

act *x* has been *accomplished* in a situation *s* (e.g., *do*), and (b) a separate predicate expressing that a given act *x* is of a particular *type* in a situation *s* (e.g., *juggling*).

This semantic consequence, in turn, converges with well-known morphosyntactic evidence that a verb like *juggle* is syntactically derived from a more complex structure, one akin to a complex predicate like *do juggling* (e.g., Hale and Keyser 1993, Kratzer 1996). Despite these prior results, the claim that simple verbs like *juggle* are, at a greater level of abstraction, semantically and syntactically complex remains controversial (Fodor and Lepore 1999, Horvath and Siloni 2002). The fact that sentences like (10a) must be seen as having readings akin to (10b) provides some novel, additional support for this now popular, though still controversial, claim.

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RESUMPTION STILL DOES NOT RESCUE ISLANDS

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1 Introduction

Since Ross 1967, island constraints have been a major topic in syntactic research; however, to this day the status of different types of islands and their psychological reality remain subjects of hot debate. Environments where island constraints appear to be violated are particularly

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important to our understanding of the constraints. Resumptive pronouns (RPs) have traditionally been cited as an island-rescuing device in English and other languages (Ross 1967, Kroch 1981, Erteschik-Shir 1992). And indeed, in some languages, RPs show immunity from island constraints (Aoun, Choueiri, and Hornstein 2001, McCloskey 2006), as in the following Lebanese Arabic example:

- (1) *ħdrna l-masrahiyye yalli tʔarrafna ʕala l-muħriḏ yalli*
 saw.1PL the-play that met.1PL on the-director that
ʔaħraḏ-(a)*
 directed.3SM-*(it)
 ‘We saw the play that we met the director that directed it.’
 (Aoun and Choueiri 1996:(12))

In English, RPs have been reported to appear in island and non-island contexts, as attested in spontaneous speech (Prince 1990) and in laboratory production studies (Zukowski and Larsen 2004, Ferreira and Swets 2005).

- (2) a. I have this friend who *she* does all the platters.
 (Prince 1990:(4c))
 b. This is the donkey that I don’t know where *it* lives.
 (Ferreira and Swets 2005:(3a))
 c. The man who the spider is falling on *his* head . . .
 (Zukowski and Larsen 2004)

This productive use of RPs might suggest that resumption is a strategy available to the grammar of English just as it is available to the grammar of languages like Irish and Lebanese Arabic. On this view, the main difference may be in how acceptable languages find this strategy, and how often they use it. In English, for instance, resumption is extremely rare (Creswell 2002, Herrmann 2005, Jaeger 2006, Manetta 2007, Bennett 2008), so it may have the same ‘‘last resort’’ character that Shlonsky (1992) proposes for Hebrew and Palestinian Arabic (both languages with fully grammatical resumption). When speakers have painted themselves into a syntactic corner, they use RPs to salvage what they can of their intended meaning. Nevertheless, this use of RPs forms part of the grammatical knowledge of native English speakers, and therefore a descriptively adequate syntactic theory should have a means of representing them. Assuming such an account, the relative ungrammaticality of resumption in English might result merely from frequency effects.

Turning now to experimental investigation of RPs, there is a deep discrepancy between production studies and comprehension studies. On the production side, Zukowski and Larsen (2004) and Ferreira and Swets (2005) asked study participants to judge the acceptability of sentences using the same resumptive structure that the participants had readily produced (see (2b–c)). Resumptive structures were consistently rated significantly below the grammatical controls. However, these studies did not compare the RPs with their illicitly gapped coun-

terparts and therefore were inconclusive as to whether resumption can rescue islands.

Alexopoulou and Keller 2007 (A&K) was the first study to extensively test the rescuing ability of RPs in comprehension. The authors tested extraction of *wh*-elements out of relative clauses (strong island condition), *whether*-clauses (weak island condition), and *that*-clauses (control condition) in English, Greek, and German. For each condition, they tested for multiple levels of embedding. For instance:

- (3) a. Who does Mary wonder [whether we will fire ____ /him]?
 (*single embedding*)
 b. Who does Jane think [that Mary wonders [whether we
 will fire ____ /him]]? (*double embedding*)

Across different languages and conditions, A&K's results consistently showed that when extracting from an island, strong or weak, a resumptive structure was never more acceptable than its gapped counterpart. On the other hand, the violation caused by the RP was ameliorated by increased syntactic distance. The latter finding is particularly surprising in light of corpus studies (Jaeger 2006:101, Bennett 2008), which show English resumption to be more common for highest subjects than for embedded subjects.

