The Lazy Frenchman's Approach to the Subjunctive

(Speculations on Reference to Worlds and Semantic Defaults in the Analysis of Mood)[1]

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Abstract: It has proven difficult to provide a unified semantics for the French subjunctive (the difficulty applies more generally to Romance, but we concentrate on French). In this preliminary note, we suggest that this is because the French subjunctive is a semantic default, to be used just in case the indicative would have triggered a presupposition failure (a similar idea was explored for Italian by Portner 1997; see also Siegel 2004). Thus the environments in which the subjunctive appears do not form a natural class, although they are the complement of a natural class. Once this is established, a large part of the question becomes: what is the semantic contribution of the indicative? Modifying minimally the analysis of Stalnaker 1975 (which was concerned with English), we suggest that the indicative triggers a presupposition on the value of a world term, of the form w{CS(x', t', w')}, indicating that the world denoted by w lies in the Context Set of individual x' at time t' in world w' (x', t', and w' may be left free -if the context provides them with a salient value- or they may be bound). This derives indirectly the intuition, found both in traditional grammar and in recent research (e.g. Farkas 2003), that the indicative marks an assertive act on somebody's part, though this person need not be the speaker. We also discuss an extension of this theory to the German Konjunktiv I, which we analyze in essence as a reportive indicative, in line with the intuitions -though not with the implementation- of Fabricius-Hansen & Saebø 2004. If correct, the theory we sketch makes it possible to analyze mood by analogy with person and tense as introducing a presupposition on the value of word-denoting terms, and in particular on world-denoting variables.

0 Introduction

When philosophical logicians attempted to give a semantics for Modal Logic (Kripke 1963), they observed that they could base their models on *possible worlds,* entities that determine the truth of every conceivable sentence. When formal semanticists attempted to analyze modal expressions in natural language (e.g. attitude reports), they naturally resorted to the same device. This was by no means a natural choice. From the start, the possible worlds framework was plagued with severe problems, which to this day have not found a satisfactory solution. In particular, *John believes that p* entails on the possible worlds account that for every clause *p'* which is logically equivalent to *p, John believes that p*', with the obviously undesirable result that *John believes that two plus two is four* ends up entailing that *John believes that Fermat's conjecture is true* (as it happens, Fermat's conjecture is indeed correct; since *two plus two is four* and *Fermat's conjecture is true* are two true mathematical statements, they are true in all possible worlds, and hence the two clauses are indeed equivalent). It is thus a surprising and significant result that, despite these difficulties, the possible worlds approach turned out to be fruitful. Some striking results were obtained in recent years, and can be lumped together under what I shall call the 'Referential Approach' to modal semantics. Its main tenet is that *the same devices of reference are used to refer to individuals and to possible worlds*. When one refers to individuals, one uses three types of linguistic mechanisms: (a) pronouns, which are standardly analyzed as free or bound varibles; (b) definite descriptions, which are now commonly analyzed along Fregean or Strawsonian lines, whereby *the P* fails to denote (or as I will say: denotes #) unless there is exactly one P-individual d in the domain of discourse, and otherwise denotes the one and only P-individual in the domain of discourse. The third element, which is crucial for the analysis of both (a) and (b), is (c) a notion of presupposition. (In an extended sense, one also

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uses quantifiers to 'refer' to individuals, but to keep the discussion manageable I will mostly leave these out of the present discussion).

The Referential Approach, then, seeks to analyze modal semantics using only these devices. It has produced some surprising results:

(i) Stone 1997 suggested that mood can fulfill each of the functions that pronouns normally do. In this way he extended to mood an argument that Partee 1973 originally applied to tense, making the notion of *anaphora* pervasive in natural language.

(ii) Bittner 2001, Lycan 2001 and Schlenker 2004 (following insights that were first stated in Lewis 1973) suggested that *if*-clauses can literally be analyzed as definite descriptions of possible worlds, and that one can derive in this way all the details of the 'non-monotonic' analysis of conditionals offered in the classic theory of Stalnaker 1968.

(iii) It was also suggested -somewhat less systematically- that the semantics of mood could be developed by analogy with the semantics of tense (Iatridou 2000), and that the resulting theory could explain certain systematic syncretisms between tense and mood. Some attempts were made to analyze modal features, tense features and person features in a uniform way, as presuppositions on the value of certain terms or variables (Schlenker 2004).

Although the Referential Approach is appealingly simple, it is entirely open whether and how it could be extended to the harder problems in modal semantics, in particular to the analysis of the subjunctive. In this paper I shall suggest that the mechanisms in (a)-(c) are almost enough to provide a plausible account, *provided* they are supplemented with the device of a *semantic default* (Heim 1991b, Sauerland 2003, Schlenker 2003), according to which *certain forms* - in particular, the French subjunctive- have no semantics or have a vacuous semantics, but are to be used just in case competing forms give rise to a semantic failure. This line of analysis has been or is being investigated by others, in particular Portner 1997 and Siegel 2004. I will offer a particular development of it, leaving open many difficult problems along the way. The basic claim, then, is that the subjunctive does not appear in a natural class of environments, but rather in the *complement of a natural class* (specifically: in the complement of those environments in which the indicative, the imperative and the infinitive must be inserted). Although obvious enough, this point leads to change perspectives somewhat, turning the question *What is the semantics of the subjunctive?* into the question *What is the semantics of the indicative (and infinitive and imperative)?*

I shall first apply the Referential Approach to the distinction between so-called 'indicative' and 'subjunctive' conditionals in English (as it happens, most 'subjunctive' forms are in fact homophonous with the past tense, a fact that was crucial for Iatridou 2000 and for the approach outlined below). Then I shall give initial arguments for treating the French subjunctive as a semantic default: (a) there are very clear cases in which it competes with the imperative; (b) there are also cases in which it appears to compete with the infinitive (as suggested in Farkas 1992). The default-based analysis can also explain why (i) the subjunctive does not appear to have a unified semantics, while by contrast (ii) the indicative almost always has something to do with the expression of someone's commitment (Farkas 2003). The analysis is developed by assuming that the indicative introduces a presupposition on the value of a term w, of the form $w \{CS(x', t', w')\}$, indicating that the term *w* denotes a world that lies in the 'Context Set' of individual x' at time t' in world w', i.e. that it is compatible with what x' believes or says at t' in world w'. A consequence of the analysis for the 'Konjunktiv I' in German is sketched in the last section: following the insights -though not the implementation- of Fabricius-Hanse & Saebø 2004, we suggest that the Konjunktiv I is (despite its name) a reportive indicative. Although the present analysis contains many loose ends, part of the exercise is to push to the limits the Referential Approach, possibly with the aim of determining exactly where it breaks down.

1 The Referential Approach

1.1 Reference to Individuals

To introduce the Referential Approach, it is easiest to start with the semantics of pronominal features. Let us assume that the grammar makes available the features *masculine, feminine, author* (i.e. first person), and *hearer* (i.e. second person). A standard analysis, due to Cooper 1983, is to treat gender features as presuppositions on the value of individual variables. Thus she_i triggers a presupposition that the value of the pronoun under the relevant assignment function is a female individual. In quantified sentences, this produces the desired results given standard rules of presupposition projection. For instance, it is accepted that in universally quantified sentences -say, *Every director admires herself* - the rule is that *every element that satisfies the restrictor* (here: *director) must satisfy the presuppositions of the nuclear scope* (here: *admires herself*). In other words, it must be presupposed that every individual in the domain of discourse who is a director is female - apparently the correct result. Formally, we can state the following rules for a term t that carries feminine features, written as presuppositions within curly brackets. e* is the context of utterance, s is an assignment function, and presupposition failure is denoted by #. For mnemonic convenience we will often use the same symbols in the object language and in the meta-language . Thus in the definition in (1) *e** plays the role of a context parameter in the meta-language (it represents the speech event). But in addition we will see shortly that *e** is also a variable of the object language, which by convention denotes the speech event.

(1) For any individual term t,
$[\![t\{fem\}]\!]^{e^*,s}$=# iff $[\![t]\!]^{e^*,s}$=# or $[\![t]\!]^{e^*,s}\neq$# and $[\![t]\!]^{e^*,s}$ is not female at the time of e* in the world of e*. If ≠#, $[\![t\{fem\}]\!]^{e^*,s}=[\![t]\!]^{e^*,s}$

As is standard, we assume that a simple formula yields a presupposition failure just in case one of its arguments denotes #. Thus she_i *smokes* yields a presupposition failure just in case the individual denoted by the index i is not female. In our formal implementation, we will systematically assume that predicates (be they verbs or nouns) take as suffixes one event/state argument and one world argument in addition to their individual arguments. As announced, in the object language *e** is a distinguished event variable that denotes the actual speech act, and that e^*_a, e^*_h and e^*_w denote respectively its speaker (=agent) hearer, and world of occurrence (we will also use the same notations in the meta-language). *e'* ≈ *e is* understood to mean that e' occurs in the same world and at the same time as e. *e'* ≥ *e* indicates that e' occurs in the same world as e and no earlier than e. In most of the discussions (with the exception of Section 2.2) the event argument could be seen just as well as a time argument. This leads to the following analysis:

(2) a. She smokes.
a'. $x_i\{fem\}$ smoke-e-e^*_w
b. $[\![a']\!]^{e^*,s}$ =# iff $[\![x_i\{fem\}]\!]^{e^*,s}$=#, iff $s(x_i)$ is not female. If ≠#, $[\![a']\!]^{e^*,s}$ =1 iff $s(x_i)$ smokes at s(e) in e^*_w.

By adding the above rule of presupposition projection (*every element that satisfies the restrictor must satisfy the presuppositions of the nuclear scope),* we further obtain an analysis of *Every director admires herself* (as is usual, we write $s[x_i \rightarrow d]$ for the assignment of values to variables which is identical to s, with the possible exception that it assigns to the variable x_i the value d).

(3) a. Every director admires herself.
a'. [every x_i: director-e-e^*_w x_i] x_i admire-e-e^*_w $x_i\{fem\}$
b. $[\![a']\!]^{e^*,s}$ =# iff for some element d satisfying $[\![$ director-e-e^*_w $x_i]\!]^{e^*,\, s[x_i \rightarrow d]}$ =1,
$[\![x_i$ admire-e-e^*_w $x_i\{fem\}]\!]^{e^*,\, s[x_i \rightarrow d]}$ =#, i.e. iff for some element d which is a director at s(e) in e^*_w, d is not female. If ≠#, $[\![a']\!]^{e^*,s}$ =1 iff for each element d satisfying $[\![$ director-e-e^*_w $x_i]\!]^{e^*,}$

$^{s[x_i \to d]}$=1, $[\![x_i$ admire-e-e*$_w$ $x_i\{fem\}]\!]^{e^*, s[x_i \to d]}$=1, i.e. iff for each element d which is a director at s(e) in e*$_w$, d admires d at s(e) in e*$_w$.

It has sometimes been suggested (e.g. Schlenker 2003) that the same analysis can profitably be extended to first and second person pronouns.

-That these should be treated as *variables* is suggested by the availability of bound readings in examples such as *Only I did my homework* or *Only you did your homework,* as was suggested in Heim 1991a (the point is that in each of these cases one of the available readings entails that *John didn't do his homework,* as is expected on the bound reading).

-In addition, the presuppositional analysis is useful to treat examples in which two occurrences of a second person pronoun denote different individuals, e.g. *You* [pointing] *should stop talking to you* [pointing]. The presuppositional analysis has no difficulty with this example: *you* may refer to any individual, as long as it is an addressee of the speech act. By contrast, this example would be harder to analyze if we postulated, as in standard treatments (e.g. Kaplan 1989), that in any context c *you* denotes the (one and only) addressee of c.

