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Mood and modality in finite noun complement clauses

A French-English contrastive study*

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The present paper presents a corpus-based contrastive analysis of modality in English and French finite noun complement clauses. On the one hand, we claim on the basis of cross-linguistic and semantic evidence that modality is a common intrinsic feature of nouns that license *that/que* complement clauses, and, as a consequence, that head nouns are modal stance markers. On the other hand, this paper shows that indicative-subjunctive alternation in *that/que* noun complement clauses is determined by the modality type of the governing noun. Contrastive analysis of French and English provides evidence to substantiate these claims.

Keywords: modality, modal noun, mandative subjunctive, *that*-clause, head noun, contrastive analysis

1. Introduction

This paper is a corpus-based study investigating the lexico-semantic relation between *that/que* noun complement clauses and modality. The link between *that*-clauses and modality has been widely described in the literature, but the source of modality has not been fully identified. The types of clauses focused on in this study are illustrated in the examples (1)–(4) below:

(1) *The certainty that the abnormality of this relationship with Johnny could do her harm* was, for a fraction of a second, clear and undisputed in her mind. (BYU-BNC)

(2) These findings support *the hypothesis that autonomic neuropathy affects motility throughout the gastrointestinal tract*. (BYU-BNC)

(3) *J'étais bien décidé à ne pas souffler mot de mon histoire; mais la certitude que ma mère allait me demander des éclaircissements ne laissait pas de m'exaspérer.* (Frantext)
"I was determined not to whisper a word of my story; but the certainty that my mother would ask for clarifications irritated me." (My translation)

(4) *Nous pouvons faire l'importante remarque que la double démonstration que nous venons de donner s'appuie uniquement sur l'hypothèse que les particules ont une trajectoire et que l'équation de continuité est valable.* (Frantext)
"We can point out that the double demonstration we have done is based solely on the hypothesis that the particles have a trajectory and that the continuity equation is valid." (My translation)

Our starting point was the observation that a noun like *linguistics* cannot govern a complement *that*-clause (example 5), whereas one like *hypothesis* can (example 2):

(5) *These findings support *(the) linguistics that autonomic neuropathy affects motility throughout the gastrointestinal tract.*

Therefore, the first part of this paper (Section 3) investigates whether the non-modal value [–modality] of the term *linguistics* and the modal (epistemic) value [+modality] of *hypothesis/evidence* can explain why the former cannot govern *that*-clauses whereas the latter can. Previous linguistic studies have shown that such *that/que*-clauses, through the head noun, do involve modality (cf. Perkins 1983; Palmer 1986; Biber et al. 1999; Mélis 2002; Ballier 2007 & [forthcoming] for English, Chevalier & Léard 1996 for French).

The second part of our study (Section 4) explores how mood selection in a subordinate clause is influenced by the head noun, and how the choice of a particular mood affects the overall modal meaning of the construction (cf. Lyons 1977: 848, 1995: 255; Huddleston & Pullum 2002: 172; Riegel et al. 1994: 287). Particularly in French, mood alternation (indicative or subjunctive) is used as a 'modality orientation' marker in complement clauses.[1] As Riegel et al. (1994: 287) note, mood is defined as the category which expresses the speaker's attitude towards his/her utterance. It can be hypothesized that the indicative/subjunctive alternation in *that/que* complement clauses is correlated to the modal class of the governing head noun.

All of the hypotheses in this paper are tested using French and English monolingual corpora (cf. Section 2). These provide authentic utterances from each language to substantiate our claims about the modality of head nouns in Section 3, and will enable us to statistically investigate whether the distribution of mood after head nouns is dependent on the nouns' modality class.

2. Corpora

Authentic occurrences were selected from two monolingual corpora of French and English, viz. Frantext and Brigham Young University British National Corpus (BYU-BNC). Frantext is a 210-million word corpus (4,000 texts), including literary (80%) as well as scientific and technical texts (20%).[2] The corpus spans five centuries (16th to 21st), but the search was limited to the 20th century. The BYU-BNC (1980s to 1993), an interface designed by Mark Davies at Brigham Young University, consists of 100 million words and is composed of texts from fiction, popular magazines, academic discourse and newspapers; the spoken part was ignored in this study.

Instead of extracting all *that/que*-clauses from these two corpora, we decided to focus only on *that/que*-clauses which are governed by one of the following head nouns, which are assumed to be prototypical representatives of the three modality types **epistemic**, **deontic** and **alethic**: *assertion*, *certainty*, *fact* and *hypothesis* for English, *affirmation*, *certitude*, *fait* and *hypothèse* for French (epistemic nouns); *constraint*, *demand*, *request* and *requirement* for English, *contrainte*, *demande*, *exigence* and *obligation* for French (deontic nouns); *likelihood*, *necessity*, *possibility* and *probability* for English, *vraisemblance*, *nécessité*, *possibilité* and *probabilité* for French (alethic nouns; this term and others are defined in Section 3.3).[3] The selection and modal classification of these nouns were mainly based on the studies of Perkins (1983: 86–87), Chevalier & Léard (1996: 55), Biber et al. (1999: 647–648) and Ballier (2007: 69–70). These authors describe head nouns as involving modality and argue that they could be classified into modal classes (see Sections 3.1 and 3.2 for arguments).[4]

From the BYU-BNC and Frantext corpora, we extracted all *that/que*-clauses that are adjacent to one of the selected head nouns: [(*V/Prep*) *the N that-clause*] and [(*V/Prep*) *le, la, l' N que-clause*]. For both English and French, pre-predicate *that*-clauses (examples 6 and 7) and non-complement *that*-clauses, such as relative clauses [*the N that Rel.*] (example 8), were excluded:

(6) *That Saints managed to cause an upset with nothing more than direct running and honest endeavour* bodes well for Great Britain (cf. Biber et al. 1999: 676)

(7) <u>*Que le vieil Horace est le personnage principal de la tragédie*</u>*, c'est la vérité* (Soutet 2000: 50)
"That old Horace is the main character of the tragedy, is the truth." (My translation)

(8) *The hypothesis that can explain bat navigation* is a good candidate for explaining anything in the world.

Additionally, when a head noun was followed by two *that/que*-clauses, only the first was included in the data. In example (9), for instance, only *que je* ***choisisse*** *à l'avance mes textes* was included in the results.

