

BEYOND REGULARIZATION: THE ROLE OF NATIVE LEARNERS IN SHAPING MODERN HEBREW RELATIVE CLAUSES

Aviad Eilam*

1. Introduction

A growing body of evidence shows that when faced with inconsistent linguistic input, children have a tendency to impose regularity on the data rather than to simply reproduce it, so as to form a coherent rule-governed system. Although some of the work looking into this topic has been conducted on a naturally occurring language, American Sign Language (ASL; Singleton & Newport 2004), specifically examining deaf children born to parents who were late learners of ASL, researchers have had to resort largely to artificial languages employed in an experimental setting (Hudson Kam & Newport 2005, Wonnacott & Newport 2005). The phenomenon of creole formation, where entire communities of adults are non-native speakers and thus produce the type of unpredictable variation relevant to this research, has not been amenable until now to empirical investigation. This paper seeks to broaden the scope of this line of inquiry and to supplement the claims made in the abovementioned literature by providing data from a creole-like situation involving a real language, Modern Hebrew¹.

On a par with creole languages, Modern Hebrew emerged when a large group of adults shifted to speaking a language which they had not natively acquired. Unlike creole situations, however, the language they attempted to speak had been in existence previously, but for centuries was preserved only as a written language in religious and literary documents (Chomsky 1957, Izre'el 2003, Zuckermann 2006, a.o.). The result of this language shift was a complex mixture of various elements. On the one hand, as the mother tongue of many members of the first community of Modern Hebrew speakers, Yiddish left its mark both in the form of first language (L1) interference in the Hebrew of these speakers (e.g., Lipschütz 1923, cited in Izre'el 2003; Eilam 2008), and as long-term influence on Modern Hebrew, which is noticeable to this day (Zuckermann 2006, a.o.). The Yiddish interference found among the first generation of speakers spans all aspects of grammar, from the phonetics and phonology, through the semantic content of lexemes, to higher level syntactic constructions (Blanc 1965, Eilam 2008). On the other hand, the language of the first Modern Hebrew speakers is not simply a replica of Yiddish; beyond the lexical items and morphology, which are largely Hebraic and transplanted from the written texts which the speakers were familiar with, many of the structures they use do not conform to Yiddish grammar (see section 2). Accordingly, we might best describe the first speakers' language as an interlanguage (Selinker 1972), i.e., a second language (L2) learner grammar consisting of elements from Classical Hebrew² and Yiddish, but also possibly involving changes which are internal to it and regulated by various factors (Winford 2003).

Given the conditions under which it emerged, it follows that the language produced by this first group of speakers not only contained grammatical properties derived from different sources, but also that these were used at rates varying both

*I thank Tony Kroch and Charles Yang for helpful discussion and suggestions, and Jean Lowenstamm and Jonathan Weiser for providing Yiddish judgments.

¹ I use the term Modern Hebrew to refer to the Hebrew language spoken in Palestine/Israel since the late 1880s, at times labeled Israeli or Israeli Hebrew by other authors.

² I use the term Classical Hebrew to refer to Biblical and Mishnaic Hebrew together, when appropriate. See section 2 for details.

within and across speakers. The children of these speakers, that is, the first generation of native speakers, thus grew up in an atypical language environment, exposed to an input involving intra- and interspeaker variation. The obvious question, then, is what the children did with this inconsistent input, and what factors may have influenced their linguistic behavior. Although some authors have noted the significant role which these children must have played in the formation of Modern Hebrew (Bar-Adon 1977), no systematic study of any specific phenomenon has been carried out to date.

In order to address the issue and begin filling this lacuna, I examine the use of resumptive pronouns in Modern Hebrew relative clauses among three generations of speakers: (1) the first generation of speakers, many of whom were native speakers of Yiddish (hereafter GEN1); (2) the first generation of native speakers, i.e., the descendants of the first group (hereafter GEN2); (3) present-day speakers (hereafter GEN3³). Yiddish and present-day Hebrew differ with respect to the constraints they impose on the appearance of resumptive pronouns in relative clauses, raising the possibility that native learners initiated changes in the input they received. Most importantly, Yiddish allows resumptive pronouns in all positions, including the highest subject (Lowenstamm 1977, Katz 1987, Prince 1990, Jacobs 2005), while present-day Hebrew prohibits a resumptive in the latter position (Borer 1984, Shlonsky 1992, a.o.)⁴.

As expected, we indeed observe changes in resumptive pronoun use among GEN2 and GEN3 compared to GEN1, and in particular the eradication of resumptive pronouns in the highest subject position in nonrestrictive relatives. *Prima facie*, various factors could be invoked to explain such a finding, including the frequency of these pronouns in the input, the unique sociolinguistic facts surrounding the speech community of the first native speakers, processing factors, and constraints provided by UG. Notably, however, it seems that frequency alone is not a sufficient explanation: object resumptive pronouns in restrictive relatives exhibit similar occurrence rates in the input to GEN2, and yet do not disappear; on the contrary, they actually rise in frequency between GEN1 and GEN2. Nor would a putative universal ban on highest subject resumptive pronouns, often proposed in the generative literature, help much to account for the findings, since these pronouns do exist in Yiddish.

The paper is structured as follows. Section 2 presents the social and linguistic context in which Modern Hebrew emerged, focusing on the importance of Yiddish in this process and its influence on the developing language. I also discuss the various theoretical claims made regarding the grammatical basis of Modern Hebrew, concluding that recognition of Classical Hebrew and Yiddish as primary contributors is an important, but not final, step in working out the status of the present-day language. Section 3 introduces the specific phenomenon to be examined here, namely, the use of resumptive pronouns in relative clauses. I describe the relativization strategies available in Yiddish and present-day Hebrew and their patterning vis-à-vis resumption, as well as the ways in which they differ from the grammatical options found in Classical Hebrew, in order to allow for an adequate assessment of the origins of the contemporary forms. The latter issue is addressed in depth in section 4, through the analysis of naturally occurring data spanning three generations of Modern Hebrew

³ The use of this abbreviation does not imply that all present-day speakers are necessarily third generation native speakers. See section 4.

⁴ The existing literature on Yiddish and Modern Hebrew addresses restrictive relative clauses almost exclusively. However, as shown in section 3 below, the same generalizations regarding resumption also apply to nonrestrictives.

speakers. First, I establish that GEN1 speakers indeed exhibit Yiddish interference in their Hebrew in terms of the appearance of resumptive pronouns, most noticeably placing resumptive pronouns in the highest subject position in nonrestrictive relatives. Subsequently, I compare these results to those for GEN2 and GEN3, demonstrating that a modified system is present already among the first native speakers and is carried over to following generations.

Section 5 takes up the various theoretical issues which the data raises. In terms of the ongoing debate regarding the status of Modern Hebrew and the origins of its grammar (see, for example, Rabin 1974, Horvath & Wexler 1994, Zuckermann 2006), the findings show that while it is necessary to acknowledge the existence of Yiddish influence, one must also consider other possible factors in accounting for the structure of the present-day language. Furthermore, it is impossible to discover these factors without the type of research sorely lacking in the existing literature, that is, case-by-case quantitative studies of the relevant linguistic phenomena. The results also have implications for broader questions in the domain of language acquisition, assuming that they reflect a process which took place in the acquisition stage of GEN2 speakers. Although it is impossible to directly prove this assumption, it follows from what we know about language acquisition and change across the lifespan: a structural innovation of the type documented here could not have been introduced by adults, due to the nature of language learning mechanisms following the critical period. Accordingly, we can consider the elimination of highest subject resumptive pronouns an example of children acquiring an unmarked grammatical option differing from the target grammar of their input providers. Since this is unlike what we typically observe in cases of competition between an unmarked option and a marked alternative found in the adult grammar (Kroch 2005), where children eventually acquire the latter, it is important to consider various factors which may have allowed it to occur. I examine two such factors, namely, low input frequency and the linguistic status which the children attributed to their non-native parents, concluding that while both may have played a role, further work is needed to determine their precise contribution. In any case, the findings support the claim that children have a unique role in the formation and stabilization of linguistic systems. Moreover, they show that a tendency to regularize inconsistent input, possibly rooted in a non-domain-specific learning mechanism (Hudson Kam & Newport 2005), is not the sole force guiding children in atypical environments for language acquisition. Section 6 concludes the paper.

2. Background: the emergence of Modern Hebrew

In order to properly understand the case study to be described below, it is necessary to be familiar with the social and linguistic context surrounding the formation of Modern Hebrew. This section first provides the relevant details, based on Chomsky (1957), Izre'el (2003) and Zuckermann (2006), and then reviews existing approaches to the theoretical issues involved.

Modern Hebrew emerged in the late 19th and early 20th century, when a group of Yiddish-speaking Jewish immigrants to Palestine decided to shift their day-to-day vernacular to the ancient language of the Jews. Prior to this, Hebrew had not been a spoken language for hundreds of years, having undergone a gradual decline in its use from approximately the destruction of the First Temple by the Babylonians (586 BCE), until its total replacement by Aramaic towards the end of the 2nd century CE. In the subsequent period it was used only as a liturgical and literary language, and occasionally as a lingua franca among Jews from different linguistic backgrounds. It

can therefore be best described as a dormant, unspoken language, but should not be regarded as dead (Izre'el 2003). The late 18th century saw a general awakening of interest in the Hebrew language among European Jews, as part of the "Haskala" (Enlightenment) movement, leading to a renaissance of Hebrew literature and reemphasis on the study of Hebrew grammar in the Jewish school system. Writers of this period introduced new words and writing styles to the language, adapting it to the needs of their day.

It was not until the 1880s, however, that the real revolution began, as part of the modern nationalist movement which swept the Jews in the Diaspora and in Palestine. A general program for the "revival" of Hebrew, as the language planners ("revivalists") then saw it, was undertaken, led by Eliezer Ben-Yehuda (1858-1922), who immigrated to Palestine in 1881⁵. The goal was to transform the archaic written language into one which can be spoken in modern times, and to disseminate it amongst the various Jewish communities in Palestine. The efforts towards this vernacularization took some time to bear fruit, with only a few Hebrew-speaking homes until about 1905, the first Hebrew kindergartens appearing in 1903, and the first high school and teachers' seminary in 1906. The second wave of large scale Jewish immigration to Palestine ("The Second Influx" or "The Second Aliya"; 1904-1914) quickly assimilated into this new situation and greatly facilitated the propagation of the emerging language. By this time we can also speak of a large first generation of native speakers, leading to the official recognition of Hebrew, in 1922, as one of the three official languages of the British Mandate government in Palestine, alongside English and Arabic. Although it is difficult to pinpoint the exact time at which the language stabilized and its status as the general vernacular was secured, one can say with some certainty that the foundations of Modern Hebrew were laid by this time (Zuckermann 2006). Subsequent masses of immigrants, arriving throughout the 20th century, did little to change its basic grammar. Today Modern Hebrew is an official language of Israel, the native language of the Jewish majority, and the second language of a large population of minorities in the country.

What, then, is the grammatical basis for Modern Hebrew, and to what extent could have dormant Classical Hebrew provided this basis? For much of the 20th century, the revivalist or traditional view, whereby Modern Hebrew is simply a continuation of Biblical and Mishnaic Hebrew, held sway (see Rosén 1956, 1977, Rabin 1974, a.o.). In other words, Biblical Hebrew (c. 10th through 1st centuries BCE; the Hebrew of the Old Testament and of inscriptions from the First Temple period) and Mishnaic Hebrew (c. 1st century BCE through 2nd century CE) were revived as one language, complemented with numerous lexical innovations meant to allow the ancient language to be used in modern times⁶. Accordingly, Modern Hebrew can be classified as Semitic, on a par with Arabic, Amharic, Aramaic, etc.

Although evidence for the significant impact of Yiddish on Modern Hebrew was documented almost from its inception (Lipschütz 1923, cited in Izre'el 2003), it is only recently that scholars have begun to consider alternative approaches. The first major challenge to the received traditional view was the revisionist or revolutionary school. According to this view, as an unspoken language, not natively acquired by children within the window of the critical period, Hebrew could not have transmitted *any* of its grammar to the modern vernacular (Horvath & Wexler 1994, 1997, Wexler

⁵ For a different take on Ben-Yehuda's role in the so-called revival see Nahir (1998).

⁶ Although Medieval Hebrew, used in the period from the end of Mishnaic Hebrew until the 19th century, is often said to have introduced innovations into the language, the fact that it was not spoken entails that these included no major changes. It is thus not relevant here.

1990, 2002). Rather, the story goes, Modern Hebrew constitutes a relexification of Yiddish⁷: the preexisting lexical entries of Yiddish (i.e., the substratum) were substituted into vocabulary strings provided by Biblical and/or Mishnaic Hebrew (the superstratum or "lexifier"), while the grammar remained Yiddish as spoken by the dominant first generation non-natives. Therefore, Modern Hebrew exhibits the phonological, morphological, syntactic and semantic properties of Yiddish.

While the revisionist approach points out problems with earlier misguided preconceptions and rightfully calls attention to the significant impact of Yiddish on Modern Hebrew, it ignores important social and linguistic facts, as noted by Izre'el (2003) and Zuckermann (2006). The result is that it both exaggerates the place of Yiddish in present-day Hebrew grammar and belittles the contribution of Classical Hebrew. The former claim is supported by a brief glance at the syntax of present-day Hebrew, which is far from identical to that of Yiddish and includes many features which violate Yiddish syntax⁸. For example, it is not obligatorily V2 in matrix clauses, allowing a topic-subject-verb order which is ungrammatical in Yiddish (Lowenstamm 1977), and it exhibits no constraint on topic movement and *wh*-movement, which are incompatible with each other in Yiddish (at least in direct questions; see Lowenstamm 1977 and Diesing 1990). These observations raise the question of whether, by emphasizing the importance of Yiddish, the revisionist approach has overlooked the role played by other languages which were spoken in Palestine and were eventually replaced by Modern Hebrew. Indeed, the Sephardic Jews in Palestine, speaking either Judeo-Spanish or various dialects of Arabic, were more numerous than the Yiddish-speaking Ashkenazis for much of the 19th century and enjoyed prominent status given to them by the Ottoman rulers. Furthermore, present-day Hebrew continues to preserve phonological features of the Sephardic population, adopted originally by the Ashkenazi immigrants of the late 19th century (Chomsky 1957, Blanc 1968, Izre'el 2003). However, there is strong reason to doubt that the Sephardic influence extended beyond this. As noted in Zuckermann (2006), members of the Sephardic community did not generally play a part in the propagation of Modern Hebrew; rather, this effort was almost exclusively led by Yiddish speakers, who also became more socially dominant in the late 19th century. The latter were the founding population of the new language, and thus largely determined its grammatical properties (i.e., the Founder Principle; see Zuckermann 2006)⁹.

Beyond overstating the similarities between Modern Hebrew and Yiddish, the revisionist approach also underestimates the place of Classical Hebrew. The Hebrew language planners managed to retain many of the old features of the language, such as the templatic morphology characteristic of the Semitic family (Izre'el 2003). They were aided in this endeavor by three facts, the first two of which are noted by Zuckermann (2006). First, Hebrew had remained a very important literary and

⁷ Under this approach, Yiddish is itself considered Slavic, rather than Germanic, as commonly assumed. This hypothesis is orthogonal to the issues at hand; see the references noted in the text for details.

⁸ Unfortunately, I know of no study which investigated whether this is also true of the Hebrew of the first, non-native generation, which is what one might expect if they produced an interlanguage, as claimed in section 1. Some of the data to be presented in section 4 could be viewed as support for the interlanguage hypothesis; in addition, a cursory examination of the database used below revealed multiple instances of non-Yiddish structures.

