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## ENTAILMENTS, PRAGMATIC ASSERTION AND MOOD IN SPANISH COMPLEMENTS

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**ABSTRACT.** This paper examines a frequently overlooked class of expressions in Spanish that license the subjunctive mood in a complement clause. This class contains expressions such as *poco/a/s* “few”, *menos de* “less than” and *solo* “only”. The goal of the paper is to offer an account of the use of mood with these expressions that incorporates the data under discussion into previous pragmatic accounts of mood based on notions of assertion and informative value. The paper first offers a semantic characterization of this class of expressions that is based on their monotonic properties (Ladusaw 1980, Ladusaw 1983). Next, it explores the pragmatic effects of their semantic properties. Following Stalnaker (1978), I assume that the effect of a pragmatic assertion is to reduce the set of possible worlds that represents the presuppositions held by a speaker and their audience (referred to as the *context set*). It is argued that propositions under the scope of an upward entailing expression are more informative, and they are thus more relevant and higher in a scale of assertability (following Lunn 1989), in that they allow for inferences that further reduce the context set. Propositions under the scope of expressions that are not upward entailing lose some of their informative value, and thus they are lower in a scale of assertability, which correlates with the possibility of using subjunctive mood in a complement under their scope.

**Keywords:** Spanish Complements; Verbal Mood; Subjunctive; Semantics; Pragmatic Assertion.

**RESUMEN.** En este artículo se examina una serie de expresiones, raramente tratadas en la literatura, que permiten el uso del subjuntivo en un complemento en español. Estas son expresiones como *poco/a/s*, *menos de* y *solo*. El objetivo del trabajo es ofrecer un análisis pragmático del uso del modo verbal con estas expresiones basado en nociones de aseveración y valor informativo. El artículo ofrece primero una caracterización semántica de esta clase de expresiones que se basa en sus propiedades monotónicas (Ladusaw 1980, Ladusaw 1983). A continuación, se examinan los efectos pragmáticos de esta caracterización semántica. Siguiendo a Stalnaker (1978), se asume que el efecto de una aseveración pragmática es reducir el conjunto de mundos posibles que representa las presuposiciones compartidas por un hablante y su audiencia (este conjunto recibe el nombre de *conjunto de contexto*). Se argumenta que proposiciones bajo el alcance de una expresión monotónica ascendente son más informativas, y en consecuencia más relevantes y en una posición más alta en una escala de asertabilidad (Lunn 1989), puesto que permiten hacer inferencias que reducen aún más el conjunto de contexto. Por otro lado, proposiciones bajo el alcance de proposiciones que no son monotónicas ascendentes pierden parte de su valor informativo, y en consecuencia aparecen en una posición inferior en una escala de asertabilidad. Esto a su vez se correlaciona con la posibilidad de utilizar el modo subjuntivo en un complemento dentro de su alcance.

**Palabras clave:** Complementos en Español; Modo verbal; Subjuntivo; Semántica; Aseveración Pragmática.



## 1. Introduction

The effect that negating a matrix predicate has in the verbal mood of the predicate's complement nominal clause is well known.<sup>1</sup> This is shown by the contrast between (1) and (2):

- (1) La gente cree que el debate va a afectar el resultado de la votación  
'People believe that the debate is going to affect-IND the result of the vote'
- (2) La gente no cree que el debate vaya a afectar el resultado de la votación  
'People don't believe that the debate is going to affect-SUBJ the result of the vote'

The predicate *creer* "believe" in an affirmative matrix requires the use of the indicative mood in its complement, as illustrated in (1). However, negating the predicate licenses the use of the subjunctive mood, as in (2). On the other hand, cases such as the one illustrated in (3) have been discussed less often:<sup>2</sup>

- (3) Poca gente cree que el debate vaya a afectar el resultado de la votación  
'Few people believe that the debate will affect-SUBJ the result of the vote'

In (3) the expression *poca* "few", which appears as a determiner within the subject NP of the matrix clause, appears to license the use of the subjunctive in the complement clause. Notice that this would not be the case when we have expressions such as *muchos* "many" or *algunos* "some" within the matrix subject NP:

- (4) Mucha gente cree que el debate va/\*vaya a afectar el resultado de la votación.  
'Many people believe that the debate is going to affect IND/\*SUBJ the result of the vote'
- (5) Algunos creen que el debate va/\*vaya a afectar el resultado de la votación.  
'Some believe that the debate is going to affect IND/\*SUBJ the result of the vote'

This property associated with *poco/a/s* "few" is shared by other expressions such as *menos de* "less than" or *solo* "only".<sup>3</sup> This class of expressions has not received much attention in the studies of verbal mood in complement clauses in Spanish, which mainly focus on characterizing the types of predicates that license the use of either mood in a complement clause and their interaction with negation (as expressed by the particle *no*).<sup>4</sup>

<sup>1</sup> The effect of negation in the mood of a complement verb has been observed since early studies and has frequently been discussed from different theoretical perspectives. See for instance Bello (1847), Bull (1965), Terrell and Hopper (1974), Lunn (1989), Bosque (1990), Farkas (1990), Guitart (1991), Quer (1998), Haverkate (2002), RAE (2009), Vesterninen (2013), Fábregas (2014), Laskurain (2015).

