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RESUMPTION IN ENGLISH: AN INVESTIGATION OF USAGE AND ACCEPTABILITY*

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ABSTRACT

Resumption in English has typically been characterised as a 'rescuing' device, used in spoken language as a way of ameliorating otherwise illicit sentences. However, experimental evidence presents a paradox: though resumption is frequently attested in spoken English, it does not appear to improve acceptability in all the environments in which it is used. This paper investigates this paradox in further detail by comparing data from a corpus and an acceptability judgement task. The primary objective is to investigate whether resumption is judged more acceptable in those environments in which it is most frequent, as a means of better understanding the status and purpose of this peculiar phenomenon.

1 INTRODUCTION

A resumptive element appears in a position where one would otherwise expect to find a gap created by A-bar movement:

(1) I don't like driving to places that I don't know where **they** are.[1]

It typically has a pronominal form, and much of the literature refers exclusively to 'resumptive pronouns'. However, Kroch (1981: 129) observes that full noun phrases and demonstratives may also be resumptive, as demonstrated by (2) and (3).

(2) There was one prisoner that we didn't understand why **the guy** was even in jail.

(3) It came up in the charge to the jury, which we have been discussing what **that** meant.

(Kroch 1981: 129)

I will therefore adopt the broader term 'resumptive element' (or for convenience, 'resumptive') throughout this work. Resumption is attested in many languages, and has been notably investigated in Irish (McCloskey 1990, 2006), Hebrew Shlonsky (1992) and Lebanese Arabic (Aoun, Choueiri & Hornstein 2001); indeed, Hagège

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[1] All unattributed examples were personally collected. Resumptives are marked in bold throughout.

(1975) estimates that one fifth of the world's languages are resumptive. However, there are significant differences between the behaviour and status of resumption in English and in the languages mentioned above, leading to a broad consensus that it is not a homogenous phenomenon. A distinction is drawn between 'apparent' and 'intrusive' resumption. Apparent resumption is found in languages such as Irish, in which resumptives can freely alternate with gaps in many instances, and *must* appear in positions from which movement is ungrammatical, such as within islands (Polinsky, Clemens, Morgan, Xiang & Heestand 2013: 342-43). It also demonstrates a number of more specific characteristics, such as adherence to the Highest Subject Restriction, which does not allow resumptives to occur in the highest subject position of a relative clause (McCloskey 1990). Crucially, apparent resumption is fully grammatical.

Intrusive resumption, on the other hand, is the type found in English, and the focus of this paper. It often occurs in positions from which movement would result in an ungrammatical gap; indeed, linguists such as Boeckx (2003: 19) have suggested that it is restricted to these environments. Corpus-based work demonstrates that this is not the case, however: in the corpus of resumptive sentences discussed in Section 3, 53% did not involve any constraint on movement. Intrusive resumption, it seems, can occur in sentences where a gap would be perfectly grammatical. For instance, compare the attested example of (4) with its fully grammatical, non-resumptive counterpart in (5).

(4) There's a train you can take that **it** stops in Chicago.
(Kroch 1981 corpus)

(5) There's a train you can take that stops in Chicago.

Additionally it seems that intrusive resumption does not conform to the Highest Subject Restriction:

(6) She got a couch at Sears that **it** was on sale.
(Cann, Kaplan & Kempson 2005: 1554)

Examination of corpora suggests that there is no consistent rule to characterise the distribution of intrusive resumption, although as will be discussed below, there are some environments in which it is attested more frequently than others.

Intrusive resumption (hereafter simply 'resumption') is primarily of interest to syntacticians, not for its distribution, but for its unusual status as 'partially acceptable'. In the rule-governed world of syntax, whose primary currency is binary branches and discrete features, it is intriguing to come across a phenomenon which seems 'on the edge' of grammar, and it is difficult to determine how it should be treated. Attempting to construct a formal analysis of a fully grammatical phenomenon like apparent resumption is at least a familiar, if not a straightforward task, and productive efforts have been made towards this end (for instance, Boeckx's (2003) 'stranding' analysis). However it is not clear that a formal approach can be easily applied to intrusive resumption; how could its marginal status be encoded in a formal analysis? Degrees of acceptability are not readily incorporated

into a discrete model. There were some attempts in the Government and Binding era to formally account for different strengths of movement violation, such as Chomsky's (1986) suggestion that acceptability of movement decreases with every barrier crossed. However, as noted by Sprouse (2007: 123), this kind of analysis has on the whole been "the exception rather than the rule." If resumption is not amenable to traditional formal analysis, a more fundamental question arises: what is it? What is its place and purpose in the minds of the speaker and hearer? This question falls at the interface of syntax and psycholinguistics, prompting investigation of how syntactic rules might interact with the production and processing of sentences to produce such a phenomenon.

The case of resumption has attracted substantial attention from linguists since a surge of interest in the 1980s. At first glance it is not clear why this issue should have become such a source of intrigue; some may wonder why numerous studies should be carried out on what could be perceived as a trivial quirk of conversational English. However, upon closer inspection it appears that resumption can provide insight into a wider linguistic issue. The issue in question is an interaction of the Chomskyan notions of competence and performance (Chomsky 1965), in that it concerns the way in which underlying syntactic processes play out in real time. Following Chomsky, much formal syntactic theory is concerned solely with the "ideal speaker-listener", who is "unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and error (random or characteristic) in applying his knowledge of this language in actual performance" (Chomsky 1965: 3). The notion of performance is somewhat relegated as syntacticians devise models to reflect competence alone. However, phenomena such as intrusive resumption necessitate close consideration of the competence-performance interface. Resumption appears to be a product of performance, in that its usage is broadly restricted to spontaneous spoken language, yet resumptive sentences are marginal in status; they are not accepted at the level of competence. It seems that there must be some competing pressures involved here, and thus the case of resumption offers a window into some of the core issues of 'real life' syntax. Discussion of this kind falls in line with current work in Dynamic Syntax (e.g. Kempson, Meyer-Viol & Gabbay 2001), which questions the assumption that syntax should be concerned with "fully articulated structure" (Kempson et al. 2001), instead proposing that syntactic models should seek to capture the incremental manner in which structure is built up from language strings during parsing. Such usage-based views of syntax emphasise the need for a reconsideration of the competence-performance interface. Work on resumption provides a valuable case study for discussion of this kind, raising fundamental questions about the relative status of grammatical rules and performance pressures in determining how we create structure.

After reviewing some of the previous theoretical and experimental work on resumption in Section 2, I present two empirical approaches to the phenomenon: Section 3 considers the usage of resumption by means of corpus analysis, and Section 4 presents the findings of an acceptability judgement task. Section 5 discusses how the findings of these two approaches can be usefully compared to provide in-

sight into the nature of resumption, and how such findings could be accommodated within different theoretical approaches.

2 Previous theoretical and experimental work

2.1 Common environments for resumption

A basic intuition regarding resumption is that it most frequently occurs when a speaker encounters difficulty with an utterance. In the literature it has been described as a "last resort" (e.g. Polinsky et al. (2013: 357) extend Shlonsky's (1992) use of the phrase from apparent to intrusive resumption), occurring when the speaker would otherwise have to abandon the sentence altogether. There are various circumstances in which this situation is likely to arise.

The difficulty most commonly discussed in the literature is that of movement constraints; a speaker may begin a sentence in such a way that will necessitate illicit movement later in the sentence. It is easy to imagine how this might occur when sentences are produced under time pressure:

(7) A: I had coffee with Jane yesterday.
B: Who's Jane?
A: Jane is the woman who I walk **her** dog when she goes on holiday

Under the time constraints of conversational speech, Speaker A might well begin her answer before it is fully planned. She is likely to begin her utterance, *Jane is the woman who*, or the elided form, *The woman who*, since this is the conventional and relevant way to form an answer to the question *Who's Jane?*. If so, when she reaches the relative clause, she will encounter a problem: she has already moved and pronounced the left branch of a DP, and so to pronounce the rest of the DP would be to violate the Left Branch Constraint (Ross 1967). In this scenario, Speaker A is likely to produce the resumptive pronoun *her*.

