RESEARCH

On the status of *Concordantia Temporum* in Spanish: An experimental approach

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Subjunctive clauses in Spanish are traditionally claimed to obey *Concordantia Temporum (CT)*, an agreement in tense between the matrix and subjunctive clauses. Treating this phenomenon literally as agreement is problematic, so an analysis in which CT falls out from general principles of tense interpretation, as in Laca (2010a), is very attractive. Nevertheless, this analysis seems to make some *prima facie* incorrect predictions. Here we test these predictions by means of a large-scale, formal sentence acceptability experiment in three countries. We show that despite superficial appearances, speakers do allow "violations" of CT (specifically, a present subjunctive clause embedded under a matrix present clause) in exactly the environment that Laca's analysis predicts: when the context allows for a double access reading (DAR). We also find, however, that a subset of speakers also allows these violations in environments where the DAR interpretation is not possible. This finding is not predicted by Laca's analysis, but it can be accommodated within it by positing that for those speakers, the present subjunctive form is actually unspecified for tense, a claim for which we provide independent evidence. Overall, our experimental results lend support to an analysis like Laca's and suggest that CT can be eliminated as a separate mechanism of the grammar.

Keywords: subjunctive; Spanish; experimental syntax; concordantia temporum; language variation

1 Introduction

There is a long tradition in Spanish of claiming that subjunctive complement clauses are subject to *Concordantia Temporum*, an agreement in tense between the matrix clause and the embedded, subjunctive clause. As seen in (1), present tense in the matrix clause seems to require the present subjunctive, while a past tense in the matrix seems to require the past subjunctive.

(1)   a.   **Quiero**   que Juan me **llame**   / *__llamara__.
                want.1S.PRES that Juan me call.3S.PRES.SUBJ   call.3S.PAST.SUBJ
                 'I want Juan to call me.'

        b.   **Quería**   que Juan me *__llame__   / **llamara**.
                 want.1S.PAST that Juan me call.3S.PRES.SUBJ call.3S.PAST.SUBJ
                 'I wanted Juan to call me.'

As the name implies, *Concordantia Temporum* (CT) gives the appearance of being a morphosyntactic agreement phenomenon, in which the inflection of the matrix and embedded clauses must agree in terms of [±past], and indeed, this is essentially the traditional analysis (e.g., Bello & Cuervo (1970). Cross-clausal analyses in this spirit are

also often given for sequence of tense phenomena in general, in which the interpretation of tense in the embedded clause is dependent on the tense in the matrix clause (e.g., von Stechow 2002; Zeijlstra 2012).

Nonetheless, there are reasons to find such analyses suspect. At a technical level, the agreement would have to occur across clauses, in sharp contrast to the local nature of classical agreement. More specifically, in the examples of CT under discussion here, as in (1), both clauses are clearly finite. In general, grammatical processes are thought to be unable to operate across a finite clause boundary, an idea formalized, for instance, as the Phase Impenetrability Condition (Chomsky 2001). Grammatical processes may have ways to circumvent this restriction in exceptional circumstances (see Grano & Lasnik 2018 for some examples), but these would not appear to be available for an agreement process in cases like (1). At a broader conceptual level, it would seem odd for the language to maintain two distinct subjunctive tense paradigms if they are in complementary distribution in environments like (1). Put differently, if the choice between present and past subjunctive in (1) is entirely determined by CT, then the choice of tense here carries no information. Such redundancy is not unknown in language, but it is not clear why a grammatical system for subjunctive inflection would be built this way.

Abandoning the traditional analysis of CT as agreement is thus very attractive, but what else could account for the pattern of data in (1)? One possibility, advanced by Laca (2010a; 2010b), is that the pattern results from the regular principles of interpretation for tense in matrix and embedded clauses, principles that are also evident when the embedded clause is indicative. Under such an analysis, the starred cases in (1) are out not because they violate an agreement requirement, but because they result in an incoherent interpretation. One of the key pieces of evidence for this proposal is that "violations" of CT are sometimes acceptable, but only when a specific interpretation is possible that allows the sentence to be coherent. If a proposal like this is on the right track, it would mean that we could assimilate the pattern in (1) to more general principles of interpretation of tense in Spanish and we could eliminate CT as an independent mechanism. This would of course be preferable by Occam's razor, but it would also allow us to avoid the technical and conceptual problems mentioned above.

Unfortunately, the empirical support for this proposal is not completely straightforward. On the one hand, the types of "CT violations" that are such an important part of the evidence are not always accepted by all speakers. That is, even when given an intended interpretation that is supposed to allow embedded present tense, some speakers report that only past tense is allowed when the matrix clause is also past, as in (1b). If this is true, it might suggest that at least for those speakers, the CT phenomenon might be the result of an agreement mechanism after all. On the other hand, other speakers readily accept the "CT violations," but they do so even when the specific interpretation that the analysis requires is clearly not possible. If this is true, it is not obvious how such speakers could be assimilated into the analysis without doing violence to the overall spirit of trying to account for the CT phenomenon by using only general principles of tense interpretation.

Clearly, then, our empirical understanding of the CT phenomenon in Spanish needs to be solidified before we can draw firm conclusions about the mechanisms that underly it. Here we approach this problem in a new way by making use of formal sentence acceptability experiments, an approach sometimes referred to as "experimental syntax" (Cowart 1997; Sprouse & Hornstein 2013). This approach offers a number of advantages over more traditional techniques in investigating CT in Spanish. First, it requires the use of many sentence stimuli and many participant speakers so that we can reach conclusions based on more solid empirical ground, while still allowing us to detect very small distinctions in acceptability. Second, it allows us to control carefully for the temporal relations

between the clauses in the stimuli, so that we can explore to what extent this affects the CT restriction. Finally, it also allows us to control carefully for region, so that we can see to what extent and in what way varieties of Spanish differ from each other with regard to CT phenomena.

By means of a large-scale, multi-site acceptability experiment, we show that the CT phenomenon is indeed affected by the temporal relation between the clauses, in just the way that Laca's analysis predicts. In particular, the contrast between present and past subjunctive in cases like (1b) is significantly reduced when the embedded clause refers to an event after the time of utterance. In addition, the experiment shows that there are major differences across regions with regard to CT phenomena. Most importantly, there is at least one variety in which the distinction in (1b) disappears, while that in (1a) remains. These twin results, showing that the acceptability of present subjunctive embedded under a matrix past clause is affected by the temporal interpretation and that there is a variety in which the CT effect disappears with matrix past, but not with matrix present, are inconsistent with a view in which CT is a process of morphosyntactic agreement, as is traditionally held. Instead, they suggest that present vs. past is a meaningful distinction in the Spanish subjunctive (though the exact nature of this distinction varies by region) and that the CT effect follows from it. There is no *concordantia temporum* in the true sense, then; there is simply a choice between two tense forms in the subjunctive, each with its own temporal interpretation.

The paper is organized as follows. Section 2 gives an overview of the CT phenomenon, the analyses that have been proposed, and the types of questions that remain. Section 3 presents the experiment that is the core of the paper, and general conclusions are drawn in section 4.

2 The subjunctive and *concordantia temporum*

The CT phenomenon is known to occur in *intensional* subjunctive environments, where subjunctive mood is selected by the matrix predicate, as in (1), but not in *polarity* subjunctive environments, where subjunctive is selected by a clausal operator such as negation or interrogative, as in (2) (Suñer & Padilla-Rivera 1987; Suñer 1990; Stowell 1996; Quer 1998). As (2) shows, the choice of tense in the subjunctive clause here is independent of the tense in the matrix clause. CT is also absent in embedded indicative clauses, as in (3).

(2)　　a.　No **creo**　　　　que Juan **sea**　　　　　／ **fuera**　　　　　honesto.
　　　　　　not think.1S.PRES that Juan be.3S.PRES.SUBJ / be.3S.PAST.SUBJ honest
　　　　　　'I don't think Juan is/was honest.'

　　　　b.　No **creía**　　　　que Juan **sea**　　　　　／ **fuera**　　　　　honesto.
　　　　　　not think.1S.IMP that Juan be.3S.PRES.SUBJ / be.3S.PAST.SUBJ honest
　　　　　　'I didn't think Juan is/was honest.'

