

ASPECT AND ACTUALITY ENTAILMENT: TOO AND ENOUGH CONSTRUCTIONS*

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Abstract

This paper discusses implicative readings of too and enough constructions (TECs), that is, readings where their complement clause is realized in the actual world. There appears to be a correlation between aspect and implication in these constructions: with perfective aspect, TECs are implicatives, with imperfective, they aren't. I show that previous analyses cannot handle this aspectual interaction, nor derive implicative readings at all. I propose a new analysis, in which the base meaning of TECs is implicative and non modal, and emerges with perfective aspect, while the non implicative readings of TECs arise with imperfective morphology, which I take to be a reflection of a covert genericity operator.

1 Introduction

This paper discusses a peculiar interaction between aspect and actuality entailment in *too* and *enough* constructions (TECs). The puzzling data is presented in the French examples (1a) and (1b), which differ only in the aspect of the matrix verb:

- (1) a. Jean a été assez rapide pour s'enfuir (#mais il ne s'est pas enfui)
Jean was-pfv. quick enough to escape (#but he didn't escape)
b. Jean était assez rapide pour s'enfuir (mais il ne s'est pas enfui)
Jean was-impf quick enough to escape (but he didn't escape)

In (1b) the complement clause need not hold in the actual world, while in (1a) it must. Because they focused on English and German, whose morphology is impoverished, previous analyses (e.g., von Stechow 1984, Heim 2001, Meier 2003) overlooked this aspectual interaction with implicative readings, and, in fact, cannot capture the role of aspect, and possibly not derive implicative readings at all.

In this paper, I propose a new analysis of TECs, in which a basic TEC only asserts the complement clause (implicative reading) and presupposes that there is some degree of adjective sufficient and necessary for the realization of the complement clause. I derive

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the non implicative reading through a covert genericity operator, reflected by imperfective morphology (cf. Bhatt 1999 for the ability modal).

2 Previous analyses of TECs

At first blush, the meaning of TECs seems to involve a comparison of degrees, with an actual degree being compared to a hypothetical one. Thus Mary’s age in (2) seems to be compared to a relevant age at which one *can* drive, given certain requirements. Similarly, the goodness of the food in (3) seems to be compared to the relevant goodness at which one *can* throw it away.

(2) Mary is old enough to drive

(3) The food is too good to be thrown away

That the second degree is non-actual can be illustrated by a continuation that negates the complement clause. (2) is still felicitous with the continuation “*but she doesn’t drive because she is legally blind*”.

Standard analyses of TECs (e.g., Meier 2003, Heim 2001) cash out this intuition by treating them as comparative constructions, which involve covert modality in their complement clauses. (4) and (5) illustrate Meier’s analysis for (2) and (3), where the complement clause (e.g., Mary drives) is implicitly modalized by a modal of existential force (simplified somewhat for expository purposes):

(4) $MAX\{d: \text{Mary is } d\text{-old}\} \geq$
 $MIN\{d^*: \exists w \in Acc(@) \text{ s.t., Mary is } d^*\text{-old in } w \ \& \ \text{Mary drives in } w\}$
 Mary is older than the minimal age at which one can drive in view of the law.
 @=actual world

(5) $MAX\{d: \text{Mary is } d\text{-old}\} >$
 $MAX\{d^*: \exists w \in Acc(@) \text{ s.t., the food is } d^*\text{-good in } w \ \& \ \text{one throws it in } w\}$
 The food is better than the goodness at which one is allowed to throw it away.

However, as first pointed out by Karttunen (1971) for English, the complement clause is not always understood as being hypothetical, that is, TECs can have “implicative readings” (i.e., entail the actualization of their complements). Consider the following pair of examples:

(6) a. John was clever enough to leave early (implicative)
 b. John was clever enough to solve math problems (non implicative)

(6a) implicates that John actually left early, whereas (6b) doesn’t implicate that John actually solved math problems. Note that in English, the implication in (6a) can be cancelled. However, the implication that arises with perfective morphology in the French example (1a) cannot. I take the cancelability of the implication in English to be due to the language’s morphological impoverishment. While sentences like (6a) favor a perfective reading, they need not to, and when speakers accept a continuation that

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denies the realization of the complement clause, they really read the matrix verb as being imperfective.