Resumption may also occur in sentences which pose a challenge to more general cognitive capacities. For instance, if the distance between a moved element and its extraction site is very long or contains multiple clauses, thereby taxing the working memory, a resumptive pronoun is often produced rather than a gap.

(8) There is this new kind of floor that one of the studios in New York that I danced in has **it**.
(Kroch 1981 corpus)

In (8) there is a distance of thirteen words, including a further level of embedding, between the head and the position from which it appears to have moved. In this kind of environment, it is common to find a resumptive rather than a gap, even if the gap would be entirely grammatical.

Given these observations, the question to address is why a speaker would produce a resumptive in these scenarios. What is the benefit of resumption, and for whose benefit is it produced? These questions underlie the various accounts of intrusive resumption that have been proposed in the last decade.

2.2 Resumption as a processing device

The general trajectory of recent literature has been towards analysing resumption as a processing device. Advocates of this view suggest that resumption is used in sentences which, due to length, complexity, or the presence of a movement violation, are difficult to process. The resumptive does not make the sentence grammatical, but at least renders it processable, and makes it easier to identify the roles of different arguments. The basic tenets of the processing account can be traced to Keenan & Comrie (1977: 92-93), who observed that apparent resumption is crosslinguistically more frequent in positions that are low on the accessibility hierarchy, from which extraction is believed to present more of a processing challenge. The basis of this idea has been extended to intrusive resumption, leading to a number of theoretical accounts of how intrusive resumption could aid processing.

Alexopoulou & Keller (2007) (Alexopoulou & Keller) present one of the most developed processing accounts of resumption. They adopt the assumptions of Gibson's (1998) Syntactic Prediction Locality Theory (SPLT), which calculates the complexity of A-bar dependencies on the basis of two factors: i) a MEMORY COST incurred by "the storage of the input that may be used in parsing later parts of an input" (Alexopoulou & Keller 2007: 139), and ii) an INTEGRATION COST incurred by integrating input into existing structures. Alexopoulou & Keller suggest that until the parser reaches the resumptive, it is anticipating a syntactic resolution to the A-bar dependency, and so there is an expectation of a gap. However, "the presence of the resumptive makes the parser abandon the syntactic/cyclic resolution of the dependency and revert to an anaphoric dependency" (Alexopoulou & Keller 2007: 144). At this point, the parser reanalyses the structure as an instance of anaphoric co-reference, meaning that the sentence is no longer processed in terms of 'filler' and 'gap', but rather in terms of a noun phrase and a co-referential anaphor. Alexopoulou & Keller argue that the use of resumption is beneficial from a processing perspective because an anaphoric dependency does not require a gap to be filled, and therefore removes the need for distance-based integration. According to the SPLT, this makes the sentence easier to process. However, resumption cannot cancel all processing costs, because until the resumptive is encountered, the parser is predicting a gap and therefore incurs memory costs up to this point. Alexopoulou & Keller suggest that a resumptive cannot restore the sentence to full acceptability for this reason.

Some preliminary psycholinguistic evidence supports the idea that resumption has processing benefits. For instance, Hofmeister & Norcliffe (2013) investigated reading time of resumptive and non-resumptive sentences, finding that resumption improved reading time in complex sentences such as (9):

(9) Mary confirmed that there was a prisoner who the prison officials had acknowledged that the guard helped _/**him** to make a daring escape.
(Hofmeister & Norcliffe 2013: 230)

Since reading time is generally taken as an indicator of ease of processing, it is concluded that the presence of a resumptive assists the listener in processing such

sentences. On the other hand, resumption did not improve reading time in simpler sentences such as (10):

(10) The prison officials had acknowledged that there was a prisoner that the guard helped _/**him** to make a daring escape.
(Hofmeister & Norcliffe 2013: 230)

Therefore it cannot be said that reading time evidence provides conclusive support for the processing benefits of resumption. It does, however, provide an insight into how processing effects might be productively investigated.

2.3 Resumption as a production device

An alternative theory of resumption is advocated by Polinsky et al. (2013). This account shares a central premise with Alexopoulou & Keller's processing argument; like Alexopoulou & Keller, Polinsky et al. assume that the relation between the resumptive element and its antecedent is anaphoric rather than syntactic. However, their account differs in the purpose it proposes for the anaphora. While Alexopoulou & Keller suggest that anaphora aids processing in deviant sentences, Polinsky et al. suggest that it aids production.

Polinsky et al.'s argument rests on a fundamental shift in perspective, moving from an "altruistic speaker model" to a "selfish speaker model" (Polinsky et al. 2013: 356). The former view assumes that everything the speaker does is intended to help the hearer to retrieve the meaning of a sentence with minimal effort, thus assuming tenets of Grice's Cooperative Principle (1975). Under this assumption, resumption could be framed as a processing device, intended to assist the hearer. However, a selfish speaker model acknowledges that speakers may also seek to conserve their own effort, and so create strategies to aid production. Polinsky et al. cite disfluency features as an example of such a production aid, suggesting that stops and false starts help the speaker by gaining time for utterance planning (Polinsky et al. 2013: 357). Under a selfish speaker model, Polinsky et al. suggest that resumption is a device that allows the speaker to salvage an utterance when syntactic dependency becomes impossible. Resumption is "a way for speakers to maintain coreference and add more information without breaking the production chain" (Polinsky et al. 2013: 357). This account therefore proposes that a speaker changes the type of sentence they are producing from a syntactic to an anaphoric dependency, not for the hearer's benefit, but for their own. This is assumed to be straightforward for the speaker, who has access to the intended meaning and therefore can easily maintain co-reference between the resumptive and the antecedent.

Polinsky et al.'s production account relies on the notion of utterance planning, the idea being that speakers may initiate a syntactic dependency, but, due to a lack of planning, force themselves into a corner where the only remaining solution is to switch to an anaphoric dependency. This idea is not a new one. Kroch (1981) appeals to MacDonald's (1980) notion of a "real-time sentence generator", which has limited planning capacity, and so may "provide output before the linguistic unit under construction is completely formed" (Kroch 1981: 131). The idea that

poor planning may necessitate resumption is a highly intuitive one, and would seem to satisfactorily account for the rarity of resumptives in written English: in spoken language there is generally a time constraint, whereas this is not the case for most written language.

It must be acknowledged, however, that the idea that resumption is motivated by a lack of planning has been called into question. For instance, Asudeh (2012) draws attention to the experimental evidence of Ferreira & Swets (2005), who conducted an elicitation study of resumption in wh-islands. Subjects were asked to provide descriptions of a picture, designed to elicit target sentences such as (11):

(11) This is a donkey that I don't know where **it** lives.
Ferreira & Swets (2005: 270)

The experiment was carried out under two conditions: once under time pressure, and once under no time pressure. Somewhat surprisingly, participants under no time pressure made use of a resumptive in 67% of the targets, demonstrating an *increase* over time-pressured participants, who used resumption in 56% of targets (Ferreira & Swets 2005: 274). Asudeh argues from this evidence that resumptives are produced even when speakers have unlimited time to plan their utterance, and therefore cannot be the result of planning limitations. He proposes instead that resumptives are the result of "incremental production of locally well-formed structures" (Asudeh 2012: 286). To briefly summarise, this account proposes that production is primarily concerned with the creation of locally well-formed structure, and that global well-formedness applies only to the complete output. When a filler-gap dependency is created, integration of the filler will be attempted. However, a speaker may alternatively insert a nominal in the place where the filler should be integrated, particularly if integration is blocked by the presence of an island. "This leads to local well-formedness," Asudeh argues, "even though the overall result is global ill-formedness. However, since production is incremental, such productions can nevertheless be uttered" (Asudeh 2012: 323-4). Asudeh thus presents an alternative view of how resumption could be accounted for within a model of production.[2]

It is worth noting that a production account of resumption allows for the possibility that resumption may also result in processing benefits for the speaker. Hofmeister & Norcliffe's (2013) finding that resumption improves reading time in some sentences should not be taken as evidence against a production account; such processing benefits can be considered incidental. Indeed, Polinsky et al. themselves acknowledge that resumptives may be useful "in parsing difficult dependencies" (Polinsky et al. 2013: 359). The crucial distinction is that facilitating processing is not seen as the primary purpose of resumption. It is therefore not problematic to find resumption in simple sentences such as (12), in which the resumptive offers no obvious processing benefit:

[2] It must be acknowledged that Asudeh's account does not regard production demands as the main motivation for resumption. In fact, he describes his account as a "processing model" (Asudeh 2012: 323). His description of incremental production is included to show how the production of resumptives might be explained from a psycholinguistic perspective.

