

Using Syntactic Satiation to Investigate Subject Islands

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1. Introduction

Syntactic satiation is the study of the increase in acceptability of “ungrammatical” sentences over repeated exposure, which can be induced experimentally (Snyder 2000). Although the effect of changing judgments has been replicated in several studies (Hiramatsu 2000, Goodall 2005, Francom 2009), some argue that the effect is not the result of an individual’s change in acceptability, but the result of an unbalanced experiment design (Sprouse 2009). To the extent satiation has been replicated, the results for subject island violations has been most variable. While some experimental studies have found that participants satiate on subject islands (Hiramatsu 2000, Francom 2009), others have only found marginal to no effects (Snyder 2000, Sprouse 2009). One possible explanation for the variable results with subject islands is that the subject island items used in previous studies have not been carefully controlled for predicate type, an element which has been argued to affect overall acceptability and perhaps satiation (Merchant 2001, Erteschik-Shir 2007, Kravtchenko et al 2009). In this paper, I evaluate the replication of satiation effects for *whether*, adjunct and 3 types of subject islands. This study uses a new method of controlling for individual variability in scale rating tasks by standardizing responses to critical items by mean response to filler items. Replicating all studies except Sprouse (2009), I find satiation effects in a balanced design for *whether* islands. However, unlike Hiramatsu (2000) and Francom (2009), I do not find satiation effects for any of the subject island types tested. The results are discussed in relation to possible sources of the satiation effect. The organization of the paper is as follows: in Section 2, I will describe the satiation findings in previous studies, with special attention to the subject island results. In Section 3, I describe the present study and results. In Section 4, I discuss the results and future directions for the study of syntactic satiation.

2. Satiation

Linguists often anecdotally report that over time, their judgments of acceptability of “ungrammatical” sentences change. In satiation studies such as Snyder (2000), the goal was to induce experimentally the change in judgments reported by linguists. In addition to subject, adjunct and *whether* island violations, Snyder looked at judgments of other apparent grammatical violations, including complex NP (CNP), *that*-trace, *want-for* and left branch violations (1)-(7)¹.

- | | |
|---|-----------------------|
| (1) Who does Mary believe the claim John likes ___? | Complex NP |
| (2) What does John wonder whether Mary likes ___? | <i>Whether</i> Island |
| (3) Who did John talk with Mary after seeing ___? | Adjunct Island |

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¹ Since the acceptability of these sentences is at issue in this paper, I will not be marking them with * or any other standard mark of acceptability/grammaticality.

- | | |
|--|----------------|
| (4) How many did John buy books? | Left branch |
| (5) What does John know a bottle of ___ fell on the floor? | Subject Island |
| (6) Who does Mary think that likes John? | that-trace |
| (7) Who does John want for Mary to meet? | Want-for |

In Snyder’s experiment, subjects were given *yes/no* acceptability judgment tasks on a blocked set of items containing grammatical violations and fully acceptable fillers. Given the anecdotal reports, the prediction was that naïve participants would satiate on Complex NP (1) and *whether* islands (2), but not on adjunct islands (3) or left branch constructions (4). There were no particular predictions for *that*-trace, *want-for*, or subject island constructions. To test for satiation, the number of *yes* responses in the first two blocks was compared to the number of *yes* responses in the last two blocks. If there were more *yes* answers in the last two blocks, the subject was said to satiate on that particular type of sentence. Snyder found results similar to the anecdotal reports: those items that are considered “weak” (single-barrier) island violations by syntactic theory, such as complex-NP and *whether* islands, showed satiation effects, while “strong” (double-barrier) island violations like adjunct islands did not. He found a marginally significant satiation effect in subject islands.

The satiation results for adjunct and *whether* islands have been the most replicable in subsequent studies. However, even though Hiramatsu (2000) and Francom (2009) replicated *whether* and adjunct island effects, satiation effects in subject islands varied between their experiments. The results of Snyder and other studies for *whether* island, adjunct island and subject islands are presented in Table 1.

