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Publication Date
1986
Body Part terminology in Hebrew: A Study in Lexical Semantics

By

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A.B. (State University of New York at Stony Brook) 1972
M.A. (University of California) 1976
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DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Linguistics

in the

GRADUATE DIVISION

OF THE

UNIVERSITY OF CALIFORNIA, BERKELEY

Approved: 20 April 1986
Chairman

21 April 1986

23 April 1986

DOCTORAL DEGREE CONFERRED
DECEMBER 16, 1986
Body Part Terminology in Hebrew: A Study in Lexical Semantics

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Body Part Terminology in Hebrew: A Study in Lexical Semantics

Miriam Rachel Leah Petruck

ABSTRACT

The present work applies a FRAME SEMANTICS approach to the description of body part terminology in Modern Hebrew. In this approach the description of the meaning of a word relies on knowledge of what speakers know or believe about the entity, relation or process designated by the word. Adopting this approach allows word meaning to be characterized in terms of experience-based schematizations of the speaker's world. In this work, the description of Hebrew body-part terms is based on an experience-based schematization of the BODY FRAME, and a number of issues in lexical semantics are discussed in its terms, such as polysemy, metaphor, derivation, and the nature of lexical semantic structure.

The theoretical and descriptive frameworks of the present work are given in Chapter 1 along with a brief review of previous studies of body part terminology. Background information about Modern Hebrew needed for reading the present work is given in Chapter 2. The methodology employed for this study is described in Chapter 3.

An experience-based schematization of the BODY FRAME is offered in Chapters 4 and 5. The three categories into which the words in the body part domain can be divided are those of (1) the lay observer of the human figure as a visually perceived object; (2) the expert observer; and (3) the experiencer of body sensations. The words in each category are described and analyzed in terms of their morphology, etymology, and semantic structure. Comparisons with languages other than Hebrew are provided where appropriate. In Chapter 6 extended meanings of body part terms are discussed; metaphorical and morphologically derived nouns, adjectives, and verbs based on body part terms are also part of the BODY FRAME.
In Chapter 7 a summary of the findings is provided along with a discussion of the theoretical implications of this work. A FRAME-based organization of the lexicon is suggested and a number of topics for future research based on this suggestion are given.

Charles J. Fillmore
THIS WORK IS DEDICATED TO
MY LOVING GRANDMOTHER

AUGUSTA MAHLER PETRUCK
13 MARCH 1898 - 18 OCTOBER 1982

MAY HER MEMORY BE BLESSED
ALL I KNOW IS, RUNNING IS HARD ON THE BACK... BACKS SHOULD BE HOME IN BED...

HOW ABOUT NOSES? I HATE JOKES ABOUT RUNNING NOSES!

LIPS ARE MADE FOR KISSING, NOT RUNNING... WE NEED MORE KISSING...

I'M HUNGRY!

Ha! I knew the stomach would start complaining. Pretty soon we arms never complain.

THAT'S A LAUGH! IF IT ISN'T BURSITIS, IT'S TENNIS ELBOW! WE STILL SAY IT'S WE FEET WHO DO ALL THE WORK...

YOU THINK IT'S EASY BEING A FINGER?

HA! JUST TRY BEING AN ELBOW SOMETIME!

How can the long-distance runner ever get lonely?

WE EARS CAN HEAR YOU WAY UP HERE!

Besides, it's us legs who really do the running...

HOW ABOUT TOES? YOU THINK IT'S EASY BEING A TOE?

YOU GUYS ARE ALWAYS COMPLAINING...
Acknowledgments

There are many people who have helped in bringing this work to fruition. First and foremost, I must thank Chuck Fillmore who, as chairman of this dissertation, provided much encouragement and support. His generosity, patience, and understanding continue to inspire me. The influence of his ideas on my thinking about issues in lexical semantics is apparent throughout this work. I would also like to acknowledge the other members of my committee for their involvement. Jim Matisoff recognized the wonders of body part words long before I even noticed them. Chana Kronfeld joined the committee at the last minute under difficult circumstances. Her enthusiastic participation and native speaker insights illuminated many more aspects of the data than would have been apparent to me otherwise.

In general, the exciting and supportive intellectual environment of the Linguistics Department at Berkeley made the whole enterprise actually enjoyable. I am especially grateful to Robin Lakoff who believed I could really do it from the very beginning, Debbie Davison who listened to virtually every sentence as it was being composed, Eve Sweetser who provided workspace at critical moments as well as interesting discussions all the time, and Orin Gensler who came to the rescue in the eleventh hour.

Of course, none of this would have been possible without willing informants. I am thankful to those in Jerusalem who participated in the study even while wondering why anyone would go to so much trouble. In addition, I am indebted to Vardit Rispler and Rutie Adler for their time and good humor while patiently responding to all of my questions no matter how often I asked the same ones. The availability of Rutie Adler’s native speaker intuitions and linguistic insights via electronic mail from distant parts of the world made the final phase of this work much more bearable.
I am grateful to the University of California, Berkeley for its support of this work through a number of research grants including: (1) Institute of Human Learning Graduate Trainee Fellowship in 1978-79; (2) Grant-in-Aid from Dean William A. Shack of the Graduate Division in 1980; and (3) Humanities Graduate Research Grant in 1981. This work was also funded by a United States Department of Education Fulbright-Hays Doctoral Dissertation Research Abroad Fellowship in 1981-82.

Finally, I thank my parents, Marvin and Sarah Petruck, for instilling in me, at an early age, a passion for learning and a love for the Hebrew language.
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Abbreviations

The following abbreviations are used for references to the Bible, the Mishna, and the Talmud.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>Bekh.</td>
<td>Bekhorot</td>
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<tr>
<td>Eccl.</td>
<td>Ecclesiastes</td>
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<tr>
<td>Exod.</td>
<td>Exodus</td>
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<tr>
<td>Ezek.</td>
<td>Ezekiel</td>
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<tr>
<td>Gen.</td>
<td>Genesis</td>
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<td>Hos.</td>
<td>Hosea</td>
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<td>Hull.</td>
<td>Hullin</td>
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<td>Jer.</td>
<td>Jeremiah</td>
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<td>Job</td>
<td>Job</td>
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<td>Judg.</td>
<td>Judges</td>
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<td>Ket.</td>
<td>Ketubot</td>
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<td>2 Kings</td>
<td>2 Kings</td>
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<tr>
<td>Lev.</td>
<td>Leviticus</td>
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<tr>
<td>Men.</td>
<td>Menahot</td>
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<td>Mikv.</td>
<td>Mikvaot</td>
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<tr>
<td>Neg.</td>
<td>Nega'im</td>
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<td>Nid.</td>
<td>Nida</td>
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<td>Num.</td>
<td>Numbers</td>
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<td>Ohal.</td>
<td>Ohalot</td>
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<td>Prov.</td>
<td>Proverbs</td>
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<td>Ps.</td>
<td>Psalms</td>
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<tr>
<td>1 Sam.</td>
<td>1 Samuel</td>
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<tr>
<td>2 Sam.</td>
<td>2 Samuel</td>
</tr>
<tr>
<td>San.</td>
<td>Sanhedrin</td>
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<tr>
<td>Song of Sol.</td>
<td>Song of Solomon</td>
</tr>
<tr>
<td>Yer.</td>
<td>Yerushalmi (Jerusalem Talmud)</td>
</tr>
<tr>
<td>Yev.</td>
<td>Yevamot</td>
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<tr>
<td>Yom.</td>
<td>Yoma</td>
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</table>

The following abbreviations are also found in the text.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Dictionary</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHD</td>
<td>American Heritage Dictionary</td>
</tr>
<tr>
<td>OED</td>
<td>Oxford English Dictionary</td>
</tr>
<tr>
<td>W3</td>
<td>Webster's Third International Dictionary</td>
</tr>
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</table>
Chapter One: Introduction

In this chapter, I provide (1) the theoretical and descriptive frameworks for the present study and (2) a brief review of some of the previous studies of body part terminology and mention research on other domains which are relevant to this work.

1.1 Framework

Most descriptions and analyses of body part terminology done by linguists and/or anthropologists (Stark 1969, Liston 1972, McClure 1975) focus on the partonomic structure of the domain. In these studies most of the terms in the domain are seen as hierarchically arranged and related to each other by a network of partonomic ('part-of') relationships, with some few related to each other by taxonomic ('kind-of') relationships. For the most part these studies deal with names of external parts of the body, a subset of terms in the body part domain which lends itself to this sort of characterization. Other terms in the body part domain including names for internal parts (e.g. heart, pancreas), body fluids (e.g. blood, sweat), general terms (e.g. skin, organ) and configurations of the body (e.g. lap, fist) usually are not dealt with in an interesting way probably because they cannot be accounted for with this type of characterization.

This sort of approach fails to capture the semantic structure of the domain and arbitrarily delimits the terms to be studied. While linguists and anthropologists studying this domain have pointed out that there are many terms which belong in it but do not fit its partonomic structuring, none have proposed a way of dealing with these facts either in terms of characterizing the semantic structure of the domain or ensuring that all the relevant terms are included in such a structuring. The present study employs the concepts of 'frame' and 'prototype' (Fillmore 1975, 1978, etc.) to characterize the lexical semantic domain of body part terminology in Modern Hebrew. After specifying what is meant by the terms 'frame' and 'prototype', I will discuss the range of phenomena that
can be handled with this approach and will provide the motivation for adopting such an approach.

"The Frame idea is this. There are certain schemata or frameworks of concepts which link together as a system, which impose structure on some aspect of human experience, and which may contain elements which are simultaneously parts of other such frameworks" (Fillmore 1975:123). With the prototype idea, "...it is held that the understanding of meaning requires, at least in a great many cases, an appeal to an exemplar or prototype...." (Fillmore 1975:123). Using the Frame idea in the context of a discussion about the ways in which semantic information is organized in the lexicon of a language, Fillmore characterizes the 'frame' as "the most central and powerful" kind of semantic domain structure. "A 'frame' is a lexical set whose members index portions or aspects of the conceptual or actional whole. The items in a frame...are only understandable to someone who has (conceptual) access to the underlying schema onto which parts of the frame fit...Within the set of words linked together in a 'frame' can be found many that form paradigms, contrast sets, taxonomies, and the rest...."(1978:165). We note that Fillmore moves from using the term 'frame' as a type of conceptual structure to using it to refer to a section of the lexicon which 'indexes' such a conceptual structure.

In terms of the description of individual lexical items, frames allow and necessitate the incorporation of background information about the world and presume certain human cognitive processes and abilities, all of which contribute to the capacity to determine exactly what counts as a prototype. In terms of the characterization of semantic domain structures, frames permit a variety of semantic structures. The prototype idea fits here as well. While frames necessarily allow a variety of semantic domain structures, for some domains there may be a prototypical structure used for the domain's characterization or for the characterization of a subset of the domain.
The strength of the Frame and the usefulness of prototypes can be demonstrated with body part terminology. The set of lexical items included in the domain constitute the 'Body Frame'. Within the Body Frame there are elements that are simultaneously part of other frames; within the Body Frame there are words linked together to form different kinds of semantic structures. What are the other frames? Which lexical items are simultaneously part of more than one frame? What are the different semantic structures manifest in the 'Body Frame'? Which are the best examples of each of these? In order to answer these questions, it is necessary to discuss the way in which the data included in the current study are organized and presented.

Biology and anatomy textbooks and reference works typically discuss the parts of the human body in terms of the body's various functional systems (circulatory, respiratory, nervous, etc.) This sort of organization is certainly appropriate to works whose purpose is to describe and discuss the functions and functioning of these parts and systems. Such an organization might also be appropriate for a presentation of the scientific terminology for human anatomy given the motivations for using that terminology. It is not suitable, however, for a presentation of the folk terminology of the human body.

A study of the folk system of body part terminology is a study of a particular terminological system—i.e. a certain group of words, their forms, meanings, connotations, and usages, as well as their morphological and semantic inter-relationships. It must not be seen as a study of the anatomical systems themselves, though there is an obvious relevance of knowledge about such systems to systems of terminology that deal with them. A presentation of the folk system of body part terminology ought to reflect the fact that the data constitute a set of words used by people in the normal course of their everyday lives when referring to a familiar entity in their world.

The referential domain for the words in the lexical semantic domain of body part
terminology is the human body with all of its many interconnecting parts. Any discussion of this domain needs to be anchored in the human body itself. One way of anchoring the data in the human body is to consider the different ways in which the human body may be experienced. Each different mode of experiencing the body allows or necessitates the use of a somewhat different subset of terms in the domain. Presentation of the data with reference to these modes pays tribute to the idea that frames "impose structure on some aspect of human experience" and places the discussion of the data in the speaker's world.

The words in the lexical semantic domain of body part terminology can be divided into three categories, each corresponding to a mode of experiencing the body. The three categories are those of: (1) the lay observer of the human figure as a visually perceived object; (2) the expert observer; and (3) the experiencer of body sensations. The three perspectives within which human understanding of the body is organized (and within which terminologies expressing these understandings are anchored) may be called "external", "internal", and "personal". The "external" and "internal" perspectives are a function of observation; the "personal" perspective is a function of sensation.

Lay observers of the human figure include people who under normal circumstances view the external body, their own or someone else's. Experiencers of body sensations include people who in a variety of circumstances (e.g. pain, excitement) experience their own bodies by way of feeling the body's actions and activity. Lay observers of the human figure are also experiencers of body sensations and vice versa. In short, lay observers of the human figure and experiencers of body sensations are average people. Expert observers include those people with technical expertise of the body. Thus, sports enthusiasts, (high school) biology students, (butchers, cooks), anatomists, physiologists, (veterinarians) and physicians are all expert observers because they have the specialist's knowledge of what they see and are trained to observe the body in ways unfamiliar to the
lay person. And of course much of the information possessed by expert observers has become a part of everyday knowledge.

The distinctions being made here can be exemplified. The teacher of an exercise class has technical expertise about the muscles in the body and might say *Tighten your gluteals* in reference to a particular set of muscles in the hip and thigh region. On some other occasion the same teacher might say *Squeeze your cheeks* avoiding the technical term. An orthopedic surgeon might report that a patient had a *fractured tibia*, but is equally capable of telling a friend that they can't go skiing because of a *broken leg*. Lay observers of human figure and experiencers of body sensations need not be audiologists in order to say *My ears are plugged and I can't hear*. Nor do they have to be cardiologists in order to say *Her heart beat faster and faster* in describing someone's excitement.¹

Now it is possible to return to the questions posed above regarding the different frames within the 'Body Frame'. The different modes in which the body may be experienced can be thought of as frames contained in the Body Frame. Some words in the domain occur in more than one of these *experiential frames*. For example, *belly* might best be characterized as a term used by the lay observer of the human figure as apparent from *Fred has a beer belly* in which *belly* refers to an external area of the body. It is also used by the experiencer of body sensations as in *I have a belly ache* in which *belly* refers to an internal organ. Similarly, *throat* might best be characterized as a term used by the experiencer of body sensations as apparent from *I know I'm getting a cold because I have a sore throat* in which *throat* refers to an internal part or area. It is also used by the lay observer of the human figure as in *During the fight she grabbed him by the throat* in which *throat* refers to an external area of the body. The intuition we have that the words *throat* and *belly* have different senses in these contexts is the intuition that the same words fit distinct 'framings' of the same object, the human body.
Within each of the experiential frames, there are frames that correspond to the different sections and subsections of the body as well as those that correspond to the different systems and subsystems of the body. Thus, for example, in the lay observer frame it is possible to distinguish among others, a "trunk frame" and an "arm frame". Again, there are words that occur in more than one of these frames, as for example, shoulder. Whether shoulder names a part of the trunk or a part of the arm depends on the observer's frame. If the observer's frame is the trunk, shoulder names a part of the trunk; if the observer's frame is the arm, shoulder names a part of the arm. The situation can be compared to a woman standing on the northeast corner of Fifth Avenue and Fifty-Seventh Street in Manhattan. When facing north she would say she was on Fifth Avenue and when facing east she would say she was on Fifty-Seventh Street. In fact she's on both.

Similarly, in the expert observer's frame, it would be possible to distinguish, among others, a "genital frame" and a "urinary frame". Whether the term urethra names a part of the genital system or a part of the urinary system depends on the expert observer's frame and his/her knowledge of the function of the part. If the expert observer's frame is the genital frame, urethra names a part of the genital system; if the expert observer's frame is the urinary frame, urethra names a part of the urinary system. (Of course, each of these frames may contain elements that are part of other frames but not part of the 'Body Frame'.)

Having provided a means of answering the questions posed regarding the different frames within the 'Body Frame', it is possible to address the question regarding the variety of semantic structures within the 'Body Frame'. Within this set of words there are partonomies and taxonomies, as well as words connected by other semantic relationships, particularly 'in' and 'on'. For example, the words toenail, toe, foot, and leg are
semantically linked by the 'part-of' relationship and figure into a partonomic structure within the 'lay observer frame'. The words skull, jaw, and vertebra are semantically linked by the 'kind-of' relationship to bone (since they each name a kind of bone) and to each other via this relationship as co-hyponyms. They figure into a taxonomic structure within the 'expert observer frame'. Among the terms linked together by the relationship 'in' are tooth, tongue, and gums, all of which name parts 'in' the mouth as well as vein, artery, and capillary, all of which name blood vessels in the body. Terms such as skin, freckle, and beauty mark show that some of the words within the 'Body Frame' are linked semantically by the relationship 'on'. (The skin is 'on' the body. Freckles and beauty marks are 'on' the skin.)

Notice that the different kinds of structures can be found in the different "experien­tial frames" and that some terms fit into more than one type of semantic structure. The expert observer might have occasion to talk about the parts of the brain as well as the different kinds of tissue found in the body. The lay observer might talk about the different kinds of teeth using terms such as baby teeth and wisdom teeth as well as talk about the teeth being 'in' the mouth.

As Matisoff correctly points out, "Body parts are subject to multiple simultaneous classifications" (1978:151). This is so because of anatomical and physiological facts. Not surprisingly, body part terms are also subject to multiple simultaneous classifications. Frames and prototypes provide a means of demonstrating and accounting for this in linguistic and cognitive terms. The Frame idea re-enforces the notion that the meaning of a word is determined by the context in which it is used. Speakers understand the meaning of a word in part because they can access the frame to which it belongs, in part because they have ideas about the best instance of an application of a word—i.e. they know what the prototype is, and in part because they know what to do when something is
not a prototype. Terms which clearly belong to the domain but considered peripheral in part because they don't fit into the partonomic structure of the domain are now included without any problem. In addition, given the idea of prototypes it is possible to acknowledge their so-called peripheral status. A prototypical body part is going to be something that is a part as opposed to something that is a fluid or a configuration. A prototypical body part is going to be a part which is salient because of its physical properties and/or because of its functional importance. Such parts are named with lexical items which for a variety of reasons can be considered central to the domain in contrast to the "peripheral" ones.

Now it is possible to return to the idea that for some domains there may be a prototypical structure used for the domain's characterization or for a characterization of a subset of the domain. It might be suggested that the partonomy is the prototypical structure used to characterize the domain of body part terminology. Most of the terms in the 'lay observer frame' are linked together by the 'part-of' relationship. Indeed the terms used by the lay observer of the human figure account for a major portion of the terms in the domain. In other frames in the body part domain, other structures might be the prototypical ones. For example, consider the perspective of the expert observer. In the 'expert observer frame', a structure organized according to a principle of systemic relationship might be the prototypical one, even if the semantic nature of that relationship is not immediately obvious to the linguist. Among other things, the expert observer is concerned with the functions and functioning of the parts that (s)he names within the systems and sub-systems of the body. The suggestion being made here offers a way of viewing and understanding the structural organization of the domain which coincides with the way people view and understand other concepts and objects.

Thus in terms of the characterization of the structure of the domain, the specific lex-
ical items in the domain, as well as an intuitively appealing manner of presenting the data, frames and prototypes are very helpful. Given the complexity of the human body, the domain of body part terminology provides an especially rich testing ground for frames and prototypes. A terminological system which has a structurally simple referential domain would not permit the power and flexibility of the frame idea or the usefulness of the prototype idea to be demonstrated.

Sources of interest in the domain of body part terminology discussed so far have had to do with the domain, its contents, structure, and organization. That discussion provided some of the theoretical framework for the present study. Various aspects of the individual words in the domain are also of interest.

An examination of the lexical structure of the words in the domain provides a means of discussing a more general issue relevant to the study of SEMANTIC fields. In particular, it allows the linguist to address the question of patterns of polysemy found in the domain. Are there isolated instances of polysemy or are there recurring kinds of polysemy? What are the recurring kinds of polysemy? Andersen (1978) argues that there are a limited set of recurring patterns of polysemy in the domain of body part terminology which "derive from the ability of the human perceptual apparatus to deal with attributes like shape, size, and spatial orientation" (1978:364).²

In the current study, the different kinds of polysemy within the domain are characterized according to the following types: whole/part including volume/surface; upper/lower; and genus/species. An example of whole/part polysemy is the term yad - 'arm, hand' which names a whole as well as a salient part of that whole. In this case, the part is salient because of its important function--hands do many things that arms without hands could not do. In other cases of this kind of polysemy, a part may be considered salient for a variety of other reasons including its physical characteristics (as
suggested by Andersen (1978)) and its social and cultural associations.

Volume/surface polysemy is a special kind of whole/part polysemy. Since the human body is a three-dimensional object, many of the terms in the body part domain designate three-dimensional parts. Sometimes only a part or area of the three-dimensional part is visible on the surface of the body. The lay observer may use the same term to designate the three-dimensional part as (s)he uses to designate the area or part which is visible on the surface. This seems to be the natural consequence of an "external" perspective. For instance, the word 'ozen - 'ear, outer ear' designates a three-dimensional part and the part of that three-dimensional part which is visible on the body's surface. Curiously enough, the most common uses of the word refer to either the inner part of the ear (not visible to this observer) or the outer part of the ear, rather than to the whole thing. However, it might be suggested that this is a situation in which the lay observer has acquired some of the knowledge of the expert observer. The lay observer knows that the outer surface and the inner volume constitute the whole volume. (S)he is not surprised to open up an anatomy textbook and find the word 'ozen labeling a picture of the whole ear--i.e. the outer surface and the inner volume. Other instances of whole/part polysemy may involve three-dimensional parts, or volumes, and surfaces as well. For instance, kaf yad - 'hand, palm' designates a volume and one of the surfaces of that volume. In this case, both the volume and the surface are completely visible to the lay observer of the human figure.

In the present work, words are designated as 'volume terms', 'volume and surface terms', or 'surface terms'. The word rosf - 'head' is a volume term since it names a volume; kaf yad - 'hand, palm' is a volume and surface term since it names both a volume and a surface; mecaz - 'forehead' is a surface term since it names a surface. Given the referential domain for the words in the lexical semantic domain of body part
terminology, it is not surprising that there are only a few surface terms.

The other types of polysemy are upper/lower polysemy and genus/species polysemy. An example of upper/lower polysemy is *ciporen* - ‘fingernail, toenail’ where the polysemy obtains between comparable parts of the upper and lower body. An example of genus/species polysemy is *'ecba* - ‘finger, index finger’ where the polysemy obtains between a type and a variety of that type. The physical properties of the body parts in question play an important role in both upper/lower polysemy and genus/species polysemy. Aside from the existence of upper/lower polysemy, note that the patterns of polysemy in the domain are symmetrical between the upper part and the lower part of the body. Words which designate corresponding parts on the upper and lower body are often polysemous in corresponding ways. For example, the polysemy of *regel* - ‘leg, foot’ parallels that of *yad* - ‘arm, hand’ and the polysemy of *kaf regel* - ‘foot, sole’ parallels that of *kaf yad* - ‘hand, palm’.

In addition to the polysemy of terms within the body part domain, the present study considers polysemy by extension. A number of body part terms also serve as names for entities outside the body part domain. Thus, for example, the body part word *pe* - ‘mouth’ also means ‘opening’, as in *pi ha-ma’ara* - ‘mouth of the cave’ and the metaphorical extension is based on the similarity of shape between an open mouth and a cave opening. Some metaphorical extensions of body part terms are based on position, as in *gav* - ‘back’ and *gav ha-sefer* (back (of) the-book) -‘spine of the book’, and size, as in *'ama* - ‘lower arm, cubit’. There are also metonymical extensions based on function, as in *lason* - ‘tongue, language’. As was the case with polysemous terms within the body part domain, visually perceptible properties also play an important role in patterns of nomenclature from the body part domain outwards—i.e. in metaphorical and metonymical uses of body part terms. As Andersen’s (1978) work shows, the kinds of polysemy found in
Hebrew are found in the body part domain of other genetically unrelated languages as well. The present study provides an in-depth examination of this phenomenon in Hebrew and includes those terms in the domain that are polysemous by extension.

Frames and prototypes are useful in the discussion of polysemy. The prototypical use of a term is in part a function of the frame in which it occurs. Recall that frames "...may contain elements which are simultaneously parts of other such frameworks" (Fillmore 1975:123) and that each element will have a prototypical frame associated with it. The prototypical frame will be the one which for a variety of reasons is the most salient. Every polysemous term has an unmarked sense--i.e. the sense of the term in the absence of a context which "forces" another of its senses. For example, 'ecba - 'finger, index finger' is simultaneously part of the 'hand frame' and the 'set of fingers frame' where each frame gives a different sense of the term. The unmarked sense of the term is 'finger' which is taken from the more salient of these frames--the 'hand frame'. It seems likely that any polysemous term will take its unmarked sense from its prototypical frame. If so, frames and prototypes provide a perspicuous way of talking about the semantic structure of words.

The investigation of the patterns of polysemy in the domain necessitates the examination of the internal semantic structure of the words. The morphological structure of the words in the domain is also of interest. A number of researchers interested in different lexical semantic domains have used morphological simplicity/complexity as a criterion for determining a word's status as a "basic" term within a domain.

In Berlin and Kay's (1969) study of color terms, among other factors, a term is basic if "It is monolexemic; that is, its meaning is not predictable from the sum of its parts...." (1969:5). Berlin Breedlove, and Raven (1973) found that there is a tendency to label generic level categories with primary lexemes, oftentimes unanalyzable forms, in folk biologi-
cal taxonomies. Berlin, Breedlove, and Raven's (1973) generic level categories are comparable to Rosch's (1977) basic level categories. Thus, in some respects words for these categories are basic to the domain. Brown (1976) examined the domain of body part terminology and among other things determined that there are some categories for which all languages have labels which are usually unanalyzable primary lexemes. Once again, there is a correlation between morphological simplicity and the idea of a term being basic to a domain.

For the most part, the morphological structure of the native vocabulary of Hebrew content words can be characterized in terms of a consonantal root and a morphological pattern. Usually the root is tri-consonantal and related to a verbal notion. The morphological pattern consists of a discontinuous sequence of vowels and may include one or more prefixes and/or suffixes. All nouns are inherently masculine or feminine in gender and form the plural by adding the appropriate masculine or feminine suffix. Some nouns also have a dual form; others can only form a plural with the dual suffix. (Further details are given in section 2.2.)

In the present study, words are characterized as simple, complex, or compound. For example, roš - 'head' is a simple term as is bohen - 'big toe, toe'. The word panim - 'face' is a complex form due to the presence of the plural suffix -im; similarly xanizayim - 'gums' is a complex form due to the presence of the dual suffix -ayim. Neither of these nouns has a corresponding singular form which is a body part term. Simple and complex words are monolexemic.

Examples of compound terms in the Hebrew body part domain are gav ha-yad ((the-hand back) - 'back of the hand' and bet ha-zaze ((the) chest house) - '(the) rib cage'. In the former both nouns in the compound are body part terms; in the latter only the modifying noun of the compound is a body part term. The word bet (the con-
struct form of bayit - 'house') has been borrowed into the body part domain from another area of the vocabulary. A number of compound forms in the Hebrew body part domain include a noun which does not occur anywhere else in the language. An example of this is the word sezi in the compound bet ha-ṣezi - '(the) underarm'. The term 'm orphan' (morpheme + orphan), coined by Matisoff (1973d), is used here to characterize words such as ṣezi. Compound nouns are obviously bi-lexemic forms of a special kind. There are also bi-lexemic forms in the Hebrew body part domain which are not compounds such as leset taztōna - 'lower jaw' and ṣen tōzenet (milling tooth) - 'molar'. For the most part, simple words are unmotivated: complex and compound terms are motivated, as are the few bi-lexemic terms.

The morphological structure of the words in the Hebrew body part domain are noteworthy for a number of reasons. Many are morphologically simple terms. Many are also "primitive" nouns, not derived from a consonantal root related to a verbal notion, and are the source of derived (i.e. morphologically complex) words in the language. Furthermore, many of the terms form the plural with the dual suffix -ayim. Thus, for example, the plural of yad - 'arm, hand' is yadayim - '(two) arms, (two) hands'. For the most part, the "dual plural" suffix is used with terms which name paired body parts—eyes, ears, knees, ankles, etc. However, there are also paired parts named with terms which take a regular plural suffix. Other times the "dual plural" is used with terms which name parts which might be seen as pairs since they come in sets of two. For example, the plural of ṣen - 'tooth' is šnayim - 'teeth' where there is an upper set and a lower set. Of some additional interest is the fact that many of the terms which use the "dual plural" suffix are also feminine gender nouns. The rather extensive use of the dual in the body part domain is noteworthy since Hebrew is unlike Modern Standard Arabic in which every noun has a singular, a dual, and a plural form.
While there are a number of other factors that must be considered, morphologically simple terms tend to be "basic" to the domain. Other factors include the term's status as native or borrowed (to the domain and to the language), ease of elicitation, and extent of its use as a source of derivation and metaphor. The high number of morphologically simple native terms in the Hebrew body part domain lends support to Matisoff's (1978) claim that the body part domain is a core part of the vocabulary.

Aside from the internal semantic structure and the morphological structure of the terms in the domain, the nature of a term's referent is of interest. McClure (1975) distinguishes areas of the body having discrete parts, "those endowed by nature with visible demarcations" (1975:81) such as lips and ears, and those that consist of focal areas and their extensions, lacking precisely defined boundaries such as cheek and belly. Some of the terms in the body part domain are well-defined whereas others are vague. The referent of a well-defined term has clear physical demarcations. The referent of a vague term does not have well-defined boundaries. Thus, in some cases different observers will always agree about the exact referent of a particular term, while in other cases they will only agree on the general area which a particular term covers. The picture-based elicitation task used in the present study provides a means of documenting this for Hebrew. (See Appendix II.)

Many of the terms that name parts of the human body are actually general names for animal body parts—they name non-human animal body parts as well. For instance, the terms head, back, and leg are appropriately used for humans and other animals. There are also terms that name specifically non-human body parts which when used of humans have special connotations. For instance, when used of a dog the term paw has no special connotation. When used of human hands, as in Keep your paws off!, they are degraded in some way and as a result so is the person whose hands are called paws.
Sometimes there is a single term for both humans and other mammals which does not refer to anatomically corresponding parts. An example of this is the term *forearm*. When used of a human *forearm* refers to the lower part of the arm, where for some speakers the hand is included and for others it is not. When used of a horse or a cow, *forearm* refers to the upper part of any leg (s.v. *horse*, Webster's Third). Thus the term *forearm* does not name corresponding parts on humans and other animals. Terms which are unusual in either of these ways are noted throughout.

Terms in the body part domain may be well-defined, vague, or general at any point in time in the history of the language. They may also change over time and such changes will affect the system as a whole. For example, based on the existence of the finger name 'ama - 'middle finger' as well as the ancient measure term 'ama - 'cubit', it is clear that in earlier periods of Hebrew 'ama must have meant 'lower arm'. However, today the term 'ama is used for 'forearm'. Thus, while 'ama once named the part of the arm from the elbow to the fingertips, it now names the part of the arm from the elbow to the wrist. Furthermore, there does not seem to be any other term now used for 'lower arm'. Aside from the inherent interest in the history of the words in the domain, their history will reveal facts about the (re)organization of the domain over time.

Sometimes there are several different terms for a single body part, each belonging to a different register in the language. The term 'lexical elaboration' is used here for this situation. In such cases it is difficult to decide which term to cite as the "real" name. The so-called official name may have a somewhat technical connotation and hence is hardly used in everyday situations. Sometimes the so-called official name is the word that speakers know they are supposed to use in polite company, in formal contexts, or if speakers are purists and want to "speak correctly". Sometimes the official name won't be used in polite company or formal contexts in spite of its status as a technical term. In any event,
the term is not the one that is used in everyday conversations. At the same time, the term used in everyday conversation may have its own special connotation due to its form and/or sociolinguistic function which suggests that such a term is not the real name for a particular part either. It seems that for some parts of the body (typically, the covered ones) there are technical words, children's words, and vulgar words, but no ordinary names. For such cases in the present work, the official name is cited noting if it is considered a technical term, a polite term, etc. Other terms are given, noting their special connotations and the contexts in which they are used.

While some areas of the body part domain exhibit 'lexical elaboration', others exhibit 'lexical density'. In other words, there are some areas of the domain in which can be found many more terms than in other structurally similar areas. For example, there are many more terms for the front of the head than for the back of the head and many more terms for fingers than for toes. In the first case, it is in part a result of the physical structure of the human body—there are more parts on the face than on the back of the head. In the second case, it is in part a result of the important function of the parts—fingers are used for many different tasks. In both cases there is evidence for the salience of certain kinds of spatial orientation. Front is more salient than back; upper is more salient than lower.

To summarize, some terms have more than one meaning at the present time; some words have changed in meaning through history. Some of the terms used by the lay observer of the human figure refer to parts or areas of the outer surface of the human figure, while others designate three-dimensional parts. Some terms in the domain represent both a surface and a volume. Many terms are morphologically simple and unmotivated; others are complex or compound and motivated. Some of the terms are ‘ingressive’—taken from other areas of the vocabulary and used in the body part domain.
while others are 'egressive'-used in other areas of the vocabulary. Some terms are well-defined and others are vague; many are general animal body part names as opposed to specifically human body part names. For some parts of the body several different terms can be used often with different connotations. For some areas of the body there are many more terms than for structurally similar areas.

Since the present study, for the most part, deals with a folk terminological system, it is especially appropriate to consider folk beliefs about that system. People have beliefs about the human body, its parts as well as about its appearance and the way it functions. People also have beliefs about and explanations for the words that name the parts, their appearance, and their functions. These beliefs and explanations are worthy of the linguist's attention in part because they contribute to the description and analysis of a system which acknowledges the importance of the speaker's world. In addition, these beliefs and explanations are oftentimes different than the "scientific" ones and hence may provide some further insight to human cognitive processes and abilities.

For example, it is possible to distinguish folk etymologies from real etymologies and isolate the factors that contribute to the development of the folk etymology. For instance, the English body part term ear and the word ear meaning 'spike of corn' are homonyms. The body part word is related to Old English ðærc; the corn word is related to Old English ðær. However, in the minds of speakers who don't know the different etymologies of the words, the two meanings are linked together (Ullmann 1962:164). It is likely that this folk etymology developed in part because the words are homophonous and in part because of some perceived similarity between the body part and the corn word. On the other hand, the English body part term sole referring to the bottom surface of the foot and the word sole which names a fish actually have a common history. They are both related to Latin solea - 'sandal'. However, because speakers don't know the real
etymology and because the two senses are so different, the form is reinterpreted as two homonyms with unrelated meanings (Ullmann 1962:177-178). In both of these examples speakers’ beliefs contribute to their understanding of the system.

In addition to folk etymologies, common practices involving the body have led to extended uses of body part terms. For example, the practice of measuring distance with the length of the foot has led to the use of the body part term foot as a measure term. Similarly, the practice of measuring amounts of liquor with the width of the finger has led to the use of the body part term finger as a measure term.

Knowledge about the body and how it functions as well as folk beliefs about the body serve as the basis for metaphors involving body part terms. For example, speakers of English and speakers of Hebrew know that in some sense the heart is at the center of the body in part because it plays a central role in the functioning of the body. Evidence for this is found in the English phrase the heart of the matter and the Hebrew expression lev ha-’ir - ‘heart of the city’. They also believe that there is a connection between the heart and the emotions as apparent from the English phrase heart broken used to describe someone whose feelings have been hurt, usually because of a failed romance, and the Hebrew word m’labev - ‘hearten’, an active verb based on the root for lev - ‘heart’. Thus, folk knowledge and folk beliefs are a source of information for different aspects of the words in the domain of body part terminology including their etymology, metaphorical extension, and derivational capacity.

As set forth above, the domain of body part terminology offers a wealth of material for linguistic analysis providing the opportunity to address issues of particular relevance to lexical semantics. In addition, the structural complexity of the human body and the fact that the body is an integral part of human experience makes the domain of body part terminology a particularly rich area of the vocabulary for demonstrating the strength of
the frame and the utility of the prototype in lexical semantic description and analysis.

1.2 Literature Review

There is much scholarship devoted to the description and analysis of lexical semantic domains. Of obvious importance and relevance to the present work are studies of body part terminology through which different theoretical issues in lexical semantics have been addressed. For the most part, research in the area of body part terminology can be divided into two areas: studies of the domain (or a section of the domain) in a specific language or group of related languages; studies of language universals with respect to the domain. Representative studies are presented here beginning with a few works about specific languages.

