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ETYMOLOGY OF HEBREW NOUNS

Re-examining the Origins of the Language of Israel

Thesis submitted for the degree

"Master of Arts"

By

Yaelle Kalifon

This work was carried out under the supervision of

Dr. Gerd Carling

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I   Abstract

Which sources most influence the language spoken in Israel?

Is it the same language as the Hebrew of its ancestral heritage?

Which periods in history brought about the changes of contemporary lexicon?

These are the questions addressed in the current essay, which presents the inspection of nouns appearing in a recent newspaper, and their categorization according to the different periods in the history of the Hebrew language.

The current thesis proposes the division into fourteen sets which account for each of the classical periods of the Hebrew language, as well as seven other stages, which are shown to have contributed to the Hebrew lexis in providing new meanings to existing words. Thus, a native Hebrew word which originated in an early period might appear at a later period bearing a different semantic value.

Also, the current study acknowledges the vast foreign influence to which Modern Hebrew had been subjected in the course of history, and still is, in today's globalized world.

Utilizing the proposed fourteen sets by which the 617-word corpus has been analyzed, this essay aims to improve the etymological research of Hebrew which is not extensively and thoroughly studied, as well as promote the compiling of an etymological dictionary which is currently lacking in the shelves of Hebrew lexicography.

II   Outline

Originally, the goal of this thesis was to conduct a statistical analysis of nouns appearing in a contemporary and random newspaper, their etymological sources categorized according to era and reflecting the degree of effect each period in the history of the language has on current texts. The proposed method differs from previous research studies, which only regarded the Bible, Talmud and medieval Jewish literature as possible etymological sources, in addition to Modern Hebrew. Instead, this study suggests the consideration of meaning metamorphosis between periods, as well as the effect of foreign languages, in the past and in the present.

When setting out to conduct this research, I thought the process of categorizing the entries of the corpus would be the simple process of looking them up in an etymological dictionary. However, after many searches, it sadly became apparent that there does not exist an etymological dictionary of Hebrew. Instead, several common dictionaries occasionally note the era in which a word emerged (however, without reference), but mostly, small booklets, compilations and individual research studies offer an etymological survey of a narrow field (e.g., physics, food, seamanship, etc.). These sources, not only contradicting at times, are scattered across numerous libraries and campuses, as well private facilities, which makes them very difficult to discover and reach. Therefore, the task of finding the etymological source of all items making up the corpus proved an inseparable part of the research, in addition to conducting statistical analyses.

Therefore, the essay begins in accounting for the genealogical and etymological notions which drive this historic field of study, and their relation to Hebrew in its different periods. Next, a survey of the "revival" of Hebrew in the 19th century and the institutional support it received are presented in order to provide the reader with the background of the nature of the modern language which was created. The ideals of that period between the two world wars are those that directed language policies and gave rise to many attributes that are still apparent in the language spoken today. At the same time, they also gave rise to a possible genealogical break, changing the character of the modern language from the classical Semitic trend. The effects of globalization and the different borrowings between languages are discussed next, codeswitching and the expansion of the lexicon being the result thereof. Thereafter the state of Israeli lexicography is brought forward, followed by the presenting of previous research studies, their reliance on the existing dictionaries, as well as their adherence to the classical quadruple division of Hebrew characterizing their nature. Properties which are believed to be flawed are thereby accounted for by the suggested methodology of the current research, and an extensive explanation about the proposed division is provided. Results, both listed and illustrated, make apparent the methodology and analysis discussed, and are accounted for in the following discussion. Comparisons between different sets of results, pertaining to the current study as well as to its predecessors, offer different angles by which to appraise the matter at the heart of this essay, as well as other related notions. Finally, a concluding section offers to survey all the notions raised in the current essay, together with suggestions for further research.

1. Introduction

1.1. Historical linguistics and genealogy

As history tries to account for the sequence of events, so does historical linguistics try to tell the tales of the spoken languages observable today. Any historic explanation is (almost always) genetic in its nature: a certain state A is explained by an earlier state B, which is explained by an even earlier state C, and so on. And just as history is not an exact science, genetic linguistics too encompasses a degree of art and imagination, its application differing dramatically between experts (Anttila 1972).

Within historical linguistics lies the branch of phylogenetics, which presents a relative taxonomy between the languages of the world and their degree of proximity, as relatives on a family tree (di Sciullo and Boeckx 2011). The tree might include extinct languages as well as hypothesized languages which may have not necessarily existed or incorporated the linguistic structures attributed to them, but nonetheless are believed to have preceded languages, the existence of which is known (Johanson 2008).

Although belonging to a mostly extinct family of languages, via written structural evidence, Hebrew has been classified as a Semitic language, the only living relatives of which are Arabic and Amharic (Kaltner and McKenzie 2002).

Diagram 1.1: Genealogy of Semitic languages[1]
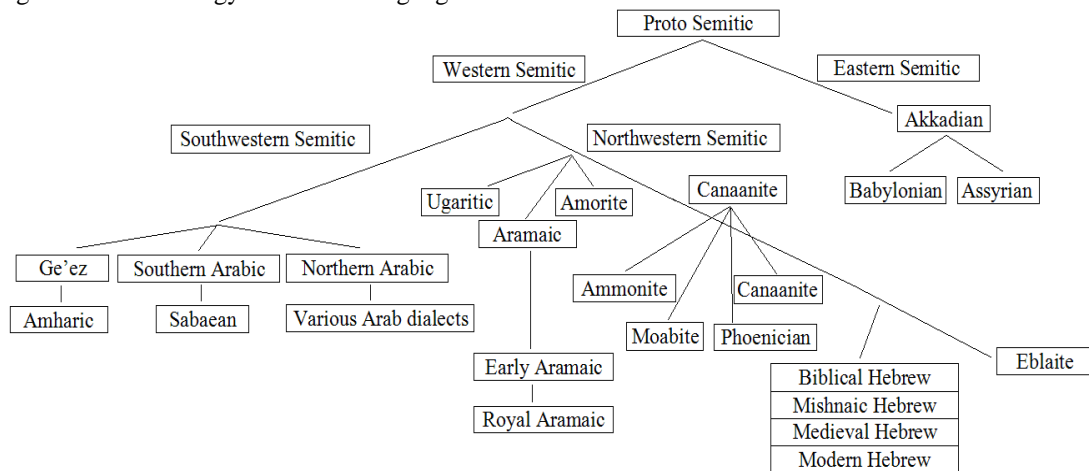
According to Rozen (1999), the Hebrew language belongs to the north-west branch of Semitic languages, together with Canaanite, Phoenician and Aramaic (among others). However, Hebrew constitutes a unique case, as it may be divided into four distinct sets. The quadruple division[2] is further elaborated on in section §1.2 below.

1.2.   The uniqueness of Hebrew within a genealogic framework: classification of sets of Hebrew, according to era[3]

Unlike the illustrated development of e.g. Royal Aramaic (diagram 1.1 above), which is believed to be the descendant of the preceding Early Aramaic, the four sets of Hebrew are not believed to have developed in a natural chronological order, where each stage gives rise to the next. Rather, the different sets represent different stages in history that are without a direct and sequential contact, leaving a linguistic gap between the speakers of each era.

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[1] From Rozen 1999
[2] As is used by most lexicographers and scholars, according to Ben-Ami Zarfati (1997)
[3] One should note that the dates attributed to the four sets constituting Hebrew are not unanimously agreed upon between researchers, and that certain periods might overlap (Zuckermann 2008)

1.2.1 Set I:

The (classical) Biblical Hebrew is the language which was spoken in the area of today's Israel by the twelve Hebrew tribes of the kingdom of Israel, manifested in the books of the Old Testament. These writings are regarded to be the Hebrew spoken from the 10th century and until the 1st century BC, until it was abruptly interrupted under the impact of the spread of Aramaic in the area (Ben-Ami Zarfati 2001).

1.2.2 Set II

Talmudic Hebrew is the language of rabbinic discussions, spoken from the 1st century BC and until the 6th century AD, as they appear in the Mishna, -the oral tradition as put to writing in the 3rd century AD-, and in the Hebrew part of the Gemara, -the interpretation of the Mishna-, from the 5th century AD. Together, these two works constitute the Babylonian Talmud (Zuckermann 2008).

1.2.3 Set III:

Medieval Hebrew is the written language of the various Jewish communities scattered throughout the Christian and Islamic worlds. These writings are characterized by literature pertaining mainly to the fields of religion, science and poetry, and are dated from the 6th century (after the completion of the Talmud) and until the 18th century. Medieval Hebrew was used by the intellectual elite of the Jewish societies, who otherwise spoke the local languages (Zuckermann 2008).

1.2.4   Set IV:

Modern Hebrew is difficult to date with precision, as it emerged at different times in different Jewish centers (Zuckermann 2008). However, it is widely agreed that there are two periods of its development: at first it was the written language of secular writing of Jews referred to as "enlightened" in 19th century Europe, and it was then continued as the unifying focus of the first Zionist settlers in Palestine, then under the rule of the Ottoman Empire, as a spoken language (Agmon-Fruchtmn & Alon 1994).

It is therefore not obvious that the language spoken today in Israel, often referred to as Modern Hebrew[4], should be the direct continuation of the ancient Hebrew language of biblical times.

1.3   Etymology

The study of etymology (from the Greek *etumos* 'true' and *logos* 'word') wishes to unveil the connection between different words and to track down the changes recorded in the history of a given word, thereby shed new light on their meanings. Etymology does not constitute historical linguistics *per se*, rather a byproduct of historical research. The study of etymology relies on comparative methods, such as phonological, morphological and lexical reconstruction, which outline a connection between languages and classify the relation between them (e.g., "sisters", "daughters", etc.) (Campbell 2004).

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[4] Further discussion about the term "Modern Hebrew" and its connotations appears in section §3.2 below.

One of the many obstacles in the way of the etymologist is the phenomenon termed "folk etymology". Folk etymology denotes a change in a given linguistic chain due to phonological resemblance between two *signifiers*[5]: the historic reference of a signifier is forgotten, and in speakers' consciousness its meaning is related to another, phonologically similar signifier and its history (De Cuypere 2008).

One such example in Hebrew is the word 'תוכן' (/ˈto.xen/) which originally meant "*measure*", but due to the tight phonological proximity with 'תוך' (/tox/) "*inner*" nowadays serves to mean "*content*" (Bahat, Yanai & Yosef 1991).

Therefore, the research presented herein will inspect the etymology of nouns, starting at their first known appearance, throughout their usages in the different stages of the language, and until the meaning attributed to them nowadays. The meanings assigned in different stages in history will be verified through their use in ancient literature, and the extraction of their denotations in accordance with context and interpretive literature. Tracking the shifts in meanings, the entering of foreign, loan- or new words[6], and the prevailing of original Hebrew lexical items would exemplify the degree of similarity between the language spoken today, and the language from which it claims to rise.