Study (Experiment #)	Whether Islands	Adjunct Islands	Subject Islands
Snyder 2000	+	-	(+)
Hiramatsu 2000 (1)	+	-	+
Hiramatsu 2000 (2)	+	-	-
Francom 2009 (1)	+	-	+
Francom 2009 (2)		-	+
Francom 2009 (4)	+		
Francom 2009 (5)	+		
Sprouse 2009 (3)	-	-	-

Table 1: Satiation results for *whether*, subject, and adjunct islands in previous studies.
+ significant satiation | (+) marginal satiation | - no satiation | (blank) not tested

2.1. Replication

Sprouse (2009) has argued that the satiation effect is not due to a general change in an individual’s judgment of acceptability, but due to the experimental design. He argues that tasks like Snyder’s had an unbalanced design of more “ungrammatical” types than “grammatical” fillers, which might have led participants to employ an equalization strategy to balance out *yes* responses to *no* responses over the course of the experiment. He also argues that Snyder’s *yes/no* task introduced a lot of variability overall, and that a method such as magnitude estimation would be better suited for judging acceptability². In Sprouse’s magnitude estimation study, which balanced the number of filler and test sentences, he failed to replicate satiation for any of the violation types and concludes that the effect in Snyder was a result of the equalization strategy. But, as Francom (2009) points out, for the studies that do show satiation, the effect is not an across-the-board phenomenon; satiation did not occur for all sentence types equally, which suggests that the effect is related to something more than just

² Though see Fukuda, Goodall, Michel, Beecher (2011) for results showing similarities in responses between the magnitude estimation and *yes/no* judgment methods.

experimental design. It is also the case that satiation can be induced in eye-tracking and reading-time studies, further suggesting that the task itself is not solely responsible for the effect (Braze 2002).

Although it is not likely that the particular method used to elicit judgments plays a role in the satiation effect, it has been suggested that the amount of exposure to violations may play a role. In 5 exposures, Snyder (2000) found marginal satiation of subject islands, and Francom (2009) found significant satiation of subject islands. Hiramatsu (2000) did not find satiation effects for subject islands in 5 exposures, but did find significant satiation on subject islands in a subsequent experiment with 7 exposures.

2.2. Subject Island Acceptability (and Satiation)

2.2.1. Syntactic explanations

Satiation data may be useful in comparative syntax, helping to distinguish between different theories for why a given sentence is unacceptable. Using satiation data in this way exploits the idea that if one unacceptable sentence type induces satiation and another does not, it is unlikely that their unacceptability is attributable to the same underlying principle (Goodall 2004). Different theories make different predictions for how subject islands should behave.

Subadjacency (Chomsky 1977) classified violations in terms of bounding nodes. On the subadjacency account, Complex NP, subject and *whether* islands were grammatical violations because they all crossed more than one bounding node (where the bounding nodes in English were NP and S). Huang (1982) argued that subject islands were different from CNP and *whether* islands; instead of being mere subadjacency violations like CNP and *whether* island violations, he argued that like adjunct islands, movement out of subject islands also violated the Condition on Extraction Domains (CED). All four island violations were theoretically reunified in the *Barriers* approach (Chomsky 1986). In this system, there was one difference between CNP and *whether* island violations on the one hand and subject and adjunct island violations on the other: CNP and *whether* islands were “weak” violations because they only crossed one barrier, while subject and adjunct islands were “strong” violations because they crossed two barriers.

Snyder (2000) suggested that *whether* islands satiated because they only cross one barrier, whereas adjunct islands did not because they cross two barriers. On this logic, the prediction for subject islands followed: if satiation data is picking out a natural class of violations, then under the theoretical accounts using CED or *Barriers*, subject islands and adjunct islands are predicted to pattern the same way. From this perspective, it was odd for Snyder to find even marginal satiation effects in subject islands. Hiramatsu (2000) also pursued a syntactic explanation for satiation effects, suggesting that structures that form natural syntactic classes should behave similarly with respect to satiation. For example, she makes satiation predictions based on the *Barriers* framework and from Minimalist proposals such as the Shortest Move Constraint and Corollary on Adjunction (Takahashi 1994).

