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Resumption in English *

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1 Introduction

Since Ross 1967, resumptive pronouns (RPs) have been described as an island-rescuing device in English and other languages (Ross 1967, Kroch 1981, Erteschik-Shir 1992). Indeed, RPs show immunity to island constraints in some languages (Aoun et al. 2001, McCloskey 2006), as illustrated by the following Lebanese Arabic example:

(1) ḥḍrna l-masraḥiyye yalli tṣarrafna ṣala l-muxriṣ yalli ʔaxraṣ-*(a)
saw.1PL the-play that met.1PL on the-director that directed.3SM-*(it)

‘We saw the play that we met the director that directed it.’ (Aoun and Choueiri 1996, ex. (12))

Turning to English, the following examples from corpus or production studies show that RPs are found in both island and non-island situations:

* We are grateful to Abbas Benmamoun, Amy Rose Deal, Marcel den Dikken, Roger Levy, Jim McCloskey, Jason Merchant, Jonathan Pesetsky, Greg Scontras, Peter Sells,

- (2) a. I have this friend who *she* does all the platters. (Prince 1990)
- b. You know, it's, uh, one of those movies that *it's* not a great movie (Switchboard portion, Penn Treebank—Roger Levy, p.c.)
- c. She got a couch at Sears that it was on sale (Cann et al. 2004, ex. (10))
- d. This is the donkey that I don't know where *it* lives. (Ferreira and Swets 2005)
- e. The man who the spider is falling on *his* head... (Zukowski and Larsen 2004)
- f. [She] just received an email containing the relative clause that she will have no idea what *it* is (from a Facebook thread)
- g. ...bees which if you are stung by *them*, you die (Creswell 2002, ex. (8a))

A closer look, however, suggests that these two types of RPs, those observed in English and those found in languages like Lebanese Arabic, may not have the same grammatical status. A number of different properties between the two have been observed in the literature (see next section), but it still remains a debatable issue whether English RPs should be thought of as a strategy built into the grammar or merely as a processing device. A critical piece of empirical data that bears upon this issue is the claim that English RPs rescue island violations. We will show in this paper that experimental findings render this claim untenable. There is a sharp contrast between speakers' production and comprehension: although there are abundant production examples in the literature where speakers produce RPs within a syntactic island, in three comprehension

Jon Sprouse, an anonymous reviewer, and audiences at CUNY 2009 for comments on this project. All errors are our responsibility.

studies, we found no evidence that RPs make island violations more acceptable to listeners. The current findings expand the empirical coverage of the results in Alexopoulou and Keller (2007), which revealed no rescuing effect for RPs in wh-question islands. In light of these findings, we propose that English RPs are a co-referencing production device that helps speakers keep track of coreference relations in processing. English RPs do not provide processing assistance to the listener, however, which explains the otherwise puzzling production-comprehension asymmetry.

2 *Setting the stage*

Irish and Lebanese Arabic instantiate well-behaved, or *apparent* resumption (the latter term is from Aoun et al. 2001). In a nutshell, the properties of this sort of resumption are as follows. First, apparent resumptives can freely alternate with gaps in most long-distance dependencies, and such alternations are not associated with any discernible interpretive effects (McCloskey 2001: 93). Second, apparent resumptives must be used in contexts where the use of a gap is impossible (such as syntactic islands), rendering the following fully grammatical example from Irish:

- (3) na hamhráin sin nach bhfuil fhios againn [CP cé a chum *(i_{ad})]
 the.PL songs those C.NEG is knowledge at-us who C composed RP
 ‘the songs that we don’t know who composed them’ (McCloskey 2006)

Third, in some languages with apparent resumptives, e.g. Irish, Swedish, or Hebrew, resumption obeys the Highest Subject Restriction—a constraint against the use of RPs in the highest subject position of a relative clause (McCloskey 1990, 2001, 2006; Engdahl 1986; Shlonsky 1992, a.o.). The following example from Hebrew illustrates the constraint that the subject gap cannot be replaced by a resumptive element:

(4) ha-ʔiš [še (*hu) ʔohev ʔet-Rina]

DET-man COMP RP loves ACC-Rina

‘the man who loves Rina’ (Shlonsky 1992: 6)

Finally, in languages with apparent resumption, RPs can be bound by a quantificational antecedent (Chao and Sells 1983, Sharvit 1999, Hendrick 2005).

Turning to English, the picture is quite different. As shown in (2), English RPs have been attested in spontaneous speech and elicited production studies in both island and non-island contexts. Generally, English speakers do not accept constructions like the ones above.¹ Yet, RPs are routinely found in spoken and written discourse.