If we combine all these findings, a paradox emerges: first, resumption in English seems to be most common where it is least acceptable; and second, the amelioration effect is not reciprocal. That is, more deeply embedded islands can improve the acceptability of RPs, but RPs can never improve the acceptability of island violations.

The current study takes this paradox seriously and attempts to fill two gaps in the previous studies. First, we wish to test the acceptability of more types of islands in both declarative and *wh*-question contexts. It is well known that syntactic islands are not a homogeneous group, as they show various degrees of amenability to gap creation (Phillips 2006, Sprouse, Wagers, and Phillips 2010, Sprouse et al., to appear) and thus, presumably, to RPs. In testing resumption, A&K did not test declarative statements, where resumption is rampant in production (instead, they tested *wh*-questions, where no such effect has been observed). To strike at the heart of the production-comprehension mismatch, an investigation of RPs in declaratives is necessary.

Second, RP acceptability should be tested in an online, not offline, task (A&K used the latter). Conceivably, RPs occur more often in production because of the temporal constraint people face during production. To address this possibility, we need studies of RP acceptability in an online comprehension task, which puts people under a similar kind of time pressure. Setting a longer-term agenda, we need to obtain online comprehension results for both visual (reading) and auditory presentation. If we find no rescuing effect of RPs in any of these circumstances, we have stronger evidence that at least for English, resumption is unable to ameliorate island constraint violations in comprehension. The visual presentation is necessary to better contextualize

the results reported by A&K and to remove the possible confounds in their study. The auditory presentation is necessary because RPs are very much a spoken-register phenomenon (see also Jaeger 2006, Bennett 2008). Looking back to the many years of introspection into resumption, auditory presentation has always been the dominant method of establishing whether a particular case is acceptable or not: linguists would say a sentence to themselves or their friends.

This squib takes the first step to this end, presenting three experiments on reading. The first one tested RPs in complex NP islands, using an offline judgment task (the data that are needed to fill in the gap from A&K's study). The second and third experiments used online judgment tasks, in which we tested relative clause islands and adjunct islands. In all these experiments, we also compared declarative sentences with *wh*-questions; the latter allowed a more direct comparison with A&K's results.

2 Experiment 1: Resumptive Pronouns within Complex NP Islands

In this experiment, we tested the rescuing function of RPs for complex NP islands, using two types of complex NP islands, one with a factive complement clause and one with a standard relative clause. Experiment 1a examines RPs in factive clauses; Experiment 1b, RPs in relative clauses.

2.1 Experiment 1a: Factive Complement Clauses

2.1.1 Materials, Procedure, and Subjects In a 2×3 design, we crossed the following two factors: construction type and gap type. For the first factor, construction type, participants read either a *wh*-construction or a complex-NP (factive clause) construction; for the second factor, gap type, participants read a sentence with a gap within the island, a sentence with a resumptive pronoun within the island, or a grammatical control sentence with a gap in the main clause. Example stimuli are given in (4).

(4) *Factive clauses: Declaratives*

- a. This is the man that the news that the police arrested ____ shocked the public. (*gap in an island*)
- b. This is the man that the news that the police arrested *him* shocked the public. (*RP in an island*)
- c. This is the man that Mary thought that the police arrested ____ to protect the president. (*grammatical control*)

Factive clauses: Wh-questions

- d. Which man did the news that the police arrested ____ shock the public? (*gap in an island*)
- e. Which man did the news that the police arrested *him* shock the public? (*RP in an island*)
- f. Which man did Mary think that the police arrested ____ to protect the president? (*grammatical control*)

There were 30 sets of experimental items, and each tested the six conditions described above. All the experimental sentences were distributed into six lists with a Latin-square design. In addition, there were 108 fillers. Each participant was given a printed copy of one of the lists, consisting of 138 sentences in a randomized order. The participants were instructed to score the acceptability of each sentence on a 1-to-7 scale, where 7 indicated perfect acceptability and 1, unacceptability. They were instructed to judge on the basis of their native-speaker intuition rather than any prescriptive rules, and to go with their first instincts rather than spending time pondering their answers. Eighteen native speakers of English from the Boston area participated in the study.