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[5] de Saussure 1916, as it appears in Baskin 1959
[6] According to Agmon-Fruchtmn & Alon 1994, foreign words are those that are sensed by the native speaker as not belonging to the L1's linguistic system; loanwords are those that have successfully been incorporated into the L1 (including morphological, phonological and syllabic adjustments); new words are those that have been created, starting from the 19th century, to fill linguistic gaps, in accordance with the existing Hebrew roots and patterns.

2. Historical survey

2.1 The "revival" of the Hebrew language

The awakening of Hebrew began in the 19th century as a tool in the hands of secular Jews, scattered across Europe, influenced by the European Enlightenment. At first the enlightened Jews used Hebrew as a *lingua franca* in their correspondence, discussing literature and secular nationalistic Jewish notions, separating themselves from traditional Jewish society (Agmon-Fruchtmn & Alon 1994). An additional motivation to use Hebrew was the strong feelings the enlightened held against Yiddish, the language that was used by the Jewish population of Central and Eastern Europe, which they felt represented ignorant and religious masses, whose ideals and aspirations they did not share. To these scholars, Hebrew was what Latin had been to Christian Europe in the Middle Ages (Silberschlag 1981); an "artificial" language mastered only by an educated elite, not naturally spoken by anyone.

However, the "frozen"[7] state of Hebrew did not complement the then modern world of the 19th century, and the limitations of the language directed writers to express what they could within these boundaries. An absurd situation occurred where the contents were adjusted to fit the language, and not the language adjusted to serve the contents[8]. Therefore, despite their purist notions, the enlightened writers introduced words from a later (Medieval) Hebrew into their texts, as well as calques (mainly from Russian and German), and were able to produce a greater variety of literary work, such as newspapers, journals, poems, and other secular writings that defined their nationalistic identity (Agmon-Fruchtmn & Alon 1994).

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[7] As it is described in Agmon-Fruchtmn & Alon 1994
[8] E.g. the first Hebrew novel, "The love of Zion" by Abraham Mapu, 1853. In his book the author uses the Biblical reality and Israeli scenery to convey his ideas, which otherwise could not have been expressed.

In this diglossic state of the second half of the 19th century either Yiddish or the local language (German, French, Russian, etc.) was used for everyday matters, while Hebrew was reserved for insightful scholarly texts. The more lenient approach which allowed the usage of Hebrew from various sources and eras, together with contemporary borrowings and calques, gave unintentional rise to the "revival" trend: linguistic innovation in creating new words and providing new meanings to old ones (Agmon-Fruchtmn & Alon 1994).

Although the start of the revival enterprise was initiated in Europe, it wasn't until the time of the Jewish immigration waves to the then Ottoman Empire's Palestine (and today's Israel), that its outcome was apparent in the form of a living, developing and expanding language (Agmon-Fruchtmn & Alon 1994). The first immigration wave (starting in 1882) founded Hebrew speaking schools as part of their ideology, bringing up a generation of children who had a good understanding of the Hebrew language, though still at the level of L2 (the L1 of each individual differing according to their family's origins). During this time active scholars were still engaged in developing and enriching the Hebrew language, the most prominent of whom were Yosef HaLevi, Baruch Mitrani and Nissim Bachar, and later Eliezer Ben-Yehuda (Haramati 1978). Their works, backed by profound understanding of Hebrew grammar, which were done in accordance with existing roots and patterns[9] of the various sets of Hebrew, or other Semitic languages (mainly Arabic), served to replace laborious compound expressions and offer alternatives

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[9] Semitic languages are often described as being made up of roots – three (or four) consonants that are the meaning bearing unit of a lexical item; and patterns – the vocalization accompanying each usage of the root to make different meanings. Usually, nouns and adjectives with a similar meaning are constructed by using the same root letters, enabling a verb form to be derived (Rabin 1993).

to borrowed words which denoted concepts of the modern world[10]. Grammatical structures and syntax were also formulized or "refreshed" by these Hebrew activists and the naturalness and fluency of the spoken Hebrew language was increased[11].

The second wave of immigrants (starting in 1904) was characterized by Eastern European scholars who strove to live in a society united by Hebrew as their official (and only) language. Their approach enticed the enthusiasm of their predecessors of the first wave of immigration, and together they have successfully created a Hebrew speaking society, numbering a mere few tens of thousands, their children constituting the first generation of native Hebrew speakers (Agmon-Fruchtmn & Alon 1994).

Very little is known about the practical procedures and events that have turned this ideology into reality, and transformed the face of the Jewish society in these short few years[12]. However, two notions can offer support that indeed by the second decade of the 20th century Hebrew had been a revived, full-fledged living language. The first is the German initiative of opening of the first institution of higher education, the Technion (founded 1913 in Haifa) which was originally destined to teach in the German language. Prior to its initiation the Hebrew speaking youngsters protested, and succeeded in convincing the founders that Hebrew, their native language, should be the official language of teaching. The second evidence in support of the success of the revival enterprise lays in the works of Itamar Ben-Avi, the son of Eliezer Ben-Yehuda, whose

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[10] Of the many Hebrew innovations, it has been estimated that the chances of a suggested entry to successfully infiltrate the spoken language was no more than 60%, depending on the degree of its publicity and institutionalized support (Schwarzwald 1977).

[11] Despite his rejection of European languages, Ben-Yehuda unintentionally incorporated elements pertaining to foreign tongues (Yiddish, Russian, Lithuanian, German and French) in his revival of Hebrew grammar, as his productivity was influenced by his own linguistic background (Hoffman 1997).

[12] This state of affairs might serve to explain why many original and appropriate words had been neglected, and their creators forgotten from public consciousness (Ornan 1996), while Ben-Yehuda is recognized as the main (if not only) driving force of the endeavor, despite his relative small contribution (e.g., Schwarzwald 1978; Kuzar 2011)

Hebrew innovations were intuitive and effortless, unlike his father's, which were carefully constructed in accordance with ancient sources and other linguistic comparisons (Schwarzwald 1978).

It was at this time (2nd decade of the 20th century) that the ruling over the area had shifted from the Ottoman Empire to the British Mandate, which acknowledged Hebrew as the official language of the Jewish population under its rule (Efrati 2004). New, renewed[13] and borrowed words[14], that had entered the language until that time, were mainly influenced by German, French and Russian, whereas in the post Ottoman period the influence of English became greater, overtaking that of the other European languages (spoken by the revivers and immigrants), including influence in syntax[15], greater use of passive constructions, and more. The influence of English did not diminish with the gaining of Israeli independence (year 1948), as it was replaced by the fast-growing universal influence of the US, and other English speaking immigration waves (Schwarzwald 1978).

2.2   The Academy of the Hebrew Language

In 1890 The Committee of the Hebrew language was founded, taking upon itself the aim of expanding and spreading the Hebrew language amongst the Jewish community, in all spheres of life (Schwarzwald 1978). Its success was the result of various social factors operating at the time, among which are the ideology of

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[13] According to the terms coined by the Academy of the Hebrew language, "new words" are the original new creations of the revivers, denoting a concept of the modern world (which therefore had no older signifier); "renewed words" denote words that had already existed in an earlier time, but were given new meanings that replaced the archaic concepts (no longer in use, thereby avoiding a linguistic gap).

[14] As discussed at length in section §4

[15] Preferred OVS in Classical Hebrew, in comparison to the contemporarily preferred SVO, which is the dominant order of most European languages (Nevo & Ullstein 2008)

enlightenment, Zionist yearning to return to Jewish sources, vast waves of immigration (Stern 1981), and mainly the lack of a common language that would unite the Jewish population, which wished to define itself as a people devoid of a religious denominator (Agmon-Fruchtman and Alon 1994).

The committee continued to operate and expand, until in 1953 it was replaced by The Academy of the Hebrew Language and its authoritative power grew to affect language policies, its decisions directing the Ministry of Education. The role of "language planning" was added to its line of duty, aiming to further enrich the linguistic inventory, guide and authorize the entering of new Hebrew vocabulary (Schwarzwald 1978).

The enterprise of the Academy was not unanimously accepted by all strata of society; some objected to the creation of new words, and wished only to draw from ancient sources. They viewed the penetration of European vocabulary as the penetration of European culture, and the disrupting and diminishing of Hebrew to a mere "jargon of simpletons" (Schwarzwald 1978). Also, they found a threat not only in the incorporation of foreign words, but in the foreign effect over the core character of the Hebrew language (Ben-Ami Zarfati 2001).

Contrastively, some believed that as the Hebrew language has successfully incorporated ancient words from the surrounding ancient cultures, so should contemporary borrowing be permitted and adjusted to Modern Hebrew (Schwarzwald 1978). This more permissive outlook is doubtlessly influenced by the secular ideology characterizing modern Israeli society, which also demonstrates a tolerating and welcoming approach towards other languages (Zuckermann 2008).

Others opposed to the very existence of the Academy of the Hebrew language, saying that no authoritative institution should stand at the head of a people's language behavior. "A language would only grow as long as it is allowed to grow" (Fruchtman & Schwarzwald 1999). It was claimed that "the revival of the Hebrew language" is nothing but a tendentious approach of the 19th century, operated by an institutional and educational ideological pressure-cooker, executed in order to eradicate the languages of Diaspora, and especially Yiddish (Zuckermann 2008).

Ironically, the very name of the institution that pretends to direct the proper and desired use of Hebrew includes the foreign "*academy*" in its title, demonstrating the multicultural society we live in, which absorbs influences from various other languages[16]. It also serves to demonstrate the openness of contemporary Israeli society which allows itself to grow and adjust in accordance to the modern world.

3. Revised genealogical account

3.1 Trouble defining Hebrew genetically

As illustrated in section §1.1, Hebrew is categorized a Semitic language (Rabin 1993), which had ceased to be spoken by the 1st century BC. This raised the unique situation where the natural continuum of speakers had been broken; unlike Ancient and Modern Greek, for instance, which have a direct link through the constant existence of native speakers, Hebrew had no L1 speakers for over 2000 years. As there were no native speakers of Hebrew, it cannot be a natural language in the common sense of the term (Zuckermann 2008); a hundred and twenty years ago not a single person spoke only

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[16] Also see Maariv article from January 4th, 2012 for further discussion on this matter:
http://2010.uploaded.fresh.co.il/2010/01/04/16618615.png

Hebrew, whereas nowadays over a million are monolingual Hebrew speakers (Silberschlag 1981)

There exist two main schools, "the Purist" and "the Revisionist"[17], that account for the categorization of Hebrew. According to the former, Modern Hebrew is the miraculously revived and directly linked continuation of Biblical Hebrew. Contrastively, according to the latter, Modern Hebrew is relexified Yiddish; a modern European language. In trying to bridge over these two extremist approaches, a compromise was raised in trying to categorize Modern Hebrew as a Creole[18]. The widely known phrase coined by Kishon[19] that "the mother tongue was taught to the parents by the children" offers a humoristic support of that assertion.