Meier (2003) takes implicative readings to be due to a contextual effect. To obtain the implicative reading of (6a), she uses a fatalistic accessibility relation, which trivializes the modality by picking out only the actual world (by providing all the facts describing it).

However, this move is problematic in two respects. First, it fails to capture the role of aspect in actuality entailments. As (1) illustrates, context alone cannot explain the difference in implication, given that in languages with a richer aspectual morphology (e.g., French) the implicative reading only appears with matrix perfective morphology. Thus to handle the contrast in (1) Meier would have to stipulate that perfective aspect in the matrix always triggers a fatalistic accessibility relation in the complement. But even then, it doesn't seem that the semantics will work. With this accessibility relation, the only world that is quantified over is the actual world. If the consequent is true in the actual world (John left early), the sentence will trivially come out as true. If the consequent is false (John didn't leave early), the sentence will come out as undefined, because of the definiteness of the MIN operator.¹ Thus sentences constructed with this accessibility relation will either come out as true or as undefined, which is not what our intuitions tell us (cf. Appendix for details).

Other analyses (e.g., Heim 2001, von Stechow et al. 2004) will run into similar problems, because they all assume that TECs are at base modalized, and thus they cannot derive implicative readings either (cf. Appendix).

3 Proposal

Previous analyses cannot capture the interaction of aspect with actuality entailment because they all assume that (i) TECs are always implicitly modalized; and (ii) TECs are comparatives. I propose instead that (i) the base meaning of TECs is *non* modal; and (ii) TECs are not comparatives *per se*: they assert the complement clause and implicate (via a presupposition) a bidirectional relation between the degree of the adjective and the complement clause. The basic non-modal meaning emerges with perfective morphology and asserts that the complement took place (7). The modal reading emerges once the basic meaning combines with a covert genericity operator.

- (7) a. Jean a été assez rapide pour s'enfuir
Jean was-pfv. quick enough to escape
b. ASSERTION: Jean escaped
c. PRESUPPOSITION: there is a sufficient and necessary degree of quickness
which guarantees Jean's escape.

¹ $\text{MIN}(E) = \lambda e [e \in E \ \& \ \forall e' \in E \Rightarrow e' \geq e]$

4 Basic meaning of *enough* constructions

The basic meaning of *enough* (and *too*) constructions involves an assertion and a presupposition.

4.1 The assertion

Karttunen (1971) shows that implicative predicates share two characterizing properties: (i) when negated, they entail the negation of their complement clauses, and (ii) their complement clauses carry the ‘illocutionary force’ of the sentence. Karttunen takes these two properties to derive from the fact that the proposition that implicative constructions assert consists only of their complement clause (augmented by the matrix modifiers). I will first illustrate these two properties with the implicative *manage*, and then show that perfective TECs share these characteristics. I will conclude that the proposition that perfective TECs assert consists only of their complement clause (augmented by the matrix modifiers).

1. Implicatives seem to entail the actuality of their complement. When negated, they entail the actuality of the *negation* of their complement (contrast with factives):

- (8) a. John managed to solve the problem
 → John solved the problem
 b. John didn’t manage to solve the problem
 → John **didn’t** solve the problem

2. The complement clause carries the ‘illocutionary force’ of the sentence. With imperatives and questions, one really commands or questions the embedded complement: if one already knows the answer to (9b), one would not ask (9a) (contrast with the non implicative predicate *hope* in ‘*John hoped to solve the problem*’).

- (9) a. Did he manage to solve the problem?
 b. Did he solve the problem?