(3)　　a.　**Dice**　　　　que Juan **es**　　　　　／ **era**　　　　　honesto.
　　　　　　say.1S.PRES that Juan be.3S.PRES.IND / be.3S.PAST.IND honest
　　　　　　'S/he says Juan is/ was honest.'

　　　　b.　**Dijo**　　　　que Juan **es**　　　　　／ **era**　　　　　honesto.
　　　　　　say.1S.IMP that Juan be.3S.PRES.IND / be.3S.PAST.IND honest
　　　　　　'S/he said Juan is/ was honest.'

Consequently, our focus in this paper will be on intensional subjunctive environments, and on the main predicate types that select them: volitionals, directives, and causatives.

As discussed at the outset, the CT phenomenon gives the appearance of being a kind of agreement effect in which the matrix and embedded clauses must agree in terms of

[±past]. Such an analysis is appealingly straightforward, and it is the basis of the traditional term *Concordantia Temporum* and of traditional analyses (e.g., Bello & Cuervo 1970). It is also the basis of modern analyses such as Picallo (1990), who claims that the subjunctive clauses lack an independent tense feature, so their tense must be specified by means of an anaphoric link with the matrix clause.

Despite the appeal of analyses like this in which subjunctive is not independently specified for tense, it has been noted that it faces some empirical problems. First, as mentioned above, the CT phenomenon applies to intensional subjunctive environments only, so it seems unlikely that a lack of independent tense is a property of subjunctive forms themselves. In polarity subjunctive environments, the tense of the subjunctive clause is not dependent on the tense of the matrix clause, as we saw in (2), yet the morphological form of the subjunctive is exactly the same.

Second, even in intensional environments, there appear to be times when the tense of the subjunctive is specified independently of the tense of the matrix clause. Laca (2010a; 2010b) claims that this is especially possible when the matrix clause is [+past]. A [–past] embedded clause is possible in this context, but it will give rise to a Double Access Reading (DAR), which will not always be felicitous. DAR (Enç 1987; Giorgi & Pianesi 1987; Abusch 1988; Suñer 1990; Abush 1994) refers to an interpretation where the embedded event is anchored to both the matrix Event Time (ET) and the Utterance Time (UT). This may be seen with embedded indicative clauses in (4). When the embedded clause is a state, as in (4a), the state must be simultaneous with both ET and UT, and when it is an event, as in (4b), the event must be posterior to both ET and UT (Laca 2010a).

(4)   a.   Diego dijo   que está   cansado.
              Diego say.3S.PAST that be.3S.PRES tired
              'Diego said that he is tired.'

        b.   Diego dijo   que te   llama.
              Diego say.3S.PAST that you.DAT call.3S.PRES
              'Diego said that he will call you.'

The same facts obtain, according to Laca, in subjunctive clauses when the matrix clause is [+past], as seen with a state in (5a) and an event in (5b). In (5a), the embedded clause is expected to be interpreted as being simultaneous with both ET and UT, while in (5b), it should be interpreted as being posterior to both ET and UT. To the extent that these DAR interpretations are felicitous and contextually supported, one would expect these sentences to be acceptable, despite the fact that they seem to violate CT.

(5)   a.   Te   pidió   que seas   fuerte.
              you.DAT ask.3S.PAST that be.2S.PRES.SUBJ strong
              'He asked you to be strong.'

        b.   Te   pidió   que vuelvas   temprano.
              you.DAT ask.3S.PAST that return.2S.PRES.SUBJ early
              'He asked you to come back early.'

Under this type of analysis, then, the facts in (1b), repeated here as (6), can be accounted for straightforwardly.

(6)   **Quería**   que Juan me ***llame**   / **llamara**.
        want.1S.PAST that Juan me   call.3S.PRES.SUBJ   call.3S.PAST.SUBJ
        'I wanted Juan to call me.'

The present tense *llame* here should only be possible to the extent that it allows DAR, which would mean that the calling event is to occur at a time after ET (wanting) and after UT (the moment when the sentence is uttered). Such a reading is very difficult to access, though, especially without any contextual support. ET does not have a clear end point (the verb *quería* is in the imperfect form), so it is unclear when the time posterior to ET is, and it is pragmatically odd to specify that the calling is to occur after UT, as DAR requires. As a result, the present subjunctive here is perceived as very degraded. The past tense form *llamara*, on the other hand, does not need to satisfy DAR, does not run into these problems and is thus perceived as well-formed.

With a [–past] matrix clause, as in (1a), repeated here as (7), the account is similarly straightforward. The most natural interpretation here is that the calling event is to occur after both ET and UT (both essentially the same in this case), so the present tense *llame* is well-formed.

(7)   **Quiero**   que Juan me **llame**   / *__llamara__.
        want.1S.PRES that Juan me call.3S.PRES.SUBJ   call.3S.PAST.SUBJ
        'I want Juan to call me.'

As Laca notes, the past tense form *llamara* would require the calling event to occur prior to ET and UT, and as Suñer & Padilla Rivera (1987) discuss, this would be incompatible with the meaning of the matrix predicate, which requires that the event in the complement clause be posterior to that in the matrix.

There thus seems to be clear evidence that subjunctive tense is specified independently and is not simply the result of an agreement process between it and the tense of the matrix clause. CT, under this analysis, is a rough generalization, not a rule. This is a welcome outcome, for the reasons mentioned in the introduction. At a technical level, we now do not need to expand the range of possible agreement mechanisms to allow agreement from one clause into another, violating what appear to be otherwise valid locality restrictions, and at a conceptual level, we do not need to wonder why the language would have two distinct subjunctive tenses if they are in complementary distribution and contribute no information on their own. Under the type of analysis we have been considering, no agreement mechanism is required and there is no mystery regarding the existence of two subjunctive tense forms: each tense has its own meaning and is able to be used when a coherent meaning results for the overall sentence.

Despite this very welcome outcome, there are empirical concerns with this type of analysis, as mentioned in the introduction, in that it seems to be overgenerating in some areas, while undergenerating in others. The possibility of overgeneration arises in regard to sentences like those in (5), in which under a specific reading (DAR), it is claimed to be possible to have present tense in the subjunctive embedded within a matrix past clause. This is the main piece of evidence that tense in the subjunctive is not simply agreement with tense in the main clause, and it makes for a very strong case, but many speakers report that they find it very hard to accept these sentences. If the sentences are in fact not acceptable for some speakers, this would be a worrisome situation, since it would mean that the theory might still have to allow for the possibility of a true CT agreement mechanism, with the concomitant problems discussed above.

The problem of undergeneration has to do with the fact that under this analysis, sentences like (5), in which a present tense subjunctive clause is embedded within a past tense matrix clause, are predicted to be possible only with the DAR interpretation. With an embedded event, for instance, the event must be interpreted as posterior to both ET

and UT. Sentences such as (8), in which the adverb *ayer* 'yesterday' explicitly rules out such a reading, are predicted to be impossible.

(8)   *Quería   que vengas   ayer
       want.1S.PAST that come.2S.PRES.SUBJ yesterday
       'I wanted you to come yesterday'

Sentences like these are in fact severely degraded for many speakers, but for some others, they seem to be acceptable. As has been noted in the literature (Sessarego 2008; Laca 2010b; Guajardo 2010; Sessarego 2010; Crespo del Río 2014) this phenomenon of embedded present without DAR seems to be particularly prevalent in parts of central and southern South America, such as Peru, Bolivia, Paraguay and Argentina. The data in (7) are taken from the Argentinean section in the Corpus del Español (Davies 2016). In both of these examples, the relevant matrix verb (*queríamos* in (7a) and *querían* in (7b)) is in the imperfect (past), but the embedded subjunctive is in the present. As the context makes clear in both cases, a DAR interpretation seems extremely unlikely here. In (9a), DAR would require the returning event to be posterior to UT, but the rest of the sentence states that the return has already occurred. Similarly in (9b), DAR requires the playing event to be after UT, but the first word in the sentence asserts that this event has already happened.

(9)   a.   Todos   queríamos   que **vuelva**   Riquelme y
            everyone want.1PL.PAST that return.3S.PRES.SUBJ Riquelme and
            volvió.
            return.3S.PAST
            'We all wanted Riquelme to come back and he did.'
      b.   Tocaron   lo que   todos   querían   que **toquen**.
            play.3PL.PAST that which everyone want.3PL.PAST that play.3PL.PRES.SUBJ
            'They played what everyone wanted them to play.'