2.2.2. Predicate type and discourse explanations

It has also been argued that the acceptability of subject islands is constrained by factors such as predicate type and extraction site. Merchant (2001) and others argue that extraction targets the base position of a constituent, and that internal arguments have special status. He notes that extraction from subjects of unaccusative verbs, which are internal arguments, are more acceptable. The pattern of unaccusative subjects having special status is also predicted by discourse explanations for island effects. Erteschik-Shir (1997, 2007) argues that information structure plays a role in *wh*-dependencies and extraction. She argues that most subjects form islands because they are topics. Furthermore, she argues that extraction is licensed if extraction is from a focus domain. So like Merchant, this account predicts elements extracted from subjects of unaccusative predicates to be more acceptable. On Erteschik-Shir’s account, extractions from subjects of unaccusatives are more acceptable because they are more focus oriented.

The results from Kravtchenko et al (2009) suggest that both the number of arguments and the base position of the argument are relevant to the judgment of acceptability. In two non-satiation experiments, Kravtchenko et al. (2009) found transitive/intransitive subject island distinctions similar to those found in Hiramatsu’s (2000) studies, which had extractions from subjects of transitive and unaccusative verbs. In an English self-paced reading task, Kravtchenko et al. found that extraction

from subjects of transitive verbs took longer to process than from subjects of intransitive verbs. Among the intransitive verbs, they found that unaccusatives were processed marginally faster than unergatives ($p=.07$). In an English Likert acceptability judgment task, they showed participants rated extraction from unergative subjects significantly less acceptable than extractions from subjects of unaccusatives ($p=.028$). The transitive/intransitive distinction was also found in acceptability judgments of Russian subject islands, where subject extractions with passives, unaccusatives and unergatives were all significantly different from extractions with transitive verbs ($p=.021$, $p=.005$, and $p=.043$ respectively).

In sum, there are many accounts for the acceptability of subject islands, and different accounts predict how subject island acceptability should pattern with respect to other violations like *whether* and adjunct islands. Factors such as predicate type may affect the acceptability of a given subject island, and perhaps satiation.

2.3. Satiation in Subject Islands

As discussed in Sections 2 and 2.1, the satiation results for subject islands have been the most variable in previous satiation studies. One possible reason for this variability is that previous studies have not controlled for the type of subject island items. For example, the NP extracted from the subject can be from within a PP (8) or a participial adjunct (9). Francom's (2009) studies used both types of extraction sites. Furthermore, predicate type was not controlled for. Previous studies like Snyder (2000) and Hiramatsu (2000) used extraction from subjects of ECM verbs (10), passive verbs (11), and transitive verbs (12). There were also examples of unaccusative subject island items like (8) in Hiramatsu's studies and subjects of infinitives (13) in Sprouse (2009).

- (8) What does Angela know that a bottle of ___ fell on the floor?
- (9) What did Nick admit that a jar containing ___ was lost?
- (10) Who did Rebecca want a discussion with ___ to take place?
- (11) What does Richard think that a stack of ___ was discarded?
- (12) Who did Mark say a fight with ___ started a national scandal?
- (13) What will to admit ___ in public be easier someday?

Given the difference in replication of satiation effects and the variable satiation effects in subject islands, the questions for the present study are: can we replicate satiation with a balanced design, and if so, do subject islands satiate when predicate type is controlled for?

3. Study

3.1. Method

Participants were undergraduate monolingual English speakers in the Boston area ($n=22$). All subjects were given a pre-test questionnaire confirming that they were monolingual speakers of English. Subjects were excluded from the study if they reported that they (1) had parents whose L1 was a language other than English and (2) if they identified themselves as speaking that language.

