STAGE AND INDIVIDUAL-LEVEL PREDICATES WITHIN IF AND WHEN CLAUSES: WHAT WORKS AND WHAT DOESN’T WORK

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ABSTRACT. Clauses headed by if and when are often considered syntactically and semantically equivalent. Nevertheless, in this article we show that they are not totally interchangeable. Interestingly, the type of predicate they combine with has an impact both on the grammaticality and the interpretation of this type of clauses in Spanish. This construction provides evidence for the proposal that stage-level predicates involve an extra-argument that individual-level predicates lack. Following Kratzer (1995), we assume that this is extra-argument is a spatio-temporal argument. While stage-level predicates in the subordinate clause are perfectly grammatical, individual-level predicates yield to ungrammatical sentences, unless an indefinite or a kind-referring NP is involved. Kratzer’s Prohibition against Vacuous Quantification provides a sound account for the asymmetry between the two types of predicates. In addition, a static verb in the subordinate clause is grammatical, but it forces an epistemic reading. When both predicates are individual-level predicates in the subordinate and the main clause, the if-clause may take a factual reading while the when clause is ungrammatical unless there is some kind of operator involved through a generic, a kind-referring NP or an indefinite pronoun.

Keywords. individual-level predicates, stage-level predicates, if-clauses, when-clauses, genericity, quantification.

RESUMEN. Las cláusulas encabezadas por si y las encabezadas por cuando a menudo resultan sintácticamente y semánticamente equivalentes. Sin embargo, en este trabajo mostramos que no son totalmente equivalentes. Asimismo, el tipo de predicado tiene un impacto, tanto en la gramaticalidad como en la interpretación de la cláusula subordinada en español. Esta construcción proporciona evidencia de que los predicados de nivel estadio incluyen un argumento extra del que carecen los predicados de nivel individual. Siguiendo a Kratzer (1995), asumimos que este argumento extra es un argumento de tipo estadio. Mientras que los predicados de nivel estadio en la cláusula subordinada son perfectamente gramaticales, los de nivel individual dan lugar a cláusulas agramaticales, a no ser que haya un indefinido o un sintagma nominal que refiera a un tipo. La Prohibición de la Cuantificación Vacía propuesta por Kratzer da cuenta de esta asimetría entre los dos tipos de predicados. Asimismo, un verbo estativo en la cláusula subordinada es gramatical pero fuerza una lectura epistémica. Cuando los dos predicados de la cláusula subordinada y principal son de nivel individual, la cláusula con si recibe una lectura factual mientras que la cláusula con cuando resulta agramatical, a no ser que aparezca un operador, por medio de un sintagma nominal genérico o referido a un tipo o un pronombre indefinido.

Palabras clave. predicados de nivel individual, de nivel estadio, cláusulas con si/cuando, genericidad, cuatificación.

1. The distinction between stage/individual-level predicates

Not all kinds of predicates are equally suitable to combine with if/when constructions. In this article we discuss that the distinction between stage and individual-level predicates, originally observed by Carlson (1977) and recently readdressed in Fábregas (2012), has a definite impact on these clauses’ grammaticality, as well as on their semantic interpretation. In the following lines we consider the four possible combinations of types of predicates within the main and
the subordinate clause headed by the conjunctions if and when, or better by the Spanish ones, si and cuando. After reviewing each combinations’ grammaticality and its potential interpretations, we provide an account for the observed syntactic and semantic facts. We will consider each combinatorial possibility first, including stage-level and individual-level predicates both in the main and in the subordinate clause. After describing the Spanish facts, we will provide a semantic account of the observed patterns.

1.1 Stage-level predicate in the main clause and in the subordinate clause

When both the main clause and the subordinate clauses contain stage-level predicates, the two connectors, si and cuando are usually grammatical in Spanish. This can be seen in examples (1a) and (1b):

(1)  
   a. Jon viene con nosotros {cuando / si} está solo.  
       ‘Jon comes with us {when / if} he is alone’  
   b. Jon habla noruego {cuando / si} está en Oslo.  
       ‘Jon speaks Norwegian {when / if} he is in Oslo’

Under these conditions, both cuando and si seem to be interchangeable and native speakers hardly appreciate any change in meaning. In order to account for the semantic interpretation of this type of clauses, we adopt von Fintel’s (1994) neo-Davidsonian situation semantics. In his approach, quantification takes place over situations and the role of the subordinate clause is to restrict the domain of the quantifier. In these examples the implied or phonologically null adverb of quantification equivalent to “generally” or “habitually”\(^1\) uniformly quantifies over a single variable: a situation variable. Simplifying somehow von Fintel’s proposal and the technicalities of formal semantics, sentence (1a) will be true in a situation s if and only if most minimal situations in a given contextual domain g(C)\(^2\) in which Jon is alone are part of a minimal situation in which he comes with us.