Unmistakably, the use of RPs in English is not fully grammatical. There has been a great deal of discussion in the linguistic literature as to what exactly the status of resumption is in English and how it compares to apparent resumption, as in the languages

¹ Cf. Kroch’s comment: “the status of resumptive pronouns in English relatives is certainly unclear...[perhaps] influenced by normative considerations...Speakers generally reject even forms...[that they] have just produced” (Kroch 1981: 131).

discussed above. Our examples suggest that English does not obey the highest subject restriction: in (2a, b, c), the pronoun is in the highest subject position of a relative clause. Furthermore, in terms of raw frequency, highest-subject resumption is more frequent than embedded-subject resumption (Heestand et al. 2011).² Unlike apparent resumptives, English RPs cannot be bound by quantificational antecedents (Sells 1984: 453; Erteschik-Shir 1992: 92), cf.:

- (5) a. Which truck_i does no driver_k believe ____i will get him_k across the country?—
The one he_k hires from Ryder.
- b. *Which truck_i does no driver_k believe it_i will get him_k across the country?—
The one he_k hires from Ryder (Chao and Sells 1983: 51)

The differences between resumption in English and in apparent resumption languages may have a simple explanation: English resumption and resumption in a language like Lebanese Arabic are completely different. A number of researchers have described the contrast by proposing a formal distinction between *intrusive* resumption, as in English (Sells 1984), and apparent resumption. Under intrusive resumption, RPs occur in contexts where movement is not possible and the resumptive element is related to its antecedent

² However, if resumption is assessed in conditional probability rather than by raw frequency, the highest-subject resumption becomes very uncommon (Levy 2011). It is an open question which frequency effects—raw frequency or conditional probabilities—play a role in forming grammaticality judgments.

anaphorically (Sells 1984). Under apparent resumption, the pronoun or epithet phrase is related to its antecedent via Move (Demirdache 1991; Aoun and Choueiri 1996; Aoun et al. 2001; Varlokosta and Armon-Lotem 1998). Only apparent resumption displays reconstruction effects for scope and binding, which are of course standard diagnostics of movement.

This is an attractive solution, but it is not free from objection. One serious concern is that intrusive and apparent resumptives have identical forms—they are always pronouns (cf. McCloskey 2006). Why two languages would prefer to use two identical forms for different operations remains unclear and is certainly something that would need to be explained. In this paper, we will continue the tradition of treating intrusive and apparent resumption as different phenomena while offering no explanation for the identity property emphasized by McCloskey. We will also focus mainly on intrusive resumption, with little to say about its counterpart in languages such as Arabic or Irish.

The question as to whether or not intrusive resumption actually rescues island violations has led to a significant difference of opinion that can be found both in the literature and in any informal poll of speakers (see also fn. 1). And so we turn to the guiding principle of linguistic inquiry of late: when in doubt, run an experiment.

Within experimental investigations of resumption, Zukowski and Larsen (2004) and Ferreira and Swets (2005) asked participants to judge the acceptability of sentences using the same resumptive structure that the participants had just produced (cf. (2d) above). Resumptive structures were consistently rated significantly lower than the grammatical controls. However, these studies did not compare the RPs with their illicitly gapped

counterparts, and therefore were inconclusive as to whether resumption ameliorates island violations.

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

- (6) 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 show two effects. First, resumption did not remedy island violations: when extracting from an island, strong or weak, a resumptive structure was never more acceptable than its gapped counterpart. Second, the depth of embedding matters: the violation caused by the RP was judged more acceptable under increased syntactic distance.

These are important results; however, there are a couple of confounds in A&K's experimental design that may have served to obscure whatever rescuing effects resumption may have had. First, and most importantly, they did not test declarative statements, specifically relative clauses in declaratives, which is where resumption is most commonly found in spontaneous speech. Instead, they tested *wh*-questions, where

no such effect has been observed outside experimental stimuli. In order to strike at the heart of the production-comprehension mismatch, an investigation of RPs in declaratives is necessary.

Heestand et al. (2011) expanded their study by testing factive islands, with declarative and *wh*-stimuli. We also found that subjects rated resumption and gaps in factive islands equally low (Heestand et al. 2011; exp. 1a).

One reason that resumption occurs more often in production might be the temporal constraints production imposes on the speaker.³ For this reason it is particularly important to move from offline to online tasks in determining the acceptability of resumption in English. Even when using a comprehension task, it is preferable to put participants under a similar kind of time pressure as in production. This is only possible in online tasks.