⁹ Even if languages other than Yiddish played a larger role than acknowledged here, they are not relevant to most of the work reported. In the comparison of GEN1 and GEN2, only Yiddish L1 speakers and children of Yiddish L1 speakers, respectively, are considered. This also includes one father-son pair, in which the father was a native speaker of Yiddish.

liturgical language for the Jews, who spent much of their childhood and adolescence studying texts written in it. Second, the revivalists made a conscious, well-engineered effort to bring back the lost vernacular, and at the same time rid themselves of foreign linguistic elements¹⁰. Lastly, and perhaps crucially, this effort was facilitated by the revivalists' particularly good knowledge of Hebrew and their high level of linguistic awareness (Versteegh 1993), owing to their educational background and the fact that they belonged to the intelligentsia¹¹. This clearly sets the Modern Hebrew case apart from the singularly handicapped situations of language learning associated with well known examples of relexification.

An alternative view to the revisionist school, which takes the Yiddish influence into account but is more balanced and recognizes the complexity characterizing the genetics of Modern Hebrew, is proposed in Zuckermann (2006). In this work, Modern Hebrew is considered a semi-engineered hybrid language. Created through a deliberate process of language planning, albeit with pervasive subconscious influence (hence the term *semi-engineered*), Modern Hebrew is composed of two primary contributors, Hebrew and Yiddish, in addition to several secondary contributors, among them Arabic, Russian, and English. Furthermore, the two primary contributors played different roles in the genesis of the language: Hebrew provided mostly forms, i.e., lexical items and morphology, while Yiddish served as the basis for many of the underlying patterns, that is, the phonology, semantics and syntax. As noted above, Zuckermann views the major impact of Yiddish on Modern Hebrew as a reflex of the Founder Principle, whereby the founding population of a language shapes its fundamental properties and the influence of languages spoken by other communities is minor.

Of the existing theories, Zuckermann's hybridization approach seems the most accurate given the social and linguistic facts. The claim that Yiddish influenced many of the underlying patterns of Modern Hebrew is well supported (see Eilam 2008 for a number of case studies), whereas the lexemes and morphology are for the most part Hebraic. However, like the other theories, its general goal of genetically classifying Modern Hebrew entails that the hybridization approach neglects important details. First, it lacks detailed diachronic and synchronic analyses of the phenomena which are argued to illustrate the Yiddish influence. Without such research, and given the fact that many of the examples provided reflect processes which can occur in languages not in a contact situation (e.g., the transition from synthetic to analytic morphology), one cannot a priori rule out the possibility that they are the result of language-internal change¹². Second, although Zuckermann's approach differs from the revisionist school in recognizing that some rules of Yiddish grammar are not preserved in Modern Hebrew (see above), it fails to explain why this is so. Could unspoken Classical Hebrew have provided grammatical structures which overrode conflicting constraints imposed by Yiddish L1 interference? Or might the role played by other languages spoken among the first generation of speakers have had more impact than previously thought? While a comprehensive answer to these and other,

¹⁰ The partial success of the revivalists raises the issue of conscious control in linguistic behavior. Examples of deliberate change and arguments for its significance and pervasiveness, contra the commonly held view, are provided in Thomason (2007).

¹¹ I thank Tony Kroch for pointing this out to me. On the elite status of Hebrew among Eastern European Jews see also Stampfer (1993).

¹² In fact, some of the examples intended to demonstrate the uniqueness of Modern Hebrew are attested in Classical Hebrew (for example, the use of free state rather than construct state nominals; Peretz 1967). Although there may be a significant quantitative difference between the periods, no evidence is given for such a hypothesis.

related questions requires the type of quantitative and meticulous studies absent from the existing literature, the data to be presented below suggests that Modern Hebrew took shape to a large extent within the Yiddish speakers' interlanguage and among their children, the first native speakers. Various processes, possibly guided by processing considerations, UG constraints and learners' sensitivity to frequency in the input, inter alia, determined the eventual structure of the language, filtering out some Yiddish influences while retaining others.

Before turning to this data, the following section introduces the phenomenon at issue, namely, resumptive pronouns in relative clauses. Crucially, we will see that the grammars of Yiddish and present-day Hebrew treat these pronouns differently, thus providing a fitting case study of the type neglected until now.

3. Resumption in Yiddish and present-day Hebrew relative clauses

Both Yiddish and present-day Hebrew include resumptive pronouns as an integral part of their grammatical system¹³. This is true for both restrictive relative clauses and nonrestrictive relative clauses; in general, there does not seem to be a categorical distinction between the two types of relatives with respect to the behavior of resumptives. In other words, if the language requires a resumptive pronoun in a given position, this will be true of both types, and similarly if it exhibits optionality or bans the use of resumption for some position^{14,15}. For the sake of convenience, and since the existing literature deals almost exclusively with restrictive relatives, I use them to present the details, and note observations regarding nonrestrictives when relevant.

Yiddish exhibits three relativization strategies: a gap strategy, a resumptive pronoun strategy, and a *wh*-phrase strategy (Lowenstamm 1977, Jacobs 2005; see Belikova 2007 for a summary). The gap strategy involves the obligatory use of the uninflected complementizer *vos* in C, and a null operator OP in SpecCP, binding the trace which functions as a variable (in some cases, *vos* can also function as a relative pronoun; see Lowenstamm 1977 for details):

- (1) *di mayse* [_{CP} OP_i *(*vos*) *ikh vel aykh dertseyln t_i*]
 the story that I will you.DAT tell
 'the story that I will tell you' (Belikova 2007)

In the second strategy, the variable is realized as an overt resumptive pronoun, and the marker *vos* also obligatorily appears. In (2), the resumptive pronoun is fronted, which is purportedly common (Katz 1987, Belikova 2007).

- (2) *a shmole kladke* [_{CP} OP_i *(*vos*) *oyf *(ir_i) me hot koym gekent geyn t_i*]
 a narrow footbridge that on it one AUX barely able walk
 'a narrow footbridge one could barely walk on' (Belikova 2007)

¹³ Thus, they are to be distinguished from languages like English, which only have "intrusive" resumptives, appearing in island contexts, where a gap would lead to ungrammaticality, or due to processing complexity (Sells 1984, McCloskey 2006).

¹⁴ To some extent, this is expected under Bianchi's (2004) implicational scale, whereby the option of using resumptive pronouns in restrictive relatives in a given language entails the possibility of their appearance in nonrestrictives. Of course, this scale still allows for resumptives in nonrestrictives where restrictives prohibit them; see below for discussion.

¹⁵ I do not claim that there is no distinction between restrictive and nonrestrictives, since it is well known that pragmatic and processing considerations which distinguish the two types may raise the likelihood for the appearance of an optional resumptive (Prince 1990, Ariel 1999).

Lastly, it is possible to employ a relative pronoun, inflected for number, gender and case, putatively raising to SpecCP, from which it binds the variable trace. As illustrated in (3), the relative pronoun is not compatible with *vos* (i.e., the Doubly Filled COMP Filter is respected).

- (3) der tish [CP velkhen_i (*vos) ikh hab gekoyft t_i]
 the table which.ACC.MASC.SG that I AUX bought
 'the table that I bought' (Belikova 2007)

Focusing on the use of *vos*, which in principle allows for either a gap or a resumptive pronoun, we find that the choice among these two options is contingent on the position of the variable. Thus, a resumptive is obligatory in oblique and genitive positions, as in (2) above and (4) below, respectively.

- (4) der bokher vos *(zayne) shpilkhlekhn valgern zikh, iz mayn shvesterkind.
 the boy that his toys are.rolling REFL is my cousin
 'The boy whose toys are lying around is my cousin.' (Lowenstamm 1977:206)

However, resumptives are optional both in the direct object position (5), and in the subject position (6). Furthermore, the same pattern is found in nonrestrictive relatives: mandatory resumption when the relativization site is an object of a preposition or NP-internal, but optional when it is a subject or direct object.

- (5) der dokter vos ikh ken (im) iz haynt ongekomen.
 the doctor that I know (him) is today arrived
 'The doctor that I know arrived today.' (Katz 1987:247)

- (6) der yid vos (er) geyt, iz mayn khaver.
 the man that (he) walks is my friend
 'The man who walks is my friend.' (Lowenstamm 1977:206)

The resumptive pronoun in (6) is particularly unique, since it is not just in any subject position, but specifically the highest subject position, i.e., immediately subjacent to the head of the relative clause. It thus violates the robust crosslinguistic generalization commonly known as *The Highest Subject Restriction* (McCloskey 1990, 2006). This ban on highest subject resumptives is thought to be close to universal across languages: Keenan (1985) observes that such resumptives are only possible in Yiddish and Urhobo, a Kwa language spoken in Nigeria (see also Keenan and Comrie 1977), while Haspelmath et al. (2005) note their existence in five languages, not including Yiddish and Urhobo. Although all such typological surveys are partial, and the validity of the claims regarding the languages counted needs to be further assessed¹⁶, it is clear that resumptive pronouns in the highest subject position are very rare. As for resumptive pronouns in lower subject positions, i.e., when the subject is embedded or preceded by a topicalized constituent, these are categorically different, surfacing in a much wider range of languages, and must thus be considered separately (see below for present-day Hebrew, Shlonsky 1992 for Palestinian Arabic, and Szczepielniak 2005 for Polish).

Within the generative literature, various attempts to derive the Highest Subject Restriction have been suggested, naturally focusing on the many languages which

¹⁶ Indeed, Keenan and Comrie (1979) remark that the supposed resumptive pronouns of Urhobo may be some form of verb agreement, rather than pronouns. Furthermore, the surveys overlook Spanish, which is claimed to allow highest subject resumptives (Suñer 1998), but whose status is not clear given that it is a null subject language. Unsurprisingly, Suñer notes that such pronouns are rare and peculiar in Spanish, which is not the case in Yiddish.

exhibit it (e.g., Irish, Palestinian Arabic, present-day Hebrew). McCloskey (1990, 2006), for example, proposes that Principle B of the Binding Theory should be extended to elements in A'-positions, including resumptive pronouns. In subject relatives, the relevant functional complex contains the resumptive pronoun and the subject (=the head of the relative clause), so that the pronoun is not A'-free and ungrammaticality follows. Of course, the same account predicts ungrammaticality in Yiddish, *contra* to fact, for which McCloskey has no principled explanation. Numerous other analyses attribute some property to the complementizer or to the relation between T⁰ and C⁰ in languages like Yiddish to explain the possibility of highest subject resumptives (e.g., Boeckx 2003, Otsuka 2006), but give no independent evidence for this property, nor do they demonstrate its absence in present-day Hebrew, which does not allow such resumptives, as illustrated below. An appropriate summary of this state of affairs is provided by Suñer (1998), referring to languages exhibiting optionality in the direct object but not subject position, like Irish and present-day Hebrew: "I do not have a deep crosslinguistic explanation for these contrasts, and my impression is that one is unlikely to exist because we are dealing with idiosyncratic language-particular properties (most likely influenced by historical developments)" (p. 352). While the data presented here does not enable us to decisively establish the validity of an alternative explanation for the Highest Subject Restriction, it casts further doubts on the generative accounts. I return to this issue in section 5, and now move on to describe the relevant properties of relative clauses in present-day Hebrew.

Present-day Hebrew, as described in Doron (1982), Borer (1984), Demirdache (1991), Shlonsky (1992), a.o., and summarized in Belikova (2007), also exhibits both gaps and resumptive pronouns in its relative clauses. Like Yiddish, the gap strategy requires the use of the complementizer, uninflected *še-* or *ašer*¹⁷; it is available in the subject (7) and direct object (8) positions.

(7) ha-yeled [CP OP_i *(še-)] [IP t_i kana et ha-sefer]]
 the-boy that bought ACC the book
 'the boy that bought the book' (Belikova 2007)

(8) ha-sefer [CP OP_i *(še-)] [IP ha-yeled kana t_i]]
 the-book that the-boy bought
 'the book that the boy bought' (Belikova 2007)

The gap strategy, however, is excluded from oblique (9) and genitive (10) positions, which, as in Yiddish *vos* relatives, require a resumptive pronoun:

(9) ha-iš [CP OP_i *(še-)] [IP xašavti al-*(av)]]
 the-man that I.thought about-him
 'the man that I thought about' (Shlonsky 1992:445)

(10) ha-iš [CP OP_i *(še-)] [IP ra'iti et išt-*(o)]]
 the-man that I.saw ACC wife-his
 'the man whose wife I saw' (Shlonsky 1992:445)

Crucially, unlike Yiddish, present-day Hebrew does not allow resumptive pronouns in the highest subject position; rather, resumption is optional only in the direct object position and in non-highest subject positions. Thus, adding a resumptive pronoun to a sentence like (7) results in ungrammaticality ((11); cf. Yiddish (6)), while this is not true of the direct object relativization in (8), to which a resumptive pronoun has been

¹⁷ The latter is an archaic form rarely used in speech.

added in (12). As for non-highest subject positions, (13) shows that a resumptive pronoun is optional in an embedded subject position and (14)—when a topicalized phrase precedes the relativization site.

- (11) *ha-yeled še-hu kana et ha-sefer
the-boy that-he bought ACC the-book
'the boy that bought the book'
- (12) ha-sefer še-ha-yeled kana oto
the-book that-the-boy bought it
'the book that the boy bought'
- (13) ha-iš še-xana amra še-(hu) ohev arayot
the-man that-Hanna said that-(he) loves lions
'the man who Hanna said loves lions' (Borer 1984:247)
- (14) ha-iš še-rak al kesef (hu) xošev
the-man that-only about money (he) thinks
'the man who only thinks about money' (Borer 1984:247)

Whether or not present-day Hebrew has a third, *wh*-phrase strategy, on a par with Yiddish, is a matter of contention. Borer (1984) maintains that all fronted resumptive pronouns, as in (15), are in fact operators, others claim that only fronted resumptives with a null complementizer¹⁸, as in (16), are operators, and the rest are simply cases of topicalization (Demirdache 1991, Belikova 2007), while a third group views all fronted resumptives as topicalized, rather than operators in SpecCP (Shlonsky 1992).

- (15) ha-sefer še-oto ha-yeled kana
the-book that-it the-boy bought
'the book that the boy bought'
- (16) ha-sefer oto ha-yeled kana
the-book it the-boy bought
'the book that the boy bought'

As for nonrestrictive relative clauses, their behavior follows that of restrictive relatives in categorical terms. That is, resumptive pronouns are necessary in oblique and genitive positions, optional in the direct object position and non-highest subject positions, and banned from the highest subject position, as shown in (17)¹⁹.

- (17) *dani, še-hu hitkonen la-meruc bemešex šana, siyem axaron.
Danny that-he prepared to.the-race for year finished last
'Danny, who prepared for the race for a year, finished last.'

¹⁸ Note that only fronted resumptives permit a null complementizer.

¹⁹ In her corpus study of resumption in present-day conversational Hebrew, Ariel (1999) reports 3/37 (8.1%) resumptives in nonrestrictive subject relative clauses. Although she does not provide the actual examples of subject resumptives found in her database, it is highly unlikely that they are in the highest subject position, like (17). Ariel herself states that the properties characterizing resumptive relative clauses in her data are a long or complex head and a large distance between the head and relativized position, neither of which is true of examples like (17). Furthermore, even if Ariel's three tokens are in the highest subject position, her use of a spoken corpus raises the possibility of performance errors, which we do not necessarily wish to count together with the type of written data examined here (in fact, supposed resumptive pronouns in subject position can even be found in a language like English, if one uses spoken data and counts tokens which involve new starts, disfluencies, etc.; see Herrmann 2005). In any case, no such examples were found in the much larger database of present-day written Hebrew employed here and analyzed in section 4.

