

Experimenting with *wh*-movement in Spanish

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This paper provides evidence for an analysis of subject inversion in *wh*-questions in Spanish and demonstrates that techniques of experimental syntax play an important role in developing such analyses. The techniques used show that there is gradience in judgments of *wh*-questions depending on the nature of the filler and of the intervening subject. The facts fall out from the interplay of straightforward properties of the syntax (e.g. *wh*-movement, preverbal or postverbal placement of the subject) with straightforward properties of the processor (a common pool of limited resources to process *wh*-dependencies and establish discourse referents). The analysis predicts a correlation between the Overt Pronoun Rate in any given variety and the ability of a *wh*-dependency to tolerate an intervening subject, and the difference between Caribbean and mainland Latin American Spanish confirms this.

1. Introduction: Experimental syntax

This paper has two interrelated goals: first, to provide evidence for a particular analysis of word order restrictions in *wh*-questions in Spanish, and second, to demonstrate that techniques of experimental syntax play a near essential role in allowing us to uncover this type of evidence.¹ I use the term “experimental syntax” here to refer to the gathering of acceptability judgments with non-linguist subjects, clearly formulated instructions, a practice and/or training session, a factorial design for the construction of sentences, a counterbalanced and randomized sentence list, contextualization or other means to encourage uniform comprehension of the sentences across subjects, quantitative results, statistical analysis of these results, or any subset of these.

As has been discussed in the literature (e.g. Cowart (1997), Myers (2009), Schütze (1996), Sprouse (2007)), there are a number of clear advantages to adopting at least some of these experimental techniques. They can give us more certainty

1. This paper is part of an ongoing study using experimental techniques to explore *wh*-questions in Spanish. For earlier results from this study, see Goodall (2007, 2008, in press).

about the status of data where there have been disputes or doubts, as well as more precision in dealing with subtle contrasts among sentences. More generally, they allow the evidence used by syntacticians to be expressed in terms that the wider cognitive science community can understand and evaluate.

The advantage of experimental techniques that I will focus on here is that they allow us to capture gradience in judgments in a precise and reliable way. I will show not only that such gradience exists in domains where it has not been fully recognized before, but also that attempting to account for it leads us to new ways of studying and conceiving of syntax.

2. Subject inversion in *wh*-questions

My empirical point of departure is the inversion contrast in (1), a phenomenon well known in generative syntax since at least Torrego (1984).

- (1) a. *Qué **Juan** leyó en la biblioteca?
 what Juan read in the library
 b. Qué leyó **Juan** en la biblioteca?
 what read Juan in the library
 ‘What did Juan read in the library?’

What is not as well known is that the degree of unacceptability of the prohibited pattern in (1a) appears to vary depending on the nature of the intervening subject, as seen in Figure 1, which shows results from an experiment in which native speakers of Mexican Spanish judged the acceptability of such sentences on a five-point scale (N = 23, see Goodall (2008) for further details).

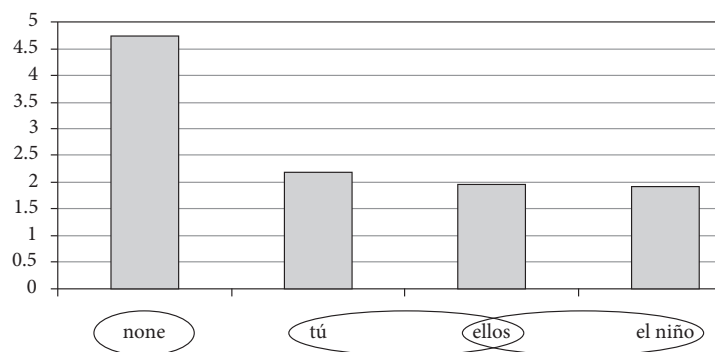


Figure 1. Intervening subject in *wh*-question: separate circles indicate significant difference

The most acceptable *wh*-question is clearly one with no intervening subject at all, but otherwise the hierarchy in (2) seems to hold, where 2nd-person pronouns are clearly better tolerated as interveners than lexical DPs, with 3rd-person pronouns appearing to have an intermediate status.