(12) That's the only dream that **it** came true.

(Kroch 1981 corpus)

2.4 Previous evidence from acceptability judgement tasks

Alongside these theoretical accounts, there has arisen a substantial body of experimental evidence on the subject of resumption, the dominant methodology being the acceptability judgement task. This an ideal way of investigating marginal structures such as resumption, whose acceptability is not adequately captured by 'yes/no' responses. In the past twenty years, many linguists working on resumption have used acceptability judgement tasks to probe its acceptability in different structural environments (Alexopoulou & Keller 2002, 2007, Frazier & Clifton 2002, Heestand, Xiang & Polinsky 2011, Hofmeister & Norcliffe 2013, Keffala 2013, McDaniel & Cowart 1999, Polinsky et al. 2013). At the point that such studies started to be undertaken, the expectation was that they would reveal an improving effect of resumption over illicit gaps. Many linguists (e.g. Ross 1967, Erteschik-Shir 1992) had previously described the 'saving' effect of resumption, an evaluation apparently based on the intuitions of linguists. However, when this widely-held assumption was investigated experimentally, a striking and unexpected trend emerged: resumptive structures, it seems, are often not considered more acceptable than corresponding gapped structures.

Alexopoulou & Keller (2007) carried out an investigation of resumption in wh-questions in English, Greek and German. They investigated the acceptability of resumption in object position in a number of environments: non-island structures (bare clauses and *that*-clauses), weak islands (*whether*-clauses), and strong islands (relative clauses), each of which was tested with different levels of embedding. The results for English were surprising: in strong islands with single and double levels of embedding, resumption was of the same acceptability as a gap, and in every other sentence type, resumption was judged as significantly worse than a gap. In no environment was resumption found to be more acceptable than a gap. The results for the various island types in Greek and German varied slightly, but the general conclusion was the same: resumption was never more acceptable than a gap.

By way of probing Alexopoulou & Keller's findings, Polinsky et al. (2013) created a follow-up experiment using different stimuli. They investigated object resumption in the context of both declarative and interrogative sentences. The experimental sentences included adjunct islands and relative clause islands, as well as non-island control sentences. Unlike Alexopoulou & Keller's experiment, Polinsky et al. carried out the judgement tasks in an online format in which sentences appeared word-by-word on a screen, thereby placing a constraint on reading time. As an additional pilot experiment, ten participants received the sentences in auditory form. The results of this experiment confirmed the findings of Alexopoulou & Keller: object resumption never improved acceptability. The resumptive sentences presented no improvement over the sentences with gaps in either type of island, a result that held true for both the visual presentation and the pilot study of auditory presentation.

The observation that resumption does not improve acceptability in object position appears robust; the general findings of Alexopoulou & Keller and Polinsky et al. are further demonstrated in Heestand et al. (2011) and Hofmeister & Norcliffe (2013). However, experimental evidence suggests that resumption may have an improving effect in subject position. McDaniel & Cowart's (1999) investigation of wh-islands in relative clauses considered both subject and object resumption. It was found that resumption did not improve the acceptability of object extraction from within a wh-island, but did significantly improve the acceptability of subject extraction. For example, sentence (14) was judged significantly better than (13):

(13) That's the girl that I wonder when met you.

(14) That's the girl that I wonder when **she** met you.
(McDaniel & Cowart 1999: B16)

The subject-object imbalance here implies that the resumptive does not repair the wh-island, otherwise the improvement would have been similarly manifested in the cases of object extraction. McDaniel & Cowart conclude that resumption is able to reduce the effects of violations of the Empty Category Principle (ECP), which prohibits a gap in subject position if there is overt material in the adjacent CP (Chomsky 1981). They argue that the ECP is a constraint on representation, and can therefore be repaired when any material with phonetic content appears instead of a gap. However, the resumptive offers no improvement where the constraint is on movement, and so resumption cannot repair illicit object movement. This study therefore suggests that resumption does have a 'saving' function, but not of the kind originally supposed. Crucially, this saving effect occurs only in a subset of the environments in which resumption is attested. This would imply that the saving effect may be incidental; resumption can improve ECP violations, but this cannot be its sole function.

The experimental findings broadly come as a surprise to those studying resumption, given the long-held assumption that resumptives create a 'saving' effect for movement violations. Consideration of the data reveals a paradox: English speakers use resumption relatively frequently in natural speech, yet they often do not consider it to be more acceptable than the gapped alternatives. As McDaniel & Cowart (1999) show, in sentences where a gap would violate both a movement constraint and the ECP, resumption does offer an improvement. However, resumption is by no means restricted to this environment; the corpus discussed below shows that 33% of resumptives occurred in object position, the position in which it is consistently rejected. It therefore appears that English speakers frequently make use of resumption in environments in which a gap would be equally or more acceptable.

2.5 The need for a dual approach

The observed discrepancy between usage and perceived acceptability is one that any theory of resumption needs to account for. Indeed, this observation is central to Polinsky et al.'s (2013) production account. Their 'selfish speaker' model suggests that resumption is for the benefit of the speaker, not the hearer, and there

is therefore no reason to suppose that hearers should consider it any more acceptable than gapped sentences. This account, they argue, additionally explains the perplexing finding that a resumptive sentence is often judged unacceptable by the very person who produced it in the first place (Ferreira & Swets 2005): "They produce it as speakers, but hate it as hearers/readers" (Polinsky et al. 2013: 357). This is an intriguing claim, and one that would indeed appear to account for the surprising experimental findings.

However, the paradox this account seeks to explain is one that has not yet been investigated in any great detail. There currently exists a broad understanding that there is a difference between 'what we do' and 'what we accept' with regard to resumption. Yet the link between these two phenomena has not been widely explored. This is not to say that the usage of resumption has not been investigated - corpus work such as that of Prince (1990) and Cann et al. (2005) has explored the environments in which resumption is most common - but what appears to be lacking is a direct comparison of frequency of usage and acceptability. I suggest that a dual approach, using both acceptability judgement ratings and corpus data, will provide greater insight into the nature of the usage-acceptability discrepancy, and thus into the nature of resumption.

The investigation that follows adopts such a dual approach, seeking to establish whether there is any correlation between usage and acceptability in different environments. The study investigates object resumption in different types of relative clause. Previous experimental evidence predicts that object resumption will never be judged as more acceptable than a gap. The question of interest is whether this low acceptability is uniform across clause types, or whether it correlates with the trends in usage indicated by the corpus investigation.

3 Corpus work

3.1 Prince's (1990) investigation

The corpus-based element of this investigation builds on findings described in Prince (1990). Using a corpus of 539 English resumptive-containing sentences compiled by Anthony Kroch in 1981, Prince studied the distribution of resumption in different types of relative clause in English. (The study also considered data from Yiddish, but this is not relevant to my investigation.) The findings were compared with a corpus of gap-containing relative clauses to determine trends that are unique to resumptive sentences.

Prince's study considered two variables: restrictiveness of the relative clause and definiteness of the head of the relative clause. Thus four logically possible clause types were established, as exemplified in Table (15):

(15) Examples of classification by restrictiveness and definiteness of head

Restrictiveness	Definiteness	Example sentence
Restrictive	Definite	I went to see the film that you told us it was good.
Restrictive	Indefinite	I have a little flight bag that I carried my gun in it.
Non-restrictive	Definite	It was John Heinz, who I've heard of him.
Non-restrictive	Indefinite	We have a vase, which we could put a half a dozen roses in it.

(Kroch 1981 corpus)

For the purposes of Prince's investigation, which considered the discourse-function of resumption as a separate motivation to processing, sentences thought to present a particular processing difficulty were excluded. This involved sentences such as those containing an island, or those with intervening pre-posed material between the head and the resumptive (Prince 1990: 487). This left 158 English sentences to be considered.