A follow-up online study of RP acceptability would have to test both visual (reading) and auditory presentation of the linguistic material. The visual presentation is necessary to replicate the conditions used by A&K, and the auditory presentation is necessary to replicate the conditions under which listeners ordinarily experience resumptive pronouns, as RPs are very much a spoken register phenomenon (cf. Kroch 1981; Prince 1990; Jaeger 2006; Bennett 2008). Looking back to the many years of introspective linguistic inquiry, auditory presentation has always been the dominant method of establishing if

³ The fact that RPs occur in written language, however, suggests that resumption is not limited to cases where speakers are under time pressure. Cf. also the study by Ferreira and Swets (2005) where subjects produced resumption without time pressure. We will maintain the assumption concerning the time pressure for now, but will reconsider it in section 3 below.

something is acceptable or not: linguists would say a sentence to themselves or their friends and evaluate its acceptability in this way. The seminal generalizations on resumption were established in the same way, and we can approximate this mode of presentation with an auditory experiment.

All these outstanding issues are at the foundation of this paper, where we present and analyze the results of a reading and auditory experiment on resumption in English (section 3). We will discuss our results in the context of the more general issue of intrusive resumption in section 4. Section 5 presents our conclusions. Although this paper has some experimental results, many of which are preliminary, we would like to caution the reader that it is intended more as a general reflection on resumption in English than as an experimental paper. Our hope is that some of our conjectures will prove useful in separating English resumption from its remote kin in other languages.

3 Experimental investigation of English resumption

The reader should keep in mind that we only tested object resumption. This was motivated by the need to follow previous experiments. Subject resumption in English is actually more acceptable than object resumption (Han et al 2012), and we have been working on that phenomenon in a separate project which is not included in this study.

We conducted several experiments on the comprehension and evaluation of resumption in English: an online reading task with an accompanying online judgment task (visual presentation), and a pilot online judgment task with auditory presentation. In these tasks, rather than giving subjects a pen and paper and unlimited time for them to

study each sentence, we presented the stimuli only once and under certain time constraints.

The former two studies shared the same stimuli: declarative and interrogative clauses with complex NP islands; the islands included relative clauses and adjunct clauses. The latter study, a pilot for a larger auditory experiment that will include all of these stimuli, included only declarative stimuli with complex NP islands in relative clauses. Although, as we just mentioned, wh-questions with resumption are not found in naturally occurring data, we decided to include them in order to replicate A&K's study in an online mode.

3.1 *Materials*

Example stimuli are shown in (7) and (8) below:

(7) 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*)

(8) 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 guest 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*)

There were a total of 30 sets of experimental sentences and 114 fillers. The online reading experiment was conducted using Linger (Rohde 2003). All the sentences were

automatically randomized. Each sentence was presented word by word automatically (400ms per word). After the last word of each sentence, participants used the mouse to choose a number between 1 and 7 on an acceptability scale (7: perfectly acceptable; 1: completely unacceptable). 44 native speakers of English from the Boston area participated in the study.

In the auditory pilot study, the subjects listened to recorded stimuli (which were produced by a male speaker of American English), and after each stimulus they were asked to rate the sentence on the same acceptability scale (7: perfectly grammatical; 1: ungrammatical). At the time of the writing of this paper, we have only obtained results from ten native speakers of English, which makes these results preliminary.

3.2 Results

The rating results for relative clauses (visual presentation) are presented in figure 1, and the reaction times for subjects to make their ratings (RTs) are presented in figure 2.

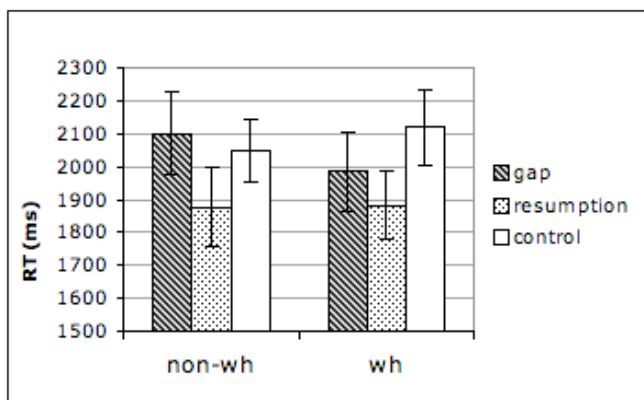
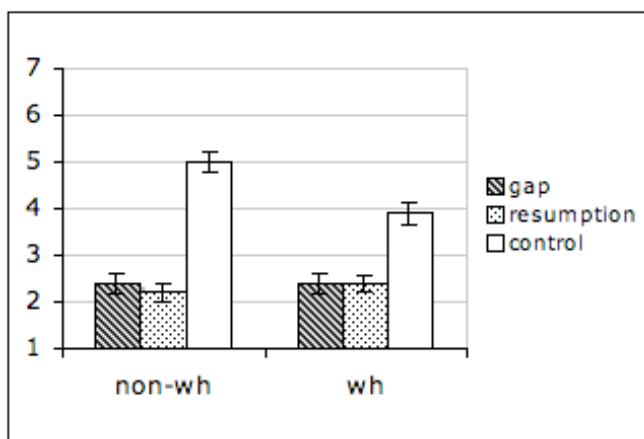


Figure 1. Online ratings for relative clause sentences.