Participants gave judgments on a total of 70 items in a computer based Likert rating task with a scale from 1-7. Items were arranged into 7 blocks of 10 sentences each. Each block contained 5 ungrammatical test items (1 adjunct island, 1 *whether* island, 1 transitive subject island, 1 unaccusative subject island, 1 unergative subject island). These items were balanced with 5 grammatical fillers for an equal number of test and filler items per block. As previously discussed, this was done to ensure that any results are not due to an equalization strategy that is possible in an uneven design. Items were randomized within and across blocks.

Each filler and test item consisted of a matrix verb and an embedded verb. Seven different matrix verbs were chosen (*think*, *believe*, *suppose*, *claim*, *suspect*, *discover*, *guess*)³. *Wonder* was the matrix verb used with all *whether* islands. Matrix verbs were varied in order to control for strategic processing

³ An analysis of pilot data revealed that judgments of sentences with the matrix verb *suppose* varied systematically from other verbs.

that might come with using the same matrix verb for all items. All embedded verbs were checked for frequency according to the Celex database (<http://celex.mpi.nl>). Each of the embedded verbs had a frequency greater than 2300 uses per million words of text⁴. Filler and experimental items were counterbalanced for matrix verb and predicate type of embedded verb. An attempt was made to balance the number of transitive and intransitive verbs between filler and test items. All *whether* and adjunct islands used transitive embedded verbs. All sentences were in the past tense, but sentences were not controlled for length in clauses or number of words (cf. Sprouse 2009).

For subject island items, all items had NPs extracted from PPs. The predicate type for the subject islands were chosen in the following manner: intransitive verbs were chosen either as unaccusative or unergative according to English unaccusative/unergative diagnostics (cf. Levin and Rappaport-Hovav 1995). For the unaccusatives, the predicates could not take cognate objects (**fall a fall*). Unaccusatives were also chosen according to whether the French analog predicates take *être* 'to be' in the *passé composé*, another unaccusative diagnostic. Predicates were treated as unergative if they could take cognate objects and secondary resultative predicates (e.g., *the river froze solid*).

Each sentence was presented with a declarative context sentence from which the questions were derived. Examples of the *whether* island, adjunct island and subject island items with their context are given in (14)-(18).

- | | |
|---|-----------------------------|
| (14) Henry wonders whether George discovered a cure.
What does Henry wonder whether George discovered? | <i>Whether</i> island |
| (15) You think Mary threw trash in the garbage after cleaning the house.
What do you think Mary threw trash in the garbage after cleaning? | Adjunct island |
| (16) Peter suspects a team of scientists liked the new research.
What does Peter suspect a team of liked the new research? | Transitive subject |
| (17) The guide believes that a crowd of tourists arrived late.
Who does the guide believe a crowd of arrived late? | Unaccusative subject island |
| (18) Jack claims a crowd of shoppers walked into the store.
What does Jack claim a crowd of walked into the store? | Unergative subject island |

Participants were given oral instructions to judge sentences as to whether or not they were a “good sentence of English.” They were instructed that this task was not to test meaning (e.g., “do I get what this means”), nor was it to test rules perhaps learned in an English class. They were told to judge the sentences as if they heard someone saying it and asked whether this person was a native speaker of English. In addition to oral instructions, similar instructions were given in writing. Some participants were asked to come back two weeks later to participate in a follow-up task, where they took the test with the same items a second time.

3.2. Results

It has been noted that one drawback of scale judgment tasks such as the Likert task and magnitude estimation task is that not all subjects use the scale in the same way (Fukuda, Goodall, Michel, Beecher 2011). For example, it is possible that filler items, which were designed by a native speaker of English to be fully acceptable “7s”, were not all rated by the native English speaking participants as “7s”. To control for effects of individual variability in scale use, a *z*-score for test items was calculated based on a subject’s average response to fillers. In addition to giving a cleaner overall rating of acceptability, another reason for standardizing Likert data based on control item responses was to convert categorical data into continuous data, which is better suited to ANOVA.

To ensure construct validity, a two-tailed paired *t*-test compared total filler response and total test item response. There was a highly significant difference in response to filler and critical items ($t(21) = 5.33, p < .001$).