These considerations lead to the following rules of interpretation for the features *author* and *hearer*; these rules are formally analogous to those we introduced earlier for gender:

(4) For any individual term t (in fact, variable),
a. $[\![t\{author\}]\!]^{e^*,s}$=# iff $[\![t]\!]^{e^*,s}$=# or $[\![t]\!]^{e^*,s}\neq$# and $[\![t]\!]^{e^*,s}$ is not the speaker of e*. If $\neq$#, $[\![t\{author\}]\!]^{e^*,s}=[\![t]\!]^{e^*,s}$
b . $[\![t\{hearer\}]\!]^{e^*,s}$=# iff $[\![t]\!]^{e^*,s}$=# or $[\![t]\!]^{e^*,s}\neq$# and $[\![t]\!]^{e^*,s}$ is not a hearer of e*. If $\neq$#, $[\![t\{hearer\}]\!]^{e^*,s}=[\![t]\!]^{e^*,s}$

But we still need an account of third person pronouns. We might be tempted to introduce the negative features *non-author* and *non-hearer,* which act as presuppositions that the value of the relevant variable denotes neither the speaker nor the addressee. But this leads to immediate problems in two cases.

(a) In the sentence *Everyone (including me) admires himself,* the bound variable *himself* ranges, among others, over the speaker. If the pronoun *himself$_i$* carries a presupposition that it does not denote the speaker (nor for that matter the addressee, though we disregard this point), we can represent the sentence as in (5):

(5) a. Everyone (including me) admires himself.
b. [every x_i: human-e-e*$_w$ x_i] x_i admire-e-e*$_w$ $x_i\{non\text{-}author\}$

Applying the rule of presupposition projection that was introduced earlier for universally quantified structures, we obtain a requirement that *every human in the domain of discourse should be different from the speaker*. But this is clearly incorrect, since in (5)a *himself* clearly ranges, among others, over the speaker.

(b) A second problem arises in situations of uncertainty, for instance if I see from the distance a scene in a mirror, wondering about the identity of a particular individual. I may at some point come to say: *This individual looks like me... in fact, he is me!* Certainly we do not want this last sentence to come out as a presupposition failure, which would be the case if *he* carried a presupposition that it denotes a non-speaker.

The solution is to assume that third person features have no semantic contribution at all, and *a fortiori* do not introduce any presuppositions[2]. But of course we still need to explain why in case it is known that the person referred to is the speaker or addressee, first or second person features *must* be used. This can be achieved by postulating a principle *Maximize Presupposition!,* which requires

[2] It might be a better idea to state that *there are simply no third person features,* as is often assumed in the morphological literature. But for present purposes we will assume instead that there exists a feature *3rd* which has no semantics. Note also that the present proposal correctly handles cases of quantification such as (5). In order to handle cases of referential uncertainty (e.g. *He looks like me... in fact, he is me*), a more elaborate framework is needed. See Dekker 2000 for further considerations on this topic, and Schlenker 2004 for an implementation that includes an analysis of third person features.

that the strongest possible presuppositions (short of referential failure) be marked on variables (this principle, which is designed to apply only to grammatical features, is introduced in Heim 1991b for the analysis of indefiniteness; it is further applied to plural features in Sauerland 2003). When it is known that the person referred to is a speaker or addressee, the features *author* or *addressee* must be used, by *Maximize Presupposition!* In case of uncertainty, as in (b) above, the semantic default must be used. And similarly in the quantified sentence *Everyone (including me) admires himself*$_i$, the features *author* and *hearer* cannot be introduced because they would trigger a presupposition failure, and as a result we predict that the third person pronoun should be acceptable even though it does range, among others, over the speaker (and possibly the addressee).

To sum up, we have given evidence for three main components in the analysis of reference to individuals: (a) variables, (b) features that introduce presuppositions on the value of these features, and (c) a principle of *Maximize Presupposition!*, which allows for the existence of semantic defaults. We also add as a fourth component the well-known device of (d) definite descriptions. We shall now see that each of these components has a counterpart in the analysis of reference to possible worlds.

1.2 Reference to Worlds[3]

1.2.1 Variables and Definite Descriptions

Stone 1997, who applied to mood an argumentation that was originally designed for tense by Partee 1973, suggested that *mood should often be analyzed as a world-denoting pronoun*. Just as Partee showed that the major uses of pronouns are paralleled by analogous uses of tense, Stone suggested that mood can behave as a bound or free variable, and may also act as an 'E-type pronoun'. For the sake of brevity, I shall only illustrate the use of mood as a *free variables* whose value is provided 'deictically' by the extra-linguistic context.

(6) a. My neighbors would kill me (Stone 1997)
b. my neighbors kill-e_k-w_i me

In the scenario for (6), one of the guests at a party starts turning up the volume of the stereo. The host disapproves, and utters (6)a. The intended meaning is that 'my neighbors would kill me *in that world or in those worlds in which your action is completed*'. The extra-linguistic context (the guest's gesture) is enough to provide a value for the free world variable w_i. Stone's conclusion is that mood, like tense and pronouns, can be used deictically.

When we talk about individuals, two major devices of reference are available in addition to variables: (i) quantifiers, which have an *analogon* in modal auxiliaries and modal adverbs (these are frequently analyzed, following Lewis 1975, as restricted generalized world quantifiers). For simplicity we shall leave these out of the present study. In addition, individuals are denoted through (ii) definite descriptions, which are generally analyzed in Fregean/Strawsonian terms. The surprising discovery, which was sketched in Lewis 1973 and further developed in Bittner 2001, Lycan 2001 and Schlenker 2004, is that *if-clauses can, quite literally, be analyzed as definite descriptions of possible worlds*. The basic argument is as follows:
(a) It is a standard observation that natural language conditionals do not share the logical behavior of the material or strict implications of formal logic. For example, when $\rightarrow$ is interpreted as a material or as a strict implication, one can infer from $p \rightarrow q$ that $(p \& p') \rightarrow q$. But crucially the same property does not hold of natural language conditionals, as shown by the fact that the following discourse is not contradictory (note that it has the form: *if p, q; but if (p&p'), not q*, a pattern that should yield a contradiction if the above property held):

(7) If the USA threw its weapons into the sea tomorrow, there would be war; but if the USA and the other nuclear powers all threw their weapons into the sea tomorrow, there would be peace.

[3] This subsection is a modification of the theory of Schlenker 2004.

(b) Lewis 1973 noticed that a similar problem arises in the analysis of definite descriptions. Suppose, to be concrete, that we analyzed definite descriptions in the Fregean fashion that was outlined above. Then we would predict -incorrectly - that the following should either be a presupposition failure or a contradiction:

(8) The dog is barking, but the neighbor's dog is not barking (Lewis / McCawley)

The prediction follows because (8) is of the form *The P Q, but the (P & P') not-Q,* where P=*dog*, P'=*that belongs to the neighbor*, and Q=*is barking*. For a Fregean, if *the dog* is uttered felicitously, there must be a single dog d in the domain of discourse; and by the same token there must be a single dog d' that belongs to the neighbors - whence d=d'. Hence whatever is predicated of d should also hold of d' (since d=d'!). But if so, (8) should come out as a contradiction.

(7) is of the form *if p, q but if (p & p'), not q*, and is incorrectly predicted to be a contradiction; (8) is of the form *the P, Q but the (P & P'), not Q,* and is incorrectly predicted to be a contradiction (or a presupposition failure). These are two sides of the same semantic coin, Lewis argued. Following this insight and borrowing the frameworks developed in Stalnaker 1968 (for conditionals) and von Heusinger 1996 (for definite descriptions), we may construct the theory as follows:

(a) *the P* does not (as on the Fregean analysis) denote the one and only P-individual in the domain of discourse, but rather the P-individual that is *highest* on a scale of salience. From the observation that the most salient dog is barking, it certainly does not follow that the most salient dog *that belongs to the neighbors* is barking (compare: *the smartest student understand mathematics* certainly does not entail that *the smartest literature student understands mathematics).*

(b) Analogously, *if p* is taken to denote *the p-world that is highest on a scale of similarity to the world of evaluation*. Once again one can block in this way the unwanted inference: from *if p, q*, analyzed as *the highest world on a scale of similarity which is a p-world is also a q-world,* it does not follow on this analysis that *if (p & p'), q*, analyzed as *the highest world on a scale of similarity which is both a p-world and a p'-world is also a q-world.*

(See Schlenker 2004 for further arguments that conditionals and definite descriptions display the same semantic behavior, as well as for alternative ways of analyzing the similarity).

1.2.2 Reference to Worlds

Let us now come to the behavior of semantic features, which according to the Referential Analysis should be analyzed as presuppositions on the value of certain world-denoting terms. We shall henceforth assume the analysis of *if*-clauses given by Stalnaker and reinterpreted in terms of definite descriptions: *if p* evaluated in a world w denotes the most similar p-world to w. With this background in mind, consider the following three-way distinction between indicative, subjunctive and 'double subjunctive' conditionals in English (the context is one in which the speaker addresses a tennis player, who might or might not participate in a competition which is to be held tomorrow):

(9) a. If you play tomorrow, you will win
b. If you played tomorrow, you would win
c. If you had played tomorrow, you would have won (Schlenker 2004; see also similar examples in Ippolito 2003).

All three sentences can be uttered felicitously, but not in the same contexts:

-(9)a is naturally uttered if I take it to be possible that my interlocutor will play tomorrow. For instance the sentence would be natural if one had just said: *I don't know whether you will play tomorrow. But ...*

-(9)b would among others be uttered felicitously in a situation in which I take it that the addressee will not play tomorrow: *I know you won't play. This is too bad - ...* Thus the sentence is most

naturally interpreted as counterfactual (this is not its only possible use, though we will largely disregard this fact in what follows[4]).

-(9)c involves what is morphologically a pluperfect, although it is clear from the content of the assertion that the resulting interpretation is purely modal, since the event which is denoted is to take place 'tomorrow'. This conditional could naturally be asserted if the addressee is in his hospital room after an injury, and will thus clearly be unable to participate in tomorrow's competition. Saying simply *If you played tomorrow, you would win* results in a deviant or a false sentence. With the pluperfect, the sentence becomes entirely natural.

We should observe that although (9)b is called a 'subjunctive' conditional, it involves a morphological past tense (if the verb were *be*, for instance in the third person, we would obtain a distinction between the subjunctive form *he were* and the past tense form *he was*; still, even in this case many dialects of English use the past tense form *was*). Iatridou 2000 shows that this is no accident: many languages indeed use a past tense to express counterfactual conditionals (Iatridou further points out that when there is a choice between a perfective and an imperfective form, it is the latter that is chosen for this modal use; we have nothing to say about this further fact). How should this syncretism between past and 'subjunctive' be explained? Following insights of both Iatridou 2000 and, less directly, Lewis 1973, we may reason as follows (see Schlenker 2004 for further details):

(a) In Stalnaker's analysis of conditionals, we need to make reference to an ordering of possible worlds with respect to their similarity to the world of evaluation (*if p* denotes the most similar p-world to the world of evaluation).

(b) In any analysis of the past tense (and pluperfect), reference is made to an ordering of moments in time.

(c) We can explain the systematic syncretisms between temporal and modal readings of the past tense by postulating that in the languages under study morphological past tense always expresses the relation <, where < is an ordering that could be (i) temporal priority (when it applies to event terms), or (ii) modal distance from a world of evaluation (when it applies to world terms).

This line of analysis has two further advantages:

-It suggests a natural account of the modal pluperfect which, in effect, indicates 'further modal distance' from the world of evaluation. Intuitively, in (9)c the pluperfect indicates that the closest world in which the addressee plays is not just remote, but *very* remote, or as we will say shortly: more remote than a salient possible world (or some salient possible worlds) that is or are already remote.

-It might also explain why the present tense often has both temporal and modal interpretations. In particular, in (9)a the present tense is used to indicate that the world picked out by the *if*-clause (i.e. the closest world in which the interlocutor plays tomorrow) is 'close enough' to the actual world, so to speak. How should this notion of 'close enough' be cashed out semantically? Stalnaker 1975 introduced the notion of *a Context Set,* which is simply the set of worlds compatible with what the speaker presupposes. In his view, then, what the indicative marks in indicative conditionals is that the world picked out by the *if*-clause is compatible with what the speaker presupposes. Once this notion of 'close enough' is accepted, we can suggest that, both in its temporal and in its modal uses, the morphological present can be used to indicate that an element that is denoted is 'close enough' to

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[4] The sentence can also be uttered felicitously in situations it is not presupposed that the addressee won't play tomorrow. Part of the phenomenon appears to be related to the fact that this is a future conditional (Iatridou 2000 uses the term 'Future Less Vivid' to refer to 'subjunctive' conditionals of this sort). But part of the phenomenon applies to subjunctive conditionals quite generally. Stalnaker 1975 discusses the following example, uttered at the scene of a murder (from Anderson 1951):

(i) If the butler had done it, we would have found just the clues which we in fact found.