Figure 2. Online reaction times for relative clause sentences.

In the online ratings, a 2x3 ANOVA found a main effect of construction type ($F_1(1, 23)=9.15, p<.01$; $F_2(1,29)=10.9, p<.01$). There was also a main effect of extraction ($F_1(2,46)=105.7, p<.001$; $F_2(2, 58)=164.5, p<.001$). 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 in the group of declarative constructions, the control condition is rated significantly higher than both the gapped 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 both the gapped 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 is no difference in ratings for the resumption condition and the gapped condition; both were comparably low.

Turning now to the reaction times for the relative clause stimuli, RTs longer than 4500ms (2 standard deviations from the mean) were not included for data analysis. A 2x3 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 is 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 conditions 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 also a numerical trend in the RT for the resumption condition to be shorter than that of 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 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 gap condition by item analysis, and this difference is marginally significant by subject analysis ($t_1(1, 23)=-1.8, p=.08$; $t_2(1, 29)=-2.4, p<.05$).

The average rating results for adjunct islands are presented in Figure 3 and the mean RTs, in figure 4.

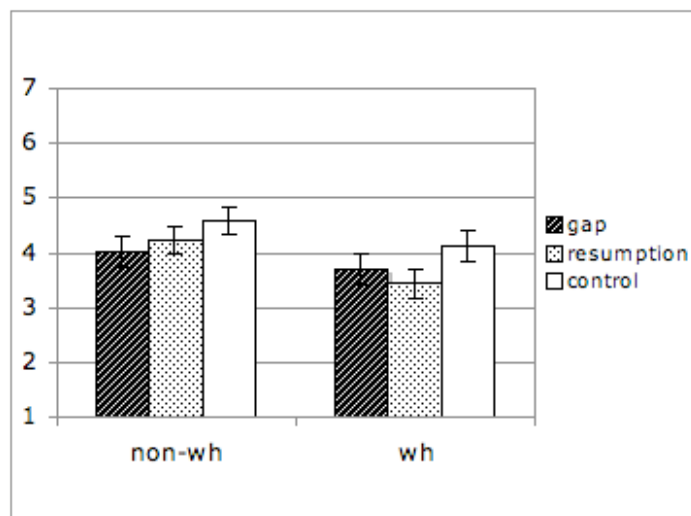


Figure 3. Online ratings for adjunct island sentences.

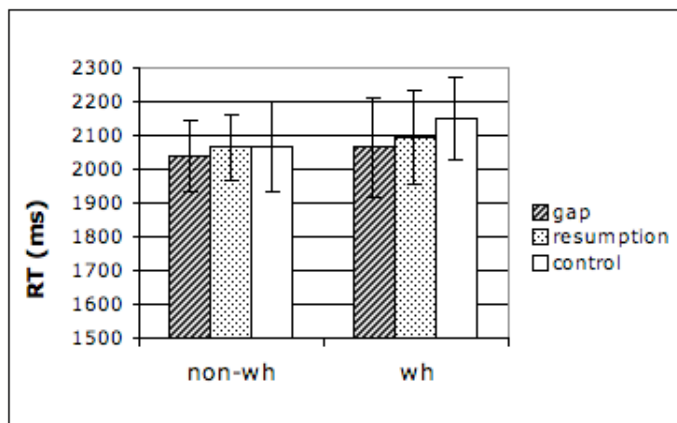


Figure 4. Online reaction times for adjunct island sentences.

For the rating study, a 2x3 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 gapped 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 is no difference between the control and the resumption condition ($t_1(1,23)=1.5, p>.1$; $t_2(1,29)=1.7, p=0.1$). For the group of wh-constructions, the control condition is rated higher than the resumption condition ($t_1(1, 23)=2.9, p<.01$; $t_2(1, 29)=3.4, p<.01$), but it is 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 is rated significantly lower than the grammatical declarative construction ($t_1(1, 23)=-2.2, p<.05$; $t_2(1, 29)=-2.5, p<.05$).

We did not observe any significant difference between conditions in the mean RT data in the auditory pilot. As in the other studies, RTs longer than 4500ms were not included in the data analysis.

The ratings obtained in our preliminary auditory experiment are given in Figure 5. Again, because of the pilot nature of the experiment, we only tested relative clauses and not adjunct clauses.