Interestingly, present-day Hebrew is not alone in exhibiting the latter restriction: there appears to be a crosslinguistic dispreference for subject resumptives in nonrestrictive relatives, on a par with restrictives. Thus, in Northern Italian dialects which do not obligatorily display clitic doubling, such as Venetian, and are therefore relevant to the issue at hand, one finds resumptive clitics for the object in nonrestrictive relatives, but not for the subject (Cecilia Poletto, p.c.)²⁰. In Greek nonrestrictive relatives, resumption is obligatory in all positions, except for the highest subject position, where it is barred (Alexopoulou 2006). Palestinian Arabic provides similar findings: in restrictive relatives, resumptive pronouns are obligatory in all positions but the highest subject, where they are disallowed (Shlonsky 1992). The same is true of nonrestrictives, as illustrated in (18):

- (18) *baʕrif muħammad ħassanein, ʔilli huwwe faaza bis-sibaaq.²¹
 I.know Muhammad Hassanein, that he won in.the-race
 'I know Muhammad Hassanein, who won the race.'

In other words, the so-called Highest Subject Restriction also applies to nonrestrictive relatives, a point which has not been noted in the literature until now, to the best of my knowledge. This observation seems to further weaken UG-based accounts of the restriction that appeal to binding, such as McCloskey (1990, 2006): it is unlikely that the grammatical property responsible for the use of resumptives in nonrestrictives is different from that which determines their appearance in restrictive relatives, but if one attempts to extend McCloskey's theory to nonrestrictives various problems arise. In particular, binding into nonrestrictive relatives appears to be subject to the same constraints as cross-sentential binding, rather than the type of intra-sentential binding relevant for restrictive relatives: cf. the ungrammaticality of the nonrestrictive in (19) and the cross-sentential anaphor in (20) vs. the grammatical restrictive relative in (21).

(19) *Every student, who was upset, came to the meeting.

(20) Every student came to the meeting. *He was upset.

(21) Every student who was upset came to the meeting.

Assuming that the explanation for these distinctions is to be found in the different underlying structure of nonrestrictives and restrictives, any account of the Highest Subject Restriction cannot rely on structural properties associated with one type but not the other.

Before ending this section, it is necessary to assess the relative contributions of Classical Hebrew vs. Yiddish to the form of relative clauses in the Modern Hebrew of the first generation speakers. Although Belikova (2007) invokes the relexification hypothesis to account for putative similarities between the properties of relative clauses in Modern Hebrew and Yiddish, there is reason to rethink this approach, both in general and specifically with respect to relative clauses. As noted in section 2, GEN1 speakers did not transfer their Yiddish syntax wholesale into Hebrew, and relexification seems highly unlikely given both the linguistic and social conditions. With regard to relative clause structure, Yiddish and Modern Hebrew are not identical; for example, the former has an unambiguous relative pronoun, while the existence of such a grammatical option in the latter hinges on the debatable claim

²⁰ This explains why Bianchi's (2004) examples from Italian dialects which permit resumption only in nonrestrictives, in line with her implicational scale noted in fn. 14, all involve the object position.

²¹ Judgments were provided by two native speakers of Palestinian Arabic.

mentioned above, whereby fronted resumptives with a null complementizer are *wh*-phrases in Modern Hebrew. Alyona Belikova (p.c.) points out a further problem with this hypothesis: the prediction is that subject relative clauses with only a subject resumptive, fronted but typically string-vacuously so, should be possible. Moreover, such constructions should be specifically attested among the first generation of speakers, if one assumes, as Belikova does, that their underlying structure is modeled after Yiddish. However, I have found no evidence for these constructions in any stage of Modern Hebrew.

As for relative clause types present in Modern Hebrew but absent from Yiddish, one example is reduced relative clauses, formed with a definite article and described in further detail in section 4. These clearly follow patterns established in Classical Hebrew, even if the constructions used by GEN1 speakers do not span the entire range of options present in Hebrew texts (see Peretz 1967 for such distinctions)²². That we do not find total identity is not surprising: these speakers were familiar with the basic form of Hebrew relative clauses, but presumably did not have knowledge of all their intricacies and peripheral patterns; furthermore, they were also influenced to some extent by their Yiddish grammar. In particular, the use of resumptive pronouns among GEN1 speakers, which is examined in section 4, seems to have been affected by Yiddish. While both Yiddish and Classical Hebrew employ resumptives, only the former seems to display them in the highest subject position. Thus, in his corpus study of all relative clauses in the Bible, Holmstedt (2002) finds no unambiguous tokens of subject resumption in a finite relative clause; the 40 examples of alleged subject resumptive pronouns are contingent on various factors which we do not necessarily find in Yiddish or in the output of GEN1 speakers (see also Peretz 1967 for the situation in all stages of Classical Hebrew). To summarize, I conclude that the first generation of Modern Hebrew speakers produced relative clauses based on basic and common Hebraic patterns, with varying degrees of Yiddish interference, most notably affecting their use of resumptive pronouns.

This section has depicted the anchors, so to speak, of the quantitative study presented below: on the one hand, the grammar of Yiddish relative clauses, including the system of resumption, and on the other hand, the relativization strategies of present-day Hebrew and the way in which they interact with resumptive pronouns. If we are to believe many of the existing theories presented in section 2, this should be the end of the story. That is, we would expect the underlying patterns of present-day Hebrew to be those found in Yiddish, while the forms should be Hebraic in origin. This is, of course, not the case; in particular, we observed that the behavior of subject resumptive pronouns distinguishes the two languages. Even those theories which recognize that factors other than Yiddish influence may play a role in Modern Hebrew grammar neglect to specify how the various factors interact. Moreover, the possibility of change affecting components of Yiddish origin in the grammar is never mentioned.

²² One example of a Biblical Hebrew relative clause construction absent from Modern Hebrew is the so-called "bare" subject relative without any overt CP material, as in (i) (cited in Holmstedt (2002), whose transcription I retain). As (ii) shows, Modern Hebrew requires a complementizer in subject relatives.

- (i) *habbî·û 'el 'abrāhām 'abīkēm wə'el šārā Ø təhōlelēm*
 look.2MP.IMV to Abraham father-your and-to Sarah bear.3FS.IMPF-you
 'look to Abraham your father and to Sarah who bore you' (Isaiah 51.2)
- (ii) *ha-yeled *(še)-kana et ha-sefer* (=7)
 the-boy that-bought ACC the-book
 'the boy that bought the book'

In the following section we will discover precisely this type of change occurring already in the first generation of Modern Hebrew native speakers.

4. Resumption in Modern Hebrew: A quantitative analysis of the native and non-native generations

The first part of the quantitative analysis will deal with data from the first generation of speakers (GEN1), establishing that they indeed exhibit Yiddish interference in their use of resumptive pronouns in Hebrew. Subsequently, data from the first generation of native speakers (GEN2), i.e., the descendants of the first group, is examined. We find that their output in terms of resumption is not identical to their parents; most noticeably, they do not produce resumptive pronouns in the highest subject position. Lastly, I introduce data collected from present-day speakers (GEN3), demonstrating that the patterns set among the first native speakers persist.

The data for GEN1 was collected from the Project Ben-Yehuda website²³. Three L1 speakers of Yiddish who were part of the founding population of Modern Hebrew and behind much of the "revival" effort, and for whom we have sufficient documented linguistic output, were chosen to represent this generation²⁴: (1) Hayyim Nahman Bialik (b. 1873, Ukraine; immigrated to Palestine in 1924); (2) Eliezer Ben-Yehuda (b. 1858, Lithuania; immigrated to Palestine in 1881); (3) Yosef Haim Brenner (b. 1881, Ukraine; immigrated to Palestine in 1909). The speakers are not identical in terms of their sociolinguistic profile: Ben-Yehuda headed the "revival" effort in Palestine from its inception, while the other two speakers arrived in the country at a time when the language was already prevalent. Furthermore, Brenner immigrated at the relatively young age of 28, while Bialik was 51 when he moved to Palestine. Nevertheless, all three were not native speakers of Hebrew, being far beyond the critical period for acquisition when they began speaking the language. To the extent that there are any differences between the speakers in terms of Yiddish influence in their Hebrew, these can be viewed as reflecting variation which must have also existed among the population at large, and are hence of interest to us to capture.

Two types of linguistic data, listed in Table 1, were collected for GEN1: formal written texts, either autobiographical or opinion pieces, but certainly not literary material, and written speeches (note that similar amounts of data were collected for each speaker, despite the different number of texts).

²³ The Project Ben-Yehuda website (<http://benyehuda.org/>) is described as a database for "the classics of Hebrew literature". In practice, the website constitutes an online repository of texts (poetry, prose, journalistic writing and written speeches) from Medieval and early Modern Hebrew, since copyright law allows posting only works of writers who have died over seventy years ago and are thus in the public domain.

²⁴ These speakers were not monolingual. In addition to Yiddish, GEN1 members also spoke the local language of the country from which they had immigrated, primarily Russian or Polish. However, the latter arguably did not have a major impact on Modern Hebrew (Zuckermann 2006), and in any case could not have been the source of the L1 interference reported below, since neither language allows highest subject resumptives (Szczegielniak 2005).

Speaker	Source	Year	Mode
Bialik	Speech before the writers' convention (http://benyehuda.org/bialik/dvarim_shebeal_peh27.html)	1927	Speech
	"Darkei hateatron haivri" [The ways of the Hebrew theater] (http://benyehuda.org/bialik/dvarim_shebeal_peh54.html)	1933	Speech
	"Al ha'agada II" [On the Aggada II] (http://benyehuda.org/bialik/dvarim_shebeal_peh45.html)	1934	Speech
	"Al ha'agada III" [On the Aggada III] (http://benyehuda.org/bialik/dvarim_shebeal_peh46.html)	1934	Speech
	<hr/>		
Ben-Yehuda	"Hahalom veshivro – haidan harishon" [The dream come true – The first era] (http://benyehuda.org/by/haidan_harishon.html)	1881- 1922	Written
Brenner	"Yankl hanapah" [Yankl the blacksmith] (http://benyehuda.org/brenner/baaretz_056.html)	~1910	Written
	"Behayeinu uv'itonutenu" [In our lives and in our press] (http://benyehuda.org/brenner/biyerushalaim_082.html)	1911	Written
	"Behayeinu uv'itonutenu" [In our lives and in our press] (http://benyehuda.org/brenner/biyerushalaim_084.html)	1911	Written
	"Lama ragzu?" [Why were they angry?] (http://benyehuda.org/brenner/lama_ragzu.html)	1913	Written
	"Mitokh pinkasi" [From my notepad] (http://benyehuda.org/brenner/biyerushalaim_113.html)	1913	Written
	<hr/>		

Table 1: Sources for GEN1

These texts were chosen for a number of reasons. First, the goal was to extract naturally occurring data which captures the vernacular to the extent possible; literary texts would arguably show more influence from the historical layers of Hebrew and would be very removed from the spoken language of the time²⁵. Second, unlike actual speech, written data has the advantage of having been edited by the speaker, allowing us to rule out the possibility of disfluencies and other low-level performance considerations in explaining our findings (see also fn. 19). In any case, adequate documentation of spoken Hebrew from the time period at issue does not exist: all that is available is a small number of newsreels and short films²⁶, the first recordings of spontaneous speech having been made by linguists only in the 1950s (Reshef 2005). As for the use of both texts intended for reading and those intended to be read aloud, this was mostly a matter of necessity, since no non-literary written materials were available online for Bialik, while no speeches by Ben-Yehuda and Brenner are documented. It was not expected to be of importance, since the two types of sources are very similar; in fact, in his categorization of Modern Hebrew contextual styles, Blanc (1968) groups lectures, public or official utterances, letters, and journalistic writing all under what he terms "average formal style". Indeed, the findings for Bialik are not exceptional among the three speakers, despite the fact that his data consists

²⁵ It is commonly claimed that the written register of Modern Hebrew greatly differs from the spoken one, the former being more strongly connected to the grammar of Classical Hebrew (Berman & Ravid 2000). However, as the data below and in Eilam (2008) show, Yiddish influence pervades both modes in early Modern Hebrew as well as present-day Hebrew.

²⁶ Some of this material is available online at the Steven Spielberg Jewish Film Archive: <http://www.spielbergfilmarchive.org.il/>. A brief examination of the films did not reveal any relevant tokens; future research should look into this possibility more carefully.

entirely of speeches. At any rate, both types of texts were collected from GEN2 (see below), allowing for a straightforward comparison between the generations.

A final comment regarding the database of first generation Modern Hebrew used here is in order; namely, the fact that it includes only male speakers. An unavoidable consequence of the writing habits of the relevant period, this has ramifications for our assessment of the input to GEN2. Specifically, there is reason to believe that the data available to us underestimates the extent to which the Hebrew heard by GEN2 was influenced by Yiddish. As noted in Chomsky (1957), Bar-Adon (1977) and Stampfer (1993), women were generally excluded from a Hebrew education as children, both in the Diaspora and in the early stages of Jewish settlement in 19th century Palestine, and therefore did not participate in the movement to "revive" Hebrew. In some cases, this may have resulted in mothers speaking to their children in a language other than Hebrew, primarily Yiddish, as described in Bar-Adon (1977), while in others we can conjecture that they spoke in a form of Hebrew more heavily Yiddish-tinged than the men's language. Thus, Ben-Yehuda (1978) describes how he asked his wife to speak only Hebrew, after having helped her learn enough to be able to converse in the language. Assuming that the first native speakers were exposed to this type of Hebrew at least as much as they were to their father's input, we can conclude that the differences between the Hebrew they heard and that which they produced are even greater than those described below.

In the GEN1 database, as in the others, all relative clauses were counted, in accordance with Labov's (1972) principle of accountability, to enable an accurate assessment of the occurrences as well as non-occurrences of the variable at hand, resumptive pronouns. Thus, counts include conventional relatives headed by an NP, free relatives and headless relatives. While there may be semantic or pragmatic reasons disfavoring the use of resumptive pronouns in the latter two categories, there is no a priori reason to exclude them from the analysis. Moreover, as the free relative in (22) illustrates, resumptive pronouns are required whenever relativization is from an oblique or genitive position, regardless of the type of relative (cf. (9) and (10)).

- (22) mi še-medabrim al-*(av) ba-xadašot nexšav le-mefursam.
 who that-they.talk about-him on.the-news is.considered to-famous
 'Whoever is talked about on the news is considered famous.'

Also tallied were reduced relative clauses, which involve the use of the definite article *ha-* in place of the complementizer *še-* or *ašer*. In Modern Hebrew, these structures are available only for subject relativization and only with participial verbs (so-called 'beynoni' verbs; see Siloni 1995, 1997 for details)²⁷:

- (23) iš ha-kore iton ba-rexov hu meragel.
 man the-reading newspaper in.the-street is spy
 'A man reading a newspaper in the street is a spy.' (Siloni 1997:109)

As expected under analyses which view these structures as DPs, and hence predict that external arguments should be unavailable in them (Siloni 1995, 1997), no tokens of reduced relatives involving subject resumptive pronouns are attested in any of the

²⁷ Biblical Hebrew reduced relatives of this sort are not restricted to participials (Holmstedt 2002), while Mishnaic and Medieval Hebrew allow for non-subject relativization with these structures (Peretz 1967). Like the bare subject relatives mentioned in fn. 22, these are grammatical options which speakers of Modern Hebrew did not adopt, in all probability because they were not sufficiently familiar with them.

databases examined here²⁸. I do not discuss them further. Lastly, counts include the two complementizers, *še-* and *ašer*, as well as the null complementizer, which is possible with fronted resumptives (see section 3).