(9) *Les points de repère pourraient d'ailleurs être déterminés par le fait que je choisisse à l'avance mes textes et que je les relie par mes commentaires*. (Frantext)

"In fact, the bench marks could be determined by the fact that I choose in advance my texts and that I connect them by comments." (My translation)

The corpus query in BYU-BNC yielded 779 *that*-clause occurrences: 319 epistemic, 302 alethic and 158 deontic noun *that*-clauses. For French, the data include 327 nominal *que*-clauses governed by epistemic nouns, 39 governed by alethic nouns and 4 governed by deontic nouns — a total of 370 occurrences. Note that in Frantext, the searches for deontic *exigence* and *obligation* yielded a very limited set of occurrences: three occurrences for the former and one for the latter. As for *contrainte*, *demande* and alethic *vraisemblance* there were no occurrences at all of *que*-clauses.

As we had only four complement clauses governed by deontic nouns, we extracted data from another corpus, in order to complement the data set. WebCorp Linguist's Search Engine was used to retrieve *que*-clauses governed by these nouns. WebCorp LSE is a "tailored linguistic search engine for accessing the web as corpus" created by the Research and Development Unit for English Studies (RDUES) at Birmingham City University.[5] The test corpus consists of 70 million words from web-extracted texts. WebCorp LSE yielded 10 occurrences of *que*-clauses governed by *vraisemblance* and 30 governed by the deontic nouns *exigence*, *obligation*, *contrainte* and *demande*. When added to the occurrences from Frantext, the additional data brought the total to 410 *que*-clauses.

From a contrastive and methodological standpoint, it must be acknowledged that there are stylistic and genre differences between the French and English data. The best contrastive method would have been to compare two corpora that were built on the same sampling techniques and had an equal size. On the one hand, the BNC and Frantext have not the same size and on the other hand, they neither cover the same time period nor contain equally the same genre of texts. However, these differences are unlikely to have any significant negative impact on our analyses, since the main purpose of the statistics is not to demonstrate that the uses of the subjunctive or the indicative in French and in English are proportionally comparable, but to show that, in each language, the proportion of their usage is related to the modality type of the head noun.

3. Head nouns as modality markers

3.1 Theoretical background

One of the main constraints in *that* noun complement clauses is head noun selection. The question is obviously why a *that*-clause can be governed by certain nouns but not by others. A consensus seems to exist on the interpretation of the finite noun complement, but not on the issue of head noun selection constraints. Biber et al. (1999: 648) and Mélis (2002: 141–145), among others, claim that head nouns or/and their complement *that*-clauses are used by speakers to express their stance or attitude towards the propositional content (cf. Perkins 1983 and Ballier 2007 for English, Chevalier & Léard 1996 for French). Biber et al. (1999: 648) observe that "the *that* clause reports a proposition, while the head noun reports the author's stance towards that proposition". Ballier (2007: 69) describes the function of (epistemic) head nouns as a testimonial cursor which enables the speaker to express his/her stance on the (modal) status and the plausibility of the state of affairs expressed in the *that*-clause. Palmer (1986: 126–131) argues that complement clauses, governed by a lexical subordinator, are either used to indicate the attitudes and opinions of the speaker (*I think he's there*) or to report the attitudes and opinions of the subject of the main clause, i.e. the original speaker (*he requested that they should arrive early*). In his study, Palmer (1986) focuses on verbs and adjectives as subordinators that express epistemic and deontic modality. Perkins (1983: 86) clearly ascribes a modal value to noun complement clauses in structures like *there is a N to/that* in particular.

All these studies acknowledge that head nouns and their complement clauses involve the speaker or another speaker's stance/attitude. Nevertheless, although they help us to understand one of the discursive values of *that*-clauses, they tell us little about the underlying mechanisms of the phenomenon, viz. the issue of head noun selection.

Huddleston & Pullum (2002: 965) provide a sample of 58 head nouns and observe that head nouns are either derived from verbs and adjectives or are "morphologically derivative". These authors thus seem to link the ability of nouns to govern *that*-clauses to their derivative status. In other words, head nouns govern *that*-clauses because they derive from syntactic categories which are themselves *that* taking items. In their description of noun complement clauses, so-called 'appositive clauses', Quirk et al. (1985: 1260–61) claim that to govern such a clause, "the noun phrase must be a general abstract noun". It should be pointed out that these accounts might not be entirely convincing since not all head nouns are abstract (*picture*, *sign*, *slogan*, etc.), nor are all of them derived from verbs or adjectives (*fact*, *idea*, *story*, etc.) (cf. Ballier 2004).[6]

In contrast, other approaches, such as Nomura (1993), Schmid (2000) and Bowen (2005) carry out a functional analysis to explain how nouns govern *that*-clauses. In these approaches (Nomura 1993 and Schmid 2000 in particular), nouns are classified into different lexical categories such as UTTERANCE nouns, COGNITIVE nouns, MODAL nouns, etc. The underlying assumption of such an analysis is that head nouns have to be understood in terms of their use but not necessarily in terms of their inherent semantic properties. This position is essentially the one adopted by Schmid (2000: 13) in the following passage:7

> Why are *A-nouns*, *carrier nouns* and *shell nouns* so hard to define? The reason is that they are not defined by inherent properties but constitute a functional linguistic class. This means that whether a given noun is a shell noun or not does not depend on inalienable characteristics inherent in the noun, but on its use. A noun is turned into a shell noun when a speaker decides to use it in a shell-content complex in the service of certain aims.

Against this position, however, it can be argued that head nouns can be defined and characterized by their inherent semantic properties. In fact, contrary to the approaches discussed so far, other analyses assume that modality appears to be a property which plays a significant role in the selection of head nouns in *that*-clauses. For instance, Boone (1996: 48–49) and Chevalier & Léard (1996: 54–55) claim that head verbs and nouns, respectively, are modality markers in *que*-clauses. This claim led them to classify *que*-clause governing verbs (Boone 1996) and nouns (Chevalier & Léard 1996) in three classes of modality, i.e. *epistemic*, *alethic* and *deontic* modality.

The assumption underlying this paper is that modality might be one of the features that provide the finite clause licensing property to head nouns. In other words, it is claimed that head nouns can be semantically and/or pragmatically interpreted as involving a modality feature; therefore they can be classified as nominal modal categories.