In this sense, then, an analysis in which subjunctive tense may be specified independently of the matrix tense as long as it satisfies DAR faces a problem of undergeneration: (8)–(9) should be ruled out, but in fact some speakers accept (8) and spontaneously produce sentences like (9). To be clear, most speakers (especially those outside of the regions indicated) find these sentences very unacceptable, but the fact that some find them acceptable and produce them spontaneously needs to be explained. Note that whatever the explanation is, it will not be as simple as saying that those who accept (8)–(9) treat present and past subjunctive as being in free distribution, since (10) shows that such a view cannot be correct. Although the speakers in question allow present subjunctive embedded under a matrix past clause, as in (8)–(9), they do not allow past subjunctive embedded under a matrix present clause, as in (10).

(10)   a.   *Quiero   que vinieras.
              want.1S.PRES that come.2S.PAST.SUBJ
              'I want you to come.'
       b.   *Hace   que comieran.
              make.3S.PRES that eat.3PL.PAST.SUBJ
              'He makes you eat.'

As we have seen, then, an analysis such as Laca (2010b), in which tense in subjunctive clauses is specified independently of the tense in the matrix clause, subject to DAR, is very appealing, in that it allows us to avoid the technical and conceptual problems inherent in

treating the CT phenomenon as an agreement process. Despite its appeal, though, this analysis faces some *prima facie* problems of overgeneration and undergeneration. It overgenerates in the sense that the crucial sentences that support the analysis (e.g., (5)) are reported by some speakers to be unacceptable even with a DAR interpretation, and it undergenerates in the sense that some other speakers allow sentences without a DAR interpretation that the analysis strongly rules out.

In this paper, we aim to directly address the question of whether these apparent problems of overgeneration and undergeneration actually exist. If they do not, then we will be able to maintain the type of analysis in Laca (2010b) in which there is no agreement mechanism underlying the CT phenomenon. To the extent that they do exist, however, we will need to ascertain whether it is still possible to maintain this analysis or whether we will have to resort to the agreement mechanism that it would seem preferable to avoid.

We will explore this question by means of a formal sentence acceptability experiment (Cowart 1997). This type of experiment is particularly well suited to the problem at hand for at least two reasons. First, it is well known that acceptability experiments, especially those with well-conceived factorial designs, can often detect subtle effects that individual speakers are not conscious of, such as "acceptable island violations" (e.g., Kush et al. 2017) or "D-linking effects" in acceptable instances of extraction (e.g., Goodall 2015). This could be particularly important with regard to sentences such as (5), where a present subjunctive embedded under a past matrix is claimed to be acceptable with the DAR interpretation. Even though individual speakers presented with the sentence in isolation may tell us that it is unacceptable, a well-designed experiment can tell us whether there actually is an effect here (i.e., whether the sentence is more acceptable than would otherwise be expected), thus giving us crucial evidence for or against the Laca analysis. Second, sentence acceptability experiments work well as a way to explore dialect variation. In the study of *that*-trace violations in English, for instance, the relative portability and ease of administration of acceptability experiments have made them an important tool for probing the extent of regional variation in this area (e.g., Cowart 1997; Chacón 2015). For our purposes here, these properties will allow us to explore more deeply and more carefully the possibility of regional variation with regard to sentences like (8)–(9), where a present subjunctive clause is embedded under a matrix past clause but with an explicitly non-DAR interpretation. For Spanish in particular, the use of formal acceptability experiments for the systematic study of regional variation has tremendous potential but is clearly underutilized, so the present study can serve as a very useful test case, even at a purely methodological level.

3 The experiment
3.1 Participants

A total of 122 native Spanish speakers from three countries (Argentina, Mexico and Spain) participated in the experiment. Those from Mexico and Spain were recruited on Amazon Mechanical Turk (MTurk) and were paid US $3 for their participation; those from Argentina were recruited on social media and were not paid. The experiment itself was conducted using Ibex software (http://adrummond.net/software.html).

5 participants from Spain were not included in the analysis because they were not native speakers of Spanish or were not natives of Spain, and an additional 7 participants (3 from Argentina, 1 from Mexico, and 3 from Spain) were not included because they showed signs of not attending to the task, as discussed in more detail in section 5 below. The distribution of the remaining 110 participants is shown in Table 1.

All participants were native speakers of Spanish, were natives of the country in which they were tested and were living in that country at the time of the experiment as self-reported in a questionnaire prior to the experiment.

Table 1: Number of participants and mean ages by country.

	Argentina	**Mexico**	**Spain**
N	34	38	38
Mean Age	31.76	32.13	31.84

3.2 Materials

All experimental stimuli were biclausal sentences with a past tense matrix clause and a subjunctive embedded clause. Non-past matrix clauses were not included, both because the status of these sentences, as in (1a) and (10), is not in dispute and because excluding matrix tense as a factor allowed the overall experiment to remain of reasonable length. Stimuli were constructed using a $2 \times 2 \times 3$ design with INTERPRETATION, SUBJUNCTIVE TENSE and MAIN PREDICATE as factors. INTERPRETATION refers to whether the embedded clause had a future (e.g., *mañana* 'tomorrow') or past (e.g., *ayer* 'yesterday') adverbial. The inclusion of these adverbials allows us to distinguish between a DAR interpretation (i.e., one in which the embedded clause is posterior to ET and UT) and a non-DAR interpretation. A future adverbial should support a DAR interpretation when the embedded subjunctive clause is present, while a past adverbial should disallow this interpretation. The factor SUBJUNCTIVE TENSE has two levels (present and past), while MAIN PREDICATE has three: volitional *querer* 'to want', causative *lograr* 'to manage' and directive *pedir* 'to ask'. These three verbs are intended as representative samples of the three main classes of predicates that exhibit the CT phenomenon in the embedded clause; a more comprehensive exploration of cross-predicate differences in this domain is not attempted here. Because of semantic differences among the three predicates chosen, one might expect them to vary in their ability to allow a DAR interpretation, and indeed, Suñer & Padilla-Rivera (1987) have claimed that volitional predicates are particularly unable to allow DAR, with the result that the CT effect is nearly obligatory. In addition, since *lograr* presupposes the truth of the proposition in the embedded clause, one might reasonably expect that a DAR interpretation would be disallowed.

Examples of the four conditions for INTERPRETATION and SUBJUNCTIVE TENSE with main predicate *querer* are presented in (11).

(11)   a.   past INTERPRETATION, present SUBJUNCTIVE TENSE
Quería   que Marina **limpie**   el cuarto **ayer**.
want.1S.PAST that Marina clean.3S.PRES.SUBJ the room   yesterday
'I wanted Marina to clean the room yesterday.'

        b.   past INTERPRETATION, past SUBJUNCTIVE TENSE
Quería   que Marina **limpiara**   el cuarto **ayer**.
want.1S.PAST that Marina clean.3S.PAST.SUBJ the room   yesterday
'I wanted Marina to clean the room yesterday.'

        c.   future INTERPRETATION, present SUBJUNCTIVE TENSE
Quería   que Marina **limpie**   el cuarto **mañana**.
want.1S.PAST that Marina clean.3S.PRES.SUBJ the room   tomorrow
'I wanted Marina to clean the room tomorrow.'

        d.   future INTERPRETATION, past SUBJUNCTIVE TENSE
Quería   que Marina **limpiara**   el cuarto **mañana**.
want.1S.PAST that Marina clean.3S.PAST.SUBJ the room   tomorrow
'I wanted Marina to clean the room tomorrow.'

Stimuli with *lograr* and *pedir* were the same, but with the main verb in the preterite tense. Region-specific lexical items or collocations were avoided so that the stimuli would be as compatible as possible with the Spanish spoken in all three locations.

60 lexically matched tokens of each of the 12 conditions were created and distributed into 12 counterbalanced lists (each containing 5 tokens of each condition) using a Latin Square. Each list was pseudo-randomized and combined with 68 filler items, for a total of 128 stimuli. In order to encourage participants to use the full range of rating scale, the fillers were of widely varying grammaticality, as illustrated in Table 2.

3.3 Procedure

Participants were instructed to rate each sentence using a numerical scale from 1 (*mal* 'bad') to 7 (*bien* 'good'), as in Figure 1. A numerical scale was used since this appears to give results that are both valid and fine-grained (Sprouse 2011; Weskott & Fanselow (2011), Fukuda et al. 2012). Sentences were presented on a computer screen one at a time and participants could either click on the number on the screen or tap the number on the computer keyboard. After the participant had rated the sentence, the next sentence appeared automatically.