Analysis of the English data revealed an intriguing trend: amongst restrictive relative clauses, there was a clear tendency towards indefiniteness. In 100 sentences with restrictive relative clauses, only 16 had a definite head. This is significant when compared with the corpus of non-resumptive sentences: amongst 108 restrictive relative clauses, 32 had a definite head. Prince compares the proportions of definiteness amongst restrictive relatives (16% in resumptive sentences versus 30% in non-resumptive sentences), concluding that in resumptive sentences there is a particular tendency for indefiniteness amongst restrictive relative clauses, a trend that is much less pronounced in non-resumptive sentences. Prince's corpus work provides the background to my investigation, in that it presents a trend in distribution that seems to be specific to resumptive sentences, and therefore provides a useful source for comparison with acceptability judgement data. Before such a comparison could be undertaken, however, it was necessary to establish whether Prince's observations held true in a larger and broader corpus.

3.2 The resumptive corpus

The sentences collected by Kroch in 1981 form the basis of the corpus used for this investigation.[3] Kroch's examples were predominantly taken from spontaneous spoken English, from a wide range of sources, from speakers of varying social backgrounds. Since the sentences were collected in America, it can be assumed that they were mainly produced by speakers of American English. Kroch's sentences were supplemented with 26 examples I had collected, from diverse contexts including linguistics lectures, radio comedies, church sermons and conversations with friends. All of these examples were produced by British English speakers.

A number of sentences were omitted from the corpus, for a variety of reasons. Some sentences were judged to be simply incomprehensible, or it was not clear what the resumptive referred to, making the sentence impossible to categorise accurately. Others contained a relative clause in which the head lay outside of a direct quotation while the resumptive fell within the quotation, as in (16). It was felt that this did not constitute resumption, since the quotation is acting as a separate utterance:

[3] I am grateful to Professor Kroch for allowing me access to his corpus.

(16) …the proof that I sketched that everyone said, "Why aren't you happy with **that**?"

(Kroch 1981 corpus)

In a number of sentences it appears that the complementizer is being used as a conjunction, meaning that the second phrase cannot be interpreted as a true relative clause. Loock (2010: 66-67) observes that it is not uncommon in conversational English for a relative marker to be used with a connective meaning in this way. In (17), for instance, it is hard to interpret the second clause as relative, because the complementizer *which* cannot be grammatically used with relativized time adjuncts; the complementizer would be *when* in a true relative. The sentence was therefore omitted from the corpus.

(17) Mind you, it was the end of September, which they take some trains off **then**.

(Kroch 1981 corpus)

Inevitably it is hard to distinguish with any certainty when a complementizer is being used as a connective or a relative marker. In general, sentences like (17) which had the 'wrong' complementizer were omitted, but this process was somewhat subjective. Finally, sentences were omitted when the resumptive referred to something other than a nominal, as in (18):

(18) If we included your material then you'd be an author, which I'd be much more comfortable with **that**.

(Kroch 1981 corpus)

Crucially, however, sentences containing resumptives with what Prince called "processing function" (1990: 485) were not omitted in this corpus. There were two reasons for this. Firstly, it meant that the corpus as a whole was larger, so generalisations about resumption could be considered more reliable. Secondly, and more importantly, it allowed me to determine whether the tendency Prince observes holds true across the board, including sentences containing islands and other movement constraints. After the various omissions and additions, the final corpus contained 492 sentences (compared with 158 in Prince's study).

It must be acknowledged from the start that there are some limitations to the use of this corpus in making generalisations about resumption. Firstly, there are obvious problems with compiling a corpus purely from anecdotal examples, rather than the more standard method of taking a large sample and extracting relevant sentences from it. Resumptives are not frequent enough in natural speech for the standard method to be applied; it would require an unfeasibly large corpus to produce the same number of resumptive sentences as Kroch achieved through personal observation. The anecdotal nature of this corpus is a limiting factor in that collections of observed examples are less reliably representative of the actual distribution of the phenomenon in question. This means that generalisations should be treated cautiously. A further issue to acknowledge is that Kroch's examples reflect usage of resumption in American English. While I am not aware of any studies

suggesting that resumption varies between varieties of English, it is possible that the distribution could be different to that of British English.

3.3 Categorising the corpus

Once established, the corpus was categorised in terms of four variables, given in Table (19):

(19) Variables and classification options

Variable	**Options for classification**
Restrictiveness of the relative clause	Restrictive/non-restrictive
Definiteness of the relative clause head	Definite/indefinite
Presence of a movement constraint	Yes/no
Grammatical role of the resumptive	Subject/object/other

The examples I had collected were categorised first, before turning to Kroch's sentences. These had already been classified in some detail by Kroch himself, using a coding system with many different options for each variable. It was necessary to reduce these to more basic categories. In some instances these judgements involved a degree of subjectivity.

'Definiteness' is a notoriously slippery phenomenon, and any binary division between 'definite' and 'indefinite' will inevitably be somewhat artificial. For the purposes of this study, it was assumed that definiteness roughly equates to identifiability of the referent/s. That is, if the noun phrase signals that the speaker regards the hearer to be in a position to identify its referent, it is classified as definite (Lyons 1999: 5-6). Evidently this is not an exhaustive definition of definiteness, but it nonetheless provided a useful principle for categorisation. For example, Kroch's analysis of definiteness included the option 'existential quantifier', used in sentences with heads such as *some N* and *a lot of N*, as in (20). On the basis of identifiability, such cases were judged to be indefinite.

(20) You find some guys that maybe they can't hold a conversation outside of their field.

(Kroch 1981 corpus)

Similarly, a number of sentences included heads such as *the kind of N* and *the type of N*, as in (21). Although the article is definite, these examples were classified as indefinite, since they have no identifiable referent. In these cases, it is not hard to imagine that *the kind of* could be replaced with an indefinite article without having any semantic effect.

(21) This is the kind of ball game that you just let **it** cook.

(Kroch 1981 corpus)

Further difficulties were encountered in the categorisation of restrictiveness. A number of sentences could be interpreted as either restrictive or non-restrictive. In

spoken language, this distinction is often evident from intonation (De Haan 1987), but clearly these cues are not available when categorising written sentences. Often non-restrictive relative clauses are indicated through use of a comma before the relative marker, but this is not a reliable diagnostic. In ambiguous cases, I tended to defer to Kroch's analysis of the sentence, where available.

As can be seen, a number of classifications posed difficulties which had to be resolved by subjective judgements. It is likely that another analysis of the same data would yield a slightly different outcome. However, the problematic cases described above represent the minority and it is therefore unlikely that the subjective decisions made could have significantly influenced the results. The majority of the classifications made were unambiguous, and concurred with Kroch's analysis.

3.4 Comparison with a non-resumptive corpus

A corpus of resumptive sentences is of little use without a non-resumptive frame of reference. Before a generalisation can be made about the nature of resumption, it must first be demonstrated that the same does not apply to non-resumptive sentences. Prince's study used a fairly small corpus as the source of comparison, comprised of 115 non-resumptive relative clauses occurring in a recorded career-counselling session, involving just two speakers (Prince 1990: 488). Clearly a larger corpus would provide a more reliable comparison. Fortunately, more substantial corpus work on relative clauses has been undertaken, notably De Haan's (1987) analysis of six 20,000 word samples of English. It must be noted that all six samples were taken from written texts, whereas the resumptive corpus is predominantly made up of spoken utterances. However, there is no obvious reason to suppose that the distribution of relative clause types should vary significantly between spoken and written modes.[4] Meanwhile the size of De Haan's corpus renders it an extremely useful resource; it contains 1,271 non-resumptive relative clauses, over eleven times the size of Prince's non-resumptive corpus. De Haan categorised these relative clauses in terms of restrictiveness and definiteness, thus providing an ideal reference point for evaluation of the resumptive corpus.

3.5 Analysis of the corpora

The resumptive corpus was first analysed as a whole, with all 492 sentences considered:

(22) Clause types within the entire resumptive corpus (492 sentences)

[4] Of course, there are functional reasons to expect differences in the general usage of relative clauses in written and spoken language; for instance it seems predictable that, in general, spoken language should make greater use of post-modification, given the preference for identifying the head of the NP early in a spoken utterance (Hawkins 1994). However, I am aware of no evidence to suggest that spoken and written language should manifest different proportions of the relative clause types discussed here.

