{Jane a pu prendre le train.} \\ \exists e [e \text{ in } w^* \wedge \tau(e) \subseteq t_{past} \wedge \exists w' \in \text{Acc}(w^*) [\text{win-game}(w')(e)(\text{Alex})]]$$

$$(11) \quad \text{Jane a dû prendre le train.} \\ \exists e [e \text{ in } w^* \wedge \tau(e) \subseteq t_{past} \wedge \forall w' \in \text{Acc}(w^*) [\text{win-game}(w')(e)(\text{Alex})]]$$

²Hacquard eventually reformulates this principle to handle cases involving things like mistaken beliefs, commenting that “this [updated] version will only matter in cases where the modal base is not realistic”. For this reason, I cite her first formulation, which will be sufficient for our purposes.

- $\neg(11)$: $\neg\exists e[e \text{ is in } w^* \wedge \tau(e) \subseteq t_{past} \wedge \forall w' \in Acc(w^*)[\text{win-game}(w')(e)(\text{Alex})]]$
 $\iff \forall e[e \text{ is not in } w^* \vee \tau(e) \not\subseteq t_{past} \vee \exists w' \in Acc(w^*)[\neg\text{win-game}(w')(e)(\text{Alex})]]$
 $\iff \forall e[(e \text{ is in } w^* \wedge \tau(e) \subseteq t_{past}) \rightarrow \exists w' \in Acc(w^*)[\neg\text{win-game}(w')(e)(\text{Alex})]]$

In prose: All events e that occur in some past time interval in the actual world are, in some accessible world, not game-winning events by Alex.

- In some *but not all* worlds consistent with the circumstances, Alex wins the game.
- In other words, while winning was a possibility for Alex, **not winning (i.e. losing) was also a possibility, based on the relevant circumstances**. Winning was not a necessity.

!! For *lose*: The implicature would be that losing was a possibility for Alex, but not a necessity. This is not contradictory or infelicitous to talk about, so we have no explanation for the win-lose asymmetry pointed out in (4).

4 Possible steps towards a solution

- Desirability and non-triviality
 - Winning is stereotypically desired and requires some concerted effort to achieve
 - Losing is stereotypically undesired and typically requires less/no effort
- “Not inevitable” vs “not likely”
 - Hacquard’s proposal says the extra meaning component conveys non-inevitability.
 - However, the notion of low likelihood seems to fit better.
 - How do we capture this? Graded modality? Universal quantification?
- Other prejacent?
 - No notion of subject’s “desires”

(12) Context: We are talking about an elevator with a rated capacity of 1000kg.
This elevator was able to lift (1500kg / #500kg).

- Less intentional predicates like *see*, *grow*, *fall*, etc.

- Connection to counterfactuality
 - Counterfactuals: Assert that a *possibility* in the past *did not* come to pass
 - Extra Meaning Component: Assert that an *improbability* in the past *did* come to pass

References

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