Tables 2-5 present the overall counts for the three speakers individually and combined. Notice that the number of tokens sampled for all speakers are very similar to each other.

(2) Bialik

RC Type	# tokens	Percent
Full	336	85.7%
Reduced	56	14.3%
Total	392	100%

(3) Ben-Yehuda

RC Type	# tokens	Percent
Full	401	94.6%
Reduced	23	5.4%
Total	424	100%

(4) Brenner

RC Type	# tokens	Percent
Full	302	78.9%
Reduced	81	21.1%
Total	383	100%

(5) Combined

RC Type	# tokens	Percent
Full	1039	86.7%
Reduced	160	13.3%
Total	1199	100%

Tables 2-5: Full and Reduced Relatives among GEN1

Having excluded reduced relatives from further analysis, tables 6-9 show the number of full relatives for each speaker and for the three speakers combined, broken down by the gap/resumptive pronoun position. As one would expect from a sufficiently large and representative sample, the distribution of gap/resumptive pronoun positions is comparable across the three speakers.

(6) Bialik

Gap/RP Position	# tokens	Percent
Subject	217	64.6%
Object	46	13.7%
Preposition	61	18.2%
Possessor	12	3.6%
Total	336	100%

(7) Ben-Yehuda

Gap/RP Position	# tokens	Percent
Subject	203	50.6%
Object	89	22.2%
Preposition	90	22.4%
Possessor	19	4.7%
Total	401	100%

²⁸ Subject pronouns were, however, found when a focus particle appeared within the reduced relative clause:

- (i) "xavero ha-raxok gam **hu** mimeno"
 his.friend the-far also he from.him
 'His friend, who is also far from him'
 (Bialik: http://benyehuda.org/bialik/dvarim_shebeal_peh27.html)

These kinds of examples, also grammatical in present-day Hebrew, pose an interesting problem for the analysis of reduced relatives. I leave this issue for future research.

(8) Brenner			(9) Combined		
Gap/RP Position	# tokens	Percent	Gap/RP Position	# tokens	Percent
Subject	167	55.3%	Subject	587	56.5%
Object	35	11.6%	Object	170	16.4%
Preposition	71	23.5%	Preposition	222	21.4%
Possessor	29	9.6%	Possessor	60	5.8%
Total	302	100%	Total	1039	100%

Tables 6-9: Distribution of Gap/RP Positions in Full Relatives among GEN1

We now focus on subject relative clauses, first separating restrictives from nonrestrictives, as shown in tables 10-13:

(10) Bialik			(11) Ben-Yehuda		
Restrictiveness	# tokens	Percent	Restrictiveness	# tokens	Percent
Restrictive	138	63.6%	Restrictive	119	58.6%
Nonrestrictive	79	36.4%	Nonrestrictive	84	41.4%
Total	217	100%	Total	203	100%

(12) Brenner			(13) Combined		
Restrictiveness	# tokens	Percent	Restrictiveness	# tokens	Percent
Restrictive	121	72.5%	Restrictive	378	64.4%
Nonrestrictive	46	27.5%	Nonrestrictive	209	35.6%
Total	167	100%	Total	587	100%

Tables 10-13: Restrictive vs. Nonrestrictive Subject Relatives among GEN1

Moving one step further to look specifically at each type of relative clause, we are faced with a problem: the third person subject pronouns in Hebrew, also used as resumptive pronouns—*hu*, *hi*, *hem* and *hen* for masculine singular, feminine singular, masculine plural and feminine plural, respectively—are homophonous with the copular elements of the language²⁹. Verbless relative clauses, in which a copular element could appear, are hence potentially ambiguous, and it is instructive to distinguish between three subclasses among them: when the relative clause includes (1) an NP (whether referential or predicative), (2) an adjective, and a (3) participial ('beynoni') verb. With respect to the first class we can be fairly confident that the form at issue is in fact a copula rather than a resumptive pronoun, since it is obligatory and does not exhibit variation in GEN1 and in present-day Hebrew (as well as in Arabic, for that matter), as illustrated in (24). Subject resumptive pronouns are, to the best of my knowledge, never obligatory in such a way.

- (24) "elu halaxot še-*(hen) gufa šel tora"
 these Halachas that-are her.body of Torah
 'These are Halachas which are the body of the Torah'
 (Bialik: http://benyehuda.org/bialik/dvarim_shebeal_peh46.html)

²⁹ Doron (1983) argues that these are not the present tense forms of the copular verb, but rather the phonetic realization of AgrS. This distinction is not relevant here.

As for relative clauses including an adjective or participial verb, the situation is less clear, because there is variation both within and between GEN1 speakers in the use of the ambiguous pronominal forms in such cases; some of these relative clauses have a pronominal element and some do not. We can therefore conclude that neither a resumptive pronoun nor a copula was obligatory for them in these configurations. While it would be very surprising to find a context in which subject resumptive pronouns are obligatory, the fact that a copula was not required in these cases is interesting and worthy of further investigation, since Yiddish does not allow verbless clauses. It is also reasonable to assume that the pattern of variation does not reflect only one of the two grammatical options, resumptive pronouns or copulas, because neither is banned in other contexts. Rather, the most plausible inference is that GEN1 speakers produced both resumptive pronouns and copulas in relative clauses involving an adjective or participial verb. Unfortunately, I have no way to estimate the relative proportion of each of the two options, and so chose to encode all pronominal forms in verbless relative clauses as copular elements rather than resumptive pronouns³⁰. One avenue of future research could be to try and extrapolate the rate of copula use in relative clauses among GEN1 speakers from their rate of incidence in matrix clauses.

Another interesting issue raised by this data is the fact that many speakers, including myself, judge relative clauses of the type attested among GEN1, with a pronominal form and adjective (25) or participial verb (26), as significantly degraded, if not ungrammatical.

(25) yeladim še-(??hem) razim mesaxakim kaduregel.
 children that-they/are skinny are.playing soccer
 'Children that are skinny are playing soccer.'

(26) carix letaken et ha-xalon še-(??hu) šavur.
 necessary to.fix ACC the-window that-it/is broken
 'It is necessary to fix the window that is broken.'

In other words, we have found another discrepancy between the first generation of Modern Hebrew speakers and present-day Hebrew. However, there appears to be another group of present-day speakers, for whom the copula is necessary before an adjective, whereas the ability of a participial to appear without the copula is contingent on whether it is a verbal or adjectival passive: the former resists the copula, but the latter requires it, on a par with adjectives. Thus, according to Doron (2000), if (25) and (26) (in which *šavur* 'broken' is an adjectival passive) lack the pronominal form, they are ungrammatical³¹. I take this to be a true point of interspeaker variability, possibly resulting from the existence of variable input in the early stages of Modern Hebrew, and obviously meriting further research.

³⁰ Of course, I may then be underestimating the number of subject resumptive pronouns. Nevertheless, there is sufficient data to substantiate the arguments put forth here. Another option is to entirely exclude all such tokens from the analysis, since if speakers used a pronominal form as a copula, a homophonous resumptive pronoun may have not been possible in the same clause, at least not with the same interpretation. Note that in present-day Hebrew, sequences of adjacent 3rd person subject pronouns are interpreted as indicating focus on the subject, both in matrix and subordinate clauses (such examples are also found among GEN1):

(i) ani xošev še-dani **hu hu** ha-ašem ha-ikari.
 I think that-Danny he he the-culprit the-main
 'I think that DANNY is the main culprit.'

³¹ Edit Doron (p.c.) informs me that her son exhibits the same pattern of grammaticality judgments as her.

Having decided to count as subject resumptive pronouns only tokens which unambiguously fall under this category, we encounter two such examples in GEN1 restrictive relatives:

(14) Bialik

Dependency type	# tokens	Percent
Gap	138	100%
RP	0	0%
Total	138	100%

(15) Ben-Yehuda

Dependency type	# tokens	Percent
Gap	117	98.3%
RP	2	1.7%
Total	119	100%

(16) Brenner

Dependency type	# tokens	Percent
Gap	121	100%
RP	0	0%
Total	121	100%

(17) Combined

Dependency type	# tokens	Percent
Gap	376	99.5%
RP	2	0.5%
Total	378	100%

Tables 14-17: Dependency Types in GEN1 Restrictive Subject Relatives

These two tokens from Ben-Yehuda, one of which is given in (27), are in embedded clauses (i.e., not the highest subject position). They are thus also possible in present-day Hebrew and are not relevant to the question of possible change between the generations.

- (27) "im kol iš ve-iša še-yada'ati, še-**hem** šom'im ivrit..."
 with every man and-woman that-I.knew that-they hear Hebrew
 'With every man and woman who I knew heard Hebrew...'
 (Ben-Yehuda: http://benyehuda.org/by/haidan_harishon.html)

The absence of highest subject resumptive pronouns in restrictive relatives is somewhat surprising in light of the Yiddish interference in the Hebrew of GEN1 speakers, which has been demonstrated in other domains (Zuckermann 2006, Eilam 2008) and is further established below for nonrestrictive relatives. That is, even if I have underestimated the number of subject resumptive pronouns by not counting potential tokens of this type in verbless relative clauses, we might expect to find at least a handful of highest subject resumptives in other kinds of restrictive relatives. A possible explanation for this finding is that the latter are very rare in Yiddish and so do not show up in my modest database, especially if speakers reduced their use of resumptive pronouns in Hebrew compared to Yiddish across the board. Indeed, in her corpus study of Yiddish, Prince (1990) found only 24/151 (15.9%) resumptive pronouns in restrictives vs. 4/13 (30.8%) tokens in nonrestrictives³², but unfortunately does not provide their distribution in terms of positions. Further corpus work on Yiddish should allow us to corroborate or refute this hypothesis. I briefly address the issue again in section 5.

Nonrestrictive subject relatives provide us with the key data in this study, as shown in tables 18-21:

³² Prince (1990) also says that her informants rejected resumptive pronouns in restrictive relatives with a definite head, regardless of the position of the pronoun; these would include examples like (5) and (6) above, provided by other native speakers. Since object resumptives do appear in GEN1 restrictive relatives (see below), for this to be relevant here one would have to assume that subject relative clauses tend to favor a definite head more than object relatives. I know of no evidence for such a hypothesis.

(18) Bialik			(19) Ben-Yehuda		
Dependency type	# tokens	Percent	Dependency type	# tokens	Percent
Gap	69	87.3%	Gap	73	86.9%
RP	10	12.7%	RP	11	13.1%
	(8)	(10.1%)		(8)	(9.5%)
Total	79	100%	Total	84	100%

(20) Brenner			(21) Combined		
Dependency type	# tokens	Percent	Dependency type	# tokens	Percent
Gap	38	82.6%	Gap	180	86.1%
RP	8	17.4%	RP	29	13.9%
	(2)	(4.3%)		(18)	(8.6%)
Total	46	100%	Total	209	100%

Tables 18-21: Dependency Types in GEN1 Nonrestrictive Subject Relatives
(in parentheses: subject RPs which are not possible in present-day Hebrew)

Crucially, we find among all three speakers tokens of resumptive pronouns in the highest subject position, which we ruled out as ungrammatical in present-day Hebrew (cf. (17)). In (28)-(30) I provide one example of this construction from each speaker.

- (28) "nifgašti gam im cemax, še-**hu** amad az beroš agudat 'habima"
I.met also with Tsemakh that-he stood then at.head society Habima
'I also met with Tsemakh, who headed the 'Habima' Society at the time'
(Bialik: http://benyehuda.org/bialik/dvarim_shebeal_peh54.html)
- (29) "ve-lešon ha-kodeš šel ha-xalfan, še-**hu** haya yehudi mizraxi"
and-tongue the-sacred of the-money.changer that-he was jew Oriental
'and the holy tongue [Hebrew] of the money changer, who was an Oriental Jew'
(Ben-Yehuda: http://benyehuda.org/by/haidan_harishon.html)
- (30) "hamonim yehudiyim, še-**hem** ya'asu ve-hem yeyacru
masses Jewish that-they will.produce and-they will.create
tarbut klalit"
culture general
'Jewish masses, who will produce and create a general culture'
(Brenner: http://benyehuda.org/brenner/lama_ragzu.html)

In quantitative terms, highest subject resumptives are not very common. Out of Ben-Yehuda's eleven tokens of subject resumptives noted above, one is in an embedded position, while two of Brenner's tokens are of this sort. Furthermore, there exist two tokens in Bialik's dataset, two in Ben-Yehuda's and four in Brenner's which we may want to consider separately; namely, those involving a focus particle in the relative clause, *gam* 'also' or *af* 'even', as in (31):

- (31) "ve-ha-yahadut ha-mexkarit, še-**gam hi** hayta gorem gadol šel
and-the-Judaism the-scholarly that-also it was factor important of
hitpatxut ha-maxšava ha-le'umit"
development the-philosophy the-national
'and scholarly Judaism, which was also an important factor in the development
of national philosophy'
(Bialik: http://benyehuda.org/bialik/dvarim_shebeal_peh27.html)

The addition of a resumptive pronoun in these cases is not obligatory, but rather aids in interpretation, ruling out readings in which the focus particle associates with an element in the relative clause rather than the head. Nevertheless, it can be claimed to fulfill a function different from that of the resumptive pronouns in sentences like (28)-(30), and moreover, is perfectly acceptable in present-day Hebrew.

Accordingly, if we tally only those subject resumptive pronouns which are clearly prohibited in present-day Hebrew, we obtain the figures indicated in parentheses in the tables: 8/79 (10.1%) for Bialik, 8/84 (9.5%) for Ben-Yehuda and 2/46 (4.3%) for Brenner³³. Given these low numbers, the obvious question is whether the loss of resumptive pronouns in the highest subject position could be explained as a frequency effect alone. I discuss this issue in section 5.

Turning now to object relative clauses, tables 22-25 present the distribution of restrictives vs. nonrestrictives, and tables 26-29 divide the restrictive relatives according to the type of dependency they exhibit, namely, gap vs. resumptive pronoun.

(22) Bialik

Restrictiveness	# tokens	Percent
Restrictive	30	65.2%
Nonrestrictive	16	34.8%
Total	46	100%

(23) Ben-Yehuda

Restrictiveness	# tokens	Percent
Restrictive	72	80.9%
Nonrestrictive	17	19.1%
Total	89	100%

(24) Brenner

Restrictiveness	# tokens	Percent
Restrictive	31	88.6%
Nonrestrictive	4	11.4%
Total	35	100%

(25) Combined

Restrictiveness	# tokens	Percent
Restrictive	133	78.2%
Nonrestrictive	37	21.8%
Total	170	100%

Tables 22-25: Restrictive vs. Nonrestrictive Object Relatives among GEN1

(26) Bialik

Dependency type	# tokens	Percent
Gap	27	90%
RP	3	10%
Total	30	100%

(27) Ben-Yehuda

Dependency type	# tokens	Percent
Gap	70	97.2%
RP	2	2.8%
Total	72	100%

(28) Brenner

Dependency type	# tokens	Percent
Gap	30	96.8%
RP	1	3.2%
Total	31	100%

(29) Combined

Dependency type	# tokens	Percent
Gap	127	95.5%
RP	6	4.5%
Total	133	100%

Tables 26-29: Dependency Types in GEN1 Restrictive Object Relatives

³³ This brings up the option of entirely excluding the tokens where a resumptive pronoun appears with a focus particle (see fn. 30).