<sup>2</sup> See Mejías-Bikandi (1998), Bosque and Demonte (1999), RAE (2009), Laskurain (2015).

<sup>3</sup> On the other hand, an expression such as *unos poco/as* "a few" patterns with *alguno/as* "some" in that it does not allow the use of the subjunctive in the complement:

- (i) Unos pocos comentaristas creen que el debate puede/\*pueda afectar el resultado  
'A few commentators believe that the debate can-IND/\*can-SUBJ affect the result'

<sup>4</sup> It is apparent that the expressions under consideration are similar to expressions that license Negative Polarity Items (NPIs) in English. NPIs are words such as *any*, *yet*, etc. that may appear only under the scope of a "negative" expressions. Thus, contrast: *I did not buy any books* vs. *\*I bought any books*. In fact, the link between the grammatical category of mood and polarity sensitivity has been discussed

This paper will address two questions: i) how can we explicitly characterize this set of expressions? and ii) how can this characterization help us account for its effect on the use of mood in the complement?

As an answer to the first question, I will adopt a semantic characterization based on Ladusaw (1980, 1983). I will argue that the relevant property is that these expressions are not *upward entailing*; that is, they are either *downward entailing* or *non-monotonic*. The following generalization will be proposed: a non upward entailing expression in the matrix clause licenses the subjunctive mood in the complement of a predicate under its scope. In order to address the second question, I will study the pragmatic effect that this semantic property has in the processing of information in discourse. Specifically I will use Stalnaker's notions of *pragmatic assertion* and *context set* (Stalnaker 1978), and I'll argue that non upward entailing contexts are less *informative*, and thus lower in a scale of assertability, than upward entailing contexts, in the sense that they have a limited effect on the context set. In so doing, I will relate the use of the subjunctive in the cases under consideration to previous pragmatic accounts of mood in Spanish based on notions of pragmatic assertion and relevance (Lunn 1989; Guitart 1991; Mejías-Bikandi 1994; Jary, 2002, Laskurain 2015). I'll argue that by using expressions such as *poco/a/s*, *menos de* or *solo*, a cap is put on the possible inferences that an audience may draw from an utterance, and, as a consequence, the informational effect that a particular utterance may have is curtailed. This results in a less informative proposition, and as such, a proposition that is lower in a scale of assertability.<sup>5</sup>

I will organize the paper in the following way. In the next section I will introduce the relevant data. I will briefly discuss how previous analyses of mood might account for the data presented here and show why these accounts are unsatisfactory. In section 3, I will provide a semantic characterization of the relevant class of expressions by looking at the possibility of making certain inferences within their scope. For this purpose I introduce Ladusaw's notion of *upward* and *downward entailing* operators (Ladusaw 1980, Ladusaw 1983). In section 4, I will adopt Stalnaker's notion of *pragmatic assertion* and *context set* and I will study the pragmatic effects on an on-going discourse of the semantic characterization proposed in section 3. This will in turn enable me to relate the data under consideration and the analysis proposed to previous pragmatic explanations of mood in Spanish. Finally, I will present the conclusions.

## 2. Data

The study of mood in verbal complements in Spanish has centered on identifying and characterizing the class of matrix predicates that license the use of the subjunctive in the complement and on the effect of the negative particle *no* on the licensing

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before (Nathan and Epro 1984; Giannakidou 1994, 1995; Levinson 2006), although in these cases the discussion has not included the data under consideration here. The literature on polarity sensitivity is extensive (see, among others, Klima 1964, Fauconnier 1975, Ladusaw 1980, Linebarger 1980, Israel 1996, Laka 1990, Uribe-Etxebarria 1994, Giannakidou 1994, Giannakidou 2006). A significant part of this research has focused on how to characterize contexts or expressions that allow the occurrence of NPIs, whether the relevant generalization is syntactic, semantic or pragmatic in nature.