- (2) 2p pronoun > 3p pronoun > lexical

These differences are very fine-grained and seem unlikely to be due to the syntax proper. One could reasonably speculate that they result from differences in ease of processing, since this factor is known to affect acceptability. *Wh*-dependencies place special demands on the processor, in that the filler must be held in working memory until the subcategorizing verb is processed, at which point a gap can be posited and linked to the filler (e.g. Gibson 2000). Importantly, processing this dependency and processing the reference of the intervening subject appear to make use of the same limited pool of resources (Warren and Gibson 2002). In this way, we expect the nature of the intervening subject to affect the ease with which the *wh*-dependency itself can be processed. Since lexical DPs have been claimed to require more processing resources than 3rd-person pronouns, which in turn require more than 2nd-person pronouns (Warren and Gibson 2002), the hierarchy in (2) now follows, and the idea that processing factors account for these fine differences gains plausibility.

Further evidence that processing effects play a role in the unacceptability of (1a) comes from the fact that as we manipulate the *wh*-dependency in ways that should change its ease of processing, the level of acceptability of the sentence changes accordingly. For instance, complex *wh*-phrases are believed to be able to survive in working memory at a higher activation level than bare *wh*-words, and this allows them to better tolerate intervening material (e.g. Kluender (1998), Hofmeister (2007)). As we would expect, then, sentences like (1a) improve significantly when the *wh*-phrase is complex, as seen in Figure 2, which shows results from an experiment of the same type as in Figure 1 (N = 26, further details in Goodall (2008)).

Likewise, individual bare *wh*-words should vary in their ability to tolerate an intervening subject. Those that do not produce a filler-gap dependency at all, such as *por qué* ‘why’, should be oblivious to intervening material, and those that are similar to the intervening subject may be particularly affected by it, given the fact that similarity between filler and intervening material appears to lead to increased processing difficulty (e.g., Gordon, Hendrick and Johnson 2004). One might then reasonably expect that the nominal *wh*-words *qué* ‘what’ and *quién* ‘who’, which bear a clear category similarity to the subject DP, would tolerate an intervening subject less well than adverbial *dónde* ‘where’ and *cuándo* ‘when’, which do not bear this type of similarity to the subject. This expectation is supported by the results shown in Figure 3 (from the same experiment as in Figure 1; *wh*-words represented by their English glosses).

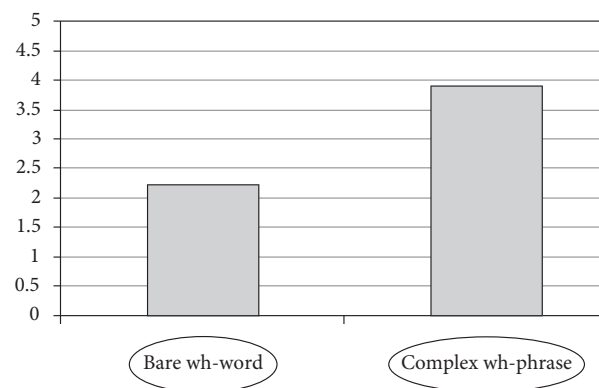


Figure 2. Type of *wh*-phrase in *wh*-questions with intervening subject: separate circles indicate significant difference

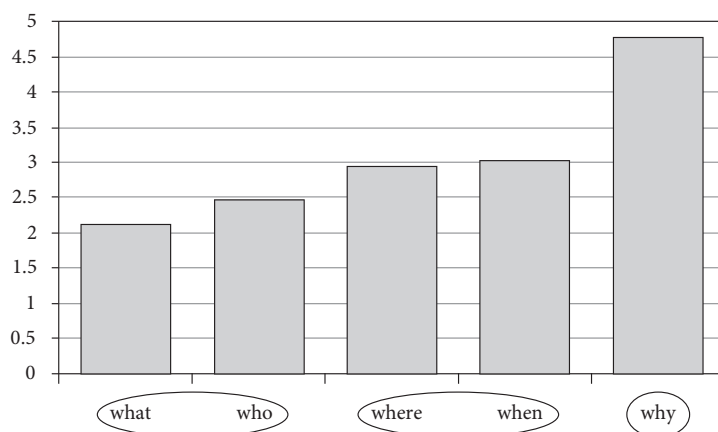


Figure 3. Effect of *wh*-word on *wh*-question with intervening subject: separate circles indicate significant difference

Note that inversion in Spanish is often said to exhibit an argument/adjunct asymmetry (e.g., Torrego 1984, Suñer 1994), but this characterization appears to be inadequate. Figure 3 shows that adjunct *wh*-words are better able to tolerate an intervening subject than are argumental *wh*-words, but such questions with *where* and *when* are still significantly degraded. Moreover, *wh*-words like *where*, though typically adjuncts, may also be arguments, yet speakers report to me that they do not find a contrast between these two uses with an intervening subject:

- (3) a. *Dónde tú pusiste el libro?*
 where you put the book
 'Where did you put the book?'
 b. *Dónde tú compraste el libro?*
 where you bought the book
 'Where did you buy the book?'