Stark (1969) examined the lexemes of Quechua external body parts in order to distinguish pattern and structure (1969:1). There are three possible morphological structures of words in Quechua: a single root (e.g. *uma* - 'head'); a root plus a suffix (e.g. *kukaču* - 'elbow', *kuku* + *ču* - 'bent over' + 'like something'); two root stems, or combinations of the two (e.g. *maki pampa* - 'palm of the hand', *maki* - 'hand' + *pampa* - 'field'). These are characterized as simple, complex, and compound lexemes, respectively. After presenting informants with the frame sentence "A is a part of B", Stark determined that the body part domain has a hierarchical structure for the most part defined by the part-whole relationship. The semantic dimension of a lexeme depends on its position within the hierarchy, both horizontally and vertically. Thus, for example, on one level of the hierarchy *uma* contrasts with *čaka* - 'leg' and means 'head'. On another level of the hierarchy, *uma* contrasts with *uya* - 'face' and means 'non-face' (1969:2-3).

Stark noticed two dominant patterns for the Quechua data in sections of the domain: concavity and convexity are important features of nomenclature in both the
head and the trunk; and there is a symmetrical distribution of constituents for both extremities. Thus, for example, when the term nawi - 'eye' is combined with -t'uqu, a bound morpheme referring to a concave surface, the resulting form, nawiht'uqu means 'eye socket'. However, when nawi is combined with the word kapacu, which refers to a convex surface, the resulting form nawih kapacu means 'eyelid'. Concerning the symmetrical distribution of constituents, both caki - 'foot' and maki - 'hand' which are on the fifth level of the hierarchy have three constituents each on the sixth level of the hierarchy. Likewise, two out of three of the terms in each set on the sixth level have constituents on the seventh level of the hierarchy. Furthermore, there is an overlap between the body part domain and the geographical-topological domain with respect to the features concave and convex. For instance, the body part word muqu - 'knee' has 'hill' as a geographical meaning and when the geographical term pampa - 'field' is combined with the body part term caki - 'foot', the body part meaning of the compound caki pampa is 'sole of the foot'. For the most part, simple lexemes are egressive—i.e. the terms are native to the body part domain and are extended to other domains—and compound terms are ingressive—i.e. the terms are native to another domain, in this case the geographical-topological domain, and extended to the body part domain (1969: 7-9).

Although Stark alludes to the existence of polysemous terms in the body part domain in Quechua, the topic is never explicitly discussed. In addition, aside from listing the body part meanings and the geographical meanings of the terms, Stark does not offer evidence to support the claim about the direction of semantic extension of these terms.

Liston (1972) studied the body part domain in Serbo-Croatian as an interesting example of a culturally relevant lexical domain. He notes the predominance of the part-whole relationship in the domain and points out that symmetry is an important feature of the domain. Each of the following four terms is polysemous: ruka - 'arm.
hand'; noga - 'leg, foot'; zglog - 'wrist, ankle'; prst - 'finger, toe'. With ruka and noga, in each case the polysemy obtains between a whole and its most salient part. With zglog - 'wrist, ankle', the polysemy is based on similarity of position; with prst - 'finger, toe', the polysemy is based on similarity of position and shape. Of course, the symmetry is between the upper part and the lower part of the body (1972:330-331).

In addition to the part-whole relationship in the body part domain in Serbo-Croatian, illustrated, for example, by the sentence oko je dio lica - 'the eye is a part of the face', Liston notes two other relationships in the domain. Although the distinction between them is not clear, the relationships are that of member-class, illustrated by the sentence palac je jedan od prsti - 'the thumb is one of the digits', and genus-species, illustrated by the sentence brada je vrsta dlake - 'the beard is a type of hair' (1972:324).

Aside from noting the relationships in the domain and presenting a hierarchic arrangements of external body part terms in Serbo-Croatian, Liston lists some of the criteria for measuring the cultural significance of a term in a lexical domain. Some of these are length of word, frequency of usage, and number of subordinate categories. He then suggests alternative criteria including the capability of body part terms to be the basis of derived words, idioms, and proverbs, and appear with extended meanings outside the body part domain.

Using data from Romanian, Saxon, and German, McClure (1975) characterizes the structure of the anatomy domain as a partonomy and contrasts it with the structure of "taxonomically ordered domains" (1975:78). McClure shows that in some respects a partonomy is similar to a taxonomy (e.g. both have a unique beginner and a finite number of elements) and in other respects the two structures differ (e.g. transitivity does not hold in a partonomy and partonomies seem to have overlapping categories). In addition, McClure distinguishes areas of the body that are discrete parts, "endowed by nature with visible
demarcations", such as lips or ears and those that consist of focal areas and their extensions, lacking precisely defined boundaries, such as belly (1975:81). McClure also discusses polysemous body part terms in the three languages noting that these often coincide with some salient characteristic of the more specific term. For example, Romanian ureche means 'ear' and 'external ear'; in Saxon bru:st means 'chest' and 'breast'; and in German Fuss means 'leg' and 'foot'. In each case, the more specific sense of the word names a part of the body which is considered salient.

As noted above (section 1.1), Stark (1969), Liston (1972), and McClure (1975) concentrate on illustrating the partonomic structure of the lexical semantic domain of body part terminology and for the most part deal with names for external parts. This interest in the structure of the domain is no doubt part of a more general concern about structure in language among linguists. These works also deal with some of the morphological properties of terms in the domain and discuss other semantic characteristics of the terms and of the domain. These studies examined the domain in one language or group of related languages. Two works which deal with language universals of body part terminology are those of Brown (1976) and Andersen (1978). Both of these studies deal with terms for external body parts and discuss principles of classification and nomenclature in the body part domain. Brown's universals refer only to the extremities while Andersen's universals refer to the extremities as well as some other parts. Because of their similarity, the two works are discussed together.

Brown (1976) examined body part terminology from forty-one globally distributed languages; Andersen (1978) draws heavily on Brown (1976) and includes many other languages in her work. Both studies include a principle which relates to the hierarchic organization of the domain. This is referred to as the "depth principle" by Brown (1976: 404) and stated by Andersen as follows: "Body-part partonomies rarely exceed five levels
and never exceed six" (1978: 348). Both also state that if there is a sixth level, it usually includes the terms fingernail and toenail.

The rest of the principles concern nomenclature and categorization of body part terms. The unique beginning of the partonomy, BODY, is labeled in all human anatomical partonomies. All languages have a term for HEAD which is immediately possessed by BODY; other levels also on the second level of the partonomy are TRUNK, ARM(HAND), and LEG(FOOT). Brown adds that these categories are always labeled by unanalyzable primary lexemes (1976: 405). To continue, all languages label the categories EYE, NOSE, MOUTH. Furthermore, all languages have a distinct term for the upper limb, ARM(HAND). The categories FINGER and TOE are always labeled in one of four ways. All languages label the categories (FINGER)NAIL and (TOE)NAIL in one of two ways.

The final three principles might be called implicational universals. These are: a term for LEG implies a separate term for ARM; a label for FOOT implies a separate term for HAND (and unlike other symmetrical parts of the body, HAND and FOOT never share the same label); and terms for INDIVIDUAL TOES imply terms for INDIVIDUAL FINGERS. These principles basically state that no language labels LEG without also labeling ARM, no language labels FOOT without also labeling HAND, and no language has names for INDIVIDUAL TOES if it doesn't have names for INDIVIDUAL FINGERS (Andersen 1978:352).6

Language universals of the body part domain can only be suggested through comprehensive and detailed studies of individual languages such as the present work. The works of Brown (1976) and Andersen (1978) are mentioned in part because they provide a larger context within which this work can be viewed. In addition, the works of Brown (1976) and Andersen (1978) themselves belong to a larger area of research on language universals of lexical semantic domains (e.g. Berlin and Kay 1989, Kay and McDaniel
1978) and folk classifications and nomenclature principles (e.g. Berlin, Breedlove, and Raven 1973). Berlin and Kay's (1969) study of color vocabularies in a wide range of diverse languages advocated a universalist approach to the study of semantic domains. In addition to pointing out the tendency for there to be a correlation between linguistic form and taxonomic status Berlin, Breedlove, and Raven's (1973) study of the Tzeltal plant taxonomy and other ethno-biological domains indicated the significance of the generic level in folk classification systems. The present study also belongs to this larger area of research.

The works presented so far are synchronic studies of the domain or examinations of the domain for the purpose of determining universals. There are also diachronic studies of the domain. Some of the early works of this sort (e.g. Arnoldson 1915, Baskett 1920) are essentially long lists of body part terms and their older reflexes. Some of the more recent works including Matisoff (1978) and Brown (1976) are much more interesting linguistically.

Matisoff's (1978) imaginative and insightful work is a comprehensive study of the domain of body part terminology in the Tibeto-Burman family. He is especially interested in using lexical evidence for establishing genetic relationships among languages and notes the inadequacies of the lexico-statistic method. Citing Buck's masterpiece, *A Dictionary of Selected Synonyms in the Principle Indo-European Languages*, as a model, Matisoff carefully analyzes the body part terminology of a number of Tibeto-Burman languages using the "organic semantic" approach to linguistic comparison. He indicates and exemplifies the various kinds of inter-relationships among Tibeto-Burman body parts in order to classify and account for semantic shifts in the body part domain of these languages. Matisoff constructs a "meta-static flowchart" showing the various kinds of semantic shifts and associations between the body part words on the chart. There are
many kinds of associations in the domain including that of similar general appearance (e.g. marrow/fat), anatomical adjacency (e.g. cheek/jaw), shared physiological functions (e.g. brain/spinal cord), and euphemism or taboo (e.g. chest/bust/breast). This work can be seen as a model for comparative studies of the domain of body part terminology as well as other semantic domains in the languages of Southeast Asia and other language areas of the world.

Another study which examined the history of the meanings of words in the domain of body part terminology is that of Brown (1977) in which data from thirty Mayan languages were examined. Brown reconstructed the referential histories of Mayan words for parts of the lower limbs and distinguished four mechanisms of lexical change to account for the referential recycling of terms from distal to proximal parts. The four mechanisms that operate to create these changes are expansion of meaning, restriction of meaning, metaphor, and ellipsis. As an example of a word whose current meaning distribution could be accounted for by the process of expansion of meaning, Brown cites the Proto-Mayan root *oq. In some Mayan languages this root is realized as 'foot', in others as both 'foot' and 'leg and foot', and still others as only 'leg and foot' (1977:7). The existence of reflexes of this root in more than half of the modern Mayan languages suggests its "considerable antiquity" as a label for a part of the lower extremities (1977:12). In addition to providing a comprehensive glossary of lower extremity terminology for the Mayan languages included in the study, Brown cites data from Zoquean, Indo-European, and Austronesian which show similar changes in their lower limb lexicons. Brown's work is intriguing, even if tentative.

As mentioned above, the works discussed here are only representative of previous research on body part terminology. Although this study differs from earlier works on body part terminology in a number of ways, these works have been cited because of their
influence on the present study both in terms of methodological approach and theoretical assumptions.  

1.3 Structure of Dissertation

The structure of this work is as follows. Chapter 2 provides background information about Modern Hebrew necessary for reading the present work. Chapter 3 includes a description of the various data collection techniques which were used. In Chapters 4 and 5 the three-way schematization of body part terminology in Modern Hebrew is presented. The morphological structure and the semantic structure of the terms are described and analyzed; etymologies are given where necessary; and comparisons are made with English and other languages where appropriate. Chapter 6 covers extended meanings of body part terms in Modern Hebrew including extension by metaphor, metonymy, and derivation. Finally, in Chapter 7 the findings of this study are summarized and several areas for future research are suggested.
Notes to Chapter 1

1. See Matisoff (1978:165-173) for some discussion of medical knowledge and folk usage of body part terms.

2. In general, I agree with Andersen (1978), although I question some of the details of her analysis. This is discussed at greater length in section 4.7.

3. Actually, the word 'ecba has three distinct senses—'finger', 'index finger', and 'toe'. Only 'finger' and 'index finger' exemplify the genus/species polysemy. the 'toe' sense of the term (discussed at greater length in section 4.5) shows that the term also illustrates upper/lower polysemy.

4. The singular of panim —'face' is pan which is used for 'aspect' as in pan 'azer šel ha-ba'aya (aspect other of the-problem) — 'another aspect of the problem', but not as a name for part of the body.

5. Egressive terms—i.e. terms that are basic to the body part domain and used in other lexical semantic domains—are discussed in Chapter 6. The terms 'ingressive' and 'egressive' are used here as in Stark (1969) and Liston (1972).

6. Other aspects of Andersen's (1978) work are discussed in section 4.7.

7. In addition to the works discussed here, there is an area of anthropological research which is pertinent to the present study and hence worth mentioning. Researchers such as Marsh and Laughlin (1956), Lucier, VanStone, and Keats (1971), and Miller (1977) investigated the domain of body part terminology for the purpose of providing evidence of general anatomical knowledge of different language communities. These kinds of accounts furnish cultural information about the body part domain as well as extensive lists of the terminology, even if it is presented in a way which is not particularly revealing of linguistic structure or useful for linguistic analysis.
Chapter Two: Structure of Hebrew

In this chapter, I provide background information about Modern Hebrew needed for reading the present work. This includes: (1) the transcription conventions used here along with some discussion of contemporary pronunciation; (2) the basic principles of noun morphology, with less detailed discussion of the morphology of verbs and adjectives; and (3) a brief account of the development of Modern Hebrew as a spoken language as well as a short discussion of some of the differences between the spoken and the written language.¹

2.1 Transcription Conventions

The following symbols are used for a broad phonetic transcription. Consonants are presented according to manner and place of articulation; where appropriate voiceless and voiced are distinguished. Vowels are presented according to the position of the tongue.

**CONSONANTS**

<table>
<thead>
<tr>
<th></th>
<th>bilabial</th>
<th>labiodental</th>
<th>alveo-dental</th>
<th>palatal</th>
<th>velar</th>
<th>uvular</th>
<th>glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STOPS</strong></td>
<td>p b t d  k g</td>
<td></td>
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<tr>
<td><strong>FRICATIVES</strong></td>
<td>f v s z s' x h</td>
<td></td>
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</tr>
<tr>
<td><strong>AFFRICATES</strong></td>
<td>c</td>
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</tr>
<tr>
<td><strong>SONORANTS</strong></td>
<td>m n l y r</td>
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</tr>
</tbody>
</table>

A number of the symbols represent a neutralization of distinctions made at an earlier period of the language and still apparent in Modern Hebrew orthography. The changes which have occurred involve some of the consonants which are characteristic of Semitic
languages: pharyngeals and emphatics. In present day pronunciation, the voiceless pharyngeal fricative /h/ is realized as [x] and the voiced pharyngeal fricative /ɦ/ is realized as [ˈ], if at all. In addition, the emphatics /§/, /ɬ/, and /q/ are pronounced [c], [t], and [k], respectively.

The group of consonants known as "gutturals" include the two pharyngeals, the glottal stop, and the glottal fricative /h/. In addition to the changes mentioned above with the pharyngeals, note that in some contemporary pronunciations the glottal stop (underlyingly /ˈ/ or /ɦ/) and the glottal fricative may be realized as zero. For a number of reasons, including the desire to preserve the integrity of the consonantal structure of words in Hebrew while remaining reasonably faithful to current phonetic reality, the convention adopted here is to indicate [ˈ] and [h] initially and medially, but not in word-final position. The gutturals are grouped together because of their similar behavior in contrast to other consonants. For example, in Biblical Hebrew except for gutturals all consonants could be geminated. While Modern Hebrew does not have geminate consonants, there are other manifestations of the difference between the gutturals and other consonants. For example, an initial guttural will raise a prefix /a/ to [e]. Usually when the definite article ha- is prefixed to a noun there is no phonetic change in the form. However, when the definite article is prefixed to a noun with an initial guttural, the form does change. Compare ha-davar - ‘the thing’ and he-har - ‘the mountain’.² Note that the manifestation of this particular change in the spoken language is not regular. Many speakers will use a non-normative form such as ha-har - ‘the mountain’. In the present study, the forms typical of the spoken language are cited.

There are other losses of earlier distinctions which should be noted. One of these results from the contemporary pronunciation of underlying /w/, which is [v]. The others involve the spirantized alternants of the stops p, b, t, d, k, and g. In the present system

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only the bilabials and the voiceless velar have spirantized counterparts. The labiodental fricatives f and v alternate with p and b, respectively; the voiceless velar fricative alternates with k. In principle, the spirantized alternant of a stop occurs post-vocically. Note that in everyday usage there are violations of the rule for spirantization. Thus, for example, forms such as bo-boker (in morning) - 'in morning' and ba-kita (in class) - ‘in class’ are typical of the spoken language rather than the "correct" bo-voker and ba-zita, respectively.

VOWELS

FRONT BACK

Hi i u

e o

LOW a

As was the case with consonants, the writing system indicates that in earlier periods of Hebrew there were also more distinctions than exist today among vowels. In contrast to Biblical Hebrew, Modern Hebrew does not have a phonological distinction between long and short vowels. In the present system, the vowels are close to the cardinal vowels in their phonetic realization. Finally, the symbol ∅ is used for the non-phonemic schwa. In Hebrew schwas occur as a result of vowel reduction or to break up unpermissible consonant clusters.

In the present work word stress is not indicated.
2.2 Hebrew Morphology

The following is a brief discussion of Hebrew morphology with particular attention to nouns as is relevant to the present study. It is intended to familiarize the reader with the forms and patterns of words and word formation devices in Hebrew as well as provide some information about the lexicon of the language. Capital letters are used when citing a root; elsewhere the letter capital-C stands for any consonant.

In the native vocabulary of Hebrew, most nouns, as well as other content words (adjectives and verbs), can be characterized in terms of a consonantal root and a morphological pattern. Usually the root is tri-consonantal and related to a verbal notion. The morphological pattern consists of a discontinuous sequence of vowels and may include one or more prefixes and/or suffixes. Thus, for example, the root K-T-B is associated with the notion of writing and is the basis of a number of words. Some of the verbs include: katav - 'write'; nixtav - 'be written'; hiztiu - 'dictate'; and hitkatev - 'correspond by mail'. (Verbs are cited in the third person masculine singular of the past tense.) Some of the nouns are: ktav - 'handwriting'; ktiv - 'spelling'; katava - 'news report'; ktwet - 'address, inscription'; ktuba - 'marriage contract'; mixtav - 'letter'; mixtava - 'writing table' (also pronounced mazteva in colloquial Hebrew); haxtava - 'dictation'; and hitkatvut - 'correspondence'. (Nouns are cited in the singular form.)

There are also some nouns, such as 'az - 'fireplace' har - 'mountain', and šad - 'breast', which are bi-consonantal and not associated with any verbs in the language. Some bi-consonantal nouns have developed historically from tri-consonantal roots, as becomes apparent when comparing them with cognate terms in other Semitic languages. For example, Hebrew 'af - 'nose' is cognate with Arabic 'anf - 'nose'. The lost consonant surfaces in the Hebrew word 'inpef - 'talk nasally', a quadriliteral verb.
derived from the noun 'af - 'nose' by doubling the last consonant of the underlying root 'NP. In other cases, such as Hebrew roš - 'head' which is cognate with Arabic ra's - 'head', the lost consonant does not surface in other Hebrew words. However, the tri-consonantal origins of roš are still apparent in Hebrew orthography. Thus, what is pronounced roš is written with three consonants phonemically equivalent to R'S.

Similarly, there are some nouns, such as 'adam - 'man', niyar - 'paper' (also pronounced neyar) and ero'a - '(upper) arm' which are tri-consonantal and not related to or derived from any verb in the language. Note that words built around the same three consonants are not necessarily semantically related. Thus, for example, although the noun ero'a - '(upper) arm' is built around the same three consonants as the verb zara - 'plant, put seeds in the ground' (underlyingly zara as apparent from the infinitive li-zro'a - 'to plant, put seeds in the ground'), but the noun has no semantic relationship to the verb and hence is not associated with it. There are lots of cases of accidental homophony.

There are other nouns, such as 'ayin - 'eye', 'ozen - 'ear' which are tri-consonantal and related to, but not derived from verbs. Nouns such as these are themselves the basis for derived verbs. For instance, 'iyen - 'look into' is derived from 'ayin - 'eye' and he'ezin - 'listen' is derived from 'ozen - 'ear'.

Although far less common, there are also quadriliteral words, which can be characterized according to the number of different consonants in the word. For example, there are some words which have four different consonants as in the verbs pirsem - 'advertise', zišben - 'calculate', and šizpel - 'duplicate, mimeograph'. There are others which have three different consonants where in the sequence of four consonants, the last two are the same. Some examples of this type include the verbs sirtet - 'draw, sketch' 'irbev - 'mix', and tiknen - 'standardize'. Still others only have two different consonants and the word is a reduplicated form. Some examples of this type include the verbs bilbel - 'confuse',

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and gilgel - 'roll', as well as the nouns 'af'af - 'eyelid' and lavlav - 'pancreas'. In each group it is possible to specify whether the word is directly derived from a noun and/or if it is related to an existing tri-consonantal verb.

In Hebrew, nouns are inherently masculine or feminine in gender. Feminine nouns usually end in -a or -t as in 'issa - 'woman', gaba - 'eyebrow', bat - 'daughter', and delel - 'door', although there are some exceptions such as kaf - 'spoon', regel - 'leg, foot', and 'erec - 'land', all of which are feminine gender nouns.

The plural is formed by the addition of the suffix -im to masculine gender nouns such as 'ec - 'tree', 'ecim - 'trees'; marpek - 'elbow', marpek kim - 'elbows'; and talmid - '(male) student', talmidim - '(male) students' and by the addition of the suffix -ot to feminine gender nouns such as gaba - 'eyebrow', gabot - 'eyebrows'; delel - 'door', dlatot - 'doors'; and 'erec - 'land', 'aracot - 'lands'. Here too there are a few exceptions such as masculine kise - 'chair' whose plural form is kis'ot - 'chairs' and feminine beten - 'belly' whose plural form is btanim - 'bellies'.

Some nouns also have a dual form indicated by the addition of the suffix -ayim. For the most part this suffix is used with terms for paired parts of the body, as in yad - 'arm, hand', yadayim - '(two) arms, hands' and berez - 'knee', birkayim - '(two) knees', with terms for clothing that comes in pairs, as in na'al - 'shoe', na'aleyim - '(two) shoes' and gerev - 'sock', garbayim - '(two) socks', and with terms for periods of time, as in zodeś - 'month', zodšayim - 'two months' and šana - 'year', šnatayim - 'two years'. Note that with terms for paired parts of the body and articles of clothing, the morphologically dual form is used for the plural; there are no other plural forms for these words.

With words for periods of time, the dual suffix specifically designates two such periods. There are also plural forms for these words: zodeś - 'month', zodašīm - 'months'; šana - 'year'. šanim - 'years'. Note also that there are terms that name paired parts of...
the body as well as terms for articles of clothing that come in pairs which do not take the
-ayim suffix. (See section 4.7) Similarly, not all words which designate periods of time
have a dual form.

In morphological terms, nouns can be characterized as simple or complex. Morpho-
logically simple forms are not adorned with any inflectional or derivational affixes. Exam-
amples of morphologically simple nouns include: yeled - 'child, boy', ro̩f - 'head', and
siba - 'reason'. Complex terms are characterized as such because they have one or more
of a variety of inflectional and/or derivational affixes, the latter of which may take the
form of a morphological pattern. Examples of complex nouns include: yaldə - 'girl' which
bears the feminine gender suffix -a; yaldut - 'childhood' with the nominal suffix
-ut commonly occurring with abstract nouns; and yaldon - 'small boy' formed by the
addition of the diminutive suffix -on.6

There are also compound nouns which consist of a sequence of two (or more) nouns
where the first is the head noun of the compound and the second is the modifying noun.
In this type of construction, known as smizut ('adjacency'), the first of the two nouns is
in the construct or "bound" state, which is sometimes morphologically marked.7 Nouns
in the construct state may differ from nouns in the absolute or "free" state in one or more
ways depending on the form of the word, its gender, and number. The various possibili-
ties include changes in the vocalic pattern and/or the addition or deletion of gender
and/or number suffixes. For example, the construct form of bayit - 'house' is bet-, where
there is a change of the vocalic pattern; the construct form of liška - 'office' is liškat-,
where -t is added to a feminine singular word ending in -a. The construct forms of
raglayim - '(two) legs' and miztavim - 'letters' are ragley-, and miztwey-, respectively.
where the dual or plural ending is deleted. There are many other nouns, including all
monosyllables, for which there is no difference between the absolute state and the con-
struct state of the noun. Some examples include 'is - 'man', gav - 'back', gad - 'arm, hand', yeled - 'child, boy', 'azot - 'sister, nurse', and xanut - 'store'.

A distinctive characteristic of the smixut construction is that when definite, it is marked with the definite article ha- only on the second of the two nouns. This is different than other noun + modifier expressions in Hebrew where both the head noun and the modifier are marked with the definite article. To illustrate, the definite form of the compound roš memšala (head (of) government) - 'prime minister' is roš ha-memšala (head (of) the-government - 'the prime minister'. In contrast, the definite form of the noun phrase roš gadol - 'big head' is ha-roš ha-gadol (the-head the-big) - 'the big head'. (Note that ha-roš gadol (the-head big) is a nominal sentence and can only mean 'The head is big'.) In addition, although it is not clear why, with many non-lexicalized compounds where both nouns are of the same gender and in the singular, there is a preference for definite forms over indefinite forms. Although a form such as se'ar xaze (hair (of) chest) - 'chest hair' theoretically exists as an indefinite, it is preferable to use the definite se'ar ha-xaze (hair (of) the-chest) - 'the chest hair'. To some extent this is also the case with lexicalized compounds. For example, 'ecem zanav (bone (of) tail) - 'tail bone' is possible, but 'ecem ha-zanav (bone (of) the-tail) - 'the tail bone' is preferred. Note that in colloquial usage, the definite article ha- precedes the first noun of lexicalized compounds. Thus, the "correct" definite form of bet sefer (house (of) book) - 'school' is bet ha-sefer - 'the school'. In the colloquial language, the form ha-bet sefer is used suggesting that in some sense the compound is viewed as a single word.

Usually the plural of a compound noun is formed by pluralizing only the first of the two nouns in the construction—i.e. the head noun. For instance, the plural of bet sefer - 'school' is batey sefer (houses (of) book) - 'schools' and the plural of klipat tapuz (peel (of) orange) - 'orange peel' is klipot tapuz (peels (of) orange) - 'orange peels'.

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However, it should be noted that in certain situations Hebrew also allows the pluralization of both nouns so that both *klipat tapuzim* (peel (of) oranges) - ‘orange peel’ and *klipot tapuzim* (peels (of) oranges) - ‘orange peels’ are also possible.

The above examples also show that word order in Hebrew differs from that of English. In Hebrew head nouns generally precede their modifiers. In the present work, where necessary the literal translation of a Hebrew form will be given in parentheses before the English gloss. The English gloss may include the definite article (in parentheses) if the Hebrew uses a definite form.

Whether a noun is simple or complex, it is monolexemic. In contrast, compound nouns are bilexemic forms; they are made up of two independent lexemes. The morphological structure of compound nouns is discussed here because like other nouns in the language they can serve as names. Other noun phrases or referring expressions may also be bilexemic. For example a noun + adjective construction such as *ha-‘txa ha-xazaka* - ‘the strong woman’ and *leset ‘elyona* - ‘upper jaw’ are bilexemic. Obviously, not all bilexemic forms are names. In fact, it is not even clear that all noun + noun constructions which are *smizut* forms are names.

Some forms are clearly names while others are clearly descriptions. For example, the simple noun *‘oref* - ‘nape’ is a name while the nominalized adjective *ha-lavan* - ‘the white’ is a description as is the phrase *ha-zelek ha-‘azori šel ha-cavar* (the-part the-back of the-neck) - ‘the back part of the neck’ is a description. The lexicalized compounds *perek ha-yad* (joint (of) the-hand) - ‘(the) wrist’ and *šen bina* - ‘wisdom tooth’ are clearly names, but other compound forms such as *se‘ar ha-xaze* - ‘(the) chest hair’ and *’ecem ha-yarez* - ‘(the) thigh bone’ seem more like descriptions. Perhaps this is so because they are not lexicalized compounds, but even lexicalized compounds can be descriptive, as for example *ros ha-har* (head (of) the mountain) - ‘(the) mountain top’. Similarly, it
seems that there are some noun + adjective phrases that are descriptions rather than names, but others which appear to be names. Compare leset 'elyona - 'upper jaw' which seems to be a description with šen zotezet (cutting tooth) - 'incisor' which is more like a name. While upper jaw uniquely describes a particular body part, the teeth called cutting teeth are not the only teeth that cut.

There are a number of factors which much be considered in order to determine if a bilexemic form is a name or a description including what word classes occur in the form and whether or not it is a lexicalized compound. Both names and descriptions can be referring expressions: various constructions may serve as referring expressions. The different kinds of referring expressions can be placed along a continuum with names at one end and descriptions (of the sort mentioned here) at the other end. The continuum includes the following: lexicalized smizut forms; non-lexicalized smizut form; noun + adjective; noun + adjectival clause; nominalized adjective and adjectival clause.

The discussion has focused on nouns and noun morphology because the present study is about a group of nouns, names for parts of the human body. These nouns, as well as any noun in Hebrew, may serve as the basis of derived words including other nouns as well as adjectives and verbs. Therefore, some discussion of the morphology of these other words and processes of derivation is given here.

As noted above, content words can be characterized in terms a consonantal root and a morphological pattern. For nouns and adjectives, the morphological pattern is called a miškal, literally "weight" and for verbs the morphological pattern is called a binyan, literally "construction".

There are a large number of miškalim which characterize strictly internal lexical categories; for the most part each miškal is independent of all the others. There are many kinds of nouns including those that name agents, instruments, places, and events, to
mention a few. Some examples of agent nouns include *melez* - 'king', *rakdan* - 'dancer', and *tabaz* - 'cook', whose morphological patterns are CeCeC, CaCCan, and CaCaC, respectively. Instrument nouns include *masrek* - 'comb', *boreg* - 'screw', and *potzan* - 'bottle opener', whose morphological patterns are maCCeC, CoCeC, and CoCCan, respectively. Place nouns include *mišva'a* - 'equation' *midbar* - 'desert' and *kibuc* - 'communal village', whose morphological patterns are miCCaCa, miCCaC, and CiCuC, respectively. Event nouns include *kenes* - 'conference', *te'ur* - 'description', *ši'ur* - 'lesson, class', *nasiga* - 'retreat', and *hafgana* - 'demonstration', whose morphological patterns are CeCeC, CeCuC, CiCuC, CaCiCa, and haCCaCa. Note that in common usage CeCuC and CiCuC have been collapsed. Thus, *št'ur* and *še'ur* are also possible. There are a variety of types of adjectives including color words, words for other physical characteristics such as size or shape, and words for ability. Some examples of such adjectives are *kaxol* - 'blue', *lavan* - 'white', *gadol* - 'big', *katan* - 'small', *šagol* - 'round', *savir* - 'reasonable', and *šamis* - 'usable'. In terms of morphological pattern, color words may be CaCoC or CaCaC, but there are others as well as for example, *zum* - 'brown', and *tzelet* - 'sky blue'. Similarly, adjectives for size and shape may be of the form CaCoC or CaCaC, but there are others as well such as *mərubə* - 'square'. Words for ability are generally in the CaCiC pattern, but this pattern is also used for other types of adjectives such as *bahir* - 'bright' and *pa'il* - 'active'. As apparent from the above examples, words of more than one *miskal* may occur in a given semantic class. Although there is some regularity in some cases, in general there is little correspondence between form and meaning. Note that some of these words are related to verbs and some are not.

The system of *miskalim* is such that it can be expanded easily making it open for innovations. Nouns and adjectives can be formed outside of a given *miskal*, as apparent
from words formed through borrowings which retain their foreign morphology. For exam-
ple, *katalog* - 'catalogue', *apendscit* - 'appendix', and *depressiv* - 'depressive' are all bor-
rowed words which do not have Hebrew morphology.8

The system of *binyanim* - 'verb conjugations' differs from the system of *miškalim* in a number of ways. To begin with the *binyanim* express different kinds of Aktionsarten such as voice, transitivity, causativity, reflexives and reciprocals as opposed to internal lexical categories. In addition, there are only seven *binyanim* and although not always predictable and regular, there are clear relations between them. The morphological patterns of the seven *binyanim* are: CaCaC; niCCaC; CiCeC; CuCaC; hiCCiC; huCCaC/hoCCaC; and hitCaCeC. CuCaC is the regular passive of CiCeC; huCCaC/hoCCaC is the regular passive of hiCCiC. For instance, *sudar* - 'be arranged, be organized' is the passive of *sider* - 'arrange, organize' and *huxtav* - 'be dictated' is the passive of *hiztiw* - 'dictate, cause to write'. To mention some of the other relations between the *binyanim*: niCCaC can be the middle voice for CaCaC verbs as for example, *niftax* - 'open' (as in *ha-delet niftaxa* - 'the door opened') related to *patax* - 'open' (as in *dan patax et ha-delet* (Dan opened OBJ the-door) - 'Dan opened the door'); hiCCaCer is the middle voice for CiCeC/CuCaC (active/passive) verbs as for example, *histader* - 'get arranged' related to *sider* - 'arrange, organize'; hiCCiC is the causative of CaCaC verbs as in *hiztiw* - 'dictate, cause to write' related to *kataw* - 'write'; hiCCiC is the transitive of CaCaC verbs as in *limed* - 'teach' related to *lamad* - 'learn'; and hitCaCeC is the reflexive of CaCaC verbs as in *hitlabeš* - 'dress oneself' related to *lavaš* - 'wear'; and hitCaCeC is the reciprocal of CaCaC verbs as in *hikatev* - 'correspond in writing (with someone)' related to *kataw* - 'write'. The above data show that the verbal conjugation system in Hebrew is much more regular than the system of morphological patterns for nouns. In principle, it is possible for a tri-consonantal root to surface in all seven conjuga-
tions. However, no root in the language actually does.

Finally, all verbs in the language occur within the existing system of binyanim. Even loan verbs into Hebrew are incorporated into this system making them indistinguishable in terms of morphological pattern from native verbs. For example, consider the verbs bilef - 'bluff', a denominal from the borrowed word blof - 'bluff' and hizdangef - 'walk along Dizengoff Street', a denominal from the name "Dizengoff". In both cases, the consonants of the words were used as roots for the new verbs each of which conforms to one of the existing binyanim. bilef - 'bluff' is a CiCeC verb just like diber - 'speak' and sider - 'arrange, organize'; hizdangef - 'walk along Dizengoff Street' is a hitCaCeC verb just like histakel - 'look at' and hitlonen - 'complain'.

Verbs in Hebrew are inflected for first, second, and third person, singular and plural number, as well as masculine and feminine gender in the second and third person. There are full paradigms for the past and future tenses; the present tense only distinguishes number and gender, but not person.

Needless to say, with such a rich morphological system, the derivational capacity of the language is great. There are derived nominals related to either verbs or adjectives. Some examples of deverbal nouns are ktiva - ‘writing’ derived from katav - ‘write’, dibur - ‘speaking’ derived from diber - ‘speak’, and hazlata - ‘decision’ derived from hezlit - ‘decide’. Some examples of deadjectival nouns are gasut - ‘crudeness’ derived from gas - ‘crude’, zozma - ‘wisdom’ derived from zazam - ‘wise’, and tuv - ‘goodness’ derived from tov - ‘good’. As already mentioned, there are also denominal verbs such as iyen - ‘look into’ derived from 'ayin - ‘eye’, and he’ezin - ‘listen’ derived from ‘ozen - ‘ear’, as well as bilef - ‘bluff’ derived from blof - ‘a bluff’ and hizdangef - ‘walk along Dizengoff Street’ derived from the name of the street. There are neologisms from existing roots such as tiskel - ‘frustrate’ where the root T-S-K-L has been formed by
prefixing T to the root S-K-L as in the verb *sikel* - ‘thwart’ and *zišben* - ‘calculate’ where the root X-S-B-N has been formed by suffixing N to the root X-S-B as in the verb *zišev* - ‘reckon’. (The N may have been "suffixed" to the root X-S-B as a result of a back-formation from the noun *zešbon* - ‘arithmetic’.) New words can also be created through a process of blending whereby pieces of existing words are put together (not as compounds) resulting in a new form. For example, *zamsir* - ‘limerick’ is a blend of *zameš* - ‘five’ and *šir* - ‘song’; *mazazemer* - ‘musical’ is a blend of *mazaze* - ‘play’ and *zemer* - ‘song’.

In addition to native vocabulary, the Hebrew lexicon also includes content words which have been borrowed into the language. There are older borrowings from languages such as Greek as for example, *nim* - ‘capillary’ from Greek *nema* - ‘thread’, and *sanegor* - ‘defense attorney’ from Greek *sanegoros*. There are also newer borrowings from Yiddish and other European languages, especially English. For instance, *pupik* - ‘belly button’ and *nudnik* - ‘nuisance’ are from Yiddish and *sendvič* - ‘sandwich’ and *bos* - ‘boss’ are from English. In addition, there are lexical items taken from Arabic and considered slang. Some examples include *’ahlan* - ‘Hi!’ from the Arabic term meaning ‘Welcome!’; *kus*, a slang term for the female sexual organ, and *finjan* - ‘coffeepot’. Of course, there are many more instances of borrowings from these and other languages.

