

Sporadic aspect as a pragmatic enrichment of dynamic root modality

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Abstract

This paper proposes a pragmatic account of modal utterances triggering sporadic interpretations, such as *Lions can be dangerous*, which quantify over individuals (some lions are dangerous) or over times (lions are sometimes dangerous). English and French are compared in this respect. We suggest that sporadic interpretations stem from a pragmatic scheme of enrichment based on search for informativeness and relevance, starting from the under-informative nature of utterances expressing trivial properties or potentialities of the considered individual or class of objects and ending with a number of specific inferences, notably dealing with actual probability.

Keywords: modality, *can*, *may*, *pouvoir*, sporadic aspect, relevance, pragmatic enrichment, quantification.

1. Introduction

This paper investigates sporadic quantification over eventualities or facts (*sporadic aspect*) when triggered by modal verbs in English (*can*, *may*) and French (*pouvoir*). We follow Kleiber (1983) in considering that the sporadic interpretation cannot be reduced to epistemic readings (contrarily to, notably, Palmer 1986, Antinucci & Parisi 1971) nor to root¹ readings. However, we propose that sporadic interpretations stem from a pragmatic scheme of enrichment based on criteria of informativity and relevance which anchors on a dynamic root modal reading.

¹ We use the classical distinction between *epistemic* modality (expressing the *thought* of a possibility) and *root* modality (deontic: permission – and dynamic : ability / capacity and circumstantial/material possibility). Our perspective includes a third category of truth-evaluable possibility named 'alethic' by Kronning (1996). Other scholars in the literature refer to this as 'objective-epistemic' (see Dik 1997 or Nuyts 1992).

Cases of sporadic readings of *can* in English were first noticed by Palmer (1965)², Leech (1969) and Boyd & Thorne (1969). Palmer and Boyd & Thorne observed that in these utterances *can* seems to be an equivalent to an existential quantifier such as *some* or *sometimes*. We spell out this quantificational interpretation below with some classical examples :

- (1) Speech days can be revealing. (Palmer 1988 : 116)
Some speech days are revealing.
- (2) This can mean, but it doesn't always mean that... (Palmer 1988 : 116)
This sometimes means that...
- (3) Cocktail parties can be boring. (Boyd & Thorne 1969 : 72)
Cocktail parties are sometimes boring.
- (4) Welshmen can be tall. (Boyd & Thorne 1969 : 72)
Some Welshmen are tall.
- (5) Lions can be dangerous. (Leech 1969 : 223)
Some lions are dangerous.
Lions are sometimes dangerous.

In this paper, we assume that these are *sporadic utterances* ; that they trigger *quantificational readings*, and that the quantification can be about times and/or referents. Sporadic utterances quantifying over times will be termed 'temporal' and sporadic utterances quantifying over referents will be termed 'referential'.

The status of these sentences is debated in the literature, particularly their modal component. Some argue that these utterances are not modal at all. Others give arguments to suggest that they are epistemic or alethic. All in all, the literature does not address in detail the process by which the hearer departs from whatever meaning of 'possibility' in order to obtain a quantified reading.

Palmer (1979) calls these occurrences of *can* 'existential' (after having called them 'characteristic' in earlier works), since they have an existential meaning³. Furthermore, he suggests that they belong to what he terms an 'existential modality', a category not discussed in detail (1979). He also notes (Palmer 1988) that some examples, such as (5) (*Lions can be dangerous*), express *both* referential and temporal sporadicity.

Boyd & Thorne assume that in sporadic utterances, *can* has an aspectual rather than a modal meaning, hence they give the term *sporadic* to this aspectual type ("for want of a better name", Boyd & Thorne 1969 : 72).

² Palmer (1979 : 52) refers to the logician von Wright (1951) concerning the parallel he draws between existential *some* quantification and possibility.

³ Von Wright (1951) calls this 'existential possibility' (Vold 2006).

'Sporadic' aspect refers to occasional or habitual eventualities or denotes properties shared by a number of referents within a class.

The case of French in comparison to English is of interest as French has only one verb expressing both root and epistemic possibility (*pouvoir*), whereas English has two items (*can* and *may*). *Can* and *may* are, to some extent, specialized in one or other type of modality, although *can* also has epistemic readings.

After discussing the literature concerning these utterances, we defend a pragmatic view according to which sporadicity with *can* or *pouvoir* emerges as a pragmatic scheme of enrichment triggered by the underinformativeness or lack of relevance, of the non-sporadic readings.

2. Sporadic readings vs epistemic and root readings

The relation of sporadic utterances with usual modal meanings of *can* / *pouvoir* is the main issue addressed by the literature. Much of the debate concerns whether sporadic *can* (and *pouvoir*) can be described as a variant of epistemic modality, root modality, or another kind of modality⁴.