⁴ Results by frequency are not a part of this analysis.

For satiation, a paired *t*-test was performed on the standardized score, Block 1 vs. Block 7, for each sentence type in the Likert task. There was significant satiation on *whether* islands, ($t(21)=2.23$, $p < .05$), but not on any other sentence type.⁵

In order to compare satiation effects across sentence types, Snyder (2000) performed a repeated measures ANOVA on difference scores. He reasoned that if acceptance rates only increase for a proper subset of ungrammatical types, there would be a significant effect of sentence type on difference scores. To do this on his *yes/no* task, he subtracted the rating on blocks 1 and 2 from the ratings on blocks 6 and 7. He found a main effect of ungrammatical type, with pairwise contrasts revealing that *whether* islands differed significantly from all of the other ungrammatical types.

For the present study, difference scores were calculated for the Likert task by subtracting response on Block 1 from response on Block 7. A repeated measures ANOVA of difference scores revealed only a marginal effect of grammatical type (Greenhouse-Geisser $F(1.748,36.717) = 2.79$, $p=.081$). Post-hoc tests (pairwise *t*-test without Bonferroni correction) showed that *whether* islands differ significantly from adjunct and transitive subject islands, but are not systematically different from either of the intransitive subject islands. None of the three subject island types varied systematically from one another, although the intransitive subject islands appear to trend in the same direction as *whether* islands. Difference scores for individual types are shown in Figure 1.

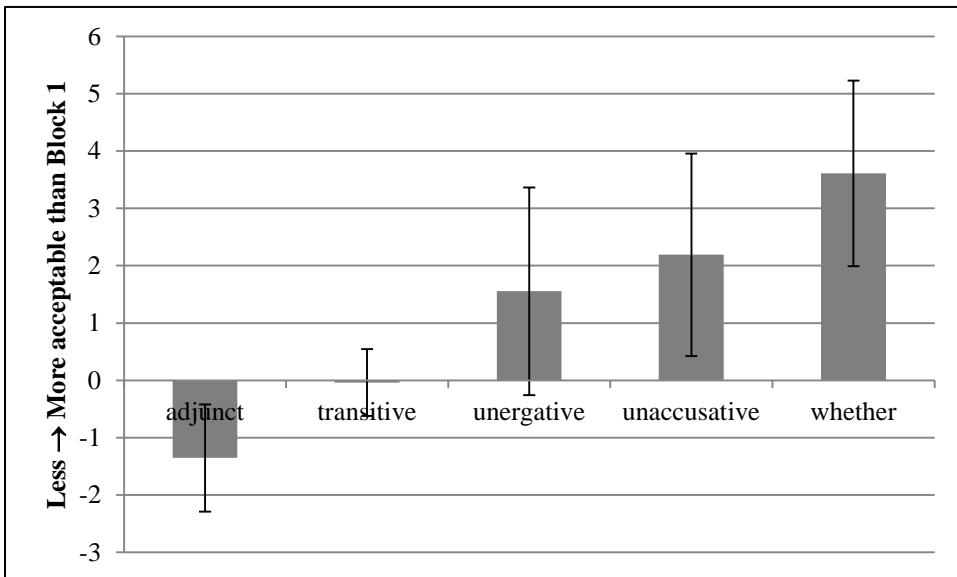


Figure 1. Difference scores for “ungrammatical” critical items

3.3. Overall Acceptability among subject islands

Although the present study is about change in acceptability of subject island violations, the experiment can also tell us something about overall acceptability of the three types of subject islands. A repeated measures ANOVA was conducted for mean acceptability; there was no effect of predicate type (Greenhouse-Geisser $F(1.050, 22.051)=1.97$, $p=.17$). Post-hoc tests (pairwise *t*-tests with Bonferroni correction) show no significant contrasts. Additionally, a paired *t*-test between unaccusative and unergative subject islands showed no systematic difference ($t(21)=1.15$, $p=.26$).