The present study concerns only a small part of the lexicon in Modern Hebrew, that of body part terminology. Many, although not all, of the above-mentioned issues regarding Hebrew morphology, derivational patterns and word formation devices are immediately relevant. In the domain of body part terminology there are simple, complex, and compound nouns among which can be found those that have a dual form. There are many "primitive" nouns, but there are also verb related nouns in the domain. Many of the terms in the domain are of Semitic origins, but there are also borrowings from Greek...
and Latin as well as Yiddish and Arabic. In addition, the present study includes denominal verbs and adjectives related to body part terms.

2.3 Modern Hebrew as a Spoken Language

Modern Hebrew as a spoken language has a unique position among modern spoken languages for a number of reasons. First of all, the language was revived for everyday use after more than one thousand years of use only for literary and liturgical purposes. In addition, the modern language consists of lexical and grammatical material from all earlier periods of Hebrew as well as new coinages and borrowings. These two factors have influenced the linguistic repertoires and attitudes of speakers of Modern Hebrew.

The history and development of Hebrew as a spoken language can be divided into three main periods: Biblical Hebrew (c.1200 B.C.E.-300 B.C.E.); Mishnaic Hebrew (300 B.C.E.-600 C.E.); and Modern Hebrew (late 19th century-present). There is a gap between the period of Mishnaic Hebrew and Modern Hebrew during which the language was not used for everyday speaking purposes, although it was written. With the rise of Jewish nationalism approximately one hundred years ago, the language began to be revived and used for everyday purposes.

Unlike other modern languages, Modern Hebrew is not a direct outgrowth of the stage of the language which immediately precedes it. Modern Hebrew draws upon Biblical Hebrew and Mishnaic Hebrew for vocabulary and grammatical constructions. As a result, these earlier periods of the language are available to the speaker of Modern Hebrew in a way that earlier periods of English are not available to the speaker of Modern English. Thus, for example, a speaker of Modern Hebrew will have little or no difficulty in reading and comprehending a passage from the Bible even though that passage may contain words or expressions which are not in current use or have a different meaning in the modern language. The same could not be said with respect to speakers of English and their
ability to understand a passage from Chaucer or Shakespeare even though these authors are much closer in time to Modern English than Biblical Hebrew is to Modern Hebrew.

Speakers of Modern Hebrew differ from speakers of Modern English in other respects as well. Typically, the speaker of Modern English uses lexical items of Latinate origin in formal contexts and lexical items of Germanic origin in informal situations. For example, the words *manual*, *ocular*, and *pedestrian* are learned and of Latinate origin. In contrast, the words *hand*, *eye*, and *foot* are common and of Germanic origin. The speaker of Modern Hebrew cannot determine the degree of formality of a word based on its source. As already mentioned, the lexicon of Modern Hebrew includes words form Biblical Hebrew and Mishnaic Hebrew. However, there is no systematic relationship between the source of a word and its level of formality in the modern language.

In Modern Hebrew there are many cases of two different words, one Biblical and one Mishnaic, which differ in terms of level of formality. In some cases it is the Biblical word which is used in formal contexts and the Mishnaic word which is used in informal situations. For example, 'ulan - 'tree' is Biblical and formal and 'ec - 'tree' is Mishnaic and informal; 'ata - 'now' is Biblical and formal and 'azzav - 'now' is Mishnaic and informal. In other cases the reverse is true, that is, the Mishnaic word is used in formal contexts and the Biblical word is used in informal situations. For instance, *rama* - 'sun' is Mishnaic and formal and *jemeg* - 'sun' is Biblical and informal; *psi'ya* - 'step' is Mishnaic and formal and *ca'ad* - 'step' is Biblical and informal.\(^\text{11}\)

In a similar vein, a speaker of Modern Hebrew can use phrases from the Bible which are neutral with respect to degree of formality in the modern language. For example, *maza kapayim* - 'clap hands' is a commonly heard phrase as is *basar va-dam* (flesh and-blood) - 'human being'. Of course, there are many such phrases and expressions in use in the modern language.
This stands in contrast to the speaker of Modern English who would use phrases or expressions from Chaucer or Shakespeare and sound odd. To begin with, in many cases the form of a word is different today than, for example, in the English of Shakespeare’s time. Although certain lines from Shakespeare’s plays have become part of the repertoire of educated speakers and in an appropriate context might be quoted with a touch of sarcasm or irony (e.g. from Hamlet: “To be or not to be, that is the question” and “Get thee to a nunnery!”), speakers of English don’t ordinarily walk around quoting Shakespeare and when they do, it is marked.

The unusual circumstances of the revival of Hebrew set the stage for the establishment of a very strong purist and normativist tradition with regards to the language. This tradition has influenced the way Hebrew is taught in Israeli schools and the kind of linguistic research done on the language. Hebrew is taught in a highly prescriptive manner and until recently, Hebrew language studies tended to be historically and philologically oriented with research on Modern Hebrew restricted to the written language. All of this has influenced Israelis’ attitudes toward their language to the point where some would protest that certain everyday usages are not really Hebrew.

As mentioned above, certain common usages are frowned upon. Examples of this include (1) the use of the stops [p], [b], and [k] after a vowel rather than the “correct” fricative [f], [v], and [x], respectively; and (2) using the form ha- rather than the “correct” he- for the definite article with words that have initial gutturals. In colloquial usage we also find instances of the definite article preceding both nouns in a lexicalized compound rather than the “correct” form in which the definite article only occurs before the second of the two nouns. Finally, the use of non-Hebrew lexical items is also unacceptable to normativists, although quite common in everyday language.12

In some circumstances formal literary Hebrew reflects normativism in the language.
There are a number of forms and constructions which are characteristic of formal literary Hebrew as compared to the spoken language. Some examples of these include: (1) the use of bound forms in genitive constructions such as \( \text{za}^\text{s}^\text{i}^\text{v}^\text{u}^\text{t} \ \text{ha}^\text{-}^\text{iny}^\text{a}^\text{n} \) (importance (of) the-matter) as compared to the separate form \( \text{ha}^\text{-}^\text{za}^\text{s}^\text{i}^\text{v}^\text{u}^\text{t} \text{ sel} \text{ ha}^\text{-}^\text{iny}^\text{a}^\text{n} \) (the-importance of the matter) or the double form \( \text{za}^\text{s}^\text{i}^\text{v}^\text{u}^\text{t} \text{ o} \text{ sel} \text{ ha}^\text{-}^\text{iny}^\text{a}^\text{n} \) (importance-its of the-matter), where all mean ‘the importance of the matter’; (2) placing a verb before its subject in a sentence which has a preposed modifier; (3) the use of the negative particle ‘\(^\text{e}^\text{yn} \) before the subject as opposed to ‘\(^\text{lo} \) before the verb in present tense sentences; and (4) the use of personal pronouns for the copula as opposed to ‘\(^\text{za} \), a deictic word. Note that in the last two examples the formal literary style is normative.

The formal literary language is one variety of the written language. Of course, there are several kinds of written language. For example, the language of newspapers differs from that of literature; there are also different literary forms including prose and poetry. Clearly, speakers of Hebrew understand journales and literary language, but typically these are not the varieties of the language that are spoken in everyday situations.

What is everyday usage? While it is intuitively appealing to designate the focus of this work as everyday usages, it is difficult to characterize exactly what that is. This is in part because everyday language includes a variety of styles and registers, phenomena which are also difficult to characterize. Language may vary according to style which can be defined along a continuum from formal to informal. A number of factors including social context, relationship between speaker and hearer, and subject matter contribute to the style of language used on different occasions. Note that while written language tends to be more formal than spoken, there can be situations in which formal language is used when speaking and informal language is used in writing. For example, a university lecture might be formal while a personal letter is likely to be informal. Register can be defined in
terms of systematic variation of vocabulary according to social context. For example, when speaking privately to a friend one might use different lexical items (for the same referents) than when speaking in public to someone in a position of authority. Words of different registers are appropriate in each situation. Of course style and register also interact. The particular style used in a given context might require the use of words of one or another register.

The situation becomes more complicated when dealing with Hebrew given the normativist tradition and speakers' attitudes toward their language. Speakers of Hebrew belong to a culture in which the written word is revered in part because the Hebrew language has a long and great written tradition. There are also speakers of Hebrew who equate the spoken language with slang.

Except where noted, the data in this work represents everyday usages—i.e. the language spoken by peers in informal situations. Some written sources were drawn upon as well. A few examples were taken from the works of A. B. Yehoshua, a modern Israeli writer, and Y. Amichai, a modern Israeli poet and writer. These writers differ from earlier writers who preferred using Mishnaic or Biblical Hebrew in their fictional writings. In particular, A. B. Yehoshua is known for using what might be called "Modern Standard Written Hebrew" in his fictional works. Although the written language differs in a variety of ways from the spoken language, it still provides information about the modern language in general. In addition, the nature of the present work is such that Biblical and Mishnaic Hebrew are necessarily included. Aside from the fact that the modern spoken language has material from both of these periods, sometimes it is necessary to document earlier usages and changes in the language. Finally, the present work also includes some technical terminology—i.e. words which average speakers would not know.

As mentioned above, the term 'Modern Hebrew' refers to the period of the language
from the end of the 19th century to the present, approximately 100 years. The present work does not deal with the entire period, rather it is concerned with Hebrew as it is spoken in Israel today. Blanc (1968) used the term 'General Israeli Hebrew' for the language spoken by native Israelis of European background, including those whose families had immigrated from Europe and parts of the New World among whom Yiddish was the everyday language. Today more than half of the Israeli population is of non-European extraction including those whose families immigrated from various parts of the Arabic-speaking world for whom a dialect of Arabic was the everyday language. Although some linguists now use the term 'Modern Israeli Hebrew' for the modern language as spoken by people born and educated in Israel, following Cole (1976), Berman (1978), and others, in the present study I use the term 'Modern Hebrew'. (See section 3.2 for biographical information about speakers who participated in this study.)
Notes to Chapter 2

1. In addition to my own knowledge about the Hebrew language, the material presented here has been drawn from Ornan (1972), Berman (1978), and Bolozky (1978).

2. This is but one example of a more widespread phenomenon involving vowel changes in the environment of gutturals. See Barkai (1972) and Bolozky (1978) for more detailed discussions of the issues relating to gutturals.

3. The characterization of spirantization in Modern Hebrew is complicated by a number of factors including some of the changes mentioned here as well as the fact that Hebrew no longer has geminate consonants.

4. Word final consonant clusters are permitted in the second person feminine singular of the past tense as for example halaz - ‘you walked’ and gamart - ‘you finished’. In principle, word initial clusters should be broken with a schwa. However, word initial consonant clusters do occur particularly if the two consonants are NOT homorganic or sonorants as for example bli - ‘without’ and sfarim - ‘books’.

5. Traditional grammarians such as Gesenius characterize these nouns as "primitive" (1910:225). Berman challenges this view suggesting that the traditional distinction between primitive nouns and verb-derived nouns is no longer relevant (1978:389-391).

6. The details of the relationship between morphological complexity and semantic complexity are not discussed here. The purpose at present is to point out the distinction between morphologically simple and morphologically complex forms. As such illustrative examples including easily isolatable affixes with fairly regular and predictable meanings were chosen deliberately.

7. Reif (1968) and Levi (1976) give lengthy descriptions as well as syntactic and/or semantic analyses of Modern Hebrew compound nouns primarily based on data from written sources. Petruck (1979b) deals with the production of novel compounds in Modern Hebrew. In Chapter 7 of Berman (1978), other uses of the smizut construction are discussed along with a more detailed description of the morphological forms of construct state nouns.

8. See Barkali (1964) for a full list of nouns in Hebrew.

9. See Sadka (1964) for a full list of verbs in Hebrew.

10. When the first C of a hitCaCeC form is alveolar or palato-alveolar, metathesis with the preceding t regularly occurs. I have also heard a speaker of Hebrew residing in Berkeley use the novel form hitlagref - ‘walk along Telegraph Avenue’.

11. Berman (1978) has shown that when it comes to structural aspects of the language the sources are more or less predictable with respect to stylistic register. Biblical forms are common in formal usage and Mishnaic forms are used colloquially. For
example, the use of attached accusative pronominal suffixes as in Biblical Hebrew is characteristic of formal language, whereas the use of the full pronoun as in Mishnaic Hebrew is typical of the colloquial.

12. Of course, there are such "misuses" of the language in the area of syntax too, a well-known example of which is the insertion of the definite object marker 'et in possessive sentences such as yeš lo 'et ha-sefer (there-is to-him OBJ the-book) - 'He has the book' rather than the normative yeš lo ha-sefer - 'He has the book'.

13. The double smizut is in the process of becoming a mark of standard Hebrew. It is especially popular in professional, non-literary discourse, as well as in the language of the media.

14. In contrast, S. Y. Agnon, winner of the Nobel Prize for literature, used either Biblical Hebrew or Mishnaic Hebrew style in his writings.
Chapter Three: Methodology

In this chapter, I will discuss the various data collection techniques and sources of information used in the present study, as well as point out the strengths and weaknesses of each, suggesting alternatives where appropriate. In addition, I will provide background information about the setting in which an important part of the data collection was conducted, the people who participated in the study, and the people who assisted in collecting the data. Finally, I will comment on the onomasiological and the semasiological approaches to the study of meaning and their relevance to the present study.

3.1 Data Collection

3.1.1 Dictionary Work

The early phases of the data collection for this work involved culling material from dictionaries, the main one of which was Even-Shoshan (1982). Even-Shoshan (1982) incorporates much of the information provided in the monumental work of Ben-Yehuda (1960), the first dictionary of Modern Hebrew, and necessarily includes more recent material. The dictionary work was seen as necessary preparation for the more important data collection phase of the research which involved elicitation and interviews from native speakers of Modern Hebrew. Becoming familiar with the individual words and the phrases in which they occur as well as gaining some understanding of their meaning and usage provided a basis for formulating questions to obtain information from speakers.

There are certain problems and limitations in using dictionary data. To begin with, the definition of a word given in a dictionary may include another word whose referent is not known. In such cases, the meaning of the first word is dependent upon the meaning of the second word. Until the latter is determined, the dictionary definition for the former is not useful. In addition, as is the case with most dictionaries, Even-Shoshan (1982) tends
to be normative and oftentimes provides "correct" forms rather than the commonly used everyday forms and certain types of language are omitted completely. In an attempt to compensate for the normativeness of the dictionary, other references were consulted including Sappan (1967) and Ben-Amotz and Ben-Yehuda (1972, 1982). While these dictionaries might not be considered scholarly works, they provide a wealth of information about the spoken language, especially slang.

The nature of Modern Hebrew as a spoken language is such that a dictionary of the language must include material from both Biblical Hebrew and Mishnaic Hebrew. This is only problematic if there is no indication as to whether the material from these earlier periods of the language is in current usage. Even-Shoshan (1982) does not indicate which Biblical Hebrew and Mishnaic Hebrew words and phrases are current. Finally, since Even-Shoshan (1982) is not an etymological dictionary, there are only a selection of citations from Biblical Hebrew and Mishnaic Hebrew. Thus, in some cases it was necessary to consult dictionaries and concordances of Biblical Hebrew and Mishnaic Hebrew as well as the sources themselves in order to establish earlier occurrences and usages of words and phrases.

3.1.2 Informant Work

Field work in Israel was structured around a picture-based elicitation task followed by interviews to review and discuss data and obtain additional data. Initially subjects were asked to name and identify as many body parts as they could from the pictures. Subjects were asked to identify boundaries for those areas of the body that do not have visible demarcations (e.g. back, chest) in an attempt to determine the exact referent of the corresponding terms. During the follow-up interviews subjects were asked to name body parts that they had not identified from the pictures. They were also asked to give other terms for body parts in other speech situations. This was done in order to obtain
the different words for body parts that have more than one name. Finally, subjects were asked to give expressions containing body part terms. These expressions provide a means of examining the kinds of extensions and metaphors made with body part terms.

The initial elicitation was done with pictures rather than with an oral interview for several reasons. As much as possible, I wanted to eliminate the potential awkwardness of the foreign researcher-native speaker informant elicitation situation. In addition, I wanted to eliminate the potentially uncomfortable situation in eliciting body part terms, a particularly sensitive area of the vocabulary in many cultures. Finally, I wanted to avoid imposing my own cultural and linguistic prejudices on the informants by verbal elicitation.

A set of unlabeled pictures drawn by a professional medical illustrator was used for the elicitation. In a study of this sort the quality of the elicitation stimuli is crucial. The pictures had to be professional so that subjects would respond sincerely indicating that they regard the work as serious scholarship. The pictures also had to be anatomically accurate and sufficiently detailed while remaining inoffensive. The set of pictures used for elicitation included front and back views of male and female adults, as well as enlargements of the face, hands, and feet, and views of the internal body including the bones, some muscles, and the major internal organs.²

Informants were given general instructions for the picture-based elicitation task to name and identify parts of the body from the illustrations. The parts to be named were not specified nor was any order for the naming mentioned. If any informant asked where to begin, (s)he was told to begin where (s)he wanted to. Only after it became apparent that an informant had exhausted his/her own repertoire of terms did a researcher begin probing and questioning to elicit additional data. At times a term was simply inadvertently left out and when asked, the informant provided the commonly used word for
whatever part was involved. Sometimes a term was deliberately left out because of its taboo status in the language and the embarrassment it caused the informant. At times informants did not know a name for a particular part and when the commonly used word was suggested, they stated whether they had ever heard of it and if so how and when it was used. Sometimes informants knew words and knew that they were names for parts of the body, but could not identify the appropriate part of the body in the picture.

For each informant, a set of clear plastic overlays was provided. A plastic overlay was placed on an illustration so that the informant could outline the part or area that (s)he was referring to when using a particular term. This was especially important when informants were naming and identifying areas of the body which do not have visible demarcations. There is not always complete agreement about the exact boundaries of these areas. In addition, the drawing part of the task ultimately served as a good distraction from informants concern about their oral performance and some embarrassment over the pictures.3

All elicitation sessions and follow-up interviews were tape-recorded. After each meeting the tape was transcribed usually with the help of a research assistant. The data obtained during the initial elicitation session and the first follow-up interview were recorded onto prepared data sheets. Thus, for each informant there is a set of data sheets corresponding to the set of pictures used in the elicitation task. A record was kept of the order in which terms were given and whether the term was volunteered or accepted by an informant after suggested by the researcher.4

There are a number of problems with the picture-based elicitation task having to do with the pictures themselves as well as with the way informants performed during the task. A two-dimensional picture does not achieve the same effect as for example a three-dimensional model. An attempt to compensate for this was made by having a pic-
ture of the inside of the mouth as well as pictures of the internal organs, the bones, and some of the muscles. While these helped provide a bit of a third-dimension, pictures of the internal body tended to make informants respond as if the elicitation was an examination rather than linguistic field work. Given the domain, it is not clear that there is a way to avoid this effect. Moreover, this sort of response lends support to the claim that average speakers often don’t know that much about the internal body.

Note that the illustrations of the face, both the front view and the side view were male faces. Obviously, this was done to elicit certain words that named male facial hair and it presumed that such terms were not used for females. Additional elicitation was required to verify that this was so. Note also that there was no picture of the brain in the set of illustrations, while a revised set of pictures would include one. (The word for ‘brain’ did come up in other contexts.)

Informants had different styles of drawing so that some were neat and careful about indicating the body part that was named with a particular term and some were much less careful. In some cases this made it difficult to determine what a speaker intended as the referent of a term in particular one whose boundaries are not defined by physical demarcations.

Some of these inadequacies were compensated for with additional informant work done with speakers of Hebrew (residing in California) who had not participated in the picture-based elicitation task. For the most part, this involved eliciting sentences and getting acceptability judgements on sentences with "problematic" body part terms including polysemous terms and terms with interesting or unusual histories. Under ideal circumstances, this would have been done with the speakers who participated in the picture-based elicitation task.
3.2 Setting, Informants, and Research Assistants

3.2.1 Setting

Jerusalem, the capital of Israel, is located on a plateau in the Judaean hills and covers an area of approximately 40 square miles. Although it is inhabited by less than half a million people, many more have considered it the center of the world. Throughout history Jerusalem has been a center of world attention for social, political, and religious reasons.

Jerusalem can be characterized as a city of contrast and mixture. Perhaps the contrast between the old and the new is the most striking. It is seen in the ancient structures and the modern edifices, the narrow stone passageways and the wide asphalt thoroughfares, the old-fashioned open markets and the fancy new boutiques and department stores. Jerusalem is the home of important holy sites of three of the world's major religions; in it reside the non-believer and the devout, the secular and the religious. Some of the city's inhabitants come from families that have been there for generations; others are new immigrants from different countries around the world. The melange of peoples, cultures, religions, and languages and the meeting of lifestyles, beliefs and attitudes, habits and manners of dress give the city a unique color which enhances its special beauty.

3.2.2 Informants

All of the informants who participated in the picture-based elicitation task resided in various Jewish neighborhoods throughout Jerusalem. Aside from meeting the stipulations of age and sex, the selection of informants was based on a number of criteria concerning ancestry and linguistic background. Since Jews who live in Jerusalem come from many different countries, they do not constitute a single linguistic community. As such, it was necessary to select one group of people from which informants would be chosen. Informants were chosen from the population of Ashkenazic Jews, that is, Jews of European
extraction. All but one of the informants were born in Israel and grew up speaking Hebrew either because it was the only language spoken at home or because it was the dominant language.\footnote{5}

Twelve speakers of Modern Hebrew, six men and six women in three age groups, participated in the picture-based elicitation task. Male and female speakers of different age groups were included so that the data would be representative of a wide range of the adult Hebrew speaking population. The three age groups were 18 year-olds, 30 year-olds, and 50 year-olds. Although individual differences between speakers of different ages and sexes are not examined in detail, particularly noteworthy differences are pointed out.

The 18-year olds had completed high school and were about to begin their army service. Both of the women in the 30-year old group had completed high school and had some higher education. One had studied physical education at a teacher's seminary and the other had completed two years of university in history and art history. Neither were employed at the time of the research. Both of the men in the 30-year old group had completed high school. During the period of the research, one was studying philosophy and psychology at the university and the other was self-employed while seeking professional training as a translator. All of the informants in the 50-year old group had completed at least a B.A. degree. One of the men in this group was an economist employed by the government. The other had an advanced degree in Hebrew literature and was a supervisor in the Israeli school system. One of the 50-year old women had an M.A. in special education and was employed in that field. The other one had an M.A. in religion and Hebrew language and was a supervisor in the Israeli school system.

As is the case with all people who go through the Israeli school system, all of the informants had studied English beginning in elementary school. Most of them understood the language; some could converse freely in it. Those who attended university could read
English as well. A few of the informants had lived in the United States for two or three year periods as children or young adults. Some of the informants had studied French in high school or university; none of them knew the language well. Some of the informants had some exposure to Yiddish having grown up in homes where parents or grandparents spoke that language. Three of the 18-year olds and one of the 30-year old women had studied Modern Standard Arabic for two or more years in elementary or high school. None of these people claimed any fluency in the language. One of the 50-year old women had studied colloquial Arabic in high school and could speak a bit. She had also studied Modern Standard Arabic and could read a bit.

At no time did any informant's exposure to, knowledge of or acquaintance with any other language seem to interfere with their natural use of Hebrew during the elicitation sessions and interviews. In addition, although some of the informants had specific interest or special training in the Hebrew language or language related studies, this did not seem to influence their performance during the data collection.

Some details concerning the families of the informants and their linguistic backgrounds are of interest here. All of the 18 year-olds were second generation Israelis—both they and their parents were born in Israel. The 18 year-olds are clearly native speakers of Hebrew having parents who grew up speaking that language, even though the informants grandparents did not speak Hebrew natively. In the 30-year old group there were two informants each of whom had one parent who was not born in Israel, but went to live there as a child. In this group informants qualify as native speakers since at most only one parent did not have Hebrew as their first language and by the time they were adults Hebrew was their dominant (and nearly exclusive) language. In the 50 year-old group, only one informant had parents both of whom were born in Israel. The other three each had one parent who had not been born in Israel, but went to live there as a young adult.
Although the parents of the informants in the 50-year old group usually did not speak Hebrew natively, they did speak the language for ideological and nationalistic reasons. Furthermore, the informants themselves were educated entirely in Hebrew-language schools. Thus, at the very least these informants are near-native speakers.

Although the sample population is small, it does depict quite accurately some typical family histories and linguistic backgrounds of the segment of Israeli society from which it is drawn. The origins and linguistic backgrounds of the people in this sample population reflect the history of Israel as an immigrant society and an aspect of the history of Modern Hebrew as a spoken language.

Most of the informants were chosen from a group of people who had responded to an advertisement in a local newspaper. They were told what the research was about, what was required of them, and how long it would take. After determining that a particular person met the criteria for participation in the study, an agreement for them to do so was ascertained. Generally, those who participated in the study did so out of a stated interest in the Hebrew language and a curiosity about the research as well as the desire to help a foreigner. Some of the younger informants were also seduced by the offer of financial compensation for their participation. The four older informants simply refused such compensation.

Virtually every informant was initially somewhat embarrassed at the beginning of the picture-based elicitation task, but overcame the embarrassment after a relatively short period of time. Oftentimes informants had to be coaxed to use the well-known everyday Modern Hebrew forms rather than the "good" or "correct" forms which they insisted were utterly natural to their own speech. Sometimes informants used stylistically high forms or technical terms in what seemed to be an attempt to make a good impression about their knowledge of Hebrew. Occasionally, speakers apologized for their (so-called)
lack of knowledge or inability to recall more information. Sometimes informants were uncomfortable with periods of silence during the interviews in which expressions were being collected. Asking questions about previously mentioned expressions usually alleviated some of this discomfort and prompted them to recall other expressions.

The 18 and 30 year-olds were interviewed in my home; the 50 year-olds were interviewed in their homes. I conducted all of the interviews in Hebrew. All in all, informants completed the elicitation task successfully and conversed quite freely during the follow-up interviews providing data, explanations, and additional information.

3.2.3 Research Assistants

A research assistant was present during the initial interview with each informant. The nature of the picture-based elicitation task was such that certain kinds of information could not be tape-recorded, for example the part or area designated when a particular term was used. The assistant's main function was to take notes on this information so that when the tapes were reviewed what the informant said could be coordinated with what the informant did.

Part of the time an American woman with some training in linguistics and sufficient knowledge of Hebrew assisted during the initial interview. Part of the time a woman studying for a masters degree in Communication assisted. Their educational backgrounds and language proficiency had no bearing on the informants' performance during the picture-based elicitation task especially since neither assistant actually spoke to an informant during the interview. Furthermore, there did not seem to be any overall significant effect on the male informants as a result of being interviewed by women.
3.3 Onomasiology and Semasiology

The investigation of the lexical semantic domain of body part terminology and in fact the investigation of any semantic domain in any language presents the linguist with an opportunity to address a number of theoretical issues. Exactly which issues are discussed and the manner in which they are discussed depends in part on individual preferences and interests and in part on points of view. Expressed in very general terms, the lexical semanticist is interested in the meanings of words, but (s)he is also concerned with the words to convey meanings. Although it does not always seem useful and has not always been made explicit, it is possible to distinguish these two points of view, the former being 'semasiological'—looking for the senses of a word—and the latter being 'onomasiological'—looking for the word that expresses a sense.

Ullman formulates the distinction between the 'semasiological' and the 'onomasiological' points of view with respect to linguistic method. "Since meaning is a reciprocal and reversible relation between name and sense, it can be investigated by starting from either end: one can start from the name and look for the sense or senses attached to it...but one can also start from the sense and look for the name or names connected with it" (1962:3). To illustrate the distinction, consider the difference between a dictionary and a thesaurus. In using an alphabetically arranged dictionary one knows the name and is seeking the sense or senses associated with it; this exemplifies the semasiological approach. On the other hand, in using a thesaurus one knows the sense and is seeking the name or names used to designate that sense; this exemplifies the onomasiological approach. As Ullman suggests, the two approaches can be seen "not as two distinct disciplines but as parallel methods starting at opposite ends. The two methods are complementary, and in certain types of inquiry may even be combined with interesting results" (1962:64).

The present study incorporates both points of view. The picture-based elicitation
task assumed both an onomasiological and a semasiological approach. When lay observers of the human figure name the parts of the body, they are answering a question which is both onomasiological and semasiological. The onomasiological side is answered when they provide the name; the semasiological side is answered when they designate the part or area referred to by that name.

The way in which speakers answer certain questions is in part a function of how they view the object under observation. Thus, for example when asked 'What are the major subdivisions of the body?' a speaker of Hebrew is likely to answer: *roś* - 'head'; *guf* - 'trunk'; *yadayim* - '(two) arms'; and *raglayim* - '(two) legs'. The lay observer of the human figure sees one head and one trunk, so (s)he uses singular forms for these; (s)he sees two arms and two legs, so (s)he uses dual/plural forms for these. When asked 'What are the parts of the head?' the lay observer focuses on the head and names what (s)he sees. For example, (s)he might say: *mecaz* - 'forehead'; *nzirayim* - '(two) nostrils'; *risim* - 'eyelashes' etc. When asked 'What are the parts of the arm?', the observer of the visually apparent figure focuses on the arm and names what (s)he sees. For example, (s)he might say *ecba'ot* - 'fingers'; *kaf ha-yad* - '(the) hand'; *marpek* - 'elbow', etc. because (s)he sees several fingers, one hand, one elbow, etc. Interestingly enough, during the picture-based elicitation task, informants used two naming strategies for paired body parts. Some informants used a dual/plural form, if it exists, or a plural form (e.g. *'eynayim* - '(two)eyes', *marpek kim* - 'elbows'); others used a singular form (e.g. *'ayin* - 'eye', *marpek* - 'elbow'), oftentimes mentioning it twice or commenting that the other member of the pair had the same name. The point being made should be clear. What speakers are focusing on and what they find salient determines how they answer the question.

This sort of questioning is useful for determining the lexical items used and to some
extent helps organize the terms in the domain. A presentation and description of the lexical semantic domain of body part terminology requires other kinds of questions as well. After gathering all the relevant terms and determining their morphologically simplest forms, the terms must be classified and categorized in a way which reflects the semantic structure of the domain. Questions and tasks which assume a semasiological approach to the study of meaning are useful for this. One such task involved sorting a set of cards each of which had a Hebrew body part term written on it in its morphologically simplest form. This sort of task assumes a semasiological approach since the way in which the cards are grouped reveals information about the sense of a term and its relationship to other terms in the domain. The organization of the terms in the domain (presented in Chapter 4 and Chapter 5) is reflected in part by the division and subdivision of the cards into related groups.

The dictionary work that was done in the initial phases of the data collection assumed a semasiological approach to the study of meaning since the purpose of that work was to learn what senses are associated with individual words, at least according to some standard references. Having informants provide example sentences of individual words in different contexts also assumes a semasiological approach since the object of such an exercise is to determine the meaning or meanings of a term. Eliciting other names for the same part (synonyms or near synonyms) assumes an onomasiological approach; documenting the different senses of polysemous body part terms assumes a semasiological approach as does determining the meanings of terms at earlier periods of the language.

As mentioned above, Ullman suggests that the combination of the two approaches might produce interesting results. Here, I suggest that only the combination of the two perspectives yields interesting results.
Notes to Chapter 3

1. See Appendix I for a copy of the set of pictures used during the interviews.

2. The illustrations were done by Sandra McMahon.

3. See Appendix II for a set of composite drawings for each term in the domain whose boundaries are not well-defined.

4. See Appendix III for the set of sheets on which the data obtained during the interviews were recorded.

5. One of the 50 year-old men was born in Poland and went to Israel as a young child.

6. Speakers of Hebrew who provided the additional data were all females, aged 30-40, had been born in Israel, and were of European ancestry. They had been educated in the Israeli school system and had completed university degrees in Israel. They had all lived in California for more than three years and, for all practical purposes, were fluent in English.

7. See Appendix IV for a complete list of the terms used in the card-sorting task. Note that only one speaker performed this task.
Chapter Four: The Lay Observer of the Human Figure

4.0 Introduction

In what follows, the lexical semantic domain of body part terminology in Modern Hebrew is discussed according to an organization of the data based on the different ways in which the human body may be experienced. The first experiential mode to be discussed is that of the lay observer of the human figure who sees external body parts and visible internal parts. Visible internal parts include those which are accessible to the viewer without special instruments (e.g. tongue, teeth), as well as those which for a variety of reasons may be apparent on the surface of the body (e.g. bone, muscle). In addition, the lay observer also sees some body fluids (e.g. blood, urine) under certain circumstances. External body parts and internal parts visible without any special instruments are discussed first.

As discussed earlier (section 3.3), some of the data collection techniques assumed an onomasiological approach and some assumed a semasiological approach. A characterization of the structure of the lexical semantic domain of body part terminology in Modern Hebrew as determined by the various means of data collection described above is given in Figures 1-6. Figure 1 gives the first level of categorization and Figures 2-6 give further details for each category in Figure 1.
Figure 2

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guf - body

cavar - neck

cavar/garon - neck (front)  'oref - nape

pika/pikat ha-cavar/gargeret - Adam's apple

Figure 3
Figure 5

"part-of"

"kind-of"
One thing to notice about Figure 1 is that the term *cavar* - ‘neck’ is included, whereas it was not included in the answer to the question ‘What are the major subdivisions of the body?’ It seems that the lay observer of the human figure does not see the neck as a major subdivision of the body, perhaps because it is not very big or because it is conceived of as a transitional link. The term *cavar* - ‘neck’ clearly belongs to the domain of body part terminology. The results from the card-sorting task (section 3.3) as well as responses from informants about its position in the hierarchic organization of the terms in the domain require that *cavar* - ‘neck’ be categorized as in Figure 1. It is not considered to be part of *ros* - ‘head’ or *guf* - ‘trunk’.¹ ²

Another thing to notice about these charts is that the term *katef* - ‘shoulder’ is included in both Figure 4 and Figure 5. McClure (1975) points out that the body part domain has overlapping categories as suggested by the fact that informants list ‘shoulder’ as part of ‘trunk’ and part of ‘arm’. As discussed above, Fillmore’s notion of a ‘frame’ provides a different way of talking about this issue. In particular, the question of overlapping categories and category membership (cf. McClure 1975) can be reconsidered. Rather than worrying about the fact that a word can belong to several categories and that overlapping categories make messy systems, it is possible to talk about elements which are simultaneously part of more than one frame, and that speakers are capable of accessing different frames and dealing with less than ideal situations.

As noted above, several relationships link the terms in the domain. The ‘part-of’ relationship is an important semantic link between elements in the body part domain. Partonomic chains are easy to find, such as that linking *'isōn* - ‘pupil’ to *galgal ha-'ayin* - ‘(the) eyeball’ to *'ayin* - ‘eye’ to *panim* - ‘face’ to *ros* - ‘head’ to *guf* - ‘body’ (Figure 2). Others are *safa* - ‘lip’ to *pe* - ‘mouth’ to *panim* - ‘face’ to *guf* - ‘body’ (Figure 2); *'oref* - ‘nape’ to *cavar* - ‘neck’ to *guf* - ‘body’ (Figure 3);
pitma - 'nipple' to šad - 'breast' to xaze - 'chest' to guf - 'trunk' to guf - 'body' (Figure 4); ciporen - 'fingernail' to 'ecba - 'finger' to guf - 'body' (Figure 5); and ciporen ha-bohen - 'toenail' to 'ecba/bohen - 'toe' to (kaf) regel - 'foot' to regel - 'leg' to guf - 'body' (Figure 6).

The 'kind-of' relationship is another semantic link between elements in the body part domain. Taxonomic structure is found in different parts of the domain as for example šen zotexet - 'incisor', niv - 'canine tooth', šen tozenet - 'molar', and šen bina - 'wisdom tooth', all of which are kinds of teeth (Figure 2), and 'agudal - 'thumb', 'ecba - 'index finger', 'ama - 'middle finger', kmica - 'ring finger', and zeret - 'pinky', all of which are kinds of fingers. The relationship 'in' also links elements in the domain as illustrated by xez - 'palate', lasùn - 'tongue', zanizayim - 'gums', and šen - 'tooth', all of which are 'in' the mouth (Figure 2).

In keeping with the idea of presenting and discussing the data from the perspective of the lay observer of the human figure, it is fitting to begin at the top of the body. This is supported by results from the picture-based elicitation task in which most informants began naming the parts of the body at the top of the body. It is also appropriate to deal with terms that name parts of the front of the body before dealing with terms used for parts of the back of the body. The lexical items in Figure 2, a hierarchical arrangement of the terms subcategorized with roš - 'head', are discussed first.
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As discussed above (section 1.2), a number of different issues arise with these data including the term’s internal semantic structure, its morphological structure, the nature of its referent, the different frames in which a term occurs, the semantic domain structures to which it is linked, and its history, as well as beliefs that speakers have about the term and its referent. The data as given in Figure 2 are discussed with attention to these issues. In addition, where appropriate, comparisons are made with English body part terminology.