We have seen at this point the following hierarchy in the ability of a *wh*-phrase to tolerate an intervening subject:²

- (4) why > complex *wh*-phrase > how > where/when > what/who

Overall, then, as the ease of processing of the *wh*-dependency increases or decreases, depending on the nature of the filler or the nature of the intervening subject, the acceptability of the sentence increases or decreases correspondingly, just as we would expect.

3. Properties of subjects in Spanish

The processing factors examined so far clearly predict the contrast seen at the outset in (1). In fact, we expect (1a) to be particularly bad, since the intervening subject is a lexical DP, which is the type that uses the most processing resources (see (2)), and the filler is *qué* 'what', which is of the type most easily impaired by intervening material (see (4)). (1b), on the other hand, should be particularly good, since its filler-gap dependency is resolved immediately.

Moreover, intervening subjects in Spanish have specific properties that should make them even more of a drain on processing resources than their counterparts in a language like English. First, subjects in Spanish may be either overt or null. In the latter case, verbal inflection provides only person/number information about the intended referent, which must therefore be relatively salient and accessible in the discourse. Overt pronouns, in contrast, typically provide gender information also, and are used to refer to less accessible discourse entities, or for cases of emphasis, contrast or focus (Luján 1999). As we would then expect, overt pronouns appear to be more difficult to process than null ones in Spanish (Callahan et al. 2007), and as we saw in (2) (and Figure 1), lexical DPs are more difficult still. In line with this reasoning, we expect overt pronouns in Spanish, with their relatively inaccessible discourse referents, to be more difficult than their counterparts in English.

2. Manner *cómo* ('how') is provisionally placed here based on informant work.

Second, subjects in Spanish may be preverbal or postverbal, with complex implications for information structure in either case (e.g., Marandin 2003). Simplifying, preverbal subjects are associated with a categorical judgment type, i.e. one in which the subject is presented first as an individual and then the predicate is affirmed or denied of it. This is in contrast to thethetic judgment type, where the subject and the predicate are presented as a single event. What is relevant for our purposes is that highly individuated referents, such as occurs with a categorical judgment, appear to require relatively high processing costs (Warren and Gibson 2002).

Given the model of processing we have been assuming, in which processing of intervening referents makes processing of the *wh*-dependency more difficult, both of the above properties of subjects in Spanish would be expected to play a role in the decreased acceptability of sentences like (1a). Other factors may be at work as well, however. It may be, for instance, that the information structure associated with preverbal subjects is at least partly incompatible with interrogative force. This view receives support from the claim in the literature that questions with preverbal subjects (e.g. yes/no questions or *wh*-questions with *por qué* 'why') do not have a "true interrogative" interpretation (Escandell Vidal (1999), Gallego (2006)). If correct, this could be a contributing factor, in addition to the processing considerations already discussed, for the low acceptability of (1a).³

4. Accounting for variation

At this point, we have taken the experimentally elicited facts from Figure 1 regarding the effect of the type of intervening subject on the (un)acceptability of the *wh*-question and explored the potential role of processing in explaining these subtle contrasts. We have seen that not only were known properties of processing able to do this, but they also appeared to offer an account of the much sharper contrast in (1), possibly together with information structure factors. The picture that emerges from this is appealing: Straightforward properties of the syntax (e.g. *wh*-movement, placement of the subject in preverbal or postverbal position) interact with straightforward properties of the processor (a common pool of limited resources to process *wh*-dependencies and establish discourse referents), and

3. Such an analysis may also be able to shed light on extraction out of embedded clauses in Spanish, but space limitations preclude an exploration of that topic here. See Torrego (1984), Goodall (1993), and Baković (1998) for discussions of the phenomena.

the effect known as inversion (as in (1)) results.⁴ In some ways, however, this picture is *too* appealing. It nicely accounts for the facts that we have seen, but it would seem to leave no way to account for cases where subjects do intervene in *wh*-dependencies. This phenomenon occurs both in Romance and beyond, but in fact we can profitably explore it even within Spanish.