These facts are captured in Karttunen’s analysis where implicative constructions have two dimensions: (i) a proposition (what is being asserted: the complement clause, augmented by the tense and other modifiers of the matrix); (ii) a presupposition of some necessary and sufficient condition which alone determines whether the event described in the complement took place:

- (10) Yesterday, Jean managed to kiss Mary
 ASSERTION: Yesterday, Jean kissed Mary
 PRESUPPOSITION: Jean’s success in kissing Mary depended only on his ingenuity

Perfective TECs share the same characteristics:

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1. Negated (perfective) TECs assert the negated complement clause, rather than the negation of the comparison. (11) comes out as a contradiction (note that with imperfective aspect, the sentence would be fine, which is why the English gloss is OK).

- (11) #Jean n'a pas été assez âgé pour monter à cheval, mais il était si grand qu'ils l'ont quand même laissé monter.
Jean was-pfv not old enough to ride a horse, but he was-imp so tall that they still let him

2. In (perfective) TECs, the complement clause carries the 'illocutionary force' of the sentence:

- (12) a. Speaker A : Il y a eu un incendie sur le campus hier.
Heureusement, Jean a réussi à s'enfuir.
*There was a fire on campus yesterday.
Luckily, Jean managed to escape.*
- b. Speaker B : #Jean a-t-il été assez rapide pour s'enfuir ?
Jean was-pfv. enough fast to escape

Speaker B cannot ask (12b) if he already knows that Jean escaped.

Thus when one negates/questions a (perfective) TEC, one really negates/questions its complement clause. I take these facts to indicate that the base meaning of TECs: (i) is implicative and only asserts the complement clause (augmented by the matrix tense and modifiers); and (ii) is non modal. We can thus straightforwardly obtain the implicative meaning of TECs without having to find a stipulative way to unmodalize the sentence.

4.2 The presupposition

In the above section, I argued that the assertion consists only of the complement clause. To capture the full meaning of TECs, I derive the relation between the subject's degree of adjectiveness and the complement clause through the presupposition in (13):

- (13) PRESUPPOSITION: $\exists d$ s.t. $[\forall w \in \text{Acc}(@).[[\text{CP}]]^w \leftrightarrow [[\text{Adj}]](w)(d)([[\text{DP}]]]$

The presupposition is modalized using Lewis' (1986) maximal similarity, in order to prevent alien spaceships to intervene in Jean's escape. The accessible worlds are those worlds that are as close to ours as possible, as far as the relevant properties (of escaping in (7)) are concerned (whether there is a desire/need to escape, what the conditions of entrapment are, etc...). This is very similar to the accessibility relation involved in counterfactuals (modulo the implicature of a false antecedent). In the counterfactual "If kangaroos had no tail, they would topple over", we are not accessing worlds where kangaroos have crutches, but worlds as similar as ours, as far as the relevant properties

of kangaroos are concerned (cf. Lewis 1973, Iatridou 2001, a.o.)². This accessibility relation is realistic (i.e., includes the actual world).

The sentence in (7) (repeated as (14)) has the following assertion and presupposition:

- (14) Jean a été assez rapide pour s'enfuir
 Jean was-pfv. quick enough to escape
 ASSERTION: Jean escaped
 PRESUPPOSITION: There is a degree of quickness s.t., in all acc. worlds,
 Jean escaped iff Jean was (at least) that quick³:
 - If Jean was (at least) d-quick, he escaped
 - If Jean escaped, he was (at least) d-quick

One infers that Jean had the necessary level of quickness to escape as follows:

- (15) P1: In all acc. worlds (including @), if Jean escaped then Jean was d-quick
 P2: Jean escaped in @
 ∴ Jean was d-quick in @ (by Modus Ponens)

When the sentence is negated, the sentence has the following assertion and presupposition:

- (16) Jean n'a pas été assez rapide pour s'enfuir
 Jean was-pfv. not quick enough to escape
 ASSERTION: Jean didn't escape
 PRESUPPOSITION: There is a degree of quickness s.t., in all acc. worlds,
 - If Jean was (at least) d-quick, he escaped
 - If Jean escaped, he was (at least) d-quick

In this case, one infers that Jean didn't have the necessary level of quickness to escape:

- (17) P1: In all acc. worlds (including @), if Jean was d-quick then Jean escaped
 P2: Jean didn't escape in @
 ∴ Jean wasn't d-quick in @ (by Modus Tollens)

Thus one can see that the comparative 'flavor' of TECs is logically derived.