As mentioned above, Boyd & Thorne (1969) assume that sporadic *can* is *not* modal but aspectual. Their notion of *modality* comes from speech-act theory where modality has to do with speaker commitment to the truth of the proposition under the modal verb's scope (a modal modifies the illocutionary force). Since, according to them, in sporadic *can*-utterances, *can* does not « mark the illocutionary potential of the sentence » (Boyd & Thorne 1969 : 71), that is, sporadic utterances are assertions and not modalizations, *can* in these cases is not modal. Furthermore, they claim that *can* is not an alternative form for *may* in such cases. But rather than showing that sporadic *can*-utterances are not at all modal in the classical sense, their observation amounts to saying that *can*-utterances with sporadic readings should not be understood as *epistemic*.

Palmer (1979 : 154 ; 1986 : 11-12 ; 1988 : 116) suggests that sporadic readings can also occur with *may* and provides a few examples. However, he points out that those examples are typical of what he terms « written and especially scientific language ». Notably, he recalls an example from Huddleston, which, according to him, has the same general semantic properties as (5) (*Lions can be dangerous*) :

- (6) ...the lamellae may arise de novo from the middle of the cell and migrate to the periphery. (Huddleston 1971 : 297-298, quoted by Palmer 1986 : 11-12)

⁴ We understand *epistemic modality* here as referring only to *subjective-epistemic modality* in the literature that differentiates it from *objective-epistemic modality* (we follow Kronning 1996 in calling it *alethic*).

Huddleston (1971 : 297-298) himself names such utterances ‘qualified generalizations’ and assumes that « the generalization expressed in the clause operating as remote structure subject to *may* is said to apply to at least some members of the relevant population, but that it is not guaranteed to hold for all members ». This ‘not-guaranteed’ effect allows him to trace back such sentences to epistemic modality : « The link between ‘qualified generalization’ and ‘uncertainty’ is that for any individual member of the population the generalization may hold in the uncertainty/possibility sense » (1971 : 298).

Palmer’s (1986) conclusion is that sporadic *can* or *may* can be handled in terms of epistemic modality just as *It may be that*-sentences (at least for English, he concedes), even though an existential interpretation is available.

In the next section, we oppose this argument and consider that the sporadic reading is strongly determined with *can* utterances in such cases, whereas it is left to implicature in *may*-utterances. We claim that sporadic interpretations with *may*- and *can*-utterances arise through completely different pragmatic procedures. Our suggestion, developed further along, implies that sporadic *can* excludes epistemic readings. This would explain why (5) does not seem equivalent to (7) nor (7’) as none of them allow for conversion into quantificational readings (except through some remote implicature), *pace* Palmer (1986) :

- (7) It can be the case that lions are dangerous.
 (7’) It may be the case that lions are dangerous.

Antinucci & Parisi (1971) also suggested (« tentatively »), albeit with complicated argumentation, that these utterances are epistemic. They suggest that utterances such as (4) (*Welshmen can be tall*) read as a particular type of epistemic modality where ‘the intrinsic nature’ of the subject causes the speaker’s belief (Antinucci & Parisi 1971 : 38). Their proposal is that when uttering a sporadic-*can*, the speaker communicates that there is some property X in the intrinsic nature of the ‘surface subject’ which causes the speaker « not to be bound to believe that Z ». In simpler words (much needed here), if our understanding is correct, (4) would communicate that there is something in the intrinsic nature of Welshmen that causes the speaker to be allowed to believe that Welshmen are tall. However, Antinucci and Parisi leave the quantificational reading aside, mentioning it only in a footnote. This is regrettable because the quantificational reading looks like the most obvious interpretation of such utterances. Nonetheless, we find that they capture a fundamental feature of sporadic utterances, namely the ‘intrinsic property’ feature, on which part of our analysis elaborates (Palmer 1965 also noticed it implicitly when talking of ‘characteristic’ uses of *can*). However, as we attempt to clarify, in most contexts the ‘intrinsic property’ reading is not

sufficiently informative, hence the enrichment into a sporadic interpretation. However, we will see that an ‘intrinsic property’ is not mandatory for sporadic readings to occur.

The literature also makes several relevant observations regarding sporadic aspect with French *pouvoir*. As a verb, *pouvoir* carries both meanings of *can* and *may* and has epistemic, alethic (see Kronning 1996, Vettters 2007) and root modal meanings.