To begin, let us consider the use of overt pronouns across dialects of Spanish. For many years, there have been indications in the literature that the rate of use of overt pronouns varies substantially according to region, as shown in Table 1.

Though this amount of variation does not seem implausible impressionistically, caution is nonetheless in order, since differences in the type of corpus and the method of calculation used across these studies could be accounting for much of the effect. These problems are overcome in a recent study by Otheguy, Zentella and Livert (2007), where a uniform interview format was used with 39 speakers from both Caribbean and mainland Latin American regions (all were residents of New York, but their length of residence was < 6 years and their age of arrival > 16). For each speaker, the number of overt pronominal subjects was calculated as a percentage of overall subject pronoun use (excluding lexical subjects), yielding that person's "Overt Pronoun Rate." Their results are summarized preliminarily in Figure 4.

We saw earlier that overt (as opposed to null) pronouns in Spanish are used to refer to relatively inaccessible discourse referents, yet given the uniform interview format, it seems unlikely that the Caribbean speakers are systematically bringing up less accessible referents than their mainland counterparts. Rather, the threshold for how accessible a referent must be for the pronoun to be null must be higher in Caribbean than in mainland Latin American Spanish, resulting in less frequent null pronoun use among the former group.

The higher Overt Pronoun Rate in Caribbean Spanish is generally taken to be correlated with a higher rate of use of preverbal subjects (e.g., Toribio 2000). If

Table 1. Overt subjects as percentage of total in five locations

Rate of use	Location and source
16%	Ciudad Juárez, Mexico (Strongman 1995)
20%	Caracas, Venezuela (Bentivoglio 1987)
25%	Madrid, Spain (Enríquez 1984)
38%	Santiago, Chile (Cifuentes 1980–1)
39%	Los Angeles, USA (Silva-Corvalán 1977)

4. For the analysis presented here, nothing hinges on the exact mechanisms underlying the syntactic properties mentioned.

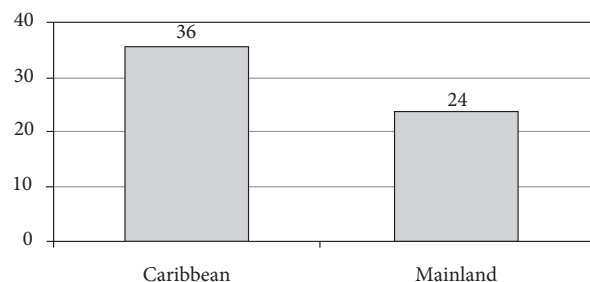


Figure 4. Overt Pronoun Rate in two regions (Otheguy et al. (2007))

this observation is correct, we come to a similar type of conclusion: the threshold for how clearly categorical the judgment type must be in order for the subject to be preverbal must be lower in Caribbean Spanish than in mainland varieties, with the result that the referents of preverbal subjects are less individuated. Putting the rates for overt pronouns and for preverbal subjects together, we can conclude that overtness and preverbal position do not signal the same degree of discourse inaccessibility or individuation in Caribbean as they do in mainland Spanish.

Given the processing model we discussed earlier, we now make a clear prediction: the effect of an intervening subject on the ease of processing a *wh*-dependency should be smaller in Caribbean than in mainland Spanish, and the corresponding sentences should thus have a higher level of acceptability. There are many indications in the literature that this prediction and the analysis behind it are correct. First, instances of intervening subjects in matrix *wh*-questions show up in spontaneous discourse in Caribbean Spanish in a way that is not attested in other varieties, as seen in (5) (from Toribio (2000)).

- (5) a. Qué yo les voy a mandar a esos muchachos?
 what I DAT.3PL go to send to those boys
 'What am I going to send to those boys?'
 b. Qué número tú anotaste?
 what number you write_down
 'What number did you write down?'
 c. Qué ese letrero dice?
 what that sign say
 'What does that sign say?'
 d. Cuánto un medico gana?
 how_much a doctor earn
 'How much does a doctor make?'