As Stalnaker writes, 'here a conditional is presented as evidence for the truth of its antecedent. The conditional cannot be counterfactual, since it would be self-defeating to presuppose false what one is trying to show true.' In other words, we must accept that some subjunctive conditionals are not counterfactual.

the context of speech, i.e. that it is (i) at or around the time of utterance if the relevant term is time-denoting, or (ii) in the Context Set if the term is world denoting (note that in many temporal uses of the Present Tense, there is no requirement that a present tense sentence should hold at the time of utterance, but only that it should hold around it - e.g. in *Whenever John comes to visit, Mary is happy*).

Indicative vs. Subjunctive

How should these ideas be implemented? Starting with the indicative, we can recast the classic analysis of Stalnaker 1975 by stating that in an indicative conditional the mood features trigger a presupposition that the *if*-clause denotes a world that lies in the Context Set of the speech act. We can assume that indicative features introduce in the object language a presupposition of the form {CS}, which indicates in a context e* that the world term this presupposition applies to must denote a world which is in the Context Set of e* (i.e. within the Context Set of the speaker of e* at the time of e* in the world of e*). We thus arrive at the following semantic rule:

(10) For any world term w,
$[\![w\{CS\}]\!]^{e^*,s}$=# iff $[\![w]\!]^{e^*,s}$=# or $[\![w]\!]^{e^*,s}$ is not in the Context Set of e*. If ≠#,$[\![w\{CS\}]\!]^{e^*,s}$=$[\![w]\!]^{e^*,s}$

Let us illustrate with an example. Consider first the expression *if it rains* alone, considered as a world-denoting definite description. It triggers two presuppositions: first, that the extension of the description is not empty; and second, that the world picked out by this description satisfies CS, as indicated in (11) (note that if_w binds the world variable of the verb *rain-e-w*):

(11) a. [if_w rain-e-w]{CS}
b. $[\![a]\!]^{e^*,s}$=# iff (i) there is no possible world in which it rains at s(e), or (ii) the closest world from the world of e* in which it rains at s(e) is not in the Context Set of e*. If ≠#, $[\![a]\!]^{e^*,s}$=the closest world from e^*_w in which it rains at s(e).

If it rains, it will snow is then analyzed as a simple structure of predication, in which the world predicate *it snows* is applied to the denotation of the *if*-clause (in other words: the closest world from the world of utterance in which it rains is a world in which it snows). For there to be no presupposition failure, there must of course be at least one world in which it rains in the Context Set. This captures formally the intuition that an indicative conditional presupposes that the antecedent *might* be true.

With this background in mind, we may analyze the English subjunctive as introducing on a world term w a presupposition of the form {<w'{CS}}, indicating that w is more remote than w', which is itself in the Context Set. In the object language the variable w' may denote a salient world or it may be bound by an operator. We need a simple rule for the relation <, analyzed as an ordering of worlds relative to their similarity to the word of evaluation, we will take to be the world of the context. In the meta-language we write *a is more remote*$_{e^*_w}$ *than b* for: a is less similar to e^*_w than b is.

(12) For any world terms w and w', $[\![w\{<w'\}]\!]^{e^*,s}$=# iff $[\![w]\!]^{e^*,s}$=# or $[\![w']\!]^{e^*,s}$=# or $[\![w]\!]^{e^*,s}$ is not more $remote_{e^*w}$ than $[\![w']\!]^{e^*,s}$. If ≠#, $[\![w\{<w'\}]\!]^{e^*,s}$=$[\![w]\!]^{e^*,s}$

Here we will take w'=e^*_w (=the actual world). *If it rained* is then analyzed as follows:

(13) a. [if_w rain-e-w]{< e^*_w {CS}}
b. $[\![a]\!]^{e^*,s}$=# iff (i) there is no possible world in which it rains at s(e), or (ii) e^*_w is not in the Context Set of e*, or (iii) the closest world from e^*_w in which it rains at s(e) is not more $remote_{e^*w}$ than the world of e*. If ≠#, $[\![a]\!]^{e^*,s}$=the closest world from the world of e^*_w in which it rains at s(e).

The details of the relation < ('is more remote than') are left vague at this point, and should be further investigated in future work (one difficulty is to account for the fact that *if it rained* is *normally* but not *systematically* interpreted as counterfactual[5]).

Subjunctive vs. Double Subjunctive

Let us now attempt to analyze 'double subjunctive' features. The analogy with the semantics of the temporally interpreted pluperfect suggests that we should, if possible, apply the same abstract analysis to both cases (the relation < will be interpreted as modal remoteness when it applies to worlds, and as temporal priority when it applies to time terms). For the pluperfect I will follow the analysis of Stechow 2003 and Schlenker 1999, according to which a pluperfect on an event-denoting term e introduces a presupposition of the form {<e'{<e"{pres}}}, where e' and e" are themselves event-denoting terms, and where e" is presupposed to occur at the present moment. By parity of reasoning, I will propose that a modal pluperfect applied to a world term w introduces a presupposition of the form {<w'{<w"{CS}}}, indicating that w denotes a world which is more remote than a world w' which is itself more remote than a salient world in the Context Set. Taking w"=w* (which denotes the actual world), we obtain the following result for the *if*-clause *if you had played tomorrow* (for simplicity I treat *you-play-tomorrow* as an unanalyzed proposition):

(14) a. If you had played tomorrow (... you would have won)
a'. [if$_w$ you-play-e-w]{<w' {w"{CS}}
b. $[\![a']\!]^{e^*,s}$=# iff (i) there is no world in which e^*_h plays at s(e), or (ii) s(w") is not in the Context Set, or (iii) s(w') is not more remote$_{e^*w}$ than s(w"), or (iv) the closest world from e^*_w in which e^*_h plays at s(e) is not more remote$_{e^*w}$ than s(w'). If ≠#, $[\![a']\!]^{e^*,s}$= the closest world from e^*_w in which e^*_h plays at s(e) .

Thus we obtain the result that the world picked out by the *if*-clause is presupposed to denote a world more remote than a salient world which itself should be more remote than the actual world. What could such a salient world be? In the example at hand, it could for instance be *the closest world in which John is not injured,* and thus can participate in tomorrow's competition. If so, the presupposition that we predict is that the *if*-clause denotes a world which is more remote than this salient world. This is roughly as it should be - this analysis explains why the context we provided (one in which John is injured) makes the sentence acceptable, as it provides a natural candidate for the value of w' (=the closest world in which the addressee is not injured)[6].

2 The French Subjunctive as a Semantic Default

Having illustrated some of the strengths of the Referential Approach in the analysis of indicative, subjunctive and double subjunctive conditionals in English, we should try to assess its chances for the hairier case of the Romance Subjunctive, reduced in this little paper to the French Subjunctive. One might want to analyze the French Subjunctive as introducing a certain presupposition on the value of a world term. However there have been no really successful attempts to state a unified semantics for the French Subjunctive. Although it is often thought that the use of the subjunctive has something to do with the fact that the clause it appears in is taken to be false, this

[5] Thus we do not attempt to provide an account of Anderson's example (*If the butler had done it, etc.*), discussed in an earlier footnote. An analysis could be developed along the following lines:
w < *w'* is given a semantics according to which for all the speaker knows, *it might be* that the world denoted by *w* is more remote than the world denoted by *w'*. But a much richer semantic framework is necessary to give a formal analysis that incorporates this idea. See Schlenker 2004 for an example of the kind of framework we have in mind.

[6] Note that it is also plausible that the closest world in which the addressee plays tomorrow is one which is more remote than w' - say, because the closest world in which the addressee is not injured is likely to be one in which he fails to participate in tomorrow's competition, as is the case in the actual world. Thus in order to find a world in which the addressee participates, one might have to reach still a bit further...

is clearly incorrect. First, in some exclamatives, the proposition at hand is not asserted, and its truth is certainly not presented as being in doubt (it might even be presupposed to be true). Still, the subjunctive is used, and the indicative is ungrammatical:

(15) Que Jean soit /#est malade de la tuberculose en 2003!
That Jean be /#is sick with the tuberculosis in 2003!
'For Jean to be sick with tuberculosis in 2003!'

Second, after the expression *the fact that,* which appears to be factive, the subjunctive as well as the indicative can be used, as shown in (16)a. Similarly, the proposition that follows *bien que* ('although') is presupposed to be true, and yet it appears in the subjunctive; only with great difficulty can it appear in the indicative, as shown in (16)b. Finally, it is typically thought that the complement of *regret* is presupposed to be true, and yet it has to appear in the subjunctive (the indicative is rather degraded, at least to my ear), as shown in (16)c.

(16) a. Le fait que Jean soit/est incompétent ne fait aucun doute
The fact that Jean be-subj/is incompetent does not do any doubt
b. Bien que Jean soit/??est incompétent, je vais l'embaucher
Although Jean be-subj/is incompetent, I am going to hire him
c. Marie regrette que Jean soit/??est incompétent
Marie regrets that Jean be-subj/is incompetent

The suggestion we would like to make is that it has proven difficult to find a common denominator to all the uses of the French subjunctive because *these simply do not form a natural class*. Being a semantic default, however, the subjunctive appears in environments that are the *complement* of a natural class, namely the *complement* of those environments in which the indicative, the infinitive and the imperative can be inserted[7].

In what follows we will present what we take to be the strongest arguments for the analysis of the subjunctive as a semantic default. They stem from the analysis of the competition between the subjunctive, the imperative and the infinitive:
-It appears that the subjunctive can have an imperative meaning, but *only when no designated imperative form is morphologically available*.
-Similarly, Farkas 1992 has suggested that *Jean veut qu'il parte* (lit. Jean wants that he leave-subj) cannot be read with coreference *because* there exists an infinitive form with the same meaning, namely *Jean veut partir* (lit. Jean wants to leave).
In both cases the argument for a competition mechanism has the same form:
-given certain assumptions, a subjunctive form is expected to be grammatical in environment E.
-however, the subjunctive is ungrammatical in E
-E is precisely the environment in which another mood M is available. In non-E environments M is not morphologically available. This argues for an analysis based on competition: M and the subjunctive are in competition.
We shall give two such arguments, with E=the imperative in one case, and E=the infinitive in the other. The precise nature of the competition mechanism will be discussed as we go along. We then briefly discuss the competition between the subjunctive and the modally interpreted past tense, though this is a topic we mostly leave for future research.

[7] An anonymous reviewer gives several arguments about what he/she calls the 'alleged 'vacuity' of the subjunctive'. But the arguments misfire because he/she does not take into account the competition principle (namely *Maximize Presuppositions!),* which *prevents* the subjunctive from being used whenever competing moods can be. As a result, although the lexical entry of the subjunctive has a vacuous semantics, its *use* is severely constrained.

2.1 Subjunctive vs. Imperative

Consider the following paradigm:

(17) a. Que votre Altesse soit prudente!
That your Highness be-subj cautious! (='Let her Majesty be cautious!')
b. #Que tu sois prudent! |Sois prudent!
#That you be-subj cautious! |*Be-2nd-sg-imp cautious!*
c. #Que nous soyons prudents! |Soyons prudents!
#That we be-subj cautious! |*(Let's) be-1st-pl-imp cautious!*
d. #Que vous soyez prudents! |Soyez prudents!
#That you-pl be-subj cautious! |*Be-2nd-pl-imp cautious!*

The subjunctive can have imperative uses, as in (17)a. However this is possible only in persons for which an imperative form does not exist. Thus the subjunctives in (17)b-d are all sharply deviant. A natural explanation is that the imperative forms compete with and win over the subjunctive forms, which are used as defaults. Thus (17)a is grammatical because there is no third person imperative to compete with it.

Assuming that this paradigm indeed shows that there is some sort of competition between the subjunctive and the imperative, this still does not tell us which precise mechanism should be posited to account for these data. Several hypotheses present themselves.