Object resumptive pronouns in restrictive relatives offer an interesting perspective on the situation vis-à-vis highest subject resumptives in nonrestrictives: while both types of pronouns are rare in the linguistic output of GEN1, only the former are grammatical in present-day Hebrew (see section 3). Examples of the use of object resumptives in GEN1 are provided in (32)-(33):

- (32) "zu baraita še-ani meya'ec laxem likro **ota**"
 this Baraita that-I advise to.you to.read it
 'This is a Baraita [external Mishna] which I advise you to read'
 (Bialik: http://benyehuda.org/bialik/dvarim_shebeal_peh46.html)
- (33) "eš ašer maym rabim šel šetef ha-xayim axrey-xen lo yaxlu lexabota"
 fire that water much of flow the-life later NEG could to.extinguish.it
 'A fire which a great deal of water of the later flow of life could not extinguish'
 (Ben-Yehuda: http://benyehuda.org/by/haidan_harishon.html)

Comparing these two tokens, we observe a distinction which has not been noted hence far; namely, the use of a suffixal pronominal form, *-a*, as a resumptive pronoun for the feminine singular object in (33), corresponding to the independent morpheme *ota* in (32). Such forms are also available for the remaining gender and number combinations: *-o*, *-am* and *-an*³⁴ for the masculine singular, masculine plural, and feminine plural, respectively, in place of the independent morphemes *oto*, *otam*, and *otan*. Of the tokens collected here, 3/6 (50%) involved the bound morphemes, while in present-day Hebrew these are considered archaic and formal. They are restricted to high register writing, having been replaced by the free forms in all environments where an object pronoun is needed, including as resumptive pronouns in relative clauses. Nevertheless, I argue that there is no problem comparing this dataset to those representing later generations. First, since the dataset for GEN2 consists of the same types of texts as that for GEN1, maintaining the relevant parameters of mode and register constant, it also contains a mix of independent and bound forms as resumptive pronouns. Second, on a more general note, the shift from bound to free morphemes was a process independent of the grammar of resumption in relative clauses, involving a crosslinguistically common pattern of morphological change from synthetic to analytic forms. It applied to all object pronouns (Reshef 2008), of which resumptive pronouns in relative clauses are only a minor subclass, and was part of a general trend favoring analytic forms in Modern Hebrew (Wexler 1990). I see no reason to believe it had an effect on the underlying grammar of resumption, and thus the bound vs. free morpheme distinction has no bearing on the issues of interest here.

Lastly, we come to the nonrestrictive object relatives, for which there is relatively little data:

(30) Bialik			(31) Ben-Yehuda		
Dependency type	# tokens	Percent	Dependency type	# tokens	Percent
Gap	6	37.5%	Gap	16	94.1%
RP	10	62.5%	RP	1	5.9%
Total	16	100%	Total	17	100%

³⁴ These forms have a number of allomorphs; I list only the most frequent of them.

(32) Brenner			(33) Combined		
Dependency type	# tokens	Percent	Dependency type	# tokens	Percent
Gap	1	25%	Gap	23	62.2%
RP	3	75%	RP	14	37.8%
Total	4	100%	Total	37	100%

Tables 30-33: Dependency Types in GEN1 Nonrestrictive Object Relatives

Beyond the fact that overall there seems to be a much greater preference for resumptive pronouns here than in the restrictive counterparts presented above, as was also the case in subject relatives and seems to be crosslinguistically true (Prince 1990), the large difference between Bialik and Brenner vs. Ben-Yehuda in their rates of use arguably points to the problematic status of this subset of the data, given the small numbers. Therefore, it seems best not to use the data for further analysis.

As for the distribution of gaps vs. resumptive pronouns in the final two categories, i.e., where relativization applies to a position following a preposition or an NP-internal possessor/genitive position (see the bottom two rows of tables 6-9), there does not seem to be any noteworthy pattern. The latter type always requires a resumptive pronoun (cf. (10)) and shows no change across the generations, while in the former case a resumptive pronoun is also obligatory (cf. (9)) but for one class of exceptions. That is, gaps are possible when the head is a time, place, manner or reason circumstantial, as in (34):

- (34) "be-xol makom še-ata moce divrey rabbi eliezer..."
in-every place that-you find words Rabbi Eliezer
'In every place where you find the words of Rabbi Eliezer...'
(Bialik: http://benyehuda.org/bialik/dvarim_shebeal_peh46.html)

However, these sorts of gaps are found across languages, and are related to the reduced specificity and referentiality of the head noun (Cristofaro & Giacalone Ramat 2002); they are also common in present-day Hebrew (Ariel 1999) and do not exhibit a quantitative or qualitative change between the generations of speakers³⁵. Accordingly, I do not discuss relativization of these two positions further.

Before moving on to the next generation, I recap the two main findings regarding the first generation of speakers: (1) resumptive pronouns in highest subject position in nonrestrictive relatives are attested, albeit in a small minority of all subject nonrestrictive relatives, where the gap strategy is preferred; (2) resumptive pronouns are also available in the object position, both in restrictive and nonrestrictive relatives; in the former case, they are even rarer than the corresponding pronouns in subject position in nonrestrictives.

Although a comparison of the abovementioned findings to a comparable dataset of present-day Hebrew alone would be sufficient to demonstrate the existence of a change within the history of Modern Hebrew, examination of an additional, intermediate generation of speakers should allow us further insight into the underlying processes and mechanisms. Moreover, it will enable us to specifically consider those who were born to native Yiddish speakers, and hence factor out the possible influences of other languages on Modern Hebrew, however minor these may have

³⁵ There is a difference in frequency between the ratio of such gaps in my corpora compared to Ariel's (1999) corpus of colloquial present-day Hebrew; for example, in GEN1 they constitute 43/222 tokens (19.4%), whereas Ariel found 10/17 gaps (58.8%). However, this seems to simply reflect the mode and register distinction between the two corpora.

been (see section 2). Accordingly, this analysis will cover the first generation of native speakers (GEN2), whose parents were members of GEN1 and native Yiddish speakers. To represent this generation, I chose four speakers: (1) Itamar Ben-Avi (b. 1882, Palestine) (2) Nathan Shaham (b. 1925, Palestine)³⁶ (3) Moshe Shamir (b. 1924, Palestine) (4) Haim Guri (b. 1923, Palestine). All four were born in Palestine prior to the establishment of Israel, to parents who had emigrated from Eastern Europe. Furthermore, Itamar Ben-Avi is commonly known as "the first native speaker of Modern Hebrew", having been born to Eliezer Ben-Yehuda, the leading promoter of the "revival" of spoken Hebrew (and one of the speakers used to represent GEN1), at a time when only a handful of individuals spoke Hebrew exclusively (see section 2). Note that in terms of their year of birth, the three other speakers are at least one generation removed from Ben-Avi. An inevitable result of the way in which the modern vernacular propagated and the fact that the small number of native speakers closer to Ben-Avi's time did not leave records of their language, this does not seem to alter our take on the issues at hand.

Data for this generation is not available online, and so was collected from written sources, presented in table 34 below. In order to match as closely as possible the database used for GEN1, the same two types of linguistic data were used, namely, formal nonliterary written texts and written texts meant to be read aloud (in this case, in the context of a panel discussion). The tally includes the same types of relative clauses as were counted for GEN1.

Speaker	Source	Year	Mode
Ben-Avi	Articles from "Hayama" [To the sea]	1912-1922	Written
	Article from "Kera'on Lehathiyut Datenu Be'artsa" [Appeal for the Revival of our Religion in its Country]	1930	Written
	Articles from "Halomot Umilhamot" [Dreams and Wars]	1935	Written
Shaham, Shamir, Guri	"Dor HaPalmah Basifrut Uvashirah: Bimelot 50 Shanim Ledor HaPalmah" [The Palmach Generation in the Literature and Poetry: In Honor of 50 Years of the Palmach Generation]	1991	Speech

Table 34: Sources for GEN2

Tables 35-37 present the overall counts for the speakers, teasing apart full relatives from reduced relatives. Tables 38-40 provide the breakdown of the former according to the gap/resumptive pronoun position.

(35) Ben-Avi			(36) Shaham, Shamir & Guri³⁷		
RC Type	# tokens	Percent	RC Type	# tokens	Percent
Full	320	81.4%	Full	208	85.6%
Reduced	73	18.6%	Reduced	35	14.4%
Total	393	100%	Total	243	100%

³⁶ An interesting demonstration of the important role Yiddish continued to play in the lives of GEN1, even after they had immigrated to Palestine, is provided by an anecdote relayed in Harshav (1993): Nathan Shaham's father, the well-known Hebrew writer Eliezer Steinman (1892-1970), and Hayyim Bialik, both pioneers of Modern Hebrew literature, regularly conversed in Yiddish.

³⁷ I do not provide a breakdown of the data for each of Shaham, Shamir and Guri, due to the limited amount of tokens available for these speakers individually. Future research may expand this database by counting additional texts, to allow for individual tallies and possible comparisons between speakers.

(37) Combined

RC Type	# tokens	Percent
Full	528	83%
Reduced	108	17%
Total	636	100%

Tables 35-37: Full and Reduced Relatives among GEN2

(38) Ben-Avi

Gap/RP Position	# tokens	Percent
Subject	176	55%
Object	52	16.3%
Preposition	60	18.8%
Possessor	32	10%
Total	320	100%

(39) Shaham, Shamir & Guri

Gap/RP Position	# tokens	Percent
Subject	127	61.1%
Object	40	19.2%
Preposition	36	17.3%
Possessor	5	2.4%
Total	208	100%

(40) Combined

Gap/RP Position	# tokens	Percent
Subject	303	57.4%
Object	92	17.4%
Preposition	96	18.2%
Possessor	37	7%
Total	528	100%

Tables 38-40: Distribution of Gap/RP Positions in Full Relatives among GEN2

As in the case of GEN1, we begin by examining subject relative clauses, divided first into restrictives vs. nonrestrictives in tables 41-43, the former being further classified by dependency type in tables 44-46.

(41) Ben-Avi

Restrictiveness	# tokens	Percent
Restrictive	107	60.8%
Nonrestrictive	69	39.2%
Total	176	100%

(42) Shaham, Shamir & Guri

Restrictiveness	# tokens	Percent
Restrictive	101	79.5%
Nonrestrictive	26	20.5%
Total	127	100%

(43) Combined

Restrictiveness	# tokens	Percent
Restrictive	208	68.6%
Nonrestrictive	95	31.4%
Total	303	100%

Tables 41-43: Restrictive vs. Nonrestrictive Subject Relatives among GEN2

(44) Ben-Avi

Dependency type	# tokens	Percent
Gap	107	100%
RP	0	0%
Total	107	100%

(45) Shaham, Shamir & Guri

Dependency type	# tokens	Percent
Gap	99	98%
RP	2	2%
Total	101	100%

(46) Combined

Dependency type	# tokens	Percent
Gap	206	99%
RP	2	1%
Total	208	100%

Tables 44-46: Dependency Types in GEN2 Restrictive Subject Relatives

As expected, there are no resumptive pronouns in highest subject position. Two tokens of an ambiguous subject pronoun in verbless sentences in the Ben-Avi dataset and three such examples among Shaham, Shamir & Guri are not included in the tally, but rather are counted as copular elements, as was decided for GEN1. Of the two cases of a subject resumptive pronoun listed above, one is in an embedded position, while the other, given below in (35), appears in a kind-sentence:

- (35) "ani be-xayay lo ra'iti mešorer še-mištameš be-stereotipim rabim
 I in-my.life NEG I.saw poet that-uses in-stereotypes many
 kol kax ka'ašer mešorer hu adam še-hu le'olam lo yištameš be-stereotip."
 so as poet is person that-he never NEG will.use in-stereotype
 'I have never seen a poet who uses so many stereotypes, since a poet is a person
 who will never use a stereotype.'
 (Shaham)

Such structures are discussed in Prince (1997), who also finds them in English and Yiddish, claiming that in these languages they are not relative clauses but rather complete subordinate clauses. However, based on agreement patterns, Prince argues that in Hebrew they *are* relative clauses, with true resumptive pronouns. Since (35) is the only token of this sort in all the databases examined here, it is impossible to determine what grammar underlies it. I leave this issue for future research.

Crucially, not only are there no cases of resumptive pronouns in highest subject position in restrictive relatives, but the same is also true of nonrestrictives, as shown in tables 47-49:

(47) Ben-Avi

Dependency type	# tokens	Percent
Gap	69	100%
RP	0	0%
Total	69	100%

(48) Shaham, Shamir & Guri

Dependency type	# tokens	Percent
Gap	26	100%
RP	0	0%
Total	26	100%

(49) Combined

Dependency type	# tokens	Percent
Gap	95	100%
RP	0	0%
Total	95	100%

Tables 47-49: Dependency Types in GEN2 Nonrestrictive Subject Relatives

Thus, while GEN1 produced examples like (28)-(30) above, unmistakably reflecting a Yiddish grammar, there are no such tokens to be found already one generation later. In fact, we can even observe this difference in one father-son dyad, namely, Eliezer Ben-Yehuda and his son, Itamar Ben-Avi: the former had 8/84 (9.5%) unambiguous resumptive pronouns in the highest subject position, while the latter has no tokens of this type among his 69 nonrestrictive subject relatives. This clear shift in the grammatical system underlying Modern Hebrew relative clauses raises many questions regarding its causes and possible implications: What role might input frequency have had? What of a possible UG restriction on resumptives in the highest subject position, or the potential influence of processing factors? Why did this change occur in Modern Hebrew, and not earlier in Yiddish? These issues will be discussed in section 5, after completing the examination of the quantitative data.

Looking at the parallel case of object resumptive pronouns, we do not find a similar categorical change in their use between GEN1 and GEN2. Tables 50-52 correspond to tables 22-25 for GEN1, tallying the number of restrictive vs. nonrestrictive object relatives, while tables 53-55 provide the rates of occurrence of a gap vs. resumptive pronoun in GEN2 restrictive object relatives, corresponding to tables 26-29 for GEN1.

(50) Ben-Avi

Restrictiveness	# tokens	Percent
Restrictive	40	76.9%
Nonrestrictive	12	23.1%
Total	52	100%

(51) Shaham, Shamir & Guri

Restrictiveness	# tokens	Percent
Restrictive	35	87.5%
Nonrestrictive	5	12.5%
Total	40	100%

(52) Combined

Restrictiveness	# tokens	Percent
Restrictive	75	81.5%
Nonrestrictive	17	18.5%
Total	92	100%

Tables 50-52: Restrictive vs. Nonrestrictive Object Relatives among GEN2

(53) Ben-Avi

Dependency type	# tokens	Percent
Gap	30	75%
RP	10	25%
Total	40	100%

(54) Shaham, Shamir & Guri

Dependency type	# tokens	Percent
Gap	28	80%
RP	7	20%
Total	35	100%

(55) Combined

Dependency type	# tokens	Percent
Gap	58	77.3%
RP	17	22.7%
Total	75	100%

Tables 53-55: Dependency Types in GEN2 Restrictive Object Relatives

Recall that resumptive pronouns in restrictive object relatives were also found among GEN1 speakers: we found occurrence rates of 10%, 2.8% and 3.2% for Bialik, Ben-Yehuda and Brenner, respectively, for an average rate of 4.5%. Thus, not only did these pronouns did not disappear; in fact, their rate of occurrence increased between the generations. As noted above, we find both free and bound morphemes used as resumptive pronouns, as was observed for GEN1, thus supporting the claim that it is valid to compare the datasets.