4.1 The Head

Whereas the simple term roṣ - ‘head’ refers to a three-dimensional object, the term panim - ‘face’ basically refers to a surface, even though that surface is not flat—it has protrusions and contours. panim - ‘face’ is a complex term; the -im suffix indicates that it is a plural form. parcuf is another term for this part of the body; it is a simple term. Whereas panim only refers to the physical part, parcuf refers to the physical part along with the expression on or appearance of that part. The term parcuf might also be translated as ‘mien’ in its obsolete sense of ‘facial expression’ (OED, s.v. mien-1c). The use of parcuf reflects the speaker’s unfavorable attitude toward the person whose face is discussed. Thus, parcuf typically occurs in negative contexts as indicated by (#1a) and (#1b), both of which are used to describe someone who is ugly. Similarly, panim typically occurs in positive contexts, as indicated by (#1c) and (#1d) both of which are used to describe someone who has a nice face.

1) a. parcuf kof  b. parcuf taxat
   face (of) monkey  face (of) ass
   monkey face  ass face

c. pney tinok  d. pney mal’ax
   face (of) baby  face (of) angel
   baby face  angel face
Furthermore, sentence (#2) shows that only the term parcuf can be used for just the expression on someone's face; panim cannot be used in this context.

2) kše-bikašti mimeno kesef
   when-I asked from-him money
   hu 'asa li parcuf/*panim
   he made to-me face

   When I asked him for money, he made a face.

While both panim and parcuf can be used when describing a purely physical feature of the face, as indicated by sentences (#3a) and (#3b), it is more common to use panim in this context. Note that in (#3b) the use of parcuf implies that the face being described belongs to a fat person, which reinforces the negative aspect of parcuf.

3) a. yeš la panim 'agulot
      there-is to-her face round(pl.)
      She has a round face.

   b. yeš la parcuf 'agol
      there-is to-her face round
      She has a round face.

Similarly, although both (#4a) and (#4b) are possible, it is more common to use parcuf in this context where the expression on or appearance of the face is described. 4

4) a. yeš lo panim xamucim
      there-is to-him face sour(pl.)
      He has a sour face.

   b. yeš lo parcuf xamuc
      there-is to-him face sour
      He has a sour face.
The Hebrew term parcuf is also comparable to the English word visage, meaning 'face' or 'facial expression' which came into the language through French from the Latin vis - 'face'. This word is ultimately related to the Latin verb videre - 'to see', suggesting that the face or the expression on the face is that which is seen. Note that the English word face also came into the language through French from Latin facies - 'form, shape, face' which is ultimately related to the Latin verb facere - 'to make, form'. The etymology of face "verifies" that the face has form and shape, rather than being a flat surface.

The terms mecox - 'forehead', raka - 'temple', lexi - 'cheek', and santer - 'chin' name some of the surface areas of the face; all are simple terms. Speakers generally agree about the boundaries of raka - 'temple', lexi - 'cheek', and santer - 'chin'. Although mecox - 'forehead' is not really a discrete part in the same way that, for example, safa - 'lip' is, the forehead does have physically marked boundaries—the eyebrows and the hairline. Except perhaps for the chin one of whose boundaries may be the horizontal indentation below the lower lip, the other areas do not have visible marked boundaries. For these parts, which "seem to consist of focal areas...and extensions thereof" (McClure 1975:81), informants agree on the focal area of the part.

While the Hebrew term mecox - 'forehead' is unmotivated, its English counterpart forehead bears a name based on its position with respect to the head. Etymologically, forehead is the front of the head. Although both raka - 'temple' and lexi - 'cheek' name paired body parts, only lexi - 'cheek' makes use of the morphological dual. Compare rakot - 'temples' (plural) with lazayayim - '(two) cheeks' (dual).

The simple term gaba - 'eyebrow' names hair, and is related to gav - 'back'. This etymology suggests that in some sense the eyebrow is seen as the back of the eye. The simple term 'ayin - 'eye' refers to the eye including all of its parts, but it does not include the eyebrow. This is somewhat different than in English where for some speakers
the term *eye* refers to all of the parts of the eye including the eyebrow. When given a picture of the face and asked to designate the area named by the term *eye*, these speakers circled an area which included the eyebrow and when asked to list the parts of the eye, they included the term *eyebrow*. This may be due to the morphology of *eyebrow*: *gaba* is not morphologically related to *'ayin*. The development may be similar to that of the English term *brow* whose "original sense appears to have been 'eyebrow'" and has come to mean 'forehead' (OED, s.v. *brow* 5).

The terms for the parts of the eye are: *'af'af* - 'eyelid'; *ris* - 'eyelash'; *arubat ha-'ayin* (chimney of the-eye) - '(the) eye socket'; and *galgal ha-'ayin* (sphere of the-eye)-' (the) eyeball'. Among all of these, *ris* - 'eyelash' is the only simple term.

The word *'af'af* - 'eyelid' is a reduplicated form; the first syllable is repeated creating a two syllable word. The process of reduplication is associated with diminutives in the derivation of complex words from body part terms (section 6.2). *'af'af* is an example of a term within the body part domain formed by reduplication; it might be suggested that there is a diminutive quality to *'af'af*. Note that another part of the eye, *'is'on* - 'pupil' (discussed further below), has a diminutive quality based on its morphology. Even-Shoshan (1982) suggests that *'af'af* might be related to the verbal root *'WF* - 'be/become dark' where presumably there is an association between closed eyelids and darkness. There is a (purely accidental) homophonous root *'WF* - 'fly' which speakers associate with *'af'af* as well. Here there seems to be some association between the quick repeated motion of opening and closing the eyelids and the act of flying.

Both *arubat ha-'ayin* (chimney of the eye) - '(the) eye socket' and *galgal ha-'ayin* (sphere of the eye) - '(the) eyeball' are compound nouns whose modifying noun is the body part term *'ayin* - 'eye'. Note that neither of the head nouns in these compounds is from the body part domain. In each case the head noun focuses on an aspect of
the physical structure of the body part which it names.

Although in the modern language the word means ‘chimney’, the example from Biblical Hebrew provided in (#5) shows that the word ‘aruba once meant something like ‘opening’.

5) ...va-’arubot ha-šamayim
and-openings (of) the-sky

niftṣxu va-yəhi gešem....
opened and-there was rain

...and the windows of the sky opened.
And there was rain....(Gen. 7:11-12)

It is not difficult to imagine a shift from ‘opening’ to ‘chimney’ given that chimneys are openings to let out smoke. Evidence for this is found in the Biblical Hebrew phrase u-xa-ašan me-’aruba (and-like-smoke from-opening/chimney) - ‘and like smoke from a chimney’ (Hosea 13:3). Eyesockets are also openings, hollow openings similar to chimneys. Although the ‘opening’ sense of ‘aruba would provide sufficient motivation for the use of that word in the term for ‘eye socket’, the folk theoretical connection between chimneys and eye sockets must also be acknowledged. It is that connection which provides the possibility for the creation of a metaphor such as the one in ‘ašan ‘ala bə-’arubot eyne-ḥa (smoke rose in-eye sockets/chimneys-her) - ‘smoke rose in her eyes’. With respect to galgal ha-’ayin (sphere (of) the-eye) - ‘(the) eyeball’, an eyeball is similar to a sphere in that they are both round and three-dimensional. In addition, here the use of the word galgal in the term for ‘eyeball’ motivates the (folk theoretical) connection between spheres and the ability of the eyeballs to roll as in the phrase 1ə-galgel et ha-’eynayim (to-roll OBJ the-eyes) - ‘to roll one’s eyes’.

The only part of the eyeball which has a ready-made name in Modern Hebrew is the
pupil; 'išon - 'pupil' is a complex form consisting of 'iš - 'man' and the diminutive suffix -on. 11 While recognized by speakers as a derived word, the term 'išon is lexicalized and means 'pupil'; it is never used for 'little man'. The term bavat ha-'ayin - '(the-eye) pupil' is especially interesting for several reasons. First of all, bava, the head noun of this compound, does not occur elsewhere in the language; it is a morphan. Furthermore, it seems that bavat ha-'ayin occurs mainly as an object of comparison with kš - 'as' when referring to something precious or dear such as a child or valuable material goods such as books. Examples of this usage are given in (#6).

6) a. ha-mētapelet nehederet hi ымomeret 'al
the-nanny wonderful she watches on
ha-yeled kš- 'al bavat 'eyn-a
the-child as-on pupil-her

The nanny is wonderful—she looks after the child as if he were her own.

b. ha-sfarim y según karim lî kš-bavat 'eyn-i
the-books dear(pl.) to-me as-pupil-my

The books are as dear to me as the pupil of my eye.

Given this situation, it is remarkable that speakers of Hebrew answer the question 'What is bavat ha-'ayin?' with 'išon - 'pupil'. 12 Apparently speakers recognize that the term "means" 'pupil of the eye' even though it is never used to mean that literally. The Hebrew term bavat ha-'ayin can be compared to the English expression apple of the eye used when referring to something or someone which is greatly cherished as in Robert's daughter is the apple of his eye.

Typically, speakers do not have special names for other sections of the eyeball. However, the terms ha-lavan - 'the white' and ha-ceva - 'the color' are descriptive
phrases used to refer to the white of the eye and the iris, respectively.13

As previously mentioned some of the terms used by the lay observer of the human figure refer to parts of a surface, some refer to parts of a volume, and others name both a surface and a volume. Concerning the parts of the eye, the terms 'af'af - 'eyelid' and ris - 'eyelash' refer to parts of the external surface of the face, while 'arubat ha-'ayin - '(the) eye socket' and galgal ha-'ayin - '(the) eyeball' refer to parts of the volume. Note, however, that the concavity of the eye socket and the convexity of the eyeball are discernible when viewing the surface. The term 'ayin is polysemous, meaning either 'eye' or 'eyeball' as is apparent from the sentences in (#7).

7) a. yeš lo panas ba-'ayin
    there is to-him flashlight in the-eye
    He has a black and blue eye.

b. yeš lo srita ba-'ayin
    there is to-him scratch in the-eye
    He has a scratch on his eye(ball).

In one of its senses (#7a), the term 'ayin names the outer surface area, while in the other of its senses (7b), the term 'ayin refers just to the eyeball. Sentence (#7b) could not mean that someone has a scratch on the skin around the eye—on the eyelid, for example. (Note that it is possible to select out the latter sense with the term galgal ha-'ayin.) The outer surface (#7a) and the inner volume (#7b) constitute the whole volume. The lay observer is not surprised when the term 'ayin is used to refer to the whole eye, as for example in an anatomy textbook. Thus, it seems that the lay observer has acquired some of the knowledge of the expert observer since (s)he knows that the term names the whole volume including parts not visible on the surface.

The terms for the various parts of the eye in Modern Hebrew can be compared with the terms for the parts of the eye in English. The hierarchic arrangement of the relevant
Modern Hebrew terms is given in Figure 2. The hierarchic arrangement of the relevant English terms is given below in Figure 2a.

As noted above, for some speakers the English term *eye* names an area that includes the eyebrow, but the Hebrew term 'ayin does not. Furthermore, English uses a single naming strategy for the terms immediately included in *eye*. All of these terms are compounds whose modifying noun is the body part term *eye*—*eyelid, eyelash, eye socket, eyeball*. Hebrew uses simple terms for some of these and compounds nouns for others. Compare 'af'af - 'eyelid' and ris - 'eyelash' with 'arubat ha-'ayin - '(the) eye socket' and galgal ha-'ayin - 'the eyeball'. Both English and Hebrew use the "human/pupil of the eye" metaphor (Brown and Witkowski 1979), although slightly differently. The English term *pupil* came into the language from Latin via French. Both the 'student' sense and the 'eye' sense of the word are related to Latin *pupilla*, the diminutive of *pupa* - 'girl, doll, puppet'. (Note that the use in Latin is a calque from Greek.) In Hebrew the literal mean-
ing of the morphemes of 'išon is ‘little man’. Finally, whereas English has the ready-made term iris, albeit of Latinate origin, it seems that Hebrew does not have such a term.

'af - ‘nose’ is a simple term, as is nzir - ‘nostril’. In everyday speech, the term zotem - ‘(animal) nose’ is used derogatorily for 'af.\textsuperscript{14} gešer ha-'af (bridge (of) the-nose) - ‘bridge’ is a compound whose modifying noun is the body part term 'af - ‘nose’ and whose head noun gešer - ‘bridge’ is not from the body part domain. The term gešer ha 'af is not very common among speakers of Hebrew; perhaps it is a calque from English bridge (of the nose). Although Even-Shoshan (1982) lists gav ha-'af (back (of) the-nose) - ‘(the) bridge’, no informant volunteered or accepted this term. Perhaps gav ha-'af is a calque from German Nasenrucken.

pe - ‘mouth’ is a simple term. The mouth can be divided into different parts, the lips and the oral cavity. saf - ‘lip’ is a simple simple term. zalal ha-pe - ‘(the) mouth-space’ is a compound term whose modifying noun is the body part term pe - ‘mouth’ and whose head noun zalal - ‘(empty) space’ is not from the body part domain.\textsuperscript{15} Note that the term zalal ha-pe - ‘(the) mouthspace’ names the space inside the mouth and not the parts of the inside of the mouth. As is the case in English, there does not seem to be a special term which names these parts as a group. The terms which name the individual parts inside the mouth include the simple forms lason - ‘tongue’, zex - ‘palate’, and šen - ‘tooth’, plus the complex term zanizayim - ‘gums’, complex because of the dual/plural suffix -ayim.\textsuperscript{16}

The term pe - ‘mouth’ is used to refer to either the outside surface of the mouth—i.e. the lips— or the inside volume, as shown in (#8) and (#9), respectively.
8) a. yes la pe yafe
there-is to-her mouth pretty
She has a pretty mouth (exterior—i.e. lips).
b. yes la sfatayim yafot
there-are to-her lips pretty(pl.)
She has pretty lips.

9) a. tištof 'et ha-pe
rinse OBJ the-mouth
Rinse your mouth!
b. ha-pe ṣel-o masriax
the-mouth of-him smells
His mouth smells.

Sentences (#8a) and (#8b) are equivalent. This is not surprising since when the lay observer looks at a closed mouth (s)he sees just the lips, the exterior physically marked part of the mouth. Sentences (#9a) and (#9b) refer to the inside parts of the mouth. (See example #13 as well.) At the same time, (#10) suggests that there is also an opposition between pe - 'mouth' and zalal ha-pe (space (of) the-mouth) - '(the) mouthspace'.17

10) kol ha-yom lo ba kim'at 'oxel 'el pi
all the-day not came almost food to mouth-my
vɔ-ha-maca ha-yɔveʃa vɔ-ha-tsela
and-the-matza the-dry and-the-tasteless
mitpacaxat bɔ-kol xarika mɔmɔl'a 'et
cracks with-noise (of) crunching fills OBJ
xalal ha-pe
space (of) the-mouth

All day almost no food came to my mouth and the dry tasteless matza cracking with a crunching noise fills my mouth(space). (Yehoshua 1982:278)

The inadmissibility of either (#11a) or (#11b) provides some evidence that zalal ha-pe
names the space inside the mouth and not the parts inside of the mouth.

11) a. *ha-šinayim hen xelek šel xalal ha-pe
    the-teeth are part of mouthspace

    b. *ha-šinayim nimca'ot ba-xalal ha-pe
    the-teeth are found in-the-mouthspace

If xalal ha-pe were the holonym of the terms for the parts inside the mouth, (#11a) and/or (#11b) would have been acceptable sentences, although part of the problem with these sentences may be that teeth are not located deep in the mouth. In the absence of such a term, pe alone is used, as shown in (#9a) and (#9b). (See example 13 as well.)

The term safā - 'lip' refers to a part of the external surface of the face. The form xalal ha-pe - '(the) mouthspace' names a volume, which is obvious only when the mouth is open. Similarly, the terms that name parts inside the mouth (xeč - 'palate'; lašon - 'tongue'; xanizayim - 'gums'; and šen - 'tooth') acknowledge that the head is three-dimensional object. The term pe is used for the lips alone (#8) or the inside of the mouth (#9); the outer surface and the inner volume constitute the whole volume.

While it is clear that the terms for the parts inside the mouth constitute a group and belong to the hierarchic organization of this subdivision of the body part domain, it is also clear that their relationship to pe - 'mouth' is different than the relationship of safā - 'lip' to pe - 'mouth' or that of xalal ha-pe - '(the) mouthspace' to pe - 'mouth'. Both safā - 'lip' and xalal ha-pe - '(the) mouth cavity' are related to pe - 'mouth' by the 'part-of' relationship, as shown in (#12a) and (#12b), respectively.

12) a. ha-safā hi xelek šel ha-pe
    the-lip is part of the-mouth
    The lip is part of the mouth.
b. xalal ha-pe bu xelek šel ha-pe  
space the-mouth is part of the-mouth  
The mouth cavity is part of the mouth.

However, although a sentence such as (#13a), which exemplifies just one of the terms for the various parts inside the mouth, is possible, (#13b) more accurately characterizes the relationship between lašon - ‘tongue’ and pe - ‘mouth’.

13) a. ha-lašon hi xelek šel ha-pe  
the-tongue is part of the-mouth  
The tongue is part of the mouth.

b. ha-lašon nimcet ba-pe  
the-tongue is-found in-the-mouth  
The tongue is in the mouth.

This seems to be a natural consequence of recognizing that the term pe names a surface and a volume. With a volume the dimension of depth is a factor.

There are several kinds of teeth for which there are specific names. The term šen xotexet (cutting tooth) - ‘incisor, cutter’ and šen toxenet (milling tooth) - ‘molar’ are bilexemic forms consisting of the body part term šen - ‘tooth’ plus the adjectivally used feminine singular present tense form of the verbal roots XTK - ‘cut’ and TXN - ‘mill’, respectively. In each case the function of the tooth forms the basis for its name. The interpretation given to ha-toxanot in the Biblical Hebrew phrase u-vatlu ha-toxanot ki mi'etu (and-idle the-molars because they-are few) - ‘and the molars are idle because they are few’(Eccl. 12:3) suggests that the verbal root TXN - ‘mill’ in a term for ‘molar tooth’ already existed in that period of the language. In the above phrase, the term ha-toxanot is the plural of ha-toxenet nominalized by the addition of the definite article ha- and refers to those teeth which in old age have fallen out. The Modern Hebrew expression šen toxenet seems to be an expansion from the Biblical monolexemic form to a bilexemic
form. The form ſen zotezet 'incisor, cutter', only appeared in the modern period. The term niv - 'canine (tooth)' is a simple term. Although it is the term used for non-human fangs, niv does not have the same connotation as the English word fang. The term ſen bina - 'wisdom tooth' is a nominal compound whose head noun is the body part term ſen - 'tooth' and whose modifying noun bina - 'wisdom' comes from another semantic domain. The tooth is so named because it erupts late in life, presumably when one has already attained wisdom. Although the lay observer would not use the term ſiney zalav - 'milk teeth' in reference to an adult, the term is mentioned here since it designates a particular kind of teeth. The term ſiney zalav is also a nominal compound. Its head noun ſiney- is the construct form of ſinayim - 'teeth'; its modifying noun zalav - 'milk' comes from another semantic domain. The term ſiney zalav refers to a person's first set of teeth; these are temporary teeth. Probably these teeth are so named because they are the ones in the mouth when milk is a primary source of nourishment. (In English the terms milk teeth and baby teeth name these teeth.) Note that except for niv - 'canine (tooth)', all of the different kinds of teeth are named with motivated terms, although there are different types of motivation.

It is clear that the terms for the different kinds of teeth constitute a group and belong to the hierarchic organization of this subdivision of the body part domain. It is also clear that their relationship to ſen - 'tooth' is different than the relationship which holds between most of the terms and their superordinates in Figure 2. For the most part, the relationship which holds between a term and its superordinate is that of part:whole. This is not the relationship which holds between ſen bina - 'wisdom tooth' and ſen - 'tooth', between niv - 'canine (tooth)' and ſen - 'tooth', or between the other kinds of teeth and ſen - 'tooth'. Here the relationships are taxonomic rather than partonomic.
'ozen - 'ear' is a simple term. The phrase 'ozney zamor - 'donkey ears' which is used to describe large (unattractive) ears suggests that the term 'ozen designates the outer ear. Although far less common in everyday speech, the term 'afarkeset (funnel) is also used for 'outer ear'.

The compound noun tnux 'ozen - 'earlobe' designates the only part of the outer ear which has a special name. The form tnux only occurs in this compound; it is a morphan. In addition, for some speakers, the use of the compound is optional and the term tnux alone is sufficient. Furthermore, according to Even-Shoshan (1982) tnux is the middle section of the outer ear, not the earlobe; the term for 'earlobe' is bdal 'ozen. Speakers of Modern Hebrew do not maintain this distinction.

As was the case with other terms for parts of the face ('ayin, pe), the word 'ozen refers to an outer surface and an inner volume, the combination of which constitutes the whole volume. These senses are exemplified in (#14) and (#15) respectively.

14) kaniti 'agilim να- 'asiti xorim ba-'oznayim
   I-bought earrings and-I-made holes in-the-ears
   I bought earrings and had my ears pierced.

15) yeš lo xorim ba-'oznayim
    there-are to-him holes in-the-ears
    He doesn't hear (because he's not listening).

The context given in (#14) selects out the outer surface referent of 'ozen. The literal translation of (#15), 'He has holes in his ears', provides the image for the inner volume referent of 'ozen. Note, however, that (#15) is typically used figuratively in referring to someone who doesn't hear because he's not listening, as opposed to someone who is deaf.

From the perspective of the lay observer of the human figure, the inner ear includes that which is not visible--in other words, that which is not on the surface. Of course, this is a non-expert point of view since the expert observer knows that the inner ear (or inter-
nal ear) includes specific parts of the ear. Although the lay observer does not see the inner ear, (s)he has some technical information about it. Thus, (#15) suggests that the lay observer knows that the inner ear is an organ of hearing and (#16) suggests that (s)he also knows that the inner ear can become infected. (See also, section 6.2.3.)

16) yəs  lō daleket ʾoznayim
there-is to-him infection (of) ears
He has an ear infection.

A number of the terms that name parts of the head are polysemous; these are 'ayin - 'eye, eyeball', pe - 'mouth, lips', and ʾōzen - 'ear, outer ear'. In each case the term names a whole volume and a salient part of that volume visible on the outer surface of the head. In each case, there is another term which names the part which is visible on the outer surface. With 'ayin, the eyeball is salient because of its rounded shape and its important function; the term galgal ha-ʾayin can be used for 'eyeball'. With pe, the lips are salient because they are physically marked being of a different color than the rest of the skin on the face; the word sfatayim is used for 'lips'. With ʾōzen, the outer ear is the only part of the ear visible on the surface; the term ʾafarkeset is sometimes used for this part. The most common uses of the term refer to the inner volume or the outer surface rather than to the whole volume. However, when needed, the lay observer makes use of knowledge acquired from the expert observer for the whole volume sense of the term. This is necessary for the whole volume sense of 'ayin - 'eye' and ʾōzen - 'ear', but not for pe - 'mouth' since the whole volume is visible to this observer.

4.2 The Neck

The hierarchical arrangement of the terms labeling partitions of cavar - 'neck' is given in Figure 3.
guf - body

   cavar - neck

   cavar/garon - neck (front) 'oref - nape

   pika/pikat ha-cavar/gargeret - Adam's apple

Figure 3
With regards to Figure 3, the simple term *cavar* refers to the whole neck or just the front part of the neck. As shown in (#17), the simple term *garon* (throat) can also be used to refer to the front part of the neck.

17) dan va-david hitxilu la-riv va-pit’om
Dan and-David began to-fight and-suddenly

dan tafas ’et david ba-cavar/ba-garon
Dan caught OBJ David by-the-neck/by-the-throat

va-hitxil la-harbic lo
and-began to-beat to-him

Dan and David began fighting and suddenly
Dan grabbed David by the (front of the) neck
and began beating him.

This is an example of an internal body part name, *garon* (throat) serving as a name for an external body part. Each of the terms *cavar* and *garon* has two senses; only one of these senses is shared. The senses of the terms that are not shared are given in (#18).

18) a. ko’ev li ha-cavar
pain to-me the-neck
My neck hurts.

b. ko’ev li ha-garon
pain to me the-throat
My throat hurts.

Note that sentences such as those in (#18) take the point of view of the experiencer of body feelings. In the "experiencer of body feelings frame", the two terms do not share a meaning. (See section 5.2.)

The simple term *’oref* differs from the English term *nappe* in that *’oref* stands alone and *nappe* usually occurs in the phrase *nappe of the neck* (OED s.v. *nappe* 1b). Furthermore, whereas *’oref* is fairly common in everyday speech, *nappe of the neck* is not.
In Biblical Hebrew *gargeret* is used in the sense of 'neck' as apparent from the phrases 'anđem ʿal gargarote-za (bind-them on necks-your) - 'bind them on your necks' (Prov. 6:21) and *va-ānākim la-gargarote-za* (and-necklaces for-necks-your) - 'and necklaces for your necks' (Prov. 1:9). In Mishnaic Hebrew *gargeret* occurs in the context of a discussion of ritual slaughter of animals. The Mishna distinguishes between two internal parts of the animal: *vešet* - 'esophagus'; and *gargeret* - 'trachea' as shown in (#19).

19) ūšaxat ’et ha-vešet u-fasak
    cut(ritually) OBJ the-esophagus and-split

    ’et ha-gargeret ūšaxat ūet
    OBJ the-trachea or cut(ritually) OBJ

    ha-gargeret u-fasak ’et ha-vešet
    the-trachea and-split OBJ the-esophagus

He cut the esophagus and split the trachea or cut the trachea and split the esophagus....
(Hull. 2:4)

In Modern Hebrew *gargeret* has two senses. In the colloquial language *gargeret* names the rounded protrusion in the front of the neck mainly visible on men--'Adam's apple'. As a technical term *gargeret* names the organ of voice--'larynx'. At first glance it might appear far-fetched for *gargeret* to have these two senses as well as to have meant 'trachea' in Mishnaic Hebrew. A closer examination of the anatomical structure itself as well as a consideration of some linguistic phenomena remove the possibility of mere fanciful association.

The larynx is the upper most portion of the trachea and the Adam's apple is an enlarged thyroid cartilage, the largest of the nine cartilages which make up the larynx (Gray 1909:955). Thus, it seems that at one time *gargeret* named the whole part--'trachea', came to name the upper portion of that part--'larynx' and also names a
prominent part of that part visible on the external body—'Adam's Apple'. As a technical term *gargeret* occurs in the compound *daleket ha-gargeret* (the-larynx infection) - '(the) laryngitis' and in non-technical language *gargeret* occurs in the expression *ba' al gargeret* (Adam's apple owner) as a way of designating a man whose Adam's apple protrudes a great deal.

In the lexical semantic domain of body part terminology in Modern Hebrew there are many cases of a single word used to name a whole and a salient part of that whole. The term *gargeret* seems to work in the same way with the added qualification that the 'whole' sense of the term is technical, whereas the 'part' sense of the term is not. The whole sense of the term would be used by the expert observer (section 5.1) and the salient part sense of the term would be used by the lay observer. This is different than other whole/part polysemous terms in the domain (e.g. *yad* - 'arm, hand') where both senses are available to the lay observer. Two other points must be considered here. In Modern Hebrew *kane* (reed, stick) is used for 'trachea' replacing the Mishnaic Hebrew use of *gargeret* - 'trachea'. In addition, it is likely that *gargeret* - 'Adam's apple' is a shortened form of *pikat ha-gargeret*. It is often the case that words take on new senses and there is a common tendency in languages to shorten expressions. The combination of these two phenomena seems to have resulted in the current usage of *gargeret* - 'Adam's apple'.

The compound term *pikat ha-cavar* (protrusion (of) the-neck) is another way of referring to the Adam's apple. The literal translation of *pikat ha-cavar* suggests that it is used by the lay observer of the human figure. In fact, the expression is somewhat formal since it is used in the written language. An example of this is given in (#20).
20) bə-š'at ka'as-o pikat cavar-o
    at-time(of) anger-his Adam's apple-his
    mítbaletet protrudes

When he's angry, his Adam's apple protrudes.

Note that the term pika - 'protrusion' may be used alone for this part of the body as shown below.

21) dan bala 'et ha-bira bə-mhirut
    Dan swallowed OBJ the-beer with-speed
    ha-pika šel-o 'alta və-yarda
    the-protrusion of-his went up and-down
    'alta və-yarda
    went up and-down

Dan swallowed the beer quickly—his Adam's apple went up and down, up and down.
4.3 The Trunk

Figure 4
4.3.1 The Front of the Trunk

Concerning Figure 4, as mentioned above, the simple term *katef* - 'shoulder' is a word which must be considered both with respect to the trunk and to the arm. With respect to the trunk *katef* - 'shoulder' designates an area from the base of the neck extending laterally to the top of the arm. This use of *katef* is exemplified in (#22a) and (#22b).

22) a. hi saxva 'et ha-tik 'al ha-katef
   she carried OBJ the-bag on the-shoulder
   She carried the bag on her shoulder.

   b. yeš lo ktefayim rəxavot
      there-are to-him shoulders wide(pl.)
      He has wide shoulders.

In Biblical Hebrew (and in Mishnaic Hebrew) *šezem* is a synonym for *katef* as a part of the body on which things are carried. Some examples are given below in (#23) and (#24).

23) ...va-yé’exoz bō-daltot ša’ar ha-’ir...
   and-he holds on-doors (of) gate (of) the-city

   va-yisa’em ... va-yasem
   and-he picks them up and-he puts them

   'al ktef-av
   on shoulders-his

   ...and he held the doors of the gate of the city...and plucked them up...and laid them upon his shoulders. (Judg. 16:3)
24) ...va-yaxrot soxat 'ecim
and-he cut down bough (of) trees

va-yisa' e-ha va-yasem 'al šixm-o
and-he picks up-it and-he puts on shoulder-his

...and he cut down a bough from the trees
and took it up and laid it on his shoulder.
(Judg. 9:48)

Small objects such as baskets or jugs can be carried on the top of the trunk alone. (The Biblical Hebrew phrase kad-a 'al šixm-a (jug-her on shoulder-her) - 'her jug on her shoulder' (Gen. 24:45) shows that the term šezem can be used in this situation.) When larger things such as doors and boughs are carried they extend below the top of the trunk. Thus, it stands to reason that katef/šezem names a part of the body that extends below the top of the trunk onto the back. Support for this is found in the following verses.

25) va-yama'anu lɔ-hakšiv va-yitnu
and-they refuse to-pay attention and-they gave

katef so reret...
shoulder stubborn

But they refused to attend and turned a stubborn shoulder... (Zach. 7:11)

26) vɔ-haya kɔ-ḥafnot-o šixm-o
and-it was when-turn(ing)-his shoulder-his

la-lexet
to-go

And it was that when he turned his back to go... (1 Sam. 10:9)

In both (#25) and (#26) some kind of turning away is described, either figuratively (#25) or literally (#26); turning away involves showing one's back.

The results from the picture-based elicitation task suggest that in Modern Hebrew
Katef also names an area that extends below the top of the trunk (see Appendix II). However, in Modern Hebrew Katef and šezem do not seem to be synonyms. No speaker accepted šezem as a name for the area from the base of the neck extending laterally to the top of the arm. Rather, it seems that šezem refers only to an area on the back, as apparent from (#27) where tarmil refers to a bag worn on one's back—i.e. a tarmil gav (back knapsack) as opposed to a tarmil kad (side knapsack).

27) ...sahleynu 'al ktefey-nu tarmileynu
baskets-our on shoulders-our knapsacks-our

' al šixme>nu
on -our

...our baskets on our shoulders, our knapsacks
on our back...

Since the lower boundary of Katef is not well-defined and since šezem is also vague, there is an area of overlap between the two terms.21

The compound noun bet ha-šexi - '(the) underarm' is made up of two nouns neither of which is a body part word.22 The head noun bet (the construct form of bayit) - 'house' or 'enclosed place' occurs in a large number of compounds as for example bet zolim (house (of) sick-ones) - 'hospital', bet din (house (of) law) - '(law) court', and bet sohar (house (of) prison) - 'prison'. The modifying noun Šexi is morphologically related to the verbal root ŠXH - 'bend'. In Modern Hebrew the word Šexi does not occur alone nor does it occur in any other compounds; it is a morphan. The literal translation of the parts of the compound bet ha-šexi - 'the bend place' reveals that the name is based on a physical characteristic of the part. The term bet ha-šexi differs from the English term underarm which designates the part according to its position relative to the arm.
The simple term *guf* is polysemous. In one of its senses it refers to the whole body; in the other sense it refers to the trunk. These two senses are exemplified in (#28a) and (#28b), respectively.

28) a. ye’s la pカメ im ’al kol ha-guf
there-are to-her sores on all the-body

b. ye’s la pカメ im ’al kol ha-guf
there-are to-her sores on all the-trunk

‘aval lo ’al ha-gapayim
but not on the-limbs.

She has sores all over her trunk, but not on her limbs. (=?She has sores all over her body, but not on her limbs.)

Although (#28a) is actually ambiguous, in the absence of any special context *guf* is interpreted to mean ‘body’. That the term *guf* also means ‘trunk’ is illustrated in (#28b) where the context selects out this sense of the word. The derived word *gufiya* - ‘sleeveless undershirt’ provides additional evidence for this meaning of *guf*. Both senses of the term *guf* (‘body, trunk’) name a volume.

*zaze* - ‘chest’, *sad* - ‘breast’, and *pitma* - ‘nipple’ are simple terms.\(^23\)\(^24\)

Although the term *zaze* is correctly glossed ‘chest’ (i.e. with no mention of male or female), it is typically used when referring to a male chest. With respect to the female body, the term *zaze* can refer to the area from below the neck to below the breasts. However, the more common usage of the term *zaze* in reference to a female body is as a euphemism for *sadayim* - ‘(two) breasts’. It is comparable to the English term *bust*. Thus, the term *zaze* is polysemous. In one of its senses it is synonymous with *sadayim* - ‘(two) breasts’; in the other sense it contrasts with *sadayim*. These senses are
illustrated below.

29) a. yeš la xaze gadol
    there-is to-her chest big
    She has a big bust.

b. yeš la šadayim gadolim
    there-are to-her breasts big(pl.)
    She has big breasts.

30) hi lavša bikini ha-xaze ʾsel-a šazuf ṣaʿal
    she wore bikini the-chest of-her tan but

    ha-šadayim ṭvanim
    the-breasts white(pl.)

    She wore a bikini—her chest is tan, but her breasts are white.

(#29a) and (#29b) are equivalent. The derived word zaziya—‘bra’ provides additional evidence for this sense of the term xaze. In (#30) it is apparent that šadayim is different than xaze, even though xaze names an area that includes the breasts.

The results from a set of tasks provide confirmation of the polysemous status of the term xaze. When shown a picture of an unclothed female adult and asked to color in the part or area named by the word xaze, a female informant colored in the breasts. When the letter "x" was written on the picture about half-way between the breasts and the collar bone and the informant was asked, 'Where is the "x"?' the response was 'al ha-xaze—'on the chest'. When given another copy of the picture of the unclothed woman and again asked to color in the area or part named by the term xaze, the informant colored in the chest—from the collar bone to below the breasts. Then the informant looked at two more pictures of an unclothed woman and was asked to name the shaded areas. In one picture an area from the collar bone to below the breasts was shaded; in the other picture the breasts were shaded. The response given to the first picture was xaze;
the responses given to the second picture were cici, šadayim, and zaze. The results from these tasks confirm that the term zaze is polysemous meaning either ‘chest’ or ‘breasts’. Note that the picture with shaded breasts elicited several terms which differed with respect to degrees of formality. The children’s word cici is less formal than the "official" word šadayim which is less formal than the euphemistic term zaze. Given the relationship between the researcher and the informant—friends of approximately the same age and social status, it stands to reason that the informal terms were given before the formal terms.

The term šad typically refers to a female breast, this being a prominent part of the female body, but not the male body. In fact, when šad is used in reference to a male body, it has a derogatory or (at least) a joking connotation. There are other terms used to refer to the female breast. As noted above, the form cici is a children’s word; it is very common in adult speech and comes from the Yiddish cice - ‘breast’. mazlavot, the plural form of mazlava - ‘dairy’ is a derogatory term for breasts. Note that it only has this sense when in the plural. Here the use of the term mazlavot as a name for breasts is based on a biological function of the body part. Perhaps it is this focus which allows the negative connotation.

The terms zaze, šad, and pitma refer to the outer surface of the body. Speakers agree about the boundaries of pitma - ‘nipple’, a part of the body which is visibly demarcated because of its color. All speakers consider the nipple to be the focal point of šad - ‘breast’, having designated šad as an area surrounding the nipple. With respect to the female body where the breast is physically marked because it protrudes, there is virtually total agreement regarding the referent of šad. Among those speakers who use šad in reference to a male body, there is variation regarding the boundaries of the area covered by the term. Speakers generally agree that the collar bone is the upper boundary of
xaze - 'chest', but there is variation about the lower boundary. When used in reference to a female body, for the most part, the lower boundary of xaze - 'chest' is just below the breasts. On the male body the lower boundary tended to be lower down on the trunk, sometimes as far down as the waist. No doubt variation occurs because there is no visible demarcation to designate the boundary.

The simple term beten - 'belly' names a surface area of the trunk. Speakers generally agree that the navel is the focal point of the belly, but they vary regarding the boundaries of beten - 'belly'. (See Appendix II) The simple term tabur - 'navel' is the "official" term for this part of the body. It belongs to the technical register, as apparent from zevel tabur (navel rope)-'umbilical cord'. There are two other terms for this part of the body. The term pupik - 'belly button' is borrowed from Yiddish where it is a human body part term as well as an animal body part term 'gizzard'. Note that the borrowed term pupik is far more commonly used in everyday speech than the other Hebrew term for the same part of the body, kurkavan which is also an animal body part term 'gizzard'.