(a) It is a common observation in morphology that (i) the same morphological affixes can be used in very different syntactic environments, but (ii) there often appears to be a unifying factor to these environments. In various morphological theories -in particular, Distributed Morphology (Halle & Marantz 1994)- this observation has been taken to argue that affixes typically express, or 'are specified for', a subset of the features of the syntactic environments in which they occur. Consider for instance the zero affix that appears in the English present tense. It can be used in every case, except in the third person singular. Although it would be possible to posit a number of homophonous affixes with different feature specifications, it is more elegant to posit that there is a single zero affix, which is simply specified for the feature *present tense*. The suffix *-s*, for its part, is specified as *3rd person singular present*. This gives us the following lexical entries:

(18) a. /-s/ ↔ [3rd, sg, pres] b. Ø ↔ [pres]

The requirement, then, is that the features for which a suffix is specified be a subset of the features that are found in the syntax. Thus the assumption is that the syntax delivers fully specified terminal nodes (i.e. terminal nodes that contain all the features that may be syntactically or semantically relevant); while affixes are typically underspecified. Still, this leaves open too many possibilities in case the specifications of several affixes are compatible with a given terminal node. Take for instance the masculine third person singular present. Both /-s/ and Ø are specified for features that are compatible with (i.e. are a subset of) the features found in this syntactic environment. This is where the notion of competition kicks in: in such cases, *the form which is most highly specified is the one that gets inserted* ('Subset Principle'). For our purposes we may consider an affix A to be more highly specified than an affix A' just in case the features of A are a proper superset of the features of A'. This will not decide all the conceivable cases of competition, but for our purposes it will do. To apply this little mechanism to the English masculine third person present, we reason as follows:
-the features found in the terminal node are [masc, 3rd, sg, pres]
-both /-s/ and Ø have feature specifications that are compatible with these features
-since the features of /-s/ form a proper superset of the features of Ø, /-s/ gets inserted.

Suppose that we applied this model to the imperative/subjunctive competition in French. We would be forced to posit that the imperative affix is specified for a proper superset of the features for which the subjunctive affix is specified. *But this requires that the imperative and the subjunctive suffix be different to begin with*. However this does not appear to be the case. In the examples in (17), all the singular forms, be they imperative or subjunctive, are pronounced in the same way. By the

logic of underspecification, this suggests that a single underspecified form occurs in all cases. Nevertheless, we can ascertain that (17)a involves a subjunctive rather than an imperative because it includes a full subject and a complementizer *que* (*que* is almost always present with the French subjunctive). Note also that this is not just a point about the morphology of *sois*, as the syncretism between imperative and subjunctive holds of all verbs whose infinitive ends in -er (e.g. *fumer*, whose second person imperative and subjunctive is pronounced as *fum*, despite an irrelevant orthographic difference between imperative *fume!* and subjunctive *fumes*[8]). The conclusion is that a morphological mechanism of competition does not seem to stand good chances to analyze these examples.

(b) Given the failure of the morphological analysis, we should try to apply to the imperative / subjunctive distinction the mechanism of semantic competition that was outlined in Section 1. Crucially, this approach does *not* consider the feature content of underspecified affixes, but rather compares the presupposition expressed by the features found in the terminal nodes (before the lexical items are inserted) in alternative syntactic derivations. An immediate problem for our theory is that there is simply no consensus on the semantics of the imperative, which obviously makes it difficult to provide a cogent analysis. However it will be enough for our purposes to assume that a Logical Form that is understood as imperative includes *at least* an operator meaning: *I require that* ___. I will systematically treat attitude verbs as quantifiers over events of a particular sort: speech or thought acts (this is in essence the analysis developed in Schlenker 2003 in terms of quantification over contexts, but reinterpreted in terms of events following suggestions by B. Schein and J. Higginbotham). I will indicate event variables on complementizers, writing for instance *I require-e-w that-e' p* to mean that *for each thought event e' compatible with what the speaker requires at* e_w *in world w, p holds <of e'>*. Furthermore, I will employ the same rule of presupposition projection as was introduced in (3): *every context that satisfies the restrictor, i.e. that is compatible with what the speaker requires at e in e, must satisfy the presuppositions of p*. Stated in general form, this yields the following rule:

(19) For any individual term x, event term e, and world term w:
$[\![$ x require-e-w that-e' p$]\!]^{e^*,s}$=# iff $[\![$ x$]\!]^{e^*,s}$=# or $[\![$ e$]\!]^{e^*,s}$=# or $[\![$ w$]\!]^{e^*,s}$=#, or for some thought event c compatible with what $[\![$ x$]\!]^{e^*,s}$ requires at $[\![$ e$]\!]^{e^*,s}$ in $[\![$ w$]\!]^{e^*,s}$, $[\![$p$]\!]^{e^*,s[e'\rightarrow c]}$=#.
If ≠#, $[\![$ x require-e-w that-e' p$]\!]^{e^*,s}$=1 iff for every thought event c compatible with what $[\![$ x$]\!]^{e^*,s}$ requires at $[\![$ e$]\!]^{e^*,s}$ in $[\![$ w'$]\!]^{e^*,s}$, $[\![$p$]\!]^{e^*,s[e'\rightarrow c]}$=1.

Before we come to the contribution of imperative and subjunctive features, let us start with a dry run - a partial analysis of a Logical Form that involves an imperative prefix but no mood features. I shall write in capital letters elements that remain unpronounced in the imperative. As mentioned earlier, I do not exclude that a Logical Form interpreted as imperative may contain additional prefixes, which I shall disregard here. The following gives a very rough approximation of the desired semantics:

(20) a. Smoke! (analyzed as: I require that you smoke)
a'. e^*_a REQUIRE-e^*-e^*_w THAT-e [∃e': e'≈e] e^*_h smoke-e'-e_w
b. $[\![$ a'$]\!]^{e^*,s}$≠# (because no element contained in the sentence triggers a presupposition).
If ≠#, $[\![$ a'$]\!]^{e^*,s}$=1 iff for every thought event c compatible with what e^*_a requires at e* in e^*_w, $[\![\![$∃e': e'≈e] e^*_h smoke-e'-$e_w]\!]^{e^*,s[e\rightarrow c]}$=1, iff for every thought event c compatible with what e^*_a requires at e* in e^*_w, there is an event e' co-occurring with c such that e^*_h smokes at e' in e_w.

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[8] Even liaisons that might be triggered by an underlying *-s* in the second person singular of the indicative present sound extremely strange or bookish to me:
(i) #Tu fumes (z) une cigarette
This contrasts sharply with other cases where a plural marking appears to be underlyingly present, and can thus surface in the right phonological environment:
(ii) a. les parents (no *z* pronounced on the determiner)
b. les enfants (z pronounced on the determiner)

Let us now come to the presuppositions introduced by subjunctive and imperative features. As announced, I shall assume that the French subjunctive simply has no semantic contribution. For lack of a more refined alternative, I posit that imperative features on a world-denoting term w introduce a presupposition that w is compatible with an order given by the speaker.

(21) For any world term w,
a. $[\![w\{subj\}]\!]^{e^*,s}=[\![w]\!]^{e^*,s}$
b. $[\![w\{imp\}]\!]^{e^*,s}=\#$ iff $[\![w]\!]^{e^*,s}=\#$ or $[\![w]\!]^{e^*,s}$ is not compatible with what e^*_a requires at e^* in e^*_w. If $\neq\#$, $[\![w\{imp\}]\!]^{e^*,s}=[\![w]\!]^{e^*,s}$

Of course in order to derive the person asymmetries we observed above, we must discuss the interaction of mood and person features. Let us consider in turn the third person and the second person case.

1. For the third person imperative, we obtain the following Logical Form, where *x* is taken to denote a salient individual that is neither the speaker nor the addressee:

(22) e^*_a REQUIRE-e^*-e^*_w THAT-e [∃e': e'≈e] x smoke-e'-e_w

The question is what presuppositions should be included in the embedded clause.

-If we choose some imperative form (be it first person singular, second person singular or first person plural), we shall get a Logical Form such as (23):

(23) e^*_a REQUIRE-e^*-e^*_w THAT-e [∃e': e'≈e] x{F} smoke-e'-e_w{imp}, with F=author or F=hearer

It is clear that a presupposition failure is now predicted due to the presence of F (=*author* or *hearer*), since by hypothesis *x* neither denotes the speaker nor addressee. As a result, no imperative form can be used.

-No problem arises if we choose a third person subjunctive form instead. We obtain the Logical Form in (24):

(24) e^*_a REQUIRE-e^*-e^*_w THAT-e [∃e': e'≈e] x{3rd} smoke-e'-e_w{subj}

Since both *3rd* and *subj* are semantically vacuous, we do not predict any presupposition failure.

-In view of the morphological resources of French, no other possible derivations yield strictly stronger presuppositions. Therefore this Logical Form is not blocked by any other, and the sentence is predicted to be acceptable.

2. Consider now a second person imperative. Again the question is what feature should appear on the embedded subject and on the embedded verb:

(25) e^*_a REQUIRE-e^*-e^*_w THAT-e [∃e': e'≈e] e^*_h smoke-e'-e_w

Let us again reason by cases. I assume that the second person imperative expresses both a second person feature and an imperative feature.

-If we choose a second person imperative form, we obtain the Logical Form in (26):

(26) e^*_a REQUIRE-e^*-e^*_w THAT-e [∃e': e'≈e] e^*_h{hearer} smoke-e'-e_w{imp}

(i) The imperative feature on the world argument e_w triggers a presupposition that *each world compatible with what the speaker requires at the time and in the world of utterance is compatible with ... what the speaker requires at the time and in the world of utterance*. This is vacuously true. Therefore no presupposition failure is caused by the imperative feature.

(ii) Similarly the *hearer* feature that appears on the embedded subject does not trigger any presupposition failure, since by hypothesis e^*_h denotes the hearer of the actual speech act e^*.

-Let us now see what would happen if we chose a subjunctive instead of an imperative. The subject would also be a second person pronoun, and the subjunctive features would express no presuppositions at all:

(27) e^*_a REQUIRE-e^*-e^*_w THAT-e [∃e': e'≈e] e^*_h{hearer} smoke-e'-e_w{subj}

Here too no presupposition failure is predicted. However the presupposition expressed on the world variable is stronger in (26) than it is in (27) (since the subjunctive expresses no presupposition whatsoever). By *Maximize Presupposition!,* we should thus choose (26) over (27) - which is the correct result.

There is an interesting extension of the present analysis to the English imperative. The candidates to consider in this case are the *let* subjunctive and the normal imperative form. As it happens, when (and only when) a morphological imperative is available, the *let* form is prohibited from expressing an imperative meaning (in particular, as is the case in French, but somewhat more marginally, the *let* form can to some extent be used when a Queen is addressed in the third person). There is an interesting twist, however: unlike French, English has no imperative in the first person plural, and as a result the semantic default - here, the *let* form - can be used felicitously. In French, by contrast, the first person plural imperative blocks the first person subjunctive.

(28) a. #Let you go!
b. Let us go!
c. Let him go!
d. ?Let her Majesty go!
e. Go!

2.2 Subjunctive vs. Infinitive

Let us now come to the choice between the infinitive and the subjunctive. Here too we will argue that the subjunctive is a semantic default, to be used just in case the infinitive cannot yield the same meaning. This is in essence the suggestion made in Farkas 1992, a theory we modify and extend somewhat.