<sup>5</sup> Lunn (1989) proposes a prototype of assertability to account for mood distribution in Spanish. Under this analysis, propositions that are both true and relevant are closer to the prototype and, thus, are more assertable. On the other hand, propositions that are false and not relevant are farther from the prototype, and thus less assertable. The expression "scale of assertability" is taken from this characterization: more assertable propositions are higher in a scale of assertability.

properties of different predicates. However, as it was mentioned in the previous section, there is a set of quantificational expressions and determiners, in addition to the negative particle *no*, that allow the use of the subjunctive with assertive predicates such as *decir* “to say”, *creer* “to think/believe” or *percibir* “to perceive”. Assertive matrices, when affirmative, do not license the subjunctive mood in the complement (Terrell and Hopper 1974, Lunn 1989, Guitart 1991, Mejías-Bikandi 1994, Haverkate 2002, RAE 2009). Consider, for instance, the following examples:

- (6) Pedro dice que va a llover mañana  
‘Peter says that it is going-IND to rain tomorrow’
- (7) \* Pedro dice que vaya a llover mañana  
‘Peter says that it is going-SUBJ to rain tomorrow’
- (8) Pedro no dice que vaya a llover mañana  
‘Peter does not say that it is going-SUBJ to rain tomorrow’
- (9) Poca gente dice que vaya a llover mañana  
‘Few people say that it is going-SUBJ to rain tomorrow’
- (10) Menos de cinco personas dicen que vaya a llover mañana  
‘Less than five persons say that it is going-SUBJ to rain tomorrow’
- (11) Sólo Pedro dice que vaya a llover mañana  
‘Only Peter says that it is going-SUBJ to rain tomorrow’
- (12) \* Algunas personas dicen que vaya a llover mañana  
‘Some people say that it is going-SUBJ to rain tomorrow’
- (13) \* Más de cinco personas dicen que vaya a llover mañana  
‘More than five persons say that it is going-SUBJ to rain tomorrow’
- (14) \* Todos dicen que vaya a llover mañana  
‘Everybody says that it is going-SUBJ to rain tomorrow’

Examples (6) and (7) show that *decir*, as a reportative predicate, does not license the use of the subjunctive in the complement clause. However, in sentence (8) the use of the negative particle *no* allows the use of the subjunctive in the complement. These data are well known and studied. However, sentences (9)–(11) show that expressions like *poco/a/s*, *menos de* or *solo* also license the use of the subjunctive in the complement clause.<sup>6</sup> This does not happen with *algunos*, *más de* or *todos*, as sentences (12)–(14) show. I have constructed examples (6) through (14) for the purpose of the exposition. The following examples, which are taken from articles published online, illustrate the same phenomenon. I have highlighted the relevant sentences in these examples and provided approximate translations:

- (15) Tras dos horas y 38 minutos de debate entre los candidatos conservador, Nicolas Sarkozy, y socialista, Ségolène Royal, es difícil llegar a una

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<sup>6</sup> These expressions are also like the negative particle *no* in that they allow, but do not require, the use of the subjunctive in the complement. Thus contrast:

- (i) No es cierto que vinieras ayer  
‘It is not the case that you arrived-SUBJ yesterday’
- (ii) No es cierto que viniste ayer  
‘It is not true that you arrived-IND yesterday’

Mejías-Bikandi (1996) provides an analysis, within the Mental Spaces framework (Fauconnier 1985), of differences in the interpretation between these two sentences that could be extended to account for the same alternation in the complements of matrices that contain the expressions discussed here.

conclusión definitiva. Para algunos Royal ha mostrado una fuerza hasta ahora escondida y para otros Sarkozy ha hecho gala de una solidez inquebrantable. *Pocos creen que el largo enfrentamiento dialéctico televisivo tenga influencia en los pocos votantes que permanecen indecisos a estas alturas de la campaña* (menos del 20% del electorado). A continuación, se ofrecen opiniones recogidas justo al final del debate. (*El País*, May 3, 2007)

‘After a two-hour and 38-minute debate between the conservative candidate, Nicolas Sarkozy, and the socialist candidate, Ségolène Royal, it is difficult to reach a definite conclusion. For some Royal has shown a previously hidden energy and for others Sarkozy has exhibited an unbreakable steadiness. *Few believe that the long televised dialectical confrontation will have-SUBJ any influence on the few voters that remain undecided at this stage of the electoral campaign* (less than 20% of the electorate). Next we offer some of the opinions recorded at the end of the debate.’