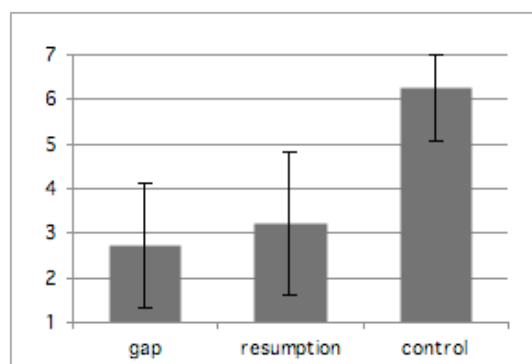


Figure 5. Ratings for relative clause declaratives, auditory presentation

The results of the auditory pilot study show that control sentences were rated high whereas both gaps and resumption inside islands caused a significant deterioration in ratings. Crucially, there was no significant difference between the gap condition and the resumptive condition in the auditory presentation ($p > .1$). This corroborates the results obtained from the reading studies and suggests that the modality of presentation does not play a role in the acceptability of resumption.

3.3 *Discussion of the results*

The first apparent result is that resumption was judged particularly bad in wh-contexts. As we said in the beginning, it never appears naturally in these contexts, so the

results simply confirm that the distribution of resumption outside wh-contexts is not an accidental gap.

Turning now to relative clause stimuli, (7), our experiments show that RPs have no rescuing effect for this island violation. Recall that relative clauses are considered strong islands (Postal 1998, Szabolcsi 2006), which implies that if resumption helps, the stimuli with RPs should be rated higher. However, the stimuli were judged equally bad with gaps and resumption. The judgments were comparable under reading and auditory presentation. These results match the findings by Omaki and Nakao (2010), who also failed to observe island-rescuing effects in English resumption in a rating task.

The stimuli in (8) tested RPs in adjunct clauses (themselves embedded in a relative clause). The rating results show that sentences without any island violations only had a slight advantage in rating over those with island violations. This could be due to a combination of reasons. One of the reasons may be the strength of the particular island type. Here we cannot exclude the possibility that the particular adjuncts considered here are among the weaker islands (as proposed by some researchers, Cinque 1990; Truswell 2007, 2011), and as such, contrast with the strong islands considered in previous work, e.g., Ross 1967, Rizzi 1990, Szabolcsi 2006 and further references therein). Note in particular that the adjunct clauses in our stimuli always have a strong pragmatic connection with the matrix clause, which from the perspective of Truswell's "Single Event Grouping Condition" would lead one to expect a high degree of permeability. In this case, however, it would still be hard to explain why the sentences without any island violations were judged low as well. A second possible explanation is that the sentences are so complex that both those with gaps and those with RPs lead to significant confusion and ultimately lower ratings. While it is hard for us to rule this out conclusively, we do not see a significant difference in complexity between the adjunct stimuli and the stimuli

in (7) and (8). A possible explanation, we think, can be derived from the center embedding of adjuncts.

Typically, adjuncts appear either at the beginning or at the end of a complex sentence (Diessel 2001), with different semantic subtypes (concessive, temporal, locative) showing different linearization preferences. The placement of an adjunct in the middle of the clause may be counterintuitive or surprising to experimental participants, leading them to give the constructions lower ratings. This hypothetical reaction to the uncommon placement of adjuncts would explain why they were rated equally low in the grammatical controls (9c, f) and under the island violations. Although the placement of adjuncts may have created a confound, for our purposes it is most important that here, too, sentences with RPs showed no advantage over sentences with gaps.

The final finding is that auditory presentation does not improve the rating of RPs—contrary to our expectation formulated in an earlier paper (Heestand et al. 2011). Thus, resumption in English failed to show a rescuing function in islands in the declarative contexts, the contexts where it is attested “in the wild”. So why does it reappear in English over and over again even though it is judged unacceptable both upon reading and hearing? We will address this question in the next section.

4 *Understanding the English results*

4.1 *The proposal*

We would like to propose that English resumption never fixes a problem in the derivation. It is only licit if it occurs in a construction that does not involve movement, for example in an appositive:⁴

- (9) Puritanism in the North ... helped spur “progressive movements against slavery, intemperance, and other social ills”—which is precisely what pro-slavery Southerners found so irritating about *it*. (*The New Yorker*, June 13-20, 2011, p. 122)

Given this explanation, we predict that wh-questions, which in English have to be built using movement, can never see resumption. Unfortunately, this would render A&K’s experimental results less relevant than desired.

Instead of being a strategy for establishing A'-binding relations, English resumption serves a completely different function—we propose treating it as a (co-)reference tracking device. Thus, it is something more similar to cross-sentential anaphora (see also Prince 1990, Erteschik-Shir 1992, Asudeh 2011, 2012 for similar proposals). The relationship between the antecedent outside the island and the RP in English is anaphoric, not syntactic.