Second, although there is considerable disagreement in the literature as to what type of intervening subject is possible, Ordóñez and Olarrea (2006) note that an interesting hierarchy emerges from surveying this literature:

- (6) 2p pronoun > 3p pronoun > lexical

That is, all researchers report that intervening 2nd-person pronouns are possible, some report the same for 3rd-person pronouns, and only a subset of this last group reports the possibility of lexical DPs. This of course matches the hierarchy that we saw in (2) and is what we would expect. Increased processing difficulty should lead to a decreased level of acceptability, which should lead to less frequent reporting as "grammatical". It may also be that the differences in what researchers report reflect true differences in the level of acceptability for speakers or dialects, which in turn reflect differences in the level of discourse inaccessibility and individuation signaled by overt preverbal subjects. This too would predict the hierarchy in (6).

Third, Ordóñez and Olarrea (2006) find gradient acceptability in a survey of 65 speakers of Dominican Spanish, summarized in Figure 5.

The striking result here is that the hierarchy of acceptability is the same as what we saw in (2) (and Figure 1) for non-Caribbean Spanish, but the level of acceptability is considerably higher here. It is difficult to be precise about this, since the subject task in the two experiments was different, but it seems very unlikely that the low acceptability seen in Figure 1 for intervening 2nd-person subjects, for instance, would obtain with these Dominican speakers, given their unanimous rating of this sentence type as "acceptable".

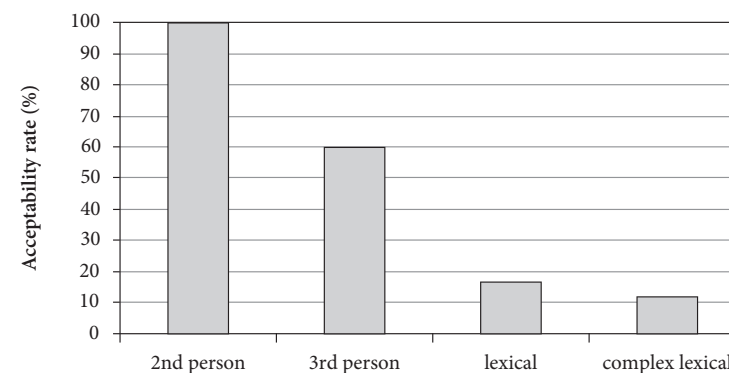


Figure 5. % of Dominican speakers who rate intervening subject as acceptable in *wh*-question

Fourth, Ordóñez and Olarrea show that the acceptability of intervening subjects declines sharply for Dominican speakers when the subject is stressed, conjoined, or modified:

- (7) a. *Qué tú quieres?
 what you want
 ‘What do YOU want?’
 b. *Qué tú y él comieron?
 what you and he ate
 ‘What did you and he eat?’
 c. *Qué tú mismo comes?
 what you self eat
 ‘What do you yourself eat?’

In all three of these cases, we would expect that processing the subject would require more than the usual amount of resources, with a concomitant reduction in the processor’s ability to handle the *wh*-dependency easily.

Finally, in a corpus study of Puerto Rican Spanish, Gutiérrez Bravo (2007) shows that only 10% of *wh*-questions with an overt subject have this subject in an intervening position. This is an important finding, because in the analysis developed here, we expect intervening subjects to be easier for the processor in Caribbean Spanish than in other varieties, but they should not be easy in any absolute sense. Having the subject in a non-intervening position should always be easier, for both Caribbean and mainland speakers, and the high rate of use of non-intervening subjects among Puerto Rican speakers in spontaneous discourse lends support to this idea.

In short, the independent evidence seen earlier that overt preverbal subjects do not signal the same degree of discourse accessibility and individuation in Caribbean as in mainland Latin American Spanish predicts that Caribbean speakers will find *wh*-questions with such subjects relatively easy to process, compared to mainland speakers, and we have now seen several pieces of evidence that this prediction is correct.

This question of how to account for the difference between Caribbean and mainland *wh*-questions has been a longstanding and well-known problem in Romance syntax, and it is thus significant that the analysis developed here appears to shed light on it. Interestingly, this analysis does not posit a syntactic difference between the two varieties, despite the ostensibly syntactic nature of the problem. Both have *wh*-movement, permit null subjects, and allow for placement of overt subjects in either preverbal or postverbal position. The difference stems, as we have seen, from the degree of accessibility and individuation ascribed to overt

preverbal subjects. Since these factors affect the processing of subjects, and since the processing involved competes for limited resources with that of the *wh*-dependency, the result is that factors such as these have consequences that appear “syntactic”.