² We can reformulate the presupposition in order to truly reflect the counterfactuality:

(i) $\exists d^*$, s.t., if Jean hadn't been d*-quick he wouldn't have escaped and if he hadn't escaped he wouldn't have been d*-quick.

³ I take degrees to be lower bound: to be d-tall means to be at least d-tall.

5 The non implicative reading of *enough* constructions

We have seen so far that the base meaning of TECs is implicative: the assertion consists only of the unmodalized complement clause. We found that there is some level of modality in the presupposition domain, but the accessibility relation is very restricted and is always realistic. To derive the non implicative meaning of TECs, I argue that the construction combines with a covert genericity operator that doesn't need to include the actual world. This move is inspired by Bhatt (1999) who argues that a similar interaction of aspect and implication for the ability modal derives from the presence or absence of a covert genericity operator, reflected by imperfective morphology.

5.1 An analogy: Bhatt's (1999) analysis of ABLE

When ABLE has imperfective aspect (in languages that have the morphological contrast, such as French or Modern Greek in the example below), the complement clause doesn't need to hold in the actual world, as one should expect from a modal auxiliary (18a). However, when ABLE has perfective aspect, the complement *does* need to hold in the actual world (18b):

- (18) a. Borusa na sikoso afto to trapeze ala δ en to sikosa
 CAN.impf.1s NA lift.non-pst-pfv.1s this the table but NEG it lift.impf
 (In those days), I could lift this table, but I didn't lift it
- b. Boresa na tu miliso (#ala δ en tu milisa)
 CAN.pst-pfv.1s NA him talk.non-pst-pfv.1s but NEG him talk.pst-pfv
 I was able to talk to him (#but I did not talk to him)

In Bhatt's analysis, *ABLE* has the semantics of an implicative predicate (*manage*): what is asserted is the complement clause. A conventional implicature (cf. Karttunen and Peters 1979) states that some effort went into the realization of the complement clause. This yields the implicative reading associated with perfective morphology (18b). The modal reading (18a) is obtained through a covert genericity operator which doesn't require verifying instances, and is reflected by imperfective morphology.

Following Bhatt, I propose for TECs, that the imperfective morphology on the matrix is a reflection of a genericity operator which doesn't require verifying instances.

5.2 Semantics of the genericity operator

The genericity operator (Gen) is generally assumed to be universal, as it universally quantifies over *individuals* (x) (in cases that involve individual variables—e.g., bare plurals) and *situations* (s), with the relevant situations involving individuals being provided by the context (C). Gen is also assumed to be modalized, in order to derive the “law-like” flavor of generic statements: the universal statement is not an “accident” of the actual world, but rather holds of a set of worlds. Gen thus also universally quantifies over possible worlds (w), restricted by an accessibility relation (cf. Dahl 1975, Chierchia 1995, Krifka 1995, a.o.). The following example illustrates (from Greenberg 2002):

- (19) Grizzly bears snore very loudly.
 $\forall w'[w' \in \text{Acc}(w)] \rightarrow [\forall x,s [G. \text{ bear } (x,w') \wedge C(s,x,w')] \rightarrow [\text{snore loudly } (s,x,w')]]$
 “In all worlds w' accessible from w , every grizzly bear, in any contextually relevant situation (e.g., every sleeping situation) is snoring very loudly”.

This accessibility relation can be epistemic (as in the above example, in which the accessible worlds are those compatible with the speaker’s knowledge), or it can be deontic, as in the example below, where the accessible worlds are those in which the law is obeyed:

- (20) Dogs owners pay tax on them.