- (16) La unión entre Cofares y Hefame se ha presentado como una fusión entre iguales, pero en el sector *pocos creen que no se trate realmente de una compra*. [*Cinco Días*, January 18, 2006]  
 ‘The merger of Cofares and Hefame has been presented as a merger of equals, but *few in the sector believe that it is-SUBJ not an acquisition*.’
- (17) Es así que revisando los datos que nos arroja el estudio de Fundación Trascender, es posible constatar en primer término que si bien más de la mitad de la población consultada señala estar de acuerdo con la auto imagen de chilenos y chilenas solidarios, sólo un 7% de la población encuestada realiza voluntariado. Por otra parte, *menos de la mitad de las personas percibe que el trabajo voluntario tenga un efecto real en la superación de la pobreza*. [*Fundación Trascender, Estudio Nacional de Voluntariado 2006*. Santiago, Chile]  
 ‘If we review the data presented in the study by Fundación Trascender, we may note first that even though more than half of those surveyed indicate that they agree with the perception that Chileans have of themselves as solidarious, only 7% of them do volunteer work. On the other hand, *less than half of the population perceive that volunteer work has-SUBJ a real effect in overcoming poverty*.’
- (18) Según la Asociación Europea de Publicidad Interactiva (EIAA), casi un 90% de los europeos opina que hay demasiada publicidad en televisión. *Sin embargo, menos de la mitad considera que esta situación se dé en Internet*. Nos encontramos, pues, ante una diferencia notable en la actitud del consumidor de medios a la hora de aceptar la publicidad. [*Los nuevos canales de TV, Internet y publicidad*, winred.com]  
 ‘According to the European Interactive Advertising Association (EIAA), almost 90% of Europeans think that there is too much advertising on TV. *However, less than half consider that this situation occurs-SUBJ on the internet*. Therefore, we are facing a significant difference regarding media consumers attitudes towards advertising.’
- (19) Concretamente, aunque la mayoría sabe que sufre una enfermedad crónica y evolutiva, *sólo la mitad cree que pueda requerir un ingreso en una UCI*. [*Toma de decisiones médicas en pacientes con enfermedad pulmonar obstructiva crónica*, Medicina Clínica, April 2001]

‘Specifically, ven though the majority knows that they have a chronic and evolutive illness, *only half believe that it may-SUBJ require admission to an Intensive Care Unit.*’

The use of the subjunctive mood in negated matrix predicates has traditionally been explained by pointing out that negating the matrix predicate has as a result that the complement clause is either associated with uncertainty or non-experience (Bello 1847, Bull 1965) or with non-assertion and lack of relevance, categories usually associated with the use of the subjunctive (Terrell and Hooper 1974, Terrell 1976, Lunn 1986, Mejías-Bikandi 1994, Jary 2002, Haverkate 2002, Laskurain 2015).

Mejías-Bikandi (1998) offers a slightly different account of the use of the subjunctive mood in the complement of negated predicates. There, the complement of a negated matrix predicate is associated with old information (Givon 1979, Horn 1989), and thus non assertion.<sup>7</sup> Independent evidence is provided by studying the distributional properties of the adverbial intensifier *tan* ‘so’ in declarative sentences in Spanish. Mejías-Bikandi argues that the use of *tan* is natural in contexts where the adjective being modified by the adverbial intensifier denotes a property that has been previously entertained.<sup>8</sup> It is noted that, whereas a sentence such as (20) is unnatural in Spanish, (21), where the intensifier is within the scope of the negation, is perfectly natural:<sup>9</sup>

(20) \*Pedro es tan alto  
‘Peter is so tall’

(21) Pedro no es tan alto  
‘Peter is not so tall’

Similarly, this particle cannot naturally appear either in the complement of affirmative *creer*, as (22) shows, but it appears naturally in the complement of a negated matrix, as in (23):

(22) Pedro cree que eres \*tan/muy alto  
‘Peter believes that you are-IND \*so/very tall’

(23) Pedro no cree que seas tan/muy alto  
‘Peter does not believe that you are so/very tall’

Mejías-Bikandi also discusses the use of the subjunctive when a determiner such as *poco/a/s* appears within the matrix subject NP. Under this analysis, the use of the subjunctive in these cases is associated with the notion of old-information, information that is pragmatically presupposed and thus non-asserted. The claim is that when a sentence such as (24) is uttered:

(24) Pocos trabajadores creen que haya que ir a la huelga  
‘Few workers believe that there should be-SUBJ a strike’

<sup>7</sup> Under the analysis proposed, the complement of desiderative or influence verbs (such as *querer* ‘to want’, or *pedir* ‘to ask’) are also non-asserted, but not because they represent old-information, but because the propositions they express are not presented as true.

<sup>8</sup> RAE 2009 considers this property a type of deixis, and *tan* is treated as a deictic quantifier.

<sup>9</sup> The example in (20) is unnatural as a simple declarative sentence. This sentence is natural as an exclamative sentence, with an intonation pattern associated with an exclamation.

the proposition expressed by the complement must have been somehow previously entertained and thus constitutes old-information. As supporting evidence for this analysis, it is noted that the intensifier *tan* may appear in the complement of a matrix that contains the expressions *pocos*, as in (25), but it cannot appear in the complement of a matrix that contains *algunos* “some”, as in (26):

- (25) *Pocos creen que Pedro sea tan/muy alto*  
 ‘Few believe that Peter is so/very tall’  
 (26) *Algunos creen que Pedro es \*tan/muy alto*  
 ‘Some believe that Peter is so/very tall’

However, there are contexts where I believe that such an analysis would be unsatisfactory. Take for instance the passage in (15), the relevant part of which is repeated below:

- (15) *Pocos creen que el largo enfrentamiento dialéctico televisivo tenga influencia en los pocos votantes que permanecen indecisos a estas alturas de la campaña* (menos del 20% del electorado).  
 ‘Few believe that the long televised dialectical confrontation will have-SUBJ any influence on the few voters that remain undecided at this stage of the electoral campaign (less than 20% of the electorate). Next we offer some of the opinions recorded at the end of the debate.’