2.1.2 Results Average ratings for Experiment 1a are shown in figure 1. The 2×3 ANOVA reveals a main effect of gap type both by subjects ($F(2, 34) = 68.9, p < .001$) and by items ($F(2, 58) = 122.5, p < .001$). We did not find any main effect of construction type, nor did we find any interactions. Planned comparisons found that the main effect of gap type was driven by the difference between the grammatical control and the ungrammatical conditions. For the group of declarative constructions, the control condition was rated significantly higher than the gap condition ($t_1(1, 17) = 10.6, p < .001$; $t_2(1, 29) = 11.2, p < .001$) and the resumption condition ($t_1(1, 17) = 9.3, p < .001$; $t_2(1, 29) = 12, p < .001$). Similarly, for the group of *wh*-constructions, the control condition was rated higher than the gap condition ($t_1(1, 17) = 5.9, p < .001$; $t_2(1, 29) = 7, p < .001$) and the resumption condition ($t_1(1, 17) = 5.9, p < .001$; $t_2(1, 29) = 9.7, p < .001$). No other significant difference was observed. Critically, there is no difference between the gap condition and the resumption condition at all, in either the declarative or the *wh*-constructions.

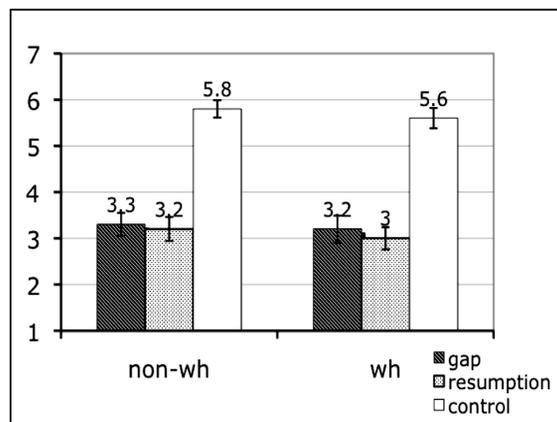


Figure 1
Mean ratings for Experiment 1a

2.2 Experiment 1b: Relative Clauses

2.2.1 Materials, Procedure, and Subjects This experiment focused on RPs within relative clause islands. The experimental design was the same as that of Experiment 1a. Example stimuli are given in (5).

(5) *Relative clauses: Declaratives*

- a. This is the man that the policeman who arrested ____ saved the president's life. (*gap in an island*)
- b. This is the man that the policeman who arrested *him* saved the president's life. (*RP in an island*)
- c. This is the man that the policeman who arrested the thief saved _____. (*grammatical control*)

Relative clauses: Wh-questions

- d. Which person did Mary think that the policeman who arrested ____ saved the president's life? (*gap in an island*)
- e. Which person did Mary think that the policeman who arrested *him* saved the president's life? (*RP in an island*)
- f. Which man did Mary think that the policeman who arrested the thief saved ____? (*grammatical control*)

There were 30 sets of experimental items and 114 fillers. The procedure was the same as in Experiment 1a. Eighteen native speakers of English from the Boston area participated in the study.

2.2.2 Results Average ratings for Experiment 1b are shown in figure 2. The 2×3 ANOVA found a main effect of construction type, which is marginal by subject analysis ($F(1, 17) = 4.05, p = .06$) and significant by item analysis ($F(1, 29) = 9.3, p < .01$). There was also a main effect of gap type ($F_1(2, 24) = 99.8, p < .001$; $F_2(2, 58) = 160.4, p < .001$). In addition, there was a significant interaction ($F_1(2, 34) = 3.85, p < .05$; $F_2(2, 58) = 3.27, p < .05$). Planned comparisons found that for the group of declarative constructions, the control condition was rated significantly higher than the gap condition ($t_1(1, 17) = 11.1, p < .001$; $t_2(1, 29) = 9.6, p < .001$) and the resumption condition ($t_1(1, 17) = 10.1, p < .001$; $t_2(1, 29) = 11.3, p < .001$). Similarly, for the group of *wh*-constructions, the control condition was rated higher than the gap condition ($t_1(1, 17) = 6.3, p < .001$; $t_2(1, 29) = 7.9, p < .001$) and the resumption condition ($t_1(1, 17) = 7.4, p < .001$; $t_2(1, 29) = 11.7, p < .001$). In addition, the grammatical *wh*-construction was rated significantly lower than the grammatical declarative construction ($t_1(1, 17) = -2.5, p < .05$; $t_2(1, 29) = -3.0, p < .01$). Again, critically, there is no difference between the resumption conditions and the gap conditions in any of the comparisons.