The significance of these results for GEN2 restrictive object relatives lies in the fact that they provide insight into the role of frequency in the processes at issue. In spite of the higher rate of occurrence of subject resumptives in nonrestrictive relatives, including highest subject resumptives, the latter seem to have fallen out of use within one generation of speakers. Object resumptives in restrictive relatives were, however, retained, and continue to be used to this day, as was described above in section 3 and will be observed below in quantitative terms. Thus, low frequency alone is not a sufficient explanation for the loss of highest subject resumptives in nonrestrictive relatives. Furthermore, it is clear that there was no general eradication of resumptive pronouns between the generations; something must have led the speakers to keep one type of resumptive pronoun while abandoning the other. As for the fact that the results for GEN2 restrictive object relatives are not a straightforward replica of GEN1, a number of possible explanations come to mind, conceivably related to whatever underlies the behavior of GEN2 speakers vis-à-vis subject resumptive pronouns in nonrestrictives. Section 5 will address this matter further.

As we saw in the case of GEN1, nonrestrictive object relatives are too infrequent and exhibit too much interspeaker variability to allow for clear conclusions:

(56) Ben-Avi

Dependency type	# tokens	Percent
Gap	1	8.3%
RP	11	91.7%
Total	12	100%

(57) Shaham, Shamir & Guri

Dependency type	# tokens	Percent
Gap	3	60%
RP	2	40%
Total	5	100%

(58) Combined

Dependency type	# tokens	Percent
Gap	4	23.5%
RP	13	76.5%
Total	17	100%

Tables 56-58: Dependency Types in GEN2 Nonrestrictive Object Relatives

Resumptive pronouns are noticeably more common here than in restrictive relatives, but it seems unadvisable to deduce anything regarding the relation between the two generations from this data. I leave this issue for future research.

Examining the linguistic output of two generations of Modern Hebrew speakers, we have discovered changes in the use of resumptive pronouns in relative clauses; first and foremost the loss of highest subject resumptives in nonrestrictive relatives. Despite the relatively low frequency of the latter among the first, non-native generation of speakers, this factor cannot by itself account for this change, given the patterning of object resumptives in restrictive relatives among the two generations. Since the grammar of present-day Hebrew, in particular that of native speakers born to native speakers, is available to us in the form of grammaticality judgments, we can already reason that the patterns observed extend beyond the two generations and the small sample considered here. That is, section 3 showed that resumptive pronouns in highest subject position are ungrammatical in present-day Hebrew regardless of the type of relative clause, whereas object resumptive pronouns are allowed in both types of relative clause. In other words, speakers maintained the grammar of resumption established by the first generation of native speakers and documented here, as expected. However, since some of the findings involve quantitative distinctions rather than qualitative, categorical ones, it would be helpful to also look at a database of present-day Hebrew.

To this end, I analyzed a random sample of 555 relative clauses from the Hebrew Treebank Version 2.0³⁸, which consists of items published in the Ha'aretz daily newspaper in 1990. This database is similar to those used for GEN1 and GEN2, involving formal written, albeit not literary, texts. Although personal details on the authors of these texts, referred to as GEN3 for the sake of convenience, are not available, it seems reasonable to assume that they are one generation removed from GEN2. In other words, they were probably born around the middle of the 20th century, when Hebrew was already established as the predominant language and its grammar had stabilized. Thus, even if their parents were non-native speakers who had immigrated to Israel, these speakers acquired Hebrew in an environment entirely different from that of GEN2, for which there were no native speakers who could serve as linguistic models.

Relative clauses were counted just as they were for GEN1 and GEN2. To save space, I only provide the relevant findings here, rather than a comprehensive analysis of the entire dataset. First, there are no resumptive pronouns in highest subject position, regardless of whether the relative clause was restrictive or nonrestrictive. This is not a surprising finding: this grammatical option was already absent from GEN2 speakers, and once lost could not have been acquired by subsequent generations. Second, object resumptive pronouns in restrictive relatives are somewhat rare; the number of such tokens found in the database was 5/63 (7.9%). Interestingly, this rate of use is quite different from the rate reported for GEN2 speakers, 22.7%, and much closer to the 4.5% rate attested among GEN1 speakers. I explore this result in section 5. As for object resumptive pronouns in nonrestrictive relative clauses, although they seem to be much more common than their counterparts in the restrictive type—5/6 tokens (83.3%)—on a par with GEN1 and GEN2, the sparsity of the data precludes us from drawing firm conclusions regarding intergenerational changes in

³⁸ The corpus was made available by the Knowledge Center for Processing Hebrew (<http://www.mila.cs.technion.ac.il>). See Itai and Wintner (to appear) for further details.

use. Figure 1 presents the primary findings with respect to subject nonrestrictive relatives and object restrictive relatives among the three generations of speakers:

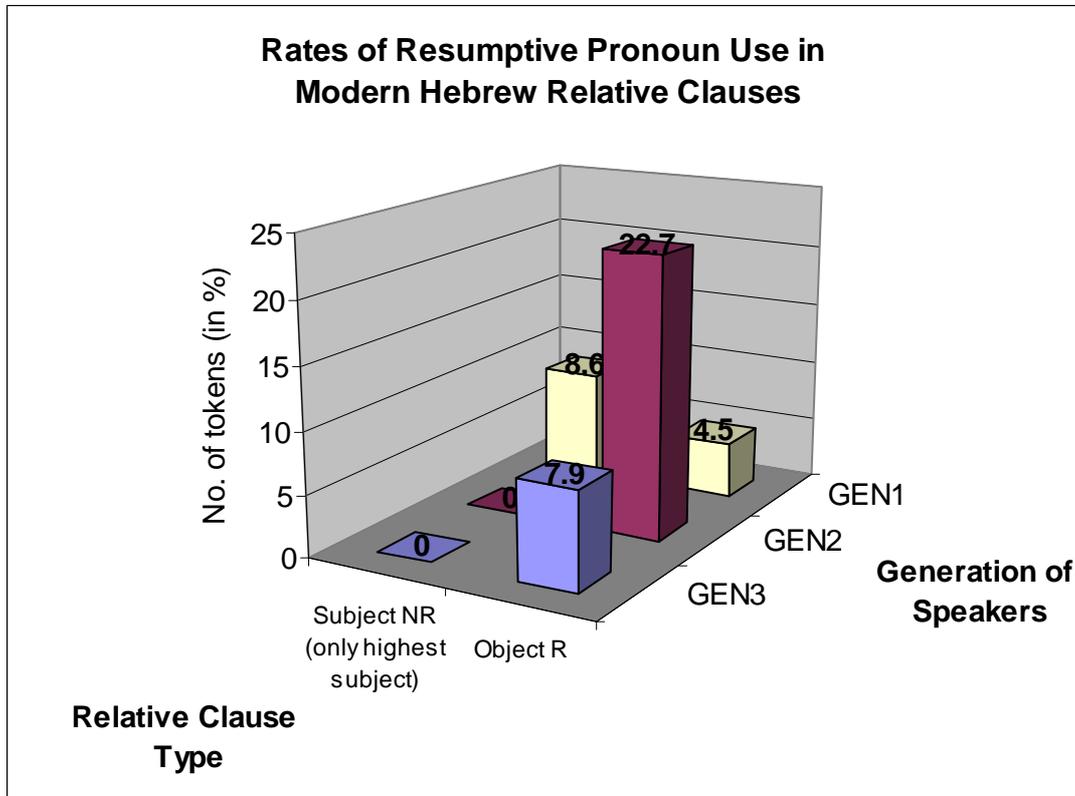


Fig. 1: Resumptive Pronoun Use in Modern Hebrew Relative Clauses

In this section I attempted to track the use of resumptive pronouns in relative clauses through different generations of speakers, beginning with the L1 Yiddish speakers who constituted the core of the Modern Hebrew "revivalists", through their native-speaking children, who received a variable input and shaped it into a coherent grammar, to contemporary speakers who acquired this coherent grammar. Unsurprisingly, the first generation exhibited a language which was heavily influenced by their native Yiddish, as demonstrated by their use of resumptive pronouns in the highest subject position in nonrestrictive relatives. While previous studies have argued for the extensive impact of Yiddish on the patterns of Modern Hebrew, they typically do not provide naturally occurring data to establish the origins of this putative influence (e.g., Zuckermann 2006). More importantly, they always describe cases where the influence persists in present-day Hebrew, in an attempt to define and classify its grammar. The findings here illustrate a different type of phenomenon: the Yiddish patterns are modified already among the first generation of native speakers, and hence are not replicated in subsequent generations. Specifically, native speakers restrict subject resumptive pronouns to positions not adjacent to the head of the relative clause, as observed both in the linguistic output analyzed here and in grammaticality judgments of current speakers. Furthermore, this behavior is not part of a general eradication of resumptive pronouns, nor does it appear to be explicable on grounds of low frequency alone. In the following section I discuss these findings in the context of efforts to categorize the grammar of Modern Hebrew, as well as their broader implications for the study of language acquisition.

5. Theoretical Issues and Implications

Much of the research on the genesis of Modern Hebrew revolves around the question of its genetic classification; in other words, whether it is a Semitic language, a form of the ancient Hebrew language simply reintroduced as a native, spoken tongue towards the end of the 19th century, or a different creature, constituted to various extents of the grammars of other, non-Semitic languages. The merits of this debate are unclear: deciding if Modern Hebrew is Semitic or not will tell us very little about the cognitive mechanisms and social processes which played a role in its formation, and is therefore of no use to researchers outside the small circle of Hebraists and historical linguists involved. Moreover, the arguments in this debate are usually based on a small number of recurring examples, without any quantitative, in-depth analysis of the phenomena in question (e.g., the use of analytic rather than synthetic forms to mark possession; see Wexler 1990 and Zuckermann 2006). In this paper I suggest an alternative perspective, which can arguably provide greater insight into the general, crosslinguistic issues researchers are interested in nowadays. Unlike most similar situations of language formation in which children were exposed to variable input, the first generations of Modern Hebrew speakers documented a great deal of their language, if not in spoken, at least in written form. Accordingly, the focus should be on specific case studies which can be examined in detail, using the available records of early and present-day Modern Hebrew.

Applying this methodology to the case of resumptive pronouns in relative clauses, we found that the grammar of the non-native speakers and that of the subsequent native generations are not identical. None of the existing approaches to Modern Hebrew (Horvath & Wexler 1994, 1997, Wexler 1990, 2002, Zuckermann 2006) discuss the possibility that the grammar of the first generation of speakers could have been different from that of later generations, and that this might have included the loss of some aspects of Yiddish influence between the generations. To explain why certain Yiddish-based grammatical components were retained while others were not, one must appeal to factors that lie outside the line of inquiry of these traditional approaches, including considerations of processing, frequency in the input, constraints imposed by UG, and the unique environment in which the first generation of native speakers acquired Modern Hebrew.

The primary task in this section is to examine the finding that the first generation of native speakers did not use resumptive pronouns in the highest subject position, unlike their parents. I take this to be an example of native language learners manipulating their input in the critical period for acquisition. Although we have no direct evidence for this claim in the form of relative clauses produced by GEN2 speakers when they were children, it hardly seems controversial: a significant, structural change of this sort, rather than one that simply involves the addition or replacement of vocabulary items, can only be attributed to children. What the children did, then, is acquire the unmarked grammatical option which prohibits highest subject resumptive pronouns. As demonstrated in section 3, highest subject resumptives in both restrictive and nonrestrictive relative clauses are clearly typologically marked, and we might expect this markedness in crosslinguistic distribution to also be reflected in acquisition. Specifically, in typical environments for language acquisition, this would translate into a late age for acquisition, and possibly an intermediate stage in which the unmarked option is attested among the learner (Kroch 2005). By and large, however, the learner will eventually converge on the adult grammar, even if it is marked. The first generation of native Modern Hebrew speakers acquired their language in an atypical environment, in which their parents spoke a language they had

not natively acquired and which was heavily influenced by their native Yiddish, resulting in an input to the children which included variation within and across speakers. We might thus predict the acquisition of an unmarked grammatical option to be possible, and much more likely than under normal conditions for acquisition, but the question of what exactly allowed this option to surface remains. Another way to phrase this question is: what distinguishes the input to first generation Modern Hebrew speakers from that to Yiddish speakers, given that only the latter use highest subject resumptives? A second question concerns the underlying cause of the marked status of highest subject resumptives: is this derivable from UG, or should we appeal to a functional explanation? I address both questions, but note that the second is a significantly more general and complex issue, which the data presented here cannot conclusively resolve one way or the other.

Regarding the first question, one possible explanation involves the relatively low frequency of highest subject resumptive pronouns in the input provided by the non-native speakers: only 8.6% of subject nonrestrictive relatives (see table 21 and figure 1) include them. Thus, perhaps the children simply did not hear enough tokens to ever acquire this grammatical option. Although the role of input frequency is often discussed in the acquisition literature³⁹, I have not found any reference to the possibility that there exists a threshold of frequency below which acquisition might not occur. Rather, researchers tend to examine the correlation between input frequency and age of acquisition, or between the former and frequency of use among language learners. Since these studies obviously all involve phenomena that are eventually acquired, the question raised here never comes up. Another reason this question is never addressed may be the fact that children do acquire constructions which are rare in their input. Consider, for example, subject-auxiliary inversion in English in non-question contexts (e.g., *Not only was John late for class, he also forgot his homework*). This is arguably quite a rare construction in present-day English, required only by clause-initial negative phrases and *only*-phrases, and obviously avoidable by positioning the trigger in clause-medial position. Nonetheless, it is acquired and maintained in the current language, where the non-inverted counterparts are clearly ungrammatical (**Not only John was late for class, he also forgot his homework*).

The latter example constitutes a first argument against considering low frequency the sole factor responsible for the disappearance of highest subject resumptive pronouns. One might counter, however, that the acquisition of inversion in English declaratives is facilitated by the existence of T-to-C movement in questions. Furthermore, while declaratives with an initial negative phrase or *only*-phrase may be rare in the input to the child, they always involve inversion; in other words, unlike the case of resumptive pronouns in Modern Hebrew, the input is not variable. A perhaps more convincing example, for which I can provide accurate figures, is the phenomenon of expletive negation in Modern Hebrew. Roughly speaking, expletive negation involves the use of the negative morpheme in a function equivalent to English *-ever*, albeit only in free relatives and until-clauses (Eilam 2007a). Importantly, while this use of the negative morpheme is widespread in the speech and writing of adult speakers, it appears to be very rare in the input to children (Eilam

³⁹ Even in approaches which assume that children are endowed with an innate component, UG, there is recognition that the frequency of linguistic input is a relevant factor, for example, in the acquisition of the lexicon and the phonetic inventory. Although the acquisition of the crosslinguistically variable grammatical options at issue here must be sensitive to the *existence* of primary linguistic data, it is not clear to what extent input *frequency* is also necessarily involved. See below for further discussion.

2007b). A search of all five Hebrew corpora available on the CHILDES database (MacWhinney 2000) resulted in only four tokens, all from the Berman longitudinal corpus (four children, ages 1;7-3;3, 1;5-3;1, 1;4-2;4, 1;9-3;0; corpus contains 341,526 tokens and 16,030 types). Furthermore, all four tokens of expletive negation appeared in until-clauses and with a corresponding negation in the matrix clause, neither of which is a necessary component of these structures. How could children ever learn this secondary function of the negative morpheme given its scarcity, and the fact that the same morpheme is extremely common in its canonical role? Moreover, the input may be variable in this case, since the negative marker is not obligatory in these structures. All in all, it might be that any frequency slightly above non-occurrence in the primary linguistic data will enable a child to acquire a given grammatical option.