Indeed, all the above explanations touch on the processes which were at work when Modern Hebrew had emerged. However, they all suffer major flaws: the purists fail to account for the exact happening which made possible this "miraculous revival", or why it cannot be repeated in other (dying or extinct) languages; the revisionists propose no explanation that would account for the Semitic principles apparent in Hebrew (such as roots and patterns, morphology and more); and the mediating Creole's advocates offer no account for the scholars who started the initiative of speaking Hebrew, and the profound understanding they had in its structure and vocabulary, throughout all its stages (Zuckermann 2008). Also, they refrain from determining which is the superstratum language and which is the substratum (choosing between Hebrew and Yiddish), not to mention the various other languages which are shown to have immensely affected Modern Hebrew (e.g., German, Russian, French and English).

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[17] The terms coined by Zuckermann 2008
[18] As it appears in Zuckermann (2008). For further discussion on Creole languages see Matras 2009.
[19] As it appears in Zuckermann (2008).

Therefore, it is perhaps best to fit the language spoken in Israel into a new category, and relate to it as a "hybrid language" (Zuckermann 2008) or a "fused language" (Schwarzwald 1994). According to this approach, Modern Hebrew draws from all the above mentioned themes, being deeply influenced by Yiddish, owing its structure to the family of Semitic languages and having multiple donors (Zuckermann 2008). This complex model also accounts for the changes in meanings of words between the different stages in the language's life (Schwarzwald 1994), having multiple linguistic layers[20] interact and result in a new and different linguistic entity.

Could it be a mistake to name Modern Hebrew a "revived" language?

3.2   Hebrew or Israeli?

There exist many names by which to call the language that is spoken by the Jewish population of contemporary Israel (and starting from the end of the 19th century), such as *Contemporary Hebrew*, *The new Hebrew*, *Living Hebrew*, or *Our Hebrew*, just to name a few. Each name represents an array of historic, political and emotional connotations. Also, the character attributed to the language differs between scholars (as well as speakers); therefore the contrastive descriptions of it lead to naming the language in accordance with individual theoretical approaches (Schwarzwald 1994). Eventually, the name Modern Hebrew was chosen, and is nowadays shortened to "Hebrew" in most contexts (Zuckermann 2008).

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[20] As they are described in Zuckermann 2008

A "revival" is a term pertaining to the unearthing of an extinct language and bringing it back into use. However, this term is often confused or merged with having a "living" language; a spoken language which is subjected to change and development[21] (Fruchtman & Schwarzwald 1999). Therefore, it could be said that the Hebrew of the Bible is a dead language, fossilized and unchanged with the passing of time since the 1st century BC (Zukermann 2008), whereas the Hebrew of modern times is a different, living language, spoken and developing, and passed on by native speakers. "A language, like a species, when extinct, never … reappears" (Darwin 1874, as it appears in Pinker 1994); shouldn't today's language be acknowledged as a different one, and given its own name accordingly?

As stated earlier in section §2.1, Ben-Yehuda mixed the elements and grammars of Yiddish, Russian, Lithuanian, German and French into his works in Hebrew (Hoffman 2004). In addition, Israeli society, nowadays as well as in its beginning, is made up of immigrants arriving from the four corners of the world, constructing a new shared cultural identity with a unique lingual artifact. And as a language is a symbol of nationality, no wonder today's Hebrew is extremely different from the ancient Biblical Hebrew, which belonged to an ancient nation which no longer exists (Fruchtman 1989).

The suggested solution to these issues is to give the language at the heart of this discussion a name which should accurately portray its characteristics and uniqueness. The name "Israeli" seems to fit these requirements best, as it answers to the following:

(a)   It demonstrates the significance of the social compound in constructing its language, making it a tool to express its unique cultural attributes;

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[21] "Development", in the case of Hebrew, being the making of new forms as well as the giving of new meanings to existing forms.

(b)   It acknowledges the many donor languages that have contributed to the compound which is today's language, not preferring Hebrew at the expense of other, possibly similarly significant languages;

(c)   It distinguishes between the different stages (or sets) of Hebrew throughout history, making it apparent that today's language is not the same as the language of the Bible (thereby also exempting Israeli children of the expectation to understand the ancient text effortlessly, and conform to prescriptive (ancient, and, perhaps, even obsolete) grammar).

The name "Israeli" is strongly advocated for by Zuckermann (2008), though it raises a great ideological and traditional opposition. Perhaps people feel that agreeing to change the language's name might be interpreted as forfeiting the claim to the people's ancestral heritage, and the connection with the Bible and land, as the three are tightly bonded (Silberschlag 1981).

Nonetheless, as this title of "Israeli" versus "Hebrew" is not of great significance to the thesis raised (rather only an ideational notion that draws from it), the matter will not be discussed further. For the sake of simplicity, however, henceforth the term "Israeli" would be used to denote contemporary, or "revived", Hebrew, as opposed to the Classical, Biblical Hebrew.

3.3   Zuckermann 2008: *Isreali, a Beautiful Language: Hebrew as a Myth*

According to Zuckermann (2008), the linguistic system that makes up Israeli is best accounted for by multiple donors pertaining to different aspects of the language:

Diagram 3.3: Semitic-European hybrid[22]

Israeli

Phonetics, Phonology, Semantics and syntax, mainly

Morphology and vocabulary, mainly

Subconsciously, mainly

Consciously, mainly

Main donor **Yiddish**   **Hebrew** Main donor

Ladino, Arabic, Aramaic, etc.

Other donor languages

Polish, Russian, German, English, etc.
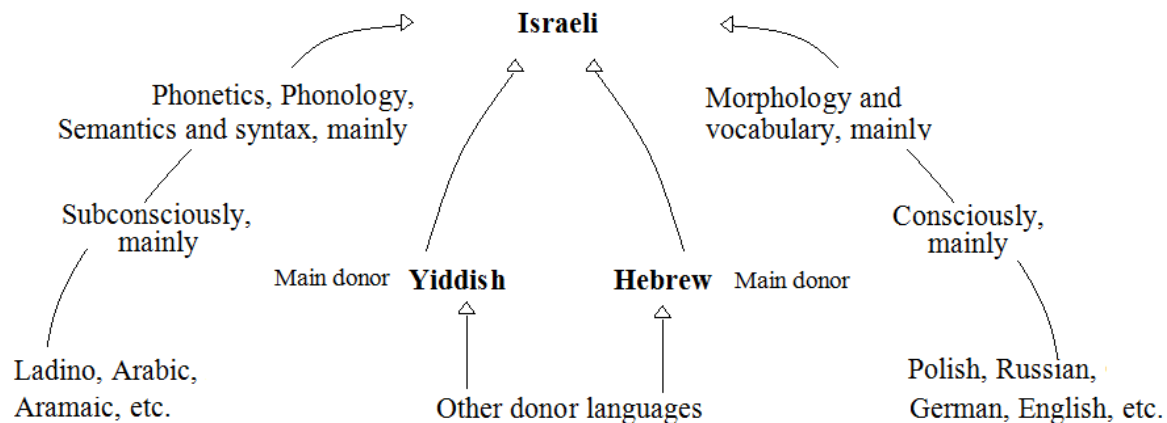
Unlike the purist view of Israeli, which grants Hebrew the ancestral right over the language spoken in contemporary Israel, the hybrid model incorporates many other languages as significant donors, each contributing to a different aspect of the language, consciously or subconsciously.

The author places a great emphasis on Yiddish especially, as it had been the native language of the majority of the population that was engaged in the revival project, and directed and shaped the resulting Israeli language. Therefore, the vocabulary of Hebrew, together with the structure and "character" of Yiddish, are claimed to be the main pillars of Israeli.

Also, Zuckermann discusses *the principle of overlapping*[23], according to which an element that appears in more than one of the donor languages (e.g., Polish and Russian or English, German and French, etc.) has more chances of surfacing in Israeli, and should not be attributed to any one specific language, as it is almost always impossible to determine the direct source from which it entered (if there is, indeed, just one source).

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[22] From Zuckermann 2008
[23] See pg. 51, Zuckermann 2008

Therefore, following this logic, and coupled with the fact that Israeli has multiple donors (unlike a Creole which would normally have two distinct donors), Zuckermann concludes that it is possible that the sum of the parts which contributed to Israeli could be greater than the language itself, when all of its donors are accounted for. For instance, it could be that the language is made up of: 40% Hebrew; 40% Yiddish; 10% Polish; 10% Russian (adding up to 100% at this point); 10% English; 5% German; 5% Arabic; 5% Ladino; and 10% Innovative Israeli of the 19th century onwards: a total of 135% donor languages, some of which, obviously, overlap.

Accounting for all the donor languages and their relative significance in the emergence of Israeli, Zuckermann attributes most importance to Yiddish, as was previously stated, as well as Polish, Russian, French, German and English. Therefore, if a single trait of Israeli appears in all of the above, it should be considered an international trait, and not attributed to a single specific language.

4. Borrowing trends and globalization

"It is an iron-clad rule that languages contribute to each other" (Sivan 1974, as it appears in Fisherman 1986). The driving principle that guides language institutions (or the revivers in the earlier days) is that a word's appearance in the Bible confirms its Hebrew roots, and it is considered a native and "legitimate" word. However, also in the ancient times of the Bible there existed language contact, and words were borrowed into Hebrew from e.g., Aramaic, Greek, and Persian (Nevo & Ullstein 2008). For example, the ancient, common, and very compatible with Hebrew 'תנור' "*stove*" (/taˈnur/) is presumed to be originally Akkadian or Ugarit (Torczyner 1937).

The creation of new words in the beginning of Israeli was mainly drawn from Aramaic, and not the available and present Arabic, due to cultural relatedness, as well as the influence it once had over the Talmudic Hebrew. Also, Biblical words and roots were given new meanings or served to create new, modern, words (Schwarzwald 1978).

The process of borrowing may be viewed as occurring at two levels: the linguistic domain (pertaining to phonology, morphology, syntax, etc.) and the meta-linguistic domain (discourse structure, social trends, etc.), which are mutually dependent. Nowadays there is an increasing trend of borrowing from English, especially in syntax and in L2 prefixes (such as super-, pro-, extra-, etc.) that are conjoined with L1 stems. This fact illustrated the connection between social trends and language assimilation, compared with earlier times when Arabic, Yiddish and Ladino were the main contributors of loanwords (Nevo & Ullstein 2008).

Not all words that are not originally from a given language (L1) may be categorized as foreign words. Rather, a finer distinction is required to accurately capture the various kinds of loans[24]:

(a) Loanwords (Lehnwörter)

Words that have been borrowed into the L1 in the past, and are presently so well incorporated in it, that the L1 speaker is unable to tell that they were once not a part of that linguistic system. In Hebrew, the degree of incorporation is measured by the syllabic structure, affixes in conjugation, and in fitting into patterns. In cases where a word's origin is known, its categorization remains unaffected, and it should still be considered a loanword (Schwarzwald 2002).