Following Kleiber’s (1983) observation that no clear prediction can be obtained from sporadic *pouvoir*-utterances (i.e. that one can’t predict whether a particular lion will be dangerous or if the next Welshman we meet will be tall), Le Querler (1996, 2001) meets Huddleston’s (1971) claim about the ‘uncertainty’ of the concerned property when considering a particular occurrence or individual. She too argues that sporadic utterances have strong similarities with epistemic utterances. Additionally, Guimier (1989) remarks that sporadic *pouvoir*-utterances do not license pronominalization (as in 8), similarly to epistemic *pouvoir* (9) and contrarily to root *pouvoir* (10) :

- | | | | | |
|------|---|---------------------------|-------------------|-------------------------------------|
| (8) | ? <i>Être dangereux,</i>
‘Be dangerous, | <i>les lions</i>
lions | <i>le</i>
PRON | <i>peuvent.</i> [sporadic]
can.’ |
| (9) | ? <i>Être à la piscine,</i>
‘Be at the pool, | <i>Paul</i>
Paul | <i>le</i>
PRON | <i>peut.</i> [epistemic]
may.’ |
| (10) | <i>La photo ne sauvera pas notre planète, mais l’éducation</i>
(Google) [root]
‘Photography will not save the planet, but education | | | <i>le peut.</i>
PRON can.’ |

Pronominalization is a classical test for determining the scope of an item. Here, the results obtained should lead to the hypothesis that sporadic *pouvoir* has an external scope over the proposition, which is typical of epistemic modals, whereas root modals have narrow scope only over the eventuality. If the scope criterion is conclusive, then sporadic utterances should be viewed as sharing more features with epistemic than with root modality. However, there are strong semantic arguments against the view according to which sporadicity is directly related to epistemic modality, as discussed below.

Kleiber, in his seminal 1983 paper, suggests that sporadic *pouvoir* is distinct from both epistemic and root modal meanings. He claims that in such contexts, *pouvoir* converts into a marker of existential quantification, though it retains its fundamental modal meaning of ‘possibility’. He clearly differentiates temporal sporadicity (which he calls ‘habitual’) from referential sporadicity, depending on whether the quantification holds on individuals or times. Temporal sporadicity, unsurprisingly, quantifies over the times where the truth-conditions of the eventualities (events or states) are met, as in (11) interpreted as (11’), which compares to English examples (2) and (3). Referential sporadicity quantifies individuals of the class denoted by the

subject NP as in (12) interpreted as (12'), which compares to English examples (1) and (4) :

- (11) *Jean peut être odieux.* (Kleiber 1983 : 184)
'Jean can be odious.'
- (11') Jean is sometimes odious.
- (12) *Les Alsaciens peuvent être obèses.* (Kleiber 1983 : 184)
'Alsatians can be fat.'
- (12') Some Alsatians are fat.

He notes that referential sporadicity is only available with generic subjects, as expected (but missed by Aninucci & Parisi 1971). Even if Kleiber does not explain why a modal verb such as *pouvoir* can obtain such meanings, he nonetheless provides a serious first argument against the epistemic view.

Kleiber points out that sporadic utterances do not trigger the complementary entailment expected with *possibility*, which is that *it is possible that x* entails *it is possible that not-x*. On the contrary, classical quantificational entailments are obtained : *some x are y* entail that *some x are not-y*, and *x is sometimes y* entails *x is sometimes not-y*. We will address this point later, but it remains clear that (4) does not entail (13) but does (generally, we add) entail (14) instead (a point we elaborate in section 4) :

- (13) It is possible that Welshmen are not tall.
- (14) Some Welshmen are not tall.

Kronning (1996) also thinks that sporadic utterances are not epistemic (nor root modal). He suggests without elaboration, however, that the sporadic use of *pouvoir* expresses what he considers *alethic* modality, i.e. denoting a possibility conceived of as 'objective', that is, virtually verifiable (a notion which is equivalent, we think, to what the tradition initiated by Lyons 1977 names 'objective-epistemic' modality, as already mentioned)⁵. Contrarily to (subjective-) epistemic modal utterances, sporadic ones are *externally scrutable* (in the terms of Papafragou 2006) and therefore the truth of sporadic propositions can be challenged⁶.

⁵ We recall that we adopt Kronning's terminology where only 'subjective-epistemic' modality is truly 'epistemic'. However, in the upcoming paragraphs, we will keep the mention of 'subjective' in parentheses to avoid misunderstandings.

⁶ The truth of (subjective-) epistemic modality cannot be challenged since it would amount to challenging the truth of the speaker privately holding a belief, which would in turn presuppose full access to the speaker's mental states. See Papafragou (2006 : 1997 sq) for an elaboration. Kronning (1996) showed that

If *P*, for example (15) below, expresses a (subjective-) epistemic modality, then it is a private belief ; if so, then it is externally inscrutable ; if so then it cannot be ‘challenged’ or ‘endorsed’ (Papafragou 2006 : 1691) by the interlocutor, and therefore cannot be embedded under the scope of evaluative expressions such as *I agree that P*, *It’s not true that P*, *I don’t believe that P* since it is the belief itself that is evaluated. A way of evaluating a proposition is to embed it under *right/wrong* assertions⁷ :

(15) Clark Kent must be superman. (Papafragou 2006 : 1697)

(15’) ? It is right/wrong that Clark Kent must be superman (in the (subjective-) epistemic reading).