Table 2: Examples of a filler of each type.

Type	Filler
BAD	Basura los tener pensó la hombres. trash the.masc.pl to.have he.thought the.fm.sg men
MEDIUM	Creen que la día fue caluroso. they.believe that the.sg.fem day(masc) was hot "They think the day was hot" (gender mismatch between determiner and noun)
GRAMMATICAL	Espero que el jefe no me despida. "I hope my boss won't fire me"
	Creen que las olas son peligrosas "They think the waves are dangerous"

Logaron que pintáramos toda la casa la semana pasada.

(Mal) 1 2 3 4 5 6 7 (Bien)

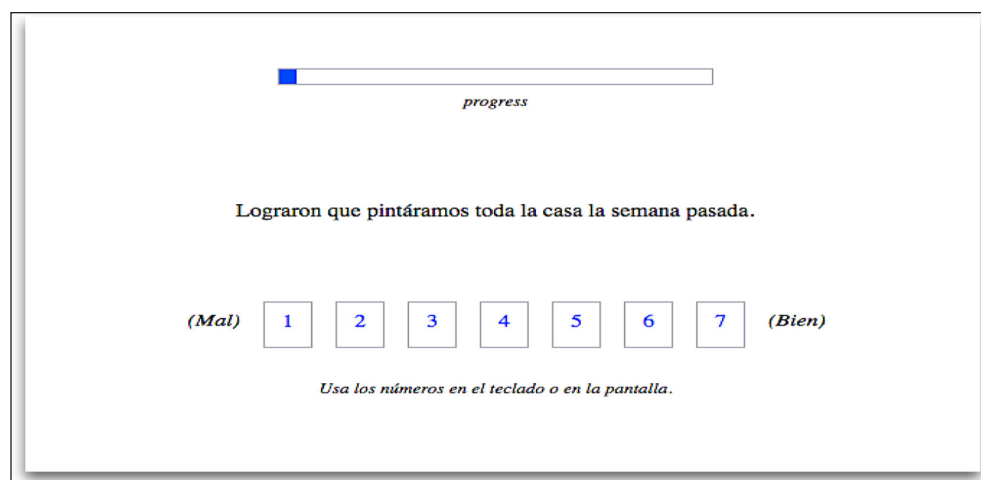Usa los números en el teclado o en la pantalla.

Figure 1: Sample question on Ibex.

3.4 Predictions

As we saw in section 2, an analysis such as Laca (2010b), in which the CT effect follows from independently needed principles of tense interpretation and does not require a special CT agreement mechanism, predicts that it will be possible to have a matrix past tense clause with an embedded present tense subjunctive clause in exactly those environments where a DAR interpretation is allowed. Since there was some reason for skepticism about this, our goal here is to test this prediction.

    If the prediction is correct, we expect to find an interaction between INTERPRETATION and SUBJUNCTIVE TENSE, with future interpretation resulting in a significant amelioration for present tense. That is, if it is true that a DAR interpretation makes it possible for a present tense clause to be embedded under a past tense clause, in contradiction to CT, then we expect that a future adverbial (which makes the DAR interpretation more accessible, as in (9c)) should have a positive effect on the acceptability of present tense in this environment. This scenario is shown in Figure 2 (A). If, on the other hand, present tense embedded under past tense is allowed more broadly, not just when a DAR interpretation is available (i.e., as in (9c) and (9d)), as is thought to occur in some regions, then we should find again no interaction between INTERPRETATION and SUBJUNCTIVE TENSE, but there should also be no main effect for SUBJUNCTIVE TENSE. This scenario is shown in Figure 2 (B). If, however, interpretation has no effect and the CT generalization is always obeyed, as some speakers report, then we should find no interaction between INTERPRETATION and SUBJUNCTIVE TENSE. There should be a main effect for SUBJUNCTIVE TENSE, though, with present tense being significantly less acceptable, in accord with CT. This scenario is shown in Figure 2 (C).

3.5 Results

Results were screened prior to analysis to capture any participants who appeared not to be attending to the task. Those who had more than 20 responses for the filler items (i.e., more than 30% of the total) that were beyond 2 standard deviations from the group mean for that item were removed. This affected 3 participants from Argentina, 1 from Mexico, and 3 from Spain, leaving the 34 participants from Argentina, 38 from Mexico, and 38 from Spain that were submitted to analysis.

3.5.1 Fillers

Results on the filler items were very similar across the three participant groups, as seen in Table 3.
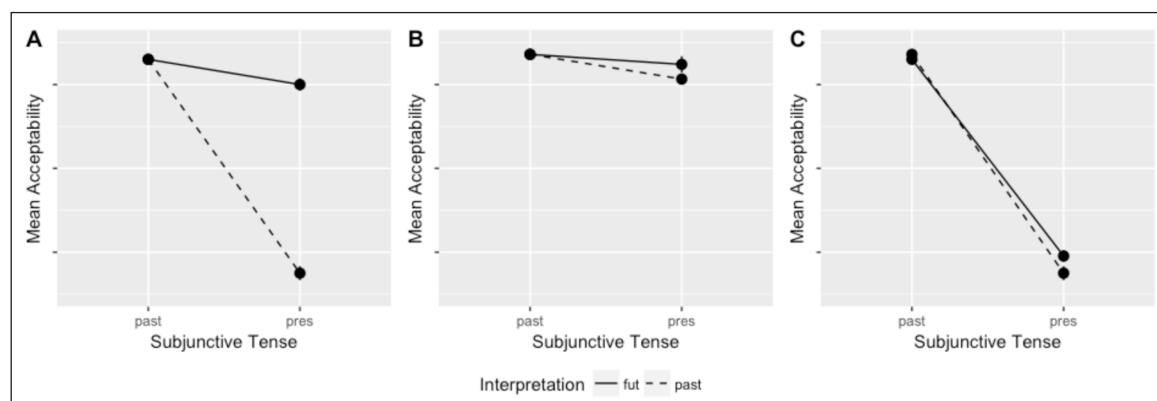

Figure 2: Predicted results **(A)** if present subjunctive is allowed only with DAR interpretation, **(B)** if present subjunctive is allowed independently of CT, and **(C)** if CT is always obeyed.

Table 3: Mean and SD of filler raw scores.

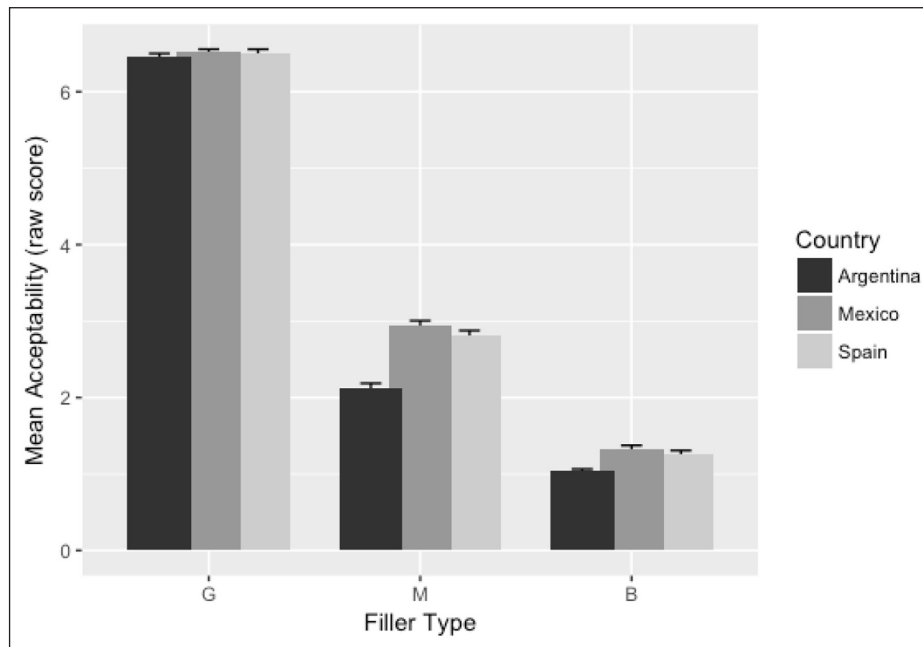| Country	Mean	SD
Argentina	3.33	2.74
Mexico	3.73	2.61
Spain	3.81	2.55