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[24] As it appears in Schwarzwald 2002

(b) Foreign words (Fremdwörter)

Words that are being entered into the L1 at present, and are sensed as foreign by the native speaker, despite the possible obscurity of their origin (Schwarzwald 2002).

(c) Blocking

Words that fail to get adopted into the L1, mainly for phonological reasons. The void which would have otherwise been filled by the blocked word is occupied by another, often native, word (Cohen 2009).

(d) Incorporation

Words that do get incorporated into the language, despite their incompliance with the L1's system. This gives a de facto rise to an expansion of the L1's restrictions, and often the adoption of new phonological components (Cohen 2009).

(e) Adaptation

Words that are altered in order to comply with the L1 restrictions. This is more frequently the case in borrowing, as it allows the expansion of the linguistic inventory without the surfacing of marked phonological and segmental elements (Cohen 2009).

The number of foreign words that are currently entering Israeli is no greater than that of past times, when words from Persian, Aramaic, and other near languages, would find their way into Hebrew (Fisherman 1986).

However, words that had been assimilated in an earlier stage of the language's life had undergone phonetic and syllabic changes that adjusted them to fit the framework of Hebrew, whereas nowadays foreign words are subjected to the effects of Israeli, which directs their alternations differently, thereby resulting in a different adaptation (Zuckermann 2008). An example of the above would be best illustrated in the entering of the word "*protection*" in two different times. A word to denote this concept already exists in (Medieval) Hebrew, therefore the adapted /proˈtek.t͡sja/, entering Israeli in the second half of the 20th century (Avneyon 1997), serves to denote favoritism to serve one's purposes in a dishonest way (in a working place, for example). The same word reentered Hebrew in the early 21st century, /proˈtek.ʃen/, bearing the meaning of payment to mafia members to guarantee their contentment and keep oneself from being harmed (Cohen 2008).

Motivations for borrowing are mainly linguistic gaps in the native linguistic inventory, or the sociolinguistic preference of one language over another, especially where there is a high degree of contact between languages (Matras 2009). The use of borrowed words may be manipulated in speech (preferring the foreign term over the native one) in order to demonstrate sophistication, to leave a memorable impression, or to express a certain tendency (Mesthrie, Swann, Deumert and Leap 2000). For instance, the use of the English /inˈfek.t͡sja/ as opposed to the Hebrew 'זיהום' "*infection*" (/ziˈhum/), might be preferred in a small-scaled instance, reserving the native word for cases which

implicate severity. This linguistic behavior could be the effects of a trend which should one day pass, as many other language behaviors preceding it. Or, it could be that the incorporation of foreign words would indeed increase and become a characterizing trait of Israeli, as is the case of English which has more borrowed words than original (Old English) ones (Fisherman 1986).

5. Lexicography

Traditionally, it is claimed that the Biblical corpus makes the nucleus of the Modern Israeli's lexical inventory (Ben-Ami Zarfati 2001), from which assertion grew the lingual ethos of the national Zionist revival movement "Hebrew, speak Hebrew"[25]. Therefore, until the founding of the State of Israel modern dictionaries did not include entries that were sensed by the native speaker as foreign ones, with the hope that a Hebrew (or rather, Israeli) substitute would be found (or created) to make up for their absence (Nevo & Ullstein 2008).

Still, the theoretical framework that allows for the question of which entries should be included in a specific dictionary remains, regardless of the political or social status which characterizes a certain nation at a certain time in history. Slang and colloquial speech, for instance, which are at times not only difficult to discern from one another, are also used differently by different speakers in different settings, and it is not always clear which of the vast variety they encompass should be entered into the dictionary, and which type of dictionary it should be that would include them (Nevo & Ullstein 2008).

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[25] "עברי, דבר עברית"; Hebrew [person], speak [the] Hebrew [language].

There are two approaches by which to compile a dictionary: the descriptive and the prescriptive (excluding bilingual dictionaries)[26]. A descriptive dictionary aims to document all the existing words of a certain culture at a specific time in order to serve the literary needs of the members of that society (especially the comprehension of texts). However, most dictionaries are prescriptive ones, aiming to guide readers in their writing, making note of an entry's linguistic function and pronunciation, and at times also how to best utilize it in different contexts. It is often a fine line between a dictionary and an encyclopedia: an indication about the level of register, sociolinguistic information, and other data about a lexical entry are just a few examples of the extra-semantic data that may be added to a given entry (Nevo & Ullstein 2008).

Israeli dictionaries have undergone a dramatic change some thirty years ago, transforming from a prescriptive to a descriptive nature, and including slang and foreign (or rather, international, often colloquial) entries that strive to portray the face of Israeli society as it contemporarily is. At the same time, archaic words are extracted from dictionaries' inventories. In effect, this means that the appearance of an entry not only makes known its grammatical function, but also its degree of use in daily speech and in writing, as well as its sociolinguistic setting and pragmatic use (Nevo & Ullstein 2008).

When accounting for linguistic richness, it is often the case that single words appearing in the dictionary are counted and compared (between languages or between different periods, etc.). However, it is rather the combination of words that expresses language variety. Unlike compound words which are possible in e.g. Germanic languages, in Semitic languages contiguity is used to tie separate words together into a single syntactic unit, making them a *bound expression* (Bahat, Yanai & Yosef 1991).

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[26] E.g., Nevo & Ullstein 2008

These bound expressions do not often appear in dictionaries, and are therefore unaccounted for, despite their possible high frequency and uniqueness in expressing a certain concept (thereby, making them irreplaceable). Examples of such bound expressions are 'בדרך כלל' "*usually*" (/beˈde.rex klal/) and 'אף על פי' "*even though*" (/ʔaf ʔal pi/), which do not have single-worded synonyms, rather serve as the only alternative to denote their meanings.

A problem that might occur in any written language is that of contradictions between dictionaries of different series, periods, or even between different editions of the same publisher. The compiler of a dictionary examines tens of thousands of entries; therefore, the probability of having mistakes is increased (in comparison to the compiler of a smaller collection pertaining to a specific field).

The state of Israeli lexicography is regretfully poor. The only dictionary that pretends to address historic outlooks is that of Ben-Yehuda, parts of which dating back more than a century (Zuckermann 2008). There is not a single historic dictionary that aims to account for the metamorphosis and accumulation of lexical items of Israeli throughout its different periods (Stahl 1999), let alone answer to serious etymological questions (Zuckermann 2008).

According to Stern 1981 the lexicographic relation between the four sets of Hebrew (as they appear in section §2.1 above) is 22% Classical Hebrew, 22% Talmudic Hebrew, 16% Medieval Hebrew and 40% Modern Israeli. However, the authors do not mention how they treated words that appeared in various sets of Hebrew, bearing a different meaning in each period of time, or how they treated words that were drawn from

ancient sources and adjusted to fit the modern language (either in their construction, pronunciation, or in their meaning and usage).

In addition to all the problematic issues raised above, one should also consider the tight relation between academics and political and ideological debates (Kuzar 2001); it could be that there is a tendentious approach in presenting data so that it would portray an image which is expected or appreciated by the Israeli public, and justifies the claims to a certain historic heritage.

Therefore, I believe the question remains unanswered, if indeed Modern Israeli should be regarded as the descendent of Biblical Hebrew, or if it is a new and hybrid language which draws from various sources, and not especially from classical Hebrew (as argued in Zuckermann 2008). In light of the doubt raised, I offer a new angle by which to appraise the etymological connection of Israeli with its preceding sets of Hebrew and the 2,100 years that separate them, in addition to the possible impact of other foreign languages.

6. Previous studies

There are three available research studies that have been concerned with similar notions as those presented in the current essay. The first, Shlesinger 2000, discusses the relevance of using newspapers in linguistic research, and analyses the linguistic style according to the different sections appearing in the newspaper, making note of grammar, lexical density, styling, and more. The second, Sivan 1976, is concerned with the etymological question of the origins of modern Israeli – the relation between the different sources and their degree of influence, by examining the corpus of words appearing in the

Israeli Declaration of Independence. Sivan utilizes a unique system of word-level analysis by which he categorizes the affiliation of items to the four sets of Hebrew (according to the quadruple division). The third study, Ben-Ami Zarfati 1997, follows Sivan's system of analysis, but chooses to focus on journalistic texts, thereby constituting a sort of combination of the two former approaches.

6.1   Shlesinger (2000)

In Shlesinger (2000) the author chose texts from the two most common Israeli newspapers, *Yediot Ahronot* ('ידיעות אחרונות') and *Ma'ariv* ('מעריב') and examined texts taken from different sections of the newspapers. The differences between sections were measured by linguistic style, syntax, register, lexical density and number of tokens, and more, in accordance with a previously done study (by Nir 1984). Comparing the results obtained in both the 2000 and the 1984 studies enables the noting of the changes which have occurred in the Israeli language in recent times, as well as reveal universal trends characterizing linguistic behavior apparent in the journalistic genre. Although the study does not cover etymological notions, it is nonetheless significant to the current one, as it discusses the importance of texts of the journalistic genre in connection with linguistic research: the newspaper provides an "interim language" – not literary and not spoken; written by scholars but meant for laymen. Therefore, the language used in journalism may be argued to represent the unmarked language which is read and understood by (nearly) all sections and levels of Israeli society.

It is therefore why I chose to focus the current study on texts drawn from this very same genre, as they would most accurately portray a language which is uniform and shared by (nearly) all members of Israeli society, representing elements of old and traditional, together with new and trendy language properties, which are of great interest to the linguistic community (in general, as well as particularly in Israel).

6.2   Sivan 1976

In Sivan 1976 the author addressed the same question as the one which is at the heart of the current essay, namely – to what degree did each of the four periods in the history of the Hebrew language contribute to the modern Israeli language. In his study he chose to use the Declaration of Independence[27] as corpus and analyzed each of its 689 words. According to the method proposed by Sivan, bound expressions were segmented to their basic elements, and each morpheme was analyzed independently. Also, each lexical item was analyzed according to three criteria:

  - Root: the basic three, or sometimes four, consonants which form the stem in
    Semitic languages (meaning bearing unit);

  - Pattern: phonological form to which the root combines to note its vowels;
and

  - Meaning: first appearance of the word, in one of the four discussed periods,
    and its original semantic content in that appearance.

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[27] Issued on May 14th, 1948. Available in Hebrew here, or in English here

In his results, Sivan reported the following distribution: 76% Biblical Hebrew; 15.5% Talmudic Hebrew; 4% Medieval Hebrew; and 13.5% Israeli Hebrew. However, in my opinion these results do not truly reflect the nature of the distribution of these four sources, for the following reasons:

1) The study draws from a text which is over 60 years old. It is true that languages always grow and change and one should expect different results when studies are repeated across different times. However, sixty years ago was a very specific time in the history of the Hebrew language: a time when language use was being dictated and carefully planned by institutional bodies, with the intention of creating a certain linguistic theme. Also, the text was phrased by a committee made up of scholars, lawyers and diplomats, and represents a formal text in its highest degree, not spoken language as it is expressed by commoners. Furthermore, persons who contributed to the writing of the text were not L1 speakers of Hebrew[28].

