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<b>Table of contents</b>	
<b>Gajic, Jovana</b>	<b>1</b>
<i>Niti - real negative coordination inside a strict Negative Concord language?</i>	
<b>Amato, Irene</b>	<b>20</b>
<i>A morphosyntactic account of verbal number in Mupun</i>	
<b>Lee, Hyunjung &amp; Amato, Irene</b>	<b>44</b>
<i>Locality Constraint GIVES and Insight into Suppletion</i>	
<b>Theodorou, Kornilia</b>	<b>59</b>
<i>The preposition stranding generalisation: Challenging evidence from Cypriot Greek</i>	
<b>Okabe, Ami</b>	<b>78</b>
<i>Does a hotel stand or lie? A corpus-based study on the German positional verbs stehen and liegen</i>	
<b>Gonzalez, Aurore</b>	<b>99</b>
<i>Countability Distinctions without Linguistic Cues</i>	
<b>Chen, Yuqiu</b>	<b>116</b>
<i>Scalar implicatures: An experimental study comparing German native speakers and Chinese learners of German</i>	
<b>Wohlmuth, Kata</b>	<b>139</b>
<i>Nonatomic distributive readings – an experimental perspective</i>	
<b>Ito, Katsumasa</b>	<b>157</b>
<i>Interactions of discourse particles and sentence mood operators: Japanese ne in contrast with German ja under the framework of multidimensional semantics</i>	
<b>Roversi, Giovanni</b>	<b>172</b>
<i>Dislocation Types in Emilian</i>	
<b>Goesswein, Astrid</b>	<b>188</b>
<i>Influences on agreement in German hybrid nouns: Distance and syntactic domain</i>	

<b>Kalinin, Aleksandr</b>	<b>209</b>
<i>Gapping is not low coordination: evidence from Russian</i>	
<b>Wang, Shuyan</b>	<b>225</b>
<i>The role of processing capacity in scope assignment by Mandarin-acquiring children</i>	
<b>Amaechi, Mary</b>	<b>241</b>
<i>Subject-object reversal in Igbo</i>	
<b>Dal Farra, Chiara</b>	<b>264</b>
<i>The case of adjunct islands in Italian</i>	
<b>Stelling, Marten</b>	<b>279</b>
<i>Never not a negative concord item: Expletive negative concord in West Germanic</i>	
<b>Morgunova, Ekaterina</b>	<b>293</b>
<i>The verb ti:x9 in Barguzin Buryat: A case of overt surface anaphora</i>	
<b>Davidyuk, Tanya &amp; Studenikina, Ksenia</b>	<b>302</b>
<i>Relative marker in the constructions with physical contact verbs: Evidence from Hill Mari</i>	
<b>Theodorou, Kornilia, Kyriakou, Georgia &amp; Chrysostomou, Irene</b>	<b>314</b>
<i>The acquisition of preposition placement by L1-Cypriot-Greek EFL speakers</i>	
<b>Jamieson, E</b>	<b>331</b>
<i>Experimental evidence for the contextual acceptability of biased questions and tag questions in English</i>	
<b>Bernard, Timothee</b>	<b>350</b>
<i>Negation in event semantics with actual and nonactual events</i>	
<b>Raynaud, Louise</b>	<b>367</b>
<i>Reflexives and participants: a natural class</i>	
<b>Gunawardena, Chandeeera</b>	<b>392</b>
<i>Object clitics in French second language acquisition</i>	
<b>Ihara, Shun</b>	<b>402</b>
<i>Necessity, directives, and three types of imperatives</i>	

# The case of adjunct islands in Italian

Chiara Dal Farra

This work investigates extraction from adjuncts in Italian, as well as two factors that may have a role in island violation: the length of the filler-gap dependency and the effect of resumptive pronouns of the intrusive kind. The island effect is different according to the adjunct taken into account: in some cases extraction is consistently unacceptable, whereas in others it is licensed. Extraction is connected to the level of attachment of the adjunct and the formation of single macro-events made by the matrix verb and the one contained in the adjunct.

## 1. Introduction

The goal of this work is to investigate three main points regarding extraction from adjuncts: (i) the possibility of subextraction from these domains, (ii) the effect of embedding, and (iii) the effect of resumptive pronouns. I will address the questions mentioned with a pilot experimental study and data from Italian. I will show that extraction is sometimes licensed, and therefore I will challenge the traditional view which considers adjuncts invariably as strong islands. I will discuss some of the factors able to manipulate the island effect and the reasons why extraction is connected to some cases only.

As is well known since Ross (1967), islands are structural domains that impose constraints on certain grammatical operations and make the dependency formation either unacceptable or degraded. Islands are usually divided into weak and strong, where the diagnostic is based on the possibility of extracting certain elements: in the case of weak islands some phrases can be extracted, whereas with strong islands all extractions are banned (Cinque 1990; Szabolcsi & Lohndal 2017 for an overview).

Adjuncts belong to the class of strong islands: domains out of which extraction leads to ungrammaticality either in the case of argument extraction, as in (1a) and, especially, in adjunct extraction, the case of (1b).

- (1) a. \* Which boy<sub>i</sub> did Mary arrived [before Sara kissed   <sub>i</sub> ]?  
b. \* How<sub>i</sub> did Mary arrive [before Sam kissed Sara   <sub>i</sub> ]?

Even though island effects are subject to cross-linguistic differences, according to some scholars extraction from adjuncts is universally banned (Stepanov, 2007). For this reason adjunct islands have been accounted for by means of principles holding in narrow syntax, as in the case of the Condition on Extraction Domain (Huang, 1982) and of Late Merge (Stepanov 2007), or following a PF interface approach, as in the case of the Multiple Spell-Out approach (Uriagereka 1999; Nuñez & Uriagereka 2000). The prediction of these theories is that extraction from these domains is always bad, given that either they “become” opaque domains after an early spell-out due to linearization problems (Uriagereka, 1999), or they are inserted after everything else in the structure, i.e. too late to participate in the derivation (Stepanov, 2007).