In the context provided by the article from which the fragment has been extracted, the information “the debate may influence the voters” has not been overtly entertained. However, one could informally argue that the frame evoked by the situation described (a political debate on television during an electoral campaign) must necessarily contain propositions similar to “television debates may influence voters during a campaign”. Then, under this assumption, one would expect the use of the subjunctive to be allowed with matrix subjects of the form *algunos creen* “some believe” in the same context, since the same content is evoked by the same frame. However, this is not the case.

Another possible analysis would maintain that an expression such as *pocos creen que* “Few believe that” is an idiomatic variant of *es poco probable que* “It is unlikely that”, and as such there is a use of this expression that would be similar to a matrix expression that is used as a non-assertive predicate. Thus, in the example in (15), the sentence *Pocos creen que el largo enfrentamiento televisivo tenga influencia en los votantes* would be equivalent to *Es poco probable que el largo enfrentamiento televisivo tenga influencia en los votantes* “It is unlikely that the long televised debate will influence voters.” Whereas this equivalency would perhaps be adequate for the example provided, I think that it would be difficult to extend to examples such as (19), repeated below:

- (19) Concretamente, aunque la mayoría sabe que sufre una enfermedad crónica y evolutiva, *sólo la mitad cree que pueda requerir un ingreso en una UCI*.  
 ‘Specifically, even though the majority knows that they have a chronic and evolutive illness, *only half believe that it may-SUBJ require admission to an Intensive Care Unit.*’

In this case, it would not be accurate to paraphrase the highlighted sentence as *es poco probable que pueda requerir un ingreso en la UCI* “It is unlikely that it would require admission to an ICU unit.” The denotation of the expression *solo la mitad* “only half” is exactly the same as the denotation of the expression *la mitad* “half”. Consequently, the use of one or the other does not make the proposition expressed by the complement more or less probable. Still, *solo la mitad* licences the subjunctive in the complement, whereas *la mitad* does not.

Laskurain (2015) proposes an alternative account for the use of the subjunctive in cases where the expression *poco/a/s* “few” licenses the subjunctive in a complement clauses. Specifically, following Rivero (1975), he proposes a semantic characterization of the expression *poco/a/s* where it is equated with *no muchos* “not many”. It is this negative element made explicit in the semantic characterization that licenses the subjunctive mood in the complement. This analysis, however, raises the question of why *unos pocos* “a few” behave like *algunos* “some” in that it does not license the subjunctive in a complement (see footnote 3). Intuitively, both both *pocos* and *unos pocos* can be equated with “not many”.<sup>10</sup>

Laskurain’s proposal is somewhat similar to an analysis proposed for “only” in Giannakidou (2006). In order to account for the NPI licensing properties of “only” and emotive factives in English, Giannakidou relies on the concepts of *nonveridicality* and *rescuing* by *nonveridicality*. The following definition is provided (Giannakidou 2006: 589):

*A propositional operator F is veridical iff from the truth of Fp one can infer that p is true according to some individual x. If inference to the truth of p under F is not possible, F is nonveridical.*

Thus, negation is a nonveridical operator. On the other hand, there are expressions such as “only” which would apparently be veridical, but that are analyzed as containing a negative assertion in their semantic definition. It is this negative assertion that *rescues* this expression and allows it to license NPI.<sup>11</sup> The intuition is that there is a “hidden” negation in the definition of these expressions that result in their behaving as if the proposition was somehow negated. This analysis could be adopted to explain the occurrence of the subjunctive in the complement of matrix clauses that contain expressions such as *pocos*, but, as in the case of Laskurain (2015), it is not obvious how it would differentiate expressions such as *pocos* “few” from expressions such as *unos pocos* “a few”. It is interesting to note that, even though both “only” and emotive factive predicates are seemingly unrelated types of expressions, they have in common that they license NPIs in English. Similarly both types of expressions license the subjunctive mood in a complement in Spanish. Giannakidou’s strategy is to provide semantic definitions of these expressions that contain non-overt nonveridical operators. The strategy in this study is to examine how expressions such as “solo” affect the informational value of the complement.<sup>12</sup>

<sup>10</sup> One could also argue that a semantic characterization of *alguno/a/s* “some” could be provided that also equates this expression with “not many”. This would seem intuitively accurate in view of statements such as *There were some people in the meeting, but not many*. Also, Q-based (Quantity) implicatures associated with these terms are negative in nature (see Grice 1975, Horn 1989): the use of “some” or “few” implicates that the speaker is not in a position to use the expression “many”. On the other hand, it is also true that *some* is compatible with *many* in a way that *few* is not. Thus the contrast *Some, in fact many, succeeded* vs. *Few, in fact many, succeeded*.