2) The triple division of root, pattern and meaning does not necessarily represent the full history of all words studied. Special attention was given to the meaning attributed to a certain lexical item in the place where it first appeared, and it was not followed through the sources to track down changes in meaning, to denote its proper use at present. Therefore, it is reasonable to assume that the 13.5% of the corpus which is categorized as

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[28] A biography of the signatories is available [here](#)

representing new words that did not appear prior to the revival of Hebrew should in fact be a greater percentage.

3) I believe that the segmentation of bound expressions misses the purpose of the analysis, as it does not allow these new formations to be addressed, as by inspecting their individual morphemes they are in fact removed from the corpus. Bound expressions constitute a unique property of Israeli and they provide new lexical variety (Bahat, Yanai & Yosef 1991), which should be analyzed according to the limitation it sets (namely, the incongruity with the four classical sets of division, rather the forming of a new set (or sets) that draw from several sources to make a new entry). Also, this property of the methodology further increases the inventory of the ancient (mainly Biblical) period and takes from the new (mainly Israeli) in the results' statistics.

I also wish to raise the concern that Sivan might have expressed an attitude too strict with all that is to do with sorting the corpus according to the quadruple division. The assigning of a certain word to a single linguistic period, despite its known appearance in sources pertaining to other periods as well, under different contexts, might bring about the distortion of the results. I feel that special attention is in place when faced with words that are ancient and persistently appear throughout the generations in multiple uses and meanings.

However, Sivan's sorting of the corpus according to the three levels introduced above (namely, root, pattern and meaning) constituted a firm ground for further research.

6.3   Ben-Ami Zarfati 1997

In Ben-Ami Zarfati 1997 the author utilized Sivan's system of categorizing each word in accordance with the three levels of root, pattern and meaning. However, he further elaborated the system by presenting each word three times: once for every level. This way, a word which has, for instance, a Biblical root inserted into an Israeli pattern and given a new Israeli meaning, is categorized differently for each of the three levels, once as pertaining to the Biblical set and twice as pertaining to the Israeli set (Shlesinger 2000).

Differently from Sivan (1976), Ben-Ami Zarfati chose to analyze contemporary texts retrieved from *Ma'ariv* newspaper, one of the two most common daily newspapers in Israel, representing a modern inventory of lexical items (unlike the somewhat archaic one appearing in Sivan 1976). Also, in his study, Ben-Ami Zarfati included spoken texts that were documented in 1963 (a total of 95 lines). In both types of texts, the written and the spoken, results showed that the majority of words used contemporarily are drawn from the classic Hebrew which dates back to the times of the Bible (10th-1st centuries BC).

One property of the research, in my eyes, constitutes a major flaw in the study: the author's source of reference. In his sorting of the corpus, Ben-Ami Zarfati assigned the lexical items to the sets of different periods according to information

appearing in the Even-Shoshan dictionary, and did not personally pursue the history of each word. It is indeed a very difficult task to try and verify the emergence of each entry of a given set; at times it might even prove impossible to cover all words in a corpus. However, Even-Shoshan is not an etymological dictionary, and during my own research is has proven to be quite insufficient and inaccurate (as was also noted in Zuckermann 2008).

Also, the author notes his reservations of the quadruple division of the periods in the history of Hebrew. Ben-Ami Zarfati raises the concern that categorization cannot be accurately defined, and therefore the results reported are compromised. However, the task of pinpointing the exact boundary between linguistic periods the documentation of which is scattered across three continents is quite an impossible one. In addition, the same difficulty exists in all studies that wish to address the linguistic differences in the history of the Hebrew language. Therefore, I wish to overlook this matter.

In his concluding remarks the author admits that gaining insights about the various sources of Israeli was not the object of his study, rather only a byproduct of it. In fact, in his study Ben-Ami Zarfati wished to test his approach elaborating Sivan's proposal, and offer a new angle by which to conduct future etymological research.

Indeed, to date, Ben-Ami Zarfati's research constitutes the most in-depth and comprehensive approach to an etymological study of Israeli, and certainly provides a detailed method by which to inspect the different properties which

make up a given word, tying it with its various sources of influence which have shaped it to its present form.

There do exist other research studies that have also tried to account for the distribution and effects of the four periods of Hebrew on Israeli. For example, the one reported in Stern (1981) found that the lexicographic relation between the different sets is 22% Classical Hebrew, 22% Talmudic Hebrew, 16% Medieval Hebrew and 40% Modern Israeli. Also, when relating to the distribution apparent in different texts, the study reports 65% Classical Hebrew, 16% Talmudic Hebrew, 5% Medieval Hebrew and only 14% Modern Israeli.

However, as the study appearing in Stern (1981) does not describe the method which was used in order to reach its reported conclusions, it is not possible to repeat it. An exact account of the kinds of corpora inspected, the etymological sources which were used in categorizing each entry, as well as caring for words that have existed since ancient times and undergone changes throughout the generations, is vital in a research of this nature.

It seems that although the above presented research studies show a similar tendency (claiming that the biggest influence of Israeli comes from Biblical and Talmudic Hebrew), their exact distribution varies quite a lot, and their methodology is distinctly different. Having no access to the corpora analyzed, it is very difficult to predict if similar words had appeared throughout these studies (in which case the differences in results require explaining) or rather texts containing a completely different lexical inventory (in which case the random distribution serves to illustrate the great

degree of variety of influences to which Israeli is subjected, and should be averaged in order to provide more meaningful results).

Also, none of the above surveyed studies offers an account for the influence of foreign languages. It seems that these studies exclude the importance of Yiddish, German, French, Russian, English, and many other languages which are believed to have affected Israeli, in modern times as well as earlier. Though Ben-Ami Zarfati (1997) does account for the multiple affect to which a single lexical item might be subjected (presenting his results in three different sets), the data obtained is not calibrated to show further studying of the type of influence which could characterize each period, the type of words which are more prone to changes, the historic continuity in which a single word serves to denote different concepts, and the relation between them, and other such interesting angles which could be looked into in his material.

Hence, this study will inspect a corpus drawn from a common and contemporary newspaper, according to the acceptable quadruple division. Differently from previously done studies, each word would be inspected carefully to show its metamorphosis throughout its history, and those would be presented to show the different stages in the word's existence, giving rise to fourteen sets of possible categories and their distribution in affecting and making the Israeli language.

7. Methodology

As discussed in section §6 above, the methods and texts utilized in previous studies are diverse, and results showed an inconsistency when compared (e.g., a discrepancy of 44% in the degree attributed to the distribution of Biblical words, and 26% in the Israeli words). Also, the inclusion of tokens into the statistics is not uniform and offered no insight when weighed against the diverse data of etymological distribution. Therefore, the current study suggests the use of a random issue in a common newspaper, and will account for both etymological distribution and repetitions of tokens.

A newspaper was chosen to serve as a database for corpus for its linguistic characteristics and register. The language used in daily journalism is an unmarked and neutral language, owing to elements which are present in both spoken speech as well as written texts, creating a unique merge of the two. Therefore, there is an extreme likelihood that all members of society either understand or incorporate this language themselves; unlike books, or other forms of written and spoken texts, which can be categorized according to genre, jargons, periods in time, geographical whereabouts, idiolect, and more[29].

Of the huge variety of available newspapers, *Ma'ariv* was chosen, as it is one of the two most popular daily newspapers in Israel, aiming to reach readers from all sectors of society, unlike, for instance, *Yated-Ne'eman* ('יתד-נאמן'), which is meant for the religious population, or *LaIsha* ('לאשה') which is meant for women, etc. Also, its high availability made it extremely accessible, and a random issue was picked (from January 1st, 2012).

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[29] Note that the Israeli society cannot be attributed with dialectal variance in the common geographical sense (Fruchtman 1989), and it had been reported to be "remarkably uniform" (Hoffman 2004). Therefore, no dialectal differences are assumed.

Of the extensive scope of lexical items available in a single issue of a newspaper, a certain screening was necessary. Therefore, a single segment of the newspaper called "*Journal*" was picked, discussing current events of, mainly, the social scene of Israel. In the chosen segment the themes discussed were of new enterprises and businesses, renovation, films, plays, and other leisure activities, as well as reportage of celebrities and gossip, in Israel and outside of it. A total of eight pages were surveyed (including front and back cover), and then further screened to exclude advertisements, which represent a distinctly different language variety, often flouting language conventions and having a tendentious character.

A scanned copy of the chosen segment appears in appendix III below.

Of the remaining database, further screening was carried out in order to focus on one lexical category, which was made out to be nouns. Although nouns, like all Semitic words, are based on roots, their relatively more "stable" character makes them easier to track and categorize; unlike verbs, for instance, which are the consequence of rich morphology and conjugations. Additionally, verbs and adjectives are subjected to many changes and developments in their forms (e.g., metathesis in the stem consonants in certain constructions, and more), which might eventually deflect the focus of the study from etymology to structuralism. This, coupled with the nature of lexicography which favors the documentation of nouns, led to the choosing of nouns as the focus of the current study, in determining the etymological distribution of contemporary Israeli.

Originally, it was my intention to compile the corpus of nouns, and then look them up in an etymological dictionary, fitting each entry to a designated group according to its origin. Then, I thought, the task of sorting out the different groups would yield a

neat statistical reading that would reveal the degree to which each period in the history of Hebrew has influenced today's Israeli.

However, it had become clear that there does not exist such a thing as an "etymological dictionary of Hebrew", rather various compilations pertaining to different domains (e.g., physics, food, seamanship, etc.), which offer some sort of historical survey. These compilations are scattered across numerous libraries in the campuses of six universities, as well as other, independent, facilities, and are catalogued according to different methods, which makes them virtually unobtainable. For instance, in searching for the etymological origin of a word such as 'frame', should one examine a compilation of "household items", "woodwork", "photography", "institutions and education", etc.? In practice, the task of locating all entries of the corpus was laborious and slow, relying on numerous booklets of etymological orientation (though not strictly etymological), dictionaries from many different sources and publication dates, testimonies of native speakers of various languages, as well as common sense.

In some instances contradictions between sources were discovered, such as for the word 'טיפוס', "*type*" (/ˈtipus/): according to Jastrow (1972) this entry originally comes from Greek, through the Talmud; according to Ben-Ami Zarfati (1997) it comes from German; and according to Even-Shoshan (1984) it is an original renewed Israeli lexical item. In cases such as this I made a choice, based on either support from an additional source, or plain common sense, while keeping the other possible etymological variant noted in the corpus, marked in orange. The orange routes were excluded from further analysis.