The term kurkavan occurs in Mishnaic Hebrew in particular in reference to fowl, as shown in (#31), but also more generally in reference to human beings, as shown in (#32).

31) \( v\omega -\'el\ u\ trefot\ ba-\'of\and\ these\ impurities\ in\ the\ fowl\)

\(\text{nikav}\ ha-kurkavan\perforation\ (of)\ the\ gizzard\)

And these are the impurities in the fowl...
perforation of the gizzard.... (Hull. 3.3)

32) \( bi\'\svil\ kurkavan\ \se-\'eyno\ toxen\because\ that\-not\ grind\...
...because\ of\ the\ stomach's\ failing\ to\ grind...\)

(Sabb. 152a)

In (#32) it seems that man's stomach is compared to the stomach of a fowl. In Modern
Hebrew *kurkavan* is not used for human stomachs, only for an exterior part on the belly.

As mentioned above, in Modern Hebrew both *pupik* and *kurkavan* name an animal body part. A woman serving chicken soup to her family might say (#33), knowing that there is only one to offer.

33) mi roce 'et ha-pupik  
who wants OBJ the-gizzard  
Who wants the gizzard?

Restaurant menus offer *salat kurkavanim* (gizzards salad)-‘gizzard salad’.

It seems likely that *kurkavan* as a human body part name is the result of a normativist desire only to use Semitic words in the language. The animal body part sense of *pupik* - ‘gizzard’ was translated into Hebrew *kurkavan* and used in the same way that Yiddish uses *pupik* - ‘belly button’—i.e. as a human body part term. Thus, *kurkavan* as a human body part term is a calque.

The complex term *mifsa’a* - ‘groin’ which is related to the verbal root PS’ (underlyingly PST)-‘step’ names the lower region of the front of the trunk. The term *mifsa’a* seems to derive from an association between the area of the body to which the legs are attached and an action involving the use of the legs. While *mifsa’a* names an area which includes the genitals, the boundaries of this area are not well-defined; the term *mifsa’a* is vague. The term *mifsa’a* is also neutral—i.e. unlike other words associated with the region of the genitals, it does not have any special connotation. In addition, *mifsa’a* can be used to refer to this area of the female body or of the male body.

The simple terms *pin* - ‘penis’ and *‘ašaz* - ‘testicle’ name the male sexual organs. The simple term *pot* - ‘vulva’ refers to the external area of the female sexual organs, but it is often used for the external and the internal areas together. (The term...
nartik (case)-'vagina' refers to the internal part alone; this part is not visible to the lay observer of the human figure.) While these terms are not exactly technical in the way that certain Latin terms (e.g. pudenda, membrum virile) used in English are, the Hebrew terms are the words used in biology and anatomy textbooks for these parts of the body. Except for 'asax - 'testicle', the Hebrew terms are rare in the spoken language, although they are known.

There are other terms used for the male and female sexual organs. The compound noun 'ever ha-min - '(the) sex organ' names the body part according to its function. It is possible to specify male or female with the addition of the appropriate adjective, gavri - 'male' or naši - 'female'. Thus, 'ever ha-min ha-gavri - 'the male sexual organ' (i.e. the penis) and 'ever ha-min ha-naši - 'the female sexual organ' are euphemistic collocations for these parts of the body. Similarly, it is also possible to use the adjectives sizri - 'masculine' or nikbi - 'feminine', yielding 'ever ha-min ha-sizri and 'ever ha-min ha-nikbi . Without the addition of an adjective the term 'ever ha-min - '(the) sex organ' can be used in reference to a male or a female. In both cases it has a distancing effect, apparently necessary in spite of the technical connotation of the terms pot and pin. When the term 'ever is used alone it can refer only to the male sexual organ; it is somewhat comparable to the English terms organ and member as used to refer to the male sexual organ. The term pipi is a children's word for 'urine' and is used to refer to the sexual organs, male or female. This term which is associated with another biological function (of the same part in the case of the male and of an adjacent part in the case of the female body) avoids any mention of sex. This is comparable to the English usage of wee wee. The use of terms such as pipi and wee wee for the sexual organs suggests that it is less of a taboo to mention the biological function of elimination than to talk about sex, although even this mention of elimination is euphemistic.
There are several other ways of referring to the penis. The nominalized adjective *ha-katan* (the-small)-'the small one' is a euphemism which designates the sexual organ as something small. This deliberately avoids its function as a sexual organ for which it is not small. The slang word *zayin* as a name for the penis is an extended use of the term *kli-zayin* (arms instrument)-'weapon', a general term covering a variety of things some of which are long narrow instruments such as clubs and guns. The use of the term *zayin* as a name for the penis seems to be based on the similarity of shape between such instruments (as types of weapons) and the body part. Note that in Modern Hebrew the term *kli-nešek* (arms instrument)-'weapon' (or *nešek*-'arms', a mass noun) is more commonly used than *kli-zayin*. This is in part a result of the taboo associated with *zayin* as a slang term for the penis. The word *šmok* which is borrowed from Yiddish is also a slang term. Although *zayin* is far more offensive, both *zayin* and *šmok* are used in rude or obscene expressions as for example in (#34) and (#35).

34) hu lo sam *zayin*
   he not put penis
   He doesn't give a damn.

35) ma 'asita 'ata *šmok*
   what you did you shmuck
   What did you do?! You're a shmuck!

While both *zayin* and *šmok* are slang words for the penis, only *šmok* can be used as an epithet. (#35) would be said by a speaker who is angry or annoyed with the hearer (usually a man) because of the hearer's unacceptable behavior. Of course the term *šmok* may also be used in this way to refer to a third party as in *dan hu *šmok* (Dan he shmuck)-'Dan is a shmuck!' Another word borrowed from Yiddish for this part of the body and used in offensive language is *pots*. It is similar to *šmok*, but has a slightly different use, as can be seen in the phrase *yeke pots* (German "putz")-'dumb shmuck'.
The word zayin is also the name of the seventh letter of the alphabet. Although it is not related etymologically to zayin - 'weapon' and hence not related to the slang term zayin, the homophony of the two forms is such that saying the name of the letter is somewhat taboo. Students of kita zayin - 'seventh grade' derive pleasure in being able to use the word knowing that they cannot be accused of being vulgar.

The term beca (egg) is a slang word for the testicle; the plural form is becim. This term might also be a calque from Yiddish ey/eyer (egg/eggs) - 'ball/balls'. As a slang term beca/becim is equivalent to the English term ball/balls. In both cases the extension is based on similarity of shape. It is possible to use becim 'balls' in the same context as 'ašaxim - 'testicles', as in (#36) where the only difference is one of degree of formality. The word 'ašaxim would be used if the sentence were uttered by a doctor giving a report about his patient; the word becim would be used if two friends were talking about another friend.

36) hu 'avar nituax horidu lo
he passed operation removed to-him

'et ha-'ašaxim/becim
OBJ the-testicles/balls

He underwent surgery—they removed his testicles/balls.

In Modern Hebrew there is a noteworthy abundance of stylistically varying terms for the male sexual organ as compared to the virtual absence of terms in use for the female sexual organ and its parts. There are the euphemistic forms mentioned above, but the only slang term for the female sexual organ is kus. The term is borrowed from Arabic and is extremely rude.
4.3.2 The Back of the Trunk

The back of the trunk can be divided into two areas. The simple term *gav* - 'back' names an area from the base of the neck to the waist. There is general agreement among speakers about the referent of the term *gav*; some variation exists regarding the lower boundary. (See illustrations in Appendix II) The complex term *yasvan* - 'buttocks' names the area from below the waist to the top of the thighs. The term *yasvan* is related to the verbal root *YSV* - 'sit'. Both *gav* - 'back' and *yasvan* - 'buttocks' refer to the outer surface of the body.  

The singular form *yasvan* can be used to refer to the whole or just one side, as indicated in (#37) and (#38), respectively.

37) kibalti zrika ba-yasvan  
I got shot in the-buttocks  
I got a shot in the buttocks.

38) kibalti zrika ba-yasvan ha-smali  
I got shot in the-buttock the-left  
I got a shot in the left buttock.

The plural form *yasvanim* can also be used to indicate the whole. Note that (#39) and (#40) are equivalent.

39) yes la yasvan xamud  
there-is to-her buttocks cute  
She has a cute butt.

40) yes la yasvanim xamudim  
there-are to-her buttocks cute (pl.)  
She has a cute butt.
Of course, *yašvanim* is also used for more than one whole, as in (#41).

41) ha-banot holxot 'al sfat ha-yam u-m»sov»vot
the-girls walk on the-beach and-gyrate

'et ha-yašvanim
OBJ the-buttocks

The girls walk on the beach and gyrate their butts.

In Hebrew the singular form *yašvan* indicates one side or the whole and the plural form *yašvanim* indicates one or more wholes. In English, the singular form *buttock* indicates one side and the plural form *buttocks* indicates one or more wholes.34

Another term used for this part of the body is the complex form *'azorayim* - 'backside'. It consists of the space word *'azor* - 'back' and the dual/plural suffix -*ayim*, suggesting that this part of the body is seen as a pair. Unlike *yašvan/yasvanim*, the singular form *'azor* cannot refer to either one side or the whole; in Modern Hebrew the form *'azor* is not used as a body part term. The children's word *tusik*, derived from Yiddish *tozis*, is commonly used in adult speech for this part of the body. Note that the Yiddish word *tozis* is based on the Ashkenazi pronunciation of the Hebrew *tazat*. Hence, *tusik* and *tazat* are related through Yiddish. The term *tush*, as used in some dialects of American English, is also derived from Yiddish *tozis*.

Each of the three terms mentioned is a euphemism; this is so probably because of the body part named. Even the (so to speak) official term *yašvan* is a euphemism, as apparent from its etymology. The etymology of *yašvan* indicates its similarity to the English term *seat*. In both the Hebrew *yašvan* and the English *seat* the euphemism is based on a function of the body part. In particular, the socially non-taboo function of the body part is the basis of the euphemism. Similarly, both the Hebrew *'azorayim* and the English *backside* are based on the location of the body part.
Perhaps the most commonly used term for this part of the body is *taxat*. Considered slang, it is comparable to the English term *ass*. As such, *taxat* is the term used offensively in rude expressions, as given in (#42).

42) ʃak li ba-taxat
    kiss to-me in the-ass
    Kiss my ass!

Note that *taxat* refers to the whole, and is not used for just one side. Thus, (#43a) is an acceptable sentence, but (#43b) is not.

43) a. kibalti zrika ba-taxat
    I got shot in the-ass
    I got a shot in the ass.

    b. *kibalti zrika ba-taxat ha-smali
        I got shot in-the-ass the-left

Although *taxat* is rude, under the right circumstances (for instance, among peers of certain age groups) it is the expected term. Thus, while (#37) and (#38) are possible (and polite), (#43a) and (#44), respectively, are more likely and appropriate in certain contexts.

44) yes la taxat xamud
    there-is to-her ass cute
    She has a cute ass.

In some situations speakers deliberately use a slang and potentially offensive term, but because of the situation the utterance is not considered rude. (Of course, there may be occasions when speakers intend them to be rude and offensive.)

It is particularly interesting to note that only as a body part term is *taxat* poten-
tially offensive. As a preposition, *taxat* - 'under' has no special connotation. Synchronically, the preposition *taxat* - 'under' and the body part term *taxat* - 'ass' are morphemically unrelated homonyms. Diachronically, it seems that the body part term developed euphemistically out of the prepositional use. Whereas there are many instances of the preposition in Biblical Hebrew, there are no occurrences of *taxat* as a body part term in the Bible. Although there is not much talk about this part of the body in the Bible, when mentioned the term *yet* is used. While the non-occurrence of *taxat* in the Bible may be a function of the difference between written text and spoken language, it is still suggestive. Although it would be considered very impolite, *taxat* - 'ass' as a body part term could be used in the written language. As a body part term *taxat* is similar to the English term *bottom*, a euphemism based on the location of the body part. In spite of the etymological and semantic relationship between the preposition and the body part term, which suggests that *taxat* should be a euphemism, the word is pejorative.

The (American) English body part term *ass*, which is rude and offensive, has an interesting taboo association with the animal name *ass*. The two terms are not etymologically related: the body part word is historically related to a Germanic word *ars* - 'buttocks'; the animal name is historically related to a Latin term *asinus* - 'ass'(donkey). However, the taboo status of the body part term has been extended to the animal name presumably because of the homophony of the two words. As a result, *donkey* and not *ass* is the commonly used and polite animal name. Note that it is the animal name *ass* and not *donkey* that is used derogatorily to refer to someone who is stupid and/or stubborn. Of course, the animal name *ass* has its own negative connotations independent of the body part term.

Although not typically used in the modern spoken language, the term *'akuz*, which is of Mishnaic Hebrew origin, does occur in the technical phrase *leydat* *'akuz* (birth (of)
birth) - 'breech birth'. When used non-technically, 'akuz is somewhat comparable to
tazat - 'ass'. If two young men were walking down the street admiring a woman in front
of them, one could say to the other: 'eyze 'akuz (what ass) - 'Wow, what an ass!' Syntactically, 'akuz is similar to ya'aran in that the singular can indicate one side, as in
(#45), or the whole as in 'eyze 'akuz - 'Wow, what an ass!' In addition, the plural form
'akuzim indicates one or more wholes, as in (#46) and (#47), respectively.37

45) haya la peca 'al ha-'akuz ha-smali
was to-her bruise on the-buttock the-left
She had a bruise on her left buttock.

46) šade-ha 'eytanim və-'akuze-ha
breasts-her strong-pl. and-buttocks-her

'agulim və-xasonim
round-pl. and-firm-pl.

Her breasts are strong and her buttocks are
round and firm. (Amichai 1975:18)

47) ləvuvot haya mixnasayim kcarim
dressed-f.pl. were pants short-pl.

mərupatim bə-mkom ha-'akuzim....
worn out-pl. in-the-place the-buttocks

They were dressed in short pants worn out
in the seats...(Amichai 1975:116)

In Modern Hebrew the term moten/motnayim - 'waist' refers to the circumference
of the trunk at its narrowest point. On the male body, this is at a relatively low point on
the trunk; on the female body, this is approximately at the mid-point of the trunk. Typi-
cally, for speakers of Modern Hebrew the term moten evokes an image of the female body
rather than the male body. The waist is identified and named by the lay observer of the
human figure while viewing the front of the body and/or the back of the body. While the
term moten/motnayim - 'waist' names a part on the outer surface of the body, it is
"properly" a volume term since the trunk is a three-dimensional object.

Note that either a singular or a dual/plural form can be used to refer to the whole thing. Unlike other parts of the body for which there are singular and dual/plural forms—typically, paired parts with one part on each side of the body (see section 4.7)—the term moten does not refer to one side of the waist. Whereas it is possible to say ha-yad ha-smalit (the-arm the-left) - 'the left arm' and ha-regel ha-smalit (the-leg the-left) - 'the left leg', *ha-moten ha-smali (the-waist the-left) does not occur. In spite of the morphological difference, the two forms (moten, motnayim) are used in exactly the same way, as is apparent from the following sentences. In each example the (a) and (b) sentences are equivalent.

48) a. yeš la moten namux
   there-is to-her waist low
   She has a low waist.

   b. yeš la motnayim namuxim
   there-is to-her waist(d/p) low (pl.)
   She has a low waist.

49) a. yeš la moten car
   there-is to-her waist narrow
   She has a narrow waist.

   b. yeš la motnayim carim
   there-is to-her waist(d/p) narrow (pl.)
   She has a narrow waist.

The above examples also show that moten/motnayim is "objectively findable" (#48) and can be measured (#49). It is meaningful to describe someone has having a moten namux - 'low waist' only because the regular location of moten is known. While there is linguistic evidence that moten/motnayim - 'waist' is "objectively findable", there is not much physical corroboration for this. Unlike other "objectively findable" parts of the body, the waist is not a discrete part and not well demarcated. During the picture
elicitation task, informants "found" moten/motnayim at the place on the trunk where it begins to narrow, this being the only possible identifiable physical demarcation. (See illustrations A-D in Appendix I.) It seems that knowing the meaning of moten/motnayim includes knowing where the waist ought to be even if it isn't there. It is possible to describe a fat person by saying 'eyn la motnayim (not to-her waist) - 'She doesn't have a waist'. It is also possible to measure the waist of a fat person: yeṣ la motnayim razavim (there-is to-her waist wide) - 'She has a wide waist'.

The following English sentences include the body part term waist.

50) a. She has no waist.
    b. She has a small waist.
    c. She has a big waist.

While (#50a) assumes the canonical view of the human figure i.e. from the front, (#50c) conceptualizes the human figure from the side. Curiously enough, (#50b) also assumes a front view of the human figure. Furthermore, given these views of the human figure no waist describes a larger-sized waist than a small waist. Usually a small amount of something is greater than none of it. It seems, however, that when measuring waists the order from small to large is: small waist--no waist--big waist. This seems to derive from the fact that having no waist is a configurational notion while having a small waist or a large waist is a metrical notion. The term waist can be used to refer to the circumference of that part of the body whether or not there is a noticeable narrowing. One further curiosity is that no waist can be said of someone who is very thin as well as of someone who is very fat. Thus, it seems that there are other orders for measuring waists from small to large: no waist--small waist--big waist; and small waist--big waist--no waist.
Data from earlier periods of Hebrew suggest that *motnayim* did not refer to the waist. In Biblical Hebrew *motnayim* designates an area of the body that is covered (#51) or bound (#52); it also refers to an area of the body to which one's sword is attached (#53). Note that in each of these examples, *motnayim* is used of a male body. The term *motnayim* is glossed 'loins' in spite of the problems involved in doing so.39

51) vē-ʿal motnayim sak
and-on loins sack cloth
...and upon the loins sack cloth...
(Jer. 48:37)

52) xagoru motne-xa
gird loins-your
...gird thy loins...
(2 Kings 4:29)

53) xerev maccamedet ʿal motnav
sword fastened on loins-his
...a sword fastened upon his loins...
(2 Sam. 20:8)

None of these examples provides much information regarding the location of *motnayim* on the human body. Based on (#53), it is reasonable to suggest that *motnayim* would be on the sides and toward the back of the body. It would be difficult to walk if a sword were attached at the front of the body, assuming it is attached vertically.40

In Mishnaic Hebrew *motnayim* also refers to an area of the body which is covered or bound (#54).
54) וּ-נָטֵן לוֹ קָרָה הַ-רֹאָה
and-he gives to-her cap for-head-her

וּ-רָגַע לוֹ מְנַנְתֶּה הָ- הָן
and-girdle for-loins-her

And he must give her a cap for her head
and a girdle for her loins.
(Ket. 5:8:5)

In addition, there is support for the claim that motnayim does not designate an area on
the front of the body.

55) 'אֶדֶּד מֵין הָאֲדָם דּוֹסָף-ו 'אֶל מְטָנָא
one of the-witnesses pushes-him on loins-his

נֶהֶפַּס 'אֵל לִב-ו הֹפַס-ו
he was turned on heart-his he turns-him

'אֶל מְטָנָא
on loins-his

One of the witnesses pushed him [the condemned
man] by his loins; if he turned over face
downward, he [the witness] turned him [the
condemned man] on his loins.
(San. 6:4:2)

In (#55), in order to be turned over from face downwards onto the loins, the loins must be
somewhere on the back. Further evidence for this is provided by the cognate term in
Classical Arabic. In Arabic the singular form is matn - 'side of the back' and the dual
form is matnatānī - 'two sides of the back', corresponding to the Hebrew motnayim.

Speculation about the shift in meaning of motnayim in earlier periods of Hebrew as
'two sides of the back' to Modern Hebrew 'waist' is in order here. Covering the motnayim
with cloth so that it remains in place or binding the motnayim with a girdle would involve
encircling the trunk at the waist. Although not typically used as such in spoken English
today, the original sense of girdle is "A belt worn round the waist to secure or confine the
garments...." (s.v. *girdle* #1, OED). The change in meaning of *motnayim* is easily explained and seems quite natural.

Of further interest is the fact that all examples in Biblical Hebrew and Mishnaic Hebrew use the dual/plural form. Neither Even-Shoshan (1978) nor Kasowski (1958) cite any occurrences of the singular form *moten*. One might speculate that Modern Hebrew *moten* is a back formation from *motnayim* analogous to other dual/plural forms of body part terms which have always had corresponding singular forms—e.g. *regel* - ‘leg’, *raglayim* - ‘(two) legs’.

4.4 Joints

The term *katef* - ‘shoulder’ (section 4.5.1) must also be considered with respect to the arm because it is the point at which the arm is connected to the trunk. In this respect *katef* is similar to other terms that name points of connection in the limbs. The terms for the points of connection in the limbs will be discussed as a group before discussing each limb and its parts. In addition to *katef* these terms are: *marpek* - ‘elbow’; *perek ha-yad* (the-hand joint) - ‘wrist’; *perek ha-ecba* (the-finger joint) - ‘knuckle’; *berex* - ‘knee’; and *karsol* - ‘ankle’. (The terms that are relevant to the arm are included in Figure 5; the terms that are relevant to the leg are included in Figure 6.) This was done in part because from the point of view of the lay observer of the human figure, each term names an external area of the body. Since these terms name internal points along with external areas, they can be thought of as terms used by the experiencer of body feelings as well as by the lay observer. Thus, the reader will notice that much of the discussion that follows includes sentences that have to do with pain (having arthritis, breaking bones, scraping skin), that being one way of taking the perspective of the experiencer of body feelings. (See section 5.2.)
Figure 5

"part-of"

"kind-of"
perek yad - wrist  (kaf) yad - hand

ha-yad - back of the hand  kaf yad - palm  'ecba - finger

perek 'ecba - knuckle  ciporen - fingernail

'agudal - thumb  'ecba - index finger  'ama - middle finger  kmica - ring finger  zeret - pin
guf - body

regel - leg

yarex - thigh  berex - knee  yok - lower leg  karsol - ankle  (kaf) regel - foot

kaf regel - sole  'akev - heel  'ecba/bohen - toe

ciporen - toenail

Figure 6
Some of the terms that name points of connection in the limbs are simple; some are compounds. As mentioned above, katef - 'shoulder' is simple, as are berez - 'knee' and karsol - 'ankle'. The term marpek - 'elbow' is morphologically related to the verbal root RPK - 'lean', only used as such in earlier periods of Hebrew. The compound terms are perek ha-yad (the-hand joint) - '(the) wrist', and perek ha-ecba (the-finger joint) - '(the) knuckle'. The morphological status of these two terms is discussed at greater length below. It should be pointed out that the glosses given here are only suggestive because the Hebrew terms for points of connection behave somewhat differently than the corresponding English terms. The English terms are discussed here in order to provide a framework within which to discuss the Hebrew terms.

The English terms that name limb joints are: shoulder, elbow, wrist, knuckle, hip, knee, and ankle. All of the terms name internal points of articulation, as apparent from (#56).

56) a. Fred has arthritis in his shoulder and he can't lift his arm.

b. Fred has arthritis in his elbow and he can't bend his arm.

c. Fred has arthritis in his wrist and he can't flex his hand.

d. Fred has arthritis in his knuckles and he can't bend his fingers.

e. Fred has arthritis in his hip and he can't lift his leg.

f. Fred has arthritis in his knee and he can't bend his leg.

g. Fred has arthritis in his ankle and he can't flex his feet.

Arthritis is a disease which affects joints; it is painful to move the affected part. It seems
clear that the lay observer has some technical information about the joints. In particular, the joints are hinge-like things parts of which move and joints can become inflamed or dislocated and hence not function well.

These terms also name some corresponding external area; the kind of area named is in part a function of the physical structure of the body part. Thus, some of the terms name external surface areas, as shown in (#57)

57) a. Fred scraped his shoulder against the wall.
   b. Fred fell and scraped his elbow.
   c. Fred scraped his knuckles against the wall.
   d. Fred fell and got a black and blue mark on his hip.
   e. Fred fell and skinned his knee.

Objects such as knee pads and elbow guards cover the external surface areas of the corresponding points of articulation. Other terms name circumferences, as shown in (#58a) and (#58b).

58) a. Sue is wearing a gold chain on her wrist.
   b. Sue is wearing a gold chain on her ankle.

Note that *Fred fell and scraped his ankle* is also possible. Here either side of the leg at the ankle may be affected. There are no special terms or phrases for the "other" sides of the wrist or the ankle. For some of these parts there are special words or expressions for their "other" sides. Either *armpit* or *underarm* is used for the "other" side of the shoulder. The phrase *crook of the arm* names the "other" side of the elbow; similarly *back of the knee* is used for the "other" side of the knee. There does not seem to be an "other"
side term for hip, but note that hips names a circumference—the distance around the trunk at the hip.

The inner-outer shift (or outer-inner shift depending on one's perspective) is expected since many words that refer to three-dimensional objects are used for the inside volume or the outside surface of that object. Thus, for example (#59) refers to an inside volume and (#60) refers to an outside surface.

59) The car is spacious.
60) The car is red.

Many of the terms that name parts of the face and head behave in the same way (see section 4.1).

The words that name joints can be divided into two groups. The terms elbow, knuckle, and knee constitute one group; the terms shoulder, wrist, hip, and ankle constitute another group. The difference between the two groups seems to be that the former names parts that are conceived of as well-bounded points and the latter names parts which are conceived of as extents. For convenience, the words in the second group will be referred to as extent-terms. It is possible to distinguish between the two groups by their behavior with the verb break.

A typical use of the verb break occurs in the sentence Fred broke the pencil where the action is performed on a long stick-like object. This use of break can be compared with the use of break as in break with a hammer where the action is performed on an object which extends over a relatively large area. Compare the following sentences.

61) Fred broke his watch with a hammer.
62) Fred broke the window with a hammer.
For some speakers of English (#61) is somewhat odd while (#62) is always acceptable. This seems to be so because although a watch is an aggregate of lots of little things, it is not an extent in the way that a window is.

Now the use of the verb *break* with body part terms can be considered. Sentences such as *Fred broke his arm* and *Fred broke his leg* are comparable to *Fred broke the pencil* in that an arm or a leg is a long stick-like object and can be broken in the same way that a pencil can be broken. Consider the following sets of sentences.

63) a. ?Fred broke his elbow.
   b. ?Fred broke his knuckle.
   c. ?Fred broke his knee.
   d. Fred broke his arm at the elbow.
   e. Fred broke his finger at the knuckle.
   f. Fred broke his leg at the knee.

64) a. Fred broke his shoulder.
   b. Fred broke his wrist.
   c. Fred broke his hip.
   d. Fred broke his ankle.

For some speakers of English sentences (#63a)-(#63c) are odd while the sentences in (#64) are always acceptable. Note that instead of (#63a)-(#63c) one would say (#63d)-(#63f), respectively. Sentences (#63a)-(#63c) are odd for the same reason that (#61) is odd. The verb *break* requires an extent, either a line (e.g. pencil) or an area (e.g. window). Conceptually, elbows, knuckles, and knees are well-bounded points and not extents; points cannot be broken. The sentences in (#64) are acceptable for the same reason that (#62) is acceptable. Conceptually, shoulders, wrists, hips, and ankles are more like extents (than points) presumably because they extend over a relatively large area--i.e. relative to their points of articulation. To illustrate, a large object can be carried on the shoulder; a hip is the protruding part of the pelvis, a large basin-like bone. In
the case of shoulders and hips, the area is wide as can be seen from the phrases broad shoulders and broad hips. As for wrists and ankles, consider the collocations tapered wrists and tapered ankles, neither of which would be acceptable if wrists and ankles did not extend over a relatively large area. With wrists and ankles the area is long—only elongated objects can be tapered.

Notice that the word joint forces a conceptualization of the extent terms as points. In such cases the sentences with break are as odd as with the non-extent terms.

65) a. ?Fred broke his shoulder joint.
   b. ?Fred broke his wrist joint.
   c. ?Fred broke his hip joint.
   d. ?Fred broke his ankle joint.

Whereas break, for some speakers, is restricted to extent-terms, an action that refers to the articulation of the joint is not restricted in this way as in the arthritis sentences as well as those given below.

66) Fred's shoulder is out of joint.
   elbow
   wrist
   knuckle
   hip
   knee
   ankle

Thus, it seems that some of these terms name "real" joints (elbow, knuckle, knee) and some of them name joints and extents (shoulder, wrist, hip, ankle). Furthermore each of the extent terms designates an area that extends from the joint towards the center of the body. The term shoulder refers to the trunk from the top of the arm to the base of the neck. The word wrist is appropriately used for part of the forearm, but not part of the hand. Consider the acceptability of Fred broke his wrist two inches above the joint.
compared with the inacceptability of *Fred broke his wrist two inches below the joint. To get from the hip joint to the rest of the pelvis, it is necessary to go inwards towards the spine. The word ankle is used appropriately for a part of the lower leg, but not for part of the foot. Consider Fred broke his ankle two inches above the joint as opposed to *Fred broke his ankle two inches below the joint.

The Hebrew terms for points of connection in the limbs are repeated here: katef - 'shoulder'; marpek - 'elbow'; perek ha-yad (joint (of) the-hand)-'wrist'; perek ha-ecba (joint (of) the-finger)-'knuckle'; berez - 'knee'; and karsol - 'ankle'. As with the English words, the Hebrew terms name internal points of articulation, as apparent from (#67)-(#72). The compound noun daleket prakim - 'arthritis' literally means 'inflammation (of the) joints'.

67) ko'evet lo ha-katef ki yes' hurts to-him the-shoulder because there-is

lo daleket prakim hu lo yaxol lə-harim to-him arthritis he not able to-lift

'et ha-yad OBJ the-arm

His shoulder hurts because he has arthritis—he can't lift his arm.

68) ko'ev lo ha-marpek ki yes' lo hurts to-him the-elbow because there-is to-him

daleket prakim hu lo yaxol lə-kofef 'et ha-yad arthritis he not able to-bend OBJ the-arm

His elbow hurts because he has arthritis—he can't bend his arm.
69) Ko’ev lo perek ha-yad ki yes lo daleket prakim hu lo yaxol to-him arthritis he not able
la-kofef ’et ha-yad
to-bend OBJ the-hand

His wrist hurts because he has arthritis—he can’t flex his hand.

70) Ko’avim lo pirkey ha-‘ecba’ot ki yes lo daleket prakim hu lo there-is to-him arthritis he not
yaxol la-kofef ’et ha-‘ecba’ot able to-bend OBJ the-fingers

His knuckles hurt because he has arthritis—he can’t bend his fingers.

71) Ko’evet lo ha-berex ki yes lo hurts to-him the-knee because there-is to-him
daleket prakim hu lo yaxol la-kofef arthritis he not able to-bend
’et ha-regel
OBJ the-leg

His knee hurts because he has arthritis—he can’t bend his leg.

72) Ko’ev lo ha-karsol ki yes lo hurts to-him the-ankle because there-is to-him
daleket prakim hu lo yaxol la-kofef arthritis he not able to-bend
’et ha-regel
OBJ the-foot

His ankle hurts because he has arthritis—he can’t flex his foot.
The Hebrew terms also name some corresponding external area. Some of the terms name external surface areas, as shown in (#73)-(#75).

73) dan šifšef 'et ha-katef yored lo dam
Dan scraped OBJ the-shoulder falls to-him blood
Dan scraped his shoulder—he's bleeding.

74) dan šifšef 'et pirkey ha-‘ecba'ot yored lo
dam
blood
Dan scraped his knuckles—he's bleeding.

75) dan šifšef 'et ha-berex yored lo dam
Dan scraped OBJ the-knee falls to-him blood
Dan scraped his knee—he's bleeding.

Other terms name circumferences, as shown in (#76)-(78).

76) rina talta ‘et ha-sal ‘al ha-marpek
Rena hung OBJ the-basket on the-elbow
Rena hung the basket on her arm.

77) rina ‘onedet camid ‘al perek ha-yad
Rena wears bracelet on the-wrist
Rena is wearing a bracelet on her wrist.

78) rina ‘onedet šaršeret ‘al ha-karsol
Rena wears chain on the-ankle
Rena is wearing a chain on her ankle.

Note that (#79)-(80) are also possible.

79) dan šifšef ‘et ha-marpek yored lo dam
Dan scraped OBJ the-elbow falls to-him blood
Dan scraped his elbow—he's bleeding.
Dan scraped his ankle— he's bleeding.

While (#79) refers to just one "side" of the marpek, (#80) can refer to either side of the leg at the karsol. In (#79) marpek is exactly like English elbow, but (#78) shows how the Hebrew term marpek differs from the English term elbow— marpek names a circumference. Note that there is no Hebrew phrase parallel to crook of the arm. Similarly, there are no special terms or phrases for the "other" sides of perek ha-yad or karsol. The "other" side of katef - 'shoulder' is bet ha-şezi - 'underarm'; the "other" side of berey is me-’azorah ha-berez (from-behind -the-knee) - 'behind the knee'.

Except for marpek, all seem to extend over a relatively large area. As discussed above, the term katef names an area of the trunk on which things can be carried: dan sazav 'et ha-sal 'al ha-katef - 'Dan carried the basket on his shoulder'. The term perek ha-yad is appropriately used for part of the forearm, but not for part of the hand. For some speakers of Hebrew perek ha-ecba also names the sections of the fingers between the knuckles. In Hebrew, children sit on their mother's birkayim (knees) since there is no other means of designating 'lap'. The term karsol is appropriately used for a part of the lower leg, but not a part of the foot.

The Hebrew words for joints are not conceived of as points or extents. Rather, they can be viewed as being along a continuum with joints that are links between body parts at one end ("inter-limb joints") and joints that are part of larger body parts at the other end ("intra-limb joints"). Thus, katef - 'shoulder' is seen as a link between gav - 'back' and yad - 'arm'; marpek - 'elbow' is seen as a part of yad - 'arm'; and berey - 'knee' is seen as a part of regel - 'leg'. There is also an intermediate category consisting of perek ha-yad - '(the) wrist' and karsol - 'ankle'. Thus, for example, perek ha-yad - '(the) wrist' is seen as more of an "intra-limb" joint than katef - 'shoulder', but less so than...
**marpek** - 'elbow'.

As mentioned above, the Hebrew joint words behave differently than the corresponding English terms. For some speakers of Modern Hebrew, all of the joint words can always be used with the verb **savar** - 'break', as in (#81).

81) dan **savar** 'et ha-katef
Dan broke OBJ the-shoulder
  ha-marpek
  the-elbow
  perek ha-yad
  the-wrist
  pirkey ha-'ecba'ot
  the-knuckles
  ha-berex
  the-knee
  ha-karsol
  the-ankle.

For other speakers, there seems to be a correlation between how "inter-limb" the joint is and its use with **savar**. For these speakers, when talking about "intra-limb joints" (**marpek, berex**), it is the larger body part (**yad, regel**), that "breaks". Thus, these speakers would use the sentences given in (#82).

82) a. dan **savar** 'et ha-yad ba-marpek
Dan broke OBJ the-arm in-the-elbow
Dan broke his arm at the elbow.

b. dan **savar** 'et ha-regel ba-berex
Dan broke OBJ the-leg in-the-knee
Dan broke his leg at the knee.

Note that Hebrew **savar** - 'break' differs from English **break**. Whereas the Hebrew verb
can only be used for hard objects, the English verb can be used with a variety of kinds of objects. For example, in English it is possible to break a dish, break a bag, and break a record, where record may also be abstract.

The Hebrew terms also name parts that can be ‘out of joint’—i.e. dislocated or sprained.

83) kibalti maka ba-katef
I-got (a) blow at-the-shoulder

ba-marpek
at-the-elbow

ba-perek ha-yad
at-the-wrist

ba-pirkey ha-'ecba'ot
at-the-knuckles

ba-berex
at-the-knee

ba-karsol
at-the-ankle

mistaber še-'eyn li šever
seems that-not to-me break

yeš li neka
there-is to-me dislocation

I got hit on the shoulder
elbow
wrist
knuckles
knee
ankle

--it turns out that I don’t have a fracture,
I have a sprain.

It should be pointed out that some of the sentences with the terms perek ha-yad - ‘wrist’ and pirkey ha-'ecba'ot - ‘knuckles’ are pragmatically somewhat odd. 46
In some contexts, speakers of Hebrew prefer using *yad* or *เยבה'옷* respectively. Thus, for example the more natural way of stating (#77) is given in (#84a) and the more natural way of stating (#74) is given in (#84b).

84) a. *רנה רועדת חמידアル יד*  
*Rena wears bracelet on the-arm*  
Rena is wearing a bracelet on her wrist.

b. *דן סיפש'ף הל יד*  
*Dan scraped OBJ the-fingers*  
Dan scraped his fingers—he's bleeding.