If this analysis is correct, the Caribbean/mainland difference is not parametric, in the sense that it cannot be reduced to different settings of any putative parameter. In fact, unlike other treatments in the literature, the analysis here does not lead us to expect that the difference is in any way binary. The notions of “discourse accessibility” and “individuation” do not lend themselves to +/- values and should instead be subject to fine differences of degree from one region to another (or in fact, from one speaker to another). The study by Otheguy, Zentella and Livert (2007) discussed earlier actually corroborates this expectation. They found that the Overt Pronoun Rate differences surface not just with regard to the Caribbean and the mainland, but also when comparing smaller regions within these. This may be seen in Figure 6, a more fine-grained version of Figure 4.

The same interpretation that we gave to Figure 4 applies here as well: The threshold for how accessible a referent must be for the pronoun to be null seems to differ from region to region, with the result that the frequency of overt pronouns varies.⁵ Once again, we clearly predict that this will have consequences for the placement of subjects in *wh*-questions, but this time the prediction is more fine-grained. Intervening subjects should be more acceptable for Dominican speakers than for Cubans, for instance, and for Ecuadorians compared to Mexicans. That is, we expect a correlation between the Overt Pronoun Rate and the degree of acceptability of *wh*-questions with intervening subjects.

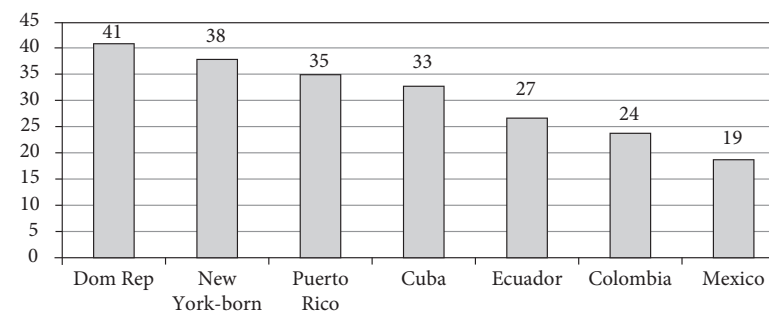


Figure 6. Overt Pronoun Rate in seven regions (Otheguy et al. (2007))

5. Presumably the frequency of use of preverbal subjects varies in a similar way, but this is not as well documented. Though it generally seems to correlate with the frequency of use of overt pronouns, it is not known whether this correlation always holds.

This is a very strong prediction and it is not known at this point whether it holds, but what data are available suggest that it is at least on the right track. Baković (1998) shows that there is considerable variation in the acceptability of intervening subjects, much more than the traditional Caribbean/mainland split suggests. He does not examine the level of acceptability of such subjects *per se*, but rather the set of *wh*-words that tolerate these subjects in each variety. Recall that we saw in Figure 3 that *wh*-words vary in how well they can do this. Those that do not correspond to a gap (such as *por qué* ‘why’) are not affected by an intervening subject, while those that do have a gap are affected. Among this latter group, nominal *wh*-words (i.e. those that are most similar to the intervening subject) show a stronger effect than adverbial *wh*-words. Since there is no reason to believe that the meaning or basic syntactic properties of the individual *wh*-words would vary from one region to another, we would expect this hierarchy to be stable across varieties. In contrast, the degree to which intervening subjects divert resources away from processing the *wh*-dependency is expected to vary by region, as we have seen. Putting together this variability in the properties of the subject with the lack of variability in the properties of the *wh*-word, we expect that the level of acceptability of a given *wh*-question with an intervening subject will vary, but the hierarchy that we saw in Figure 3 and (4) will always be respected. For instance, it should be impossible for a speaker to accept an intervening subject with *what* but reject it with *where*. More generally, we expect to find the patterns of acceptability in (8) (where a starred form indicates that this *wh*-word does not tolerate an intervening subject), but not, for example, those in (9).

- (8) a. *why *how *when/where *what/who
 b. why *how *when/where *what/who
 c. why how *when/where *what/who
 d. why how when/where *what/who
 e. why how when/where what/who
- (9) a. why how *when/where what/who
 b. *why *how *when/where what/who

Strikingly, these are exactly the results that Baković obtained: All five varieties in (8) are attested, whereas varieties as in (9) appear not to exist.