<sup>11</sup> A somewhat similar analysis appears in Linebarger (1980).

<sup>12</sup> The complement of emotive factives is pragmatically presupposed and thus not asserted.

Notice that these possible alternative accounts hinge primarily on exploring how the use of a particular expression in a matrix clause changes the status of the information expressed by the complement clause. This is in fact how most previous analyses, either semantic or pragmatic, account for the use of the subjunctive in the complement of a negated matrix clause: the negative particle changes the pragmatic or semantic status of the proposition expressed by the complement. However, I argue that this type of analysis does not satisfactorily account for the data presented above. I would like to propose that in these cases, it is not the status of the information expressed by the proposition represented by the complement that is altered by the use of the relevant expressions, but the potential for making inferences from the utterance. I will claim that this inference-making potential results in some expressions being more informative, and thus, higher in a scale of assertability, and that this is correlated with the (im)possibility of using the subjunctive in a complement clause. Thus, indicative contexts allow the speaker to exhaust the inference making potential of an utterance, whereas contexts that license the use of the subjunctive put a cap on inferences resulting in a less informative sentence.

### 3. Monotonicity

Ladusaw (1980, 1983) studies the effect of certain operators on the inferences that can be made from a particular proposition. He proposes a distinction between *upward* and *downward* entailing operators. Informally, an upward entailing expression allows superset for subset substitutions within its scope while preserving the truth value of the proposition. On the other hand, a downward entailing operator allows subset for superset substitutions. Some expressions are neither upward nor downward entailing, they are said to be *nonmonotonic*.

As an illustration, consider the following valid inference:

(27) Some people bought a Mac  $\rightarrow$  Some people bought a computer.

The NP “a Mac” denotes a subset of the set denoted by the NP “a computer”, the superset. In (27) a superset (denoted by “a computer”) is substituted for a subset (denoted by “a Mac”) and the truth value of the proposition is preserved. Then, “some” is an upward entailing expression. Notice that the same type of inference cannot be made with “few”:

(28)  $\neg$ (Few people bought a Mac  $\rightarrow$  Few people bought a computer)

The inference illustrated in (28) is not valid, since it may be the case that everybody bought a computer but only a few did actually buy a Mac.

On the other hand, the inference in (29) is valid:

(29) Few people bought a computer  $\rightarrow$  Few people bought a Mac

The NP “a Mac” denotes a subset of the set denoted by the NP “a computer”. “Few” allows this subset to be substituted for the superset and the truth of the proposition is preserved. “Few” is consequently a downward entailing expression. However, the same inference cannot be made within the scope of “some”, as (30) shows:

(30)  $\neg$ (Some people bought a computer  $\rightarrow$  Some people bought a Mac)

The inference in (30) is not valid, since it might be the case that some people bought a computer but none of them bought a Mac. Thus, “some” is not a downward entailing expression.

By looking at these types of inferences, “few” is characterized as a downward entailing expression, whereas “some” is characterized as an upward entailing expression. Notice that an expression such as “less than” enters into the same inferential pattern as “few” and is thus downward entailing:

(31) Less than 10 people bought a computer  $\rightarrow$  Less than 10 people bought a Mac

(32)  $\neg$  (Less than 10 people bought a Mac  $\rightarrow$  Less than 10 people bought a computer)

On the other hand, expressions such as “more than” and “everybody” (or “a few”) enter into the same inferential pattern as “some” and are thus upward entailing:

(33) More than 10 people bought a Mac  $\rightarrow$  More than 10 people bought a computer

(34)  $\neg$ ( More than 10 people bought a computer  $\rightarrow$  More than 10 people bought a Mac)

(35) Everybody bought a Mac  $\rightarrow$  Everybody bought a computer

(36)  $\neg$ ( Everybody bought a computer  $\rightarrow$  Everybody bought a Mac)

Finally, expressions such as “only” are neither upward nor downward entailing, they are nonmonotonic:

(37)  $\neg$  (Only 10 people bought a Mac  $\rightarrow$  Only 10 people bought a computer)

(38)  $\neg$  (Only 10 people bought a computer  $\rightarrow$  Only 10 people bought a Mac)

The examples used in the informal discussion above are all in English, but exactly the same inferential patterns can be found in Spanish with the equivalent expressions: *poco/a/s* “few”, *alguno/a/s* “some”, *menos de* “less than”, *más de* “more than”, *todo/a/s* “everybody” and *solo* “only”.