However, we do find many exceptions cross-linguistically (see Truswell 2007, 2011; Sheehan 2010; Brown 2017 for English, Uriagereka 2011; Fábregas & Jiménez-Fernández 2016a, b for Spanish, Müller 2017 for Swedish and Biskup & Šimík 2018 for Czech). This is true for different types of adjuncts: bare present participial adjuncts, as can be seen in examples in (2), secondary adjectival predicates in (3), and prepositional adjuncts, represented in (4).

- (2) a. Which play did you fall asleep [watching \_ ]?  
 b. ¿ Qué entró [diciendo \_ ] Juan?  
     What entered saying Juan  
     ‘What did John came in saying?’ (Fábregas & Jiménez-Fernández, 2016a:1308)
- (3) a. ¿ Con quién llegó [enfadada \_ ] Maria?  
     with whom arrived angry Maria  
 b. Whom did Mary arrive [angry with \_ ]? (Fábregas & Jiménez-Fernández, 2016b:42)
- (4) a. What are you working so hard [in order to achieve \_ ]? (Boeckx, 2012:24)  
 b. Which man did you return home [without talking to \_ ]? (Sheehan, 2010:141)

The examples above show that the approaches trying to account for the islandhood of adjuncts are too strong, since none of them is able to account for the extractability cases considered in (2)-(4).

In this work I focus on the possibility of extraction out of prepositional adjuncts in Italian. I will therefore report the results from a pilot experimental test made on a small group of people in order to check whether my hypotheses are correct and which factors have to be analysed in more details.

The paper is organized as follows. Section 2 presents some of the factors able to manipulate the strength of the island violation focusing on the role of tense, embedding, and resumptive pronouns. In section 3 the judgment acceptability test is explained, whereas section 4 contains a discussion of the main results of the test: the difference among adjuncts in the island effect and the lack of effect of resumption. In section 5 the possibility of extraction is accounted for taking into account two levels: (i) the attachment site of the adjunct, and (ii) the creation of a single complex event made by the matrix verb and the one contained in the adjunct.

## 2. Factors affecting the acceptability of extraction

The empirical domain of this test consists of comparative judgments, which deviate not only according to the sentence, but sometimes also according to the participant. In fact, given the type of sentences involved, the division between grammatical and ungrammatical sentences is not sufficient: often they are not clearly acceptable or unacceptable, but they fall in a grey area of partial acceptability. Therefore, I adopt the experimental syntax methodology. Formal experimental methods measuring acceptability have become more and more reliable over the past few years. Their purpose is to move beyond informal judgments and collect more fine-grained data to shed light on complex phenomena. Moreover, they may reveal previously unobserved patterns, which would remain unnoticed with a more traditional and informal methodology (see Sprouse 2007a, b).

In this test, I was mainly interested in the possibility of extraction from prepositional adjuncts, as well as in the effect of the filler-gap dependency and in the effect of a resumptive pronoun. I will briefly review each of them in the following sections.

### 2.1. Keeping the island effect at its minimum

The strength of the island effect can be manipulated by means of several factors, and the degree of unacceptability might differ substantially depending on them. Many of these factors are known in the literature, and include (but are not restricted to): (i) the role of finite tense in the adjunct (Cinque 1990; Manzini 1992); (ii) extraction of a DP with respect to extraction of a PP (Cinque, 1990); (iii) the type of verbs used in the matrix and the adjunct clause (Truswell 2007, 2011; Fábregas & Jiménez-Fernández, 2016a); (iv) D-linking effect (Cinque 1990; Phillips 2013); (v) the position of the adjunct. Here I will focus only on the first point, namely the verb in the adjunct realized in a finite tense. Compare sentences in (5).

- (5) a. Quale ragazza Gianni è partito (per Parigi) [senza salutare \_ ]?  
 which girl Gianni is left for Paris without to.greet  
 ‘Which girl did John leave for Paris without greeting?’  
 b. \* Quale ragazza Gianni è partito (per Parigi) [senza che salutasse \_ ]?  
 which girl Gianni is left for Paris without that he.greeted  
 ‘Which girl did John leave for Paris without that he greeted?’

(5a) is an acceptable sentence; a DP argument, *quale ragazza*, has been extracted from the adjunct introduced by *senza*. Crucially, the verb in the adjunct is in its non-finite form. If the tense of verb in the adjunct is finite, extraction is ruled out, as in (5b). The presence of a finite verb in the adjunct is already known as one of the main factors able to strengthen the island effect: whenever the adjunct contains a tensed verb, extraction is much worse (see Cinque 1990; Manzini 1992; Szabolcsi & Lohndal 2017), as can be seen also for the English asymmetries in (6).<sup>1,2</sup>

- (6) a. \* Which topic did you leave [because Mary talked about \_ ]?  
 b. ? Which topic did you leave [without talking about \_ ]?

Such an effect could be connected to the fact that a finite sentence is considered as a CP, whereas a non-finite one as a TP.<sup>3</sup>

The islandhood of adjuncts in Italian has already been investigated with a formal experiment (Sprouse et al., 2016).<sup>4</sup> An example of the adjunct islands they tested is given in (7).

- (7) \* Cosa ti lamenti [se uso \_ in classe]?  
 what yourself complain if I use in class  
 ‘What do you complain if I use in class?’ (Sprouse et al., 2016:18)

As expected, extraction in cases similar to (7) were rated very poorly. The *wh*- constituent in fact is extracted from a tensed adjunct introduced by *se* (if), and extraction is ruled out. Moreover, a simple *wh*- constituent is used. Notice however that there is a D-linking effect able to ameliorate the island effect: it is easier to extract elements with more specific/informative fillers. Compare (5a) with (8).

<sup>1</sup> However, there are languages allowing extraction from finite adjuncts, see the cases of Swedish described in Müller (2017) and of Czech in Biskup & Šimík (2018). See also Chaves (2012) for some exceptions from English such as the one in (i):

(i) This is the formula that I would be devastated [if someone had already finished \_ ].

<sup>2</sup> Notice that the complete unacceptability of (6a) can also be connected to the kind of adjunct used: there are asymmetries between adjuncts that presumably are high in the structure, as seems to be the case for *because*, and those which should be lower (see Uriagereka 2011; Boeckx 2012).