3.2 Semantic and pragmatic arguments

The claim that head nouns involve inherent modality properties can be supported by the following observation about the polysemic difference between words like *philosophy* and *linguistics*. *The Concise Oxford Dictionary* defines these two words as follows:

> Linguistics: pl. n. [treated as sing.] the scientific study of language and its structure.
> Philosophy: n. (pl. -ies) **1** the study of the fundamental nature of knowledge, reality, and existence. **2** the study of the theoretical basis of a branch of study or experience. **3** a theory or attitude that guides one's behaviour.

While both words refer to fields of study, *philosophy* can also refer to "*a theory or attitude that guides one's behaviour*". This meaning is the one expressed in the sentence below:

(10) a. Franklin subscribes to the Apple *philosophy that if you can encourage children to use your products, they will continue to use them when they are adults*. (BYU-BNC)

In this sentence, the speaker evaluates the propositional content (*that if you can encourage…*) as a *philosophy*, as a theory that guides Apple's policy. When we manipulate the sentence and replace *philosophy* with *linguistics*, the result is not acceptable at all:

(10) b. Franklin subscribes to the Apple **linguistics that if you can encourage children to use your products, they will continue to use them when they are adults*.

In contrast, if we insert a noun such as *idea*, *assertion*, *doctrine* etc., the sentence is always correct, although the degree of epistemic commitment will be different with each noun. Our postulate is that *linguistics* is unacceptable precisely because it has no evaluative property similar to the one *philosophy* has as a *that* taking noun. Thus, the word *philosophy* governs a *that*-clause thanks to its polysemic status, *study of* vs. *opinion* or *attitude*. In contrast, apparent co-hyponyms such as *linguistics*, *geography*, *chemistry* cannot take *that*-clauses because these words lack the semantic feature *opinion* or *attitude*.

The idea underlying this observation is that head nouns intrinsically involve modal features that allow the speaker to express his/her opinions or attitudes. For instance, it is obvious that nouns like *certainty*, *requirement* and *(dis)advantage* have semantic properties of, respectively, epistemic, deontic and attitudinal-evaluative modality. This can be perceived in the following sentences:

(11) Such evidence must be balanced with *the certainty that stone of the appropriate type does occur in the Drift of eastern England (Penny 1974, p. 248) (Figure 2.20)*. (BYU-BNC)

(12) *The requirement that all motor vehicles (except invalid carriages, police and local authority vehicles) used on a road must be covered by third party insurance* is fundamental to the lawful operation of any haulage business. (BYU-BNC)

(13) This logic has *the advantage that it protects the more efficient contractor and exposes the less efficient and is thus conducive to efficiency in the long run*. (BYU-BNC)

In (11), the *that*-clause is epistemically qualified; the speaker expresses his/her commitment to its plausibility in terms of certainty. In (12), instead of expressing epistemic commitment through the *that*-clause, the speaker reports on the state of affairs in terms of desirability or obligation. In (13), the speaker adopts an attitudinal standpoint towards the state of affairs expressed in the clause. In this case, the evaluation is positive, but the attitudinal evaluation can be negative as well, as in:

(14) Washed sand or gravel should settle immediately, but these have *the disadvantage that they do not provide mineral nutrients for the plants.* (BYU-BNC)

In addition, nouns that govern *that*-clauses do not only denote the speaker's own commitment or assessment, as in (11)–(14), but also another person's commitment (attitudes and opinions):

(15) However, Culpitt's *assertion that the post-war collectivist welfare state and its value premises* are now obsolete is clearly open to question. (BYU-BNC).

Notice that the comment *is clearly open to question* is expressed by the speaker him/herself. In such utterances, the speaker reports another person's assertion or modal commitment and then comments on it.

These observations are in line with many analyses of modality. Palmer (1986: 96, 121), for instance, suggests that epistemic (including alethic) and deontic modality have in common "the involvement of the speaker". And Nuyts (2005: 17) goes a step further in claiming that epistemic (with alethic), deontic, and boulomaic modality (notions to be defined below) all indicate the extent to which the speaker or another person is committed to the state of affairs expressed in the *that*-clause. According to Nuyts (2005), they indicate the degree of existential, moral and affective commitment, respectively. In fact, modality appears to play a major role in *that* complement clauses; the following section therefore defines what we mean by "modality".

3.3 Definitions of modality

Modality has been given a considerable number of definitions, ranging from a broad concept in which any sort of assertion may contain modality to a narrow concept in which only modal verbs and some adverbs can convey modality (see also Salkie 2008: 78). Le Querler (1996: 49–61), summarizing different views on modality, claims that between these two conceptions there is another which considers modality as the expression of the speaker's attitude towards the propositional content. This view is in line with Palmer's (1986: 16) definition when he says that modality is "the grammaticalization of speakers' (subjective) attitudes

and opinions". According to Le Querler (1996: 63–64), the definition of modality, in relation to the speaker, requires its classification in three kinds of modality: *subjective*, *intersubjective* and *objective*. She defines these types, respectively, as *the relation between the speaker and the propositional content*, *the relation between the speaker and another speaker*, and *the relation between the propositional content and another proposition*. If we take this view, subjective modality orientation seems to be the type expressed in most finite noun complement constructions. This would particularly be the case if we view finite subordination in general and *that*-clause noun complementation in particular as the expression of the speaker's position towards the plausibility or the desirability of the propositional content (Heyvaert 2003: 82–83; Chevalier & Léard 1996: 53; Martin 1983: 97–98). However, it should be noted that objective modality can also be expressed in nominal *that*-clause constructions such as:

(16) a. There is always *the possibility that the input pronunciation will differ from the pronunciation in the lexicon.* (BYU-BNC)

b. *Un tel état de masse négative n'a évidemment aucun sens physique, mais il peut être réinterprété dans le cadre d'une théorie de champ quantique pour l'électron, c'est-à-dire une théorie qui envisage la possibilité que des électrons soient aussi créés ou détruits.* (Frantext)
"Such a state of negative mass does not have obviously any physical sense, but it can be reinterpreted within the framework of a quantum theory of field for the electron, i.e. a theory which considers the possibility that electrons are also created or destroyed." (My translation)

As we pointed out in Section 3.1, Chevalier & Léard (1996) distinguish between three types of modality in head nouns: epistemic, alethic and deontic. In addition to these types, we can distinguish another type involved in noun complementation: evaluative/attitudinal modality. Nouns such as *problem*, *(dis)advantage*, *worry* convey an attitudinal or evaluative commitment of the speaker or another speaker towards the propositional content. According to Nuyts (2005: 12), "[t]his category [boulomaic] indicates the degree of the speaker's (or someone else's) liking or disliking of the state of affairs".