Figure 3: Raw Mean Scores per Filler Type (G: grammatical; M: medium; B: bad).
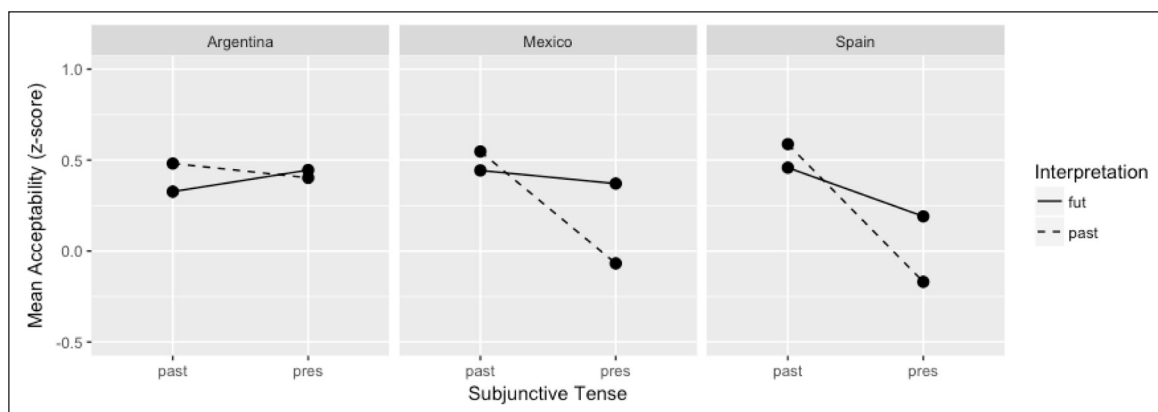

Figure 4: Means for overall results (error bars = SE).

In Figure 3, these results are broken down by the type of filler. The three groups all make very similar distinctions among the three types of fillers.

3.5.2 Experimental items

Results for the experimental items were transformed to z-scores prior to analysis. Overall results (with results from the three predicates collapsed) are presented in Figure 4 (results prior to z-score transformation are presented in the appendix).

Linear mixed effects models were run for each group with items and participants as random factors and INTERPRETATION, SUBJUNCTIVE TENSE and PREDICATE as

fixed factors. Table 4 reports the *p*-values for each fixed factor and interaction per country.

When the three groups are combined into a single experiment with COUNTRY as a separate factor, there is a significant main effect for COUNTRY ($p < 0.001$).

Given our discussion in section 4 above, the main results of note here are the main effect for SUBJUNCTIVE TENSE for Mexico and Spain, and the significant interaction between INTERPRETATION and SUBJUNCTIVE TENSE in all three groups. Since we are interested not just in the presence of an interaction, but in the amount of amelioration for present tense relative to past tense with future interpretation, compared to the baseline with past interpretation, we compute a Differences-in-Differences (DD) score (Maxwell & Delaney 2003) as in (A).

(A) $(\text{past tense} - \text{present tense})_{\text{Interpretation: Past}} - (\text{past tense} - \text{present tense})_{\text{Interpretation: Future}}$

The resulting DD score for each group is presented in Table 5.

All three groups have a positive DD score, indicating that there is amelioration of the present tense with the future interpretation relative to the baseline, but the effect is more than twice as large in Mexico and Spain as it is in Argentina.

As Table 4 above shows, there is also a main effect for predicate in all three groups. The results by individual predicate are presented in Figures 5–7.

Table 4: *P*-values for each factor in the linear mixed-effects model. Significant effects are shaded.

	Argentina	Mexico	Spain
Subjunctive Tense	0.980	<0.001	<0.001
Interpretation	0.364	<0.001	<0.001
Predicate	0.05	<0.001	<0.001
Subjunctive Tense*Interpretation	<0.05	<0.001	<0.001
Predicate*Interpretation	<0.001	0.114	0.2837
Predicate*Subjunctive Tense	0.7532	<0.001	<0.001

Table 5: DD score of interaction between INTERPRETATION and SUBJUNCTIVE TENSE.

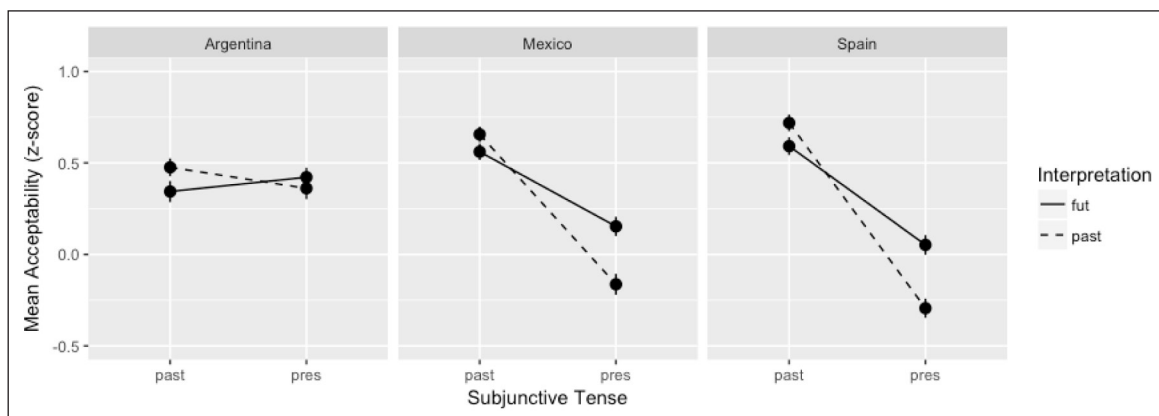| Argentina	Mexico	Spain
0.22	0.54	0.49

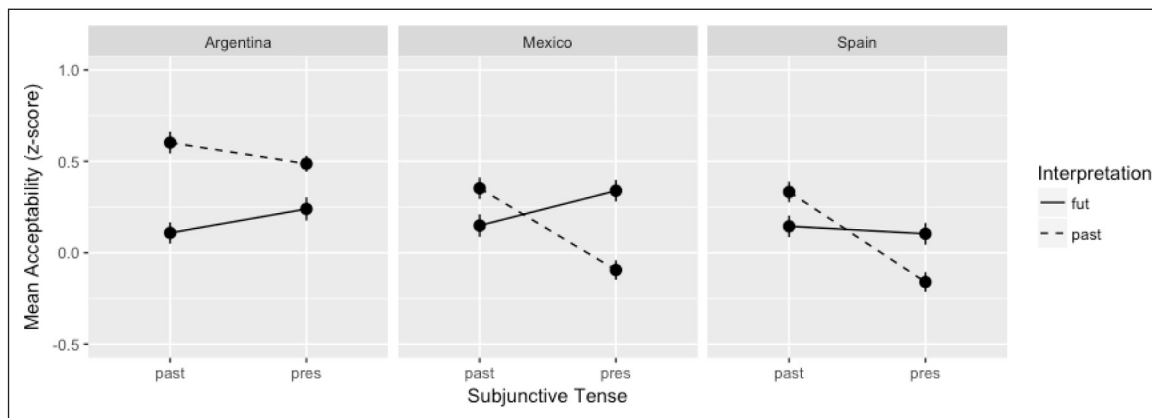**Figure 5:** Predicate *querer* across conditions per country.

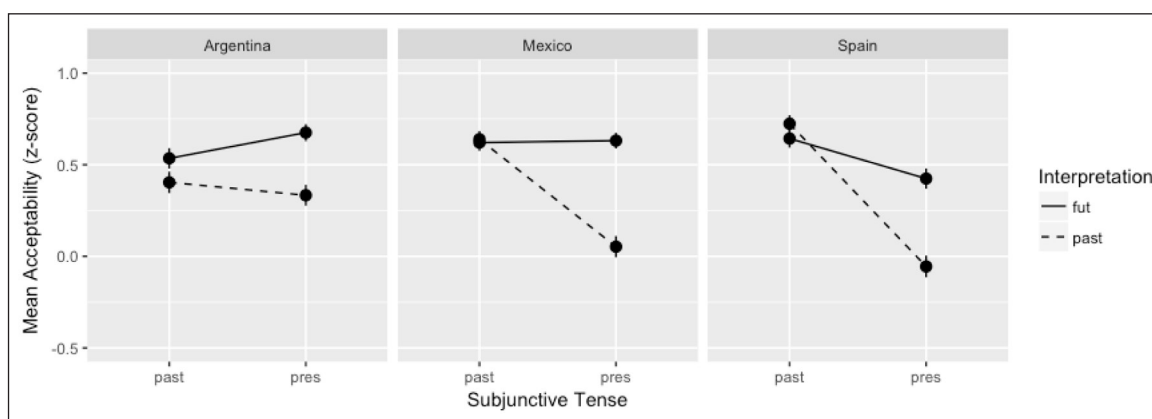**Figure 6:** Predicate *lograr* across conditions per country.