Thus it seems that *פרק-היד* and *פרקי-เยבה'옷* are less salient terms than the corresponding English terms *wrist* and *knuckles*. Additional support for this is the fact that neither *פרק היד* nor *פרקי-เยבה* are documented in existing records of Biblical Hebrew or Mishnaic Hebrew. Furthermore, as noted above, both of these terms are compound nouns—bi-lexemic terms—as compared to the English terms which are simple. According to Zipf (1935), shorter words occur more frequently. Length of word, degree of morphological or linguistic complexity, and frequency of occurrence are factors which contribute to the salience of a term. Salient terms tend to be short, morphologically simple, and frequently occurring (Berlin and Kay, 1969; Berlin, Breedlove, and Raven, 1973). Compounds are longer and morphologically more complex than simple terms; *פרק היד* and *פרקי-เยבה* occur infrequently. Based on the criteria mentioned here, *פרק היד* and *פרקי-เยבה* do not qualify as salient terms.

With regard to the morphological structure of these terms, the head noun of each of the compounds *פרק היד* (joint of the-hand) - 'the wrist' and *פרקי-เยבה* (joint
(of) the-finger) - '(the) knuckle' is the word perek. Outside the body part domain the term perek is polysemous, meaning 'section' or 'intersection' as apparent from the following sentences.

85) yeṣ ‘asara prakim ba-sefer there-are ten chapters in-the-book
There are ten chapters in the book.

86) dan higia lə-pirk-o Dan reached to-crossroad-his
Dan became mature (i.e. of marriageable age).

Thus, the term perek names a whole unit as well as the place where two units meet. An intersection is the place at which two sections come together. In the body part domain the term perek names the place at which two parts come together, as in daleket prakim (inflammation (of the) joints) - 'arthritis'. More specifically, the term perek ha-yad names the place that the hand meets the forearm; perek ha-‘ecba names a place where the sections of the finger meet each other or the hand. Furthermore, as suggested above, these compound terms as well as most of the other terms for joints in the body may also be used for areas that extend beyond the place of intersection. It is rather curious that the polysemy of perek outside the body part domain is similar to the polysemy of the names for specific joints, even those that are not formed with the term perek.
4.5 Limbs

4.5.1 The Arm

![Diagram of arm parts]

Figure 5

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Concerning Figure 5, the simple term *yad* is polysemous. In one of its senses it refers to the whole arm; in the other sense it refers to the hand. The polysemy obtains between a whole and a salient part of the whole where the part is salient because of its important function; both senses refer to a volume. These two senses are exemplified in (#87) and (#88) respectively.

87) yeṣ lo yadayim 'arukot
    there-are to-him arms long(pl.)
He has long arms./He steals.

88) yeṣ lo yad ptuxa
    there-is to-him hand open
He has an open hand./He's generous.

Each of these sentences has a literal and a figurative meaning. While it is possible to have long hands as well as long arms, the figurative meaning of (#87) supports the interpretation of *yadayim* referring to arms. Similarly, it is possible to have open arms as well as open hands, the figurative meaning of (#88) supports the interpretation that *yad* refers to the hand.

The simple term *zro'a* - 'upper arm' is also used to refer to the whole arm. While *zro'a* - 'upper arm' is not commonly used in everyday speech, 67% of the subjects completing the picture-based elicitation task used the term as such. The term *zro'a* was used for the whole arm by 41.6% of the subjects. Speakers of Modern Hebrew are familiar with the Biblical Hebrew expression *yad* *xazaka* u-*zro'a* *nɔtuya* (arm strong and arm-extended) which denotes strength. Synonymous parallelism is a well-documented stylistic device in the Bible in which two consecutive verses or phrases convey the same meaning with the use of synonyms. Here it seems clear that the forms *yad* and *zro'a* have been set up as parallel synonyms. The modern usage of *zro'a* for the whole arm seems to be an archaism reflecting the Biblical Hebrew usage. Some examples of this are...
given in (#89) and (#90).

89) rina va-dan halxu šluvey zro'a  
Rena and-Dan walked joined (of) arm  
Rena and Dan walk arm-in-arm.

90) kiblu 'oto ba-zro'ot ptuxot  
they-received him with-arms open(pl.)  
They welcomed him with open arms.

In both cases the action described involves the whole arm. There is no clear indication in Biblical Hebrew that zro'a also referred to only the upper arm. Perhaps the modern usage of zro'a - 'upper arm' is a result of a reassignment of meanings to terms in the system. If the speaker of Modern Hebrew uses yad for 'arm', but also knows that the form zro'a exists (s)he needs to find a different unique use for zro'a. The likely possibilities are the upper arm and the forearm. Since there is already a unique term for the forearm, the only remaining choice is the upper arm.51

The word 'ama - 'forearm' is a simple. While the word is not commonly used in everyday speech, 75% of the subjects completing the picture-based elicitation task used the term as such. The term 'ama has an interesting history. The Modern Hebrew body part word 'ama - 'forearm' is obviously the same form as the Biblical Hebrew term 'ama and etymologically related to the ancient measure word 'ama - 'cubit', the distance from the elbow to the tip of the middle finger.52 Many measure words are extended uses of body part terms (e.g. English foot, ell). It is likely that the measure term 'ama - 'cubit' is an extension of the Biblical Hebrew body part term 'ama which includes the hand--i.e. 'lower arm'. Note the difference between the English terms forearm and lower arm. The term forearm refers to the part of the arm from the elbow to the wrist; lower arm refers to the arm below the elbow--i.e. including the hand. The original sense of the body part term 'ama must include the hand in order for the measure word to have gotten
its meaning. Further evidence for this is provided by the finger name 'ama - 'middle finger' (see below). Although Modern Hebrew uses the metric system to designate units of distance—centimeter, meter, kilometer—speakers are likely to know what an 'ama - 'cubit' is; some may even have occasion to use it. Thus, in Modern Hebrew the body part term 'ama is unlike the measure word since the body part term (typically) does not include the hand.

As mentioned above, the term yad is polysemous referring to the whole arm or just the hand. The polysemy obtains between the whole and a salient part of that whole; both senses name a volume. It is possible to select out one of these senses with the term kaf yad (spoon (of) arm) - 'hand'. Example (#91) shows that yad and kaf yad may be used in the same context without a change in meaning.

91) dan hixnis 'et ha-yad la-kfafa
   Dan put in OBJ the-hand to-the-glove
   kaf ha-yad
   the hand

Dan put his hand into the glove.

The term kaf yad is a compound noun made up of the body part term yad - 'arm' and the noun kaf - 'spoon'. This analysis is supported by the fact that the only possible interpretation of (#92) is the one given—(#91) and (#92) are not equivalent.

92) dan hixnis 'et ha-kaf la-kfafa
   Dan put in OBJ the-spoon to-the-glove
   Dan put the spoon into the glove.

In addition, when a speaker of Modern Hebrew is asked to draw a kaf, the usual response is a picture of a spoon.\(^{53}\)
In earlier periods of Hebrew it seems that the term *kaf* alone referred to the hand and by extension to some kind of utensil or container, though not necessarily a spoon. The examples given below are citations from the Bible.54

93) ...palté-ní mi-yad rásá mi-kaf
    rescue-me from-hand (of) wicked from-hand (of)
    mā’avel və-xomes
    wrong-doer and-evil

...Rescue me from the hand of the wicked, from the hand of the wrong-doer and evil. (Ps. 71.4)

As previously mentioned, synonymous parallelism is a stylistic device commonly used in Biblical text. In (#93) it seems clear that *yad* and *kaf* have been set up as parallel synonyms. Furthermore, the Modern Hebrew expression *yad la-pe* (hand to-the-mouth) - ‘be quiet’, ‘keep a secret’ conveys the same meaning as the second conjunct in (#94).

94) və-sarim ’acrú bə-milim və-kaf
    and-princes stopped with-words and-hand
    lə-pi-hem yasimu
    to-mouth-their lay

The princes refrained (from) talking and lay their hand on their mouth. (Job 29:9)

A cupped hand may serve as a container; the shape and the function of a cupped hand are the bases for the extension of *kaf* as a body part to *kaf* as a container. An example of this use of the term *kaf* is given below.
Perhaps at some later point in time (after spoons were introduced and became common-place utensils) the extended use of kaf came to be 'spoon'—i.e. a particular kind of container or utensil—which ultimately became the dominant meaning of the term. In addition, it might be suggested that kaf ceased to be used for 'hand' because of the increased popularity of the term kaf yad - 'hand' which avoids the potential ambiguity involved in using the polysemous term yad - 'arm, hand'. Note that although the compound form for 'hand' does occur in the Bible, it is rare. Even-Shoshan (1982) cites only three such occurrences, all of which are plurals, as compared to well over one hundred instances of kaf as a body part term.55

The different senses of kaf, 'hand' and 'spoon' can be distinguished in the non-singular forms. As is the case with many other terms that name paired body parts, kaf - 'hand' takes the dual/plural suffix -ayim; the utensil term takes the regular feminine plural suffix -ot—i.e. kapot - 'spoons'. Note that in Modern Hebrew kapayim is a formal plural for the body part word which survives in fixed expressions such as nasi'at kapayim (raising (of) hands/?palms) - 'priestly benediction' and maza kapayim (clap hands/?palms) - 'applaud', both of which reflect an earlier stage of the language. The less formal plural kapot yadayim (spoons (of) arms) - 'hands' is based on the term kaf yad in which kaf has been analysed as 'spoon'.

The situation in Modern Hebrew is actually more complicated because the term kaf yad is also polysemous referring to either the hand, as in (#91), or just the palm, as...
exemplified in (#96).

96) hu kara 'et kaf yad-a  
    he read OBJ palm-her  
    He read her palm.

As we have seen with many other terms in the body part domain of Modern Hebrew, the polysemy of *kaf yad* can be characterized in terms of a volume and a surface. One sense of the term *kaf yad* - 'hand' refers to a three-dimensional object—it names a volume—and the other sense of the term *kaf yad* - 'palm' names a surface of the human body (cf. English *flat of the hand*). Of course, the palm is also part of the hand. Because the palm is physically inseparable from the hand and because many actions involving the hand focus on the palm, the palm can be considered a salient part of the hand. For these reasons, however, it is difficult to document the different senses of *kaf yad*. There are few things that can be done to or with the hand that do not involve the palm; there are few things that can be done to or with the palm that do not involve the hand. Perhaps the most convincing evidence for the polysemy of the term *kaf yad* is the fact that (#97) is ambiguous.

97) cavati 'et kaf yad-i  
    I-painted OBJ hand/palm-my  
    I painted my hand./I painted my palm.

It should be pointed out that the Hebrew term *kaf yad* - 'palm' names the inside surface of the hand including the fingers. For most speakers of English the term *palm* does not include the inside surface of the fingers. This is interesting given the extended use of *palm* as a name of a tree since it had to have included the fingers for the extension based on similar appearance to have occurred.
At this point it might be interesting to consider whether the Biblical Hebrew body part term *kaf* is polysemous in the same way as Modern Hebrew *kaf yad*. According to Dhorme, "On voit que *kaf* s’oppose a *yad* comme le creux de la main a la main entiere" (1923:150). To begin with, Dhorme does not seem to recognize the shared sense of *kaf* and *yad* as illustrated in (#93); he only acknowledges the difference between the two terms—i.e. ‘palm’ vs. ‘hand’. Moreover the data cited as evidence that *kaf* is ‘palm’ (as opposed to ‘hand’) are questionable. For example:

98) va-yis’e-nu mi-kaf 'oyvey-nu
   and saves us from (of) enemies our
   and save us out of the hand of our enemies.
   (1 Sam. 4:3)

99) l-hacil 'et 'amat-o mi-kaf ha-'isy
   to-deliver OBJ servant his from (of) the-man
   to deliver his servant out of the hand
   of the man... (2 Sam. 14:16)

In each case it is far more reasonable if *kaf* is understood as ‘hand’ particularly since these citations have something to do with saving someone from their enemy or delivering someone to their enemy (see Judg. 4:13 and Jer. 12:7). While it is clear that *kaf* is used in some metaphorical way, it might be suggested that the metaphor obtains only if *kaf* is something potentially harmful. As a three-dimensional object—i.e. a hand—*kaf* is potentially harmful. More specifically, unlike a palm, a hand can grasp or keep hold of someone, the harmful action alluded to in examples (#97) and (#98). Although it is the palm of the hand which makes contact when slapping, for example, no contact would occur without the movement of the hand. It is curious that Dhorme chose these examples especially since there seem to be a number of instances of *kaf* in the Bible which are at least ambiguous in that both ‘hand’ and ‘palm’ are reasonable. Some of these are given below.
In both (#100) and (#101) an action involving the hand in which the importance of the palm is apparent is indicated—i.e. applauding or extending the hand in a beseeching manner. There does not seem to be a single instance of *kaf* referring unambiguously to the palm in the Bible. As such whether the Biblical Hebrew body part term *kaf* is polysemous in the same way as the Modern Hebrew term *kaf yad*—i.e. referring to the whole hand or just the palm—cannot be stated conclusively. (However, it does seem likely.)

Another term for a part of the hand is the compound noun *gav ha-yad* (back (of) the-hand) - ‘back of the hand’ which is made up of two body part terms. The head noun *gav* - ‘back’ indicates the location of the part with respect to the whole, expressed with the modifying noun *yad* - ‘hand’. The term *gav ha-yad* is interesting because it assumes a non-canonical position of the hand. Only when the palm faces forward is the back of the hand actually in a position comparable to the back of the body. In fact, from the point of view of the lay observer of the human figure, when the hand is at rest—hanging down at the side of the body—*gav ha-yad* names a part of the hand that does not appear to be the back of anything. In a curious way the term *gav ha-yad* (back (of) the-hand)-‘back of the
hand' supports the notion that the palm is the salient part of the hand. When the etymology of the term *gav ha-yad* is considered an image of the human body with the palm at the front is inevitable. That which is at the front is more salient than that which is at the back.

The following table summarizes the terms for the different parts of the arm (excluding the fingers) in Biblical Hebrew and Modern Hebrew. An item appearing in parentheses with a question mark before it indicates that it is not possible to determine with certainty whether the Biblical Hebrew term refers to the body part. An item appearing in parenthesis indicates an archaic usage in the modern language.

<table>
<thead>
<tr>
<th>Biblical Hebrew</th>
<th>Modern Hebrew</th>
</tr>
</thead>
<tbody>
<tr>
<td>yad</td>
<td>arm, hand</td>
</tr>
<tr>
<td>zro'a</td>
<td>arm</td>
</tr>
<tr>
<td></td>
<td>(?upper arm)</td>
</tr>
<tr>
<td>'ama</td>
<td>lower arm</td>
</tr>
<tr>
<td></td>
<td>cubit</td>
</tr>
<tr>
<td>kaf</td>
<td>hand (?palm)</td>
</tr>
<tr>
<td></td>
<td>utensil</td>
</tr>
<tr>
<td>kaf yad</td>
<td>hand (?palm)</td>
</tr>
<tr>
<td></td>
<td>hand, palm</td>
</tr>
<tr>
<td>gav ha-yad</td>
<td>back of the hand</td>
</tr>
</tbody>
</table>

Table 1

In Modern Hebrew, other than archaisms, *zro'a* refers to the upper part of the arm; *'ama* refers to the lower part of the arm without the hand. The term *kaf*, once primarily a body part term, is now primarily the name for an artifact. *kaf yad* is used for both 'hand' and 'palm' in Modern Hebrew; *gav ha-yad* only occurs in the modern language.
The word ‘ecba - finger’ is a simple term, a superordinate of the individual finger names. The names of the different kinds of fingers, forming part of a taxonomically structured area of the domain, are given in Figure 5a.

![Figure 5a]

The term ‘agudal - thumb’ is related to the root GDL - ‘big’.

The term ‘agudal’ is of Mishnaic Hebrew origin and was used for both ‘thumb’ and ‘big toe’, as shown in (#102) and (#103).
102) ...'amar la-hem hachi'u...
he said to-them raise finger (2nd pl)

va-'eyn mo'ci'in 'agudal ba-mikdash
and-neg hold out thumb in-the-temple

...he said to them 'Raise a finger!'...but
one does not hold out a thumb in the temple.
(Yom 2:1)

103) ...'al 'akev-a va-'al ros gudl-a
on heel-her and-on head (of) big toe-her
...on her heel and on the end of her big
toe... (Nid. 8:1)

The Modern Hebrew expression la-lezet 'akev ba-cad 'agudal (to-walk heel on-side big
toe) - literally, 'to walk with a heel on the side of a big toe', and figuratively, 'to walk
slowly and carefully' reflects the earlier use of 'agudal - 'big toe'.

In Biblical Hebrew the term bohen is used for both 'thumb' and 'big toe', as shown in
(#104).

104) ...'va-'al bohen yad-o ha-yamanit
and-on thumb (of) hand-his the-right

'va-'al bohen ragl-o ha-yamanit
and-on big toe (of) foot-his the-right

...and upon the thumb of his right hand
and upon the big toe of his right foot.
(Lev. 8:23)

The term bohen continued to be used for 'thumb' and 'big toe' in Mishnaic Hebrew as
well, as shown in (#105).
While Biblical Hebrew only has bohen, Mishnaic Hebrew has both bohen and 'agudal for both ‘thumb’ and ‘big toe’. When 'agudal first came into the language, it seems that it was a synonym for bohen. (See below for more on bohen in Modern Hebrew.)

Aside from archaisms in the language, in Modern Hebrew the meanings of the terms are fairly well separated. Some evidence for this is provided by the results from the picture-based elicitation task. Although some speakers (16.6%) used both 'agudal and bohen for both ‘thumb’ and ‘big toe’, the majority of the speakers used 'agudal for ‘thumb’ (58.3%) and bohen for ‘big toe’ (75%). Only a very small percentage of the speakers (8.3%) used the term 'agudal for ‘big toe’.

The term 'ecba names any finger as well as the index finger. The term which names members of the set of fingers in general is also used to name an important member of that set. The index finger is important because it is the first finger (when distinguishing between the thumb and the other four fingers) and it is the one used for pointing. That the term 'ecba is polysemous meaning either ‘finger’ or ‘index finger’ suggests that the index finger is a finger par excellence. In other words, an index finger is a prototypical finger. (For more on 'ecba, see below.)

The term 'ama - ‘middle finger’ is the same one as is used for Biblical Hebrew ‘lower arm’ or Modern Hebrew ‘forearm’. Here the polysemy seems to be based on similarity of shape; both a middle finger and a lower arm are long tubular objects. In addition, the middle finger may be seen as the prominent portion of the lower arm in that it is at the very end of the lower arm and it is the longest of all the fingers. Recall that as a measure term 'ama - ‘cubit’ is the length from the elbow to the tip of the middle finger.
The remaining two finger names are *kmica* - 'ring finger' and *zeret* - 'pinky'. The term *kmica* - 'ring finger' is morphologically related to the verbal root KMC-'grasp', 'clench'. The term *zeret* is an ancient measure term, the distance from the end of the thumb to the end of the pinky of a spread hand--'span'. Since other measure terms are extended uses of body part terms, the way in which *zeret* as a measure term is an extended use of the body part word *zeret* - 'pinky' can be considered. It seems that the part which is at the end of the distance names the distance. Thus the term *zeret* is distinctly different than the term *'ama*, another finger name ('middle finger') and measure term ('cubit'). With *'ama* the whole names the part; with *zeret* the part names the whole.

All of the finger names discussed so far are simple terms, only one of which appears to be motivated. Two of the fingers have other names that are bi-lexemic. The compound noun *'ecba creda* is another name for *'ama* - 'middle finger'; the term is found in Mishnaic Hebrew. The noun *creda* whose etymology is unknown is only found in the compound *'ecba creda*; it is a 'morphan'. The noun + adjective expression *ha-'ecba ha-ktana* is another name for *zeret* - 'pinky'. The expression *ha-'ecba ha-ktana* is lexicalized as a name meaning '(the) little finger' rather than as a descriptive phrase for any finger which is small.

The names for the different fingers in Hebrew can be compared with the names for the different fingers in English, which are given in Figure 5b.
Most of the finger names in English are motivated terms. The terms index finger and pointer (a children's word) name the finger according to its function. The term forefinger names the finger according to its position with respect to the rest of the fingers as distinguished from the thumb. The term middle finger is also based on the position of the finger with respect to the other fingers, but it assumes that the thumb is one of the fingers. (The children's term tall man which names the finger according to its size—the tallest of the fingers—is also used for this finger.) The term ring finger is also based on the function of the finger—traditionally, it is the finger on which one wears a wedding ring. Another name for this finger is third finger which like forefinger is based on the assumption that the thumb is not counted as one of the fingers. If the thumb were counted as a finger the ring finger would be the fourth finger. The term little finger names the finger according to its size—it is the smallest of the fingers. For some speakers of English, pinky is a children's word; the Hebrew term for this finger is not a children's word. Except for ha-‘ecba ha-ktana - 'little finger', an alternative to zeret, and perhaps ‘agudal - ‘thumb' (associated with GDL - 'big') the Hebrew names of fingers are for the most part not motivated terms.

The other parts of the finger are perek ha-‘ecba (the-finger joint) - ‘(the) knuckle'
(discussed above with joint names) and ciporen - ‘fingernail’, which is a simple term. There is a homophonous term ciporen which names a spice, ‘clove’, and a flower, ‘carnation’. In Hebrew, both the body part word and the spice/flower word are related to the Aramaic term *tufra*. However, speakers of Modern Hebrew are not aware of this connection and do not associate the body part word with the spice/flower word. The term is used as the name for part of the body in Biblical Hebrew and only occurs as a spice/flower name in Mishnaic Hebrew. As such, it is reasonable to suggest that the spice/flower word is an extension of the body part word. As was the case with other body part terms, when used outside the body part domain, the word takes the regular plural suffix rather than the dual/plural suffix. Compare cipornayim - ‘(two) fingernails’ with cipornim - ‘cloves, carnations’. Note that ciporen - ‘fingernail’ takes the dual/plural suffix -ayim even though it does not name a paired body part. Perhaps the dual/plural suffix -ayim is used here analogous to its use with other paired body parts such as yad - ‘arm, hand’. Note, however, that the plural of *'ecba* - ‘finger’ is *'ecba'ot* - ‘fingers’—i.e. *'ecba* does not take the dual/plural suffix -ayim.

The English body part word *nail*, also the name of an artifact, is of Germanic origin and cognate with Latin *unguis* - ‘fingernail/toenail’. The Latin term *clavus* - ‘nail’, which names an artifact but not a body part, has come into English through French *clou* as *clove*, the name of a spice. The French word *clou* is used for the body part, the artifact, and the spice. Thus, Hebrew differs from English in that the word ciporen names a part of the body and a spice/flower while the term *nail* names a part of the body and an artifact.
4.5.2. The Leg

Figure 6
Concerning Figure 6, the simple term *regel* is polysemous. In one of its senses it refers to the whole leg; in the other sense it refers to the foot. The polysemy obtains between the whole and a salient part of that whole where the part is salient because of its important function; both senses refer to a volume. These two senses are exemplified in (#106) and (#107), respectively.

Example (#106) has a literal and a figurative meaning. The figurative sense supports the interpretation of *raglayim* referring to the legs. In order for (#106) to mean 'She sleeps around', a more colloquial way of saying 'She has sexual intercourse with lots of people', *raglayim* must refer to a part of the body included in which is an area that can be associated with sexual intercourse. The legs qualify since the top of the legs are anatomically adjacent to the genitals; opening the legs allows access to the genitals.

The simple term *yarex* - 'thigh' refers to a volume. In Modern Hebrew *yarex* names the part of the leg from above the knee to the joint at the top of the leg. The majority of the subjects completing the picture-based elicitation task used the term as such (75%). The term *‘agan yrezayim* (basin (of) thighs) - 'pelvis' suggests that at an earlier period of the language *yarex* referred to an area which extended upward, perhaps to the waist. One-quarter of the speakers completing the picture-based elicitation task used the term *yarex* to name an area from the top of the thigh to the top of the hip bone. In addition, in Modern Hebrew the expression *hekef ha-yrezayim* (circumference (of) the-thighs) is a measurement term which refers to the distance around the hips.
In at least one context in Biblical Hebrew *yarex/yrexayim* substitutes for *motnayim* as an area of the body to which one's sword is attached.62

108) 'is xarb-o 'al yrex-o... 
man sword-his on -his 
...Every man hath his sword upon 
his hip/(?)loin... (Song of Sol. 3:8)

109) xerev m\(\text{ד}\)cumedet 'al motn-av 
sword fastened on loins-his 
...a sword fastened upon his loins 
(2 Sam. 20:8)

Thus, it seems that there might have been some overlap between the terms *motnayim* and *yarex* in Biblical Hebrew. If so that would account for the pelvis being named in the way that it is.

The simple term *sok* - 'lower leg' names a volume. The term *sok* refers to the part of leg between the knee and the ankle. Hebrew differs from English in that it has one unanalyzable term, *sok*, to name the volume, which does not distinguish the front from the back. The English term *shin* refers to the front of the lower leg and the word *calf* refers to the back of the lower leg. Furthermore, the expression *lower leg* is not a lexicalized term; *lower leg* is a description.

As mentioned above, the term *regel* is polysemous referring to the whole leg or just the foot. It is possible to select out one of these senses with the term *kaf regel* (spoon (of) leg) - ‘foot’. Example (#110) shows that *regel* and *kaf regel* may be used in the same context without a change in meaning.
My foot doesn’t fit in the shoe.

The morphological analysis given above for kaf yad (spoon (of) arm) - ‘hand’ is relevant here as well. In addition, since the upper part of the body is considered more salient than the lower part of the body (Andersen, 1978), it might be suggested that the term kaf regel - ‘foot’ was formed by analogy with the term kaf yad - ‘hand’. Two structurally similar body parts—the hand and the foot—are named in morphologically comparable ways: kaf - ‘spoon’ + whole ‘...o.

The term kaf regel is also polysemous since it is used for the flat part of the foot—‘sole’.

The polysemy of kaf regel can be characterized in terms of a volume and a surface. One sense of the term kaf regel - ‘foot’ refers to a three-dimensional object—it names a volume—and the other sense of the term kaf regel - ‘sole’ names a surface of the human body. Of course, the sole is also a part of the foot and because of its physical inseparability from the foot as well as the importance of the sole in the actions of the foot, the sole can be considered the salient part of the foot. For the same reasons that it is difficult to document the different senses of kaf yad, it is also difficult to document the different senses of kaf regel. Few things are done to or with the foot that do not also involve the sole; few things can be done to or with the sole that do not also involve the foot. As such,
the most convincing evidence for the polysemy of the term *kaf regel* is the fact that (#112) is ambiguous.

112) cavati 'et kaf ragl-i
I-painted OBJ foot/sole-my
I painted my foot/I painted my sole.

The other parts of the foot are *'akev* - 'heel' and *'ecba* - 'toe'. The simple term *'akev* - 'heel' is morphologically related to the verbal root *'KV* - 'follow'. The term *'ecba* - 'toe' is the same as the term used for 'finger'. Here it seems that the polysemy of the term *'ecba* is based on the structural similarity of the two parts. In addition, the polysemy obtains between the upper part of the body and the lower part of the body. The response to the question 'How many *'ecba*ot do you have?' is *'eser* - 'ten', which confirms that the term *'ecba* is polysemous rather than general. The ambiguity of the term is resolved by the context in which it is used, as shown in (#113) and (#114).

113) lo katavti 'et ha-mixtav ki nišberu
not I-wrote OBJ the-letter because broke
li kama 'ecba'ot
to-me few fingers

I didn't write the letter because I broke a few fingers.

114) hu no'el sandalim ki nišberu lo
he wears sandals because broke to-him
kama 'ecba'ot
few toes

He's wearing sandals because he broke some toes.

The polysemy of the term *'ecba* can be discussed in terms of frames and prototypes. The three distinct, yet obviously related senses of *'ecba* are 'finger', 'index finger', and
'toe'. (See section 4.5.1 for the discussion of 'ecba - 'index finger'.) There is no objective reason for the index finger to be the one named by the term for any finger. The index finger has the same basic physical characteristics as (most of) the other fingers. The special function of the index finger, rather than any physical characteristic, seems to motivate the 'finger'/ 'index finger' polysemy. In English it is possible to say to give someone the finger when referring to that finger when it has a special function. In contrast with the 'finger'/ 'index finger' polysemy, the 'finger/toe' polysemy seems motivated by similarity of relative position and physical structure, rather than by identity of function.

It is possible to talk about the semantic structure of 'ecba' by invoking Fillmore's notion of a 'frame'. Three different frames are necessary: the hand; the set of fingers; and the foot. The "hand frame" gives the 'finger' sense; the "set of fingers frame" gives the 'index finger' sense; and the "foot frame" gives the 'toe' sense of the term 'ecba, which is simultaneously part of each of these frames. Knowledge about the world and the ability to recall past experiences play a role in understanding each of the different senses of the term 'ecba. Thus, for example, in (#113), the "hand frame" is accessed because people know that writing is typically done with a writing implement held in the hand and recall seeing this done and/or doing it themselves. Note that 'ecba takes its unmarked sense, 'finger', relative to the most salient of these frames, the "hand frame" which is its prototypical frame. Thus, frames and prototypes provide a motivated account of the polysemy structure of the term 'ecba.

Given the three senses of 'ecba, the term links elements in the domain partonomically and taxonomically. As a partonomic link, 'ecba - 'finger' is a part-of (kaf) yad - 'hand' which is a part-of yad - 'arm' which is a part of guf - 'body'; and 'ecba - 'toe' is a part-of (kaf) regel - 'foot' which is a part-of regel - 'leg' which is a part-of guf - 'body'. As a taxonomic link, 'ecba - 'index finger' is a kind-of finger. There
are other kinds of fingers including 'agudal' - 'thumb', 'ama' - 'middle finger', and zeret - 'pinky'. Furthermore, 'ecba' exemplifies two patterns of polysemy in the domain: genus/species polysemy ('finger'/ 'index finger') and upper/lower polysemy ('finger'/ 'toe').

The term 'ecba' does not mean 'digit'. The Hebrew term 'ecba' differs from the English word 'digit' in a number of ways. First of all, while 'ecba' is commonly used in everyday conversation, 'digit' is not. It is odd for a speaker of English to say 'I broke two digits'. Secondly, while 'ecba' is polyseous, as discussed above, 'digit' is general since it refers to any one of twenty parts of the body.

The only toe that has a special name is the big toe. The simple term bohen - 'big toe' was used as such by 75% of the speakers who completed the picture-based elicitation task; the other 25% used bohen for 'thumb'. The latter figure includes 16.6% who used 'agudal' as well as bohen for both 'big toe' and 'thumb' and 8.3% who used bohen alone for both digits. The very small percentage of speakers who used bohen alone for both digits provides some additional evidence for the claim that the meanings of the terms 'agudal' and bohen are fairly well separated.

The expression la-lezet 'al ha-bhonot (to-walk on the-toes) - 'to tiptoe' suggests that the term bohen is also used for any toe. The typical response to the question 'How many bhonot do you have?' is: šlayim - 'two'. Thus, it seems that bohen as a special name for the big toe is different than 'ecba' as a special name for the index finger. The term bohen names a particular toe and is generalized to mean any toe. The term 'ecba' names any of the fingers and is narrowed to mean a particular finger.

The term ciporen - 'toenail' is the same as is used for 'fingernail'. As was the case with 'ecba - 'finger, toe', the polysemy of the term ciporen is based on the structural similarity of the two parts, one on the upper part of the body and the other on the lower
part of the body. The typical response to the question 'How many *cipornayim* do you have?' is 'eser' - 'ten' confirming that *ciporen* is polysemous rather than general. The ambiguity of the term is resolved by the context in which it is used, as apparent from (#115) and (#116).

115) nišbəra li ha-ciporen kšē-giradātī  
brane to-me the-fingernail when-I-grated  
'et ha-yrakot  
OBJ the-vegetables  
I broke my fingernail when I grated the vegetables.

116) nišbəra li ha-ciporen kšē-baʾatātī  
brane to-me the-toenail when-I-kicked  
'et ha-kadur  
OBJ the-ball  
I broke my toenail when I kicked the ball.

In order to understand the different senses of *ciporen*, a speaker must be able to access the different frames in which the term occurs, the "finger frame" and the "toe frame". Thus, for example, in (#115), can access the "finger frame" because they know that typically when grating vegetables fingers and fingernails are close to the grater and can get damaged. Note that *ciporen* takes its unmarked sense, 'fingernail', from the more salient of these frames, the "finger frame", which is its prototypical frame.

It is also possible to select out one of the senses of *ciporen* with the compound noun *ciporen ha-bohen* (the-toe fingernail) - 'toenail', a derived term also based on the structural similarity of two parts, one of which is part of the upper limb and the other of which is part of the lower limb.65
4.5.3 Summary and Comparison

The Hebrew terms for the limbs can be compared to the English terms for the limbs. The primary distinction between the two languages is the ways in which they divide up the limbs. The English term *arm* names the upper limb and is used for the arm without the hand. The Hebrew term *yad* is used for the whole arm or just the hand. The English term *leg* names the lower limb and is used for the leg without the foot. The Hebrew term *regel* is used for the whole leg or just the foot. In each case Hebrew uses a marked term to select out the narrower sense of the term: *kaf yad* - ‘hand’, *kaf regel* - ‘foot’. English has separate simple terms *hand* and *palm*; Hebrew has a single polysemous compound term *kaf yad*. English has separate simple terms *foot* and *sole*; Hebrew has a single polysemous compound term *kaf regel*. In all of the Hebrew terms, the polysemy obtains between a whole and the salient part of that whole. Concerning their whole senses, each of the compounds is a motivated term; none of the English words are motivated terms. The differences between the two languages are shown in the following diagrams.
**Hebrew**

- yad: 1, 3
- kaf yad: 3, 4

**English**

- arm: 1, 2
- hand: 3
- palm: 4
LEG

Hebrew
regel : 1,3
kaf regel : 3,4

English
leg : 1,2
foot : 3
sole : 4
Hebrew and English also differ in the way that other sections of the limbs are named. Hebrew has the simple term צוֹא and English uses the descriptive phrase upper arm. Similarly, Hebrew has the simple term 'אמה while English uses the lexicalized term forearm and also has the descriptive phrase lower arm, which includes the hand. Here the English words are motivated terms. Note the asymmetry in English: there is a lexicalized form for the lower part of the arm, but not for the upper part. Both Hebrew and English have simple terms for the upper part of the leg: יאֵז and עִנְב, respectively. However, the languages differ in the way that the lower part of the leg is named. Hebrew has the single term סֹק, while English names the front and back parts separately (.skin and calf, respectively) and uses the descriptive phrase lower leg to refer to the whole thing.

While both languages have a variety of special names for the different fingers, most of the English finger names are motivated terms and most of the Hebrew finger names are not motivated terms. Whereas both languages name the big toe Hebrew has a simple unmotivated term, bohen, and English has a blexemic motivated term big toe. Finally, Hebrew has a single unmotivated polysemous term צ'ור - 'fingernail, toenail' where the context determines which sense is intended, while English can differentiate by using the compounds fingernail and toenail, both of which are motivated terms. In the absence of any context, the Hebrew term צ'ור is comparable to the English word nail as in She polished her nails where 'fingernail' is the preferred reading.

4.6 Body Coverings and Body Fluids

4.6.1 Body Coverings

From the point of view of the observer of the visually apparent figure, a number of other lexical items are relevant here including 'אר - 'skin' and 'אָר - 'hair', both of which name body coverings. As mentioned above (section 1.1), many of the terms that
name parts of the human body are general names for animal body parts—they name non-human body parts as well. 'or and se'ar are two such terms. With respect to humans, 'or - 'skin' covers the entire body and se'ar - 'hair' covers only parts of the body. (Some non-human animals have hair or hair-like coverings on virtually the entire body and others only have skin or skin-like coverings on their bodies.)

The simple term se'ar - 'hair' is a collective noun and typically refers to head hair, as apparent from (#117).

117) yeš la se'ar 'arox
    there-is to-her hair long
She has long hair.

In the absence of any special context, the sentence is understood to be a statement about head hair. Not surprisingly, the term se'ar is used to designate hair on other parts of the body, as shown in (#118).

118) yeš la se'ar 'arox
    there-is to-her hair long
    'al ha-raglayim
    on the-legs
She has long hair on her legs.

When referring to hair other than on the head, it is necessary to specify the part or parts.

The term sa'ara - 'a (single strand of) hair' is morphologically the feminine form of se'ar - 'hair'. The word sa'ara is a noun of individuality as it refers to one individual out of a whole which consists of many similar parts (Wright 1967, Part I, p. 147). Like se'ar - 'hair', when used alone sa'ara - 'a (single strand of) hair' refers to head hair and can be used with other body part terms to designate hair covering them, as shown in
(#119) and (#120), respectively.

119) yes' la s'arot there-are to-her strands of hair 'arukot long-fem.pl.

She has long hair.

120) yes' la s'arot there-are to-her strands of hair 'arukot 'al ha-raglayim long-fem.pl. on the-legs

She has long hair on her legs.