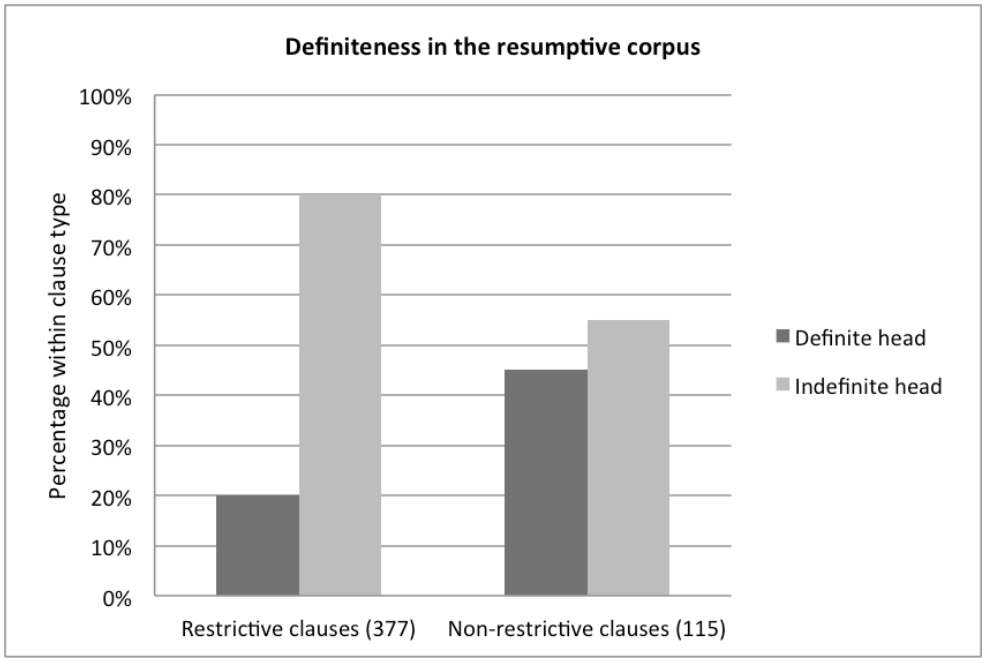

Figure 1 Distribution of definiteness within restrictive/non-restrictive clauses in the resumptive corpus

	Restrictive	**Non-restrictive**
Definite head	76	52
Indefinite head	301	63

These results demonstrate even more clearly the trend identified by Prince, indicating a strong tendency for indefiniteness within restrictive clauses. The trend becomes still more evident when the distribution of definiteness is considered as a proportion of the total restrictive/non-restrictive clauses.

Figure 1 shows that there is only a slight tendency towards indefiniteness amongst non-restrictive clauses, whereas indefiniteness is four times more common than definiteness amongst restrictive clauses.

It was then necessary to determine whether this trend is unique to resumptive sentences. Table (23) and Figure 2 show the distribution within De Haan's non-resumptive corpus:

(23) Clause types within the non-resumptive corpus (1,271 sentences)

	Restrictive	**Non-restrictive**
Definite head	448	254
Indefinite head	451	118

The non-resumptive corpus provides very different results. Most importantly, it does not demonstrate the same tendency for indefinite heads among restrictive

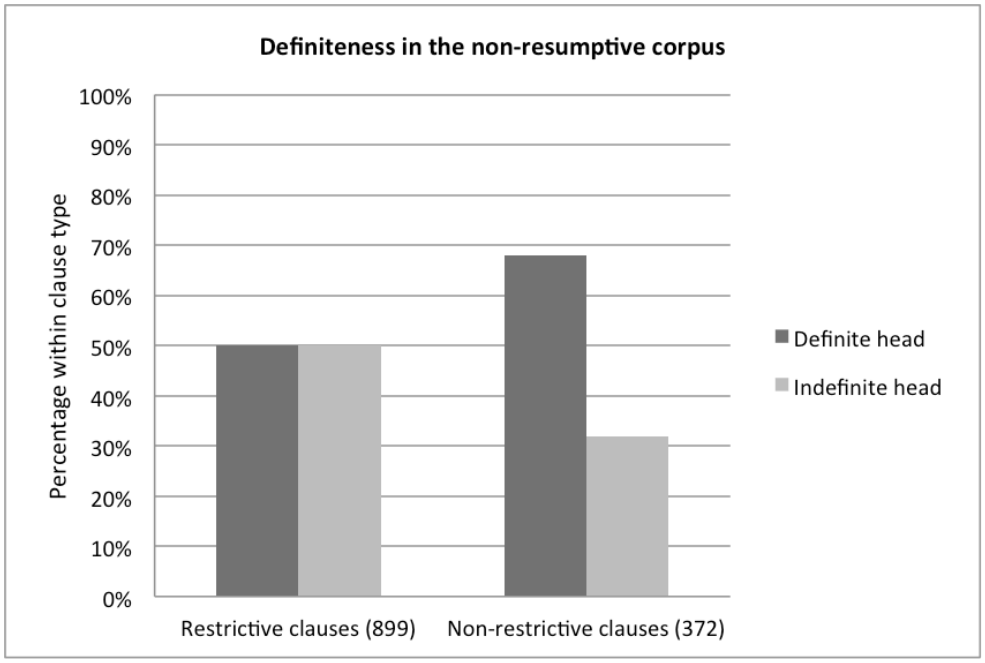

Figure 2 Distribution of definiteness within restrictive/non-restrictive clauses in the non-resumptive corpus

clauses as is found in the resumptive corpus. This supports the theory that a preference for indefiniteness amongst restrictive clauses is a property specific to resumption, rather than a trend in relative clause structures in general.

The next question to consider was whether such a trend is exhibited within specific subsets of the corpus. It was necessary to verify that the imbalance in usage is a feature of resumption in general, rather than a feature of resumption in certain environments. Figure 3 shows the proportion of definite/indefinite heads within restrictive clauses in different resumptive environments.

Analysis of subsets of the resumptive corpus shows that the trend is remarkably consistent; in all environments considered, restrictive relative clauses demonstrated a strong tendency towards indefiniteness.

In conclusion, analysis of the corpus suggests that resumption is more common in indefinite restrictive clauses than in definite restrictive clauses. This imbalance in usage is not limited to sentences where resumption has a 'processing function'; it appears to hold true of resumption in a variety of different environments. For the purposes of this investigation, the explanation for this imbalance will not be considered. (Prince (1990: 491-93) proposes a possible explanation for the trends observed, framed in terms of discourse structure, but it is beyond the scope of this work to consider this proposal in any detail.) The results of the corpus investigation are treated at face-value: they show more frequent usage of resumption in one environment than another. This facilitates comparison with judgement acceptability data, with the aim of addressing the central question of this study: is resumption more acceptable in the environments in which it is most frequently attested?