A second argument against the possibility that low frequency alone is behind the eradication of highest subject resumptive pronouns is based on the findings for object resumptive pronouns in restrictive relatives. Recall that among the first generation, the latter were found on average in 4.5% of restrictive relative clauses (see table 29 and figure 1), which is about half the rate of resumptive pronouns in highest subject position. Nevertheless, these pronouns were not abandoned; on the contrary, their rate of use rose to 22.7% among the native speakers (table 55 and figure 1). One might claim that the comparison is not entirely valid, because object resumptive pronouns also appear in nonrestrictive relatives, and at a much higher rate—37.8% (see table 33)⁴⁰. However, even if the latter tokens do facilitate the acquisition of object resumptive pronouns in general, similar facilitatory effects are not observed for subject resumptives; in particular, their appearance in non-initial positions did not save highest subject resumptives from elimination. Therefore, whatever frequencies the native learners may have been tracking in this situation, if at all, it is clear that they singled out highest subject resumptive pronouns.

Given the line of reasoning outlined above, an obvious question concerns the status of highest subject resumptive pronouns in Yiddish: if these are also rare, we can be certain that low frequency by itself does not explain their disappearance in Modern Hebrew. I have not conducted the corpus analysis necessary to ascertain this possibility, and hence all the relevant data we have comes from Prince's (1990) study of Yiddish. Prince found a total of 28/164 (17.1%) resumptive pronouns in relative clauses, with a large difference between restrictives and nonrestrictives; 24/151 (15.9%) tokens in the former case, but 4/13 (30.8%) in the latter. Although we are not given a breakdown in terms of the position of the resumptive pronoun, this grammatical option is undoubtedly in the minority compared to the gap strategy. Future work should examine the issue in detail, using the available Yiddish corpora.

Work on Yiddish corpora may also allow us to address an additional issue raised by the data presented here; that is, the absence of highest subject resumptive pronouns in restrictive relatives among the first generation of Modern Hebrew speakers. Assuming that such pronouns are possible in Yiddish, this finding may reflect general differences in the frequency of resumptive pronouns between Yiddish and the L2 Hebrew of GEN1 speakers. In other words, an exceedingly rare grammatical option was driven to virtual nonexistence (although perhaps not to ungrammaticality) in the transition from one language to the other. It is possible that universal principles were operative in bringing about such quantitative, and perhaps also qualitative, distinctions between the two languages, if indeed the output of GEN1 was an interlanguage, as suggested in section 1. At any rate, the finding shows that the

⁴⁰ With the caveat that the figures for individual speakers in this case are small and highly variable.

Hebrew of GEN1 speakers did not merely consist of transplanting their Yiddish grammar to Hebraic forms, pace Horvath & Wexler (1994, 1997) and Wexler (1990, 2002).

This finding is also worthy of further examination in the context of the general debate over the extent to which L1 components are transferred into L2. In particular, it is often claimed that the use of resumptive pronouns is a general property of L2, even among speakers whose L1 and L2 do not employ resumptives (Hyltenstam 1984; see Ellis 1994:417-426 for an overview). Although subject resumptive pronouns are claimed to be an exception to this generalization, so that they are not produced by L2 learners, I know of no study that examined the behavior of speakers whose L1 allows them⁴¹. Furthermore, in studies that looked at naturally occurring speech, subject resumptives were found, at least in the first stage of L2 acquisition (see, e.g., Schumann 1980 on Spanish-speaking learners of English). Additional work is obviously called for.

Returning to the question of what enabled the unmarked absence of highest subject resumptives to become part of the final state grammar of native speakers, we conclude that frequency is not a sufficient explanation. A second factor conceivably involved in this process, which unquestionably differentiates Modern Hebrew from Yiddish, is the sociolinguistic status of the first generation of speakers (see also Bar-Adon 1977 for a similar suggestion). Unlike the situation in Yiddish, or for that matter, any typical language acquisition environment, Modern Hebrew was characterized by an entire generation whose parents were not native speakers of the language. In a typical environment, the parents fulfill a monitoring function, providing a model for the children to follow, even without any explicit corrective action (Versteegh 1993). In a situation like that of early Modern Hebrew, however, such a model was not in place, at least not to the extent it is in typical environments, and the native speaking children must have recognized this at some stage. In fact, Versteegh (1993) tells of one GEN1 speaker who is said to have decided not to correct the speech of his children, out of concern for the fragile status of Modern Hebrew in this early period and fearing that the children would be discouraged from speaking it. Given the absence of a proper parental model, children naturally turned to their native-speaking peers as alternative linguistic role models.

When and how the native learners became aware of their parents' non-nativeness are questions beyond the scope of this paper, although evidence suggests that this could have happened very early on. On the one hand, it is possible that the children noticed the high degree of variability in the adults' speech, without necessarily having to discern specific differences between it and their own output. They could then deduce that it did not constitute an ideal model to follow, and would abandon it when it conflicted with other considerations or sources of information. On the other hand, perhaps the native learners did recognize the disparity between their grammatical system and that of their parents, due to various low-level frequency-based changes of the type discussed in Hudson Kam & Newport (2005), which they introduced at a very young age. In addition, we know for a fact that the sound system of GEN2 was different from that of GEN1: as Blanc (1968) notes, the "native General Israeli" system is used only by speakers born after 1915. This could reflect an early modification of the input by the native learners, which by itself would suffice to trigger awareness of the distinction between GEN1 and GEN2 (see, for example,

⁴¹ While Suñer (1998) and Cerrón-Palomino (2006) claim that resumptive pronouns in Spanish are common, and found even in the highest subject position, Hyltenstam's (1984) study on the use of resumptive pronouns in an L2 categorized Spanish as a language which lacks them.

Kinzler et al. 2007 on children's awareness and dispreference for speakers with a foreign accent). Further modifications of the primary linguistic data were subsequently possible, including the eradication of highest subject resumptive pronouns: the children did not adopt the parents' use of highest subject resumptives due to its marked status, and reinforced each other in this innovation.

As was the case with the low frequency explanation, the sociolinguistic account also has a problem, possibly making it inadequate as the sole explanation for the convergence on a non-target grammatical option among GEN2. Recall that one of the GEN2 speakers sampled here was Itamar Ben-Avi, son of Eliezer Ben-Yehuda, born in the 1880's, when there existed no real Hebrew-speaking community. Therefore, Ben-Avi had no native Hebrew-speaking peers and could only use his non-native parents as models for the language. Nevertheless, he does not employ highest subject resumptives, on a par with other native speakers who were born much later and grew up in a Hebrew-speaking environment. Might it be the case that the non-native status of his parents was clear to Ben-Avi, despite the absence of a community of Hebrew speakers, both native and non-native? Perhaps the presence of a native-speaking cohort at a later stage facilitated the elimination of highest subject resumptives, but was not a necessary condition for this to happen. The details of the way in which the sociolinguistic conditions affected the outcome, and the more general issue of their contribution relative to the role played by input frequency, are questions I must leave for future research. Whatever the particulars, it is clear that a constellation of factors distinguished early Modern Hebrew from Yiddish to an extent which allowed an unmarked grammatical option, which otherwise would have disappeared, to surface.

With regard to the issue of why highest subject resumptives are marked in terms of typological frequency, and arguably also in acquisition, an enormous amount of ink has been spilled in both the formal (for example, McCloskey 1990, 2006, Shlonsky 1992, Suñer 1998, Boeckx 2003, Otsuka 2006) and the functional literature (e.g., Kirby 1997, Hawkins 1999, 2004). As discussed in section 3, generative accounts have attempted to reduce the Highest Subject Restriction to a variety of factors, including Binding Theory (McCloskey 1990, 2006) and properties of the complementizer (Shlonsky 1992, Suñer 1998, Boeckx 2003, Otsuka 2006), at times also tying this in to features of other functional heads or constraints on movement. While the latter camp may be better positioned to explain exceptions to the restriction in languages like Yiddish, since the relevant properties of binding seem less amenable to crosslinguistic variation, none of these analyses provide any independent evidence for their claims. Thus, they all fail the basic test of explanatory adequacy: they do not show how a child acquiring Modern Hebrew would know that his grammar includes some property banning highest subject resumptives, while a child acquiring Yiddish would not identify such a property. Furthermore, if one adopts the commonly held view whereby all crosslinguistic variation can be reduced to properties of individual lexical items (Borer 1983), it becomes even less clear how UG would differentiate Yiddish from Modern Hebrew. Not only do there appear to be no obvious characteristics distinguishing the Yiddish complementizer *vos* from Modern Hebrew *še-* or *ašer*, the content of the latter may be derived from that of the former, on a par with many other lexical items in Modern Hebrew (Zuckermann 2003, Eilam 2008). As noted in section 3, analyses which rely on Binding Theory (McCloskey 1990, 2006) face another problem in light of the fact that highest subject resumptives are typologically marked not just in restrictive relatives, but also in nonrestrictives.

Functional accounts generally view the Highest Subject Restriction as a processing-based dispreference (Kirby 1997, Hawkins 1999, 2004). Given two

options to encode a relativization site, namely, a filler-gap dependency or a filler-pronoun dependency, the choice between them reflects the result of a competition between two functional motivations: processing difficulty and production complexity. The first motivation is hearer-based and favors overt marking of a dependency, in light of the assumption that the latter is easier to parse than its gapped counterpart. The second consideration, speaker-based, works in the other direction: since a gapped structure contains less material (regardless of the way in which we gauge the amount of material), it should be preferred over the filler-pronoun option (i.e., economy of expression, or "Minimize Forms" in Hawkins 2004). Of course, in order to explain the highest subject-object asymmetry, a third factor needs to be taken into account, which is the distance between the filler and the gap/pronoun; specifically, the effort involved in processing a dependency is positively correlated with this distance (see Hawkins' 2004 notion of "Minimize Domains").

Consider how these three factors play out to determine the crosslinguistic typology of resumptive pronouns in relative clauses and the corresponding pattern in acquisition. In the case of object resumptive pronouns and embedded subject resumptive pronouns, the resumption strategy will often prevail: given the relatively large distance between the head and the relativization site, the benefit of using a resumptive pronoun to aid in parsing outweighs its cost in terms of production. With highest subject resumptive pronouns, however, the balance shifts, since the relativization site is adjacent to the head. Thus, the payoff conferred on the resumption strategy is not sufficient to compensate for the cost of using a pronoun rather than leaving a gap.

Although this paper cannot settle the question of what underlies the Highest Subject Restriction, the processing-based approach seems superior to the accounts resorting to UG, primarily because it is backed up by independent findings from the psycholinguistic literature. Moreover, the claim that the bias against highest subject resumptives cannot be captured by a theory of UG finds support in the work of Newmeyer (2005), according to which all such generalizations are not to be handled by generative theory. In particular, Newmeyer maintains that attempts to include in UG typological statements of relative frequency, such as "Most languages prohibit highest subject resumptive pronouns", are incompatible with our conception of UG as a non-stochastic system. Generative theory would be better off leaving these typological generalizations to explanations involving processing and other factors external to the grammatical module.

Finally, it is important to note an additional result of the quantitative analysis presented in section 4, which is very conspicuous in fig. 1; i.e., the varying rates of use of object resumptive pronouns in restrictive relatives: they appear in less than 5% of the clauses among GEN1, jump to almost a quarter of tokens in GEN2, and then return to a low rate of use among GEN3. Although I do not have a satisfactory explanation for this pattern, it is noteworthy that the diachronic trajectory is similar to what we find at the individual level, among children acquiring languages that have a productive system of resumption: young learners tend to produce object resumptive pronouns at a rate much higher than that found in their input, but as they grow older this rate decreases (Friedmann et al. in press, Günzberg-Kerbel, Shvimer & Friedmann in press), and, I assume, eventually matches that of their parents. Perhaps the first generation of native speakers did not go through the stages of decline in use, for the same reason they did not replicate their parents' grammar in terms of highest subject resumptives. Of course, this leaves open the question of why present-day speakers diverge from the first generation native speakers, once again producing

object resumptives quite infrequently. Future research should explore this and other possible hypotheses regarding the patterning of object resumptive pronouns.

In this section I have attempted to move beyond the issues traditionally addressed in the literature on Modern Hebrew, to questions which bear on more general lines of inquiry within first and second language acquisition. This focus was only natural in light of the findings of the quantitative analysis, which substantiated the claim that a simplistic classification of Modern Hebrew as belonging to one language family or another is uninformative at best. To account for these findings, I explored two putative distinctions between Yiddish and Modern Hebrew which may have led first generation native learners of Modern Hebrew to behave differently from learners of Yiddish. I separated this issue from explanations for the marked status of highest subject resumptives, given that these are independent observations, and surveyed the two main approaches to the latter, concluding that an argument which relies on grammar-external considerations is preferable.

6. Conclusion

The development of Modern Hebrew in the late 19th and early 20th century allows us a unique glimpse into various mechanisms and processes which characterize the acquisition of a language in an atypical environment. The input provided by the first generation of speakers was not a coherent grammatical system, but rather an amalgam of their native Yiddish, the Hebrew they knew from years of reading and studying the language in educational settings, and possibly other more minor components. As generally believed to be the case in similar situations of creole formation, the children exposed to this variable input did not simply reproduce it. Instead, they modified it in various ways, driven by different, and at times perhaps also conflicting, motivations, possibly including the frequency and consistency of the given grammatical option, considerations of parsing and production efficiency, and universal constraints imposed by UG. Unlike comparable creole situations, the data accessible to us in the case of Modern Hebrew includes not only the judgments and linguistic output of current speakers, but also a large amount of documentation of the language of earlier generations.

The study presented here constitutes a first attempt to apply quantitative methods to the available data from various stages of Modern Hebrew. It thus extends the budding line of inquiry into the behavior of children in atypical language environments beyond small-scale studies of ASL (Singleton & Newport 2004) and experiments on miniature artificial languages (Hudson Kam & Newport 2005, Wonnacott & Newport 2005). The phenomenon examined, resumptive pronouns in relative clauses, was chosen in view of the fact that the grammars of Yiddish and present-day Hebrew treat it differently. Accordingly, it was expected that the first, non-native generation of speakers would adhere to the patterns of Yiddish, which were eventually replaced by the present-day grammar. Sure enough, the L1 Yiddish speakers exhibited highest subject resumptive pronouns, which are not allowed in present-day Hebrew; furthermore, already among the generation raised by these speakers we find no trace of said forms.

The typological status of highest subject resumptives, as described in section 3, is most likely correlated with markedness at the level of L1 acquisition, and hence it is not surprising that this type of resumptive, rather than any other, would be lost. Nevertheless, one or more additional factor must have played a role in this process, since in the general case an element of the parents' grammar will eventually be

adopted by native learners, even if it is marked, and this is specifically true of highest subject resumptives in Yiddish. Two possible factors of this sort were considered, input frequency and the sociolinguistic status of the non-native adults. An important conclusion of this study, regardless of the precise role played by each factor, is that general learning mechanisms, which lead to regularization of probabilistic input, are but one facet of the multidimensional picture of acquisition in an atypical environment. A range of factors may guide children in such situations, and we have only begun to consider what factors these could be, their exact contribution under different conditions, and how they might interact with each other.

Current research in a variety of domains may have much to learn from the way in which Modern Hebrew took shape among its first native speakers. To conclude, I mention two additional phenomena which caught my attention while working on the corpora and warrant further investigation. First, as mentioned in section 4, one of the characteristics distinguishing Hebrew from Yiddish is the non-mandatory status of the copula in the former. Both Classical and present-day Hebrew allow verbless clauses in various cases, and at least in present-day Hebrew the use of a copula in certain environments gives rise to meaning distinctions vis-à-vis the structure lacking the copula (Doron 1983), while in Yiddish the copula is generally obligatory. Thus, changes in the use of the copula between the Yiddish speakers of the first generation and subsequent generations are expected, and indeed in section 4 I suggested attributing current interspeaker variation in the use of the copula in relative clauses to the inconsistent input provided by the non-native speakers. Future research should explore this issue in a comprehensive manner, examining both matrix and relative clauses, and possibly allowing us to accurately tease apart tokens of pronouns used as copular elements vs. resumptive pronouns (see section 4).