2.3 Summary of Experiment 1

The offline acceptability judgment results in Experiment 1 showed that for complex NP islands, including both factive complement clauses and relative clauses, resumption has no rescuing effect. Participants disfavored resumption as much as sentences with illicit gaps. For

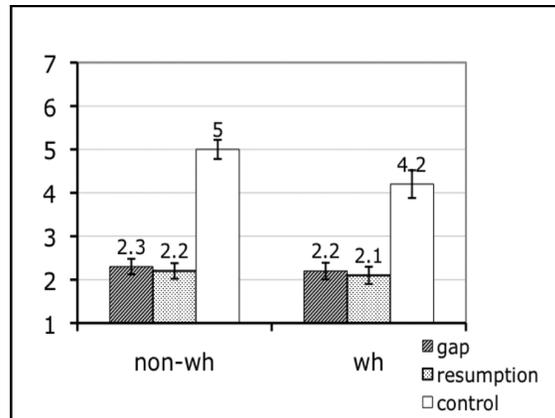


Figure 2
Mean ratings for Experiment 1b

the grammatical controls, at least for relative clauses, *wh*-constructions were rated lower than declarative constructions. This difference could be due to the fact that in our material, the *wh*-controls are slightly longer than the declaratives and hence a bit more complex.

With respect to RPs' failure to rescue islands, a number of studies have suggested that RPs are used as a "last-resort" strategy. If the acceptability of resumptions is related to processing resources, the possibility arises that people might consider RPs more acceptable than gaps when they have a limited amount of time to process them. To test this possibility, in Experiment 2 we repeated Experiment 1b as an online acceptability judgment task. An additional advantage of the online task was that it allowed us to collect response time data, in addition to the acceptability judgment data.

3 Experiment 2: Online Acceptability Judgments of Relative Clause Islands

3.1 Materials, Procedure, and Subjects

The materials used in Experiment 2 were the same as those used in Experiment 1b. The experiment was implemented using Linger (Rohde 2003). All the sentences were automatically randomized. Each sentence was presented word by word (400 ms per word). After the last word of each sentence, participants used the mouse to rate the sentence on a 1-to-7 scale (7: perfectly grammatical, 1: ungrammatical). Twenty-four native speakers of English from the Boston area participated in the study.

3.2 Results

The average rating results for Experiment 2 are presented in figure 3. A 2×3 ANOVA found a main effect of construction type ($F_1(1, 23)$

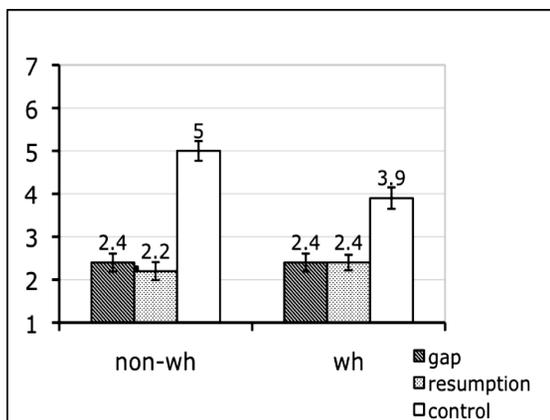


Figure 3
Mean ratings for Experiment 2

= 9.15, $p < .01$; $F_2(1, 29) = 10.9$, $p < .01$). There was also a main effect of gap type ($F_1(2, 46) = 105.7$, $p < .001$; $F_2(2, 58) = 164.5$, $p < .001$). In addition, there was a significant interaction ($F_1(2, 46) = 16.7$, $p < .001$; $F_2(2, 58) = 11.9$, $p < .001$). Planned comparisons found that for the group of declarative constructions, the control condition was rated significantly higher than the gap condition ($t_1(1, 23) = 10.8$, $p < .001$; $t_2(1, 29) = 14.5$, $p < .001$) and the resumption condition ($t_1(1, 23) = 10.9$, $p < .001$; $t_2(1, 29) = 15.0$, $p < .001$). Similarly, for the group of *wh*-constructions, the control condition was rated higher than the gap condition ($t_1(1, 23) = 6.7$, $p < .001$; $t_2(1, 29) = 7.0$, $p < .001$) and the resumption condition ($t_1(1, 23) = 7.1$, $p < .001$; $t_2(1, 29) = 7.3$, $p < .001$). In addition, the grammatical *wh*-construction was rated significantly lower than the grammatical declarative construction ($t_1(1, 23) = -4.5$, $p < .001$; $t_2(1, 29) = -4.6$, $p < .001$). There was no difference between the resumption conditions and the gap conditions.