Returning now to the distribution of mood in Spanish, notice that the expressions that allow the use of the subjunctive in the verbal complement of predicates such as *creer* or *decir* are either downward entailing or nonmonotonic. In other words, the verbal complement in these cases may appear in the subjunctive when it is not within the scope of an upward entailing expression. We can then state the following generalization: the verbal complement of an assertive predicate must appear in the indicative mood when it is within the scope of an upward entailing expression.

The question I want to address in the next section is why this is the case, why grammatical mood in a Spanish complement is sensitive to the effect that expressions that appear in the matrix clause has on possible entailments.

#### 4. Monotonicity and Pragmatic Assertion

In the previous section I gave a semantic characterization of the expressions that license the use of the subjunctive mood in the complement of predicates that typically require the use of the indicative mood when they appear in an affirmative matrix. In this section I want to explore the relation between the semantic characterization introduced in the previous section and accounts of mood in the complement of verbal predicates that are based in the informational or pragmatic status of the proposition expressed by the complement in a specific discourse (Lunn 1989, Guitart 1991, Mejías-Bikandi 1994, Jary 2002, Laskurain 2015). Specifically, assuming that the indicative is the mood of pragmatic assertion, and subjunctive the mood of pragmatic non-assertion, why is it that the class of expressions that are not upward entailing create contexts that for the purpose of mood distribution seem to make a proposition less assertable?

In his discussion on pragmatic assertion, Stalnaker (1978) introduces the notion of context set, which is defined as the set of possible worlds compatible with what is presupposed in a particular conversational setting, the set of possible worlds recognized by the speaker as relevant for the conversation. Even though each participant in a conversation has his/her own context set, Stalnaker claims that a participant in a conversation generally assumes that members of his/her audience presuppose what s/he presupposes. In other words, in a normal case context sets are *non-defective* or *close enough* to being *non-defective*. A non-defective context set is one in which the presuppositions of the various participants in the conversation are all the same. A context set is close enough to being non-defective when the divergences do not affect the issues that arise during the conversation. We can then assume that generally the context set is the set of possible worlds compatible with what constitutes mutual or shared knowledge among the members of an audience.

In a conversational exchange, the context set is continually changing, as new information may be provided that affects its composition. In this scenario, to make an assertion is to reduce the context set in a particular way, in that all possible situations incompatible with what is said are eliminated. In Stalnaker's view, the essential effect of an assertion is to change the presuppositions of the participants in the conversation by adding the content of what is asserted to what is presupposed.<sup>13</sup> Thus, if I assert that *Mary is ill* in a particular conversational setting, one of the effects of the assertion is to eliminate from the context set all possible worlds where the asserted proposition is not true. In this way, the assertion reduces the context set.

Notice that upward entailing expressions allow for inferences that have the effect of further reducing the context set in a conversation, whereas the inferences allowed by downward entailing or nonmonotonic expressions do not have an effect on the context set. In other words, to be able to substitute a superset for a subset reduces more the context set than to substitute a subset for a superset or not be able to make a substitution at all. Thus consider the inference illustrated by the conditional statement in (39), which is the Spanish paraphrase of (27):

- (39) Algunos estudiantes compraron una Mac → Algunos estudiantes compraron una computadora

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<sup>13</sup> Stalnaker makes it clear that this is not propose as a definition of assertion, it is rather a claim regarding one effect which assertions have.

Let  $p$  be the antecedent and  $q$  consequent and let  $P$  be the set of all possible worlds compatible with  $p$  and  $Q$  the set of all possible worlds compatible with  $q$ . It is apparent that  $P$  is a subset of  $Q$ ; that is, in every world in which  $p$  is true  $q$  is also true and it is possible that there are worlds where  $q$  is true and  $p$  is not true. As (37) shows, by asserting  $p$ , we are able to infer  $q$ , and in doing so we are able to further reduce the set of possible worlds compatible with  $p$ , since we would be eliminating all those that would be incompatible with  $q$  too. In other words, asserting  $p$  allows us to further reduce the context set. This can be illustrated in figure 1, where the grey area would represent the “informational terrain” (the additional possible worlds that would be eliminated from the context set) that is gained by asserting  $p$  in (39):

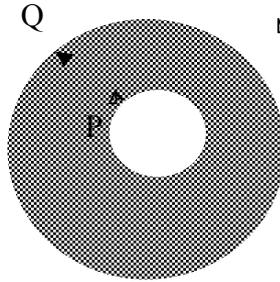


Figure 1: Effect of Upward Entailing Inferences on Context Set

On the other hand, consider the inference in (40), which is the Spanish paraphrase of (31):

- (40) *Pocos estudiantes compraron una computadora*  $\rightarrow$  *Pocos estudiantes compraron un Mac*

Again, let  $p$  be the antecedent and  $q$  the consequent, and let  $P$  and  $Q$  be the set of possible worlds compatible with  $p$  and  $q$  respectively. In this case,  $Q$  is a subset of  $P$ . Consequently, being able to infer  $q$  from  $p$  does not allow us to further reduce the set of possible worlds compatible with  $p$ , or, in other words, it does not allow us to make inferences that further reduce the context set, there is no “informational terrain” that is gained. This can be illustrated in figure 2:

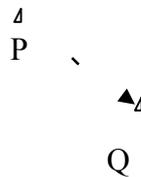


Figure 2: Effect of Downward Entailing Inferences on Context Set

I propose that when we have a situation such as the one illustrated in figure 1, the proposition *p* has a *higher informative value* than when we have a situation such as the one illustrated in figure 2.