Another category, dynamic modality, is distinguished in many modality studies (Palmer 1986, 2001; Perkins 1983; Nuyts 2005). With regard to the actual status of this category, Salkie (2008, 2009) and others argue that ability *can*, which is considered as conveying dynamic modality, should in fact be relegated to the periphery of modality categories. According to Salkie (2008: 85–88; 2009: 81–89), dynamic modality is a peripheral/low degree modality category since it does not meet most of the criteria he establishes, including possibility/necessity, epistemic/deontic and subjectivity. He argues that dynamic modality, unlike epistemic or

deontic modality, neither involves any possibility/necessity in terms of "possible worlds", nor any subjectivity in terms of a high degree of commitment. Interestingly, nouns to which dynamic properties can be ascribed, such as *ability* or *capacity*, hardly take *that*-clauses. For instance, these two nouns would not be acceptable in (16a/b), whereas others, such as *necessity*, *probability* or *evidence*, can appear in such utterances. In this study, we limit our investigation to epistemic, alethic and deontic modality while excluding boulomaic/attitude modals (for reasons of space) as well as dynamic modal expressions (as they are only marginally relevant).

Epistemic modality refers to the types of semantic judgments or assessments that concern the speaker's knowledge or belief of the proposition. Through nominal epistemic items, speakers express their degree of certainty or belief with regard to a state of affairs as in (11) in English or as in (17) in French.

(17) *J'ai acquis la certitude que dans le cul-de-sac temporel où je me suis fourvoyé il n'y a pas âme qui vive*. (Frantext)
"I got the certainty that in the temporal cul-de-sac where I was misled there is no living soul." (My translation)

Secondly, alethic modality concerns the speaker's estimation of the (degree of) logical necessity or possibility of the proposition, as illustrated (16a/b) and (18):

(18) *La persistance des espèces parasites est dominée par la nécessité que l'animal jeune ou la larve rencontre, à une phase définie de son existence, l'espèce le plus souvent strictement déterminée où il doit pénétrer et évoluer*. (Frantext)
"The persistence of the parasitic species is dominated by the need that the young animal or the larva, in a specific phase of its existence, meet the most strictly determined species where it must penetrate and evolve."
(My translation)

Finally, deontic modality involves permission, obligation or moral desirability of the proposition. Thus, any head noun that conveys any of these semantic features is considered deontic in this study (for more on these definitions see Lyons 1977, 1995; Palmer 1986; Huddleston & Pullum 2002; Nuyts 2005). In (12) and in (19), the speaker qualifies the *that*-clause as, respectively, a requirement and an obligation.

(19) *Ainsi la voie fut ouverte pour convoquer une conférence constitutionnelle sur requête de la majorité, tandis qu'était maintenue l'obligation que tout amendement fût ratifié par les membres permanents du conseil de sécurité…*
(Frantext)
"Thus the way was open to convene a constitutional conference on request of the majority, while the obligation was maintained that any amendment be ratified by the permanent members of the Security Council." (My translation)

As far as the first two modality classes (epistemic and alethic) are concerned, some scholars, Palmer (1986) for instance, make no distinction between them. The decision to distinguish between them in this study is motivated by two reasons: first, nouns that involve alethic and epistemic modality do not behave similarly when selecting mood; prototypically they do not select the same mood in the same proportion. For instance, Martin (1983: 118–124) claims that in French, epistemic expressions generally select the indicative, while alethic modality, like deontic modality, mostly selects the subjunctive. The second reason for distinguishing between epistemic and alethic modality is that this distinction mirrors the distinction between the concepts of objectivity and subjectivity. Nuyts (2005: 9, 13–14), in discussing Lyons' (1977) account, observes that "the distinction between alethic and epistemic modality shows some similarity to that between objective and subjective epistemic modality."

4. Head nouns and mood selection

4.1 Outline

The aim of this second part is to show that the use of the indicative or the subjunctive in complement *that*-clauses is correlated to the lexical item governing the subordinate clause. More particularly, it is hypothesized that the correlation between the lexical head and mood alternation depends on the head's modality type. This hypothesis is tested through a corpus-based comparative analysis of mood alternation in French and in English.

4.1.1 *English subjunctive*

There are basically three distinctive uses of the subjunctive in English: mandative, formulaic and volitional use (also called 'were-subjunctive', cf. Quirk et al. 1985), as illustrated in examples (20), (21) and (22):

(20) I suggest that he <u>leave</u>. (Berk 1999: 149)

(21) God <u>save</u> the Queen. / God <u>be</u> with you. (Berk 1999: 150)

(22) I wish I <u>were</u> a bird. (Berk 1999: 150)

As these examples show, the main formal characteristic of mandative and formulaic subjunctives (both are also called present subjunctives) is the lack of the third person singular concord of the indicative mood on the main verb. As a consequence, the present subjunctive and the present indicative forms are indistinguishable in all the other persons except in the third person singular. According to

Quirk et al. (1985: 156), the mandative is considered "the most common use of the subjunctive, [and] occurs in subordinate *that* clauses".

Next to the subjunctive forms, language users can also opt for the so-called "putative (mandative) *should*" (cf. Quirk et al. 1985: 157, 784) in complement *that*-clauses, as illustrated in example 23.

(23) The suggestion that the new rule should be adopted came from the chairman. (Quirk et al. 1985: 1262)

As Quirk et al. (1972: 784) state, putative *should* "is used quite extensively in *that*-clauses to express not a subordinate statement of fact, but a 'putative' idea". Furthermore, the same authors (1972: 784) point out that *should* appears "in contexts where, historically speaking, a present subjunctive might be expected", which is to say that putative *should* can be considered as a substitute for the present subjunctive. Therefore, the two forms (putative *should* and the present subjunctive) were combined in some of the data processing.