5.3 Non implicative readings of TECs

I use a genericity operator to derive the non implicative reading of TECs:

- (21) a. Jean est assez rapide pour s’enfuir
 Jean is-impf quick enough to escape
 b. ASSERTION: **GEN(Jean escapes)**
 c. $\forall w'[w' \in \text{Acc}(w)] \rightarrow [\forall s C(s,w')] \rightarrow [\text{jean escapes } (s,w')]$
 d. “In all accessible worlds, and in any relevant situation of escaping, Jean escapes”.

Here, the genericity operator combines with the proposition (complement clause augmented by the matrix tense and modifiers), and quantifies over worlds epistemically accessible, and situations provided by the context, namely, situations of ESCAPING. At this point two questions come to mind: the first one has to do with the meaning of the paraphrase in (21d), which seems stronger than what (21a) says. The second is a formal one: what happens to the presupposition associated with TECs?

The answer to the second question will in turn answer the first one. Following Schubert and Pelletier (1989), I take it that presuppositions get accommodated in the restriction of the genericity operator, such that, when one evaluates a generic statement, one restricts oneself to a set of situations which are determined by the presupposition. Consider the following example:

- (22) Cats land on their feet

The predicate “land on one’s feet” presupposes that the subject drops to the ground. This presupposition is accommodated in (22) by a restriction that can be stated as ‘whenever they drop to the ground’. Thus, (22) can be paraphrased as ‘in all situations where they drop to the ground, cats land on their feet’.

Similarly, in our TEC example, the presupposition gets accommodated into the restriction of Gen. This restricts the set of situations to those which *depend only on* Jean’s quickness. We can thus refine the meaning of (21a), with the following paraphrase:

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- (23) 'In all accessible worlds, and in any situation of escaping which depend only on Jean's quickness, Jean escapes'.

One can easily see that the reality might not be such that situations of escaping depend only on one's quickness. Other factors can intervene: for one, Jean might not have the desire to escape. Thus the proposition expressed by the complement clause ('*Jean escapes*') doesn't need to be actualized, yielding the non implicative reading of this *enough* construction.

6 The dual relation between too and enough

Following the same arguments as for *enough* constructions, I propose that *too* constructions: (i) assert the **negation** of the complement clause; (ii) have the following presupposition:

- (24) PRESUPPOSITION: $\exists d$, s.t. $[\forall w \in \text{Acc}(@). \llbracket \text{CP} \rrbracket^w = 0 \leftrightarrow \llbracket \text{ADJ} \rrbracket (w)(d)(\llbracket \text{DP} \rrbracket)]$

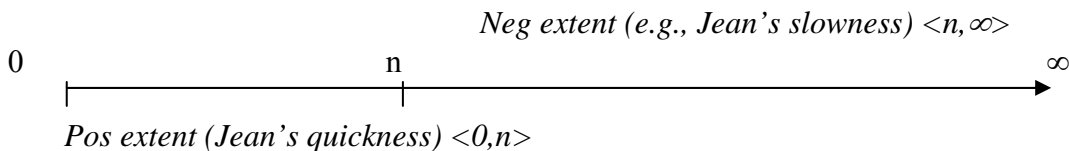
Thus, the sentence in (25) has the following assertion and presupposition:

- (25) a. Jean a été trop lent pour s'enfuir
Jean was-pfv too slow to escape
b. ASSERTION: Jean didn't escape
c. PRESUPPOSITION: There is a degree *d* of slowness s.t., in all acc. worlds, Jean didn't escape iff Jean was *d*-slow.