<sup>3</sup> Thanks to Irene Amato for pointing this out.

<sup>4</sup> The test was not limited to adjuncts: they investigated the islandhood of different domains in both English and Italian: *wh*-/*whether*, complex NP and subject, beside adjuncts.

- (8) \* Chi Gianni è partito [senza salutare \_]?  
 who Gianni is left without saying goodbye  
 ‘Who did John leave without greeting?’

Therefore in the sentences used in the test these factors were carefully manipulated in order to obtain the weakest possible effect, and they were applied in all sentences so that the only difference among them was the type of adjunct used.

## 2.2 The effect of resumption

The presence of a resumptive pronoun is generally considered able to reduce the island effect, or to circumvent it entirely in some languages. Resumptive pronouns (RPs) are obligatory bound pronouns appearing in the tail position of a filler-gap dependency, and obligatorily interpreted as co-referent with the filler of the dependency (McCloskey, 2006:95). The distinction usually made is among grammatical and intrusive RPs. Grammatical RPs can freely alternate with gaps in most long-distance dependencies, and they are obligatory in island contexts. It is the case of languages like Irish, Hebrew and Arabic (Aoun et al. 2001; Shlonsky 1992; McCloskey, 2006). In these cases, resumption is immune from island constraints, as the examples from Irish in (9) show.

- (9) a. teach nach n-aithneochthá [cá rabh sé].  
 house NOT recognize where was it  
 ‘A house<sub>i</sub> that you wouldn’t recognize where it<sub>i</sub> was.’  
 b. \* teach nach n-aithneochthá [cá rabh \_].  
 house NOT recognize where was (McCloskey, 2006:99)

In other languages, such as English and Italian, RPs are not licensed by the grammar, and for this reason they are referred to as *intrusive* resumptive pronouns. Nonetheless they appear in some contexts, especially in spontaneous speech. Even though these languages do not have the same rescue strategy mentioned above, the presence of a resumptive pronoun is often reported to improve the status of sentences containing island violations (Ross 1967; Kroch 1981; Asudeh 2011 for English, Bianchi 2004; Belletti 2006 for Italian). Thus, compare (10a) to (10b) for English, and (11a) to (11b) for Italian.<sup>5</sup> Example (10c) shows a case of extraction from an adverbial clause and the use of an intrusive resumptive pronoun in English taken from corpora production.

- (10) a. The guy who I hate almost everything **he** does.  
 b. \* The guy who I hate almost everything \_ does. (Kroch, 1981:125)  
 c. Apparently, there are such things as bees in the area which if you are stung by **them**, you die. (Prince, 1990:483)
- (11) a. \* L’uomo a cui sono certo del fatto che \_ parleranno...  
 the man to whom I.am.sure of.the fact that they.will.talk  
 b. (?)? L’uomo che sono certo del fatto che **gli** parleranno...  
 the man whom I.am.sure.of the fact that to.him they.will.talk  
 (Belletti, 2006:130)

<sup>5</sup> The striking fact for the Italian example in (11b) is that standard Italian does not form relative clauses with the resumptive pronoun strategy (Belletti, 2006), and sentences like (i) are accepted at a substandard level, rather than in standard Italian.

(i) L’uomo che **lo** arresteranno se continua così...  
 the man that him they.will.arrest if he.goes.on like.that

However, such an ameliorating effect is not detected in several tests, either assessing production or acceptability (Ferreira & Swets 2005; Heestand et al. 2012; Polinsky et al. 2013; Beltrama & Xiang 2016). I will here explore further whether such an amelioration can be found in Italian.

### 3. The experiment

#### 3.1. Materials

A 2x2x2 factorial design was employed, with 8 conditions resulting from fully crossing three factors: (i) STRUCTURE; (ii) LENGTH and (iii) RESUMPTION.

For the STRUCTURE factor, the unacceptable cases of extraction from an island were compared to the (supposedly) acceptable cases of parasitic gaps. This is different from many other experimental studies regarding the island effect, where the island condition is compared to extraction from a declarative sentence (Sprouse 2007a; Sprouse et al. 2016 among others). Parasitic gaps are constructions in which a single *wh*-phrase is associated with multiple gaps in a sentence: one is inside an island, and the other is not. The gap inside the island is licensed by the presence of a higher *c*-commanding gap, created by movement; since its acceptability depends on this other gap, it is called *parasitic*. I decided to use parasitic gaps in order to have minimal contrast with the sentences I was investigating, and given that several studies showed that these structures are fully acceptable, and actually comparable to declarative sentences (see Phillips 2006; Wagers & Phillips 2009).

For the LENGTH factor, sentences with a short distance filler-gap dependency were compared to longer dependencies.

For the RESUMPTION factor, sentences with a gap were compared to sentences with a resumptive pronoun.

See (12) for the entire paradigm of an item.

- (12) a. Quale ragazzo<sub>i</sub> Silvia ha guardato <sub>i</sub> senza salutare <sub>i</sub>?  
 which boy Silvia has looked without to.greet  
 ‘Which boy did Silvia looked without greeting?’  
 (parasitic gap, short, gap)
- b. Quale ragazzo<sub>i</sub> Silvia ha guardato senza salutarlo<sub>i</sub>?  
 which boy Silvia has looked without to.greet.him  
 ‘Which boy did Silvia looked without greeting him?’  
 (parasitic gap, short, RP)
- c. Quale ragazzo<sub>i</sub> tutti dicono che Silvia ha guardato <sub>i</sub> senza salutare <sub>i</sub>?  
 which boy everybody say that Silvia has looked without to.greet  
 ‘Which boy did everybody says that Silvia looked without greeting?’  
 (parasitic gap, long, gap)
- d. Quale ragazzo<sub>i</sub> tutti dicono che Silvia ha guardato senza salutarlo<sub>i</sub>?  
 which boy everybody say that Silvia has looked without to.greet.him  
 ‘Which boy did everybody says that Silvia looked without greeting him?’  
 (parasitic gap, long, RP)
- e. Quale ragazzo<sub>i</sub> Silvia è partita senza salutare <sub>i</sub>?  
 which boy Silvia is left without to.greet  
 ‘Which boy did Silvia leave without greeting?’  
 (island, short, gap)
- f. Quale ragazzo<sub>i</sub> Silvia è partita senza salutarlo<sub>i</sub>?  
 which boy Silvia is left without to.greet.him  
 ‘Which boy did Silvia leave without greeting him?’  
 (island, short, RP)