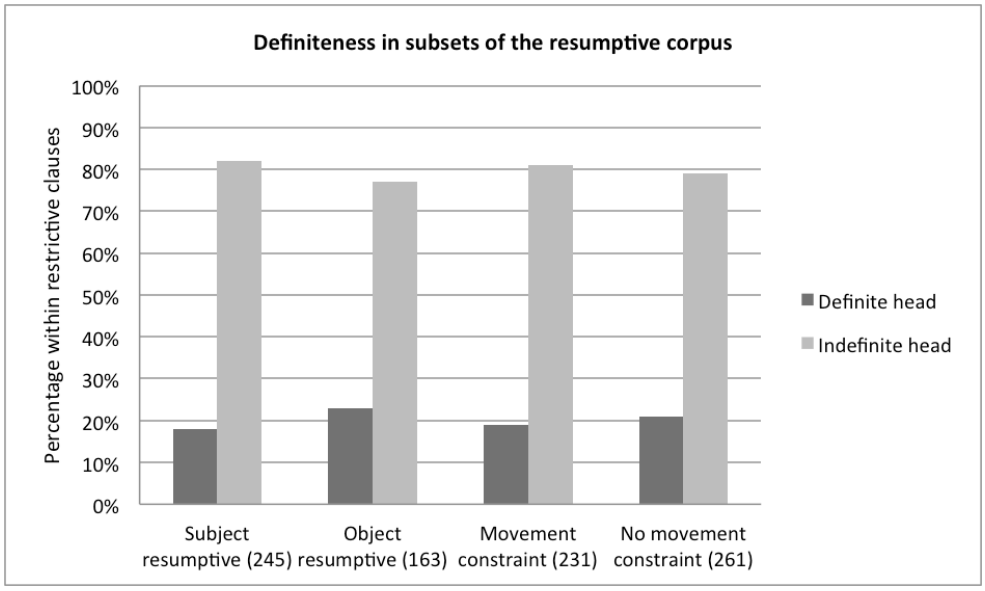

Figure 3 Distribution of definiteness within restrictive clauses in different resumptive environments

4 Acceptability experiment

4.1 Experiment outline

The experiment investigated the effect of definiteness on resumptive and non-resumptive restrictive relative clauses. This variable was tested in sentences containing wh-islands and sentences with no island present. Previous experimental work has used non-island sentences primarily as controls, but given that the corpus demonstrated frequent occurrence of resumption in non-island sentences (261 out of 492 sentences: 53%), it was felt that this environment merited investigation in its own right. The resumptive/gap was tested in object position in order to avoid complicating ECP effects, as discussed above with reference to McDaniel & Cowart's (1999) study. Further experiments should additionally investigate definiteness effects on subject resumption, but for the purposes of this study it was most relevant to test environments in which resumption does not typically improve acceptability.

4.2 Materials and subjects

Token sets were constructed to reflect the four sentence types: definite head with resumptive, definite head with gap, indefinite head with resumptive, and indefinite head with gap. 24 token sets were created, yielding a total of 96 experimental items. 12 token sets contained wh-islands and 12 contained no island. Examples of both types are given in Tables (24) and (25):

(24) Example token set (no island)

Sentence type	Example sentence
Definite + resumptive	Biology is the subject that I really wish I could understand it.
Definite + no resumptive	Biology is the subject that I really wish I could understand.
Indefinite + resumptive	Biology is a subject that I really wish I could understand it.
Indefinite + no resumptive	Biology is a subject that I really wish I could understand.

(25) Example token set (wh-island)

Sentence type	Example sentence
Definite + resumptive	I saw the masterpiece that no-one knows who painted it.
Definite + no resumptive	I saw the masterpiece that no-one knows who painted.
Indefinite + resumptive	I saw a masterpiece that no-one knows who painted it.
Indefinite + no resumptive	I saw a masterpiece that no-one knows who painted.

The sentences were designed to be unambiguously restrictive. All sentences were of approximately equal length, involving a single level of embedding. Definiteness was always differentiated by *a(n)* and *the*, since these were felt to be the most clearly defined indicators. These measures were taken to ensure comparable token sets, although further experimentation could investigate different levels of embedding and different indicators of definiteness.

Four different scripts were created, each containing one sentence from every token set. Thus each script contained six lexicalisations of the four sentence types, of which three contained a wh-island and three did not. This produced 24 experimental items per script, with every item used by exactly one script. Additionally, 48 filler sentences were included in each script. The filler sentences were chosen to represent the full range of acceptability, with equal proportions of bad, medium and good sentences. Each script therefore contained a total of 72 sentences. The order of the sentences was generated by a controlled randomization process, ensuring random but even distribution of experimental items and fillers. The materials were presented to 58 subjects, all of whom were native British English speakers.

4.3 Procedure

The experiment was distributed using the online survey software SurveyMonkey, and began with a page of instructions. Participants were told that they would be presented with a series of sentences, and asked to evaluate how natural each sentence sounded, indicating their response using a 7-point scale (where 1 was the worst score). They were asked to consider whether they could imagine themselves saying each sentence in natural conversation, and were discouraged from thinking about grammar rules learnt in school. It was stressed that there are no right or wrong answers. Participants were given three practice sentences before the experiment began, allowing them to familiarise themselves with the 7-point scale.

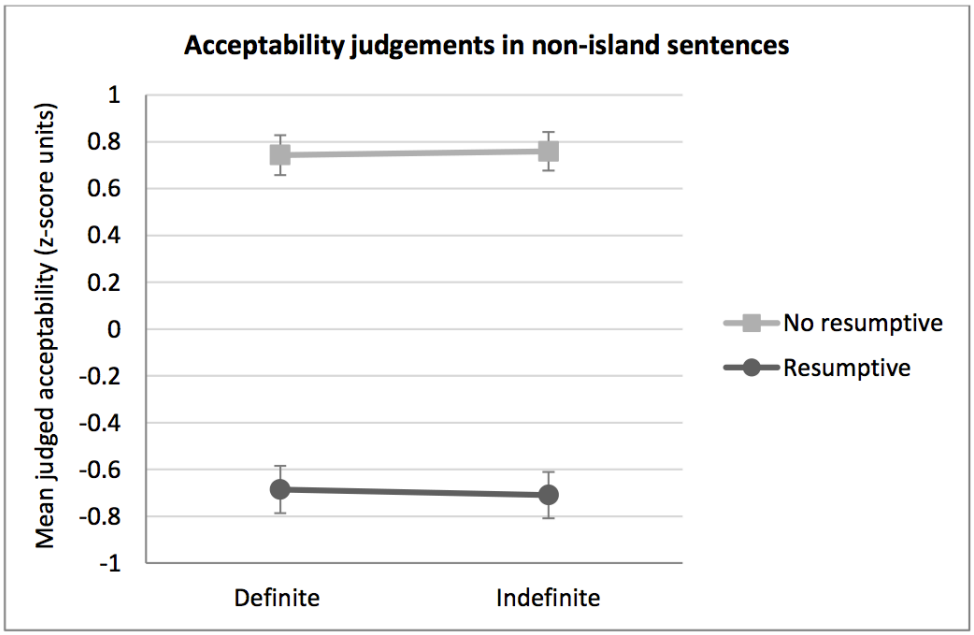

Figure 4 Effects of definiteness and resumption in non-island sentences

4.4 Results

The participants' raw sentence judgements (on a 1 to 7 scale) were converted to z-scores[5] in order to control for individual differences in the use of the scale. The mean z-score for each sentence type was calculated, providing the overall acceptability ratings. The ratings for non-island sentences are shown in Figure 4, and those for wh-island sentences in Figure 5.

Table (26) reports the differential effect of resumption within definite and indefinite sentences (the resumptive score minus the non-resumptive score for each sentence type). T-tests show that the difference in the effects of resumption in definite and indefinite relative clauses is insignificant (>0.05). It is concluded that the definiteness of the relative clause head has no significant influence on the effect of resumption.

(26) Effects of resumption in sentence types by definiteness (z-score units)

	Definite head	**Indefinite head**	***p*-value**
No island	-1.43	-1.47	=0.65 (NS)
Wh-island	-0.34	-0.29	=0.63 (NS)

Table (27) compares the mean acceptability of resumption in non-island and wh-island sentences. T-tests show that in both definite and indefinite sentence types,

[5] Z-scores calculated using the formula: $z = \frac{(x-\mu)}{\sigma}$ (where x = raw value, μ = mean of all individual's responses, σ = standard deviation).