Etymological roots that go back to earlier (already dead) languages, such as Latin or Ancient Greek, are also mentioned in the corpus as providing the origin of an entry. However, since it is not likely that Israeli should have borrowed directly from these languages (as they did not exist in the same period), rather from an intermediate language (such as in the case of 'בסיס' "*base*" (/baˈsis/), claimed to have originated from Greek), the original donor language was marked in blue, and was excluded from further analysis.

In some instances no suggested etymological account was offered for a certain entry. For example, 'מפלס' "*level*" (/mifˈlas/) yielded no suggested origin in the dictionaries and compilations inspected. With no intuition or another logical solution, no etymological origin was assigned, and the entry was marked in yellow. All yellow blanks were grouped together in the category "other".

In entries when the etymological source was believed to be known (through common knowledge or common sense), but no reference was found in order to certify that suspicion, the suspected origin was nonetheless assigned. For instance, 'אר אנד בי' "*R&B*" (/ʔar en bi/) must have entered Israeli through English, though the term is too recent to appear in dictionaries and certify that assumption. Such cases were marked in purple, and were labeled in accordance with their suspected etymological source, added with the label "default". In the statistical analysis only the suspected origin was taken into account, regardless if there had been a source to certify its validity.

Some entries yielded a combination of two sources; an international phrase with an Israeli lexis. For instance, 'סוף שבוע' "*weekend*" (/sof ʃaˈvuʔa/) is a calque, translated into Hebrew from European languages. Since not one source could be argued to rise above the other (the phrase might not have entered in its original donor language; the

Israeli phrase might not have existed without the foreign inspiration) no differentiation between the two was attempted. Rather, these instances were marked in pink, and labeled "other".

Of the foreign languages that were found to influence Israeli, disregarding the three preceding periods of Hebrew (classical, Talmudic and Medieval), were Latin, Greek, Aramaic, Turkish, Arabic, Berber, Iraqi, Russian, Czech, Yiddish, German, French, Spanish, Italian and English. Although the corpus does hold record of the specific language which was found to constitute the etymological source of a specific entry (e.g., "German"), in cases where only one or two languages were noted as the donor languages, the entry was labeled "foreign", as the specificities do not pose a great value to the end statistical analysis.

According to Zuckermann's view (2008), an entry which has etymological roots pertaining to Yiddish, Polish, Russian, French, German and English, should be considered international in regards to the Israeli lexis. However, in the case of the current study, I did not wish to maintain the strictness of this assertion, as some entries were found to have "only" three or four of these donors, which led to a confusing and inefficient categorization. Therefore, entries which had at least three of the six mentioned origins were treated as international, and were labeled "international".

Although it is known that not all lexical items appearing in the Bible are native Hebrew words, an etymological study that offers to research sources even earlier than the biblical ones is, unfortunately, beyond the scope of this essay. Therefore, if an entry from the discussed corpus was found to appear in the Bible it was labeled as a native Hebrew word. Relating to the Bible as a purely Hebrew source means that it is the earliest one

that is to be consulted. Hence, when looking for the etymological origins of the entries of my corpus, I first consulted a Bible concordance (Avneyon 2003). After the first screening, I turned to a concordance of the second period in the history of Hebrew, a Talmudic one (Jastrow 1972). After these two initial screenings, entries that were yet attributed an origin had to be researched separately. The third period in the history of Hebrew, that of the Middle Ages, is documented in tens of thousands of books, essays, poems, notes and other written sources that are scattered in libraries, museums and archives throughout Israel and other countries. Therefore, I turned to the various compilations and dictionaries I was able to get hold of, and carefully read them in search of the nouns appearing in my corpus. As a last resort, if no other book proved useful, I turned to Even-Shoshan (1984) and Sapir (1997) dictionaries, that at times did reveal the etymological source of certain entries. However, they have also shown contradictions between them, as well as inconsistencies with other material which was already accounted for and certified by other, more specialized sources. Therefore, they were only utilized as a last resort.

Once the sorting and labeling of the corpus had been completed, entries were categorized according to the following groups:

I) <u>Hebrew</u>: words that appear in the Bible for the first time, and have maintained their original meaning;

II) <u>Talmud</u>: words that appear in the Talmud for the first time, and have maintained their original meaning;

III) <u>Middle Ages</u>: words that appear in the Middle Ages for the first time, and have maintained their original meaning;

IV)   Israeli: new or renewed words that have been created in modern times;

V)   Hebrew → Talmud: words that appear in the Bible for the first time, and have changed their meaning in the time of the Talmud;

VI)   Hebrew → Middle Ages: words that appear in the Bible for the first time, and have changed their meaning in the time of the Middle Ages;

VII)   Hebrew → Talmud → Israeli: words that appear in the Bible for the first time, and have changed their meaning in the time of the Talmud, and later changed their meaning again in modern times;

VIII)   Hebrew → Middle Ages → Israeli: words that appear in the Bible for the first time, and have changed their meaning in the time of the Middle Ages, and later changed their meaning again in modern times;

IX)   Hebrew → Israeli: words that appear in the Bible for the first time, and have changed their meaning in modern times;

X)   Talmud → Israeli: words that appear in the Talmud for the first time, and have changed their meaning in modern times;

XI)   Middle Ages → Israeli: words that appear in the Middle Ages for the first time, and have changed their meaning in modern times;

XII)   Foreign: words that entered Israeli from one or two of the following foreign languages: Turkish, Arabic, Berber, Iraqi, Russian, Czech, Yiddish, German, French, Spanish, Italian or English.

XIII)   International: words that entered Israeli from at least three of the following languages: Yiddish, Polish, Russian, French, German and English;

XIV)   <u>Other</u>: words that have entered Israeli via other routes (i.e., combination of

two sources, or an unknown source).

The screened and catalogued corpus appears in appendix IV below.

8.   Results

8.1   Noun-types

Results of the analysis were organized according to the fourteen groups introduced above, as well as alphabetical order. The alphabetical order is not of any significance to the analysis, rather serves to facilitate the observance of the chart. For example, it makes clear that of the 617 nouns of the corpus, 201 are categorized as having Hebrew etymological roots; of those, four begin in the letter /ז/ (the 7th letter of the alphabet). Also, this presentation of the data makes it possible to locate mistakes and correct them without having to recount an entire set (e.g., the whole of items originating in the Middle Ages), as well as to locate entries in the corpus quickly and with ease. The full chart appears below in appendix I.

The most interesting data shown by the results is that the biggest of the fourteen categories assigned (33%) is that of native Hebrew nouns originating in the Bible. The second largest group (19%) is that of Talmudic words; whereas new and renewed words of Israeli make the third largest group (15%); followed by nouns which have entered from various different languages ('foreign') (8%).

Diagram 8.1 – relative distribution of noun-types

Distribution of noun-types

Legend:
- Hebrew
- Talmud
- Middle ages
- Israeli
- Hebrew --> talmud
- Hebrew --> Middle ages
- Hebrew --> Talmud --> Israeli
- Hebrew --> Middle ages --> Israeli
- Hebrew --> Israeli
- Talmud --> Israeli
- Middle ages --> Israeli
- International (3)
- Foreign
- Other

Chart labels:
- Other, 20
- Foreign, 53
- International (3), 44
- Middle ages --> Israeli, 8
- Talmud --> Israeli, 12
- Hebrew --> Israeli, 30
- Hebrew --> Middle ages --> Israeli, 2
- Hebrew --> Talmud --> Israeli, 2
- Hebrew --> Middle ages, 3
- Hebrew --> talmud, 10
- Israeli, 94
- Middle ages, 22
- Talmud, 116
- Hebrew, 201

As can be seen in diagram 8.1 above, the size of the Biblical origin set is almost of the same size as the Talmudic and Israeli groups put together, or as all other groups combined; meaning, it is unmistakably the largest and most prominent group of all sets of noun-types which are claimed to have influenced the Israeli language.

8.2   Noun-tokens

The second chart, presenting the repetition of noun-tokens, was organized in the same fashion, having the fourteen sets and the letters of the alphabet. This too facilitates the observance of the chart, and enables the quick spotting of tokens' distribution and locating within the corpus. The full chart appears in appendix II below.

The most interesting data shown by the results is that also with the distribution of noun-tokens, the group of items originating from the Bible constitutes the largest of the sets assigned (46%). The second largest group is that of items of Israeli (18%); followed

by that of Talmudic items (12%). An equal distribution is shown in noun-tokens pertaining to the following groups: 'foreign'; 'international'; 'Talmud → Israeli'; and 'Hebrew → Israeli', each constituting 4% of the total sum of noun-tokens.

Diagram 8.2 – Relative distribution of noun-tokens
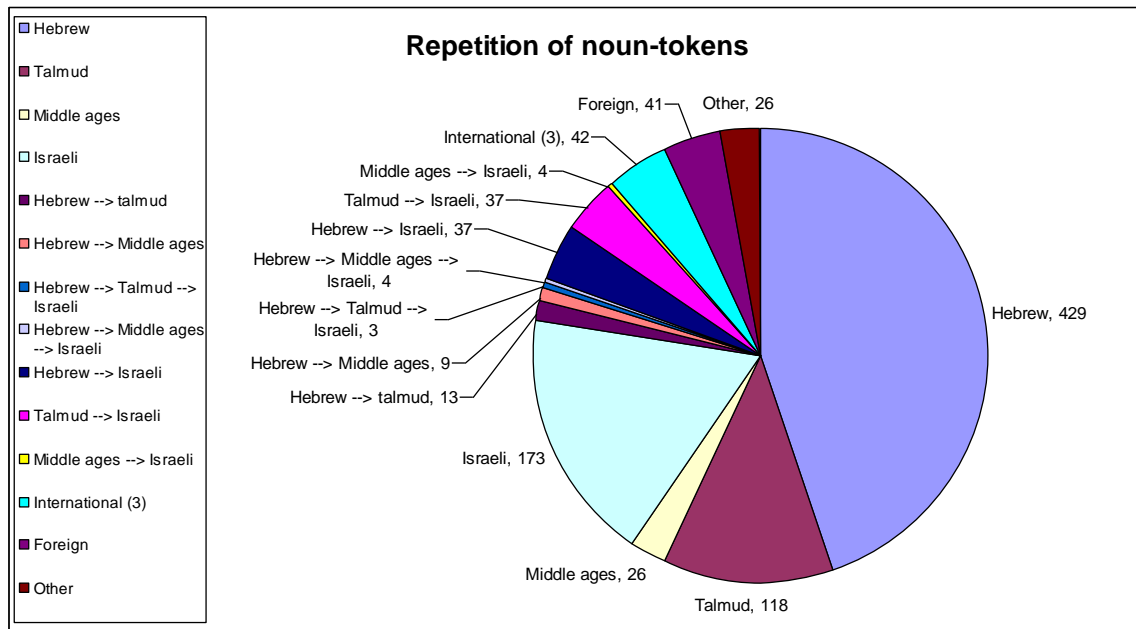
As can be seen in diagram 8.2 above, nearly half of the words used in practice are derived from the Biblical set, whereas less than half of that scope is shown in the Israeli set. That is to say, of the suggested fourteen sets of categories, most nouns appearing in the journalistic media are native, Biblical Hebrew words.