There are several kinds of hair on the human body some of which are named with simple terms and some of which are named with compound terms. Each of the different kinds of facial hair is named with a simple term. These include gaba - 'eyebrow' and ris - 'eyelash' (see section 4.1) as well as safam - 'moustache', pe'a - 'sideburn' (or 'sidelock' when the sideburn is not cut for religious reasons), and zakan - 'beard'. Except for ris - 'eyelash', all of these refer to collections of hairs. In addition, the terms safam - 'moustache' pe'a - 'sideburn' (or 'sidelock'), and zakan - 'beard' name collections of facial hairs of adult males. The simple term zif - 'whisker' refers to a single one of these hairs as apparent from the compound terms zifey safam - 'moustache whiskers' and zifey zakan - 'beard whiskers'. It is possible to refer to hair on other parts of the body with compound terms each of whose head noun is the collective noun se'ar - 'hair'. These include se'ar xaze - 'chest hair', se'ar bet ha-kezi - 'underarm hair', and se'ar 'erva - 'pubic hair'. In each case the modifying noun in the compound is a body part term which identifies the location of the hair on the body. Some of the compound terms which designate hair on different parts of the body are more like descriptions than names.
(See section 2.2) Only the compound se’ar 'erva - ‘pubic hair’ is a lexicalized term. Note that it is more common to use the expression ha-se’ar 'al ha-pipi (the-hair on the-genitals (children’s word)) for pubic hair. (See section 4.3.)

It is clear that neither 'or - ‘skin’ nor se’ar - ‘hair’ would fit into any partonomic structuring of the lexical semantic domain of body part terminology. As already mentioned, 'or covers the entire body and is not a part of the body in the same way that, for example, ro$ - ‘head’ or gav - ‘back’ are parts of the body. Since there are several kinds of hair, se’ar belongs to a taxonomically structured part of the domain.

Other terms relevant for the observer of the visually apparent figure, but not strictly speaking names for a part of the human body are basar - ‘flesh’ and 'ever - ‘body part’. As was the case with 'or - ‘skin’ and se’ar - ‘hair’, basar is used for animals in general and not only humans, as apparent from bsar bakar (cattle flesh)-‘beef’, bsar 'of (fowl flesh)-‘fowl’, and basar va-dam (flesh and-blood)-‘(a) human being’. The word 'ever as in the expression kol ramaz 'evar-av (all two hundred and forty-eight body parts-his) - ‘wholeheartedly’ is a general term for any part of the human body. As discussed above (section 4.3), 'ever is used to designate external parts such as 'evey ha-min (the-sex organs)-‘(the) genitals’ as well as internal parts as apparent from the phrase 'evarim pnimiyim - ‘internal organs’. Rather than naming a particular body part, 'ever refers to every body part. As might be expected, 'ever is not only a term used for humans; non-human animals have 'evarim also as apparent from the Mishnaic Hebrew expression 'ever min ha-zay (body part from the-live)-‘a part cut off from a living animal’.

4.6.2 Body Fluids

As previously mentioned, under certain circumstances the observer of the visually apparent figure sees body fluids. Some body fluids are waste products; when excreted from
the body they are visible to the observer of the visually apparent figure. In Hebrew the simple terms ʾšet en - ‘urine’ and ʿez a - ‘perspiration, sweat’ name liquid waste products excreted from the body. In the spoken language the children’s term pipi as in ʾlaʾasot pipi (to-make pee-pee)-‘to pee’ is commonly used instead of ʾšet en - ‘urine’.70 Other body fluids are secretions which aid in the functioning of the body. The terms dimʾa - ‘tear’, rir/rok - ‘saliva, spit’, leza - ‘phlegm’, and smark - ‘snot’ name secretions of the body visible to the lay observer. There does not seem to be any difference between rir and rok as shown in (#121).

121) ha-rir/ha-rok nazal mi-pi-v
the-saliva dripped from-mouth-his
The saliva dripped from his mouth.

Except for smark - ‘snot’, all of the terms for body fluids are native Hebrew words. The term smark - ‘snot’, which is rude, has been borrowed from Yiddish and has a negative connotation perhaps because of the fluid it names.

The simple term dam - ‘blood’ names the most important body fluid—without it the body would not function. For the most part, under normal circumstances blood is not visible to the observer of the visually apparent figure since blood is not secreted or excreted from the body. However, every observer has had occasion to see blood on the external body as for example when someone cuts a finger and bleeds.

While some body fluids are visible to the observer of the visually apparent figure because they leave the internal body where they are produced, other internal parts are visible to the observer of the visually apparent figure without being secreted or excreted. For instances, bones, muscles, and veins are apparent on the external surface when certain bodily conditions obtain. As apparent from the expression skin and bones as in She’s all skin and bones, the bones of a very thin person are visible to observers of visually
apparent figures. Similarly, the muscles of dancers, gymnasts, swimmers, and weightlifters are discernible on the surface of the body. Finally, the phrases *swollen veins* and *varicose veins* suggest that veins are also visible on the surface of the body and hence viewed by the observer of the visually apparent figure. The Hebrew terms for these parts are discussed with other terms for internal parts (section 5.1).

4.7 Summary: The Lay Observer of the Human Figure

For the most part, in Modern Hebrew the words occurring in the frame of the lay observer of the human figure as a visually perceived object are simple unmotivated terms, native to the body part domain and native to the language. Relatively few body part terms in Hebrew are motivated. Motivated terms in the body part domain are listed in Table 2; the terms are divided into complex and compound forms.
Motivated Terms

Compound Terms

<table>
<thead>
<tr>
<th>Structure</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>'arubat ha-'ayin - eyesocket</td>
<td>bavat ha-'ayin - pupil</td>
</tr>
<tr>
<td>galgal ha-'ayin - eyeball</td>
<td>tnux 'ozen - earlobe</td>
</tr>
<tr>
<td>xalal ha-pe - mouthspace</td>
<td>perek ha-yad - wrist</td>
</tr>
<tr>
<td>pikat ha-cavar - Adam's Apple</td>
<td>pirkey ha-'ecba'ot - knuckles</td>
</tr>
<tr>
<td>pikat ha-gargeret - Adam's Apple</td>
<td>se'ar 'erva - pubic hair</td>
</tr>
<tr>
<td>bet ha-šexi - underarm</td>
<td></td>
</tr>
<tr>
<td>'agan yrexayim - hip</td>
<td></td>
</tr>
<tr>
<td>kaf yad - hand, palm</td>
<td></td>
</tr>
<tr>
<td>kaf regel - foot, sole</td>
<td></td>
</tr>
</tbody>
</table>

sen bina - wisdom tooth

Complex Terms

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>panim - face</td>
</tr>
<tr>
<td>išon - pupil</td>
</tr>
<tr>
<td>mifsa’a - groin</td>
</tr>
<tr>
<td>yašvan - buttocks</td>
</tr>
<tr>
<td>'agudal - thumb</td>
</tr>
</tbody>
</table>

Table 2

The term zanizayim is also a complex, because of the presence of the suffix -ayim. However, it would be inappropriate to say that it was a motivated term because there is no corresponding singular form.

The compounds listed in Table 2 are lexicalized terms. Other compound forms, such as se'ar bet ha-šexi - 'underarm hair', are not included here since they are more like descriptions than names. Three of the compounds have morphans as one of their terms: bava in bavat ha-'ayin - '((the) eye) pupil'; tnux in tnux 'ozen - 'earlobe'; and šexi in bet ha-šexi - '((the) underarm'. Except for šen bina - 'wisdom tooth', those compounds listed in Table 2 name a body part based on its location or physical structure. Compound terms for body parts based on some aspect of the physical structure of the part (necessarily)
include a word borrowed from another area of the vocabulary. Body part terms of this sort are likely to be instances of independent development within the language rather than calques, since the physical structure and arrangement of the body is the same all over the world.

Only a few words used by the lay observer are borrowed from other languages. These are listed in Table 3.

**Borrowed Terms**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>'afarkeset</td>
<td>outer ear</td>
</tr>
<tr>
<td>pupik</td>
<td>belly button</td>
</tr>
<tr>
<td>Smok</td>
<td>penis (slang)</td>
</tr>
<tr>
<td>kus</td>
<td>female genitals (vulgar)</td>
</tr>
<tr>
<td>tusik</td>
<td>buttocks (children's word)</td>
</tr>
<tr>
<td>pipi</td>
<td>urine (children's word)</td>
</tr>
</tbody>
</table>

Table 3

Except for 'afarkeset - 'outer ear', these words are in some sense non-standard, although they are known and used in the spoken language. Words borrowed from other domains and other languages tend to serve as names (or parts of names) for less basic body parts.

In Hebrew, among the nouns traditionally considered "primitive" are "...several names of members of the body in men and beasts...." because they are not related to and derived from verbs (Gesenius 1910:225). Matisoff (1978) suggests that body part terms are a core part of the vocabulary of a language. The words used by the lay observer of the human figure constitute most of the terms in the folk system of body part terminology in Modern Hebrew. For the most part, these are simple unmotivated terms, native to the domain and native to the language. This provides further evidence that body part terms are "primitive" and that they are a core part of the Modern Hebrew vocabulary. (See sections 2.2, 5.1, and 5.2 as well.)
Many body part terms make use of the morphological dual for their plural (e.g. katef - ‘shoulder’, ktefayim - ‘(two) shoulders’). Most often these are terms which name paired body parts. However, there are some terms that name paired body parts that do not use the morphological dual for their plural (e.g. gaba - ‘eyebrow’, gabot - ‘eyebrows’). Furthermore, there are some body part terms that use the morphological dual for their plural, but do not name paired body parts (e.g. ciporen - ‘fingernail, toenail’, cipornayim - ‘fingernails, toenails’). The tables given below are designed according to these criteria. Table 4 includes terms which name paired body parts and Table 5 includes terms which name non-paired parts. In addition, the the terms are grouped according to gender.

### Terms for Paired Body Parts

<table>
<thead>
<tr>
<th>Morphologically Dual Plural</th>
<th>Regular Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feminine</strong></td>
<td></td>
</tr>
<tr>
<td>'ayin - eye</td>
<td>raka - temple</td>
</tr>
<tr>
<td>'ozen - ear</td>
<td>gaba - eyebrow</td>
</tr>
<tr>
<td>lexi - cheek</td>
<td>pitma - nipple</td>
</tr>
<tr>
<td>safa - lip</td>
<td>zro'a - upper arm</td>
</tr>
<tr>
<td>katef - shoulder</td>
<td>'ama - forearm</td>
</tr>
<tr>
<td>yad - arm, hand</td>
<td>kaf yad - hand, palm</td>
</tr>
<tr>
<td>regel - leg, foot</td>
<td>kaf regel - foot, sole</td>
</tr>
<tr>
<td>yarex - thigh</td>
<td></td>
</tr>
<tr>
<td>berex - knee</td>
<td></td>
</tr>
<tr>
<td>Šok - lower leg(w/o foot)</td>
<td></td>
</tr>
<tr>
<td><strong>Masculine</strong></td>
<td></td>
</tr>
<tr>
<td>'af'af - eyelid</td>
<td>galgal ha-'ayin - eyeball</td>
</tr>
<tr>
<td>naxir - nostril</td>
<td>'isön - pupil</td>
</tr>
<tr>
<td>šad - breast</td>
<td>tnux 'ozen - earlobe</td>
</tr>
<tr>
<td>karsol - ankle</td>
<td>marpek - elbow</td>
</tr>
<tr>
<td></td>
<td>'asax - testicle</td>
</tr>
<tr>
<td></td>
<td>'akev - heel</td>
</tr>
</tbody>
</table>

Table 4
Terms for Non-Paired Body Parts using the morphologically dual plural

<table>
<thead>
<tr>
<th>Feminine</th>
<th>Masculine</th>
</tr>
</thead>
</table>
| ֶָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָָּ
term named a paired part.

The important point here is that in contrast to most other areas of the vocabulary, the terms in the domain of body part terminology use the morphological dual. The existence of many paired parts as well as the possibility of viewing the body in halves, either left and right or upper and lower, seems to have contributed to this phenomenon.

Among the terms used by the lay observer, most are well-defined as opposed to vague. This is not surprising since most terms name parts of the body that have clear physical demarcation because they are a different color or because their boundaries are determined by points of articulation of the body. Thus, the term *safa* - 'lip' is well defined because the lips are a different color in comparison to the rest of the face; the term *šok* - 'lower leg' is well-defined because its boundaries are determined by the knee and the ankle. The vague terms used by the lay observer are given in Table 6.

**Vague Terms**

<table>
<thead>
<tr>
<th>Term</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>raka</td>
<td>temple</td>
</tr>
<tr>
<td>lexi</td>
<td>cheek</td>
</tr>
<tr>
<td>xaze</td>
<td>chest</td>
</tr>
<tr>
<td>beten</td>
<td>belly</td>
</tr>
<tr>
<td>mifsa’a</td>
<td>groin</td>
</tr>
<tr>
<td>gay</td>
<td>back</td>
</tr>
<tr>
<td>yaśvan</td>
<td>buttocks</td>
</tr>
</tbody>
</table>

**Table 6**

A set of composite drawings for each of these terms complied from the responses of speakers who participated in the picture-based elicitation talk are given in Appendix II. These drawings show that in general speakers agree on the focal area of the referent of the term, but differ with regard to the boundaries.

Vague terms are characterized as such because the boundaries of their referents are not well-defined. Many terms in the frame of the lay observer have more than one
referent. The polysemous terms in this frame are summarized in Table 7.

### Polysemous Terms

<table>
<thead>
<tr>
<th>whole/part</th>
<th>volume/surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>yad - arm, hand</td>
<td>kaf yad - hand, palm</td>
</tr>
<tr>
<td>regel - leg, foot</td>
<td>kaf regel - foot, sole</td>
</tr>
<tr>
<td>guf - body, trunk</td>
<td>cavar - neck, front of neck</td>
</tr>
<tr>
<td>xaze - chest, bust</td>
<td>'ayin - eye, eyeball</td>
</tr>
<tr>
<td></td>
<td>'ozen - ear, outer ear</td>
</tr>
<tr>
<td></td>
<td>pe - mouth, lips</td>
</tr>
<tr>
<td>genus/species</td>
<td>upper/lower</td>
</tr>
<tr>
<td>'ecba - finger</td>
<td>'ecba - finger, toe</td>
</tr>
<tr>
<td>index finger</td>
<td>ciporen - fingernail</td>
</tr>
<tr>
<td>bohen - big toe, toe</td>
<td>toenail</td>
</tr>
</tbody>
</table>

Table 7

Terms in Table 7 are organized according types of polysemy: whole/part, of which volume surface is a special kind; genus/species; and upper/lower. Notice that there are two types of volume/surface polysemy. In one type, the polysemy obtains between a volume and a part of that volume which is a surface, as in *kaf yad* - 'hand, palm'. In the other type, the polysemy obtains between a volume and a part of that volume which is visible on the surface of the body. In the latter, the lay observer uses knowledge acquired from the expert observer for the whole sense of the term. (Note that most terms used by the lay observer name volumes, whether or not they are polysemous. Relatively few terms name surfaces. This is not surprising given that the human body is a three-dimensional object).

Whole/part polysemy is motivated by the salience of the part. Andersen characterizes polysemy in the body part domain as based on spatial contiguity and structural similarity. In both types of polysemy, "the motivating factor appears to be analogy based on shape, especially the shape features round and (secondarily) long" (1978:364). Many of
the terms listed in Table 7 as whole/part polysemy in Modern Hebrew are included among those items which Andersen includes in her list of instances of polysemy based on spatial contiguity. In fact all whole/part polysemous terms in Table 7 name parts on the body which are spatially contiguous. Spatial contiguity is an implicit feature of any whole/part relationship. For some of the whole/part polysemous terms in Table 7, other aspects of the parts named are motivating factors. For instance, with both yad and regel, the polysemy is between a whole and a part which has an important function. Hands and feet are functionally important parts of arms and legs, respectively. Similarly, with guf the trunk holds most organs essential to the functioning of the body. With regard to 'ayin, the eyeball is the part of the eye which performs the important function. Finally, concerning naz, while the breasts do not perform an important function of the chest, the polysemy of the term is evidence for a sociolinguistic function of language-i.e. providing a means of referring to something taboo. For some of these the shapes round and long figure in as well.

Notice that the word 'ecba is an example of genus/species and upper/lower polysemy and hence it is listed as both. Andersen (1978) characterizes this as polysemy based on structural similarity. While structural similarity motivates the upper/lower polysemy, function motivates the genus/species polysemy: the index finger has a special function.

Salience plays a key role in all of the types of polysemy listed in Table 7. Andersen (1978) claims that certain shapes and spatial orientations are perceptually salient and hence motivate the patterns of nomenclature in the body part domain. Here, I suggest that function is also a salient characteristic of a part and may also motivate the polysemy structure of words in the body part domain. In addition, perceptual and functional salience contribute to the determination of the prototypical frame for a polysemous term.
their study of basic level objects, Tversky and Hemenway found that "part terms proli-ferate in subjects' listings of attributes characterizing category members" at that level. Furthermore, they note that "Perceptual salience and functional significance both appear to contribute to perceived part goodness" (1984:169). Although they are not characterized according to their category level within a hierarchical organization of the body part domain, all of the terms in Table 7 are part terms. As part terms, perceptual salience and functional significance of the parts they name contribute to their lexical structure.

Aside from those terms given in Table 7, in Modern Hebrew terms for joints in the limbs exhibit a noteworthy pattern of naming. These terms are given in Table 8.

Terms for Limb Joints

<table>
<thead>
<tr>
<th>Arm</th>
<th>Leg</th>
</tr>
</thead>
<tbody>
<tr>
<td>katef - shoulder</td>
<td>berex - knee</td>
</tr>
<tr>
<td>marpek - elbow</td>
<td>karsol - ankle</td>
</tr>
<tr>
<td>perek ha-yad - wrist</td>
<td></td>
</tr>
<tr>
<td>pirkey ha-ecba'ot - knuckles</td>
<td></td>
</tr>
</tbody>
</table>

Table 8

All refer to an inner point of articulation in the body as well as the corresponding surface area. Some also name a circumference. In contrast to English joint terms, some of which can be conceived of as well-bounded points and some of which can be conceived of as extents, in Modern Hebrew joints are perceived as links between body parts or parts of larger body parts.

Some areas of the frame of the lay observer of the human figure exhibit lexical density. There are many more terms for the front of the head than for the back of the head. Similarly, there are more terms for the front of the trunk than for the back of the trunk. There are an equal number of fingers and toes, but there are more special names for
fingers than for toes. This is in part a result of the physical structure of the human body—there are more parts on the face than on the back of the head and more parts on the front of the trunk than on the back. It is also a result of the way in which the human perceptual apparatus deals with spatial orientation, as suggested by Andersen (1978) regarding lexical structure of body part terms. Thus, front is more salient than back and upper is more salient than lower. For example, consider the etymology of gav ha-yad ((the) hand back) - 'back of the hand'. The term is understood when the back of the hand assumes a position parallel to the back of the body. In this situation, it becomes clear that the palm is the salient part of the hand because it faces frontwards. This then contributes to the understanding of the polysemy structure of kaf yad - 'hand, palm', where the polysemy obtains between a whole and a salient part of that whole. Similarly, aspects of the polysemy of 'ecba - 'finger, toe' and ciporen - 'fingernail, toenail' can be understood in terms of the salience of the upper part of the body as compared to the lower part. In each case, the unmarked sense of the polysemous term is taken from the more salient frame i.e. the one which corresponds to a section of the upper part of the body.

While some areas of the frame of the lay observer exhibit lexical density, other areas exhibit lexical elaboration. In other words, for some parts of the body, there are many different terms. These are usually involved in the sexual functioning of the body. The different terms have somewhat different connotations and may be euphemistic or obscene. In Modern Hebrew, it is noteworthy that there are many more terms for male sexual organs than for female sexual organs. The breasts are the only "typically" female part of the body for which there are several different terms.

Euphemistic terms tend to allude to the body part by referring to a physical characteristic of the part, as in 'azorayim - 'backside', where 'azor' is a space word, 'back', and
ha-katan, literally, "the small one", to refer to the penis in a way which avoids connection with its sexual function for which it is not small. Some terms for sexual organs allude to other biological functions of the part. For example, the children's word pipi, as used to refer to either the male or the female sexual organs, avoids any mention of sex which suggests that elimination is less of a taboo biological function.

Words for parts of the arm have a particularly interesting history. Table 9 (given in section 4.5.1 as Table 1) summarizes arm terms (without the fingers) in Biblical Hebrew and Modern Hebrew.

<table>
<thead>
<tr>
<th>Biblical Hebrew</th>
<th>Modern Hebrew</th>
</tr>
</thead>
<tbody>
<tr>
<td>yad</td>
<td>arm, hand</td>
</tr>
<tr>
<td>zro'a</td>
<td>arm (upper arm)</td>
</tr>
<tr>
<td>'ama</td>
<td>lower arm, cubit</td>
</tr>
<tr>
<td>kaf</td>
<td>hand (?palm)</td>
</tr>
<tr>
<td>kaf yad</td>
<td>hand (?palm)</td>
</tr>
<tr>
<td>gav ha-yad</td>
<td>back of the hand</td>
</tr>
</tbody>
</table>

In addition, note that while Biblical Hebrew has bohen for both 'thumb' and 'big toe' and Mishnaic Hebrew has both bohen and 'agudal for both 'thumb' and 'big toe', in the modern language there seems to be a fairly clear separation with bohen used for 'big toe' and 'agudal used for 'thumb'. Furthermore, a number of terms for parts of the arm are used as measure words including 'ama-forearm, cubit', 'ecea - 'finger, fingerbreadth', and zeret - 'pinky, span'. In each case, it is most likely that the measure sense of the term
developed from the body part sense of the term. Finally, it seems that Modern Hebrew
*motnayim* - 'waist' once named parts on the lower back and *yarex* - 'thigh' once named
a part included in the area from above the knee to the hip.

A number of semantic relationships link the terms in the frame of the lay observer of
the human figure. Most terms are linked by the 'part-of' relationship. For example,
*af* - 'nose' is a part-of *panim* - 'face' which is a part-of *roś* - 'head' which is a part-of
*guf* - 'body' and *yarex* - 'thigh' is a part-of *regel* - 'leg' which is a part-of *guf* - 'body'.
(Of course, there are many more examples of this sort.) There are also terms linked by the
'kind-of' relationship, as in *agudal* - 'thumb', *ecba* - 'index finger', *sma* - 'middle
finger', *kmica* - 'ring finger', and *zeret* - 'pinky', all of which are kinds of fingers. And
there are other relationships, particularly 'in' and 'on'. For example, *šen* - 'tooth' and
*lašon* - 'tongue' are in the mouth; *or* - 'skin' and *se'ar* - 'hair' are on the body. Rather
than limiting the data and the discussion to those terms that fit into a partonomic struc-
turing of the domain, I have characterized the semantic domain structure in terms of
Fillmore's 'frame' which permits a variety of semantic structures.
Notes to Chapter 4

1. While only one informant completed the card-sorting task, many others agreed that *cavar* - 'neck' was not part of *roš* - 'head' or *guf* - 'trunk' and that *katef* - 'shoulder' could be categorized with either *guf* - 'trunk' or *yad* - 'arm'. One female informant was asked to think of the body as a book and divide the book into chapters reporting the name of each chapter. She included *roš* - 'head' and *guf* - 'trunk' in her list of chapters. When asked whether *cavar* belonged to the chapter entitled *roš* or the one entitled *guf*, her response was that it belonged in its own chapter between *roš* - 'head' and *guf* - 'trunk'.

2. Liston (1972) calls neck a connector. McClure (1975) excludes the category neck from the hierarchical ordering of body parts.

3. Indeed it is awkward to say *ha-guf zelek šel ha-guf* - 'The body/trunk is part of the body/trunk'. Clearly this awkwardness is a result of the polysemous term *guf* - 'body, trunk' which is interpreted as 'body' in the absence of a context which selects out 'trunk'. Nevertheless 'trunk' is one of the senses of the term *guf*. See section 4.3.

4. *panim* is either masculine or feminine in gender and hence either masculine adjective forms (*yafe* - 'pretty') or feminine adjective forms (*'agulot* - 'round') may be used.

5. In Mishnaic Hebrew we find the terms *ceda* and *cidna* for 'temple', where *cidna* is morphologically the feminine form of *ceda*. In the modern language it occurs in connection with hair as in the expression *se'ar ma'afir ba-cda'im* (hair greying in-the-temples) - 'greying hair at the temples' which conjures up an image of a dignified man. The term *ceda* is not commonly used in the modern spoken language.

6. Not everyone has such an indentation below the lower lip. More importantly, the illustration of the face used in the picture-based elicitation task did not have this marked.

7. The term *gvin* - 'eyebrow' is found in written literature, both prose and poetry. It is typically used in referring to a man's eyebrow. As is the case with *gaba*, *gvin* is related to *gav* - 'back'.

8. Neither *'arubat ha-'ayin* - '(the) eyesocket' nor *galgal ha-'ayin* - '(the) eyeball' occur frequently in everyday conversations. They are included here since they are known and would not be considered technical terms. The term *galgal ha-'ayin* is additionally problematic since although more than half of the informants readily volunteered the term, three others simply refused to accept it as a name for the eyeball. The term does appear in Even-Shoshan.

9. In Mishnaic Hebrew, the term *zif* - 'bristle, whisker' is used for 'eyelash'. See Bekh. 44.
10. Speakers are not always aware of the etymological relationship of nouns and verbal roots, especially if it is a root which contains a "defective" consonant such as W. 'af 'af - 'eyelid' which is underlyingly 'af 'af is unrelated to 'af - 'nose'.

11. The -on suffix is a productive morpheme in Hebrew. It is used with nouns as in safsal - 'bench', safsalon - 'little bench' as well as with adjectives such as katan - 'small', kanton - 'very small'.

12. Neither Biblical Hebrew data nor Mishnaic Hebrew data reveal exactly what part of the eye is designated with bavat ha- 'ayin.

13. Even-Shoshan lists the term kašit - 'iris' which is related to kešet - 'bow, arch'. No informant volunteered the term kešet; some used the English term iris.

14. In the written language, the term zotem may be used of people without necessarily having a derogatory connotation.

15. The term 'mouthspace' has been made up for the purpose of translating zalal ha-pe in a way which conveys its sense to the reader; 'oral cavity' would not have accomplished this.

16. Both zez - 'palate' and xanizayim - 'gums', whose underlying tri-consonantal root is ḤNK, are cognate with the Arabic term ḥanak - 'palate'. For xanizayim - 'gums' and ḫayim - 'teeth', see section 4.7 on body part terms that use the morphological dual for their plural forms.

17. Sentence (10) is a quote from a novel by A. B. Yehoshua (1982:278) who is well known for using what might be called 'Modern Standard Written Hebrew' in his fictional writing, in contrast to earlier writers who preferred using Mishnaic or Biblical Hebrew. It is for this reason that this example is included here.

18. Informants had no problem considering 'ozen - 'ear' part of panim - 'face' even though the ear is on the side of the face.

19. The word 'afarkeset is an old borrowing from Greek prochoos - 'funnel'.

20. According to Even-Shoshan (1982) a katef is an end of a šezem—i.e. katef and šezem are not synonyms in Biblical Hebrew. The data presented in (#23 - #26) support the claim that katef and šezem are synonyms in Biblical Hebrew.

21. Curiously enough, šamim, the expected plural of šezem does not occur. Rather, the plural of šezem is šamot which is also the plural of šizma - 'shoulder blade' (see section 5.1).

22. The term bet ha-šezi seems to be of Mishnaic Hebrew origin. In Mishnaic Hebrew the form šezi occurs alone.

23. According to Even-Shoshan (1977) the term dad is used in Biblical Hebrew for 'nipple'. Citing some of the data, Even-Shoshan (1982) claims that the term dad is used in Biblical Hebrew for 'breast'. According to Kosawski (1957) the term dad is used
in Mishnaic Hebrew for 'breast'. Citing some of the same data Even-Shoshan (1982) claims that the term *dad* is used in Mishnaic Hebrew for 'nipple'. The ambiguous data in the Biblical Hebrew and the Mishnaic Hebrew citations are sentences about children being breast-fed. In Modern Hebrew *dad* - 'breast' would only be used in poetry and formal prose.

24. The singular form *pitma* has the plural form *ptamot* in the pattern of *CiCCa/CCaCot* as in *simla/smalo* - 'dress/es'. Many informants used the form *pitmot* for the plural of *pitma* following the regular pattern of alternation of feminine singular/plural endings -a/-ot, as in *mita/mitot* - 'bed/beds'. In addition, it follows a tendency in the modern language to abolish the distinction between the construct plural (*pitmot*) and the ordinary plural (*ptamot*).

25. Ben-Amotz and Ben-Yehuda (1982:158) offer the following:

> 'eyn la-nu xaziya la-'avatixim ka-'ele
not to-us bra for-watermelons like-these
We don't have a bra for watermelons like these.

It is clear that *avatixim* - 'watermelons' is being used metaphorically for *sadayim* - '(two) breasts'. The February, 1979 issue of *National Lampoon* included 'An Extensive List of Commonly Heard Funny Names for Parts of the Human Body'. Among the 33 names listed for breasts were *cantaloupes, casabas, and melons*. The use of names of various kinds of melons for breasts is based on similarity of shape, and in some cases size is also a factor. In additions, melons are good to eat and quench one's thirst. The sexual association is clear.

26. The Yiddish word *pupik* is of Slavic origins. It is also a doublet of the Yiddish term *pempik* - 'paunch, potbelly'.

27. None of the standard English dictionary definitions fits exactly one of the folk uses of *groin* which might be paraphrased as 'the region of the genital organs'. It is this folk use of *groin* which is the best gloss for the Hebrew term *mifsa'a*. It should be noted that Even-Shoshan (1982) defines *mifsa'a* as "the lower part of the belly (betea) where it joins the thigh (yarez)" which is not the sense in which speakers use the term.

28. The term *'erva* is used in Biblical Hebrew and Mishnaic Hebrew to refer to the external genitals of men or women. Standard editions of the Bible and the Mishna translate the word *erva* as 'nakedness', clearly a euphemism. In Modern Hebrew *'erva* occurs in the compound noun *se'ar 'erva* - 'pubic hair' without any special connotation.

29. In Hebrew any adjective can be nominalized by adding the definite article *ha-* to it: *gadol* - 'big', *ha-gadol* - 'the big one'.

30. In Mishnaic Hebrew *'ecba* - 'finger' and *'ama* - 'middle finger' are euphemisms for the penis. The extension is no doubt based on similarity of shape (Jer. Yev. 7:2; Mikv. 8:3). I have also heard *regel slisit* - 'third leg' and *ha-regel ben ștey ha-bhonot* - 'the leg between the two (big) toes' as ways of referring to the penis.
The latter is comparable to the English middle leg.

31. The term šmok is undoubtedly related to the German word Schmuck - 'jewelry', making the Yiddish/Hebrew word reminiscent of the English phrase the family jewels as a euphemism for the male sexual organs.

32. In Biblical Hebrew the term šet is used for 'buttocks'. The plural form 'agavot (sg. 'agava - 'lust') is only used in the written language of Modern Hebrew for 'buttocks'.

33. While it appears that yašvan should be glossed 'seat', I have chosen to use 'buttocks' mainly because both the Hebrew term yašvan and the English term buttocks seem to be the "official" names for this part of the body. I do not want to claim that English butt is equivalent to buttocks. I have chosen to translate (#39) and (#40) with butt simply because it sounds odd to say She has cute buttocks.

34. Obviously, the plural morpheme is already functioning as an indicator of more than one when it names the whole. Phonologically, it is impossible to add another plural morpheme.

35. The February, 1979 issue of National Lampoon includes 47 terms for the buttocks in 'An Extensive List of Commonly Heard Funny Names for Parts of the Human Body'. It is far beyond the scope of the present study to discuss all of these terms.

36. I am told that 'akuz adds a slight ironic twist to a statement perhaps because it is stylistically high yet has the kuz sound which echoes the vulgar word kus.

37. Amichai is a modern Israeli poet and writer. Examples (#46) and (#47) are taken from the single novel that he has written.

38. Other terms for measuring the circumference of the trunk at different places are zaze - 'bust' and kekef ha-yrexayim - 'hips'.

39. It is not terribly helpful to the reader to provide a gloss for a Hebrew term with an uncommon sense of an English word. Although the definition given for loin in several standard English dictionaries (The Oxford English Dictionary. Webster's Third New International Dictionary, and The American Heritage Dictionary) is "the part of a human being or quadruped lying on each side of the spinal column between the hip bone and the false rib" (s.v. loin, W3), few speakers of English actually use loins (as the plural of loin) in this way. It seems that speakers of English use loins to designate an area which includes the lower abdomen and/or the pubic area and/or the upper thigh area. This may be as a result of confusion with groin (which is itself problematic) and/or as a result of knowing that a loin-cloth is a garment which covers the genitals. (Perhaps most speakers of English don't know that a loin chop is a cut of meat from the back part of an animal and above the rump.) In any event, the common usage of loins does not correspond to the first definition in any of the standard English dictionaries. The common usage of loins corresponds to the second definition in Webster's Third and the third definition in The American Heritage. The Biblical Hebrew data and the Mishnaic Hebrew data do not really provide much information about the exact location of motnayim. As such, it is
difficult to decide which of the English definitions is most appropriate. The data suggest that in these periods of Hebrew the location of motnayim would be as stated in the first definitions of these English dictionaries. As such loins is used here.

40. Although not in use in the modern spoken language, the term zalacayim substitutes for motnayim in Biblical Hebrew (see, for example Job 38:3 and Isa. 5:27) as an area of the body which is covered or bound. (See note 62 as well.)

41. Of further interest is the Old High German word lentin - ‘kidneys, loins’ which provides additional support for the claim that loins would be on the back of the body.

42. One wonders why Biblical Hebrew and Mishnaic Hebrew only have motnayim, the dual/plural form, especially if the term refers to parts on either side of the spinal column. It seems that even in a context which specifies only one of these two parts (#53 - 2 Sam 20:8) the dual/plural form occurs. motnav = motn + -av, 3rd person masculine plural possessed of singular possessor pronominal suffix.

43. No speaker who accepted (#63a) - (#63c) interpreted break as in break a pencil. The interpretations of break included: render non-functional; break apart or dislocate; and break with a hammer or smash. These speakers do not conceptualize elbows, knuckles, or knees as points.

44. While it is clear that yad is polysemous meaning ‘arm, hand’ (see section 4.5.1), here perek ha-yad must be interpreted as ‘(the) hand joint’ and not ‘(the) arm joint’. There is already another term for the arm joint—marpek - ‘elbow’. There does not seem to be a word for the hip joint in Hebrew. The compound noun ‘agan yezcayim - ‘pelvis’ literally means ‘basin (of the) thighs’.

45. In Hebrew the term zek is functionally similar to lap although they do not name the same anatomical area. The term zek names the area extending from the chest to the arms when in the hugging configuration.

46. In the contexts given above (#70, #74, #81, #82), the singular form perek ha-‘ecba is particularly odd probably because there is not a great chance that someone would have arthritis, scrape, break or dislocate just one.

47. According to Even-Shoshan (1982), perek - ‘joint’ has been superseded by the term misfrak. In addition, he claims that perek is used for the sections between the joints. Informants used misfrak for ‘joint’ in the illustration of the skeleton, suggesting that this might be considered a more technical term than perek.

48. I am grateful to Paul Kay and David Magier who helped me work out the general analysis on joints and to Rutie Adler and Chana Kronfeld for many of the particulars regarding Hebrew joints.

49. There is an overlap of 16.6%—i.e. 16.6% of the speakers used the term zro’a for both the whole arm and the upper arm.
50. Without synonymous parallelism, it would be possible to interpret the phrase *yad yaza k.o. n* as "hand strong and arm extended" since the term *yad* means 'arm' and 'hand' in Biblical Hebrew.

51. In Mishnaic Hebrew there is an occurrence of *zro*a that suggests the term referred to just the upper arm of the human body (see Ohal. 1:8). However, for the most part, the term is used in the context of animal sacrifice and refers to an animal's foreleg or some part thereof. It is beyond the scope of the present work to determine the exact referent of *zro*a as a non-human (i.e. quadruped) body part term.

52. In Mishnaic Hebrew the term 'amat ha-*sezi* refers to the upper arm; the term is not used in Modern Hebrew. In this compound, the modifying noun *sezi* is the same noun as appears in the term *bet ha-*sezi* - 'underarm'. It seems that the term 'ama is generalized and used for sections above as well as below the elbow. This is not that surprising given the similarity of shape between the upper arm and the lower arm. There are other extended uses of the term 'ama for long narrow objects. As noted above, 'ama is the name for the middle finger; in Mishnaic Hebrew it is a euphemism for the penis.

53. The word *kaf* is also the name of a letter in the Hebrew alphabet, the current form of which is a descendant of the Canaanite letter. According to Even-Shoshan (1982), the letter got its name because of its similarity in shape to a hand. In spite of this, speakers of Modern Hebrew do not seem to associate the name of the letter with the body part term.

54. As discussed below, perhaps *kaf* is also 'palm'.

55. In Mishnaic Hebrew the situation is similar to Biblical Hebrew except that there are no occurrences of *kaf yad* (Jastrow 1950).

56. An alternate form of 'agudal is gudal; the latter is never used in Modern Hebrew.

57. Even-Shoshan (1982) defines the verb *kamac* as 'take with three fingers' and *kmica* as 'the third finger, (the one) with which one takes'. None of the Biblical Hebrew data that he cites suggests anything about 'three fingers'. In fact *kmica* as a finger name doesn't occur in the Bible. My informants rejected Even-Shoshan's "etymology" of *kmica*.