Because the relationship is not syntactic, there may be an illusion that the island violation is somehow “repaired.” In fact, the success of resumption seems greater when the relative clause associated with the antecedent is interpreted less as a restrictive clause

⁴ See also Demirdache 1991 for a discussion of RPs in appositives.

and more like an appositive.⁵ If it is possible to understand the complementizer as an element connecting the referent of the DP before it and the proposition after it, without forcing a syntactic dependency, resumption is less objectionable. In other words, resumption in English is improved when the proposition including the RP can be interpreted as being about the referent of the “antecedent” DP. Such an interpretation is more likely when the referent is contextually salient. In the next subsection, we will try to connect the concept of salience with the established properties of English resumption.

4.2 *Accounting for the properties of English resumption*

Coreference is never fully syntactic; it is subject to strong discourse factors which can make or break certain frequent patterns (Asher and Wada 1988, Gordon and Hendrick 1998, Kehler 2002, a.o.). One common pattern in coreference is to refer back to a denotation that is salient in discourse and/or is somehow established under a presupposition of existence (Huang 2000; Erteschik-Shir 2007: Ch. 2, 6; Lambrecht 1994: Ch. 2). Salience in discourse and presupposition of existence are well-established pragmatic properties of topics (Lambrecht 1994; Gundel 1974; Erteschik-Shir 2007, a.o.). Topics are known to be privileged with respect to coreference across clauses and in discourse (Keenan and Comrie 1977, Comrie 1987, Lambrecht 1994, Erteschik-Shir 2007, Arnold et al. 2000, Arnold et al. 2004; a.o.).

If our explanation of English resumption as a coreference tracking device is on the right track, we immediately gain an understanding as to why English resumption is found exactly where apparent resumption is banned: in association with (the highest) subject, in

⁵ This, however, is an informal intuition, and the role of the restrictive/appositive difference in the distribution of resumption needs to be examined further.

association with relative clauses, and without an association with quantified expressions. First, the correlation between topic and subject is well-known (see Kiss 1995 for an overview and discussion); while this correlation is not perfect, subjects make better topics than other XPs situated lower in the structure of the clause. Thus, if English speakers use resumption as a way of marking coreference, they can be expected to favor subjects.

For externally headed relative clauses, it has long been established that the head of the relative clause identifies as the background referent or topic for the material expressed in the relative clause (Kuno 1972; Keenan and Comrie 1977; Lehmann 1987); thus, this referent is again salient and particularly eligible for coreference tracking. If so, the occurrence of RPs in English relative clauses follows from coreference; the pronoun picks the head noun as its antecedent.

Finally, quantified expressions without an overt restrictor can be subjects but not topics (Gundel 1974; Karttunen 1976; Prince 1998, a.o.)—for instance, such expressions cannot co-occur with dedicated topic markers such as Japanese *wa*. If English resumption is a way of marking coreference and as such is sensitive to salience, then we have an explanation as to why sentences like (5b) above are unacceptable with RPs in English.

4.3 *English resumption and the role of complementizers*

A cursory look at English resumption allows us to add another property to the list of differences between intrusive and apparent resumption: English RPs are compatible with any type of complementizer, be it *that*, *who*, *which*, or silence (cf. the examples in (2) above).

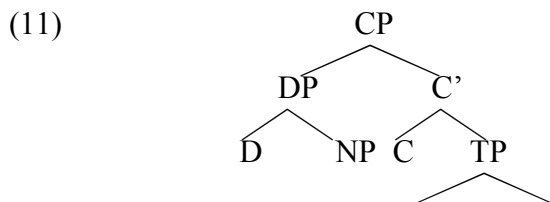
The omnivorous use of complementizers in English is another point of departure from languages that have apparent resumption. In the latter languages, resumption is more common in clauses with non-agreeing complementizers (Salzmann 2006: 282; Heestand

2010).⁶ Furthermore, in those languages that have both types of complementizers, apparent resumption is incompatible with agreeing complementizers but is attested with non-agreeing ones. Compare the following contrast in Bulgarian:

- (10) a. *kniga-to [koja-to čux sluxa [če Ivan (ja) pročel]]
 book-det rel-fem.sg heard.1sg rumor that Ivan rp read
- b. kniga-to [deto čux sluxa [če Ivan *(ja) pročel]]
 book-det where heard.1sg rumor that Ivan rp read
 ‘the book that I heard the rumor that Ivan read it’

(Harizanov 2009, cited in Heestand 2010, ex. (57b), (58))