Turning now to the reaction times, RTs longer than 4,500 ms (2 standard deviations from the mean) were not included for data analysis. The mean RT result is presented in figure 4. A 2×3 ANOVA found no main effect of construction type ($F_1(1, 23) = 0.5$, $p > .5$; $F_2(1, 29) = 0.2$, $p > .5$). There was a significant effect for gap type ($F_1(2, 46) = 3.5$, $p < .05$; $F_2(2, 58) = 4.6$, $p < .05$). No interaction was found ($F_1(2, 46) = 0.8$, $p > .1$; $F_2(2, 58) = 1.4$, $p > .1$). Planned comparisons found that the significant effect of gap type was mainly driven by the difference between the resumption condition and other conditions. For the group of *wh*-constructions, the RTs for the resumption condition were significantly shorter than for the control condition ($t_1(1, 23) = -2.4$, $p < .05$; $t_2(1, 29) = -2.7$, $p < .05$). There was

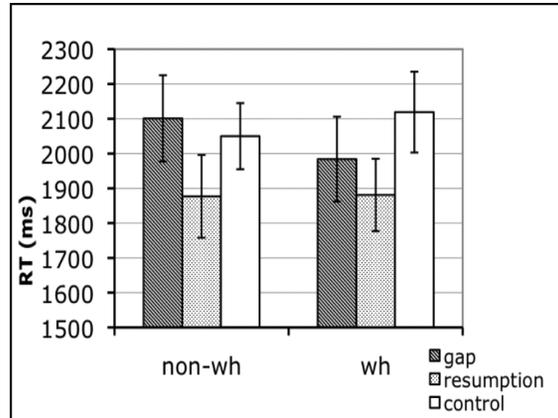


Figure 4
Mean reaction times (RTs) in ms for Experiment 2

also a numerical trend that the RT for the resumption condition was also shorter than the RT for the gap condition, but this difference did not reach significance. For the declarative group, the RTs for the resumption condition were marginally shorter than the RTs for the control condition by subject analysis ($t_1(1, 23) = -1.8$; $p = .08$; $t_2(1, 29) = -1.5$, $p > .1$); and also in this group the RTs for the resumption condition were significantly shorter than the RTs for the gap condition by item analysis, and this difference was marginally significant by subject analysis ($t_1(1, 23) = -1.8$, $p = .08$; $t_2(1, 29) = -2.4$, $p < .05$). No other difference was observed.

3.3 Summary of Experiment 2

The online rating results from Experiment 2 replicated the offline results from Experiment 1b. Once again, RPs did not show any rescuing effect, even when participants were under time pressure. Interestingly, the RT data also showed that participants actually judged the resumption condition fastest. In other words, rather than having any rescuing effect, RPs made it easier for participants to detect the ungrammaticality of the sentences. In addition, as in Experiment 1b, grammatical *wh*-constructions were again rated lower than grammatical declarative constructions. The RT difference on the two grammatical conditions, however, did not reach significance.

Overall, Experiments 1 and 2 showed that RPs have no rescuing effect for violations of complex NP islands. Complex NPs are generally considered strong islands (Postal 1998, Szabolcsi 2006). In the last experiment, we tested RPs in adjunct clauses, at least some of which have been considered weak(er) islands (Cinque 1990, Truswell 2007), thus establishing a contrast with the strong islands considered in previous work.

4 Experiment 3: Online Acceptability Judgments of Adjunct Islands

4.1 Materials, Procedure, and Subjects

The design of Experiment 3 was the same as for the previous experiments, except that the target stimuli were adjunct islands. In theoretical work, such islands are considered strong; an experimental investigation by Hiramatsu (1999, 2000) shows that they are particularly opaque. Example stimuli are given in (6).