One of the most appealing advantages of previous proposals was the duality of *too* and *enough*. This current proposal can also account for the dual nature of *too* and *enough*. The following sentences are supposed to be truth-conditionally equivalent:

- (26) a. Jean was fast enough to escape
b. Jean was not too slow to escape

In order to see that the two are equivalent, one must first take into account the complementary of antonym gradable adjectives. Gradable adjectives (*quick*, *slow*) are relations between objects and intervals on a scale of degrees (cf. von Stechow 1984). Positive gradable adjectives and their negative counterparts use the same scale:



Positive adjectives (such as *quick*) relate positive extents ($\langle 0, n \rangle$) and objects; negative adjectives (e.g., *slow*) relate negative extents ($\langle n, \infty \rangle$) and objects. The slower one is,

the closer to 0; the quicker one is, the closer to ∞ . (I make the further assumption that n belongs to only one extent.) The polarity of adjectives allows the following equivalences:

- (27) a. quick = not-slow
 b. slow = not-quick

Given these equivalences, the presupposition in (25) is equivalent to the presupposition in the *enough* construction containing the antonym adjective, illustrated in (28):

- (28) a. Jean a été assez rapide pour s'enfuir
 Jean was quick enough to escape
 b. ASSERTION: Jean escaped
 c. PRESUPPOSITION: There is a degree d of quickness s.t., in all acc. worlds, Jean escaped iff Jean was **d-quick**.

Because of the polarity of gradable adjectives, and because of the *if and only if* relation in the presupposition, *too* and *enough* have equivalent presuppositions. The following proof illustrates:

- (29) $\exists d, \text{ s.t. } [\forall w \in \text{Acc}(@). \llbracket \text{Jean escaped} \rrbracket^w = 0 \leftrightarrow \llbracket \text{slow} \rrbracket(w)(d)(\llbracket \text{Jean} \rrbracket)]$
(replacing with negation of antonym adjective)
 $= \exists d, \text{ s.t. } [\forall w \in \text{Acc}(@). \llbracket \text{Jean escaped} \rrbracket^w = 0 \leftrightarrow \neg(\llbracket \text{quick} \rrbracket(w)(d)(\llbracket \text{Jean} \rrbracket))]$
(by logical equivalence: $\neg P \leftrightarrow \neg Q = P \leftrightarrow Q$)
 $= \exists d, \text{ s.t. } [\forall w \in \text{Acc}(@). \llbracket \text{Jean escaped} \rrbracket^w = 1 \leftrightarrow \llbracket \text{quick} \rrbracket(w)(d)(\llbracket \text{Jean} \rrbracket)]$

One can easily see then that (28) is equivalent to the negation of (25), given in (30):

- (30) a. Jean n'a pas été trop lent pour s'enfuir
 Jean was-pfv not too slow to escape
 b. ASSERTION: It's not the case that Jean didn't escape = Jean escaped
 c. PRESUPPOSITION: There is a degree d of quickness s.t., in all acc. worlds, Jean escaped iff Jean was d -quick.

Thus, *too* and *enough* have equivalent presuppositions, and differ only in that one asserts the *negation* of the complement clause, while the other asserts its realization.

7 Aspect and Implication

One point needs to be clarified: Aspect itself is not responsible for whether a TEC is implicative or not. Rather, it reflects the presence of operators, which themselves determine the implication.

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7.1 Perfective morphology

So far, we have seen that the basic implicative meaning appeared with perfective morphology. Could there be non implicative readings with perfective morphology? Consider the following example:

- (29) Jean a **toujours** été assez sobre pour conduire.
Mais sa femme ne l'a jamais laissé, parce qu'elle ne lui fait pas confiance.
Jean was-pfv. always sober enough to drive.
But his wife never let him because she doesn't trust him.

In (29) the continuation implies that the complement clause didn't take place. Contrast with (30):

- (30) **Hier**, Jean a été assez sobre pour conduire.
#Mais sa femme ne l'a pas laissé, parce qu'elle ne lui fait pas confiance.
Yesterday, Jean was-pfv. sober enough to drive.
#But his wife didn't let him because she doesn't trust him.