(15’) is equivalent to stating that it is right/wrong that the interlocutor believes Clark Kent to likely be superman, a fact which cannot be assessed by the speaker of (15’). We observe that sporadic *can-* and *pouvoir-* utterances do not denote externally inscrutable possibilities and therefore are not (subjective-) epistemic :

(16) It is right / wrong that lions can be dangerous.

(17) It is right / wrong that cocktail parties can be boring.

(18) It is right / wrong that speech days can be revealing.

(19) *Il est juste / faux que les lions peuvent être dangereux.*

(20) *Il est juste / faux que Jean peut être odieux.*

(21) *Il est juste / faux que les Alsaciens peuvent être obèses.*

R. Lakoff (1972) quoted by Kleiber (1983 : 185) pointed out that an utterance such as (22) is false if it’s proven that no football player has ever been a sex maniac, whereas epistemic-*may* utterance (23) remains true in this case⁸ :

(22) Football players can be sex maniacs.

(23) Football players may be sex maniacs.

(subjective-) epistemic modality is not truth-evaluable whereas his type of ‘alethic’ modality, and root modalities are.

⁷ We use epistemic *must* here, following Papafragou (2006).

⁸ An anonymous reviewer brought our attention to the fact that even when no football player has ever been a sex maniac, it could still be a property of football players to be possible sex maniacs. If correct, this assumption would make (22) true even in that case, contrary to Lakoff. We think however that this reading would be better entailed by *could* which bears an epistemic flavour, rather than by *can*.

Similarly, *Welshmen may be tall* and *Jean may be odious* remain true even if it is proven that no Welshman is actually tall at the moment of speech, or if it is proven that Jean has never been odious, whereas *Welshmen can be tall* and *Jean can be odious* do not remain true, according to Lakoff. Her argument should lead us to think that sporadic *can*-utterances bear a necessary existential quantification, whereas *may*-utterances, even when they lead to sporadic interpretation as in Huddleston's example (6) above, do not.

As a preliminary conclusion, we assume that sporadic utterances are not epistemic (or, not subjective-epistemic) since they are not externally inscrutable ; they don't convey complementary 'possibly not' entailments but 'not-all' entailments instead ; and they behave as if bearing an existential quantification of the type *P is true of at least one individual / moment*.

All these elements are indeed puzzling since the absence of conversion from 'possible that P' to 'possible that not-P' should lead us, as Kleiber proposed, to the conclusion that sporadicity is not even about root modal possibility. Looking closely at the similarities and differences between sporadic *can*-utterances and 'standard' root modality allows us to slightly modify Kleiber's conclusion.

It is generally assumed that root modality is an 'agent-oriented' modality⁹, i.e. it applies to agentive eventualities. Boissel & al. (1989) and Veters (2007) suggested that some sporadic *pouvoir*-utterances show similarities with 'capacity' modal uses of *pouvoir* because, according to them, both are agentive. The assumption behind this claim is that if *X can (pouvoir) P* then *X* is a capable agent for *P*. Veters (2007) says that temporal sporadic utterances are 'agent-oriented', as in (24), and call for an interpretation like that in (25) :

(24) *Pierre peut être charmant.* (Veters 2007 : 73)

'Pierre can be charming.'

(25) Pierre sometimes behaves in a charming way.

This recalls Antinucci & Parisi's suggestion that sporadicity concerns some 'intrinsic properties' of the 'subject', as well as Palmer's early idea, not yet mentioned, that sporadic *can*-utterances are 'dynamic', 'subject-oriented' and typically used to indicate characteristic behaviours of people (often in a derogatory sense)¹⁰, such as in (26) and (27) :

(26) He can tell awful lies. (Palmer 1965 : 116)

⁹ Bybee, Perkins & Pagliuca (1994 : 177) explain that this modality « reports the existence of internal and external conditions on an agent with respect to the completion of the action expressed in the main predicate ».

¹⁰ Palmer (1965 : 116 ; 1974 : 117 ; 1988 : 113).

- (27) She can be very unkind at times. (Palmer 1988 : 113)

These elements seem to relate sporadicity to root modality through some notion of capacity which requires, as we later argue, that the hearer can reach sporadic interpretations only by means of pragmatic access to encyclopaedic knowledge regarding the relevant intrinsic properties of the subject class or individual. However, other dynamic modal readings, such as material possibility, can also serve as a basis for the sporadic reading (as in *Alsations can be fat*, see below).

The relation of sporadic utterances to root modality as agentive, however, calls for counter arguments and further elaboration.

First, as Palmer (1988 : 113) himself noted, sporadic utterances do not allow *can* to be replaced by *be able to*. Thus, he concludes, sporadic utterances are not 'ability use' modals although they are subject-oriented and bear some existential meaning, as *be able to* versions of (26) and (27) show :

- (26') ? He's able to tell awful lies. (Palmer 1988 : 113)
 (27') ? She's able to be very unkind at times. (Palmer 1988 : 113)

We add that sporadic utterances can even occur without being agentive in the strict sense and seem then to have, as a consequence, nothing to do with agentive capacity, such as in (28) below :

- (28) *Il peut faire très froid la nuit dans les plaines, même au printemps.* (David Lodge, *Un tout petit monde*)
 'It can be very cold at night on the plains, even in the springtime.'