2.2.1 Motivation for a competition-based analysis

Farkas's point of departure is the prohibition against coreference between the embedded subject and the matrix subject in (some) structures that trigger the subjunctive:

(29) a. Jean_i veut $\text{qu'il}_{*i,\,k}$ parte
Jean wants that he leave
b. Jean_i veut PRO_i partir

Farkas observes an interesting cross-linguistic generalization: in those languages and constructions that admit a subjunctive structure such as (29)a, but no infinitive, coreference is in fact allowed. Thus she suggests that there is nothing intrinsically ill-formed about (29)a understood on a coreferential reading; all that happens is that *to express this reading, the infinitive structure in (29)b is preferred.*

An alternative line has sometimes been pursued in syntax, to the effect that the prohibition against coreference in (29)a results from a Condition B effect. Of course Farkas's line of explanation suggests that this is not so, since the syntactic explanation would be missing the generalization that coreference is blocked precisely in those constructions in which an infinitive form is available to express the same meaning. But in any event, the syntactic analysis makes an incorrect prediction about disjoint reference effects, as shown in the following paradigm:

(30) a. #Tu vous admireras
you-sg you-pl will-admire
b. #Tu vous trouveras intelligents
you-sg you-pl will-find intelligent
c. #Tu voudras que tu partes
you-sg will-want that you-sg leave-subj
d. Tu voudras partir
you-sg will-want to-leave
'You will want to leave'
e. #Tu voudras que tu te rases à 7h

you-sg will-want that you yourself shave at 7am
f. Tu voudras te raser à 7h
you-sg will-want to yourself shave at 7am
'You will want to shave at 7am'
g. Tu voudras que vous vous rasiez à 7h
you-sg will-want that you-pl you-pl shave at 7am
'You will want for you (plural) to shave at 7am'
h. ≠Tu voudras vous raser à 7h
you-sg will-want you-pl to-shave at 7am
'You (singular) will want to shave you at 7am'

Condition B effects such as those in (30)a-b prohibit not just coreference, but more generally *overlapping* reference between the subject and the object. No such effect holds in embedded subjunctive clauses: even though (30)e is deviant, (30)g is acceptable. This is entirely unexpected on the Condition B analysis. By contrast, the result is unsurprising given Farkas's theory, since the corresponding embedded infinitive structure in (30)h has a different meaning (*you-singular will want to shave you-plural*, where the proposition which is the object of the desire involves only one shaver, so to speak).

Still, it must be explained why the infinitive blocks the coreferential subjunctive clause. From the present perspective, this is because the infinitive has a more 'specific' meaning than the subjunctive. We will try to formalize this theory in terms of *Maximize Presupposition!,* though additional assumptions will be needed to obtain the desired result. For the moment, let us observe that there are two respects in which an infinitive expresses a more 'specific' meaning than the corresponding subjunctive clause with a coreferential pronoun.
(i) First, when embedded under an attitude verb, the unpronounced subject of the infinitive can only be read 'De Se' (a term which is explained below). By contrast, the subject of a subjunctive clause can 'in principle' be read either 'De Re' or 'De Se' (we will argue below that the De Se reading is blocked by the infinitive, however).
(ii) Second, it would appear that the infinitive also has a kind of 'De Se' reading with respect to its event argument (a related idea was first applied by Higginbotham 2000 to the English gerund). While this is not the standard description of the generalization, we will discuss new data that suggest that it is in fact reasonable to generalize the De Re/De Se distinction to event arguments.

Given these general observations, the spirit of the competition-based theory leads to the following expectations, which will be made more precise as we go:
a) when an embedded clause is intended as being De Se both with respect to the subject and with respect to the event argument of the embedded verb, the infinitive should be preferred to the subjunctive clause.
b) in other cases the subjunctive should be admissible.
We now apply this analysis in some detail to the case of individual De Se and event De Se.

2.2.2 Individual De Se

We should first say what De Se readings are. For presentational purposes it is expedient to start with cases in which both the infinitive and a full indicative clause are allowed (for reasons to be discussed below, the infinitive never blocks the indicative structure, and therefore the full range of possible readings for the latter - in particular for its subject pronoun - can be seen with great clarity).

(31) a. George hopes PRO to be elected
b. George hopes that he is elected

Morgan 1970 and Chierchia 1987 observed that there is an interpretive difference between (31)a and (31)b. Suppose that George is drunk, and has forgotten that he is a candidate in the election. He watches TV and sees a candidate that he finds appealingly reactionary, hoping that this person -none other than himself, as it turns out- should be elected. (31)b might provide a passable way of reporting

truly this admittedly unusual situation; (31)a would not. Somehow (31)a requires that the candidate be in a position to utter the first person statement: *I should get elected*. The reading we obtained in this way has been called, after Lewis 1979 and Chierchia 1987, a 'De Se' reading. The reading in (31)b which is true in the situation at hand is the 'De Re' reading.

Using the quantificational analysis of attitude verbs that was introduced earlier, we can account for the difference by positing that *PRO* embedded under an attitude verb binding an event variable *e* always corresponds to the term e_a (for simplicity I treat *to* as a complementizer which, like *that*, introduces an event/state variable)[9]:

(32) a.He hopes PRO to be elected (preliminary analysis, to be refined below)
a'. he_i hope-e-e^*_w to-e' [$\exists$e": e"$\approx$e'] e'_a be-elected-e"-e'_w
a". $[\![a']\!]^{e^*,s} \neq \#$. Furthermore, $[\![a']\!]^{e^*,s}=1$ iff for each thought event e' compatible with what $s(x_i)$ hopes for at s(e) in e^*_w, there is an event e" co-occurring with e' such that e'_a is elected at e" in e'_w.
b. He hopes that he is elected
b'. he_i hope-e-e^*_w to-e' [$\exists$e": e"$\approx$e'] x_i be-elected-e"-e'_w
b". $[\![b']\!]^{e^*,s} \neq \#$. Furthermore, $[\![b']\!]^{e^*,s}=1$ iff for each thought event e' compatible with what $s(x_i)$ hopes for at s(e) in e^*_w, there is an event e" co-occurring with e' such that $s(x_i)$ is elected at e" in e'_w.

In other words, (32)a is true just in case George hopes to be in a position to say truly: 'I am elected' - which is not the case in the somewhat complicated TV situation we created above. By contrast, (32)b is true just in case George hopes to be in situation in which he can truly say about George: 'He is elected' - and the latter condition is in fact satisfied in our TV situation.

At this point two further questions can be asked:

I. Entailment Question: There are situations compatible with a De Re reading that are not compatible with a De Se reading (the scenario we just discussed is one such example). But is every situation compatible with a De Se reading compatible with the corresponding De Re reading? The accepted answer is *yes*, which means that a De Se reading *entails* the corresponding De Re reading.

II. Ambiguity Question: Is *he* always unambiguously read De Re, or is it ambiguous between a De Se and a De Re reading? The accepted answer is that *he* is in fact ambiguous, and thus that *He hopes that he is elected* can be given *both* the Logical Form in (32)b' and that in (32)b.

To address the entailment question, let us consider (following Zimmermann 1991) a group of candidates that includes George, who is in the very same situation as in the previous scenario. By contrast, each of the other candidates thinks about himself: 'I should be elected'. It is then possible to say:

(33) Each candidate (including George) hopes that he is elected.

-Could the embedded clause have a De Se reading, i.e. a De Se Logical Form? No, because this would automatically require that the VP *hopes that* $he_{De\ Se}$ *is elected* hold true of each candidate, which by assumption is not the case since George's hope is of the form: *He should be elected*.

-Therefore the embedded clause must be read De Re. But since the other candidates each think *I should be elected*, they have a De Se hope. Still, the VP *hopes that* $he_{De\ Re}$ *is elected* (with a De Re embedded clause) is true of each of them. Therefore a De Re reading must be true in a De Se situation.

This result makes it a bit difficult to address the ambiguity question, but fortunately Percus & Sauerland 2003 have done the work for us. To make their argument, we need to consider a somewhat more complicated scenario:

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[9]PRO also occurs in environments that do not involve attitude reports, such as *John forced Mary PRO to open the door*. In these cases PRO cannot be analyzed as spelling out the author coordinate of a context variable (since only attitude operators manipulate context variables).

John, who is not drunk, thinks about himself: *I should be elected*. George, who *is* drunk, thinks about himself: *He should be elected*. Furthermore, having forgotten that he is a candidate in the election, he does *not* think: *I should be elected*. Finally Ralph, who is mischievous, secretly hopes: *John should be elected*. Knowing that he would be unable to rule the country, he does not think: *I should be elected*.

In this context we utter the following sentences, which [according to Percus & Sauerland's generalization] are both assessed as true:

(34) a. Only John hopes to be elected.
b. Only John hopes that he is elected.

Let us call $VP_{De\ Se}$ the De Se Logical Form for the Verb Phrase, $VP_{De\ Re\text{-}strict}$ its De Re Logical Form on a strict reading, and $VP_{De\ Re\text{-}sloppy}$ its De Re Logical Form on a 'sloppy' (i.e. bound variable) reading. Given our earlier observations, (34)a must have the form *Only John* $VP_{De\ Se}$, which is clearly true in our situation (since no other individual than John has a thought of the form *I should be elected*). What about (34)b, then? If *he* were unambiguously De Re, the sentence could only be of two forms:
-It could be understood as *Only John* $VP_{De\ Re\text{-}strict}$.But this should be false, since Ralph hopes that John is elected, hence John cannot be the only person that hopes that John is elected.
-Alternatively, the sentence could be understood as *Only John* $VP_{De\ Re\text{-}sloppy}$. But this should be false as well, since George thinks that George should be elected, and therefore John is not the only x such that x thinks (De Re) that x should be elected.
Thus the only way to account for the truth of (34)b is to assume that it has, among others, a De Se reading [note, however, that the judgments are delicate, and could be called into question].

A further point which will be of interest shortly is that in some languages, such as Ewe (Clements 1975), there is (what is believed to be) a morphological distinction between De Se and De Re pronouns (the De Se pronouns have been called 'logophoric' since Hagège 1974). The basic data are as follows:

(35) a. kofi be yè-dzo (Ewe, Clements 1975)
Kofi say LOG-leave
'Kofi says that he (=Kofi) left'
b. kofi be e-dzo (Ewe, Clements 1975)
Kofi say he/she-left
'Kofi says that he (≠Kofi) left'

As described by Clements and other researchers, the non-logophoric pronoun yields a disjoint reference effect in a standard situation in which Kofi says: *I left* (I do not know of data concerning Ewe when Kofi says about himself: *He left*. In some languages that show a similar pattern, the non-logophoric pronoun apparently becomes acceptable to express the coreferential reading; see Kusumoto 1998). But given what we saw in our discussion of the Entailment Problem, this result is unexpected, since a De Re Logical Form (here: one with a non-logophoric pronoun) should be compatible with a De Se situation. We must conclude that some other principle, presumably a pragmatic one, *requires* that the speaker choose a De Se Logical Form whenever this is compatible with the situation he is reporting:

(36) Prefer De Se!

Whenever this is compatible with the situation which is reported, prefer a De Se over a De Re Logical Form.

Now a crucial fact for our discussion is that disjoint reference effects obtained with subjunctive clauses *disappear when a non-De Se reading is intended*. In other words, (37)a is in fact acceptable if George's hope is of the form: *He should be elected*.

(37) a. George$_i$ voudrait qu'il$_i$ soit élu
George would-want that he be-subj elected

b. George$_i$ voudrait être élu
George would-want to-be elected

The acceptability of the subjunctive on a De Re reading is unsurprising on Farkas's theory: since the infinitive only has a De Se reading, it does not compete with the subjunctive for the non-De Se reading, and therefore the subjunctive can be used. Still, this does not explain why on a De Se reading the infinitive *does* block the subjunctive. Our account is based on the combination of *Maximize Presupposition!, Prefer De Se!* and the following assumptions:
(i) An indicative introduces a presupposition on the value of a world variable. Therefore it cannot be blocked by any form that does not carry the same presupposition (or a stronger one).
(ii) A subjunctive introduces no presupposition whatsoever.
(iii) An infinitive is ambiguously De Se or non-De Se both with respect to its individual argument and with respect to its event argument. In addition, one of the two - say, the event argument- carries a *presupposition* that it is De Se.
Calling *ind* the presupposition triggered by the indicative for the world variable and calling *inf* the De Se presupposition introduced by the infinitive for the event variable, we can summarize the situation as in (38) (as before we write presuppositions between curly brackets):

(38) a. Infinitive: George hopes / want PRO$_{\text{De Se}}$ to-be-e$_{\text{De Se}}${inf}-w elected
b. Indicative: George hopes that he$_{\text{De Se/De Re}}$ is-e-w{ind} elected
c. Subjunctive: George wants that he$_{\text{De Se/De Re}}$ be-e$_{\text{De Se/non-De Se}}$-w elected

The logic of our argument is now as follows.
A. An indicative and an infinitive are never blocked by anything (because each of them triggers a presupposition that no other form can introduce).
B. If a situation is De Se both with respect to the individual and with respect to the event argument of the embedded clause:
i) *Prefer De Se!* requires that a De Se Logical Form be used.
ii) *Maximize Presupposition!* requires that the De Se presupposition on the event argument be marked, which makes the infinitive preferable to the subjunctive since the latter does not mark any presupposition.
C. When the embedding verb allows an indicative presupposition to be marked on the embedded verb, *Maximize Presupposition!* entails that the indicative blocks the subjunctive.