In a sense, situations can be extended into bigger situations. A complementary way of explaining the semantics of clauses such as the ones in (1) is by asserting that sentence such as (1a) will be true in a situation s if and only if most minimal situations in a given contextual domain in which Jon is alone can be extended to a minimal situation in which he comes with us. The minimal situation in this framework is defined as “the stripped-down situations which contain just enough to support the proposition” (von Fintel 1994: 18) and it is also necessary that those a-situations are “expanded” to b-situations in a whole-part relationship.

Notice, however, that despite their apparent interchangeability observed in the two examples in (1), the two Spanish conjunctions si and cuando do not function exactly the same. If we reverse the two predicates and combine the predicate estar solo with the conjunctions under examination, the resulting sentence is not equally grammatical. Examples in (2) show how the conjunction cuando is perfectly grammatical while the same predicate with si is at least difficult to process (2b / 2b’):

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\(^1\) We limit the account provided in this paper to this Generic operator, i.e., to habitual propositions. Future or past situations will include other types of operators which would be worth exploring in future research.

\(^2\) The notion of “resource domain” is represented as g(C) and is a contextually supplied set, in this case, of situations.
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(2) a. Jon generalmente está solo cuando viene con nosotros.
   ‘Jon is generally alone when he comes with us’

b. ?? Jon generalmente está solo si viene con nosotros.
   ‘Jon is generally alone if he comes with us’

a’. Jon generalmente está en Oslo cuando habla noruego.
   ‘Jon is generally in Oslo when he speaks Norwegian’

b’. ?? Jon generalmente está en Oslo si habla noruego.
   ‘Jon is generally in Oslo if he speaks Norwegian’

Similar examples seem to be more natural with *cualendo* (3a) than with *si* (3b):

(3) a. Jon generalmente está en el parque cuando fuma.
   ‘Jon is generally in the park when he smokes’

b. ?? Jon generalmente está en el parque si fuma.
   ‘Jon is generally in the park if he smokes’

We believe that it is the nature of the stative predicate (Vendler, 1967) the one that is interfering with the grammaticality of the *si* clause, given that predicates that are activities do not present the same peculiarity, as can be seen in (4):

(4) Jon generalmente canta {cuando / si} baila.
   ‘Jon generally sings {when / if} he dances’

And, in contrast with (1), when both the subordinate and the main clause contain an activity, they are symmetrical with *cualendo*, as well as with *si*:

(5) Jon generalmente baila {cuando / si} canta.
   ‘Jon generally dances {when / if} he sings’

Notice, however, that if we are not talking about habitual events, it is possible to have a stative in the main predicate and a *si*-clause, but the reading we first obtain is an epistemic reading (Iatridou, 1991). In other words, the reading for (6a) would be: “If it is true that he smokes he is in the park right now” or alternatively, “if it is true that he smokes that means that he is in the park”. For example, let us imagine we want to find out the location of an international spy, and we are going to see some recordings. In this peculiar context domain, we can utter a sentence like (6b), which can be paraphrased as “If he speaks Norwegian that means that that is in Oslo”:

(6) a. Jon está en el parque si fuma.
   ‘Jon is in the park if he smokes’

b. Jon está en Oslo si habla noruego.
   ‘Jon is in the Oslo if he speaks Norwegian’

Thus, there is an epistemic reading that one can obtain from this type of sentences, which can be paraphrased as ‘if x, that means that y’. The *if*-clause functions as the cause, close in meaning to “because he smokes, we know that he is in the park”, or “because he speaks Norwegian, we can conclude that he is in Oslo”. There is a subtle difference between a real conditional (7a) and an epistemic conditional (7b). While the latter can be paraphrased as *si tiembla (es que / quiere decir que) tiene frio*, ‘if he shakes, it means that he is cold’; (7a) is not interpreted as
si tiene frío (es que/quiere decir que) tiembla, ‘if he is cold, that means that he shakes’. In other words, (7a) does not get an epistemic reading, but (7b) does.