4. Discussion

This study investigated whether the satiation effect could be replicated in a balanced design, and to the extent that it could be replicated, if subject islands satiated when extraction site and predicate type were controlled for. Replicating previous findings, this study found a significant satiation for

⁵ For the raw Likert scores, there was marginally significant satiation on the Unaccusative subject islands ($t(21)=1.80$, $p=.09$).

whether islands. Unlike other studies, there were no satiation effects for subject islands of any predicate type.

As shown by the difference scores, satiation did not affect all sentence types equally. This argues against the idea that satiation is an instance of syntactic priming (see Francom 2009 for discussion). The difference score results also show that while there was no significant satiation, the intransitive subject islands more susceptible to change than the transitive subject islands.

Although the results provide evidence against a syntactic priming explanation for satiation effects, the results lend support to some other explanations. Kluender and Kutas (1993a,b) have argued that pure subadjacency violations like *whether* islands have a special status for processing, and that satiable effects found for *whether* islands reflect limitations on sentence processing rather than constraints on competence. In addition to a processing explanation for satiation effects, the results also support Hiramatsu's (2000) explanation that there is a syntactic characterization to satiation effects. That all three types of subject islands patterned together with respect to satiation lends support to the idea that it is "movement" (i.e., strong subadjacency movement over two barriers, for example) and not the predicate type that matters for satiation⁶.

The lack of difference in overall acceptability of the different subject island types does not provide evidence for Kravtchenko et al's finding that unaccusative subject islands are more acceptable than unergative or transitive subject islands. Yet, difference scores in the satiation study showed that the intransitive subject islands were more susceptible to change than the transitive subject islands over the course of the experiment. Further studies of subject islands and predicate type may offer more insight on the role of the predicate and number of arguments in acceptability.

This study used a new method of accounting for individual variability in use of rating scales by standardizing responses to critical items based on responses to fillers. The current method was to create an average filler response from all 35 fillers in the experiment. It is also possible that an individual's overall variability could have changed during the course of the experiment. Following this reasoning, it is possible that standardizing scores block by block may yield a different result for satiation.

Satiation can be induced experimentally, but it is also a phenomenon that happens to linguists over the course of a career. There are questions of what length of exposure is required for the effect, and how long the effects last. In order to determine whether a second testing session was necessary to induce satiation, 9 subjects were brought back two weeks later to repeat the Likert test with the same items for a pilot study of "long term" satiation. For these participants, satiation was determined by comparing responses in Block 1 from the first experiment and Block 7 from the second experiment 2 weeks later. A two-tailed paired *t*-test of standardized scores revealed no significance for any of the ungrammatical types, though *whether* islands trended toward significance (*whether* islands $t(8) = 1.51$, $p=.17$); adjunct: $t(8) = 0.744$, $p=.48$; transitive subject islands: $t(8) = 0.921$, $p=.38$; unaccusative subject islands: $t(8) = 0.801$, $p=.45$; unergative subject islands $t(8) = 0.727$, $p=.49$).

There are many future prospects for satiation and acceptability of subject islands. It would be useful to have a way to tease apart semantic and syntactic explanations for island phenomena. Truswell (2007) argues that semantic factors such as predicate type allow some extractions from adjuncts (Compare **What did John arrive while whistling t ?* vs. *What did John arrive whistling t ?*). In addition to investigating semantic phenomena, this contrast suggests that adjunct islands could also show differences in acceptability ratings and differences in satiation effects.

To conclude, studies of syntactic satiation suggest that there are many dimensions to acceptability judgments, and multiple data points per speaker, perhaps over a period of time, are desirable for testing linguistic hypotheses. As suggested by Truswell (2007) and Kluender (1998), meaning and discourse information play a role in island violations, and perhaps in satiation effects. As much as we try, it is difficult to divorce our judgments not only from context, lexical items and pragmatic plausibility, but also from repeated judgments.

⁶It should be noted that what constitutes "barriers" to movement are controversial in past and present proposals, see Hiramatsu 2000 for discussion.