2.2.3 Event De Se

Let us now consider in greater detail the motivation for positing a kind of 'De Se' reading for the event argument of the embedded verb.

Farkas 1992 suggests that in general the disjoint reference effect obtained with a coreferential subjunctive clause is weakened (independently of the De Se issue, which she doesn't discuss) if the degree of 'agentivity' of the subordinate or main clause subject decreases:

(39) a. Je veux que je puisse partir tôt.
I want that I can-subj leave early
b. Je veux que je sois autorisé à partir tôt.
I want that I be-allowed to-leave early
c. Je veux que je guérisse aussi vite que possible.
I want that I get-better as soon as possible
d. Je voudrais que je parte tôt.
I would-like that I leave early

Summarizing her own earlier results, Farkas 1992 suggests that semantically the infinitive involves a relation of 'responsibility' (RESP) between an agent and a situation described by the embedded clause. She writes that 'the RESP relation obtains between an individual and a situation if the

individual brings the situation about (...). Thus, one would say [(39)d] rather than [*Je voudrais partir tôt*] *just in case it is not up to the speaker whether he leaves or not.*'

Farkas's generalization might have to be refined somewhat in view of the following example:

(40) [Talking about cyclists]
a. Jean accepte qu'il parte en dernier.
Jean accepts that he leave last.
b. Jean accepte de partir en dernier.
Jean accepts to leave last.

Out of the blue it would seem that the two statements have different truth conditions: (40)a is typically understood to mean that Jean is committed not to challenge a particular line-up that is agreed upon. By contrast, (40)b is understood to mean that Jean will take some action to the effect that he leaves last. It could be argued that this supports Farkas's generalization, in the sense that in the first case Jean need not be responsible for the line-up. But in fact (40)a remains good even if Jean is the team's boss, and is thus responsible for the line-up himself. So the generalization should at least be refined.

There are more serious difficulties, however. If Jean regrets that he is handicapped, there is no obvious sense in which the RESP relation holds between him and his being handicapped. And yet the infinitive is almost obligatory in this case:

(41) a. #Jean ne se console pas qu'il soit handicappé.
Jean cannot console himself that he be handicapped.
b. Jean ne se console pas d'être handicappé.
Jean cannot console himself to be handicapped.
c. Jean ne se console pas que son fils soit handicappé.
Jean cannot console himself that his son be handicapped.

(42) a. #Jean est triste qu'il soit handicappé.
Jean is sad that he be handicapped.
b. Jean est triste d'être handicappé.
Jean is sad to be handicapped.

A key to the correct generalization might be offered by (43), in which the infinitive and the subjunctive clause yield different truth conditions:

(43) a. J'ai forcé Jean à ce qu'il m'ouvre.
I have forced Jean to it that he to-me open.
b. J'ai forcé Jean à m'ouvrir.
I have forced Jean to to-me open
c. (?) J'ai forcé Jean à ce que son fils m'ouvre.
I have forced Jean to it that his son to-me open

Suppose that that I am standing in front of Jean's house. (43)c, which is only slightly marginal, is assessed as true if I applied pressure on John to get his son to open the door for me. (43)b is naturally interpreted as true if I applied physical pressure to the door (or possibly to Jean himself) to get it to open. (43)c is deviant in such a situation. But it becomes much more natural if I indirectly caused Jean to open the door, for instance by issuing threats that he took sufficiently seriously to comply with my orders.

We may account for these facts by positing that the event argument of the embedded verb must be read 'De Se', i.e. it must be bound by the complementizer (note that this requirement was not satisfied in the preliminary analysis we gave in (32)a'). For simplicity we treat *open-the-door* as an unanalyzed predicate, and we assume that *force* has a quantificational semantics akin to that of attitude verbs (though it need not quantify over speech or thought events, of course):

(44) a. *lit.* I forced you to open the door
a'. e^*_a force-e-e^*_w e^*_h to-e' e'_a open-the-door-e'-e'_w
a". $[\![a']\!]^{e^*,s} \neq \#$. Furthermore, $[\![a']\!]^{e^*,s} = 1$ iff for each event e' compatible with what e^*_a forces e^*_h to do at s(e) in e^*_w, the agent of e' opens the door at e' in e'_w.
b. *lit.* I force you that you open the door (non-De Se reading for the embedded event argument)
b'. e^*_a force-e-e^*_w e^*_h to-e' [∃e": e"≥e'] e^*_h open-the-door-e"-e'_w
b". $[\![b']\!]^{e^*,s} \neq \#$. Furthermore, $[\![a']\!]^{e^*,s} = 1$ iff for each event e' compatible with what e^*_a forces e^*_h to do at s(e) in e^*_w, for some event e" that is contemporaneous or follows e' in the world of e', e^*_h opens the door at e" in the world of e'.

While this analysis is extremely preliminary, it does yield a semantic difference between the De Se reading of the embedded event argument, as in (44)a', and the non-De Se reading, represented in (44)b'. Of course the logic of our argument suggests that the grammar also generates a reading for the subjunctive clause which is identical to (44)a'. We must now explain how this reading can be blocked. Once again *Maximize Presupposition!* will be the key. We assume that the infinitive triggers the appearance on the embedded event argument of a presupposition of the form *{=e'}*, which is vacuously satisfied. We can now reason as follows:
-When the situation to be described is compatible with the De Se reading, *Prefer De Se* requires that we use the Logical Form represented in (44)a' or a variant of it in which *to* is replaced by *that*.
-By itself the grammar generates two structures that have the desired reading, one involving the infinitive and the other involving the subjunctive.
-The infinitive marks a presupposition (namely *{=e'}*) that the subjunctive does not carry, and therefore *Maximize Presupposition!* requires that we use the subjunctive.

2.3 Subjunctive vs. Modally Interpreted Past Tense

So far we have only discussed the competition between the subjunctive and the imperative and the infinitive. But just as in English, 'counterfactual' conditionals are expressed in contemporary French using a modally interpreted past tense. In the simple cases the subjunctive is entirely impossible in this environment:

(45) a. Si Jean était ici, nous serions contents.
If Jean was here, we would-be happy
'If John were here (right now), we would be happy'
b. *Si Jean soit ici, nous serions contents.
If Jean be-subj here, we would-be happy

The account we gave for the modally interpreted past tense in English carries over to French. But this does not explain why the subjunctive is unacceptable in this environment. We speculate that the reason is as follows:
(i) the actual world is always salient when one uses a conditional *if p*, which makes it possible to use a Logical Form such as *if p {<w*{CS}}*, where w* denotes the actual world.
(ii) *Maximize Presupposition!* requires that this Logical Form rather than one with no presupposition at all be used, which rules out the subjunctive.

It is noteworthy, however, that a subjunctive *can* in fact be used in a counterfactual conditional, as long as it is not immediately embedded under *if*:

(46) a. #Jean a rencontré une personne qui soit malade, et il l'a réconfortée.
Jean has met a person that be-subj sick, and he her has comforted
b. #? Si Jean rencontre une personne qui soit malade, il la réconfortera
If Jean meets a person that be-subj sick, he her comfort-will
c. Si Jean rencontrait une personne qui soit malade, il la réconforterait
If Jean met a person that be-subj sick, he her comfort-would

(47) a. Si Jean vient et qu'il est malade, nous le soignerons.
If Jean comes and that he is sick, we him will-take-care-of
b. ? Si Jean vient et qu'il soit malade, nous le soignerons.
If Jean comes and that he be-subj sick, we him will-take-care-of
c. Si Jean venait et qu'il était malade, nous le soignerions.
If Jean came and that he was sick, we him would-take-care-of
d. Si Jean venait et qu'il soit malade, nous le soignerions.
If Jean came and that he be-subj sick, we him would-take-care-of

While these examples should be investigated in greater detail, we speculate that in these cases either condition (i) or condition (ii) above fails to hold, which makes it possible to use the subjunctive. But at this point this is nothing more than a re-description of the facts.

3 The Indicative

Let us now turn to the indicative/subjunctive contrast itself. The argument that the subjunctive is a semantic default is in this case much less direct than was the case in our discussion of the subjunctive/imperative or the subjunctive/infinitive competition. Our argument will be one of simplicity: we can give a unified semantics for the indicative, but doing so for the subjunctive appears to be very difficult. The facts can be explained and the theory can be kept simple if the subjunctive is a semantic default.

So what does the indicative mean? Traditional grammarians as well as contemporary researchers have often explored the intuition that *the indicative marks some notion of commitment on somebody's part* (see Farkas 2003 for a recent analysis along these lines). If we wish to develop the analysis in semantic terms, we are forced to posit that a semantic failure of some sort arises when this requirement is not met. A natural candidate to trigger such a failure is a *presupposition*. However the most direct way to implement the analysis leads to immediate difficulties. Suppose that we claimed that an indicative that appears in a proposition p is responsible for a presupposition that p is asserted by someone (this analysis is in fact applied to the German 'Konjunktiv I' by Fabricius-Hansen & Saebø 2004; we return to this point below). When p is asserted on its own, we get the incorrect result that p must be presupposed; but clearly some propositions that are asserted are not presupposed! Things are no better when embedded clauses are considered. *John says that p* certainly need not *presuppose* that p is asserted. Rather, the assertion of the entire proposition entails that p is asserted by someone (namely John), but this is certainly not a presupposition of the entire sentence.

3.1 Basic Analysis

Since the direct route fails or at least requires non-trivial stipulations, we explore a more devious one, which has the advantage of being a very simple generalization of Stalnaker's analysis of the English indicative (it might also turn out to be *too* simple, as we will see at the end of this article). Remember that for Stalnaker indicative features trigger a presupposition that the world denoted by the *if*-clause lies in the Context Set of the actual speech act. We modify this analysis minimally by allowing the indicative to specify that the value of a certain world term lies in the Context Set of a speech or thought act e, where e is a free or bound variable. We thus give the following definitions:

(48) For any world term w and event variable e:
$[\![w\{CS(e)\}]\!]^{e^*,s}$=# iff $[\![w]\!]^{e^*,s}$=# or s(e) is not a speech or thought act or $[\![w]\!]^{e^*,s}$ is not in the Context Set of s(e). If ≠#, $[\![w\{CS(e)\}]\!]^{e^*,s}$=$[\![w]\!]^{e^*,s}$

By taking e=e*, we obtain as a special case Stalnaker's analysis of indicative conditionals. This special case also derives the correct result when a simple sentence is asserted, for instance *It is raining:*

(49) a. Il pleut (lit. it is-raining)
a'. rain-e-e^*_w{CS(e*)}

b. $[\![a']\!]^{e^*, s}$=# unless e^*_w belongs to the Context Set of e*. Otherwise, $[\![a']\!]^{e^*, s}$ =1 iff it rains at s(e) in e^*_w

We also obtain the correct result for *Jean thinks that it is raining*. As before, presupposition projection requires that every thought event e' compatible with what Jean thinks in e must satisfy the presupposition of *it is raining,* which is taken to contain a world term $e'_w\{CS(e)\}$ which carries a presupposition indicating that e'_w lies in the Context Set of Jean's thought act. If Jean's Context Set is simply taken to be the set of worlds compatible with what Jean believes in e, we get a tautologous presupposition (*every world compatible with what Jean believes in e is compatible with what Jean believes in e*). Thus indicative marking can always be used under *believe*, and hence, by *Maximize Presupposition!*, it must be used. (Unlike French, Italian allows the subjunctive to be used after *believe*. I do not have an account of this difference).