- g. Quale ragazzo<sub>i</sub> tutti dicono che Silvia è partita senza salutare i?  
 which boy everybody say that Silvia is left without to.greet  
 ‘Which boy did everybody says that Silvia left without greeting?’  
 (island, long, gap)
- h. Quale ragazzo<sub>i</sub> tutti dicono che Silvia è partita senza salutarlo<sub>i</sub>?  
 which boy everybody say that Silvia is left without to.greet.him  
 ‘Which boy did everybody says that Silvia left without greeting?’  
 (island, long, RP)

The 8 conditions were tested in three types of prepositional adjuncts introduced by *dopo* ‘after’, *prima* ‘before’, and *senza* ‘without’, for a total of 24 items.

Fillers were also included, in a ratio of 1:1, for a total of 24 fillers of comparable length and varying acceptability: even though most of them were completely grammatical or ungrammatical, the acceptability of some sentences was expected to fall somewhere in between. In doing so, participants were encouraged to use a large portion of the scale rather than focusing only on some parts. Moreover, fillers consisted of both declaratives and questions, which were included so that the target items were not the only questions in the experiment.

Every subject was therefore tested on 48 items total. Items were presented in a pseudo-randomized order, so that the same condition never appeared twice in a row. They were distributed into two blocks, which were presented in a different order among participants.

### 3.2. Participants

Twelve people participated in the experiment. The subject pool was uniform: age range 22-28 years, they came from the North-East of Italy and all of them had at least a bachelor degree. They participated voluntarily in the experiment.

### 3.3. Procedure

Items were presented in a written form. Participants were asked to judge the acceptability of the sentences presented on a 7-point Likert scale, where 7 indicates perfect acceptability, and 1 total unacceptability. Before beginning the experiment, participants were provided with instructions on how to use the scale: they were asked to rate 6 or 7 sentences they found perfectly acceptable, to give 1 or 2 to sentences they found completely unacceptable, and to assign 3-5 to sentences that were somewhere in between. They were also instructed to judge the sentences on the basis of their native-speaker intuition, rather than any prescriptive rules, and to go with their first instinct instead of spending time thinking about their answers. Moreover, the first five experimental items were used as a pre-test phase and were then excluded from the statistical analysis. The practice items were not marked as such: participants did not know these were practice items.

For statistical analysis, raw ratings of each individual subject, including both target and filler items, were first transformed into *z*-scores in order to avoid potential scale biases between participants. Linear mixed-effects models were then ran on the transformed data with the R statistical package *lme4* (Bates et al. 2015). The fixed effect predictors included STRUCTURE, LENGHT and RESUMPTION, as well as their interaction, and the random effects included subjects and items. All predictors were sum coded before the data analysis, with [+ island], [+embedding] and [-resumption] coded as 1, and [- island], [- embedding], and [+ resumption] coded as -1.

### 3.4. Results

Transformed results from the experiment are summarized in Table 1. Statistical analysis revealed that there is no main effect of RESUMPTION, i.e. there is no difference among sentences with resumptive pronouns and their counterparts with a gap, in any of the adjuncts considered: *dopo* ( $\beta = -0.15$ ,  $se = 0.08$ ,  $p > 0.06$ ), *prima* ( $\beta = 0.01$ ,  $se = 0.11$ ,  $p > 0.92$ ) and *senza* ( $\beta = 0.15$ ,  $se = 0.13$ ,  $p > 0.91$ ).

I will present results for the gap and the resumptive model separately.

	<i>after</i>	<i>before</i>	<i>without</i>
parasitic gap, short, gap	0.68	0.43	0.98
parasitic gap, short, RP	1.08	1.28	1.13
parasitic gap, long, gap	0.42	0.85	0.42
parasitic gap, long, RP	0.72	0.45	0.52
island, short, gap	-0.53	-0.28	0.45
island, short, RP	-0.57	-0.43	-0.54
island, long, gap	-1.04	-0.28	0.3
island, long, RP	-0.86	-0.43	-0.31

Table 1: Means of z-score ratings for each condition and each adjunct.

Raw ratings results summarizing each adjunct type and condition are presented in Figures 1, 2 and 3.

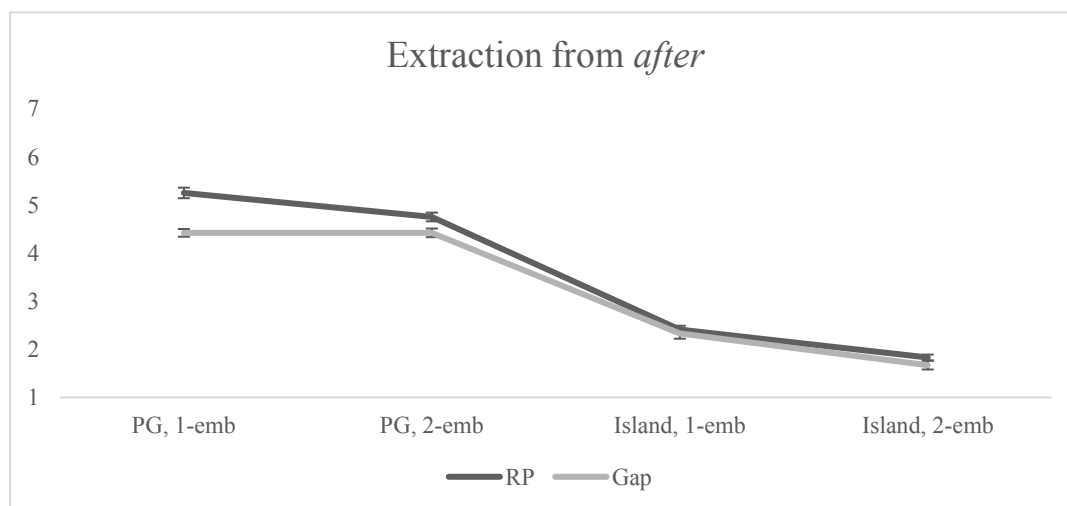


Figure 1: Raw acceptability judgments on a 1-7 scale. The y-axis indicates average ratings. Error bars indicate standard errors.