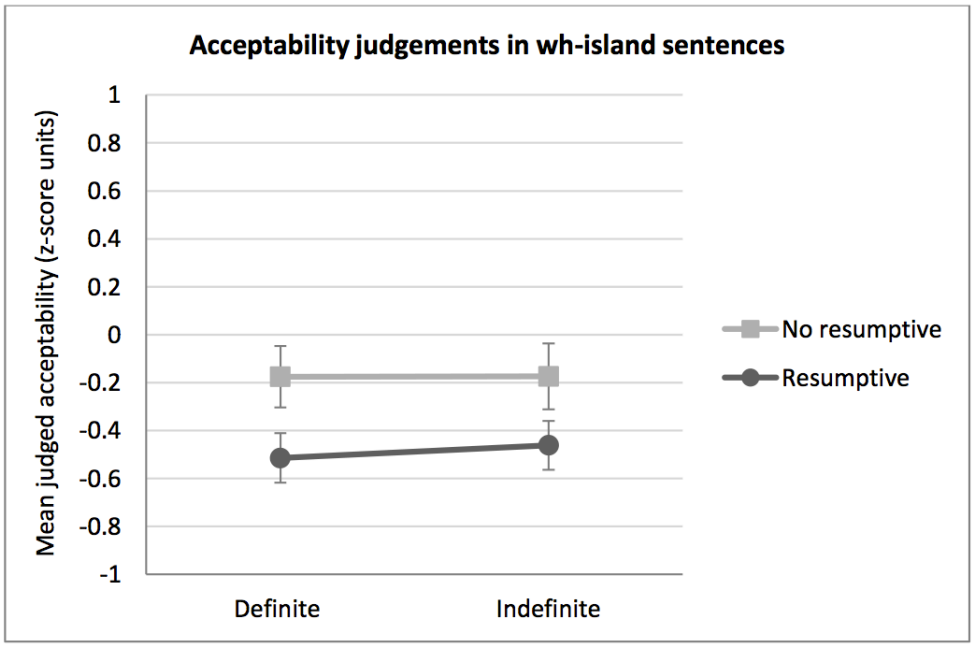

Figure 5 Effects of definiteness and resumption in wh-island sentences

resumption is significantly more acceptable in wh-island sentences than in non-island sentences.

(27) Acceptability of resumption (z-score units)

	No island	**Wh-island**	***p*-value**
Definite head	-0.69	-0.51	<0.05
Indefinite head	-0.71	-0.46	<0.05

5 Discussion

5.1 The status of resumption

The first significant finding of the experiment concerns the general acceptability of resumption in English. As expected, the experiment confirms the marginal status of resumption in both non-island and island sentences. To put this in context, Figure 6 shows the average acceptability of resumption as compared with the filler sentences.

It can be seen that, although not as bad as the bad fillers, resumption is perceived as substantially worse than the medium fillers. Further insight can be gained by comparing the resumptive scores with the scores for individual filler sentences. The average score for resumption in non-island sentences was approximately equal to that of (28), which contains an unbound anaphor:

(28) Thomas wants Sophie to feed himself.

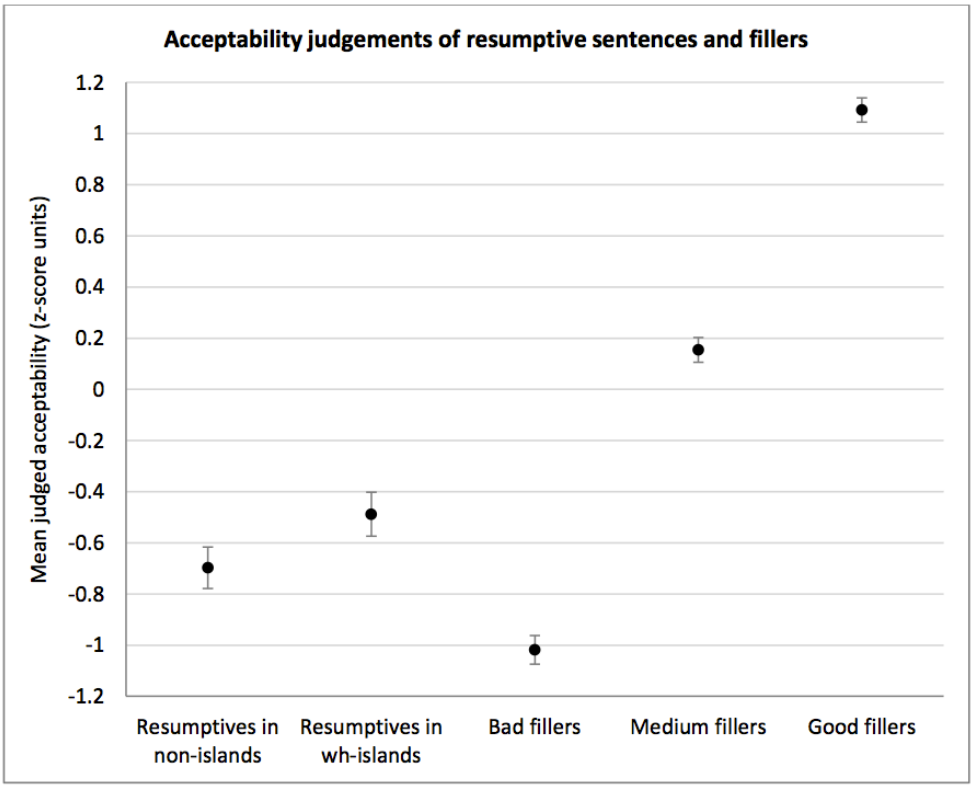

Figure 6 Mean acceptability of resumptive sentences and filler items

The average score for resumption in island sentences was significantly better (the significance of which is discussed in Section 5.2), but still low relative to the fillers. Its rating was comparable to sentence (29), which is classified as a 'medium filler' due to the marginal status of extraction from quantifier phrases:

(29) Which were the songs that you knew many of?

The experiment thus supports the most simplistic formulation of the usage-acceptability paradox: we use resumption, but we do not like it.

5.2 The 'saving' effect of resumption

The second significant finding was that resumption was never judged more acceptable than a gap. In non-island sentences, as one would expect, the resumptive sentences were perceived as far worse than the non-resumptive sentences (see Figure 4). In island sentences, the difference was less substantial, but resumptives were still found to be less acceptable than gaps (see Figure 5). This experiment therefore upholds the findings of Alexopoulou & Keller (2002, 2007) and Polinsky et al. (2013) in demonstrating that resumption in object position does not offer a 'saving' effect.

Interestingly, resumption was judged significantly more acceptable in island sentences than non-island sentences (see Table (27)). For those who regard resumptives as the spellouts of A-bar traces (e.g. Kayne 1981), this effect is predictable; from a Minimalist perspective, if resumptive and non-resumptive sentences are different PF representations of an identical numeration, then the forms are in direct competition. Minimalists propose that when two derivations of the same numeration compete, the most economical derivation will be grammatical, rendering the less economical derivation ungrammatical by comparison. With this assumption, it is logical to propose that the worse the non-resumptive sentence, the better the resumptive alternative (McDaniel & Cowart 1999). However, this observation is less easily accounted for if one adopts the view that resumption involves a shift from a syntactic to an anaphoric dependency. According to this account, the resumptive and non-resumptive sentences are entirely separate structures, with separate numerations, and there is no reason to propose competition at the level of the derivation. Why, then, should a resumptive become more acceptable as a gap becomes less so? It might be speculated that competition is occurring at a somewhat less abstract level. In a non-island sentence, it seems likely that a non-resumptive, syntactic dependency is in some sense anticipated by the parser. Therefore when a resumptive occurs, it is in competition with this psychologically salient alternative. It might be that in an acceptability judgement task, an informant gives a low score to a resumptive sentence on the basis that they can readily imagine the fully grammatical alternative. In an island sentence, however, the available alternative is considerably less appealing, so the contrast with the resumptive structure is less stark. On this basis the informant gives a slightly higher score to the resumptive sentence, since the alternative is less obviously preferable. It might therefore be argued that some notion of 'competition' can explain the variation in the resumptive scores, if not in the strictly Minimalist sense of the word.

However, this speculation is tangential to the main point of interest, that resumption ultimately fails to increase acceptability in both island and non-island sentences. This finding therefore supports a slightly more developed form of the usage-acceptability paradox: we use resumption, even when a more acceptable sentence is available to us.

5.3 The effect of definiteness on resumption

The findings discussed above add further support to existing experimental evidence. However, the third finding introduces new evidence to the discussion. It was found that the definiteness of the noun phrase has no significant effect on the acceptability of resumption in restrictive relative clauses. This was demonstrated in both non-island sentences and those containing a wh-island. This result is striking when compared with the corpus analysis, which indicates that resumptives occur in indefinitely-headed restrictive relative clauses approximately four times more frequently than in those with a definite head. Therefore in the case of definiteness, it seems that frequency of usage does not map onto the acceptability of resumptive sentences.