(6) *Adjunct clauses: Declaratives*

- a. This is the dish that, although the chef overcooked _____, the guests were not upset. (*gap within an island*)
- b. This is the dish that, although the chef overcooked *it*, the guests were not upset. (*RP within an island*)
- c. This is the dish that, although the chef overcooked the sauce, the guests enjoyed _____. (*grammatical control*)

Adjunct clauses: Wh-questions

- d. Which dish did Gina think that, although the chef overcooked _____, the guests were not upset? (*gap within an island*)
- e. Which dish did Gina think that, although the chef overcooked *it*, the guests were not upset? (*RP within an island*)
- f. Which dish did Gina think that, although the chef overcooked the sauce, the guests enjoyed _____? (*grammatical control*)

A total of 30 sets of experimental sentences and 114 fillers were used in an online rating task. The procedure was the same as in Experiment 2. Twenty-four native speakers of English from the Boston area participated in the study.

4.2 Results

The average rating results for Experiment 3 are presented in figure 5. A 2×3 ANOVA found a main effect of construction type ($F_1(1, 23) = 13.8, p < .01; F_2(1, 29) = 22, p < .001$). There was also a main effect of gap type ($F_1(2, 46) = 4.5, p < .05; F_2(2, 58) = 7.0, p < .01$). There was no interaction ($F_1(2, 46) = 1.2, p > .1; F_2(2, 58) = 1.6, p > .1$). Planned comparisons found that for the group of declarative constructions, the control condition was rated significantly higher than the gap condition by items, and the difference was only marginal by subjects ($t_1(1, 23) = 1.8, p = .09; t_2(1, 29) = 2.7, p < .05$). For the same declarative group, there was no difference between the control condition and the resumption condition ($t_1(1, 23) = 1.5, p > .1; t_2(1, 29) = 1.7, p = .5$). For the group of *wh*-constructions, the control condition was rated higher than the resumption condition ($t_1(1, 23) = 2.9, p < .01; t_2(1, 29) = 3.4, p < .01$), but it was only higher than the gap condition by item analysis ($t_1(1, 23) = 1.6, p > .1; t_2(1, 29) = 2.2, p < .05$). In addition, the grammatical *wh*-construction was

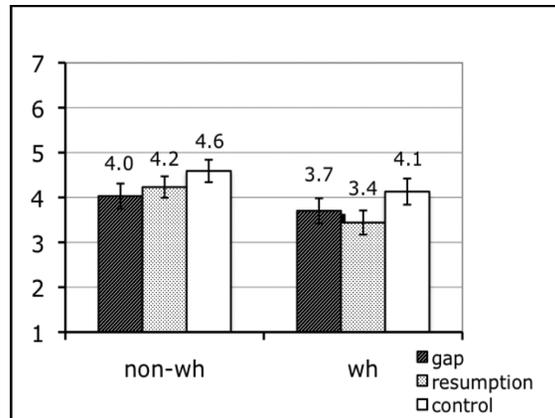


Figure 5
Mean ratings for Experiment 3

rated significantly lower than the grammatical declarative construction ($t_1(1, 23) = -2.2, p < .05$; $t_2(1, 29) = -2.5, p < .05$). No other difference was observed.

The RT mean (in ms) for Experiment 3 is presented in figure 6. Again, RTs longer than 4,500 ms were not included in the data analysis. We did not observe any significant difference in the mean RT data for Experiment 3.

4.3 Summary of Experiment 3

The rating results in Experiment 3 show that adjunct islands, at least the kind presented here, are very weak: sentences without any island

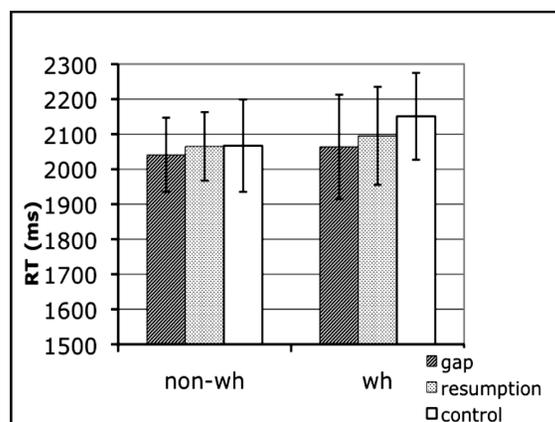


Figure 6
Mean reaction times (RTs) in ms for Experiment 3

violations had only a slight advantage in rating over those with island violations. This result adds to the growing body of evidence that adjunct islands are a heterogeneous group (see also Hiramatsu 2000, Truswell 2007, Sprouse, Wagers, and Phillips 2010). The particular adjunct islands we used (*although*-, *while*-islands) consistently showed greater transparency. Which adjunct islands are weaker, and why, has yet to be understood, and we are not ready to offer any speculations. However, critically for our purposes, sentences with RPs again showed no advantage over sentences with gaps.