4.1.2 *French subjunctive*

Formally, French has four subjunctive tenses: present, past, imperfect and pluperfect subjunctive. But in practice only two forms (present and past) are commonly used, with the other two playing only a marginal role in literary or very formal language (cf. Riegel et al. 1994; Soutet 2000).

The French subjunctive can either appear in independent/main clauses (examples 24 and 25) or in subordinate clauses (examples 26–28):

(24) *Que le ciel vous protége! / Vive le roi!* (Riegel et al. 1994: 322)
"May heaven protect you! Long live the king!" (My translation)

(25) *Moi, que je fasse une chose pareille!* (ibid.: 323)
"Me, that I should do such a thing!" (My translation)

(26) *Je veux/ordonne/souhaite/ qu'il vienne.* (ibid.: 324)
"I want/order/wish that he come." (My translation)

(27) *La chatte est sortie sans que je ne m' en aperçoive.* (ibid.: 326)
the cat leave.PAST without that I NEG REFL it realize.SUBJ
"I did not notice that the cat left." (My translation)

(28) *Je cherche pour les vacances un livre qui me plaise.* (ibid.: 326)
"For the vacation, I am looking for a book that I like." (My translation)

In contrast to examples 24 and 25, where the use of the subjunctive is not required by any explicit formal item, its use in (26) and (27) is governed by a lexical item (*vouloir/ordonner/souhaiter* and *sans que* respectively). Even for an example like

(28), Soutet (2000: 117) argues that the use of the subjunctive is to some extent required by the verb *chercher* (which involves an idea of investigation), although he acknowledges that the modal force is weaker in this case than in (26). According to Soutet (2000), *chercher* and other verbs like *vouloir* (volition) in (29) or *avoir besoin de* (necessity) in (30) are the items that require the subjunctive in utterances such as:

(29) *Pierre veut une secrétaire qui sait/sache le chinois.*
"Pierre wants a secretary who speaks/speak Chinese." (My translation)

(30) *Pierre a besoin d'une secrétaire qui sait/sache le chinois.*
"Pierre needs a secretary who speaks/speak Chinese." (My translation)

These observations about the English and French subjunctive suggest that in both languages, the uses of the indicative and the subjunctive in subordinate clauses appears to be related to the governing item, viz. the head noun in the present study. The correlation between these moods and the governing nouns is analyzed in the following subsections to determine whether the modal category of the governing noun is significant in the use of one mood or the other.

4.2 Hypotheses

The analyses in this section are based on the following hypothesis: the choice of mood (indicative/subjunctive) is related to the modality type of the governing head. As Martin (1983: 117) suggests, we deal with mood alternation in terms of tendency:

> L'emploi du subjonctif obéit à des tendances beaucoup plus qu'à des règles, et, ainsi, les conceptions rigides se vouent elles-mêmes à l'échec. […] Les travaux des dix dernières années apportent même des exemples d'indicatif où on ne l'attendait guère; et inversement de subjonctif.
>
> "The use of the subjunctive obeys tendencies much more than rules, and, thus, rigid concepts are bound to fail. […] Studies carried out during the last decade even point out examples with the indicative in contexts where it would not have been expected; the same goes for the subjunctive."

He illustrates his claim by examples (31) and (32) among others:

(31) *Il semble qu'il a / ait fait telle chose.* (Martin 1983: 117)
"It seems that he did /do (subjunctive) such a thing." (My translation)

(32) *Il est possible qu'on parviendra un jour à greffer un cœur neuf ou du moins en bon état.* (Martin 1983: 117)
"It is possible that one day one will manage to transplant a new heart or at least one in good condition." (My translation)

Kupferman (1996: 142) also supports this position when he asserts that the contrast between the subjunctive and the indicative is basically a matter of tendency. According to Martin (1983: 118), the use of the indicative and the subjunctive can be explained on a probability scale, as illustrated in Figure 1:

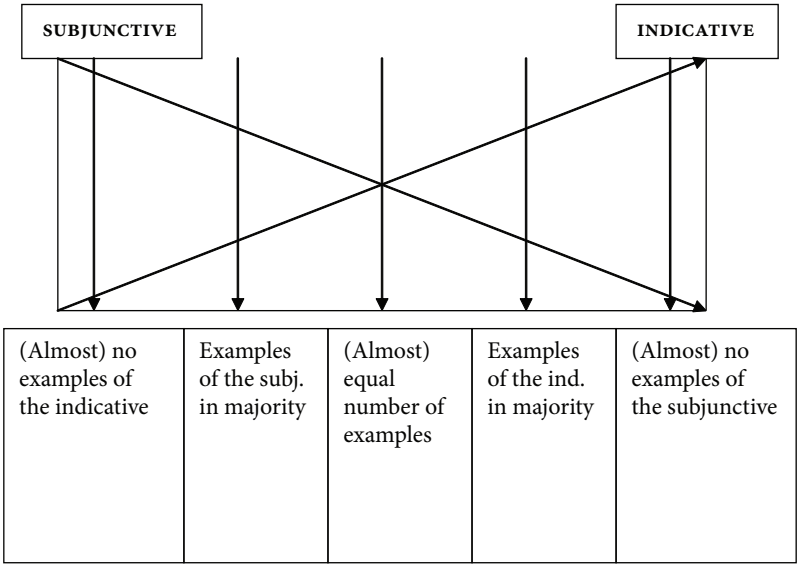

Figure 1. Use of the subjunctive and the indicative in French (after Martin 1983: 118)

The common ground between Martin's (1983) and Kupferman's (1996) positions is that mood alternation should not be viewed as a question of which predicate requires which mood, but rather which predicate tends to license which mood. Therefore, Martin (1983) suggests that the use of the indicative and the subjunctive should not be regarded as a clear-cut dichotomy but as a gradience like in Figure 1 above. Note that the types of utterances discussed by Martin (1983: 116–139) include *que*-clauses governed by a verb (*il semble qu'il a/ait fait telle chose*), noun clauses (*attirons l'attention sur le fait qu'il a/ait pris une telle décision sans nous informer*) or adjective clauses (*Pierre n'est pas certain que Sophie viendra/vienne*), and relative clauses (*je suis à la cherche d'un emploi qui me permette/permettra de…*).