We would like to propose an explanation for this restriction that has to do with the decomposition of the complementizer. An agreeing complementizer can be divided into two parts, the C portion and the D portion, as in the following structure reflecting English *which* (cf. Bianchi 2000, Merchant 2009, a.o.):



Thus, an agreeing complementizer (that is, a relative pronoun) already includes what looks like a resumptive pronoun (the D) attached to C. Recall that under the copy theory

⁶ This generalization needs to be tested further, but it is possible that it may end up being even more restrictive: apparent resumption is compatible *only* with non-agreeing complementizers.

of movement, an apparent resumptive pronoun is also analyzed as the spelled-out D of DP whose NP portion has been deleted under movement to C (Boeckx 2003; McCloskey 2006). If we now combine the observations that (a) the agreeing complementizer includes a D, and (b) true (apparent, non-intrusive) resumption involves the deletion of an NP with the stranding of the D, we have an explanation for why resumption is incompatible with agreeing complementizers. This incompatibility follows from the fact that the agreeing complementizer already includes a D that has been pied-piped to the C. So the presence of a stranded, non-fronted D creates a conflict because there is already a full-fledged D inside the CP.

Non-agreeing complementizers, on the other hand, do not include a D head and, like the English *that*, may not even be true complementizers but rather instances of T-to-C movement (Pesetsky and Torrego 2001). The spelled out trace of movement, resumptive D, can therefore attach to T and then move up to C.⁷ Thus:

(12) [_{CP=RC} Op [_C T+D [_{TP} e [_{T'} ~~T+D~~ ... [_{DP} D [_{NP} NP]]]]]]

The claim that the resumptive is pied-piped to C with non-agreeing complementizers should be easy to test. The prediction is that, whereas non-resumptive pronouns should be freely separable from the non-agreeing complementizer by an adverbial element, a highest-subject resumptive should not.⁸ Note that in English, intervening material can

⁷ Den Dikken (2003: 43) proposes a solution for Rotuman which is close to the one outlined here (he suggests that the resumptive pronoun is a clitic attached at T).

⁸ We would like to thank Marcel den Dikken for pointing out this prediction to us.

separate *that* and the resumptive pronoun; compare the following naturally occurring example:⁹

(13) We noticed the intruders that probably they knew what they were doing...

This is the first piece of evidence that a derivation like the one in (12) is unlikely to be available to English resumption. Furthermore, as we already mentioned, English resumption is not limited to the complementizer *that*, which again separates it from resumption proper.

In sum, we suggest that English resumption has no relation to movement whatsoever. Since the relationship between the resumptive pronoun and the external antecedent is anaphoric, not syntactic, the resumptive element does not pied-pipe to an agreeing complementizer such as *which* or *who*.

4.4 *Selfish speakers*

In sections 3.1-3.3, we suggested that English resumption is not a syntactic device proper but rather a reference-tracking device. If that's the case, why does resumption not help the hearer/reader? We believe that answering this question may require shifting our view of the existing models of verbal communication.

The usual assumption about production and communication is that the speaker does everything possible to help the hearer retrieve the intended meaning at the lowest possible processing cost to the hearer. We will refer to this assumption as the *altruistic speaker model*. The conceptual foundations of this model are manifold. It is deeply

⁹ The natural occurrence of this example does not constitute evidence that it is acceptable; in fact all the authors find it quite odd.

embedded in Gricean implicatures, with the Cooperative Principle and associated maxims playing a central role (Grice 1969, 1975, 1978). The Gricean approach has been further elaborated within the confines of Relevance theory (Sperber and Wilson 1986, 1995), which states that human communication always attempts to claim the hearer's attention, and therefore the information must be presented as relevant to the hearer. Functionalist theories of language change and language evolution also rely heavily on the notion of delivering the information to the hearer in an accessible and succinct manner (e.g., Croft 2000).

The ideal model of an altruistic speaker is further confirmed by a number of experimental studies, with some strong examples coming from phonetics and phonology. Starting with Bolinger (1963), many researchers have demonstrated that speakers use acoustic prominence to aid comprehension (see Ross 2010 for a good overview). However, more recently, this conception has been modified to reflect the notion that speakers have multiple goals: while trying to help the hearers, they also try to conserve their articulatory effort and memory load (cf. Aylett and Turk 2004, 2006).

The need to conserve production effort evokes the notion of the selfish speaker—the opposite of the altruistic speaker we have just discussed. According to the *selfish speaker model*, a number of linguistic phenomena are driven by the speaker's need to optimize verbal communication in such a way that their production takes the least effort and that their working memory is never taxed to the limit.