In other words, agentivity in the strict sense does not appear to be required for sporadic interpretations to emerge. Nonetheless, we stress that an *intrinsic property* envisaged as a condition for the existence of some state or the happening of some event very much resembles the more common notion of 'capacity', and is still at work in (28) despite the absence of an agentive subject. What bears the conditions for coldness is 'the plains' and (28) seems equivalent to (28') :

- (28') *Les plaines peuvent être très froides la nuit, même au printemps.*
 'Plains can be very cold at night even in the springtime.'

Other authors such as van der Auwera & Plungian (1998) and Papafragou (1998) have noticed that root readings don't require agentivity, and therefore suggest abandoning the term of 'capacity' for root modality. We follow this line of thought, with examples such as *Global warming can induce changes in people's behaviours*, where no agent is available while a dynamic root modal reading still looks obvious. Van der Auwera & Plungian (1998) prefer 'participant-internal possibility' to 'capacity' (as opposed to 'participant-

external possibility'), a choice we henceforth follow. Papafragou (1998 : 22) gives examples of root modal utterances without agentivity, among them, *Bad weather can ruin the crops*, which, we believe, can be sporadic ; Palmer (1965) mentions that inanimate subjects can enter sporadic utterances, such as *Carelessness can kill*, however less obviously raising a sporadic interpretation. Palmer removes references to inanimate subjects with sporadicity in his later works.

As for the fact that *be able to*-utterances cannot be sporadic, we suggest the following explanation : *Be able to* encodes ability (see Papafragou 1998 : 22), i.e. it literally communicates the plain ability meaning. Hence, it seems difficult to either cancel it or add anything at the explicit level of communication to this root modal reading that would put it out of focus, as a conversion to a quantified interpretation would. In other words, since it is the semantics of *be able to* that encodes ability, no further pragmatic processing is available to cancel it in some way or to cancel its salience. *Be able to* being a dedicated expression, we suggest that the motivation for using it would be lost if ability was either cancelled or otherwise disregarded, or elaborated on at the explicit level of communication.

Following the above, we suggest that sporadic meanings are obtained on the basis of under-informative readings implying possibility linked to the intrinsic properties of the relevant subject/agent or class members, or, as we later suggest, other kinds of dynamic modality. We then assume that sporadicity concerns root dynamic modality, and in particular, but not exclusively, the traditionally named 'capacity' modality possibly understood in the weaker sense of participant-internal possibility.

3. Sporadic meanings as pragmatically derived interpretations

We now argue that *can*- or *pouvoir*-utterances *in general* trigger the need for a higher amount of information than just logical possibility. We suggest that sporadic aspect is obtained through successive steps of further pragmatic information supplied through a pragmatic procedure that is as follows : from the triviality of logical possibility, the hearer goes to dynamic root modality, which is still not informative enough, and then converts the information into quantification. We now tentatively suggest a version of what this pragmatic enrichment looks like as well as why, and how, it is achieved.

We posit that sporadic interpretations with *can* or *pouvoir* emerge as explicatures, whereas other linguistic forms (such as *may* and possibly many others) may trigger similar effects but only as *implicatures*. We refer here to Sperber & Wilson's *Relevance Theory*, some elements of which we now briefly discuss for the purpose of our argument.

According to Sperber & Wilson (1986 / 1995), the recovery of the speaker's intended meaning is achieved through inferential procedures of

pragmatic enrichment geared to the maximization of relevance. Relevance is achieved when information, derived from the linguistic form, compensates for the cognitive effort involved in processing the utterance (named ‘cognitive effect’. The recourse to such a principle implies that the hearer remains dissatisfied not only when the information obtained literally is tautological (*a man is a man*), inconsistent or otherwise uninformative but also when it is not informative *enough* to achieve relevance (e.g. when the hearer thinks the speaker knows that the literally conveyed information is already known by the hearer). A hearer can provide inferentially more precise information at the level of implicatures or *explicatures*, the latter of which are pragmatic but explicit developments, precisions or accommodations of the logical form. Explicatures are roughly (but only roughly) equivalent to Grice’s *what is said*, although according to relevance theory (as well as for a number of other pragmatic approaches) they also obey pragmatic principles of enrichment. Here are some classical examples discussed in the literature as far as pragmatic enrichment at the level of explicitness (explicatures) is concerned (examples by Carston 2002 : 9) :

- (29) Mary took the knife and stabbed her husband.
Mary took the knife and THEN stabbed her husband.
- (30) It will take some time to heal these wounds.
It will take CONSIDERABLE time to heal these wounds.
- (31) It’s warm enough.
It’s warm enough TO BE SERVED.