(7) a. Jon tiembla si tiene frío.
   ‘Jon shakes if he is cold’
   b. Jon tiene frío si tiembla.
   ‘Jon is cold if he shakes’

Other examples of epistemic conditionals are the following:

(8) a. Juan está de vacaciones {si / cuando} llama a larga distancia.
   ‘Juan is on vacations {if / when} he calls long distance’
   a’. Si llama a larga distancia quiere decir que está de vacaciones.
   ‘If he calls long distance it means that he is on vacations’
   b. Juan tiene sueño {si / cuando} bosteza.
   ‘Juan is sleepy {if / when} he yawns’
   b’. Si bosteza quiere decir que tiene sueño.
   ‘If he yawns it means that he is sleepy’

Summarizing, stage-level predicates in both the main and the subordinate clause yield to grammatical sentences. Nevertheless, if the predicates are activities, we have observed that the difference between a sentence with si and a sentence with cuando is inexistent. If the main predicate is a stative, the cuando-clause is perfectly fine while the si-clause is not interpretable as a habitual event, but as an epistemic conditional.

1.2. Individual-level predicate in the main clause and stage-level predicate in the subordinate clause

Although it seems difficult to construct an example of this type, it is possible to modify the individual-level predicate with an if/when clause. In this case, the property expressed in the main clause appears somehow questioned:

(9) a. Jon es inteligente {si / cuando} le conviene.
   ‘Jon is intelligent {if / when} it is convenient for him’
   b. Jon tiene ojos azules {si / cuando} se pone lentillas.
   ‘Jon has blue eyes {if / when} he wears contacts’

It seems that what is an individual-level predicate, such as ‘being intelligent’ and ‘having blue eyes’ is not an inherent property of those individuals; instead, they become changing situations. Thus, I propose that the effect the if/when clause has over the individual-level predicate is to shift it into a stage-level predicate. We will try to explain what is it that triggers a shift from one type of predicate into another, after we review the four combinatorial possibilities.

1.3. Stage-level clause in the main clause and individual-level predicate in the subordinate clause

An if/when clause containing an individual-level predicate in combination with a main clause with a stage-level predicate does not yield to a naturally occurring sentence. The ungrammaticality of such a combination becomes apparent in the following example:


(10) *Jon viene a casa {si / cuando} es inteligente.

‘Jon comes home {if / when} he is intelligent’

It is, however, true that this type of sentence improves if there is an indefinite NP in the subordinate clause, as was already pointed out by Kratzer (1995):

(11) Jon se la recomienda a todo el mundo {si / cuando} le gusta una película.

‘Jon recommends it to everyone {if / when} he likes a movie’

Similarly, when there is an NP which refers to a class or a kind in the subordinate clause, it is also possible to have an individual-level predicate in the subordinate clause:

(12) Los perros ayudan mucho en la casa {si / cuando} son inteligentes.

‘Dogs help a lot at home, {when / if} they are intelligent’

To sum up, individual-level predicates seem to be semantically strange in the if/when-clause when combined with a stage-level predicate in the main clause. However, if the subordinate clause contains an indefinite or a kind-referring NP, the sentence is perfectly interpretable. Otherwise, the resulting sentence is ill-formed, as was exemplified in (10).

1.4. Individual-level predicates both in the main and in the subordinate clause

Similarly to what we saw in section 1.3, sentences with individual-level predicates in both main and subordinate clauses are generally ill-formed. As sentence such the one in (13) is not interpretable, at least not outside science fiction:

(13) *Jon es inteligente {si / cuando} tiene ojos azules.

‘Jon is intelligent {if / when} he has blue eyes’

It is not true, however, that sentences of this type are absolutely uninterpretable. By manipulating the types of predicates, we can force a factual interpretation of the conditional. In the case of factual conditionals, only the conjunction if is grammatical and when is ruled out, as can be seen in (14):

(14) a. {Si / *cuando} Jon tiene ojos azules, los tiene muy oscuros.