Figure 7: Predicate *pedir* across conditions per country.

Table 6: DD Scores per Country and Main Predicate.

	Argentina	Mexico	Spain
querer	0.21	0.40	0.47
lograr	0.26	0.64	0.45
pedir	0.16	0.64	0.57

The primary results noted earlier for Mexico and Spain overall are preserved in the results for each individual predicate. That is, there is a main effect for SUBJUNCTIVE TENSE (Mexico: $p < 0.001$ for *querer* and *pedir*, $p = 0.0041$ for *lograr*; Spain: $p < 0.001$) and a significant interaction between INTERPRETATION and SUBJUNCTIVE TENSE in each predicate (Mexico: $p < 0.001$; Spain: $p < 0.001$). For Argentina, where there was a significant interaction between INTERPRETATION and SUBJUNCTIVE TENSE in the overall results (but no main effect for SUBJUNCTIVE TENSE), this interaction was significant with *lograr* ($p = 0.04$), but not with the other predicates (*querer*: $p = 0.06$; *pedir*: $p = 0.09$). There was no main effect for SUBJUNCTIVE TENSE for any predicate in Argentina.

The DD scores showing the effect size for the interaction between INTERPRETATION and SUBJUNCTIVE TENSE for each predicate is shown in Table 6.

As in the overall results, the DD scores for Argentina are at most approximately half the size of those for Mexico and Spain. All scores are positive, however, indicating some amelioration for present tense with future interpretation relative to the baseline with all predicates in all countries.

3.6 Discussion

The main goal of this experiment was to see whether the prediction of an account such as Laca (2010b) is correct. That account claims that there is no independent mechanism of CT and that the CT phenomenon falls out from general principles of tense interaction. It predicts that "violations" of CT (i.e., a present tense clause embedded under a past tense clause, as in (9c)) will occur only to the extent that a DAR interpretation is possible, but as we saw earlier, there are reasons to wonder whether this prediction is correct.

If the prediction is correct, we expect to find a significant interaction between INTERPRETATION and SUBJUNCTIVE TENSE, as well as a positive DD score. This is exactly what we found for the Mexico and Spain groups, both in the overall results and in the results for each of the three predicates. More concretely, the results show that adding a future adverbial, which makes a DAR interpretation more accessible, significantly increases the acceptability of sentences that would appear to violate the CT generalization, as in (11c). The choice of the matrix predicate appears to influence the size of the effect, in line with what earlier researchers have suggested (e.g., Suñer & Padilla-Rivera 1987), but the effect is found with all three predicates nonetheless.

The Argentina group also shows a significant interaction between INTERPRETATION and SUBJUNCTIVE TENSE in the overall results, and a positive DD score, but there are some notable differences. First, the effect size of the interaction (as measured by the DD score) is less than half of what it is for Mexico and Spain. Second, when the results are broken down by individual matrix predicate, the interaction reaches significance in only one of these predicates. Third, and perhaps most importantly, the Argentina group shows no main effect for SUBJUNCTIVE TENSE. This is in contrast to Mexico and Spain, where past SUBJUNCTIVE TENSE is always significantly more acceptable than present, both in the overall results and in each of the three predicates. We will return to the Argentina results below.

One of the issues discussed in section 2 was the possibility that a DAR-based account such as Laca (2010b) overgenerates. This account predicts that sentences like (11c), repeated here as (13), will be acceptable, but as we saw, some speakers report that it is not.

(13)   future INTERPRETATION, present SUBJUNCTIVE TENSE
        Quería que Marina **limpie** el cuarto **mañana**.
        'I wanted Marina to clean the room tomorrow.'

The results from our experiment do not support this concern about overgeneration, however. For the Mexico and Spain groups in particular, sentences such as (11) show very significant amelioration relative to the baseline, suggesting that an environment that supports a DAR interpretation results in a large increase in acceptability, just as the analysis predicts. Crucially, we find no evidence for a pattern of results as in Figure 2 (C), where there is a main effect for SUBJUNCTIVE TENSE, but no interaction between SUBJUNCTIVE TENSE and INTERPRETATION. This is the pattern that we would expect if CT results from a simple agreement process, where no DAR effect is predicted, but we do not find this pattern in any of the three groups, whether we examine the overall results or the results by matrix predicate.

The question remains, though, of why some speakers say that sentences like (11) are unacceptable. This fact is actually not in conflict with the results that we have obtained here, despite initial appearances. One reason for this is that outside of an experiment, speakers typically consider a sentence like (11) in isolation, without comparison to the other conditions within the factorial design, and on the basis of this, they decide whether the sentence is good or bad. For speakers from Mexico and Spain, (11) is in fact very degraded, so it is reasonable that they would categorize it as unacceptable. Our experiment, however, as with all acceptability experiments, does not ultimately tell us

whether a sentence is "acceptable" or "unacceptable." Instead, it gives us information about relative acceptability, and the crucial piece of information that it gives us in this case is that the availability of a DAR interpretation results in a very large increase in acceptability (for the Mexico and Spain groups). This is what is predicted by an analysis like Laca (2010b), but not by an analysis in which there is a CT agreement mechanism. The fact that our experiment detects this effect is not incompatible with the fact that (11) in isolation is perceived as less than fully acceptable by many speakers. The increase in acceptability that the DAR interpretation allows may very well be tempered by the difficulty in accessing this interpretation, but the increase is detectable nonetheless.

Our initial concern about overgeneration, then, does not appear to be warranted. The Laca (2010b) analysis predicts that the possibility of DAR will result in significant amelioration for sentences like (11), and that prediction seems to be correct, at least for the Mexico and Spain groups. We also had a concern about undergeneration, however, in that some speakers seem to accept the pattern in (11), in which a present tense subjunctive clause is embedded under a matrix past tense verb, even when DAR is clearly disallowed. This is the type of sentence as in (11a), repeated here as (14).

(14)   past INTERPRETATION, present SUBJUNCTIVE TENSE
        Quería que Marina **limpie** el cuarto **ayer**.
        'I wanted Marina to clean the room yesterday.'

In (14), unlike (13), the presence of the adverbial *ayer* 'yesterday', makes getting a DAR interpretation very difficult. We saw evidence, though, that some speakers from central and southern South America accept and produce sentences such as (14) (as in, for example, Sessarego 2008; 2010; Crespo del Río 2014).

The results from our experiment support the idea that some speakers accept sentences like (14) and that therefore, the analysis under consideration faces a problem of undergeneration. As we saw in section 3.4, if present subjunctive is always allowed when embedded under a matrix past tense clause, then we should find no interaction between INTERPRETATION and SUBJUNCTIVE TENSE and no main effect for SUBJUNCTIVE TENSE. The results from the Argentina group come very close to this. There is a significant interaction between INTERPRETATION and SUBJUNCTIVE TENSE in that group, but the effect size (as measured by the DD score) is small, and the interaction only reaches significance with one of the three matrix predicates. More strikingly, there is no main effect for SUBJUNCTIVE TENSE. These results suggest that although DAR may have a small influence on acceptability, yielding a slight increase when the present subjunctive is accompanied by a future adverbial, subjunctive tense in and of itself does not: both present and past subjunctive are of relatively high acceptability when embedded within a past tense matrix clause.

Unlike what we saw for overgeneration, then, our concern about undergeneration appears to have been justified, in that there truly are speakers who allow present subjunctive in more environments than just those where DAR is possible. This pattern of results is seen only in the Argentina group, however. For Mexico and Spain, in contrast, there was a significant interaction between INTERPRETATION and SUBJUNCTIVE TENSE, a large DD score, and a clear main effect for SUBJUNCTIVE TENSE, with the result that sentences like (14) in which the DAR interpretation is not possible are substantially degraded, just as the Laca (2010b) analysis predicts.