This notion of informative value can be related to assertion. As mentioned before, in Lunn's prototype of assertability (Lunn 1989), information that is both true and relevant is closer to the prototype and thus more assertable. On the other hand, irrelevant and false information would be the least assertable. From this characterization, a scale of assertability can be proposed, where more assertable information is higher in the scale. Also, in their original discussion of relevance, Sperber and Wilson (1986) relate their notion of relevance with some notion of informativeness, as they state that the relevance of new information is to be assessed in terms of the improvements it brings to an individual's representation of the world. Notice that, under this view of relevance, we may say that the more a proposition reduces the context set, the more relevant it is.

We can now make the following specific proposal. If there are two propositions *p* and *q*, such that: i) asserting *p* allows an audience to make inferences that result in further reducing the context set, and ii) asserting *q* does not have the same effect, then *p* has a higher informative value than *q*. Moreover, if *p* has *more informative value* than *q*, *p* is *more relevant* than *q* and, consequently, *higher in a scale of assertability* than *q*.

The use of an upward entailing expression allows an audience to exhaust the inferences allowed by an utterance, resulting in a proposition that is more informative and higher on the scale of assertability. On the other hand, by restricting the inference making potential from the proposition expressed by a complement, expressions that are not upward entailing limit this proposition's informativeness, and thus its assertability. The use of non upward entailing expressions prevents inferences that would allow a further reduction of the context set. This difference in the relative informative value of a proposition is claimed here to be correlated with the possibility of using the subjunctive mood in the complement verb.

The analysis proposed here intends to characterize a class of expressions that license the use of the subjunctive mood in a complement clause. Conditions that describe the use of mood in other types of subordinate clauses might be slightly different. For example, *pocos* may appear in an NP that is the antecedent of a relative clause, which may appear then in the indicative or subjunctive mood:

- (41) Los pocos amigos que vinieron lo pasaron bien  
 'The few friends that came-IND had a good time'  
 (42) Los pocos amigos que vengán lo pasarán bien  
 'The few friends that come-SUBJ will have a good time'

The difference in mood in (41) and (42) is associated with a specific/non-specific reading of the referent of the antecedent NP: specific in (41) and non-specific in (42). In turn, this specific/non-specific reading may be associated with assertion/non-assertion (Rivero 1975, Pérez Saldanya 1999).

## 5. Conclusion

This paper studied a class of expressions that license the use of the subjunctive mood in a complement in Spanish. I proposed a semantic characterization of this class of expressions based on their monotonic properties. It was observed that expressions that are not upward entailing license the subjunctive mood in a complement. An

explanation of why this is the case was offered by studying the effect of upward entailing and non upward entailing expressions in the context set. It was shown that upward entailing expressions allowed for inferences that result in a reduction of the context set, whereas downward entailing and nonmonotonic expressions did not allow for the same inferences. This different effect on the context set was argued to be correlated with the possibility of using the subjunctive mood in the complement. The use of a non upward entailing expression puts a cap on inferences that an audience may draw from a proposition, resulting in a proposition that is less informative, less relevant, and, consequently, that is lower in a scale of assertability. This explains the use of the subjunctive in the complement.

The data and analysis presented here is relevant for the following reasons. First, the set of data under discussion has not received much attention in previous accounts of mood. Second, the analysis points to a dynamic view of the category of mood and what it grammatically codifies in Spanish. Notice that in more traditional accounts (Bello 1847, Bull 1965) mood has been analyzed as coding something about the truth value of a proposition: whether it is presented as certain or not. Terrell and Hooper (1974) and Terrell (1976) proposed a more sophisticated analysis based on a semantic notion of assertion. These were static accounts of mood, where mood indicated something about the status of a proposition (whether is true or asserted). Later analyses (Lunn 1989, Mejías-Bikandi 1994, Jary 2002) looked beyond the semantics of the expressions involved and took into consideration pragmatic notions such as relevance or speaker's intention. Under the analysis presented here, it is not enough to determine the semantic or pragmatic status of a proposition by itself. Rather, in order to determine the informative value and assertability of a proposition, we need to look at the effect that inferences drawn from a proposition has in the assumptions shared by participants in a conversation.

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