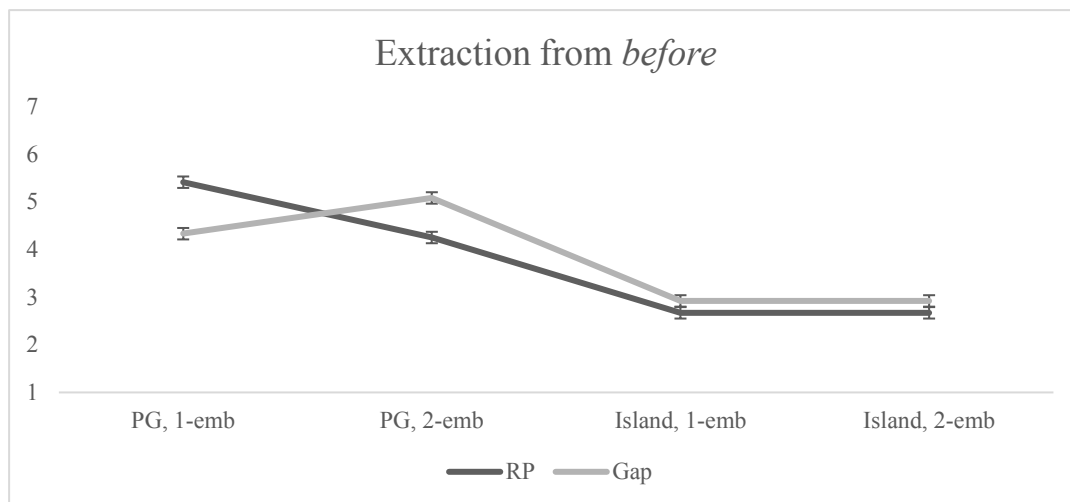


Figure 2: Raw acceptability judgments on a 1-7 scale. The y-axis indicates average ratings. Error bars indicate standard errors.

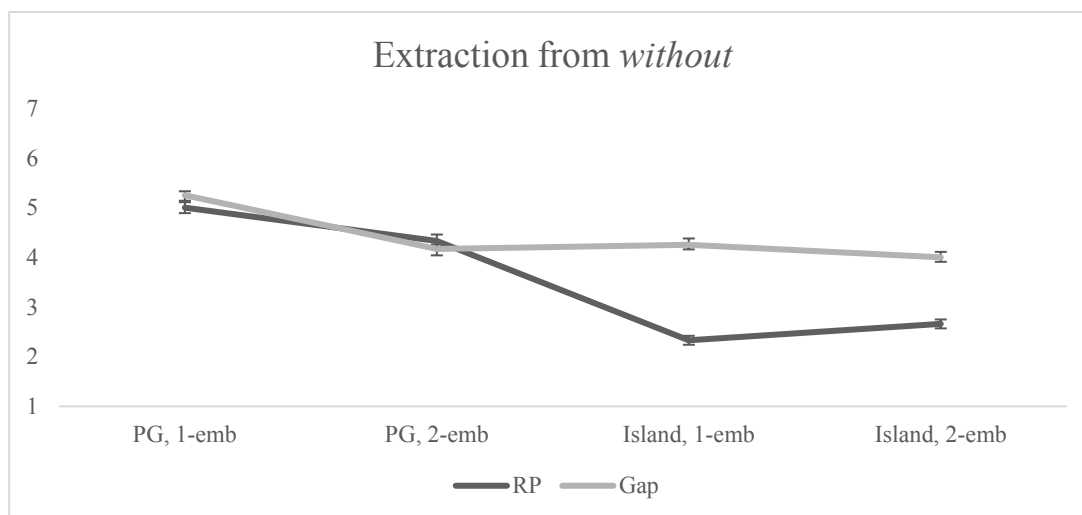


Figure 3: Raw acceptability judgments on a 1-7 scale. The y-axis indicates average ratings. Error bars indicate standard errors.

### 3.4.1. Structures with gap

When the sentence is realized with a gap instead of a resumptive pronoun, the effect of STRUCTURE is significant for both the adjunct introduced by *dopo* (linear mixed effect estimate:  $\beta = -0.68$ ,  $se = 0.11$ ,  $p < 0.001$ ) and by *prima* ( $\beta = -0.46$ ,  $se = 0.12$ ,  $p < 0.004$ ): sentences containing an island were always significantly rated lower than their parasitic gap counterparts. Interestingly, the case of *senza* is different: the effect of STRUCTURE is not significant ( $\beta = -0.16$ ,  $se = 0.08$ ,  $p > 0.2$ ).

There is no main effect of LENGTH for any of the adjuncts analyzed: *dopo* ( $\beta = -0.17$ ,  $se = 0.11$ ,  $p > 0.14$ ), *prima* ( $\beta = 0.10$ ,  $se = 0.12$ ,  $p > 0.40$ ) and *senza* ( $\beta = -0.18$ ,  $se = 0.08$ ,  $p > 0.06$ ). This means that there is no significant difference among long and short dependencies.

Interaction of STRUCTURE and LENGTH was not significant for any adjunct: *dopo* ( $\beta = 0.02$ ,  $se = 0.11$ ,  $p > 0.83$ ), *prima* ( $\beta = -0.11$ ,  $se = 0.12$ ,  $p > 0.39$ ) and *senza* ( $\beta = 0.10$ ,  $se = 0.08$ ,  $p > 0.22$ ).