We thus have preliminary evidence that dialects of Spanish show exactly the range of variation that we predict. We also predict that this variation in *wh*-questions will correlate with the Overt Pronoun Rate (e.g. among the varieties in (8), we expect (8a) to have the lowest Overt Pronoun Rate and (8e) to have the highest), although this prediction has not yet been tested.

As we have now seen, the study of Spanish dialects suggests that much of the variation in the ability of a *wh*-dependency to tolerate an intervening subject depends on the degree of discourse accessibility or individuation associated with overt preverbal subjects in a particular dialect. In principle, of course, there could be syntactic differences as well, although we have not needed to invoke these in this case. In other cases, though, syntactic differences could play a role. Spanish does not appear to make use of T-to-C movement in *wh*-questions (e.g. Suñer 1994), for instance, but if some language variety that was otherwise just like Spanish did, the effects in Figures 1–3 would presumably disappear, since we would expect T-to-C movement to apply uniformly regardless of the nature of the *wh*-phrase or the intervening subject (see Goodall (2007, 2008) for discussion).⁶

5. Conclusion

As stated at the outset, this paper has the twin goals of arguing both for a particular analysis and for experimental techniques in the study of syntax. As for the first, we have provided evidence for an analysis of the position of subjects in *wh*-questions in Spanish which crucially relies on the interplay of syntactic properties of the language and processing considerations, especially the idea that processing a *wh*-dependency and a discourse referent both make use of the same set of limited shared resources. The resulting analysis yields appealing solutions to some traditional problems in this area, and also opens up intriguing new research questions to be explored.

As for the second goal, we have seen that the analysis proposed here relies crucially on the fine-grained distinctions in acceptability that can be reliably captured by experimental techniques. Perhaps even more interestingly, some of the predictions that the analysis makes, such as the correlation between the Overt Pronoun Rate and the ability of *wh*-dependencies to tolerate intervening subjects, require a level of precision in the data that would be difficult, if not impossible, to obtain using only traditional techniques.

6. English has T-to-C movement and is also unlike Spanish in that it does not have null/overt or preverbal/postverbal contrasts in its subjects. Overt preverbal subjects in English thus do not have the discourse value that they do in Spanish and thus do not appear to impose as heavy a processing burden, with the result that intervening subjects are allowed in *wh*-dependencies.