What, then, could account for this difference in our results between Argentina on the one hand and Mexico and Spain on the other? One plausible possibility is that the morphological form in question, the present tense of the subjunctive, differs in its tense specification across varieties of Spanish. In Mexico and Spain, it is [–past], as standardly assumed, so it behaves like a present tense form, yielding a clear DAR effect, seen here

as sensitivity to the temporal properties of the adverbial. In Argentina, however, it is not specified for tense, so there is at best a weak DAR effect. Evidence for such an analysis of present subjunctive in Argentinean Spanish comes from the sequence of tense (SOT) phenomenon in Spanish, in which an embedded past tense clause is interpreted as being simultaneous with, rather than anterior to, the matrix past tense clause, as illustrated in (15). In (15), the embedded clause is [+past], but it is interpreted as being simultaneous with the assuring event in the matrix clause.

(15)   Juan me **aseguró**   que mañana   **iba**   a cenar   con
        Juan me assure.3S.PAST that tomorrow go.3PL.PAST to have.dinner with
        su   madre.
        his mother
        'Juan assured me that tomorrow he was going to have dinner with his mother.'

As Ogihara (1995) points out, SOT is blocked when there is an intervening [–past] clause, as in (16).[1]

(16)   *Juan me **aseguró**   que mañana   le   **cuenta**   a su madre
        Juan me assure.3S.PAST that tomorrow her tell.3S.PRES to his mother
        que **iban**   a cenar.
        that go.3PL.PAST to have.dinner
        'Juan assured me that tomorrow he tells his mother that they were going to have dinner.'

Because of the intervening present tense clause in (16), *iban* 'they were going' is interpreted as being anterior to the event time of that clause (which results in an overall interpretation that is pragmatically odd). When the intervening clause is not specified for tense, though, as in (17), the SOT effect is not blocked. Here the intermediate clause is infinitival, so the SOT effect comes into play again, and *iban* is interpreted as being simultaneous with the event time of the matrix clause.

(17)   Juan me **aseguró**   **contarle**   mañana   a su madre **que**
        Juan me assure.3S.PAST tell-her.INF tomorrow to his mother that
        iban   a cenar   juntos.
        go.3PL.PAST to have.dinner together
        'Juan assured me to tell his mother that they were going to have dinner together.'

Crucially, Argentinean speakers report that that they get an analogous effect when the intermediate clause is present subjunctive, rather than infinitive. This may be seen in the lack of a contrast for these speakers between sentences like (18a), where the intermediate clause is infinitival, and (18b), where it is present subjunctive.

(18)   a.   Juan **quería**   ayer   **contarle**   a su madre que **iban**
              Juan want.3S.PAST yesterday tell-her.INF to his mother that go.3PL.PAST
              a   cenar   juntos.
              to have.dinner together
              'Juan wanted yesterday to tell his mother that they would have dinner together.'

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[1] This example is adapted into Spanish from Ogihara's (1995: 676) example (25), which he attributes to Abusch (1988). Judgments are by the first author. The original sentence is in (i) below.

(i)   John decided a week ago that in ten days at breakfast he would say to his mother that they were having their last meal together

b. Juan **quería**   ayer   que le **cuente**   a su madre
Juan want.3S.PAST yesterday that her tell.3S.PRES.subj to his mother
que **iban**   a cenar   juntos.
that go.3PL.PAST to have.dinner together
'Juan wanted me yesterday to tell his mother that they would have dinner together.'

There is, however, a strong contrast for these speakers between (18b) and (16), which has an intervening present indicative instead of present subjunctive. It thus appears that in this variety, the present subjunctive bears important similarities to the infinitive and important differences from the indicative, supporting the idea that the present subjunctive, despite its traditional name, is not specified for tense for these speakers.

Notice that the lack of a tense specification for the present subjunctive does not mean that the past subjunctive is also tenseless. Sentences like (19) (repeated from (9)) are disallowed in all varieties of Spanish, as far as we know, and a natural explanation for this is that the [+past] interpretation for the embedded clause is incompatible with the matrix clause.

(19) ***Quiero**   que Juan me **llamara**.
      want.1S.PRES that Juan me call.3S.PAST.SUBJ
      'I want Juan to call me.'

For the speakers in our Argentina group, then, it appears that the past subjunctive is specified for tense, while the present subjunctive is not.

This distinction between present and past subjunctive could be the basis for the small DAR effect that we observed among the Argentina participants in our experiment. As we have seen, there was an interaction between INTERPRETATION and SUBJUNCTIVE TENSE in this group, but the DD score was less than half of what it was for the Mexico and Spain groups. For these latter two groups, the relatively large effect appears to arise because both present subjunctive and past subjunctive are specified for tense, with the result that they will be compatible with some environments but not with others. For the Argentina group, on the other hand, we have suggested that only the past subjunctive is specified for tense, resulting in the types of restrictions on the distribution of past subjunctive seen in (19), while the present subjunctive has a much freer distribution, as in (13) and (14). Nonetheless, in DAR environments, where an overtly future adverbial is present, it is reasonable that there might be some preference for the present subjunctive, with its lack of specification for tense, over the past subjunctive, with its [+past] specification. A preference like this could be what is driving the small DAR effect observed in the Argentina group.

4 Conclusion

Our point of departure in this paper was the traditional notion of *Concordantia Temporum*, a property of subjunctive clauses in which their tense must agree with that of the matrix clause. We saw reasons to be suspicious of such an analysis and reasons to prefer an analysis in which subjunctive clauses are specified independently for tense and their interpretation follows from general principles governing tense in embedded clauses. Such an analysis, as in Laca (2010b), is attractive for many reasons, but it also faces empirical challenges, as we saw.

One of those challenges involved overgeneration. The analysis predicts that given a particular reading, a present tense subjunctive clause could be embedded under a past tense matrix clause, but some speakers report that under any reading, such sentences are

ruled out. We tested this prediction directly in the experiment presented here and found evidence very strongly suggesting that it is correct. That is, the analysis predicts that the configuration in question is possible with a DAR interpretation, and in our experiment, where we induced a DAR interpretation by manipulating the type of adverbial in the clause, we found that a DAR interpretation does indeed have a significant ameliorating effect on acceptability.

The other challenge involved undergeneration, the fact that some speakers seem to allow present subjunctive embedded under a past tense matrix clause even in the clear absence of DAR, even though the analysis predicts that this should be impossible. Here our experiment showed that the challenge is real. That is, participants in Argentina showed only a small DAR effect and relatively little difference in acceptability between present and past subjunctive when embedded under a past matrix clause. As we saw, however, this intriguing difference between Argentina and the other two groups appears to be due to a difference in the status of the present subjunctive form. For the Argentina group, the present subjunctive seems to be unspecified for tense, while it is [–past] for the other two groups. This small difference allows us to account for the different results obtained between Argentina and Mexico/Spain, while still preserving the core idea that the CT phenomenon, including its "violations," follows from general principles of tense interpretation, not from a separate mechanism of tense agreement. Importantly, this is only a difference in the status of the present subjunctive; the past subjunctive appears to be the same in all three groups of participants.

Overall, then, our experimental results argue against viewing the CT phenomenon as the result of an agreement mechanism between the matrix and embedded clauses. We found cases in all three of our participant groups where non-agreeing clauses (i.e., violations of the CT generalization) were of relatively high acceptability and where this acceptability was sensitive to the type of temporal adverbial in the clause. These results are not predicted by a CT agreement mechanism, and they point instead to an analysis in which the tense of subjunctive clause is specified independently of the matrix clause, as in Laca (2010b). The empirical challenges to such an analysis, as reviewed above, can be addressed successfully. Our experiment showed that speakers from Mexico and Spain showed clear evidence of sensitivity to DAR, just as the Laca analysis predicts. The experiment also showed that the participants in Argentina allowed violations of the CT generalization in ways that go beyond what the Laca analysis predicts, but these cases appear to be due to a different tense specification for present subjunctive in this variety (i.e., no tense in Argentina vs. [–past] in Mexico and Spain), rather than a different analysis of how matrix and embedded tenses interact.

As discussed at the outset of the paper, evidence against a CT agreement mechanism and in favor of independent specification of tense for subjunctive clauses is a welcome development, because it allows us to assimilate the CT phenomenon to general principles governing tense, rather than attributing it to *ad hoc* rules with potentially problematic theoretical implications. In that sense, the results of our experiment are encouraging.