### 3.4.2. Structures with resumption

When the sentences are realized with a resumptive pronoun, there is a main effect of STRUCTURE for every adjuncts: *dopo* ( $\beta = -0.81$ ,  $se = 0.09$ ,  $p < 0.0003$ ), *prima* ( $\beta = -0.60$ ,  $se = 0.12$ ,  $p < 0.007$ ), and *senza* ( $\beta = -0.59$ ,  $se = 0.11$ ,  $p < 0.003$ ). Even in the case of *senza* the presence of a resumptive pronoun makes the sentence significantly worse than its parasitic gap counterpart, differently from the gap structure.

LENGTH does not have an effect, for any adjunct: *dopo* ( $\beta = -0.16$ ,  $se = 0.09$ ,  $p > 0.86$ ), *prima* ( $\beta = -0.19$ ,  $se = 0.12$ ,  $p > 0.15$ ) and *senza* ( $\beta = 0.12$ ,  $se = 0.11$ ,  $p > 0.28$ ), as well as the interaction of STRUCTURE and LENGTH (*dopo*:  $\beta = 0.02$ ,  $se = 0.09$ ,  $p > 0.86$ , *prima*:  $\beta = 0.19$ ,  $se = 0.12$ ,  $p > 0.14$  and *senza*:  $\beta = 0.17$ ,  $se = 0.11$ ,  $p > 0.13$ ).

### 3.4.3 Interim summary

The main results from this study can thus be summarized with the points below:

- (i) Resumptive pronouns do not help rescuing the island effect. On the contrary, they can strengthen the effect, at least in one case, i.e. *senza*. Note that this may be connected to independent reasons, such as the fact that they are perceived as substandard;
- (ii) Different adjuncts lead to different islands effects;
- (iii) Different adjuncts lead also to different acceptability judgments for parasitic gaps;
- (iv) The length of the dependency has no main effect.

I will discuss these points in the next sections.

## 4. Discussion

### 4.1. The differences among adjuncts

As seen in section 3.4.2, in all of the adjuncts considered in this test, the effect of STRUCTURE is significant in the resumptive model, which is the expected result given what we know about these domains. This means that sentences containing an island violation are rated significantly lower than their parasitic gap counterpart. We can thus confirm that parasitic gap sentences can be used as acceptable counterparts of islands, and, moreover, that the island status of adjuncts does not change thanks to resumptive pronouns: they do not rescue the island violation. I will discuss this result in the next section.

The crucial result in the STRUCTURE factor comes from the gap model. Once again extraction from *dopo* and *prima* is considered bad, and there is thus a main effect of STRUCTURE, independently from the presence of a resumptive pronoun or of a gap. It is different in the case of *senza*: when the resumptive element is not present, there is no island effect, i.e. this sentence does not present an island violation and is not interpreted as an island for extraction.

What is interesting is that there are differences among the adjuncts taken into account. Such a distinction can be seen in the case of extraction from the island condition with no embedding and no resumption: extraction in the case of *senza* is much more acceptable than in the other adjuncts, where it seems to be completely ruled out.<sup>6</sup> Compare the three cases in Figure 4.

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<sup>6</sup> Notice that a weaker island effect in some adjuncts was already detected in some experimental (Heestand et al. 2012, Polinsky et al. 2013) and theoretical works (Cinque 1990).

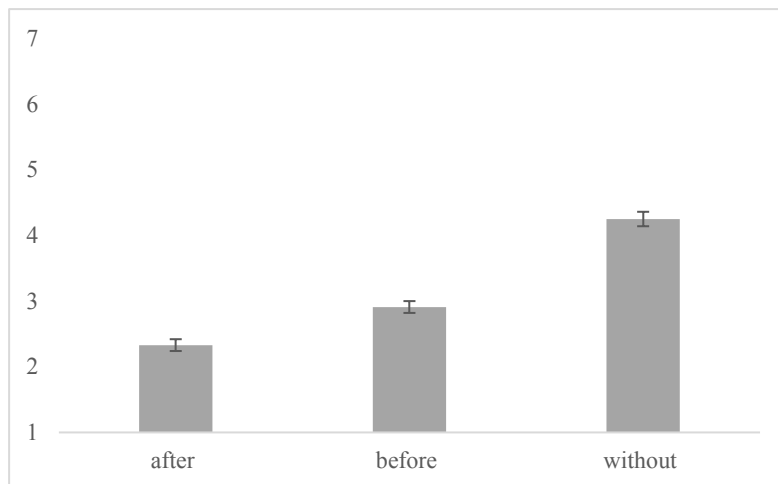


Figure 4: Raw acceptability judgments on a 1-7 scale representing the average ratings for the island condition, with short filler-gap dependency and no resumption. Error bars indicate standard errors.

Another interesting point regards the acceptability of parasitic gaps. In this kind of structure, the gap contained in the island is licensed because of the presence of a higher gap outside the island. Basically, they are made of a “good” and a “bad” gap, and the latter can be considered good only if the former is present as well. Parasitic gaps are therefore well-formed sentences, as the literature on the topic long stated, and they can be easily processed (Phillips 2006, 2013; Wagers & Phillips 2009). Hence the expectation for the sentences I used in the test was that they would be considered equally acceptable by everybody. However, if we look at the results for the condition with no embedding and no resumption, a slight distinction can be seen among adjuncts.

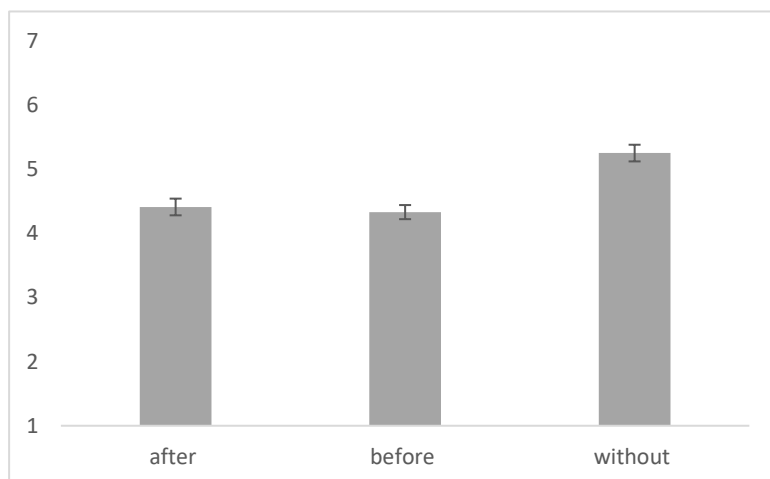


Figure 5: Raw acceptability judgments on a 1-7 scale representing the average ratings for the parasitic gap condition, with short filler-gap dependency and no resumption. Error bars indicate standard errors.