9. Discussion

In examining the degree to which each of the periods of the quadruple division is apparent in today's Israeli, results obtained could be analyzed in two parts: in relating to the etymological distribution of noun-types, and to that of noun-tokens.

Nouns-types

With the noun-types it was shown that 33% of the 617 word-corpus, making up the largest of the suggested fourteen sets, denotes words that originate in the Bible. These items are as ancient as thirty centuries and their perseverance may be attributed to the sanctifying of the texts from which they are drawn. The items categorized as native Hebrew words did not undergo changes in their meaning despite their possible use throughout generations of Biblical studies and of correspondence between communities (serving as *lingua franca*).

Nonetheless, the contribution of the Biblical corpus does not end there; the influence of Biblical words is apparent in five other sets examined, as a donor of words that change their meanings in adjusting to a later period in history. Therefore, a word existing in contemporary Israeli with the meaning X (for instance, 'כיס', "*pocket*" (/kis/), see Avneyon 1997) and which was drawn from the Talmud bearing the meaning Y ('*hood*', see Sabbath 147a), was in fact in the Bible with the meaning Z ('*money bag*', see Proverbs 1:14).

The same property might be noticed with Talmudic words, which make 19% of the corpus, and the second largest set; the Talmud too served as donor for later periods, thereby expanding its linguistic contribution to exceed its time. However, this contribution is smaller, surfacing only in 2% of the corpus as renewed words in Israeli (as well as one word from the Talmud to the Middle Ages, labeled as "other" due to its single appearance).

The third largest set, of 15%, is that of new Israeli words. Being the most recent set, it does not affect other periods in history. However, the effect of Israeli is apparent in

its borrowing: a total of over 15% pertains to words that have entered Israeli and appear therein in a unique form that cannot be found in any other language. This includes items from foreign and international words, as well as constructions that are the combination of foreign concepts or words that have been translated (calques) or otherwise altered to fit the contemporary linguistic system, in its morphology, phonology, syntax and semantics. Therefore, it could be summarized that ca. 30% of the corpus is made up words that do not appear in the written sources of the Jewish tradition (since earlier loans from Greek, Latin, etc. were not included in the analysis).

Of the sets that are subjected to multiple changes (e.g., 'Talmud → Middle Ages'), the largest is that of 'Hebrew → Israeli'. This datum might be accounted for by the nature of the endeavor to revive the Hebrew language, at work starting from the 19th century. The scholars who were active in the lingual scene preferred the language of the Bible to that of later periods, which to them symbolized a heritage from which they wished to separate.

The set labeled 'other' also shows an interesting internal distribution. Of its twenty entries, six were categorized as 'unknown', their etymological source not found within the framework of the current study, such as e.g., 'מפלס' "*level*" (/mifˈlas/) which was discusses in section §7 above. Of the remaining fourteen, four are the combination of Israeli with international influences, such as 'סוף שבוע' "*weekend*" (/sof ʃaˈvuʔa/) discusses in section §7 above. Other interesting routes are those of e.g., 'שפה' "*language*" (/saˈfa/) which changed its meaning within the framework of the Biblical texts; 'חניה' "*parking*" (/xanaˈja/) which changed its meaning within the framework of the Talmudic texts; 'גלריה' "*gallery*" (/gaˈlerja/) which originated in Hebrew, was borrowed into Latin

to gain a different meaning, and then borrowed into Israeli with the modern interpretation; or, another contribution to other languages may be observed in 'פרס' "*prize*" (/pras/), originating in the Talmud.

This aspect of multiple changes that have occurred in a given word until its meaning was set to what it is today, and its contribution to Israeli, was not discussed in previous studies and proposes a unique approach to the etymological research of the language. Also, the division of fourteen sets (as opposed to just four, which was employed in earlier studies) acknowledges the unique character of the language, which during its rich history underwent many changes which make difficult the defining of neat, fixed and consecutive sets of periods in history.

Noun-tokens

With the noun-tokens, which amount to 962 items, the largest set is also that of native Biblical words, making up 46% of the active vocabulary. The second largest set is that of new Israeli words, making up 18% of the noun-tokens, and the third largest set is that of Talmudic words, with 12% of noun-tokens noted.

It would require a further in-depth inspection in order to try and characterize the specific nature of the words that are frequently in use before any generalization could be made about their appearance (or rather, reappearance) in the corpus. Nonetheless, it could be assumed that the relative degree of noun-tokens gives a reasonable indication of their surfacing in practice, in daily life. The nature of the journalistic prose makes it likely that the distribution presented herein applies for day to day communication, in writing or in

speech. If that is indeed the case, Hebrew should be attributed a significant role in the characteristics of the Israeli language, occupying nearly half of the active vocabulary.

Another thing which could be said about the results obtained is that the relation between the distribution of noun-types and the distribution of noun-tokens is quite constant (illustrated in diagram 9a below); sets which show a low degree of contribution in one, exhibit a similar degree in the other. The three exceptions to that generalization are the sets of 'Hebrew', 'Israeli' and 'Talmud → Israeli', which show a much higher degree of noun-tokens in relation to that of the contribution of noun-types. With all other eleven sets, however, similar degrees of contribution and surfacing are maintained.
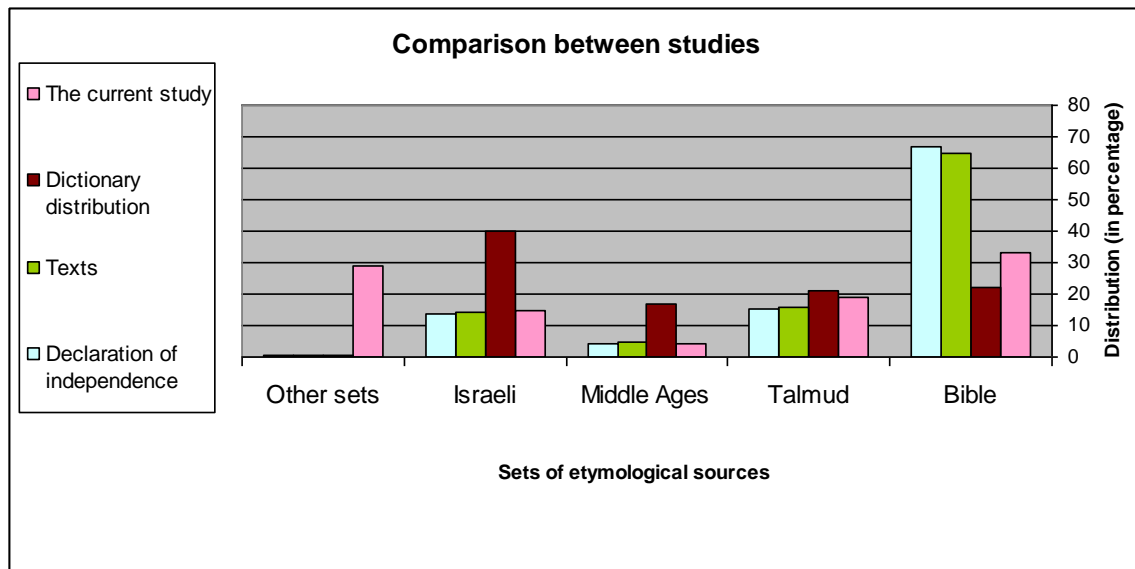
Diagram 9a: Relation between the etymological distribution of noun-types and active use of noun-tokens
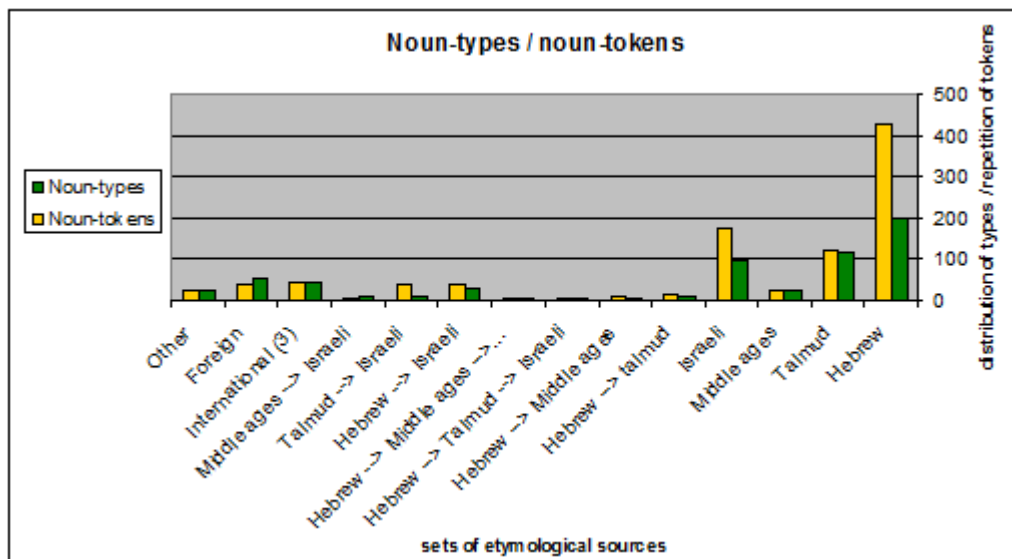
Lastly, another comparison is in order, between the results of the current study and those of the studies preceding it. As can be seen in diagram 9b below, four sets of data are subject for comparison: the current study, the studies appearing in Stern (1981)

concerning lexicographic relation, and concerning distribution in texts, and the etymological analysis of the Declaration of Independence carried out by Sivan (1976). The studies are compared in their reported etymological distribution (in percentage) of the various corpora inspected, according to their proposed sets.

Diagram 9b: Comparisons between studies

Comparison between studies

- The current study
- Dictionary distribution
- Texts
- Declaration of independence

Distribution (in percentage)

Sets of etymological sources: Other sets, Israeli, Middle Ages, Talmud, Bible

Major differences are shown primarily in the sets "Bible" and "Israeli" which denote the classical Hebrew and Modern Hebrew, respectively. It seems that according to Stern (1981) and Sivan (1976), the vast majority of the words appearing are derived from the Biblical texts[30]. According to Stern (1981), the biggest set of entries comes from Israeli, showing a lexical richness that could be dated as old as 120 years, complementing a relatively similar degree of words derived from the three older periods of the Hebrew language, which are reported to have contributed ca. 20% of the lexis each.

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[30] Note that the corpora compared with the current one do not focus solely on nouns, rather include words pertaining to all lexical categories.