Apart from the issues involved in the analysis of the CT phenomenon, our experiment is also of methodological interest, in that it pushes the boundaries of what has been previously done in the experimental syntax literature. First, it adds to the still small number of cases where formal acceptability experiments have been able to detect subtle effects that are not necessarily apparent to individual speakers (e.g., Goodall 2015; Kush, Lohndal & Sprouse 2017). In the case at hand, many speakers report that CT violations of the type explored here are never allowed, but our experiment showed that speakers do show large increases in acceptability when a particular interpretation (i.e., DAR) is made more plausible. In addition, participants from Argentina showed the same effect, though smaller

in size, even though speakers of this variety typically report that these CT violations are possible regardless of the interpretation.

Second, experiments where the interpretation of sentences is at issue often use tasks such as picture matching or truth value judgments, but our experiment provides an example of how this can be done using acceptability. The experimental design manipulates the interpretation by manipulating the temporal properties of the adverbial that is contained in all experimental stimuli, with the idea that a future adverbial, such as *mañana* 'tomorrow', will encourage a DAR interpretation, while a past adverbial, such as *ayer* 'yesterday', will discourage it. These adverbials do not force the relevant reading, but they do make it more/less likely, and the fact that it resulted in statistically significant contrasts shows that this strategy was successful. Of course, the interpretation of sentences cannot always be probed simply by manipulating a single word or phrase in the stimuli, but our experiment here shows that it is at least sometimes possible.

Finally, our experiment provides a model, we hope, of how to use acceptability experiments to explore regional differences within a single language. In the most well-known prior demonstration of this, Cowart (1997) used acceptability experiments to show that there did not appear to be regional differences in the *that*-trace phenomenon, despite what is often claimed (see also Chacón 2015). In our experiment, in contrast, we were able to document what appears to be a robust difference between the Argentina participants and those in Mexico and Spain.[2] Given the fact that acceptability experiments are often able to detect effects that are not always visible by other means, as discussed above, we believe that experimental syntax has enormous potential for the exploration of language variation. In languages like Spanish, which are spoken over an extremely wide geographical range and in which lexical variation is substantial, such experiments must be constructed and administered with care, but the payoff could be very large, and we see the current experiment as one step in this direction.

Abbreviations

1 = first person; 2 = second person; 3 = third person; DAT = dative; IMP = imperfect; IND = indicative; PL = plural; PRES = present; S = singular; SUBJ = subjunctive

Additional File

The additional file for this article can be found as follows:

- **Appendix.** The appendix contains the results with the raw scores. DOI: https://doi.org/10.5334/gjgl.749.s1

Competing Interests

The authors have no competing interests to declare.

References

Abusch, Dorit. 1988. Sequence of tense, intensionality and scope. In Hagit Borer (ed.), *The Proceedings of the 7th West Coast Conference on Formal Linguistics*, 1–14. Stanford: The Stanford Linguistics Association.

Abusch, Dorit. 1994. Sequence of Tense Revisited: Two Semantics Account of Tense in Intensional Contexts. In Hans Kamp (ed.), *Ellipsis, Tense and Questions*, 87–139. Amsterdam: University of Amsterdam

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[2] Our finding in this case thus corroborates what other researchers have found, using other methodologies, suggesting that the use of present subjunctive under a past matrix clauses is limited to central and southern South America (Sessarego 2008; 2010; Crespo del Río 2014).

Bello, Andrés & Rufino J. Cuervo. 1970. *Gramática de la lengua castellana*. Buenos Aires: Sopena Argentina.

Chacón, Dustin A. 2015. *Comparative psychosyntax*. College Park, MD: University of Maryland dissertation.

Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*, 1–52. Cambridge, MA: MIT Press.

Cowart, Wayne. 1997. *Experimental syntax*. Newbury Park, CA: Sage Publications.

Crespo del Río, Claudia. 2014. *Tense and mood variation in Spanish nominal subordinates: The case of Peruvian varieties*. Champaign, IL: University of Illinois at Urbana-Champaign dissertation.

Davies, Mark. 2016. *Corpus del Español/Web Dialects 2 billion words*. Available online at http://www.corpusdelespanol.org.

Enç, Mürvet. 1987. Anchoring conditions for tense. *Linguistic inquiry*, 633–657.

Fukuda, Shin, Grant Goodall, Dan Michel & Henry Beecher. 2012. Is magnitude estimation worth the trouble?. In Jaehoon Choi, E. Alan Hogue, Jeffrey Punske, Deniz Tat, Jessamyn Schertz & Alex Trueman (eds.), *Proceedings of the 29th West Coast Conference on Formal Linguistics*, 328–336. Somerville, MA: Cascadilla Proceedings Project.

Giorgi, Alessandra & Fabio Pianesi. 1997. *Tense and aspect. From semantics to morphosyntax*. New-York/Oxford: Oxford University Press.

Goodall, Grant. 2015. The D-linking effect on extraction from islands and non-islands. *Frontiers in psychology* 5. 1–11. DOI: https://doi.org/10.3389/fpsyg.2014.01493

Grano, Thomas & Howard Lasnik. 2018. How to neutralize a finite clause boundary: Phase theory and the grammar of bound pronouns. *Linguistic Inquiry* 49(3). 465–499. DOI: https://doi.org/10.1162/ling_a_00279

Guajardo, Gustavo. 2010. *The Syntax of Temporal Interpretation in Embedded Clauses*. Saarbrücken: VDM Verlag Dr. Müller

Kush, Dave, Terje Lohndal & Jon Sprouse. 2017. Investigating variation in island effects. *Natural Language & Linguistic Theory*, 1–37. DOI: https://doi.org/10.1007/s11049-017-9390-z

Laca, Brenda. 2010a. The puzzle of subjunctive tenses. In Reineke Bok-Bennema, Brigitte Kampers-Manhe & Bart Hollebrandse (eds.), *Romance Languages and Linguistic Theory: Selected Proceedings of Going Romance* 2008, 171–194. Groningen: John Benjamins Publishing. DOI: https://doi.org/10.1075/rllt.2.10lac

Laca, Brenda. 2010b. Mood in Spanish. In Björn Rothstein & Rolf Thieroff (eds.), *Mood in the languages of Europe*, 198–221. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/slcs.120.11lac

Maxwell, Scott E. & Harold D. Delaney. 2003. *Designing experiments and analyzing data: A model comparison perspective*, Vol. 1. New York: Psychology Press. DOI: https://doi.org/10.4324/9781410609243

Ogihara, Toshiyuki. 1995. The semantics of tense in embedded clauses. *Linguistic inquiry*, 663–679.

Picallo, Carme. 1990. El nudo FLEX y el parámetro de sujeto nulo. *Indicativo y subjuntivo*, 202–33.

Quer, Josep. 1998. *Mood at the interface*. Utrecht: University of Utrecht dissertation.

Sessarego, Sandro. 2008. Spanish Concordantia Temporum: An old issue, new solutions. In Maurice Westmoreland & Juan Antonio Thomas (ed.), *Selected Proceedings of the 4th Workshop on Spanish Sociolinguistics*, 91–99. Somerville, MA: Cascadilla Proceedings Project.

Sessarego, Sandro. 2010. Temporal concord and Latin American Spanish dialects: a genetic blueprint. *Revista Iberoamericana de Lingüística* 5. 137–169.

Sprouse, Jon. 2011. A test of the cognitive assumptions of magnitude estimation: commutativity does not hold for acceptability judgments. *Language* 87. 274–288. DOI: https://doi.org/10.1353/lan.2011.0028

Sprouse, Jon & Norbert Hornstein. (eds.) 2013. *Experimental syntax and island effects*. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9781139035309

Stowell, Tim. 1996. The phrase structure of tense. In Johan Rooryck & Laurie Zaring (eds.), *Phrase structure and the lexicon*, 277–291. Dordrecht: Kluwer. DOI: https://doi.org/10.1007/978-94-015-8617-7_10

Suñer, Margarita. 1990. El tiempo en las subordinadas. In Ignacio Bosque (ed.), *Tiempo y aspecto en español*, 77–105. Madrid: Cátedra.

Suñer, Margarita & José Padilla-Rivera. 1987. Sequence of tenses and the subjunctive. *Hispania* 703. 634–642. DOI: https://doi.org/10.2307/343448

Weskott, Thomas & Gisbert Fanselow. 2011. On the informativity of different measures of linguistic acceptability. *Language* 87. 249–273. DOI: https://doi.org/10.1353/lan.2011.0041