‘{If / when} Jon has blue eyes, he has them very dark’
b. {Si / *cuando} es tan inteligente, ¿por qué no es rico?

‘{If / *when} he is so intelligent, how come he is not rich?’

Notice that examples in (14) with si cannot include an implied operator of the type ‘generally’ or ‘usually’. In fact, such an adverb would render the clause ungrammatical:

(15) *Usualmente, si Jon tienen los ojos azules, los tiene muy oscuros.

‘Usually, if Jon has blue eyes, he has them very dark’

I will not try to speculate on what kind of operator is at play here, but the if-clause can be paraphrased as ‘if it is true that...’, as it is normal in factual conditionals, according to Iatridou (1991).
Despite the general tendency towards ungrammatically displayed by an individual-level predicate in both main and subordinate clause, a kind-referring NP facilitates the occurrence of this type of predicate, as was observed in the previous sub-section and exemplified in (12). The same effect is observed when the two predicates involved are individual-level predicates:

(16) Los perros son inteligentes {si / cuando} tienen ojos azules.
    ‘Dogs are intelligent {if / when} they have blue eyes’

2. A summary of the observed combinatorial possibilities

After reviewing the four combinatorial possibilities among main and subordinate clauses, and stage and individual-level predicates, the following descriptive observations can be made:

(i) An individual-level predicate is generally not allowed in an if/when subordinate clause. Exceptions to this generalization are the following:
   - the presence of an indefinite
   - the presence of a kind-referring NP
(ii) An individual-level predicate in the main clause in combination with a stage-level predicate in the if/when clause results in a shift of type of predicate in the main clause: the individual-level becomes a stage-level predicate.
(iii) A stage-level predicate seems to present fewer restrictions in terms of where it can occur. There are, however, some contexts where the when clause is grammatical in its quantificational reading and the if clause is not. These are examples where the stage-level predicate in the main clause refers to a stative. The epistemic reading is still available with if.

Figure 1 summarizes the observations made so far for the combinations of types of predicate in the main and subordinate clause:

**Figure 1. Summary of the observed interactions between types of predicates in if / when clauses**

<table>
<thead>
<tr>
<th>Main Clause</th>
<th>Subordinate Clause</th>
<th>IF / WHEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>stage-level</td>
<td>stage-level</td>
<td>OK; if with a stative in the main clause ??, or epistemic reading</td>
</tr>
<tr>
<td>individual-level</td>
<td>stage-level</td>
<td>OK; but main verb shifts to stage-level</td>
</tr>
<tr>
<td>stage-level</td>
<td>individual-level</td>
<td>*, unless there is an indefinite/kind-referring NP</td>
</tr>
<tr>
<td>individual-level</td>
<td>individual-level</td>
<td>*, unless there is an indefinite/kind-referring NP. If clause gets factual reading</td>
</tr>
</tbody>
</table>
3. The Prohibition against Vacuous Quantification

It has been shown that, in general, Spanish if/when clauses cannot include an individual-level predicate. It was also observed that this banning can be circumvented by the presence of a kind-referring NP or an indefinite. This observation has already received a convincing explanation. Kratzer (1995), following Chomsky (1982), argues that in natural languages there is a Prohibition against Vacuous Quantification, which she formulates as follows:

(17) Prohibition against Vacuous Quantification
For every quantifier Q, there must be a variable x such that Q binds an occurrence of x in both its restrictive clause and its nuclear scope

In this sense, individual-level predicates in if/when clauses are not allowed because they violate (17). On the other hand, stage-level predicates are grammatical in an if/when clause because they comply with this prohibition. Kratzer (1995), building on Davidson (1967), proposes on the basis of semantic and syntactic evidence that stage-level predicates involve an extra argument that individual-level predicates lack: a spatio-temporal argument.3 We already explained that in if/when clauses, the subordinate clause has to bind a variable. It is precisely this spatio-temporal argument that can act as a variable, explaining in this way the asymmetry between the two types of predicates. Since an individual-level predicate has no intrinsic variable to bind, there is going to be a violation of the Prohibition against Vacuous Quantification in examples such as the one in (18b). Notice the contrast between a stage-level predicate and an individual-level predicate in both main and subordinate clauses:

(18) a. When Mary speaks French, she speaks it well.
b. *When Mary knows French, she knows it well.