References

- Berwick, Robert. and Weinberg, Amy. 1984. *The grammatical basis of linguistic performance: Language use and acquisition*. Cambridge: MIT Press.
- Braze, David. 2002. Grammaticality, acceptability, and sentence processing: A psycholinguistic study. Unpublished Ph. D. Dissertation, University of Connecticut.
- Chomsky, Noam. 1964. Degrees of grammaticalness. In *The Structure of Language: Readings in the Philosophy of Language*, pp. 384–389.
- Chomsky, Noam. 1977. On Wh-movement. In *Formal syntax*. Culicover, P.W., Wasw, T. & Akmajian, A. (eds.), pages. San Francisco, London: Academic Press.
- Chomsky, Noam. 1986. *Barriers*. Cambridge: MIT Press.
- Chomsky, Noam. 1986. *Knowledge of Language: Its Nature, Origin and Use*. New York: Praeger.
- Erteschik-Shir, Nomi. 1997. *The Dynamics of Focus Structure*. Cambridge, England: Cambridge University Press.
- Erteschik-Shir, Nomi. 2007. *Information structure: The syntax-discourse interface*. Oxford: Oxford University Press.
- Francom, Jerrid. 2009. *Experimental Syntax: Exploring the effect of repeated exposure to anomalous syntactic structure—evidence from rating and reading tasks*. Doctoral Dissertation, University of Arizona.
- Fukuda, Shin, Goodall, Grant, Michel, Dan, and Beecher, Henry. 2011. Is Magnitude Estimation Worth the Trouble? *Proceedings of the 29th annual West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Press.
- Goodall, Grant. (2004). On the syntax and processing of wh-questions in spanish. In Schmeiser, B., Chand, V., Kelleher, A., and Rodriguez, A., editors, WCCFL 23 Proceedings, pages 101–114. Somerville, MA: Cascadilla Press.
- Hiramatsu, Kazuko. (2000). *Assessing Linguistic Competence: Evidence from Children's and Adults' Acceptability Judgments*. PhD thesis, University of Connecticut.
- Huang, C.-T. 1982. Move wh in a language without wh-movement. *The Linguistic Review* 1:369–416.
- Kluender, Robert. (1998). On the distinction between strong and weak islands: a processing perspective. *Syntax and semantics* 118:241–280.
- Kluender, Robert. (2004). Are subject islands subject to a processing account. *Proceedings of the 23rd West Coast Conference on Formal Linguistics*, pages 475–499.
- Kluender, Robert. and Kutas, Marta. (1993a). Bridging the Gap: Evidence from ERPs on the Processing of Unbounded Dependencies. *Journal of Cognitive Neuroscience* 5(2), 196-214.
- Kluender, Robert. and Kutas, Marta. (1993b). Subjacency as a processing phenomenon. *Language and Cognitive Processes*, 8(4):573–633.
- Kravtchenko, Ekaterina., Polinsky, Maria., and Xiang, Ming. 2009. Are all subject islands created equal? Poster presented at the CUNY conference, UC Davis, Davis, CA.
- Levin, Beth, and Rappaport-Hovav, Malka. 1995. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: MIT Press.
- Merchant, Jason. 2001. *The syntax of silence*. Oxford: Oxford University Press.
- Snyder, William. (2000). An experimental investigation of syntactic satiation effects. *Linguistic Inquiry* 31(3), 575-582.
- Sprouse, Jon. (2007a). *A Program for Experimental Syntax: Finding the relationship between acceptability and grammatical knowledge*. PhD thesis, University of Maryland.
- Sprouse, Jon. (2009). Revisiting Satiation: Evidence for an equalization response strategy. *Linguistic Inquiry* 40(2) 329-341.
- Stowell, Timothy. 1981. *Origins of Phrase Structure*. Doctoral dissertation, MIT.
- Takahashi, Daiko. 1994. *Minimality of Movement*. Doctoral dissertation, University of Connecticut.
- Truswell, Robert. 2007. Extraction from adjuncts and the structure of events. *Lingua* 117:1355-1377.

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