Apparently, not all parasitic gaps are accepted in the same way. Crucially, the case of *senza* is always the better option, whereas the cases of *dopo* and *prima* are not so good. I will use as an example the sentences in (13):

- (13) a. Quali dolci Luca ha mangiato \_ dopo aver rubato \_ ?  
 which sweets Luca has eaten after having stolen  
 ‘Which sweets did Luca eat after having stolen?’

- b. Quale libro Anna ha cercato \_ per mesi prima di trovare \_ ?  
 which book Anna has looked \_ for months before to.find  
 ‘Which book did Anna look for months before finding?’
- c. Quale ragazzo Silvia ha guardato \_ senza salutare \_ ?  
 which boy Silvia has looked \_ without to.greet  
 ‘Which boy did Silvia look without greeting?’

As can be seen, sentences containing the parasitic gap are very similar, in that all of them have transitive verbs in the matrix and in the adverbial clause, the DP argument is extracted from prepositional adjuncts and it is the object of the matrix verb. Moreover, in all of the sentences the *wh*- constituent is a complex D-linked one, rather than a simple *wh*-. Finally, the verb in the adjunct is in its non-finite tense and in every sentence there is an overt subject shared by the matrix verb and the one in the adjunct.

The same conditions apply to the island cases, as can be seen from the examples in (14). Notice that as mentioned in section 2.1, all the factors able to strengthen the island effect were manipulated in order to obtain the weakest possible effect.

- (14) a. Quali dolci Luca è scappato [dopo aver rubato \_]?  
 which sweets Luca is run.away after having stolen  
 ‘Which sweets did Luca run away after having stolen?’
- b. Quale libro Anna si è preoccupata [prima di trovare \_]?  
 which book Anna herself is worried before to.find  
 ‘Which book did Anna worried before finding?’
- c. Quale ragazzo Silvia è partita [senza salutare \_]?  
 which boy Silvia is left without to.greet  
 ‘Which boy did Silvia leave without greeting?’

Given that the structures are equal in most aspects, we should attribute the differences of both the island and the parasitic gap condition to the adjunct itself. Let’s therefore assume that adjuncts are not a uniform group, but a heterogeneous one that needs to be sorted according to some criteria. I will further develop this hypothesis in the following sections.

#### 4.2. *What did John think that Mary said about embedding?*

The lack of an effect of LENGTH is somewhat unexpected: in several accounts the length of the filler-gap dependency is one of the main factors able to explain the island effect, as tested by many scholars, and especially Sprouse (2007). Such an effect is claimed to be able to determine the acceptability or unacceptability of a sentence, particularly in reductionist approaches: the longer the distance from the gap, the more difficult it is to connect gap and extracted element, and the more memory is required to be used.

However, in this test the length of the dependency is not significant: sentences with a longer filler-gap dependency are not rated as worse than their counterparts with shorter dependencies. Moreover, there are no differences between the resumptive and the gap model: in both cases there is no effect of LENGTH.

#### 4.3. *Resumptives fail to rescue islands*

Although many scholars have considered the presence of a resumptive pronoun (even of the intrusive kind) as a rescue strategy for island violations, in this test there was not such an effect: sentences containing a gap are not rated worse than their counterparts with a resumptive pronoun. On the contrary, the case of *senza* has the reverse situation: when the RP is present there is a main effect of STRUCTURE, whereas in the gap model such an effect is not present. At least in this case, thus, it seems that the presence of an RP actually makes the sentence worse and extraction is not licensed.

Therefore, the results obtained here are in line with results of other tests investigating the acceptability of similar sentences (see Heestand et al 2012; Polinsky et al. 2013), in that once again the ameliorating effect was not really detected. It seems that in these cases the lack of an effect of resumptives may be connected to different reasons: the type of task asked to participants, and the environment in which the test takes place.

First, evidence that the instructions of the test have a role is found in Beltrama & Xiang (2016). In this test two different instructions were assigned to participants, namely to judge the *acceptability* or the *comprehensibility* of sentences containing island violations and resumptive pronouns, as well as counterpart sentences containing gaps. Interestingly, the effect of RPs was significant for both Italian and English in the comprehensibility task, but not in the acceptability one – which is usually the one employed for these tests. Moreover, this effect was present only when a context sentence preceded the item. This may be due to the fact that RPs help (i) to construct a coherent parse, and (ii) to retrieve part of a non-local dependency, given that finding the tail of a filler-gap dependency may be particularly difficult in island contexts.<sup>7</sup>

Moreover, there is a discrepancy between production and acceptability of intrusive resumptive pronouns, which makes it difficult to assess these kinds of structures in an experimental context: RPs are systematically realized in spontaneous speech, as noticed in studies of corpora (see Prince, 1990), but nonetheless they tend not to be accepted. This tendency is particularly clear in the example of Ferreira & Swets (2005), where the production of RPs was elicited in island contexts and the same speakers who produced these sentences did not accept them when asked to rate their acceptability.

It is important to notice that these kinds of elements are generally perceived as part of a ‘bad’ version of a languages like Italian and English, hence as substandard varieties, as first noted by Ross (1967). In fact, intrusive RPs tend to be connected to informal and spoken registers, which means that speakers might be inclined to classify them as not entirely acceptable, even though they use them. Participants may be influenced by normative considerations, and therefore reject these forms. If this is really the case, it is obvious that to obtain such an effect the environment in which these sentences are tested is crucial: we do not expect to see an amelioration among those who were prescriptively instructed that these elements should not be used. It is much easier to find them in spontaneous speech, which is usually less controlled than in an acceptability task where participants are required to actually think about that construction.<sup>8</sup>

Thus, further investigations should thus be made to assess this point, extending the sample of participants and checking more factors than those usually considered.