Thus, we have proposed that since the if/when clause has to restrict the domain of the adverbial quantifier, which in turn has to bind a variable, the spatio-temporal argument both in the subordinate and the main clause acts as such a variable.

Returning to von Fintel’s interpretation of this type of constructions, a sentence like (18.a) would be paraphrased as follows: “most of the minimal situations described by x (those situations where Mary speaks French) can be extended to the situation described by y (Mary speaks French well)”. However, in (18.b) the proposition does not have a spatio-temporal argument, which can be bound: It is not possible to select or identify the minimal situations in our resource domain in which Mary knows French, simply because this operation is vacuous. The quantification over situations does not select some situations and discard other situations. The stage-level predicate, to speak French, however, has a spatio-temporal argument which will be bound by an implied adverbial operator “habitually”; thus most minimal situations selected where Mary speaks French will be part of a minimal situation in which Mary speaks well.

3 An anonymous reviewer points out that although Kratzer follows Davidson (1967) in postulating the presence of an event (spatio-temporal) argument in the argument grid or structure of verbs, there are significant differences: Davidson postulated this only for action sentences, whereas neo-Davidsonians (Cf. Higginbotham 1985 and others) extended Davidson’s claim to every verb/predicate. In this article we follow the middle ground proposed by Kratzer and ascribe this argument to stage-level predicates.
Remember, however, that besides the type of predicate, factors related to quantification, could alter the grammaticality and interpretability of *if*/*when* clauses. Thus, the two varieties of genericity identified by G. N. Carlson and F. J. Pelletier (1995): property-referring predicates and kind-referring NPs crucially interact with the interpretation of these subordinate clauses. By property-referring predicates Carlson and Pelletier mean “propositions which do not express specific episodes or isolated facts, but instead report a kind of general property, that is, report a regularity which summarizes groups of particular episodes or facts” (Carlson & Pelletier 1995:2). The examples they provide are repeated in (19):

(19)  a. John smokes a cigar after dinner.
      b. A potato contains vitamin C, amino acids, protein and thiamine.

Examples that include an indefinite NP are often analyzed (Farkas and Sugioka 1983; Diesing 1988; Wilkinson 1990, among others) as including a phonologically null adverb of quantification, equivalent to ‘habitually’ or ‘generally’, as we have seen with other examples as well.

The second type of genericity identified by Carlson and Pelletier (1995) involves other types of NPs. English uses several ways to express a generic NP, such as an NP with a definite article or a bare plural:

(20)  a. The potato was first cultivated in South America.
      b. Potatoes were introduced into Ireland by the end of the 17th century.
      c. The Irish economy became dependent upon the potato.

[ *apud* Carlson & Pelletier 1995: 2]

Additionally, although not mentioned along with the examples above, an indefinite can express a kind:

(21)  A potato is good source of potassium.

These two types of genericity play a role in the acceptability of the two connectors *if* and *when*. It is relatively easy to see how the Prohibition against Vacuous Quantification predicts the ungrammaticality of examples where there is no indefinite, which is interpreted as a variable, around. Kratzer (1995) gives the following contrast:

(22)  a. *When Mary knows French, she knows it well.
      b. When a Moroccan knows French, she knows it well.
      c. When Mary knows a foreign language, she knows it well.

Notice that the same predicate ‘to know’, an individual-level predicate, is ungrammatical when there is no variable, but it is acceptable in the presence of an indefinite, such as a *Moroccan* or a *foreign language*. This indefinite provides the variable needed for the *when* clause to bind.

Summarizing, it was shown that the ungrammaticality of individual-level predicates in the *if*/*when* clause can receive a semantic explanation. Assuming Kratzer’s (1995) proposal that stage-level predicates have a spatio-temporal argument, which can act as a variable, the generic operator binds this variable both in the restriction and in the nuclear scope or main predicate. On the contrary, in the case
of individual-level predicates, there is no variable to bind, and thus, the Prohibition against Vacuous Quantification is violated. A second way of avoiding a violation of this prohibition is by adding a variable in the shape of an indefinite or in the shape of a generic NP.