We suggest that sporadic readings are pragmatic enrichments realized by the hearer in order to obtain pragmatically more information than what the literal reading of the utterance provides (we call here ‘literal meaning’ the utterance meaning without pragmatic enrichment). The literal meaning of *can*-utterances, or at least of French *pouvoir*-utterances, is about mere possibility, without any specification about the type of possibility involved¹¹. Of course, if we say this, it implies that we consider that the semantic meaning of a linguistic item such as *pouvoir* is abstract and underspecified. It also follows from our standpoint that root modal readings and epistemic readings are also realized at the level of explicit pragmatic meaning, that is, *explicatures*, where referential saturation, disambiguation and concept specification occur. More simply, an utterance like *Les lions peuvent être dangereux* ‘Lions can be dangerous’ literally encodes the possibility (without specification) of lions being dangerous ; a recourse to pragmatic information

¹¹ Although we suppose that our assumptions also hold for English, here we mostly discuss French utterances with *pouvoir*, since epistemic readings of *can*-utterances are rare (but not inexistent, see Coates 1995).

and processing leads to the result of an *explicit* intended sporadic meaning, hence, the seemingly not-cancellable existential quantification that occurs with sporadic readings (*vs.* epistemic readings), as Lakoff's examples show.

However, we hypothesize (cautiously) that this sporadic meaning is obtained on the basis of another but previous pragmatic specification of mere possibility in dynamic root modality. In many cases, we believe, a participant-internal possibility modality is obtained.

We suggest that sporadic interpretations of *may*-utterances may also be obtained, but through a process of implicature recovery on the basis of epistemic modality.

We now detail our assumptions below.

When considering utterances such as (4) (*Welshmen can be tall*) or (12) (*Les Alsaciens peuvent être obèses, Alsatians can be fat*), we notice that it is a property of all humans that they are *possibly* tall (or fat) ; therefore, sticking to a meaning that Welshmen bear the possibility of being tall would not provide significant information, since what is true for humans in general is necessarily true of Welshmen in particular. In other words, in such a reading, *Welshmen can be tall* is uninformative (trivial) and therefore cannot meet the presumption that the speaker is optimally relevant. Similarly, considering (11) (*Jean peut être odieux* 'Jean can be odious'), every human being has the potential to be 'odious'. Therefore, there is no significant information in the fact that Jean, just as any other human, also has this property.

Since the utterances we are considering mention properties that, if they apply, have to be considered 'intrinsic properties' according to encyclopaedic background information, we will consider that the first specification they get, if the encyclopaedic information is actually available, is one of root participant-internal possibility modality, possibly other dynamic root modalities such as material possibility. It is in particular worth noticing that if the required encyclopaedic information regarding intrinsic properties is not accessible to the hearer (or not inferable on the basis of other information), a (subjective-) epistemic interpretation is obtained instead, as in (32) and (33), which, we insist, does not lead to sporadic enrichment :

- (32) *Les extraterrestres peuvent être dangereux.*
'Extraterrestrials can / may be dangerous.'
- (33) *Les ligres peuvent être dangereux.*
'Ligers can / may be dangerous.'

If the hearer knows nothing about extraterrestrials or ligers, then encyclopaedic information about their intrinsic properties is not available and

therefore no other enrichment is possible than epistemic modality¹². It stems from pragmatic reasoning that if I don't know anything about the category X, and if Xs can be Y, then, that Xs may be Y is not tautological and therefore is an accessible reading possibly satisfying expectations of relevance. At the same time, no available encyclopaedic information allows the hearer to get to a root modal interpretation. The same holds, of course, if it is the property itself which is unknown.

We conclude first that the first step of pragmatic enrichment is one of dynamic root modality, since it is a pre-requisite for a sporadic reading to occur, and second, that rather complex pragmatic encyclopaedic assumptions must be mobilized in order to further the enrichment toward sporadic interpretations. Hence sporadicity must be viewed as pragmatic.

Kleiber (1983) rightly mentions that root modal readings (*Jean has the capacity of being odious*), are not informative. However, our suggestion is that this information is not abandoned but lays the foundations for further sporadic enrichment (contrarily to Kleiber who assumes that sporadic utterances don't express capacity root modality at all).

We suggest that the basis for the search for relevance here is that when a speaker names a particular referent, the addressee will assume that it is *worth mentioning that particular referent*. Therefore, sporadic utterances are not only about the fact that a class of individuals (for example Welshmen, Alsatians, speech days, lions...) has a property x (the faculty of being tall, fat, revealing, dangerous...) just as any other class to which the considered class belongs (humans, social events, animals...), but about the fact that the considered property is *indeed* realized in that particular class: it doesn't remain 'just a possibility' or 'just a faculty' (as it may be for other possible sub-classes), otherwise it would remain under-informative. Hence the existential quantification which implies that a significant number of Welshmen have proven to actually be tall.