The crucial difference between the two examples is that the former involves universal quantification, whereas the latter involves existential quantification anchored by the adverbial 'yesterday'. The *passé composé* (perfective) in French is ambiguous between a preterit reading (which involves existential closure) and the Perfect (which involves universal quantification) (cf. Smith 1992). The example in (29) seems to involve a Perfect of a generic (which could be argued to involve both a Perfect and a Genericity operator). The morphological realization of such a Perfect requires the *passé composé* in French:

- (31) J'ai toujours mangé des oeufs au petit déjeuner.
I've always eaten eggs for breakfast

Thus, the presence of perfective morphology doesn't necessarily entail the absence of a genericity operator: two operators can be present but only one can be expressed. The genericity operator gives (29) its non-implicativeness, even though its presence goes undetected in the morphology.

7.2 Imperfective morphology

I would like to address two potential objections to the Genericity operator analysis. The first one concerns the nature of the *imparfait* (imperfective), which, in French, isn't necessarily associated with the presence of a genericity operator. The second objection would be that, even if we are dealing with a covert genericity operator in the cases discussed, why doesn't it need instantiations (like habituals do, for example)?

Imperfective reflects universal quantification, over an interval, which is continuous (for the progressive) or non continuous (for habituals). If we follow Chierchia (1995), both stative and habituals involve a genericity operator (more precisely, they contain a

feature that triggers the presence of a genericity operator). So we should look at cases in which the imperfective could be the reflection of a progressive (that is, we need to look at eventives).

In this paper I have been focusing on adjectival constructions. Adjectives are states and thus cannot combine with the progressive. But the same analysis should be extendable to verbal constructions, in which a progressive reading is possible:

- (32) Quand Marie est entrée, Jean dormait assez profondément pour ne rien entendre.
When Marie came in, Jean was sleeping deep enough to hear nothing.

It seems that there is an actuality entailment in (32), although more field work is needed. What this would imply is that examples like (32) are cases in which imperfective morphology is not a reflection of the genericity operator, and in which the complement clause needs to be actualized. I leave it for future research how exactly the analysis will be extended to verbal constructions, and whether the progressive operator could license non implicative readings.

The second objection arises when contrasting the examples at hand with habituais such as *'Mary smokes'*, which is an odd statement if Mary never smoked in her life (i.e., if there are no verifying instances). I take the lack of instantiation requirement in TECs to result from the accommodation of the presupposition, which allows us to look at extremely idealized situations (situations that only depend on one factor).

8 Connection with the ability modal and other modal constructions

We have seen two cases where a seemingly modal construction shows an interaction of aspect with actuality entailment, namely TECs and the ability modal (cf. Bhatt 1999). This interaction is actually more pervasive and also seems to hold of other modals (e.g., French *devoir, pouvoir, falloir* and their Spanish, Catalan and Greek equivalents, a.o., cf. Hacquard, 2004). Thus one could argue that this is part of a greater phenomenon, and that the same analysis cannot hold for all modal constructions, and thus should ultimately be abandoned for the cases at hand.

However, I would like to show in this section that these different modal constructions are not randomly connected, but rather that they are related in a fundamental way. The hope is that the way these constructions are connected will provide the first clue to how the other constructions should be analyzed.

The ability modal and TECs are closely connected in that in both cases, the realization of the complement clause is contingent on a certain property of the subject (the adjective in the case of TECs and some (unspecified) inherent properties in the case of the ability modal). Thus the difference between the two constructions could hopefully be handled by the kind of presuppositions that are generated. The remaining modals that fit this generalization are also connected to properties of the subject. Indeed, the only modals that are sensitive to this aspectual interaction are root modals (deontics and dynamics). These modals refer to events rather than propositions (as is the case for epistemics), and their accessibility relation has been argued to be restricted to (internal or external) properties of the subject (cf. Brennan 1993).

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While a full account of these other constructions is well beyond the scope of this paper, a first clue seems to be that there is a crucial connection between the properties linked to the subject (and restricting the modal base) and the complement clause of these root modals, and that various operators, as reflected by the morphology, can play with this connection.