In addition to this probability tendency, Martin (1983: 119–124) argues that mood alternation should be understood in terms of "possible worlds" and "universes of belief". According to him, alethic and deontic modalities exist in the space of "possible worlds", where the proposition they govern is not considered as what it is, but as what it *could be* or *should be*. Thus, alethic and deontic expressions mostly select the subjunctive to indicate that the proposition belongs to those worlds. As for epistemic predicates, Martin (1983: 133–139) postulates that they govern either the indicative or the subjunctive depending on their polarity. If

we assume that these observations are correct, we can put forward the following hypotheses:

a. *That/que*-clauses governed by epistemic nouns will primarily select the indicative but also accept the subjunctive according to their pragmatic interpretation; hence, a high frequency of the indicative is to be expected after these expressions.
b. *That/que*-clauses governed by alethic and deontic nouns primarily select the subjunctive or related structures, although the indicative is not completely excluded; hence, a high frequency of the subjunctive is to be expected after these heads.

These hypotheses are tested using corpus analysis and statistics. Specifically, we aim to examine, first, whether mood alternation is a matter of tendency correlated with modality classes, and, second, the extent to which a particular mood is used with each of the three types of modality (i.e. alethic, deontic or epistemic). While it might seem problematic to apply an analysis of French mood to English, this will in fact allow us to determine whether the findings apply cross-linguistically. Although the subjunctive does not necessarily appear under the same qualitative and quantitative conditions in the two languages, the relevance of modality properties in mood selection should be observable cross-linguistically.

4.3 Data analysis

Data collected from the English and French corpora are presented in Tables 1 and 2, respectively.

First of all, let us bear in mind that the corpora investigated are very different in size and composition; differences in text type might influence the choice for a particular mood. However, it should also be kept in mind that the purpose of these statistics is not to compare the English and French figures directly, but to show that in each of the two languages the use of the indicative and the subjunctive can be related to the modality type of the head noun. In this respect, as we have already said, tendencies can be identified and the relative frequencies of the categories can be compared. Nevertheless, we should point out that the subjunctive seems much more alive in French than in English. In comparing its use in our data set, we note considerable differences — Table 3 summarizes them.

One can observe that out of 779 occurrences in the English material, only 94 contain subjunctive forms or *should*, while in the French data 72 occurrences of the subjunctive out of a total of 410 occurrences of *que*-clauses (12.1% against 17.6%).

The data in Tables 1 and 2 reveal two important observations: first, the English data set does not contain instances of an epistemic noun licensing the subjunctive,

Table 1. English data

Modality classes	Nouns	Occ.	Indicative	Subjunctive	*should*	Modal aux.	Ambiguous cases[8]
Epistemic nouns (319)	*assertion*	79	69 (87%)	0	2 (3%)	8 (10%)	
	certainty	40	32 (80%)	0	0	8 (2%)	
	fact	100	92 (92%)	0	1 (1%)	7 (7%)	
	hypothesis	100	86 (86%)	0	0	14 (14%)	
Total		**319**	**279 (87.5%)**	**0**	**3 (0.9%)**	**37 (11.6%)**	
Alethic nouns (302)	*likelihood*	100	67 (67%)	0	1 (1%)	32 (32%)	
	necessity	2	0	0	2 (100%)		
	possibility	100	42 (42%)	1 (1%)	0	57 (57%)	
	probability	100	86 (86%)	0	0	14 (14%)	
Total		**302**	**195 (64.6%)**	**1 (0.3%)**	**3 (1%)**	**103 (34.1%)**	
Deontic nouns (158)	*constraint*	12	3 (25%)	0	4 (33.3%)	4 (33.3%)	1 (8.4%)
	demand	30	4 (13.3%)	13 (43.3%)	9 (30%)	2 (6.7%)	2 (6.7%)
	request	16	1 (6.2%)	6 (37.5%)	6 (37.5%)	0	3 (18.8%)
	requirement	100	10 (10%)	23 (23%)	26 (26%)	27 (27%)	14 (14%)
Total (779)		**158**	**18 (11.4%)**	**42 (26.6%)**	**45 (28.5%)**	**33 (20.9%)**	**20 (12.6%)**

and even the use of putative *should* is extremely low (0.9%). In both English and French, the indicative is by far the most frequently used mood with epistemic nouns in *that*-clauses, i.e. 87.5% in English against 75.8% in French. The main difference between the two languages is that the subjunctive is used in around 6.10 % of occurrences in the French data set in contrast to the English data set. This first observation lends cross-linguistic support to our first hypothesis (i.e. epistemic nouns mostly select the indicative); in English, purely epistemic nouns do not even seem to accept the subjunctive at all.

The second general observation relates to findings across categories: the English data show a fall in the use of the indicative, ranging from 87.5% in the epistemic category over 64.6% in the alethic category to 11.4% in the deontic category. In the French data, the indicative is also most frequently used with epistemic nouns (75.8%) compared to deontic nouns (17.6%) and alethic nouns (10.2%). Conversely, the use of the subjunctive and *should* is significantly higher after deontic nouns (55.1% subjunctives + *should* in English and 55.9% subjunctives in French) than after epistemic nouns (0.9% in English and 6.1% in French). Alethic nouns have a much lower subjunctive selection rate in English (1.3% subjunctive + *should*) than in French (67.3%).

Table 2. French data

Modality classes	Nouns	Occ.	Indicative	Subjunctive	Conditional	Ambiguous cases
Epistemic nouns (327)	*affirmation*	42	38 (90.5%)	0	4 (9.5%)	
	certitude	94	82 (87.2%)	0	12 (12.8%)	
	fait	100	65 (65%)	12 (12%)	1 (1%)	22 (22%)
	hypothèse	91	63 (69.2%)	8 (8.8%)	8 (8.8%)	12 (13.2%)
Total		**327**	**248 (75.8%)**	**20 (6.1%)**	**25 (7.7%)**	**34 (10.4%)**
Alethic nouns (49)	*vraisemblance*	10	1 (10%)	7 (70%)	0	2 (20%)
	nécessité	7	1 (14.3%)	4 (57.1%)	0	2 (28.6)
	possibilité	23	2 (8.7%)	18 (78.3%)	0	3 (13%)
	probabilité	9	1 (11%)	4 (44.5%)	0	4 (44.5%)
Total		**49**	**5 (10.2%)**	**33 (67.3%)**	**0**	**11 (22.5%)**
Deontic nouns (34)	*contrainte*	10	5 (50%)	2 (20%)	0	3 (30%)
	exigence	11	0	9 (81.8%)	0	2 (18.2%)
	demande	5	0	4 (80%)	0	1 (20%)
	obligation	8	1 (12.5%)	4 (50%)	2 (25%)	1 (12.5%)
Total (410)		**34**	**6 (17.6%)**	**19 (55.9%)**	**2 (5.9%)**	**7 (20.6%)**