This happens because if it's worth mentioning Welshmen as possibly bearing a potential human property, then it is likely that there are *more* tall people than expected among Welshmen. The same holds with temporal sporadicity: if it's worth mentioning that Jean can be odious, then he indeed has proven to be odious at times, and, it seems, is even more often odious than the average person.

In all the cases we observed so far, the referent bearing the *faculty* of being X shows the property X *more than the average*. Welshmen are

¹² Ligers are hybrids of a male lion and a female tiger. Our argument holds only if not considering the speculations a hearer may formulate in the context of the utterance, such as extraterrestrials being dangerous because of their intrinsic properties as often displayed in cultural material such as books or films. Only then, we think, a sporadic interpretation can occur.

understood as counting more tall people than the average, and Jean is understood as being more odious than the average. However we think that the conclusion *more than the average* is not a necessary interpretation. The actual amount of people (or of times) that counts in the communication is calculated as being relevant only with regard to the expectations eventually raised by the context. That is to say, if it is a common hypothesis that ‘very few’, ‘practically none’, ‘none at all’ Xs are Y, then sporadic utterances about X being Y will be fully relevant without any reference to some average number. Suppose we think of people living in Marseilles as having a Mediterranean diet and are therefore not expected to be fat. Then, uttering (34) will obviously trigger a sporadic reading without the *more than the average* interpretation :

- (34) *Les Marseillais peuvent être obèses.*
 ‘Marseillaise can be fat.’

In order to obtain these readings, we obviously do not need to *cancel* the basic under-informative interpretation. It is still the case that Welshmen *can* be tall according to their intrinsic properties, that Alsations *can* be fat because of some material circumstances, and that Jean actually *can* be odious according to his intrinsic properties or material circumstances. The hearer supplemented and accommodated some information : more Welshmen are tall than expected from human groups in general, since it was worth mentioning that they in particular can be such, and Jean is odious more often than other people, since it was worth mentioning that he, in particular, can be such. In sum, our suggestion, then, is that sporadicity is obtained through a pragmatic enrichment that starts from the uninformative nature of utterances expressing trivial possibilities due to the considered class of objects’ or individual’s intrinsic properties and / or material circumstances.

We suggest that the entailment leading from dynamic root modality to the enriched sporadic interpretation is of the following type, where possibility converts into a factual truth in a quantified domain :

Referential sporadicity :

- a) It is materially (/ virtually) possible that [generic] X is Y according to X’s intrinsic properties mentioned in the sentence
- b) speaker mentions under-informative a)
- it is true that a relevant number of Xs are Y

Temporal sporadicity :

- a) It is materially (/ virtually) possible that [specific] X is Y according to X's intrinsic properties mentioned in the sentence.
 - b) speaker mentions under-informative a)
- it is true of X that it is Y a relevant number of times.

A quantity higher than previous expectations will be considered *relevant*.

Yet a number of questions must still be answered, which we address in our concluding remarks.

4. Discussion, consequences and concluding remarks

The first major question that has to be answered concerns the reason for which a speaker would choose a *can-* or a *pouvoir-*utterance in order to convey a sporadic meaning instead of a quantifier.

Our assumption is that the additional cost in the interpretive process of the modal verb is efficiently compensated for by the numerous inferences that i) come as other explicatures of the utterance and ii) are facilitated as implicatures.

Among the explicatures the hearer recovers while finding that of sporadicity, we note that of dynamic root modality. If the enrichment starts with dynamic root modality, then this very reading enters among the explicatures of the sporadic utterance as well as sporadicity itself. This is an explicit component of sporadic utterances that is not present with quantifiers.

Another explicature is that the possibility of any particular A being X is converted into a significant probability of any particular A being X (a probability which needs not be subjective and therefore needs not be understood as (subjective-) epistemic).

This is an enrichment that, we think, isn't made explicit by *some-*utterances but is made explicit by sporadic enrichment.

It looks like the utterance also conveys some evidential component. First, the reason for which the property is attributed to the referent is due to some intrinsic property or other material facts that serve as an explanation. But with sporadicity, the speaker clearly seems to convey particular knowledge about the referents in question (he has experienced, read, heard... that significantly many Xs are Y), which isn't conveyed by *some* either. We also feel that this evidential component is stronger with sporadic utterances than with a quantifier such as *most* or *many*, but we rely here only on our intuition.

Several implicatures are made available by sporadic utterances that are not as clearly favoured by a quantifier.

Starting from possibility converting into probability, it allows for the implicature that the next Welshman the hearer may encounter is significantly

likely to be tall and that, therefore, the hearer should anticipate this probability in further actions he may conduct involving the referent(s) : being cautious with lions, expecting Jean to be odious. Obviously, these are cancellable components of meaning.

Other implicatures we see are linked to the type of dynamic root modality that is constructed. For example, that it is in the genes of Welshmen to be taller, that the culinary habits of Alsations lead to putting on weight, that it is in the personality of Jean to be more odious than others.