Notice however that there is an asymmetry among adjuncts in the effect of resumption: in the case of *senza* the presence of an RP actually makes the sentence worse (basically it turns the sentence into an island), whereas in *dopo* and *prima* there are no differences among the gap or the resumptive counterpart. Therefore, in the former case the points above cannot be applied in that the RP has the reverse effect, but they should rather be connected to the other adjuncts.<sup>9</sup>

### 5. Explaining extraction

In this section, I will provide a first account regarding the possibility of extraction from certain adjuncts, and the impossibility from others. Let’s first go back to the differences among adjuncts discussed in section 4.1. First of all, remember that the sentences investigated are similar in many aspects and nonetheless we find a difference with respect to the type of adjunct: some of

<sup>7</sup> See Beltrama & Xiang (2016) for a detailed analysis of these points.

<sup>8</sup> We should also consider the fact that those who participate in this kind of studies are usually enrolled at university and it may be more difficult to find an effect of resumptives in higher levels of education, precisely because people are instructed not to like them. Notice that there is a difference in this respect among trained linguists and linguistically-naïve people, namely the ones usually employed for these tests.

<sup>9</sup> Notice however that the same effect is not found in parasitic gap: the presence of a resumptive pronoun in such sentences doesn’t change the acceptability of the sentence, i.e. we cannot say that the ban on extraction depends (only) on the RP. Thanks to Irene Amato for pointing this out.

them are opaque - hence no extraction can take place - whereas in some others the opacification of the domain is rather optional. According to the results of this study, the adjunct introduced by *senza* is the most transparent, while those introduced by *dopo* and *prima* show a stronger island effect. Moreover, a similar distinction holds for the case of parasitic gaps. Why do we find such a difference in both structures?

Given the similarities between these sentences, the difference between them is to be attributed to the adjunct itself, and in particular to its syntax. A suitable difference regards the level of attachment of adjuncts.<sup>10</sup> These are connected to different points of merger in the structure, and their height influences the possibility of extraction: when adjuncts are in a higher projection they are opaque domains, whereas more transparent adjuncts are connected to a lower point (see Sheehan 2010; Narita 2011; Brown 2016 for similar proposals regarding the extractability from adjuncts).

In the cases discussed here, it can be the case that *dopo* is attached to the phase head *vP* and is therefore an opaque domain not allowing extraction of any element, whereas *senza* is in a lower projection such as *VP* and is thus transparent.<sup>11</sup>

Why should there be a difference connected to adjunct types, though? This may have to do with the possibility of forming macro-events. It is known that different events can combine to form complex structures and single macro-events which can be further decomposed into simpler ones.<sup>12</sup> Here, the event introduced by the adjunct is combined with the one of the main verb, forming a (unique) complex event structure and thus voiding the islandhood of the domain. Such a distinction is supported by an interpretive difference between the two types of adjuncts, as noted in Truswell's (2007, 2011) semantic approach. In fact, opaque adjuncts tend to situate two separate events in relation to each other, whereas transparent ones modify aspect within a single event.

The semantic approach of Truswell (2007, 2011) can be connected to syntactic reasons, namely their position in the structure. In fact, the possibility of having a complex structure is connected to the level of attachment of the adjunct: it is open only for lower adjunction sites but blocked for higher ones. This is why we need both steps in order to account for extraction. Let's look once again at the asymmetry among *senza* and *dopo*. Examples are repeated in (15).

- (15) a. Quali dolci Luca è scappato [dopo aver rubato \_]?  
       which sweets Luca run away after having stolen  
       'Which sweets did Luca run away after having stolen?'  
       b. Quale ragazzo Silvia è partita [senza salutare \_]?  
       which boy Silvia has left without to.greet  
       'Which boy did Silvia leave without greeting?'

A sentence like (15a) is judged unacceptable, and following the approach above this is the case because here the two events described in the matrix and in the adjunct cannot be united to form a complex structure because of the height of the level of attachment. In fact, as seen above, *dopo* is connected to *vP*. The acceptability of (15b) depends on the fact that the adjunct is here merged lower, in *VP* and thus the creation of a single event is possible.<sup>13</sup>

<sup>10</sup> See also Haegeman (2012) for a similar proposal for central adverbial clauses based on independent reasons.

<sup>11</sup> There can be a different analysis of merging points based on a more fine grained level of attachment of the verbal domain, which also allows us to multiply the potential merging points. See the proposal of Sheehan (2010) for prepositional adjuncts, and the one by Fábregas & Jiménez-Fernández (2016a, b) based on bare present participial adjuncts and adjectival secondary predicates. In their analysis the verbal domain is based on the decomposition of the Aktionsart in Ramchand (2008).

<sup>12</sup> Independent analyses of macro-events have also been proposed for the case of telic pairs (see Giorgi & Pianesi 2001; Higginbotham 2009).

<sup>13</sup> Note that there is also another syntactic reason in assuming different merging points for adjuncts: if we consider Agree to happen under c-command, adjuncts do not enter into an agree relation with *vP*, whereas a lower merging point, say in *VP*, could explain the c-command relation and thus the asymmetry between the two merging points as far as extraction and events are considered. However, assuming a lower merging point may be problematic for extraction, especially after head movement. In such a case, extraction should happen early in the



## 6. Conclusion

To conclude, this pilot experimental study confirms that resumptive pronouns of the intrusive kind cannot rescue an island violation in an acceptability task. On the contrary, with some adjuncts its presence can strengthen the island effect. The test also showed that extraction from prepositional adjuncts is sometimes licensed in Italian, and it is affected by two factors, mainly: (i) the level of attachment of the adjunct, and (ii) the possibility of forming a complex event structure instead of two separate ones. Such an approach also explains the differences that are found among adjunct types.

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derivation in order to avoid a violation of the Strict Cycle Condition. I will leave aside these points for future investigation. Thanks to Irene Amato for pointing this out.

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