5 Conclusions

This squib took as its starting point the conclusion, reached on the basis of experimental work, that English resumption does not ameliorate island effects (Alexopoulou and Keller 2007). The reasons to question this result had to do with the methodology (offline reading-based judgments) and the nature of the islands tested. Our own study included the contexts where resumption is more commonly found in English (declaratives; relative and adjunct clauses) and employed a different methodology. Nonetheless, resumption still failed to rescue the island violations and was judged ungrammatical. While not the final word in the long-standing debate on the role of resumption in English (the next logical step, which we are now planning, is to test auditory presentation of the offending stimuli), this result suggests that the role English RPs play in production is not that of island rescuers.

If this is the case, what is the function of RPs in English? We have shown that resumption does not help the hearer, or more accurately, the reader (and it has been reasonably well established that it is ungrammatical in written discourse). One possible explanation is that unlike Irish resumption, English resumption is not a strategy for establishing \bar{A} -binding relations, but something more similar to cross-sentential anaphora (see also Erteschik-Shir 1992). If this is the case, performance pressures in production could lead speakers to resort to such anaphora as a way of adding more information without breaking the production chain. If this suggestion is on the right track, the difference between production and comprehension with respect to resumption falls outside the domain of grammar and pertains to the planning of an utterance. That in turn would account for the paradox we noted earlier: naturally occurring resumption is more common in the subject position of an embedded or relative clause, which is also the context where it is judged most ungrammatical. Subjects (or maybe topics) are privileged with respect to coreference across clauses and in discourse (Keenan and Comrie 1977, Comrie 1987, Lambrecht 1994, Erteschik-Shir 2007, among others), and this privileged status with respect to coreference would favor them over other arguments in the use of RPs by the coreference-marking speaker. Thus, resumption in English may be still another instance of phenomena where, contrary to belief, speakers structure an utterance to meet their own needs, in addition to the

needs of the hearer (for other instances of speakers following their needs rather than those of the listeners, see Brennan and Clark 1996, Engelhardt, Bailey, and Ferreira 2006, among others). Finally, if the use of RPs in English is nothing more than a speaker-centered device for maintaining coreference, we are in a position to better differentiate it from nonintrusive resumption in such languages as Irish (McCloskey 2006 and references therein).

With further experimentation, intrusive resumption in English could be differentiated from yet another type of licit resumption: that found in Italian. In Italian, left-dislocated elements may be doubled by clitic RPs, but the two elements may not be separated by an island boundary, indicating that movement is involved (Cinque 1990). Therefore, we would expect RPs in Italian to surpass the acceptability of gaps under deep embedding in the absence of an island, in contrast to their behavior in English, Greek, or German (Alexopoulou and Keller 2007). However, in the presence of an island, Italian judgments should mirror those in the present experiments.

Finally, we would like to note again that in our experiments, ungrammatical sentences with RPs were judged as bad very quickly. In cases where RP judgments were faster than judgments for sentences with illicit gaps, the gaps seem to be less helpful to the parser, despite being just as unambiguously ungrammatical. This tendency was the clearest in complex NPs with factive complements, which are independently known to be strong islands. Future work on other strong islands will determine whether this effect holds. If it does, we can conclude that the extra information available in RPs is useful in parsing difficult dependencies, making its unacceptability all the more puzzling.

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SECOND-POSITION CLITICS IN THE
VP PHASE: THE CASE OF THE
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1 Introduction

Special clitics appear in a position that is different from the one favored by their associated full forms (Zwicky 1977). Linguistic analyses have identified two main categories of special clitics: (a) second-position or Wackernagel clitics that must appear as the second element in a clause (as in Bosnian-Croatian-Serbian (henceforth, BCS), Czech,

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