(50) a. Jean pense qu'il pleut (disregarding the indicative features on the matrix verb)
a'. Jean think-e-e^*_w that-e' [∃e": e"≈e'] rain-e"-$e'_w\{CS(e)\}$
b. $[\![a']\!]^{e^*, s}$ =# unless for each thought event e' compatible with what Jean thinks at s(e) in e^*_w, e'_w belongs to the Context Set of s(e). Otherwise, $[\![a']\!]^s$=1 iff for every thought event e' compatible with what Jean thinks at s(e) in e^*_w, there is an event e" co-occurring with e' such that it rains at e" in e'_w

Up to this point we have been rather vague about the precise notion of 'Context Set' that should be used. Although we just suggested that Jean's Context Set could be taken to be the set of worlds compatible with what Jean believes (=Jean's 'belief set'), the result we needed would have been derived just as well if we had said that the Context Set was a superset of Jean's belief set. But it is likely that in the general case we will need to resort to different notions of Context Set, for instance to the Context Set of a thought act (as before) and to the Context Set of a speech act - which corresponds more precisely to Stalnaker's original notion. If one is sincere, the worlds compatible with one's utterance must also be compatible with one's beliefs; but the opposite need not hold: what one believes is in general much more specific than what one says, and thus there are worlds compatible with one's beliefs that are not compatible with one's utterances. Assuming sincerity, we could *try* to 'generalize to the worst case', and assume that the one and only notion of Context Set we need is the set of worlds compatible with one's speech act. If we followed this (misguided) course we could analyze *say* in exactly the same way as *believe* (the truth conditions would be analogous):

(51) a. Jean dit qu'il pleut
a'. Jean say-e -e^*_w that-e' [∃e": e"≈e'] rain-e"-$e'_w\{CS(e)\}$

Although it is appealing, this analysis gives short shrift to a sad but important fact of life: it is possible to lie, and thus sincerity sometimes fails to hold. In such regrettable cases, what one says may bear no relation to what one believes. For this reason it might seem reasonable to bite the bullet and state that there are simply two notions of Context Set that can enter in the analysis of the French Indicative (when I wish to distinguish between these notions, I will use as features different symbols such as *CS* and *CS'*). Obviously if the relevant notions of 'Context Set' are multiplied *ad libitum* the analysis will end up being contentless, which should be avoided.

3.2 Minimial Pairs

3.2.1 Lament ('se lamenter')

The theory we have sketched so far can also derive some interesting semantic contrasts in case a verb optionally embeds either the subjunctive or the indicative. The observation is that in many such cases the indicative version is somehow reinterpreted as involving a speech act (similar observations were made about the Konjunktiv I in German in Fabricius-Hansen & Saebø 2004, which we discuss shortly). Take for instance the verb *lament*.

(52) a. Jean se lamente qu'il pleuve
Jean SE laments that it rain-subj
b. Jean se lamente qu'il pleut.
Jean SE laments that it rains
→ speech act reinterpretation

To my ear the subjunctive version is rather neutral, but the indicative version requires a particular situation - one in which Jean says something, to others or to himself, to the effect that he is unhappy that it is raining. Without the indicative, no such speech act reinterpretation is forced.

How is this observation to be explained? Simplifying the syntax, we may consider *se lamenter* as a unit, which has the same kind of quantificational semantics that we attributed to other attitude verbs. Obviously the subjunctive version will not trigger any presuppositions (though it will remain to be explained -later- why the subjunctive version can at all be used). Let us now consider what happens if Jean is the only salient individual in the domain of discourse.

(53) a. Jean se lamente qu'il pleut (disregarding the indicative features on the matrix verb)
a'. Jean lament-e-e^*_w that-e' [∃e": e"≈e'] rain-e"-e'_w{CS(e)}
b. $[\![a']\!]^{e^*, s}$ =# unless for each thought event e' compatible with what Jean laments at s(e) in e^*_w, e'_w belongs to the Context Set of s(e). Otherwise, $[\![a']\!]^s$=1 iff for each thought event e' compatible with what Jean laments at s(e) in e^*_w, for some event e" co-occurring with e', it rains at e" in e'_w.

As before, the semantics does not specify which kind of lexical semantics might make it plausible that all the worlds compatible with what Jean laments are compatible with Jean's Context Set. But certainly this presupposition will be met if a speech act reinterpretation is obtained, one in which *lament* means: *says lamenting*. In other words, the speech act reinterpretation appears to be one way to insure that the presupposition of the embedded clause is satisfied. *Without* such a speech act reinterpretation, *lament* means something like: *is unhappy that*. But now it is a general fact about French that *all the emotive verbs select the subjunctive,* a point that we try to derive below[10].

3.2.2 Deny ('nier')

The strengths of this analysis are best illustrated with the various possibilities found under the verb *deny* ('nier'). Superficially it might appear that *nier* can optionally select the indicative or the subjunctive. However there is a surprising tense/person asymmetry: in the first person present, the subjunctive is preferred over the indicative (again the judgments reported here are my own):

(54) a. Jean nie qu'il pleut
Jean denies that it rains
b. Jean nie qu'il pleuve
Jean denies that it rain-subj
a'. <#>Je nie qu'il pleut
I deny that it rains => becomes Ok if it is made clear that someone asserted that it's raining
b'. Je nie qu'il pleuve

[10] To my ear the following paradigm provides supporting evidence for the analysis:
(i) a. Jean a cessé de se lamenter que Marie soit incompétente
Jean has stopped to lament that Marie be-subj incompetent
=> Marie's incompetence doesn't affect him any more.
b. Jean a cessé de se lamenter que Marie est incompétente
Jean has stopped to lament that Marie is incompetent
=> may be true because Jean doesn't say any more that he is unhappy that Marie is incompetent
Unlike (ia), (ib) can be true even though Jean is still unhappy that Marie is incompetent, but simply has stopped saying it. This naturally follows if in (ib) *se lamenter* is reinterpreted as *says lamenting,* i.e. as a conjunction of *say* with something else (the point is that it is enough for a conjunction to stop being true that one of the conjuncts stops being true).

I deny that it rain-subj

a". J'ai nié qu'il pleuvait

I have denied that it rained

b". J'ai nié qu'il pleuve

I have denied that it rain-subj

When one considers the data in greater detail, however, we observe that the sentence in (54)a improves considerably -and in fact becomes quite acceptable - in a situation in which someone else claimed: 'It is raining', or alternatively if somebody's claim or belief that it is raining was mentioned in the previous discourse.

How can we account for these contrasts? Given the present analysis, the subjunctive is easy to analyze because it does not carry any presupposition. It comes as no surprise, then, that it should be semantically unmarked (note, however, that *Maximize Presupposition!* will require that the indicative be used if it can be, which does indirectly constrain the uses of the subjunctive). I give in (55) an example whose subject is *Jean* (if it were *I*, things would not be significantly different):

(55) a. Jean nie qu'il pleuve (subj.) [disregarding the indicative features on the matrix verb]
a'. Jean deny-e*-e^*_w that-e' [∃e": e"≈e'] rain-e"-e'_w
b. $[\![a']\!]^{e^*, s} \neq$#. Furthermore, $[\![a']\!]^{e^*, s}$ =1 iff for each thought event e' compatible with what Jean denies at e* in e^*_w (=for each world that Jean rejects), for some event e" co-occurring with e', it rains at e" in e'_w

Now consider what happens when the embedded clause is in the indicative mood:

(56) a. Jean nie qu'il pleut (ind.) [disregarding the indicative features of the matrix verb]
a'. Jean deny-e-e^*_w that-e' [∃e": e"≈e'] rain-e"-e'_w{CS(e"')}
b. $[\![a']\!]^{e^*, s}$ =# unless for each thought event e' compatible with what Jean denies at s(e) in e^*_w (=for each thought event that Jean rejects), e'_w belongs to the Context Set of s(e"'). If ≠#, $[\![a']\!]^s$=1 iff for each thought event e' compatible with what Jean denies at s(e) in e^*_w, for some event e" co-occurring with e', it rains at e" in e'_w.
In other words: It is presupposed that the worlds that Jean is rejecting are all compatible with what is assumed in the Context Set of s(e"').

By the rule of presupposition projection we have used throughout, *every thought event compatible with what Jean denies must have its world coordinate within the Context Set of s(e"').* But what could s(e"') be?

For simplicity, let us analyze *deny that p* as *claim that not p*. If so, the worlds compatible with what Jean denies are the worlds compatible with what Jean thinks is *not* the case. On this basis, let us distinguish three cases.

(a) Suppose first that e"'=e*. Then we obtain a presupposition that the worlds compatible with what Jean claims not to be the case are all compatible with what the speaker assumes; in other words, the worlds that Jean rejects are all taken to be open by the speaker. A special case is provided by a situation in which the worlds rejected by Jean are precisely those worlds in the speaker's Context Set in which it rains. This is compatible with a factive reading of *deny*, under which what is denied by Jean is presupposed to be true (although this interpretation is indeed very natural, it is only a special case of the interpretive constraints predicted by the present account)

(b) Suppose now that e"'=e. In this case we obtain a rather puzzling presupposition, namely that the worlds compatible with what Jean claims not to be the case are all compatible with what Jean took for granted up to this point. I take it that the pragmatic situation that this requires is unusual enough to make this interpretation unavailable.

(c) Finally, suppose that the context makes salient some third individual thought or speech act e"', different both from e and from e*. The presupposition is now that the worlds compatible with what Jean takes not to be the case are all compatible with what is taken for granted in e"'. This is natural if Jean is trying to challenge what is thought or said in e"'.

Now consider the situation that arises if *Jean* is replaced with the first person pronoun *je*, while the verb remains in the present tense of the indicative:

(57) a. Je nie qu'il pleut (ind.) [disregarding the indicative features of the matrix verb]
a'. e^*_a deny-e^*-e^*_w that-e' [∃e": e"≈e'] rain-e"-e'_w{CS(e"')}
b. $[\![a']\!]^{e^*, s}$ =# unless for each thought event e' compatible with what e^*_a denies at e* in e^*_w (=for each thought event that the speaker rejects), e'_w belongs to the Context Set of s(e). If ≠#, $[\![a']\!]^s$=1 iff for each thought event e' compatible with what e^*_a denies at e* in e^*_w, for some event e" co-occurring with e', it rains at e" in e'_w.
In other words: It is presupposed that the worlds that the speaker is (hereby) rejecting are all compatible with what is assumed in the Context Set of s(e"').

Case (a) collapses into case (b), which is pragmatically deviant. Hence if no other individual is made salient in the discourse, the sentence should be somewhat unnatural, which is exactly what we observed in (54)a'. If some other individual d is salient whose claims are being challenged by Jean, the sentence should improve, as this helps make case (c) pragmatically plausible. This is indeed what we find in situations in which it was made clear that d claims that it is raining, to which I reply: *I deny that it is raining*. (Note however that the prediction we make is not entirely accurate. We predict that no matter what the content of the embedded clause is, the sentence should be acceptable as long as Jean is challenging what d said. I am not sure that this is correct. Rather, we seem to get a presupposition that d thinks or claimed *that it is raining*.)

If the first person is retained but the verb is changed to past tense, we regain a difference between case (a) (e"'=e*) and case (b) (e"'=e). As before, case (b) is pragmatically deviant, but case (a) need not be if the speaker is challenging a belief he used to hold or a claim he made in the past but now considers to be incorrect.

3.3 Hope vs. Want

French *hope* ('espérer') shares certain semantic properties with *want* ('vouloir') - notably, *x hopes p* presupposes that *x believes that p is possible,* and similarly for *x wants p*. By contrast, the presupposition of *x wishes that p* (which in French is expressed using the conditional form of *want,* e.g. *voudrait*) appears to presuppose that *x believes that not-p*. If John believes, as we do, that the earth is round, this analysis explains the following contrasts:

(58) Hope/Want vs. Wish (cf. Giorgi & Pianesi 1997 p. 213; cf. Portner 1994)
a. # John hopes that the earth is flat
a'. # Jean espère que la terre est plate (ind.)
b. # John wants the earth to be flat.
b'. # Jean veut que la terre soit plate (subj)
c. John wishes the earth were flat.
c'. Jean voudrait que la terre soit ronde (subj)

Still, there is a major difference between *espérer* and *want*: the latter can only select the subjunctive, while (in my dialect) the former can only select the indicative[11]. What could account for this difference between *hope* and *want*?