Another question relates to the *not-all* conclusion mentioned by Kleiber as a parallel to possibility conversion into *possible that not-P* that occurs with modalities involving possibility. These entailments are obviously pragmatic and therefore cancellable without contradiction, as examples below show :

- (35) Welshmen can be tall, and actually all of them are.
 (36) *Les Alsaciens peuvent être obèses, et d'ailleurs ils le sont tous.*

However, the conclusion *not all* is strongly invited by the quantification, be it through a sporadic utterance or by means of a quantifier, as is well known. One may wonder why sporadic utterances trigger only existential quantification and not universal quantification. We have no clue on this, yet the answer might well be pragmatic, since expressing possibility would not give access to the relevance of necessity – that is, universal quantification.

Huddleston (1971 : 298), commenting on a *may*-utterance with sporadic interpretation, considers that *may* behaves just like *some* and does not imply *not-all*. We claim that the same applies to *can*-sporadic utterances. Our impression is that *may*-utterances can convey sporadic meanings only as implicatures, the explicit meaning of *may*-utterances is either epistemic or alethic. In other words, an utterance with *may* calls for a sporadic reading not as ‘what is said’ but as a cancellable standard implicature obtained for the sake of relevance achievement. Considering Huddleston’s example :

- (6) ...the lamellae may arise de novo from the middle of the cell and migrate to the periphery. (Huddleston 1971 : 297-298)

Lakoff (1972) shows that examples such as (6) remain true even if no lamellae ever arose, whereas a *can*-utterance does not. This entails that (6) is compatible with something like ‘but it never actually happens’ whereas with a *can*-utterance it would be impossible to negate the actual occurrence of the considered fact. Therefore, that it is the case that lamellae sometimes arise is obtained, simply put, just to get a meaning that ‘makes sense’ in the context of speech is therefore implicated.

There is no reason to deny that many utterances can lead to sporadic interpretations as implicatures : that lions *are* dangerous can be narrowed into

an implicature that they sometimes actually are. Similarly, we definitely cannot exclude the possibility that some *be able to* sentences may lead to a sporadic implicature. If ‘Paul is able to play tennis very well’ is uttered, it might be inferred that the intended meaning is that he actually plays tennis very well *often*.

Another issue which deserves attention is the fact that negated *can*-utterances cannot have the generic sporadic reading, as (37) shows. (37) conveys either that no Welshmen at all are tall or that it can’t be true that Welshmen are tall, which is a (subjective-) epistemic interpretation, but not that Welshmen are not sometimes (so to say) tall :

(37) Welshmen can’t be tall.

We find that negating the objective possibility blocks access to quantification (impossibility of Xs being Y imply no X is Y). If the possibility of being Y is negated for Xs, then it would appear impossible to obtain information that implies the truth of Xs being Y at times or at least for one, or for some members of the X class. However, we would like to emphasize that in French, the negation can be attached to the predicate and therefore under the scope of the modal, a situation which then triggers, as in (38), a sporadic reading (here a reading in which some Alsations can be not-fat), whereas (39), just as (37), cannot :

- | | | | | |
|------|----------------------|-----------------------|---------------------|---------------------|
| (38) | <i>Les Alsaciens</i> | <i>peuvent</i> | <i>ne pas</i> | <i>être obèses.</i> |
| | Alsations | can | not | be fat |
| (39) | <i>Les Alsaciens</i> | <i>ne peuvent pas</i> | <i>être obèses.</i> | |
| | Alsations | not can | | be fat |

Palmer (1979 : 154) notes in this respect that negative sporadic interpretation can arise with *may*-utterances. *Lions may not be dangerous* can read as *some lions are not dangerous* or *Lions are sometimes not dangerous*. We, however, do not see this as an argument for sporadic utterances being epistemic. Rather, we believe that asserting *It may not be the case that lions are dangerous* is (subjective-) epistemic leaves open the possibility that *Lions, or a number of them, are dangerous*. This assertion gives way to the sporadic implicature that some lions are not dangerous (and also, that some are).

In conclusion, what Boyd & Thorne call sporadic *aspect* has a temporal interpretation of iteration (repetition) with a component of irregularity (therefore unpredictability). Further studies should investigate the aspectual constraints that might apply to sporadic utterances, which we left aside in this paper. However, we predict that few aspectual constraints of this type really apply if we are right in saying that sporadicity is pragmatic. Stative predicates such as *know*, which semantically imply continuity, should exclude sporadic readings, as in *Jean can know Mary*, and *Jean peut connaître Marie*. This

would plead for a specific sporadic aspect which, as with frequency adverbs, is not compatible with stative sentences. As negative sentences are stative (except specific cases of 'negative events'), there might be an aspectual conflict between negation and sporadicity. However, it might be that temporal sporadic aspect, which is about occurrences of types of eventualities, is a consequence of a larger constraint that is shared, although realized in another way, by 'referential' sporadic utterances. We leave this investigation for further works on the topic.

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