A second interesting observation relates to a relative clause structure which did not appear in the small sample used here, but does appear elsewhere in the Hebrew of the first generation of speakers, as well as in present-day Hebrew. This structure is unusual in that it looks like a free relative, involving the *wh*-word *mi* 'who' and the complementizer *še*-, but also seems to have a head which it modifies, on a par with standard relative clauses. Furthermore, in present-day Hebrew this '*mi še*' structure is highly restricted in use, being appropriate only when modifying what Ariel (1983) labels "VIPs", that is, people of social prominence. Interestingly, this is not the case in the Hebrew of the first generation non-native speakers; rather, there we find multiple examples in which this structure attaches to non-VIPs, just like a standard relative clause. While a comprehensive analysis of the structure awaits future research, one possibility is that it was originally the result of L1 transfer from Yiddish, which exhibits both relative clauses with a relative pronoun and relative clauses involving a complementizer. Perhaps some of the first generation speakers mixed the two grammatical options in their Hebrew relative clauses, but native learners stabilized the system in favor of relative clauses with a complementizer alone, relegating the '*mi še*' structure to the periphery and thus possibly also explaining why it took on such a circumscribed pragmatic function.

7. References

- Alexopoulou, T. 2006. Resumption in relative clauses. *Natural Language and Linguistic Theory* 24:57–111.
- Ariel, M. 1983. Linguistic marking of social prominence: The Hebrew *mi she* introducer. *Journal of Pragmatics* 7:389–409.
- Ariel, M. 1999. Cognitive universals and linguistic conventions: The case of resumptive pronouns. *Studies in Language* 23:217–69.
- Bar-Adon, A. 1977. On the nativization of Modern Hebrew and the role of children in the process. In *Studies in Descriptive and Historical Linguistics: Festschrift for Winfred P. Lehmann*, ed. by P. J. Hopper, 487–98. Amsterdam: John Benjamins.
- Belikova, A. 2007. Is Modern Hebrew Semitic? One more argument in favour of the relexification hypothesis of its genesis. Paper presented at the 18th International Conference on Historical Linguistics, Montreal, August 6-11 2007.
- Ben-Yehuda, E. 1978. *Hahalom veshivro: Selected Writings*. Edited with introduction and notes by Reuven Sivan. Jerusalem. [in Hebrew]
- Berman, R., & D. Ravid. 2000. Acquisition of Israeli Hebrew and Palestinian Arabic: A review. *Hebrew Studies* 41:83–98.
- Bianchi, V. 2004. Resumptive relatives and LF chains. In *The Structure of CP and IP: The Cartography of Syntactic Structures, Volume 2*, ed. by L. Rizzi, 76–114. Oxford: Oxford University Press.
- Blanc, H. 1965. Some Yiddish influences in Israeli Hebrew. In *The Field of Yiddish: Studies in Language, Folklore, and Literature. Second Collection*, ed. by U. Weinreich, 185–201. The Hague: Mouton.
- Blanc, H. 1968. The Israeli koine as an emergent national standard. In *Language Problems of Developing Nations*, ed. by J. Fishman, C. Ferguson, & J. Das Gupta, 237–252. New York: John Wiley.
- Boeckx, C. 2003. *Islands and Chains: Resumption as Stranding*. Amsterdam: John Benjamins.
- Borer, H. 1983. *Parametric Syntax: Case Studies in Semitic and Romance Languages*. Dordrecht: Foris.
- Borer, H. 1984. Restrictive relatives in Modern Hebrew. *Natural Language and Linguistic Theory* 2:219–260.
- Cerrón-Palomino, A. 2006. Language-specific variation: Subject resumptive pronouns in Spanish relative clauses. Paper presented at NWAV 35, The Ohio State University, Nov. 9-12 2006.
- Chomsky, W. 1957. *Hebrew: The Eternal Language*. Philadelphia: Jewish Publication Society of America.
- Cristofaro, S., & A. Giacalone Ramat. 2002. Relativization patterns in Mediterranean languages, with particular reference to the relativization of time circumstantials. In *Mediterranean Languages: Papers from the Medtyp Workshop*, ed. by P. Ramat & Th. Stolz, 99–112. Bochum: Universitätsverlag Dr. N. Brockmeyer.
- Demirdache, H. 1991. Resumptive Chains in Restrictive Relatives, Appositives and Dislocation Structures. Doctoral dissertation, MIT.
- Diesing, M. 1990. Verb movement and the subject position in Yiddish. *Natural Language and Linguistic Theory* 8:41–80.
- Doron, E. 1982. On the syntax and semantics of resumptive pronouns. *Texas Linguistic Forum* 19:1–48.
- Doron, E. 1983. Verbless Predicates in Hebrew. Doctoral dissertation, The University of Texas Austin.
- Doron, E. 2000. Habeynoni hasavil. *Balshanut Ivrit* 47:39–62. [in Hebrew]

- Eilam, A. 2007a. The crosslinguistic realization of -ever: Evidence from Modern Hebrew. Paper presented at the 43rd Annual Meeting of the Chicago Linguistic Society, May 3-5, 2007.
- Eilam, A. 2007b. Expletive negation in Modern Hebrew: The acquisition of contextual polysemy. Presented at the CHEESE seminar, University of Pennsylvania, Oct. 7 2007.
- Eilam, A. 2008. Modern Hebrew: Yiddish patterns, Hebrew forms. Ms., University of Pennsylvania.
- Ellis, R. 1994. *The Study of Second Language Acquisition*. Oxford: Oxford University Press.
- Friedmann, N., Novogrodsky, R., Szterman, R., & O. Preminger. in press. Resumptive pronouns as last resort when movement is impaired: Relative clauses in hearing impairment. In *Generative Approaches to Hebrew Linguistics*, ed. by S. Armon-Lotem, S. Rothstein, & G. Danon. Amsterdam: John Benjamins.
- Günzberg-Kerbel, N., Shvimer, L., & N. Friedmann. in press. "Take the hen that the cow kissed the hen": The acquisition of comprehension and production of various relative clauses in Hebrew. *Israeli Journal of Language, Speech and Hearing Disorders*. [in Hebrew]
- Harshav, B. 1993. *Language in Time of Revolution*. Berkeley, CA: University of California Press.
- Haspelmath, M., Dryer, M.S., Gil, D., & B. Comrie (eds.) 2005. *The World Atlas of Language Structures*. Oxford: Oxford University Press.
- Hawkins, J. 1999. Processing complexity and filler-gap dependencies across grammars. *Language* 75:244–285.
- Hawkins, J. 2004. *Efficiency and Complexity in Grammars*. Oxford: Oxford University Press.
- Herrmann, T. 2005. Relative clauses in English dialects of the British Isles. In *A Comparative Grammar of British English Dialects: Agreement, Gender, Relative Clauses*, ed. by B. Kortmann, T. Herrmann, L. Pietsch, & S. Wagner, 21–124. Berlin/New York: Mouton de Gruyter.
- Holmstedt, R.D. 2002. The Relative Clause in Biblical Hebrew: A Linguistic Analysis. Doctoral dissertation, University of Wisconsin Madison.
- Horvath, J., & P. Wexler. 1994. Unspoken languages and the issue of genetic classification: The case of Hebrew. *Linguistics* 32:241–269.
- Horvath, J., & P. Wexler. 1997. Relexification: Prolegomena to a research program. In *Relexification in Creole and Non-Creole Languages*, ed. by J. Horvath & P. Wexler, 11–71. Wiesbaden: Harrassowitz.
- Hudson Kam, C.L., & E.L. Newport. 2005. Regularizing unpredictable variation: The roles of adult and child learners in language formation and change. *Language Learning and Development* 1:151–195.
- Hyltenstam, K. 1984. The use of typological markedness conditions as predictors in second language acquisition: The case of pronominal copies in relative clauses. In *Second Languages*, ed. by R. Andersen, 39–58. Rowley, MA: Newbury.
- Itai, A., & S. Wintner. to appear. Language Resources for Hebrew. *Language Resources and Evaluation*.
- Izre'el, S. 2003. The emergence of spoken Israeli Hebrew. In *Corpus Linguistics and Modern Hebrew: Towards the Compilation of the Corpus of Spoken Israeli Hebrew (CoSIH)*, ed. by B.H. Hary, 85–104. Tel Aviv: Tel Aviv University, the Chaim Rosenberg School of Jewish Studies.

- Jacobs, N.G. 2005. *Yiddish. A Linguistic Introduction*. Cambridge: Cambridge University Press.
- Katz, D. 1987. *Grammar of the Yiddish Language*. London: Duckworth.
- Keenan, E. 1985. Relative clauses. In *Language Typology and Syntactic Description, Volume II: Complex Constructions*, ed. by T. Shopen, 141–70. Cambridge: Cambridge University Press.
- Keenan, E., & B. Comrie. 1977. Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8:63–99.
- Keenan, E., & B. Comrie. 1979. Data on the NP accessibility hierarchy. *Language* 55:333–51.
- Kinzler, K.D., Dupoux, E., & E.S. Spelke. 2007. The native language of social cognition. *The Proceedings of the National Academy of Sciences of the United States of America* 104:12577–12580.
- Kirby, S. 1997. Competing motivation and emergence: Explaining implicational hierarchies. *Linguistic Typology* 1:5–32.
- Kroch, A. 2005. Modeling language change and language acquisition. Ms., University of Pennsylvania.
- Labov, W. 1972. *Sociolinguistic Patterns*. Philadelphia: University of Pennsylvania Press.
- Lowenstamm, J. 1977. Relative clauses in Yiddish: A case for movement. *Linguistic Analysis* 3:197–216.
- MacWhinney, B. 2000. *The CHILDES Project: Tools for Analyzing Talk. Third Edition*. Mahwah, NJ: Erlbaum.
- McCloskey, J. 1990. Resumptive pronouns, \bar{A} -binding and levels of representation in Irish. In *Syntax of the Modern Celtic Languages*, ed. by R. Hendrick, 199–248. New York and San Diego: Academic Press.
- McCloskey, J. 2006. Resumption. In *The Blackwell Companion to Syntax*, ed. by M. Everaert & H. van Riemsdijk, 94–117. Oxford: Blackwell.
- Nahir, M. 1998. Micro language planning and the revival of Hebrew: A schematic framework. *Language in Society* 27:335–357.
- Newmeyer, F. 2005. *Possible and Probable Languages: A Generative Perspective on Linguistic Typology*. Oxford: Oxford University Press.
- Otsuka, Y. 2006. Syntactic ergativity in Tongan: Resumptive pronouns revisited. In *Ergativity: Emerging Issues*, ed. by A. Johns, D. Massam, & J. Ndayiragije, 79–107. Dordrecht: Springer.
- Peretz, Y. 1967. *The Relative Clause in Hebrew in All of its Stages*. Tel Aviv: Devir. [in Hebrew]
- Prince, E. 1990. Syntax and discourse: A look at resumptive pronouns. In *Proceedings of BLS 16*, ed. by K. Hall et al., 482–497. Berkeley, CA: Berkeley Linguistics Society.
- Prince, E. 1997. On kind-sentences, resumptive pronouns, and relative clauses. In *Towards a Social Science of Language. Papers in Honor of William Labov, Vol. 2: Social Interaction and Discourse Structures*, ed. by G.R. Guy, C. Feagin, D. Schiffrin, & J. Baugh, 223–35. Amsterdam: John Benjamins.
- Rabin, C. 1974. Halashon haivrit bat yamenu. *Haentsiklopedya haivrit* xxvi, 660–664. [in Hebrew]
- Reshef, Y. 2005. Direct speech in non-literary texts: A possible source of information on the early character of spoken Hebrew? *Hebrew Studies* 46:169–196.
- Reshef, Y. 2008. Haivrit hameduberet bitkufat hayeshuv: nituah leshoni. Ms., The Hebrew University of Jerusalem. [in Hebrew]

- Rosén, H. 1956. *Haivrit shelanu: dmuta beor shitot habalshanut*. Tel Aviv: Am-Oved. [in Hebrew]
- Rosén, H. 1977. *Contemporary Hebrew*. Trends in Linguistics, State-of-the-Art Reports 11. The Hague – Paris.
- Schumann, J. 1980. The acquisition of relative clauses by second language learners. In *Research in Second Language Acquisition: Selected Papers from the Los Angeles Second Language Research Forum*, ed. by R. Scarecella & S. Krashen, 118–131. Rowley, MA: Newbury.
- Selinker, L. 1972. Interlanguage. *International Review of Applied Linguistics* 10:209–231.
- Sells, P. 1984. Syntax and Semantics of Resumptive Pronouns. Doctoral dissertation, University of Massachusetts at Amherst.
- Shlonsky, U. 1992. Resumptive pronouns as a last resort. *Linguistic Inquiry* 23:443–468.
- Siloni, T. 1995. On participial relatives and complementizer D⁰: A case study in Hebrew and French. *Natural Language and Linguistic Theory* 13:445–87.
- Siloni, T. 1997. *Noun Phrases and Nominalizations: The Syntax of DPs*. Dordrecht: Kluwer Academic Publishers.
- Singleton, J.L., & E.L. Newport. 2004. When learners surpass their models: The acquisition of American Sign Language from inconsistent input. *Cognitive Psychology* 49:370–407.
- Stampfer, S. 1993. What did "knowing Hebrew" mean in Eastern Europe? In *Hebrew in Ashkenaz: A Language in Exile*, ed. by L. Glinert, 129–140. New York: Oxford University Press.
- Suñer, M. 1998. Resumptive restrictive relatives: A crosslinguistic perspective. *Language* 74:335–364.
- Szczegielniak, A. 2005. Two types of resumptive pronouns in Polish relative clauses. *Linguistic Variation Yearbook* 5:165–185.
- Thomason, S.G. 2007. Language contact and deliberate change. *Journal of Language Contact. The Contact: Framing its Theories and Descriptions / Contact: descriptions, théorisations, cadrages*. Available online at <http://cgi.server.uni-frankfurt.de/fb09/ifas/JLCCMS/>.
- Versteegh, K. 1993. Esperanto as a first language: Language acquisition with a restricted input. *Linguistics* 31:539–555.
- Wexler, P. 1990. *The Schizoid Nature of Modern Hebrew: A Slavic Language in Search of a Semitic Past*. (Mediterranean Language and Culture Monograph Series, 4.) Wiesbaden: Harrassowitz.
- Wexler, P. 2002. *Two-tiered Relexification in Yiddish: Jews, Sorbs, Khazars, and the Kiev-Polessian Dialect*. Trends in Linguistics Studies and Monographs 136. Berlin/New York: Mouton de Gruyter.
- Winford, D. 2003. *An Introduction to Contact Linguistics*. Oxford: Blackwell.
- Wonnacott, E., & E.L. Newport. 2005. Novelty and regularization: The effect of novel instances on rule formation. In *BUCLD 29: Proceedings of the 29th Annual Boston University Conference on Language Development*, ed. by A. Brugos, M.R. Clark-Cotton, & S. Ha. Somerville, MA: Cascadilla Press.
- Zuckermann, G. 2003. *Language Contact and Lexical Enrichment in Israeli Hebrew*. London: Palgrave Macmillan.
- Zuckermann, G. 2006. A new vision for Israeli Hebrew: Theoretical and practical implications of analyzing Israel's main language as a semi-engineered Semito-European hybrid language. *Journal of Modern Jewish Studies* 5.1:57–71.