Given our analysis of the indicative, the Logical Form of a sentence with *hope* must be as follows, with a presupposition *{CS(e"')}* on the embedded world term e'_w:

(59) a. Jean espère qu'il pleut
Jean hopes that it is-raining
a'. Jean hope-e-e^*_w that-e' [∃e": e"≈e'] rain-e"-e'_w{CS(e"')}
b. $[\![a']\!]^s$=# unless for each thought event e' compatible with what Jean hopes for at s(e) in e^*_w, e'_w belongs to the Context Set of s(e"'). If ≠#, $[\![a']\!]^s$=1 iff for each thought event e' compatible

[11] For reasons that I do not understand, *to have the hope that* ('avoir l'espoir que') can select either the indicative or the subjunctive.

with what Jean hopes for at s(e) in e^*_w, for some event co-occurring with e', it rains at e" in e'_w.

Two thought events are salient, namely e and e*. In general there need be no relation between what Jean hopes and what the speaker or addressee take for granted, so the only reasonable assumption is that e"'=e*. If so, it must be the case that *every world compatible with what Jean hopes for lies in Jean's Context Set*. We obtain immediately two results, one positive and one potentially devastating. To simplify the exposition, let us call H(x) the set of worlds compatible with what x hopes for, and CS(x) the set of worlds compatible with what x claims or believes.

(i) On the positive side, the fact that $H(x) \subseteq CS(x)$ does yield the result that *x hopes p* entails *x believes that p is possible* (modulo the trivial assumption that $H(x) \neq \emptyset$). Proof: *x hopes p* is true just in case $H(x) \subseteq [\![p]\!]$. Since $H(x) \neq \emptyset$, for some h, $h \in H(x)$, and hence $h \in [\![p]\!]$. But since $H(x) \subseteq CS(x)$, it is also the case that $h \in CS(x)$, and therefore x holds it as possible that p (since CS(x) has a non-empty intersection with $[\![p]\!]$).

(ii) On the negative side, note that if CS(x) is interpreted as the set of worlds compatible with what Jean believes, we get the clearly undesirable result that *x believes that p* entails that *x hopes that p* (since on this interpretation *x believes that p* yields $CS(x) \subseteq [\![p]\!]$; since $H(x) \subseteq CS(x)$, we also obtain $H(x) \subseteq [\![p]\!]$, i.e. *x hopes that p*).

The solution might be to distinguish between what is asserted and what is presupposed by *hope*. Suppose we give the following analysis[12]:

(i) *x hopes that p* asserts that x takes p to be plausible.

(ii) *x hopes that p* presupposes that has a desire that p be the case.

With the additional assumption (not a trivial one) that the feature CS constrains the computation of (i) but not (ii), we obtain the desired result: every world that x takes to be plausible should be compatible with what x believes, hence indicative marking should be licensed.

Is there independent evidence for this analysis? First, note that both in English and French 'to lose hope' ('perdre espoir') does not mean 'to stop having the relevant desire', but rather 'to stop holding as plausible that the desired outcome will come about'. Less anecdotally, consider the difference between the following dialogues:

(60) a. Jean espère toujours que Marie va venir.
Jean hopes still that Marie will come
-Non, il pense désormais qu'il y a très peu de chances pour cela.
-No, il thinks now that there are very few chances for that
b. Jean désire toujours que Marie vienne.
Jean hopes still that Marie come-subj
-#?Non, il pense désormais qu'il y a très peu de chances pour cela.
No, he thinks now that there are very few changes for that
c. Jean veut toujours que Marie vienne.
Jean hopes still that Marie come-subj
-??Non, il pense désormais qu'il y a très peu de chances pour cela
No, he thinks now that there are very few chances for this

(60)a is entirely natural, (60)b much less so, and (60)c stands somewhere in the middle. In other words, it is natural to deny *x hopes that p* by claiming that *x does not believe that p is plausible*. This is consistent with the present analysis, because the latter claim entails the denial of hope, so to speak. Clearly, however, much further research will be needed to support this analysis[13].

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[12] Thanks to S. Beck and A. von Stechow for helpful discussion of this point.

[13] The following dialogue is fairly natural, which does not follow from the present theory:

(i) Jean espère toujours que Marie va venir.
Jean hopes still that Marie will come
-Non, il pense désormais qu'il est préférable qu'elle ne vienne pas
No, he thinks now that it is preferable that she NE come-subj not

3.4 Counterfactual reasoning and emotives

It is a standard observation that emotive verbs systematically select the subjunctive - including those that are factive or near-factive. For instance in French *regret* selects the subjunctive, even though *x regrets that p* presupposes that *p* or, more accurately, presupposes that *x believes that p* (that the latter is the correct presupposition can be ascertained by observing the coherence of the following discourse: *Jean incorrectly believes that France is a monarchy, and he regrets that the King of France didn't support the US during the war in Irak).* In order to explain this generalization, I argue (following the spirit of Quer 1997) that emotives and more generally causatives select the subjunctive because their lexical semantics involves counterfactual reasoning, which requires that the embedded clause be evaluated at worlds that are not, in general, in any salient individual's Context Set.

Consider the example of *be happy that*, which is factive or rather near-factive[14]. The details of the lexical semantics of this predicate do not matter very much, as long one agrees that they require some kind of counterfactual reasoning. Suppose for instance that *Jean is happy that it is raining* is analyzed as the conjunction of (i) Jean believes that it is raining, and (ii) Jean believes that, if it were not raining, he would be less happy than he is (i.e. he believes that the closest world in which it is not raining is a world in which he is less happy than he is). Clause (ii) involves counterfactual reasoning, and therefore forces one to consider worlds that are outside Jean's Context Set. As a result, marking the embedded world term as indicative would in general yield a presupposition failure. Therefore indicative marking cannot be used, and subjunctive marking becomes the only available option. With this analysis, the sentence can be analyzed roughly along the following lines:

(61) a. Jean est heureux qu'il pleuve / *pleut
Jean is happy that it rain-subj / rains
b. Jean be-happy-e -e*$_w$ that-e' [∃e": e"≈e'] rain-e"-e'$_w$
c. $[\![b]\!]^{e^*, s}$≠# since no term triggers any presupposition. Furthermore, $[\![b]\!]^{e^*, s}$=1 iff
(i) Jean believes that it is raining, i.e. for each thought event e' compatible with what Jean believes at s(e) in e*$_w$, for some event e" co-occurring with e', it rains at e" in e'$_w$
(ii) Jean believes that if it didn't rain, he would be less happy than he is, i.e. for each thought event e' compatible with what Jean believes at s(e) in e*$_w$, the closest world w from e'$_w$ in which it does not rain is such that John is less happy in w than he is in e'$_w$.

The same analysis can be applied to the contrast between *alors que* ('while') and *bien que* ('although'). The former selects the indicative and can (like English 'while') have a temporal reading. The latter selects the subjunctive, and cannot have a purely temporal reading, in the sense that some opposition is always understood between the first proposition and the second.

(62) a. Jean se promène alors qu'il pleut.
Jean is-taking-a-walk while it is-raining.
b. Jean se promène bien qu'il pleuve.
Jean is-taking-a-walk although it is-raining-subj.

Given our theory, we have no choice but to analyze the second sentence as denying the presupposition of the first. I do not have independent evidence that this is correct.

[14] The following examples suggest that *x is happy that p,* like *x regrets that p*, presupposes that *x believes that p* but not necessarily that p is true.

(i) a. Jean est persuadé qu'il pleut, et il est heureux qu'il pleuve. (Mais bien entendu il ne pleut pas!)
Jean is convinced that it rains, and he is happy that it rain-subj. (But of course it doesn't rain.!)
b. Jean est persuadé qu'il pleut, et il regrette qu'il pleuve. (Mais bien entendu il ne pleut pas!)
Jean is convinced that it rains, and he regrets that it rain-subj. (But of course it doesn't rain!)

I would suggest that the meaning of *p alors que q* is something like: *p holds at a time at which q holds*. In other words, the temporal reading is primary, and the reading of opposition that one obtains is only an implicature. By contrast, *p bien que q* has a more complex meaning, something like: *p holds and q holds and in the closest world q-world in which certain assumptions are met, p does not hold*. The meaning of *bien que* involves counterfactual reasoning, and thus the subordinate clause is in the subjunctive.

4 Extension: The German Konjunktiv I as a Reportive Indicative

Fabricius-Hansen & Saebo 2004 observe that the German Konjunktiv I often triggers an implication that the clause it appears in has been asserted by someone[15]. This characterization alone makes the Konjunktiv I much closer to the French indicative than to the French subjunctive (despite the name 'Konjunktiv', which just means... 'subjunctive'). The following example (also discussed in Schlenker 2003) gives a good feel for the contribution of the Konjunktiv I:

(63) a. Er sagte, sie sei schön. Sie habe grüne Augen. (Jäger 1971)
He said she be pretty. She have green eyes.
b. Er sagte, sie sei schön. Sie hat grüne Augen. (Jäger 1971)
He said, she be pretty. She has green eyes

As Jäger 1971 observes, in a., which involves a Konjunktiv I form of 'have', the second sentence must be read from the standpoint of the attitude holder, so that it is interpreted as: 'He says/thinks that she has green eyes'. No such reading is forced in b. As Fabricius-Hansen & Saebo 2004 state the generalization, a clause in the Konjunktiv I must be 'the object of a verb of saying (claiming, asking, commanding), *or it is understood as if it were*'. Particularly strong evidence for their generalization is provided by cases of coercion: certain verbs that do not 'normally' select the Konjunktiv I can be made to accept it when given a speech act reinterpretation (the reinterpretation requires the syntactic representation of an agent, hence - presumably - the deviance of (64)d).

(64) a. Sie hat sich geärgert, dass er sich verspätet hat.
she has REFL *annoyed that he* REFL *belated have*PresInd
'She was annoyed that he was late.'
b: Sie hat sich geärgert, dass er sich verspätet habe:
she has REFL *annoyed that he* REFL *belated have*PresSub
'She was annoyed that he – as she said – was late.'
c: Es hat sie geärgert, dass er sich verspätet hat.
it has her annoyed that he REFL *belated have*PresInd
'It annoyed her that he was late.'
d: # Es hat sie geärgert, dass er sich verspätet habe.
it has her annoyed that he REFL *belated have*PresSub

There is a further piece to this puzzle. As noted in Schlenker 2003 and Fabricius-Hansen & Saebo 2004, the Konjunktiv I cannot be used when the thought or assertion is attributed to the speaker at the time and in the world of utterance:

(65) a. *Ich glaube, daß Maria krank sei
I believe that Maria sick is-KONJ1
b. Ich glaubte, daß Maria krank sei

[15] An anonymous reviewer points out some counterexamples to this generalization:
(i) a. Das Kind weint, als ob es große Schmerzen habe
'The child is crying as if he was in great pains.' (Helbig & Buscha 1987: 200)
b. Sei es nun früh oder späte, ich muß jetzt nach Hause gehen
'Either it's early or late, I have to go home now.' (Helbig & Buscha 1987: 204)
c. Er lernte viel, damit er dir Prüfing bestehe (Gierden Vega 2000: 185)
'He studied a lot in order to pass the exam.
Other counterexamples can be found in Schlenker 1999/2000 (p. 51).

I believed that Maria sick is-KONJ1
'I believed that Maria was sick'

c. Peter glaubt, daß Maria krank sei
Peter believes that Maria sick is-KONJ1
'Peter believes that Maria is sick'

d. Peter glaubte, daß Maria krank sei
Peter believed that Maria sick is-KONJ1
'Peter believes that Maria is sick'

This suggests that the Konjunktiv I is -despite its name- *an indicative*, though with the special requirement that the Context Set it refers to should *not* be that of the actual speaker at the time and in the world of his utterance. We also obtain in this way the observation that the Konjunktiv I cannot occur in conditionals, since the Context Set which is relevant for conditionals is always that of the speaker at the time and in the world of utterance.

* * *

If they are on the right track, these speculative remarks suggest that a very simple analysis of mood can be maintained: mood contributes certain presuppositions on the value of world variables. But for this theory to have any chance of dealing with the subjunctive, it must be supplemented with the assumption that certain moods have a trivial semantics, and can be used only when their richer competitors would trigger a presupposition failure. Under these assumptions, the indicative can be treated along the lines of Stalnaker's classic theory, but somewhat generalized: an indicative feature introduces a presupposition that a term denotes a world within a salient individual's Context Set, though this individual need not be the speaker. It remains entirely open, however, whether this analysis can be extended to derive more subtle facts about the indicative/subjunctive distinction, especially when the fine-grained semantics of various attitude verbs is taken into account.

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