Table 3. Frequencies of the subjunctive in the English and French corpora

Corpora	Occ.	Indicative	Subjunctive (+ *should*)	Modal verbs	Ambiguous cases[9]
English	779	492 (63.15%)	94 (12.1%)	173 (22.2%)	20 (2.55%)
French	410	259 (63.20%)	72 (17.6%)	27 (6.5%)	52 (12.7%)

The question to be addressed next is how to interpret these observations. Beyond generalizations, it is likely that a close look at the lexical classes should reveal the mechanisms underlying these mood selection tendencies among lexical nominal classes and the properties that favor one mood or the other.

4.3.1 *Epistemic nouns favor the indicative*

As noted above, the 319 English *that*-clauses governed by epistemic nouns do not include a single one that licenses the formal subjunctive. As Heyvaert (2003: 82) claims, there is a tight link between indicative and epistemic modals since they both express "the speaker's position with respect to the plausibility of the propositional

content of the clause". Thus, one can assume that they can be considered as part of the same semantic conceptual continuum. This suggests that the high/exclusive use of the indicative with epistemic nouns is a phenomenon to be expected. This tendency is observable in both our English and French data, even if French epistemic nouns tend to accept around 6% of subjunctive. Martin (1983) and others (Riegel et al. 1994; Soutet 2000) have attempted to explain this phenomenon. Martin (1983) justifies the use of the subjunctive after expressions like *le fait que* by arguing that they mark the proposition as an existing reality, while also indicating that this reality could have been different. In other words, in an utterance like *le fait que Pierre soit venu est tout de même bon signe* (Martin 1983: 131), ("the fact that Pierre be here is nevertheless a good sign" — my translation) the speaker asserts reality (*Pierre-come back*), but places it in a counterfactual world, where (*Pierre might not have come*). Thus, when the proposition is asserted as a reality existing in a factual world, the head noun governs the indicative. However, when the proposition denotes an existing reality that is perceived as potentially counterfactual, the head noun selects the subjunctive. For instance, in a sentence such as (33), the speaker uses the subjunctive to indicate that the state of affairs described by the propositional content is not necessarily what was or could be expected.

(33) *Les points de repère pourraient d'ailleurs être déterminés par <u>le fait</u> que je <u>choisisse</u> à l'avance mes textes et que je les relie par mes commentaires.*
(Frantext)

"In fact, the bench marks could be determined by the fact that I choose my texts in advance and that I connect them by comments." (My translation)

Thus, the subjunctive indicates that the state of affairs could have been different, i.e. ***ne pas*** *choisir mes textes* ("not to choose my texts"), which explains its use in (33).

4.3.2 *Deontic and alethic nouns favor the subjunctive*

Analysis reveals that French and English deontic nouns choose the subjunctive/*should* more frequently than the indicative. Chi-square results for deontic nouns requiring the subjunctive/*should* are highly significant in both English ($\chi^2 = 45.343$ (df = 1), $p < 001$) and French ($\chi^2 = 6.76$ (df = 1), $p < .01$); this suggests that part of our second hypothesis — deontic nouns would mainly license the subjunctive — is verified for both languages. As for the other part of the second hypothesis — *alethic nouns would also select the subjunctive more frequently* — this is supported for French (10.2% indicative vs. 67.3% subjunctive) but not for English (64.6% indicative vs. 1.3% subjunctive/*should*). The chi-square result confirms Martin's (1983) observation that the French alethic category more frequently selects the subjunctive. In sum, French deontic and alethic nouns more frequently select the

subjunctive. In English, the deontic class selects the subjunctive more frequently, whereas the alethic class, like the epistemic class, mostly requires the indicative.

The notion of modality "class" is important here, since, within these classes, individual nouns vary with respect to the mood selection proportion. For instance, in French, nouns from the deontic class, such as *contrainte* or *obligation*, are frequently used with the indicative, even though the class as a whole, or the other nouns in it, selects the subjunctive. Notice that French *contrainte* is used with 50% indicative vs. 20% subjunctive in our data, and that English *constraint* is the deontic noun which has the highest use of the indicative (25%).

4.3.3 *Gradience in modality classes*

Is the contrast observed in the previous section, i.e. that the epistemic class more frequently selects the indicative and the deontic or alethic class more frequently selects the subjunctive, related to any gradience in modal class or to a lexical-semantic interpretation of the nouns? Indeed, different nouns may belong to the same class, but not share the same degree of being an element of that class. For instance, in the alethic class, *necessity* in both its occurrences selects mandative *should* in English against 14.3% indicative, 57.1% subjunctive and 28.6% of ambiguous cases in French. As for *probability/probabilité*, it favors the indicative (86% indicative vs. 0% subjunctive and *should* in English; 11% indicative vs. 44.5% subjunctive in French; the other 44.5% are non-distinctive forms).

Such discrepancies within the same class can be explained by Heyvaert's (2003: 82–85) approach (cf. Section 4.3.1 above). It could even be argued that modality as a semantic property allowing mood selection can be considered as a system set in an integrated continuum. If we assume that epistemic, alethic and deontic classes are the fundamental constituents of modality, then the integrated continuum is a tripartite circular system; the three modality types in relation to mood selection form a system, as Figure 2 illustrates:

One can see that this system, in relation to mood selection, would have the epistemic class as the starting point of the circular continuum, followed by the alethic class and then by the deontic class. This hypothesis would explain the discrepancies in Tables 1 and 2. In fact, nouns may belong to a particular modality class without sharing the same degree of class membership. In other words, an alethic noun like *probability* is closer to the epistemic class than *necessity*, which is semantically closer to the deontic class. An utterance such as (34) clearly shows that the former is closer to epistemic *fact/evidence*, while the latter, in (35), has greater affinity with deontic *requirement/obligation*.