4. Completing the proposal

It remains to be seen how we interpret an if/when clause with a kind-referring NP. Let us link together von Fintel’s situation semantics and the possibility of an individual-level predicate both in the if/when clause and the main clause:

(23) Los perros son inteligentes {si / cuando} tienen ojos azules.
   ‘Dogs are intelligent {if / when} they have blue eyes’

The interpretation of (23) with be as follows: “Most minimal situations in the contextual domain g(C) in the world of s such as that a dog has blue eyes in s are part of a minimal situation in which the dog is intelligent”. The implied adverbial quantifier “generally” ranges over situations with “dogs with blue eyes”. In other words, there is a selection of situations that include dogs with blue eyes and discard brown-eyed dogs or blue-eyed cats. Notice that if the subject is an entity, such as Jon, the restriction will be vacuously performed, since it cannot provide a domain the quantifier can range over.

Similarly, it was shown that not all individual-level predicates are ungrammatical when fulfilling the restriction, i.e., when part of the if/when-clause. Besides generic NPs, an indefinite can render the individual-level predicate in the if/when-clause grammatical in Spanish:

(24) Jon se la recomienda a todo el mundo {si / cuando} le gusta una película.
   ‘Jon recommends it to everybody {if / when} he likes a movie’

It becomes clear now, that both generic NPs and indefinites share the property of introducing a variable in the semantic representation. In this sense, the Prohibition against Vacuous Quantification is respected, since this variable in the restriction bound by the generic quantifier, fulfills the restriction.

We have not provided an account for the fact that not all stage-level predicates are equally suitable to combine with if/when-clauses. In section 1.1 we saw that activities are perfectly acceptable in if/when-clauses and the main clause, but that when a stative appears in the main clause

(25) a. ?? Jon generalmente está en el parque si fuma.
   ‘Jon is generally in the park if he smokes’

b. ?? Jon generalmente está en Oslo si habla noruego.
   ‘Jon is generally in Oslo if he speaks Norwegian’

The explanation we can provide to the oddity of this type of examples has not been given yet. Obviously, this case has nothing to do with the banning on vacuous Quantification just posited, given that a state is clearly a stage-level predicate and as such, it involves a spatio-temporal argument suitable to be identified with a variable. Thus, we can propose that the situations described by the predicate si fuma, already have a spatio-temporal variable and these minimal situations cannot be extended to what looks like a more limited situations, namely, the one the stative expresses. In
other words, there is no extension of the state of affairs described by the proposition in the if-clause to any bigger situation and, consequently, the sentence is ill-formed. A situation can be extended from the less specific (a state) to an event but not from the more specified (an event that already contains a spatio-locative argument) to a state.

The last examples that we need to provide an account for are the ones in (9), repeated here:

(26) a. Jon es inteligente {si / cuando} le conviene.
   ‘Jon is intelligent {if / when} it is convenient for him’
   b. Jon tiene ojos azules {si / cuando} se pone lentillas.
   ‘Jon has blue eyes {if / when} he wears contacts’

The restriction in the if-clause already selects some situations which include defined spatio-temporal coordinates which will be extended to the individual-stage level predicate. In this case, the predicate in the main clause will obligatory switch into a stage-level predicate, which, as we have explained, will add a spatio-temporal argument or variable.

5. Concluding remarks

In the preceding lines we have shown that the ungrammaticality of individual-level predicates in the if/when clause has a semantic explanation. Assuming with Kratzer (1995) that stage-level predicates have a spatio-temporal argument that individual-level predicates lack, these spatio-temporal coordinates function as a variable that the generic quantifier can bind. Thanks to this variable, the Prohibition against Vacuous Quantification can be thus circumvented. A second way of avoiding a vacuous quantification is by introducing a variable in the shape of a generic NP or an indefinite in the if/when clause.

We have limited the proposal to Spanish data involving some operator or adverbial quantifier similar to “generally” or “habitually”, but in some cases we have seen that this is not the preferred reading. When a stative predicate appears in the subordinate clause, an epistemic reading is first obtained. Factual readings are also possible when an individual-level predicate is in the subordinate clause. Obviously, different types of modal operators are at play in the semantic representation of these two types of conditionals. The actual nature of these modal operators and their consequence on the interpretation of the whole sentence are without any doubt relevant questions, but out of the scope of this paper.

References