References

- Bakovic, Eric. 1998. "Optimality and inversion in Spanish". *Is the Best Good Enough?* ed. by Pilar Barbosa et al., 35–58. Cambridge: MIT Press.
- Bentivoglio, Paola. 1987. "La posición del sujeto en el español de Caracas: Un análisis de los factores lingüísticos y extralingüísticos". *Studies in Caribbean Spanish Dialectology* ed. by R.M. Hammond and M. Resnick, 13–23. Washington: Georgetown University Press.
- Callahan, Sarah, Janet Nicol, Tracy Love, & David Swinney. 2007. "All pronouns are not created equal: The processing and interpretation of null and overt pronouns in Spanish". Poster presented at 20th Annual CUNY Sentence Processing Conference, La Jolla, Calif.
- Cifuentes, Hugo. 1980–1. "Presencia y ausencia del pronombre personal sujeto en el habla culta de Santiago de Chile". *Boletín de Filología* XXXI. 743–752.
- Cowart, Wayne. 1997. *Experimental Syntax: Applying objective methods to sentence judgments*. Thousand Oaks: Sage Publications.
- Enríquez, Emilia V. 1984. *El pronombre personal sujeto en la lengua española hablada en Madrid*. Madrid: Consejo Superior de Investigaciones Científicas.
- Escandell-Vidal, M. Victoria. 1999. "Los enunciados interrogativos. Aspectos semánticos y pragmáticos". *Gramática Descriptiva de la Lengua Española* ed. by Ignacio Bosque & Violeta Demonte, Vol 3, cap. 61. pp. 3929–3991. Madrid: Espasa-Calpe.
- Gallego, Angel J. 2006. "Phase effects in Iberian Romance". *Selected Proceedings of the 9th Hispanic Linguistics Symposium*, ed. by Nuria Sagarra and Almeida Jacqueline Toribio, 43–55. Somerville: Cascadilla Proceedings Project.
- Gibson, Edward. 2000. "The dependency locality theory: a distance-based theory of linguistic complexity". *Image, Language, Brain*, ed. by Y. Miyashita, A. Marantz and W. O'Neil 95–126, Cambridge: MIT Press.
- Goodall, Grant. 1993. "SPEC of IP and SPEC of CP in Spanish *wh*-questions." *Linguistic Perspectives on the Romance Languages*, ed. by M. Mithun, G. Perissinotto and E. Raposo 199–209. Amsterdam/Philadelphia: John Benjamins.
- Goodall, Grant. 2007. "Inversion in *wh*-questions in child Romance and child English." *Romance Linguistics 2006: Selected papers from the 36th Linguistic Symposium on Romance Languages (LSRL)*, ed. by María José Cabrera, José Camacho, Viviane Déprez, Nydia Flores and Liliana Sánchez 169–182. Amsterdam/Philadelphia: John Benjamins.
- Goodall, Grant. 2008. "The limits of syntax in inversion". *Proceedings of the 41st Annual Meeting of the Chicago Linguistic Society* 161–174.
- Goodall, Grant. In press. "Syntactic satiation and the inversion effect in English and Spanish *wh*-questions". *Syntax* 14.
- Gordon, Peter C., Randall Hendrick, and Marcus Johnson. 2004. "Effects of noun phrase type on sentence complexity". *Journal of Memory and Language* 51, 97–114.
- Gutiérrez Bravo, Rodrigo. 2008. "Topicalization and preverbal subjects in Spanish *wh*-interrogatives". *Selected Proceedings of the 10th Hispanic Linguistics Symposium*, ed. by Joyce Bruhn de Garavito and Elena Valenzuela, 225–236. Somerville, MA: Cascadilla Proceedings Project.
- Hofmeister, Philip. 2007. *Representational Complexity and Memory Retrieval in Language Comprehension*. Ph.D. dissertation, Stanford University.
- Kluender, Robert. 1998. "On the distinction between strong and weak islands: A processing perspective". *Syntax and Semantics 29: The Limits of Syntax*, 241–279.
- Luján, Marta. 1999. "Expresión y omisión del pronombre personal". *Gramática descriptiva de la lengua española*, ed. by Ignacio Bosque and Violeta Demonte, vol. I, 1275–1315. Madrid: Espasa-Calpe.
- Ordóñez, Francisco and Antxon Olarrea. 2006. "Microvariation in Caribbean/non Caribbean Spanish Interrogatives". *Probus* 18, 59–96.
- Marandin, Jean-Marie. 2003. "Inversion du sujet et discours dans les langues romanes". *Langues romanes: problèmes de la phrase simple*, ed. by D. Godard, 345–392 Paris: éditions du CNRS.
- Myers, James. 2009. "Syntactic judgment experiments". *Language and Linguistics Compass* 3, 406–423.
- Otheguy, Ricardo, Ana Celia Zentella, and David Livert. 2007. "Language and dialect contact in Spanish in New York: Toward the formation of a speech community". *Language* 83, 770–802.
- Schütze, Carson. 1996. *The Empirical Base of Linguistics: Grammaticality judgments and linguistic methodology*. Chicago: University of Chicago Press.
- Silva-Corvalán, Carmen. 1977. *A Discourse Study of Some Aspects of Word Order in the Spanish Spoken by Mexican-Americans in West Los Angeles*. Ph.D. dissertation, UCLA.
- Sprouse, Jon. 2007. *A program for experimental syntax: Finding the relationship between acceptability and grammatical knowledge*. Ph.D. dissertation, University of Maryland.
- Strongman, Roberto. 1995. *Is Border Spanish becoming a non-pro-drop language?* M.A. thesis, University of Texas at El Paso.
- Suñer, Margarita. 1994. "V-movement and the licensing of argumental *wh*-phrases in Spanish". *Natural Language and Linguistic Theory* 12, 335–372.
- Toribio, Jacqueline Almeida. 2000. "Setting parametric limits on dialectic variation in Spanish". *Lingua* 110, 315–341.
- Torrego, Esther. 1984. "On inversion in Spanish and some of its effects". *Linguistic Inquiry* 15, 103–129.
- Warren, Tessa and Edward Gibson. 2002. "The influence of referential processing on sentence complexity". *Cognition* 85, 79–112.