(34) If he suspected Pascoe, Rain had to concede <u>the probability</u> that he <u>was</u> right. (BYU-BNC)

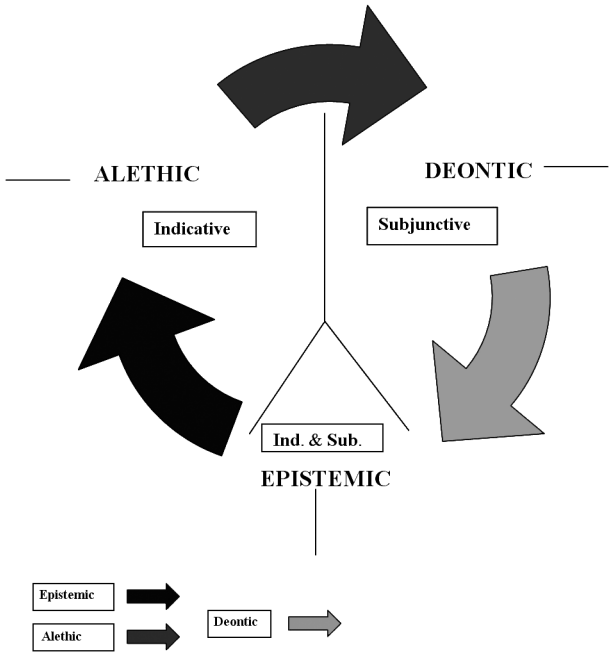

Figure 2. Lexical Modality classes continuum

(35) In trying to find answers, managers — whether they were heads or governors — were caught between the need to make progress and to prepare for broad changes which had been widely publicized by central government and to prepare for the necessity that they should lead changes. (BYU-BNC)

Therefore, as the analysis above reveals that the epistemic class is the one that mostly accepts the indicative, it becomes possible to understand why *probability* has a high indicative percentage (86% against 14% used with modal verbs in English). Similarly, it is not surprising that *necessity* should license the mandative subjunctive/*should* more frequently than the indicative (its two occurrences are used with *should*), because it is close to the deontic class (nouns that involve obligation, permission, etc.) — a class which tends to choose the subjunctive. In French *nécessité* ("necessity") is used in similar proportions: 14.3% indicative and 57.1% subjunctive, with the remaining 28.6% non-distinctive forms.

5. Conclusion

This paper has argued that the presence of a modality feature is a common intrinsic property of *that* taking nouns. The lexical classification of nouns into modality

classes has proved to be an efficient method to underpin our claims. First, the analysis has revealed that the presence of a modality feature is a necessary condition for a noun to govern a *that*-clause. However, further investigations need to be carried out as to whether it is a sufficient condition.

Second, corpus analysis and statistics have provided support for the hypotheses and have revealed explicit mechanisms guiding the choice of mood in English and French noun complement clauses. Again, the classification of head nouns into lexical modality groups appears to be an efficient procedure in determining which modality class favors which mood. Thus, epistemic nouns (in both English and French) mostly or exclusively select the indicative. Alethic and deontic nouns favor one mood or the other depending on their degree of modality class membership. Both classes seem to favor the subjunctive in French, whereas in English the former chooses the indicative while the latter selects the subjunctive. The closer a noun is to the epistemic class, the more likely it is to license the indicative. Conversely, the further removed a noun is from the epistemic class, the more likely it is to license the subjunctive. Accordingly, the results support the concept of a scalar continuum in mood alternation, as put forward by Martin (1983) — see Figure 1. Further studies should elaborate this concept in greater detail.

Finally, with regard to the interpretation of modality in overall *that* noun complementation, three fundamental modality levels can be observed. The head noun conveys the first type of modality, which indicates the speaker's attitude/commitment as *epistemic*, *alethic* or *deontic*. The second modality ascription is performed at the subordination level, which marks modality orientation. The type of modality conveyed by the head noun is generally subjective, since it is the speaker who expresses/describes his/her personal or another speaker's stance towards the propositional content. Yet, modality orientation can also be objective, viz. when the speaker uses alethic expressions or logical constructions. And the third level of modality encoding concerns mood in relation to the head noun. It marks the proposition as being asserted/factual through the use of the indicative or as non-asserted/unreal when the subjunctive is used.

Notes

* Special thanks to Nicolas Ballier, Raphael Salkie, Catherine Léger and Eleanor Hendricks for their advice and perceptive comments on earlier versions of this paper. Any remaining errors are mine. Many thanks to Emmanuel Ferragne for his advice and comments on the Chi-square test.

1. For the concept of "modality orientation", see Halliday (1994).

2. Source: http://www.atilf.fr/atilf/produits/frantext.htm (accessed September 2009).

3. *Probability* may also be considered as epistemic in the literature. Notice that in most linguistic studies on modality, there is no distinction between epistemic and alethic modal expressions (Palmer 1986 for instance).

4. Biber et al. (1999) and Ballier (2007) describe head nouns as expressing the speaker's modal stance, but do not put them explicitly in modality classes.

5. Source http://www.webcorp.org.uk/webcorp_linguistic_search_engine.html (accessed September 2009). For further information see:, http://www.webcorp.org.uk/guide/, http://wse1.webcorp.org.uk/preview/ (accessed September 2009).

6. Examples of *picture*, *sign*, *slogan* used as head nouns:

With a 10% increase in sales over the last study period, we have *a clear picture that the Chinese book market is being more gradually influenced by the translated books.* (Webcorp)

Madeleine picked up her fork and began to eat. This was *the sign that the children could start eating too*. (BYU-BNC)

This positive part of conventionalism most plainly corresponds to *the popular slogan that judges should follow the law and not make new laws in its place.* (BYU-BNC)

7. Schmid (2000) uses the terms 'A-nouns', 'carrier nouns' and 'shell nouns' to refer to what is also called head nouns.

8. Example: *I wrote up these notes immediately after each occasion and as soon as they were typed, sent copies to those involved with the request that they verify that the substance and the spirit of each occasion were accurately and adequately recorded.* (BYU-BNC).

9. By "ambiguous cases", we mean the non-distinctive forms of the verb between the indicative and the subjunctive.

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