Of course definiteness is just one variable, and it is premature to draw generalisations about the nature of resumption from this small-scale investigation; further studies should investigate the frequency and acceptability of resumptive sentences with respect to other variables (for instance, other nominal properties such as animacy or number). Nonetheless, the results of this experiment provide preliminary evidence for a stronger, more precise formulation of the usage-acceptability paradox: there is no correlation between the environments in which we most frequently use resumption and the environments in which we find it most acceptable.

5.4 Theoretically accounting for the results

The goal of this investigation was to explore in more depth the loosely observed mismatch between usage and acceptability in English resumption; it was not designed to directly test specific theories of resumption. Nonetheless, it is worth considering how the findings described above might be accounted for within a theory of resumption.

I suggest that the findings are most readily accommodated within a production account of the kind proposed by Polinsky et al. (2013). As discussed in Section 2.3, this account presents resumption as a speaker-motivated co-reference device, implemented when difficulties are encountered in the production of a sentence. The use of resumption is therefore for the benefit of the speaker, not the hearer. For this account, the basic finding that resumptives are considered less acceptable than gaps is unproblematic, since the motivation for resumption has nothing to do with listeners. The effect of resumption on acceptability is considered incidental, and therefore the overall low acceptability of resumptive sentences becomes almost irrelevant. One might attribute the low scores for resumption to more surface-level issues of acceptability; for instance, it may be that the shift from a syntactic to an anaphoric dependency is considered undesirable, creating something approximate

to a 'garden path' effect. Alternatively, one could appeal to Asudeh's (2012) argument that the sentence as a whole is "globally ill-formed", since complementizers such as *that* and *which* typically indicate a syntactic, rather than an anaphoric dependency.

The central finding of this investigation is that the frequency of resumption in different environments does not appear to correlate with acceptability. This too can be readily accounted for within a production view of resumption. If resumption is a production device, then it can be assumed that trends in the use of resumption are likewise motivated by production. So in this case, the significant skewing towards indefiniteness in restrictive relative clauses is proposed to be production-motivated; that is, whatever the cause of this imbalance in usage is, it must be driven by the demands of sentence production, rather than any benefit in processing for the hearer. If this is indeed the case, then the experimental results are predictable. There is no reason to think that resumption in indefinite restrictive clauses should be any more acceptable than in definite restrictive clauses. I therefore suggest that the findings of this experiment are consistent with the theory that resumption is a productive device.

However, the findings do not necessarily contradict a processing account of resumption. They can arguably be accommodated within such a theory, as long as certain methodological assumptions are reconsidered. In much of the literature, there is a tacit assumption that ease of processing should neatly map onto acceptability; a sentence that is hard to process should be less acceptable than one that is easier to process. Such a conjecture can perhaps be traced to Miller & Chomsky's (1963) proposal that multiple centre-embedded clauses such as (30) are unacceptable because they place an unfeasible demand on the sentence processing system:

(30) The man who the woman who the child who the mosquito bit loves kicked the horse.

(Fanselow & Frisch 2006: 292)

From this, there has been a tendency to extrapolate the more general principle that processing and acceptability must be linked, and subsequently that processing effects should be evident in acceptability judgement tasks. This assumption has fuelled some of the arguments against the processing account of resumption, the logic being that if a resumptive really does make a sentence easier to process than a gap, then the resumptive sentence should be more acceptable than the gapped equivalent. Since this is manifestly not the case, as demonstrated in my own and others' studies, various linguists conclude that resumptives offer no processing advantage. For instance, Polinsky et al. (2013: 342) write: "English RPs do not provide processing assistance to the listener [...] which explains the otherwise puzzling production-comprehension asymmetry."

However, the assumption on which this statement rests is an extremely contentious one. The extent to which processing and acceptability map onto one another has been the topic of substantial investigation in both syntax and psycholinguistics, with significant experimental work undertaken in recent years. As yet, there seems to be little consensus, other than that the issue is a complex one;

Sprouse (2008: 693) concludes from experimental work that "some, but not all, processing effects affect acceptability judgments". Fanselow & Frisch (2006) show that temporary structural ambiguity (a form of processing difficulty) can have variable effects on acceptability, depending on the grammaticality of the intermediate and final analyses of the sentence. Given that the acceptability-processing relation is as yet undefined, it seems premature to argue against a processing account of resumption solely on the basis of acceptability judgement data.

If one suspends judgement on the processing-acceptability question, then the findings discussed above need not contradict a processing account. It might be postulated that resumption is assisting the hearer (or in this case, the reader) in processing the sentence, but that this is not reflected in acceptability judgements, which merely reflect responses to the surface-level structure of the sentence. Furthermore, it can be speculated that the tendency towards resumption in indefinite restrictive relative clauses is motivated by processing - perhaps indefinite restrictives are harder to process than definite restrictives, and so resumption is more necessary - but that again, this does not influence acceptability. In this view, the processing benefits of resumption are active at a different level of consciousness to that which determines acceptability; one could hypothesise that resumption does in fact offer greater processing benefit in indefinite restrictive relative clauses, but that this benefit is imperceptible to the listener, whose acceptability judgements are made purely on the basis of well-formedness.

In summary, it seems that the strong formulation of the usage-acceptability paradox could be taken in support of a production account of resumption. However, it could also be accommodated within a processing account, so long as one does not assume a close relation between ease of processing and acceptability. This kind of conclusion is characteristic of work on resumption, and indeed of most discussion of the 'reasons' for different syntactic phenomena; it is notoriously difficult to identify what motivates the use of individual structures, and to access the subconscious reasoning of speakers and hearers. Thus any conclusions drawn from experimental studies will be necessarily tentative.

5.5 Future directions

It has proved productive to compare data of different kinds, and I suggest that future work should proceed in this manner. Given the noted difficulty of accessing speaker and listener motivation, it seems that a multi-faceted experimental approach could be the best hope of understanding the nature of resumption. Corpus data and acceptability judgement tasks are just two sources of data, but there are other methods that could be explored further. For instance, Ferreira & Swets (2005) have demonstrated that elicitation tasks can be used with respect to resumption. Their study compared elicitation data with acceptability judgements, but the latter only consisted of an overall acceptability rating for resumption. It could be a fruitful direction to compare elicitation data with judgements of resumption in more specific environments, in order to better understand the usage-acceptability relation.

Additionally, some efforts have been made to examine more directly the potential processing benefits of resumption; for instance, Hofmeister & Norcliffe (2013) investigated the effect of resumption on reading time, and several studies include data on the reaction times for acceptability judgements (Heestand et al. 2011, Polinsky et al. 2013). It seems that further experimentation of this kind could be productive. However, it must be noted that even if it could be successfully proven that resumption does aid processing, this would not necessarily entail that this is its primary purpose, since processing benefits could be an incidental by-product of a production device. I suggest that the direct investigation of processing effects should be taken in conjunction with acceptability, elicitation and corpus data. The ways in which these types of data do and do not correlate may ultimately provide the clearest insight into the motivation and nature of resumption.

6 Conclusion

From the outset of this investigation, it was known that there is a discrepancy between the usage and acceptability of English resumption. By combining corpus analysis with an acceptability judgement task, I have explored this discrepancy in further depth. The results not only confirm the paradox, but provide preliminary evidence for its more precise formulation: there is no correlation between the frequency of English resumption and its perceived acceptability in different environments. Such a conclusion could be taken in support of a production account of resumption, but might also be accommodated within a processing account.

The discussion of English resumption acts as a case study for a far broader issue: the relation between competence and performance. There is a tendency in formal syntax to consider these notions in a highly discrete manner, whereby performance is a straightforward translation of competence. The resumption paradox emphasises the need for a reconsideration of this interface. Whether motivated by processing or production, intrusive resumption appears to be an issue of performance, the effect of which is to produce sentences that are consistently rejected in acceptability judgement tasks. It might be said, therefore, that in the case of resumption the demands of performance override those of competence. If so, this would highlight the need for psycholinguistics and formal syntax to be brought more closely together. It cannot be assumed that structure is neatly assembled before being 'handed over' for production and processing; in the case of resumption, at least, the interface appears more complex than that.

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