However, an inconsistency is apparent when comparing the above mentioned with the results reported in the current study, as they do not offer any data that might pertain to other sets. All contribution to the contemporary lexis which has originated in either foreign languages, or has been renewed over the passing of time (in bearing a new meaning) is not acknowledged by previous studies. Also, none of the previous studies acknowledge not having found the source of certain lexical items. Despite these studies' report of using common dictionaries in their assigning of etymological origins, they do not relate to the dictionaries' lack of etymological information for all entries they encompass.

Therefore, when compared with the current study, it might be that the differences reported are made more extreme by the fact that other sets are not taken into consideration: "unknown origin" and "foreign languages" being the most obvious, as well as the sets which account for the change in meaning and usage (which should also be considered for verbs and other lexical categories which make an integral part of those studies).

Since none of the other articles presented related to the changing of meanings in ancient words, an inaccurate picture of the etymological distribution of the lingual inventory of Israeli is portrayed; allegedly Israeli uses Hebrew words, but in fact its lexis has been given new and different meanings (Zuckermann 2008). Therefore, the topic of comparing between the analyses done on spoken texts and on written texts[31] was not discussed at length, the corpora's categorization having been deemed insufficient, in addition to the studies' relying on common, non-etymological dictionaries. In trying to

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[31] Zarfati (1997), relating to an analysis of a 1963 spoken text of 95 lines, and Stern (1981), relating to an analysis of various texts (appearing in section §6.3 above).

bridge over the linguistic gap between spoken and written language use, the use of a newspaper as corpus was decided upon, supplying unmarked language which serves as a sort of a lingual consensus; the language appearing in daily newspapers appealing to all sectors of Israeli society (Schwarzwald 2003 and Stern 1981).

Another difference separating the current study from its predecessors is the fact that bound expressions were not broken to their elements. Common expressions such as 'בדרך כלל' "*usually*" (/beˈderex klal/), 'אף על פי' "*even though*" (/ʔaf ʔal pi/), and many more are made up of ancient (often Biblical) words. However, their conjoining together to form a bound expression, and the meaning it denotes, were not assigned until a later period in the history of the language. Therefore, breaking these expressions to their individual units (and their respective meanings) not only upsets the statistical analyses, but also does an injustice to the lexical richness offered by the language and to the historic periods which gave their contribution in forming these various expressions that are still in use (e.g., the Talmudic period, etc.).

A certain disadvantage exists in the current study, which is its limited 617 word-corpus, pertaining to nouns only. This corpus, its size and its focus in a single lexical category were constructed according to my own interests and analysis abilities. Naturally, having a bigger corpus (e.g., a complete issue of a newspaper, or several random segments, etc.) would yield more reliable results, and possibly more founded insights. Also, a coverage of a greater variety of lexical categories (e.g., verbs, adjective, affixes, etc.) might better reveal the specific type of influence on Israeli which each of the discussed periods in history contributed. However, such a task is unfortunately beyond the scope of this thesis, and would hopefully be completed at a later time.

Also, the randomness of the issue which was chosen to serve as corpus might play a role in the distribution of results. In order to validate the accuracy of the discussed results and their providing of a representative sample of Israeli the study must be reiterated with other random issues.

When comparing the results shown by the current study with the thesis raised by Zuckermann in his 2008 book, *Israeli, a Beautiful Language*, a somewhat contradicting notion arises: the author passionately advocated for the immense effect Yiddish has on Israeli, to the degree of affecting its affiliation to the branch of Semitic languages. However, upon close inspection of the donor languages exhibited in the etymological distribution, Yiddish does not seem to be at all prominent. In fact, only one instance is noted with Yiddish as a donor language, in the word 'חבר'ה' "*gang*, *crowd*" (/ˈxevre/). Otherwise, its contribution could be estimated at 9% at most, together with other donor languages (Polish, Russian, French, German and English) in the category 'international'.

At the same time, one must keep in mind that the whole of a language is not the sum of its words. Rather, other attributes, such as syntax, phonetics and phonology, morphology, and other meta-linguistic preferences (e.g., humor, directness, politeness, etc.) are to be studied and included in the analysis, to try and determine other foreign influences and their distribution. An extensive linguistic study must be one which incorporates genetic elements (lexis, morphology, etc.) as well as social elements (the history of a people, language policies, etc.).

It seems that today's population of contemporary Israel exhibits an inhibition from traditional Hebrew sources, in comparison to other nations which show a strong and stable tradition of nationality, and a passion for their heritage and its legacy (e.g., Spain,

France, Italy, etc.). Children's reluctance to study the Biblical narrative, and adults' excessive use of borrowed terms and codeswitching serve to illustrate the current state of affairs, and might provide a premonition for the future of the development of Israeli. Furthermore, it could be argued that recent demographical changes (i.e., vast immigration from the former USSR and Ethiopia) widen the gap between contemporary Israeli culture and its Hebrew sources (Nevo & Ullstein 2008).

However, a more positive approach accounting for the same observations might claim that the lenient character of contemporary Israeli is adjusted to the global nature of today's world, and that growing past the ancient Hebrew language does not necessarily mean abandoning its heritage, or defying the nation's origins.

A people's language is the manifestation of its nationality (Fruchtman 1989). Owing to the many significant differences between today's nationality and definition of the Jewish people, to that of ancient Biblical times some thirty centuries ago, it is only natural that the two languages spoken in each respective era should be essentially different; a language is the reflection of its society (Nevo & Ullstein 2008). Therefore, I feel that further in depth study should be carried out according to the criteria and sets introduced in the current thesis in order to validate the distribution of etymological contribution in Israeli. Also, a complementing study which would inspect the nature of entries categorized in each different set would further shed light on possible reasons for borrowing, changes in meaning, the formation of bound expressions, and many more intriguing linguistic properties of Israeli which make it unique, separating it from its ancestral origin.

10. Conclusion

In this paper the etymological distribution of nouns appearing in a random, recent segment of a common newspaper has been examined. The distribution was assigned according to fourteen suggested sets that pertain to different eras in the history of the Hebrew language and the relation between them, as well as effect of other, foreign languages.

The results obtained in the current research showed a distribution quite unlike that which was presented in earlier studies, due to the different categorization method suggested. The division employed offered to capture the unique character of the Hebrew language with its versified and rich history; the metamorphosis which characterizes many lexical items was presented, acknowledging the different sources which have influenced the meanings which are contemporarily denoted.

Also, lexicographic inventory and difficulties were presented; the lack of a Hebrew etymological dictionary changed the character of the proposed study to include the searching of historic references. Furthermore, it expressed the poor state of Israeli lexicography: existing compilations amounting to a chaotic array of limited scope, specialized, anonymous, and, at times, contradicting sources.

The historic survey provided accounted for the nature of the contemporary Hebrew language and the driving factors which shaped it. The aspiration to "renew ancient glory" coupled with matters of practicality and availability resulted in the birth of the Israeli language; a unique lingual hybrid that draws from various sources. This contrast between ideal and implementation characterizes the Israeli society since the beginning of its existence in the late 19th century in many linguistic aspects: the initial

rejection of Jewish tradition followed by the embracing of its sources; the Hebrew aspirations trapped in the revivers' Yiddish-imprinted language abilities, and its disguised integration in the *de facto* Israeli; the founding of the Hebrew Academy with the intention of nurturing the language, combined with its prescriptive and interfering approach; and the adopting of foreign items, concepts and grammars in a language which is passionately argued to reflect it ancestral roots.

These opposite attributes amounted to the raising of doubts regarding the continued affiliation of the Israeli language to the family of Semitic languages, as well as the relevance of its name, *Hebrew*, to the existing *de facto* Israeli language. Further in-depth research is needed in order to establish if the results obtained indeed provide a representative sample of the etymological distribution argued for, and the degree of relatedness to the Hebrew language spoken in earlier times.

Also, other aspects of the linguistic inventory should be included, as a language could not be claimed to be made up of merely singular words. Rather, syntax, morphology, phonetics and phonology, and other meta-linguistic attributes must be taken into consideration.

I hope that the division proposed in the current essay, of fourteen sets which capture the different stages of the development of the Hebrew language across thirty centuries, would be accepted as an extensive and detailed approach that would replace the common quadruple division, which I feel does not do justice to the etymological research studies of Hebrew, due to the language's unique character.

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Appendices

Appendix I – The distribution of nouns

Period / Letter	Heb	Talmud	Middle ages	Israeli	Heb -> Talmud	Heb -> Middle ages	Heb -> Talmud -> Israeli	Hebrew -> Middle ages -> Israeli	Heb -> Israeli	Talmud -> Israeli	Middle ages -> Israeli	Intl (3)	Intl (1)	Other	Total
א	22	10	1	7				1	1			7	3		52
ב	10	7	2	2					1			1	3	1	27
ג	9	5		2		1						3	2	3	25
ד	7	5										4	2		18
ה	4	7	8	15	1					1	1	4	2		41
ו		1											1		2
ז	4	3										1	1		9
ח	13	8	1	3	1	1			3	1				2	33
ט	3	4		2						2			6		17
י	8	4		3								1	1		17
כ	5	6		3	1		1		2						18
ל	1	3		2											6
מ	33	5	2	26					5	1		4	3	4	82
נ	5	6		2					1	1		2			17
ס	4	4	1	3	1					2		3	3	2	23
ע	14	7	1	8	1		1	1	4				1	1	34
פ	7	4	2	2	1				2		1		11	2	41
צ	7	2	1	1					2	3		6	2		16
ק	9	3	1		1				3	1		3	7		29
ר	10	13	1	2	2				1		1	3	4		27
ש	20	13		1					3		2	1	2	3	46
ת	6	9	1	13		1			4		1		2	2	37
	201	116	22	94	10	3	2	2	30	11	8	44	53	21	617

Appendix II – The distribution of tokens

Letter	Heb	Talmud	Middle ages	Israeli	Heb -> Talmud	Heb -> Middle ages	Heb -> Talmud -> Israeli	Hebrew -> Middle ages -> Israeli	Heb -> Israeli	Talmud -> Israeli	Middle ages -> Israeli	Intl (3)	Intl (1)	Other	Total
א	75	9		17				2	2			11	5		121
ב	28	2	6	2					2			3	3	2	48
ג	12	2												3	17
ד	14	18	9	14								14			46
ה	3	5								6				2	39
ו															0
ז	10														10
ח	27	6		2		2								2	39
ט	2	4	2										6		16
י	30	5		2								4	3		38
כ	2	10		2					3						19
ל	2														2
מ	78	5	4	97	6				8			2	2	7	203
נ		5		5					3			2			15
ס		10			2		2			29					41
ע	25	9	3	15			3	2	8			4	16		63
פ	7	3						2	2				5		34
צ	24	2	2							2		2			28
ק	15				3				2						29
ר	16	2			6						2				26
ש	48	18		4	2								4	5	81
ת	11	3		15		7		2	7		2		4	2	47
Total	429	118	26	173	13	9	3	4	37	37	4	42	44	23	962

Appendix III – Corpus

Corpus

Appendix IV – Distribution of the corpus

Distribution