9 Conclusion

TECs have been analyzed as comparatives with covert modal quantification. Based on the relationship between matrix aspect and actuality entailments, I have proposed a new account where TECs are not at base modalized, as they only assert their complement clause. The modal (or non implicative) readings of these constructions originate from a covert genericity operator (reflected by imperfective morphology), similar to the one involved in dispositional/ability statements. The comparative flavor of TECs results from an inference drawn from the combination of the assertion and the presupposition associated with TECs.

10 Appendix: Problems with previous analyses

Meier (2002)'s LF for (A1a) is in (A1b):

- (A1) a. John is clever enough to leave early
 b. $\llbracket \text{enough}(@)(\lambda w.\text{can}^R(w)(h)(\lambda w.\text{PRO}_i \text{leave early in } w))$
 $(\lambda d.\lambda w.\text{John}_j \text{ is } d\text{-clever in } w)\rrbracket^g = 1$
 iff $MAX(\lambda d. \text{John is } d\text{-clever in } @) \geq MIN(\lambda d^*. \cap (g(h)(@) \cup$
 $\{ \{w \mid \text{John leaves early in } w\} \}) \cap \{w \mid \text{John is } d^*\text{-clever in } w\} \neq \emptyset)$
 The maximal degree to which J. is d-clever is greater or equal to
 the minimal d* such that, if J. is d*-clever, he can leave early.
 (h is the accessibility relation and g the assignment function)

A fatalistic conversational background doesn't give the right meaning, as the sentence amounts to a tautology. Let's focus on the degree to the right of the \geq relation:

- (A2) $MIN(\lambda d^*. \cap (g(h)(@) \cup \{ \{w \mid J. \text{ leave early in } w\} \}))$
 $\cap \{w \mid J. \text{ is } d^*\text{-clever in } w\} \neq \emptyset)$

If the proposition q (q=that John leaves early) is false, (A1a) should come out as false. However, if q is false, then the MIN operator will quantify over the empty set. Because MIN is a definite description, the MIN set of degrees will be undefined. When q is true, the comparison comes out as a tautology: the maximal degree of John's cleverness in the actual world is greater or equal to the minimal degree of John's cleverness in the actual world. So the sentence will either come out as true or as undefined.

Heim (2000)/Von Stechow et al. (2004):

- (A3) $\max \{d: M. \text{ is } d\text{-old}\} \geq$
 $\max \{d': \forall w \in \text{Acc}(@): M. \text{ drives in } w \rightarrow M. \text{ is } d'\text{-old in } w\}$
 Mary is at least as old as the age one must have if one drives.

- (A4) $\max\{d: \text{food is } d\text{-good}\} > \max\{d: \exists w \in \text{Acc}(@):$
 one throws away the food in w & the food is d' -good in $w\}$
 The food is better than the degree at which one can throw it away.

Heim/von Stechow's analyses cannot get aspect to interact with the implication of the sentential complement nor get any implicative reading at all. A fatalistic accessibility relation cannot help. To see why, suppose that $\text{Acc}(w)$ is a singleton set containing the actual world, then the truth conditions will come out as follows:

	$\llbracket \text{CP} \rrbracket^@ = 1$	$\llbracket \text{CP} \rrbracket^@ = 0$
Too:	false	undefined
Enough:	true (tautology)	undefined

If $\llbracket \text{CP} \rrbracket^@$ is false, the set the second MAX operator ranges over will be the empty set for *too* (since the first conjunct is false) and have no upper bound for *enough* (since the false antecedent makes the conditional vacuously true for any degree). If $\llbracket \text{CP} \rrbracket^@$ is true, the result of the second MAX will be well-defined. However, the comparison will give a contradiction in the case of *too* ($\text{MAX}(S) > \text{MAX}(S)$ will be false for any S) and a tautology for *enough* (i.e., $\text{MAX}(S) \geq \text{MAX}(S)$).

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