Disfluencies in speech are a prime example of the selfish speaker's performance—after all, stops and false starts are extremely difficult for the hearer but clearly help the speaker regroup and buy some time in planning their utterance. Furthermore, experimental research finds that speakers often ignore communicative pressures coming from the hearer when such pressures compete with speaker-internal needs to attend to the

information salient to the hearer (cf. Ferreira and Dell 2000, Ferreira 2008, Wardlow Lane & Ferreira 2008, a.o.).

Of course, we are not claiming that speakers consciously assess the cost-benefit ratio of helping themselves or helping the hearer during verbal communication. Moreover, we hypothesize that both pressures may be present at any given time in communication. That said, we would like to suggest that the use of resumption in English is driven by the speaker's selfishness, rather than altruism.

With respect to resumption, performance pressures in the production of English could lead speakers to use RPs when they have reached a point where syntactic structure does not allow them to create a syntactic dependency between a particular antecedent in the prior discourse and the upcoming position of the relevant argument. In other words, speakers use resumption when they have no other way to salvage what they can of their projected content. This is indeed, using Shlonsky's apt metaphor, the "last resort." However, since speakers have control of their intended meaning, it is easy for them to establish coreference between the resumptive expression and its antecedent, and this coreference justifies the use of resumption. In other words, resumption in English is a way for speakers to maintain coreference and add more information without breaking the production chain. The "selfish speaker" perspective also allows us to gain a better understanding of Kroch's observation that people who themselves just produced a sentence with a resumptive tend to reject this very sentence when confronted with it afterwards: they produce it as speakers, but hate it as hearers/readers.

If we now look back at years of linguistic introspection, it is easier to understand why many researchers, starting with Ross (1967), found English resumption acceptable. They may have been evaluating it as selfish speakers, which is to say as people who know the intended content and the chain of coreference. This allowed them to accept resumption,

even if it was with reservation. Once experimental work on comprehension became more commonplace, the tables were turned, and resumption was no longer judged by the potential speakers; instead, it was evaluated by information-deprived hearers. These judges were quick to note its flaws and to reject it in all modalities.

If this explanation 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 by the hearer. The preference for subject resumption is also confirmed by some emerging experimental results (Han et al. 2012, Clemens et al. 2012). All this follows from the discourse status of subjects. Subjects (or maybe topics—for English at least, the question is unresolved) are privileged with respect to coreference across clauses and in discourse (Keenan and Comrie 1977, Comrie 1987, Lambrecht 1994, Erteschik-Shir 2007, a.o.), and this privileged status with respect to coreference would favor them over other arguments in the use of RPs by the coreference-marking speaker.

In sum, resumption in English may be yet another instance of phenomena where, contrary to belief, speakers structure an utterance to meet their own needs, in addition to or instead of 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 et al. 2006, a.o.). Finally, if the use of RPs in English is primarily a speaker-centered device for maintaining coreference, we are in a position to better differentiate it from non-intrusive resumption in such languages as Irish (McCloskey 2006 and references therein).

5 *Conclusions*

Our overall conclusion concerning English resumption is that resumptive pronouns do not fix derivational problems. Resumption in English is only fully acceptable if a sans-movement construction is available, as in appositives. This generalization makes resumption particularly unwelcome in *wh*-questions where movement is obligatory.

Instead, we have proposed that resumption in English is a coreference device. The use of resumption as coreference may explain why it is preferred by speakers and was judged acceptable as long as an introspective evaluation of one's own production was the main method of rating grammaticality and acceptability. In an introspective evaluation, especially if conducted over the material produced by the same person (often a sophisticated linguist), the plausibility of coreference may override the ungrammaticality of the overall structure. Once linguistic judgments were relegated to more naïve comprehenders, tested in large numbers, this illusion of acceptability began to crumble.

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 observed in the English experiments.

Finally, we would like to remind the reader that ungrammatical sentences with RPs were judged in our experiments 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 relative clauses. In an offline task, we also found complex NPs with factive complements, which are independently known to be strong islands, rated very low. Future work on other strong islands will determine if this effect holds. If it does, we can conclude that the extra information available in RPs is useful in parsing difficult dependencies, probably because the gap position is overtly marked with a pronoun and is easier to recover.

It remains to be seen whether the same type of account could be extrapolated to other languages with intrusive resumption. For now, we would like to offer some preliminary considerations on the cross-linguistic distribution of resumption. We have suggested that apparent resumption, tied to movement, is unlikely to co-occur with agreeing complementizers. The reason for that is as follows: the resumptive pronoun, which is a D head left undeleted under movement, needs to appear in spec,C. If that specifier is occupied by another D, the field becomes crowded, and the derivation crashes. In languages with intrusive resumption, there is no such restriction, and as we saw, English RPs can co-occur with the complementizers *which*, *who*, and *that*. Whether or not there are differences in judgments for these complementizers under resumption remains an open question which needs to be investigated experimentally.

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