58. According to Jastrow (1950) who cites Men. 11a *zeret* - 'pinky' is used for measuring *zeret* - 'span'.

59. There is a suspicious similarity between the Hebrew word *creda* and the Slavic root *sred* meaning 'middle'. It is unlikely that this is anything more than coincidence since the Hebrew word is of Mishnaic origin. It is unlikely that there was contact between speakers of Slavic languages and speakers of Hebrew before the end of the 19th century when Hebrew began to be revived as a spoken language by Jews of Russian and Eastern European backgrounds.

60. It is likely that these two senses are related. Carnations are any of numerous
varieties of *Dianthus caryophyllus*, commonly known as 'clove pink', a group of clove scented flowers. In spite of this, speakers do not necessarily associate the spice and the flower.

61. It might be significant that the speakers who used *yarez* for the outer hip area were all in the 50 year-old group. Furthermore, some of these speakers initially used *jokayim* for 'thighs' instead of for 'calves', but changed their minds when they found themselves confused and/or without a term for 'calf'.

62. *yrezayim* also substitutes for *zalacayim* in Biblical Hebrew as an area of the body exhibiting procreative power. The word *zalacayim* is not commonly used in Modern Hebrew other than in these archaisms. (See note #40, as well.)

63. Obviously, there is no way of proving this.

64. For more on the verb 'akav, see section 6.2.

65. I have also heard *ha-ciporen sel ha-ecba ba-regel* (literally, the (finger)nail of the finger/toe in the-leg/foot) for 'toenail', which seems to be a description rather than a name. It is, however, a way of distinguishing the toenail from the fingernail.

66. The "correct" form *sa'ara* is less common than *sa'ara - 'a (single strand of) hair', the result of vowel reduction.

67. Even-Shoshan (1982) suggests that *safam - 'moustache' might be related to *safa - 'lip'.

68. See section 6.2 for a suggestion about the relationship of *zakan - 'beard' and the verb *zaken - 'be old'.

69. The word *ramaz* is a kind of acronym. Every letter in the Hebrew alphabet has an assigned numerical value. The value of r(esh) is 200, of m(em) is 40, and of x(et), is 8. The total value of *ramaz* is 248, the total number of parts of the body counted by the Jewish sages.

70. The Biblical Hebrew expression *mey raglayim* (leg water) - 'urine' is a euphemism.

71. Curiously enough, *sad - 'breast' is a masculine gender noun contrary to expectation given that it is most typically a female part. One female speaker spontaneously used the feminine form of an adjective in a phrase with this body part word rather than the correct masculine form. When I asked her about it, she said she knew that *sad* was a masculine gender noun, but thought it ought to be feminine. Clearly, she associated the term with the thing it named, a part of the female body, rather than with any grammatical information about the word itself.
Chapter Five: The Expert Observer and the Experiencer of Body Sensations

5.0 Introductory Remarks

In the preceding chapter, I presented a set of data corresponding to one mode of experiencing the body—i.e. that of the lay observer of the human figure as a visually perceived object. The data, representing the "external" perspective, included names for external parts, visible internal parts, body coverings, and body fluids. In this chapter, I discuss two sets of data each of which corresponds to another mode of experiencing the body. These are the expert observer and the experiencer of body sensations. The discussion begins with the mode of the expert observer whose perspective is "internal".

5.1 The Expert Observer

The expert observer has special knowledge about the human body much of which has become part of the layman's knowledge. For instance, the expert observer has knowledge about the internal body. (S)he knows about the position, size, shape, color, and functions of the internal organs, bones, blood vessels, etc., as well as the interconnections of these parts and the systems and sub-systems to which they belong. (Only the ideal expert observer possesses all of this information.) (S)he knows words which are part of everyday vocabulary and words which are not part of everyday vocabulary. An expert term in the sense intended here is a term whose denotation has been stipulated by, or when challenged can be settled by, "authorities" recognized as possessors of specialized knowledge about the the domain in question. In this case, the "authorities" possess knowledge about the structure and function of the human body and its parts. The expert observer may use technical as well as non-technical terminology. A technical term in the sense intended here is a term whose form and/or precise meaning the layman would not know because they require special training.
The layman who has acquired some of the expert observer's knowledge about the body uses a number of words including, for example, heart, lung, muscle, and nerve, none of which are technical terms. At the same time, a layman may use a term which for a variety of reasons is considered technical without full knowledge about the thing it names. Thus, it is also possible for technical terms to acquire folk uses. An example of this is the term \textit{solar plexus} which is the technical anatomical term for "a great network of nerves and ganglia, situated behind the stomach and in front of the aorta and crura of the diaphragm" (Gray 1909:997). Colloquially, \textit{solar plexus} refers to a not very well defined spot "deep in the pit of the stomach" which is contemplated during meditation. Speakers of English who contemplate their solar plexuses are unlikely to know the anatomical details of the body part or even that the solar plexus is a body part. Perhaps they are aware that the term is of Latin origin or at least not a typical sounding English word.

Different languages create technical terminology in different ways. Much of the English technical terminology used in anatomy, physiology, and medicine makes use of the morpholexical resources of Latin. Technical terminology in Hebrew tends to be created from the lexical material of the different periods of Hebrew using Hebrew word formation devices and processes.

For the most part, the data presented here are not technical terms. Technical terms are mentioned and discussed for the purpose of comparison with the better-known expert observer terms and to point out some differences between English and Hebrew.

5.1.1 Internal Organs

The first group of words to be discussed are names for internal organs followed by names for bones. In addition, names for blood vessels and other connective tissues are presented.
The names for major internal organs include *moaz* - 'brain', *lev* - 'heart', *re'a* - 'lung', *keva* - 'stomach', *kaved* - 'liver', *kilya* - 'kidney', *lavlav* - 'pancreas', *tzol* - 'spleen', *rezem* - 'uterus, womb', and *me'ayim* - 'intestines'. Except for *me'ayim* - 'intestines', a dual/plural form, all of these are simple terms.¹ ² ³

Some organs consist of various parts which are designated in a variety of ways. For example, two parts of the brain are designated with noun + adjective expressions: *moaz gadol* (large brain) - 'cerebrum' and *moaz katan* (small brain) - 'cerebellum'. The term *moaz* may also be used for 'cerebrum', suggesting that term is used for the whole brain as well as for the largest part of the brain. Note that *moaz* in the sense of 'brain' is not a technical term and *moaz* in the sense of 'cerebrum' is technical. Another part of the brain is named with a compound term: *moaz ha-sidra* (the-spine brain) - '(the) medulla'. The cerebrum and cerebellum are named based on their relative sizes and the medulla appears to be named based on its anatomical status as the continuation of the spinal cord.

The term *moaz* appears in the Bible in the compound *mo'az 'acamot* in the sense of 'marrow', as shown in (# 1).

1) ...u-moaz 'acamot av yōšuka
   and-marrow (of) bones-his is-moistened
   ...and the marrow of his bones is moistened
   (Job 21:24).

Although *moaz* may have been used for 'brain' in Biblical Hebrew as well, there is no written record of it. There is evidence that in Mishnaic Hebrew *moaz* is used for 'brain', as shown in (# 2).

2) 'eyn lo moaz bâ-kodkod-o
   not to-him brain in-head-his
   He has no brain in his head (Yev. 9a).
In the same way that the marrow is the soft tissue in the bones, so too the brain is the soft tissue in the skull. Use of the same term for both 'marrow' and 'brain' presumes expert knowledge resulting from familiarity with the inside of bones and skulls, perhaps through the examination of corpses and carcasses. Only someone who has seen the similarity between the tissue in the bones and the tissue in the skull could make the comparison.

As mentioned above, terms used by the expert observer are not necessarily technical and sometimes there are technical terms alongside the commonly used expert observer terms. Such is the situation with terms that name parts of the brain. Thus, for example, alongside moax gadol (large brain) - 'cerebrum' there is moax - 'cerebrum' and alongside moax katan (small brain) - 'cerebellum', we find moax - 'cerebellum'. The form moax is a diminutive of moax suggesting that moax is a calque from Latin where cerebellum is also a diminutive of cerebrum. Finally, alongside moax ha-šidra (the-spine brain) - '(the) medulla', we find moax mo'oraz (elongated brain/marrow) - 'medulla oblongata' which also seems to be a calque from Latin where medulla means 'marrow' and oblongata - 'elongated' is a derivative of longus - 'long'. The difference between moax ha-šidra (the-spine brain) - '(the) medulla' and moax mo'oraz - 'medulla oblongata' can also be characterized in terms of anatomical accuracy. Given the earlier sense of moax - 'marrow' (which has been replaced by lešad (fat) - 'marrow'), another possible analysis of moax ha-šidra is "the-spine marrow" or 'spinal cord'. Indeed the spinal cord is the soft tissue inside the spinal column which consists of a series of bones. Technically, moax ha-šidra is 'spinal cord', but zut ha-šidra (the-spine cord) - '(the) spinal cord' is the more commonly used expression for this part of the body. Although moax ha-šidra is reasonable and can be motivated anatomically and linguistically, it is anatomically more accurate to call the medulla moax mo'oraz.
The forms used by the expert observer who is a speaker of Hebrew differ from those used by the expert observer who is a speaker of English. Whereas the Hebrew speaker uses native stock—Hebrew words—even for technical terms, the English speaker uses Latinate terms. Furthermore, in English there is no non-technical way of referring to some parts. Compare, for example, moaz katan - 'small brain' motivated within Hebrew with its English equivalent cerebellum.

The intestines are divided into two major parts each of which is designated with a noun + adjective phrase. In Hebrew, mo' i dak (thin intestine) - 'small intestine' and mo' i gas (bulky intestine) - 'large intestine' name the upper and lower parts of the intestines, respectively. These sections of the intestines differ with respect to their relative widths; only one of the Hebrew phrases specifies the width of the intestine: mo' i dak (thin intestine) - 'small intestine'. Note that although both of the English terms refer to the size of the intestine, neither specifies the width. Both the small intestine and the large intestine are divided into several parts each of which is named; two of these are given here. The term tresaryan - 'duodenum' names the first section of the small intestine, the part closest to the stomach. The term tresaryan is a phonologically reduced form of the Aramaic word tre-'asar - 'twelve' and the suffix -an (see section 6.2.1). The length of the section—approximately twelve fingers—is the motivation for the name. The derived term toseftan - 'appendix' names the small sac-like appendage which extends from part of the large intestine. The term toseftan - 'appendix' consists of the word tosefet - 'addition' and the suffix -an.6 As was the case with different parts of the brain, the expert observer who is a speaker of English uses Latin terms for these parts and the expert observer who is a speaker of Hebrew uses Hebrew (or Semitic) terms.

Other internal parts are named with complex or compound terms. Both sar'efet - 'diaphragm' and 'armonit - 'prostate' are complex forms; the etymology of
each of these words is not immediately transparent. Both terms are comparatively new
coinages—neither occurs in Biblical Hebrew or in Mishnaic Hebrew as a body part term.
Even-Shoshan (1982) suggests that sar'efet - 'diaphragm' might be related to
sar'apa - 'branch'; the phonological similarity is obvious, but the semantic relationship is
not. The Hebrew word 'armonit - 'prostate' appears to be derived from
'armon - 'chestnut', reflecting the prostate gland's similarity in size and shape to a chest-
nut (Gray 1909:1215). Note that the word prostata is commonly used for this internal
organ; the Latin term prostata may have entered the Hebrew speaker's lexicon through
any of the European languages with which Hebrew was in contact early in this century.

Both kis ha-mara (the-gall/bile pocket) - '(the) gall bladder' and ṣālpuzit
ha-ṣetem (the-urine sac) - '(the) bladder' are compound terms which are clearly
motivated. Note that the word mara is the morphologically feminine form of
mar - 'bitter'; gall/bile is a bitter fluid. The word mara is sometimes used alone for 'gall
bladder' which may be a result of a tendency to shorten long expressions. Some speakers
use kis ha-ṣetem (the-urine pocket) for 'bladder', perhaps by analogy with kis ha-mara.

There are two other terms used by the expert observer that name internal organs.
These are ṣazala - 'ovary' and zacocra (trumpet) - 'Fallopian tube'. The word
ṣazala (often pronounced ʿṣazla) is an unmotivated term. The word zacocra - 'trumpet'
has been borrowed into the lexical semantic domain of body part terminology. Perhaps
zacocra - 'trumpet' is used for 'Fallopian tube' because the the shape of a Fallopian tube
resembles that of a trumpet.

As already mentioned, the layman only has some of the expert observer's knowledge
about the human body. Some of the responses from informants who completed the
picture-based elicitation task provide evidence for this. When viewing the illustrations of
the internal body, the informants (for the most part, laymen and not expert observers)
usually knew the names for internal organs, but could not always identify the corresponding parts. Thus, moax - 'brain', lev - 'heart', re'a - 'lung', keva - 'stomach', kaved - 'liver', kilya - 'kidney', rezem - 'uterus, womb', me'ayim - 'intestines', and toseftan - 'appendix' were named and identified easily. The parts which were not always identified correctly include lavlav - 'pancreas', tzol - 'spleen', kis ha-mara (the-gall/bile pocket) - '(the) gall bladder', sar'efet - 'diaphragm', armonit - 'prostate', šazala - 'ovary', and zacocra (trumpet) - 'Fallopian tube'.

Knowledge of the existence of these words and knowledge of the existence of the body parts does not necessarily mean knowledge of anatomical information about the body parts. Many speakers claim only that someone with a special kind of expertise could identify all of the internal organs. It is not surprising that urban dwellers who do not butcher their own meat and who belong to a society which frowns upon autopsy know relatively little about the internal body. For the layman, the infrequently used terms for the lesser known internal organs have the status of medical or technical terms. It is only in these contexts that the non-expert would have the occasion to use these lexical items.

5.1.2 Bones, Blood Vessels, Muscles, and Other Connectives

Having discussed terms which name internal organs, I will now present terms for bones, blood vessels, muscles, and other connective tissues.

While some bones and sets of bones have special names, most bones are designated with a compound form whose head noun is the simple term 'ecem - 'bone' and whose modifying noun is the term for the appropriate body part. Some examples of these include 'ecem ha-zro'a (bone (of) the-(upper) arm) - '(the) (upper) arm bone', 'ecem ha-yarez (bone (of) the-thigh) - '(the) thigh bone', and 'ecem ha-akev (bone (of) the-heel) - '(the) heel bone'. The data presented here include terms for bones and sets of bones with special names.
The simple term *seled* - 'skeleton' refers to the entire assembly of bones in the body. The term *seled* occurs in Mishnaic Hebrew in reference to the remains of a burnt or decayed body still distinguishable in shape, as shown in (# 3).

3) met *še-nisraf və-šild-o*
   corpse rel.-was burnt and-remains-its
   kayemet
   exists
   A corpse which was burnt and its remains exist... (Nid. 27b).

Perhaps *seled* came to be used for 'skeleton' because a body retains its shape only if the skeleton remains intact.

The complex term *gulgolet* - 'skull' is related to the nominal root GLGL - 'sphere', a reduplicated form. The derivation of the term *gulgolet* - 'skull' from GLGL - 'sphere' is based on the similarity in shape between a skull and a sphere. The simple term *leset* - 'jaw' names one of the bones of the face. In Hebrew, as in English, the mandible and the maxilla are taken as two entities in the same category and have the same superordinate, *leset/jaw*. In Hebrew these are designated with noun + adjective phrases: *leset 'elyona* - 'upper jaw'; and *leset taxtona* - 'lower jaw'. The English technical terms for these parts are of Latin origin: *maxilla* - 'upper jaw'; and *mandible* - 'lower jaw'.

The compound noun *bet ha-xaze* (house (of) the-chest) - '(the) rib cage' names the connected set of bones which "house" the organs in the chest. The head noun of the compound, *bet* (the construct form of *bayit* - 'house, enclosed place') has been borrowed from another semantic domain into the body part domain. (See sections 2.2 and 4.3) Notice the difference between the Hebrew term and the English term for this set of bones. The Hebrew term suggests the similarity in appearance between the structure of the set of bones and a house (or enclosed place) and the English term focuses on the composition of
the structure—a rib cage is a cage made up of ribs.

The simple term *cela* - ‘rib’ names the most numerous of the bones of the rib cage which is made up of other bones as well. In Biblical Hebrew there are some examples of the term *cela* used to refer to the side of objects such as tables (Exod. 26:35) or mountains (2 Sam. 16:13). Perhaps this developed as a result of viewing the ribs as being on the side of the body. The compound noun *ecem ha-bariax* (bone the-latch) - ‘(the) clavicle’ names a bone at the top end of the rib cage. The term *ecem ha-bariax* seems to be more commonly used for this bone than the technically correct word *mafteax* (key) - ‘clavicle’, a calque from the Latin term *clavicle* (small key), a learned word for this bone among English speakers. The commonly used English term *collarbone* names the bone based on its position with respect to an article of clothing worn on or near it. If used at all, the terms *mafteax* (key) or *mafteax ha-lev* (key (of) the-heart) name the bone to which the ribs are connected at the front of the rib cage—‘breastbone’.

At the back of the body the ribs are joined to the spine which is made up of many small bones. In Hebrew the compound term *amud sidra* (column (of) spine) - ‘spine’ or ‘spinal column’ names this set of connected bones. Each of the small bones is named by the term *zulya* - ‘vertebra’ which is borrowed into the body part domain as apparent from the phrase *zulyot ha-Xarseret* (links (of) the-chain) - ‘links of the chain’. The top-most group of vertebrae are called *mifreket*, a derived word related to the root PRK - ‘section’. (The term *mifreket* occurs in the phrase *savar et mifraki-o* (broke OBJ neck vertebrae-his) - ‘broke his neck’.) The bottom-most bone of the spine is designated with compound terms one of which is a technical anatomical term and the other of which may be a calque from English. The compound form *ecem ha-'ace* (bone (of) the-coccyx) - ‘(the) coccyx’ is a technical term and the compound form *ecem ha-zanav* (bone (of) the-tail) - ‘(the) tail bone’ is so named because of the vestigial tail
that it represents in the human body. Another bone at the back of the rib cage is named by the term šizma - 'shoulder blade', morphologically the feminine of šezem - 'shoulder'. (See section 4.4)

There are two other bones named with special terms: 'agan yrezayim (basin (of) thighs) - 'pelvis' (see section 4.6) and pikat ha-berex (protrusion the-knee) - '(the) kneecap'. Each of these are compound terms whose head nouns are not from the body part domain and whose modifying nouns are body part terms. In each case the bone is named with a term that compares its shape to the shape of another entity. 'agan yrezayim - 'pelvis' is similar in shape to 'agan - 'basin'; pikat ha-berex - '(the) kneecap' is shaped like pika - 'protrusion'.

Since there is an anatomical and developmental relationship between the bones in the body and the various kinds of cartilage in the body, the Modern Hebrew term for cartilage is discussed here. The term szus - 'cartilage' is an abbreviated form of the term ziszus which is used in Mishnaic Hebrew in reference to part of the ear, as shown in (# 4).

4) nifg̣ama 'ozn-o min ha-xiszus
is split ear-his from the-cartilage
Its ear is split from the cartilage... (Bekh. 37a)

As was the case with bones, cartilage in different parts of the body can be referred to with compound terms as for instance szus ha-kane (cartilage (of) the-trachea) - '(the) tracheal cartilage' and szus ha-mifrakim (cartilage (of) the-articulations) - '(the) articular cartilage'. These terms are technical, as are the English glosses.

There are several kinds of kley dam - 'blood vessels' in the body each of which is named with a simple term. These are 'orek - 'artery', vrid - 'vein', and nim - 'capillary'. Note that only 'orek - 'artery' occurs in the Bible (Job 30:17). Both vrid and nim first appear in Mishnaic Hebrew, but only vrid - 'vein' is exclusively a body
part word. The term nim has been borrowed from Greek nema - 'thread' and is used in Mishnaic Hebrew for 'fringe' or 'cord' as well as for '(a single) hair' or 'bristle'. The Modern Hebrew usage of nim seems to derive from the similarity in shape of these entities. While there are many arteries, veins, and capillaries some of which are designated with compound terms based on their location in the body, the most commonly known artery is 'av 'orkim (father (of) arteries) - 'aorta'. The term 'av 'orkim - 'aorta' names the blood vessel according to its relative status and relies upon an extended use of 'av - 'principal, main'. The aorta is the main artery in the set of arteries in the body. In spite of its literal meaning, the term 'av 'orkim is technical.

Aside from blood vessels, there are muscles, tendons, and nerves in the body. In Hebrew each of these is named with a simple term: śrir - 'muscle'; gid - 'tendon'; and ᵉcev - 'nerve'. In general, muscles in the body can be categorized in terms of how they function--śrir ᵇa⁴rocon⁴ - 'voluntary muscle' and śrir bilti-rocon⁴ - 'involuntary muscle'--or in terms of their location in the body, for example, śrir ha-xaze (muscle (of) the-chest) - '(the) pectoral muscle' and śrir ha-'akuz (muscle (of) the-buttocks) - '(the) gluteal muscle'. In Biblical Hebrew the term gid is used in the compound gid ha-naše in reference to a particular nerve in the hind-part of animals which is forbidden to eat--'ischiadic nerve' (Gen. 32:32). It also seems to be used for cord-like tissues in the body, as shown in (# 5). In these cases gid appears to mean 'sinew, tendon'.

5) və-rə'iti və-hine 'aley-hem
     and-I saw and-lo on-them

    gidim və-basar 'ala
    sinews and-flesh came up

And I beheld, and, lo, there were sinews
upon them [the bones] and flesh came up....
(Ezek. 37:8).
The Modern Hebrew loan translation gid 'aziles - 'Achilles tendon' confirms that the term gid is used for 'tendon' at present. Perhaps the term gid ha-na'ase is used to name a nerve rather than a tendon because the term 'ecev - 'nerve' was not used at the time of the Bible. There is no written documentation of 'ecev - 'nerve' in Biblical Hebrew. There are, of course, many nerves and many tendons in the body. For the most part the terms that name the different tendons and nerves are technical as for example gid ha-tanbur (cord (of) the-tympanum) - '(the) tympanic cord' and 'ecev ha-'akuz (nerve (of) the-buttocks) - '(the) gluteal nerve'. Nerves can also be designated according to the function they perform as for example 'ecev ha-sema (nerve (of) the-hearing) - '(the) auditory nerve' and 'ecev ha-ria'iya (nerve (of) the-seeing) - '(the) ophthalmic nerve'.

As mentioned above, only the ideal expert observer possesses all the information about the parts of the internal body and hence only the ideal expert observer would know and use all the terms that name the many different organs, bones, blood vessels, muscles, tendons, and nerves. Even the limited amount of data presented here indicates the way in which these parts are named. The well-known internal parts tend to be named with simple terms and the less-known parts are named with complex or compound terms. The more specific parts—the different bones, blood vessels, muscles, tendons, and nerves tend to be named with compound terms or noun + adjective expressions.

5.2 The Experiencer of Body Sensations

As mentioned above, lay observers of the human figure and experiencers of body sensations are average people who have acquired some of the information possessed by the expert since it has become part of everyday knowledge. The experiencer of body sensations has basic knowledge of the body (including the internal body), the functioning of the body, and the connection between the body part, its function, and the feeling (s)he associ-
ates with the part and its (mal)function. We know this because we know that the
experiencer of body sensations talks about these things, sometimes using the same terms
as the lay observer and sometimes using the same terms as the expert observer. Thus, in
some sense, the best evidence for the layman's awareness of and knowledge about the
body can be provided when considering the perspective of the experiencer of body
sensations—i.e. the "personal" perspective.

The experiencer of body sensations has contact with the outside world through the
sense organs. (S)he can see, hear, taste, and smell with the eyes, ears, tongue, and nose,
respectively, as well as feel through the skin. Of course, these experiences can be verbal-
ized. For example ba-'enayim Šel-i ra'iti nes (with-the-eyes of-mine I-saw
miracle) - 'With my own eyes I saw a miracle' and 'ani lo ma'amín la-míšma 'oznay (I
NEG believe to-hearing (of) ears-my) - 'I don't believe my ears' show that seeing and
hearing are experienced through the eyes and ears, respectively.

Aside from talking about the sensations experienced through the sense organs, there
are different ways for the experiencer of body sensations to express what (s)he feels includ­
ing 'ani pozed - 'I'm afraid' 'ani ko'es - 'I'm angry', 'acuv li (sad to-me) - 'I'm sad',
na'ím li (pleasing to-me) - 'I'm pleased', noge'a li (touches to-me) - 'It concerns me'
xam li (warm to-me) - 'I'm warm' and kar li (cold to-me) - 'I'm cold'. Which expression
is used depends upon the particular sensation that is being experienced. Sometimes there
are ways of expressing these sensations which include names for parts of the body. For
example, the sensation of fear can be verbalized with a variety of phrases including names
for different parts of the body. Some of these are: birkayim ro'adot - 'trembling knees';
šinayim nokšot - 'knocking teeth'; yarad li ha-lev la-taxonim/míznasayim (fell to-me
the-heart to-the-underpants/pants) - 'My heart fell to my (under)pants'; and 'amdu
sa'arot-av (stood hairs-his) - 'His hair stood on end'.

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5.2.1 Pain: The "Personal" Perspective

Here, the phrase ko‘ev li (pains to-me) - 'It hurts me' indicating pain is used to illustrate the perspective of the experiencer of body sensations. The sensation of pain serves as a paradigm for this perspective in part because it is a particularly subjective experience the precise nature of which is often difficult to convey. In some respects the sensation of pain is an inner feeling par excellence. (See section 4.4) As was the case with a number of other phrases for expressing body sensations, this phrase is a dative construction as apparent from the prepositional li - 'to me'; the verb ko‘ev is in the present tense.

In Hebrew it is possible to indicate that one is in pain by saying ko‘ev li ha-X (pain to-me the-X) - ‘X hurts me’ where X can be any body part that has sensations. Thus, one can say ko‘ev li ha-rosh (pain to- the -head) - ‘My head hurts’, but not *ko‘ev li ha-se’ar (pain to-me the-hair) - *‘My hair hurts’. It is physically impossible to experience the sensation of pain in a part of the body which does not have nerves. When X, the body part word which serves as the subject of the sentence, is specified there must be number and gender agreement. For example, when X is a feminine gender noun, the verb must also be in the feminine as apparent in ko‘evet li ha-yad (pains to-me the-hand) - ‘My hand hurts’.

There is a difference between ko‘ev li ha-X (pain to-the-X) and ko‘ev li ba-X (pain to-me in-the-X). The former indicates the general area of pain and the latter locates a specific point, as shown in sentences (#6) and (#7).
Since it is culturally frowned upon to be too specific about pain, speakers of Modern Hebrew typically use sentences of the form ko’ev li ha-X. Note that ko’ev li ba-X is a subjectless dative construction. When X is a feminine gender noun (or a plural noun) the form of the verb does not change as apparent from ko’ev li ba-beten (pains to-me in-the-belly) - ‘It hurts me in the belly’.

Aside from the types of sentences illustrated in examples (#6) and (#7), a smixut construction of the form ko’ev X, where X is a body part term, can also be used to indicate pain. Thus, for example, one can have a ko’ev ro’s (head pain) - ‘headache’ or a ko’ev garon (throat pain) - ‘sore throat’. As suggested by these examples, the smixut form is used when indicating pain resulting from conditions or diseases, but not when indicating the sensation of pain in a particular body part. Thus, for instance, forms such as *ko’ev ‘af (nose pain) and *ko’ev marpakim (elbows pain) do not occur in Hebrew.

Another point worth noting about the use of this construction is that when X is a body part term which uses the morphological dual for its plural, the smixut form must also use the morphological dual form of the noun. To illustrate, the forms ko’ev šinayim ((two) teeth pain) - ‘toothache’ and ko’ev ‘oznayim ((two) ears pain) - ‘earache’ occur, but *ko’ev sen (tooth pain) and *ko’ev ‘ozen (ear pain) do not occur.

There are also instances of the construction ko’ev X which have metaphorical rather than literal interpretations. For example, ko’ev lev (pain heart) - ‘heartache’ refers to emotional rather than physical pain. (Note that the form does not mean ‘angina’ as implied by the literal translation of the two nouns.) This usage suggests that the
experiencer of body sensations associates the heart with emotions. Additional evidence for this is provided by the adjective *lovavi* - 'warm, kind' which is derived from another word for heart, *lavav*. (See section 6.2.1) Other extensions of the term *lev* - 'heart' suggest that speakers have a certain amount of knowledge about the position and function of the heart. (See section 6.1) Another expression which has a metaphorical rather than a literal interpretation is *ka'ev becim* (balls pain) - 'horniness' which refers to a psychological state as much as to a physical state. In any event, it would not be used to indicate the sensation of pain, for example, as a result of physical injury. Again, this expression suggests that the experiencer of body sensations knows about the function of the named part.

The form *ka'ev lev* - 'heartache' shows that the sensation of pain is not limited to physical pain, nor is it limited to external parts of the body. It is possible to talk about pain emanating from other internal organs. A particularly interesting usage is *ko'ev li ha-cad* (pain to-me the-side)-'My side hurts' for pain emanating from any of several internal organs including the spleen, the pancreas, the liver, and the gall bladder. These can be characterized as non-central front organs. Notice that this use of *cad* avoids being specific about the source of the pain. A speaker of Modern Hebrew would not use any of the possibilities listed in (#8).

8) *ko'ev li ha-txol ha-lavlav ha-kaved
    pain to-me the-spleen the-pancreas the-liver

*ko'evet li ha-mara
pain (fem.) to-me the-gall bladder

In addition to the desire to avoid being specific, as already mentioned, speakers may know
of the existence of internal organs and the existence of their names without knowing too much more about the organs themselves. Here the difference between lay observers and experiencers of body sensations on the one hand and expert observers on the other hand is apparent. The expert observer knows about internal organs, their specific location and function. Furthermore, in an appropriate context, the knowledge that expert observers possess would enable them to pinpoint the source of the pain. (See section 5.1) Although average speakers are not likely to know it, there are no pain receptors in these organs. The sensation of pain in this area of the body is a result of the sensitivity of the surrounding tissues to other actions such as pressure and stretching.

Thus, it seems that *cad*—‘side’ would best be characterized as a word used by the experiencer of body sensations; the term prototypically belongs to this experiential frame. Of course, the lay observer may also have occasion to use the term as apparent from *yes* la nakudat xen bo-cad yamin (there-is to-her beauty mark on-side right) —‘She has a beauty mark on the right side’. As such, the term *cad*, prototypically referring to some internal part, can also refer to an external area.

Another example of a term for an internal organ used for an external area is *klayot*—‘kidneys’, as shown in (#9a).

9) a. ko’ev li ba-klayot 
pain to-me in-the-kidneys  
My lower back hurts.

b. *ko’ev li ha-gav ha-taxton 
pain to-me the-back the-lower

As already mentioned, the use of a sentence of the form *ko’ev li ba-X* indicates the specific location of the pain. Notice that (#9b) is unacceptable. If a speaker of Modern Hebrew wants to avoid being too specific (s)he could use sentence (#10).
10) ko’ev li ha-gav
pain to-me the-back
My back hurts.

As discussed above (section 4.2), from the perspective of the lay observer who sees the external body, the terms cavar - 'neck' and garon - 'throat' can both be used to refer to the front part of the neck. Thus, garon - 'throat', the name for an internal body part, can also designate an external area of the body. However, when talking about pain, the two terms are not interchangeable. ko’ev li ha-cavar (pain to-me the-neck) - 'My neck hurts' and ko’ev li ha-garon (pain to-me the-throat) - 'My throat hurts' are not equivalent.

Sometimes an external body part term is used for an internal part. To indicate pain from the stomach a speaker of Modern Hebrew would always use sentence (#11a), not (#11b).

11) a. ko’evet li ha-beten
pain to-me the-belly
I have a belly ache.

b. ko’evet li ha-keva
pain to-me the-stomach
I have a stomach ache.

Note that (#11b) is unacceptable because it is inappropriate for someone to talk about pain using an expert term such as keva - 'stomach'. When referring to a sensation other than pain both beten - 'belly' and keva - 'stomach' are equally acceptable as apparent from the phrases beten mle’a - 'full belly' and keva mle’a - 'full stomach'.

The data given in (#12) show that the experiencer of body sensations knows about the function of the brain. In fact, it is this function which is the source of the pain. Note that while (#12a) is not a possible utterance in Modern Hebrew, (#12b) is accept-
able.

12) a. *ko’ev li ha-moax
   pain to-me the-brain

   b. ko’ev li ha-sexel
   pain to-me the-intellect
   I’m mentally exhausted.
   (literally- My intellect hurts.)

Perhaps (#12a) is not a possible utterance because the brain does not "feel" in the same way as other parts of the body. While there are many nerves connected to different areas of the brain which enable body sensations to be experienced, there are no pain receptors in brain tissue so that pain from the organ itself cannot be experienced. Sentence (#12b) is used to express the feeling of being tired as a result of using one’s brain a lot, as for example, in thinking about a problem.

5.2.2 Other Discomforts

Although there is no explicit reference to pain the sentence in (#13a) indicates an unpleasant sensation in the intestines (or intestinal area), for instance, from disgust.

13) a. hithapxu li ha-me’ayim
    turned-over to-me the-intestines
    My intestines turned upside down.

   b. hithapxu li ha-kiško$*
    turned-over to-me the-guts
    My guts turned upside down.

Another way of indicating the same sensation is given in sentence (#13b) where a term borrowed from Yiddish is used instead of the native Hebrew word. The difference between the two sentences is one of register. (#13b) being the more colloquial form.
There are a variety of phrases which provide evidence that speakers taking the "personal" perspective experience body sensations in some of the other internal parts. Some of these include: \textit{xatafti 'acabim} (I caught nerves) - 'I got nervous/upset'; \textit{yes li hitkavcut šririm} (there- is to-me grouping (of) muscles) - 'I have a (muscle) cramp'; \textit{mataxti gid} - 'I strained a tendon'; and \textit{hitnapzu li ha-vridim} (became swollen to-me the-veins - 'My veins became swollen'. Although there is no explicit reference to pain, each of these conveys a sense of discomfort the source of which is the body part mentioned.

For the most part, in this section I have discussed the words used by the experiencer of body sensations in terms of pain. This was done because pain is a particularly subjective feeling and conveys the general sense of this mode of experiencing the body. Of course, as noted above, there are many other body sensations and some of these can be talked about using phrases which include names for parts of the body. Note that the terminology of the "personal" perspective overlaps to some extent with the terminologies of both the "external" and the "internal" perspectives.
Notes to Chapter 5

1. Many speakers use *klaya* rather than *kiya* - 'kidney'. This seems to be a result of treating the plural form *klayot* - 'kidneys' like other regular feminine plurals that end in -*ot*. Note that the plural form is the most frequently used.

2. The term *lavlav* - 'pancreas' is phonologically a reduplicated from, but there is no word *lav* to which it might be related.

3. The phonological similarity between *kaved* - 'liver' and *kaved* - 'heavy' is clear and according to Even-Shoshan (1982) there is a semantic connection as well: the liver is a heavy organ. Matisoff (1978:154) also points out this relationship, but speakers of Modern Hebrew do not acknowledge it. In contrast, they do believe there is a connection between *rezem* - 'uterus, womb' and its root RXM - 'sympathy'.

4. Matisoff observes that the association between BRAIN and MARROW is found all over the world (1978:182) and in particular reports that in Lepcha, a Tibeto-Burman language, the compound term *a-t'yak yon* - 'brain' is made up of *a-t'yak* - 'head' and *a-yon* - 'marrow'.

5. The term *kdxay* - 'marrow' is found in Mishnaic Hebrew (Jastrow 1950). Even-Odem and Rotem (1967) cite the term *mokar* - 'marrow' based on the Aramaic/Syrian word *mokra* - 'marrow'. Speakers were not familiar with either of these terms.

6. During the picture-based elicitation task, a few speakers used *'apendScit* - 'appendix' borrowed from Latin most probably via English.

7. Even-Odem and Rotem (1967) do not include *'ecem ha-bariax* (the-latch bone) - '(the) clavicle' in their dictionary. They do include *mafteax* (key) - 'clavicle' and the Biblical Hebrew term *zofen* (breastplate) - 'sternum, breastbone'. Speakers were not familiar with the use of the term *zofen* for a name of a bone.
Chapter Six: Extensions of Body Part Terms

6.0 Introduction

In the preceding chapters, I discussed terms in the body part domain in Modern Hebrew according to three different modes of experiencing the human body. In this chapter, I shall examine extended meanings of body part terms in Modern Hebrew—i.e. metaphorical or morphologically derived uses of body part terms to name, describe, or designate an object or action outside the body part domain.

Over twenty years ago Weinreich proposed a direction for research on the semantic structure of language. Among the many questions suggested for linguists to address were a number regarding metaphorical extensions and metonymic associations of terms in the body part domain (Weinreich 1963). Since then linguists and anthropologists studying the lexical semantic domain of body part terminology have devoted some time to extended meanings and metaphorical uses of body part terms. While some have done little more than allude to these topics (e.g. Stark 1969, Liston 1972, Stross 1976, Swanson and Witkowski 1977), others have dealt with them explicitly.

Basso (1967) documents the extended use of anatomical terms as names for various parts of vehicles in the Cibecue dialect of Western Apache. Friedrich (1969) claims that the use of semantically complex body part suffixes in Tarascan outside the body part domain, as for example in naming parts of a house or pottery, represent metaphor-like extensions based on underlying similarity. Lehrer (1974) claims that when speakers of English make extensions from the body part domain to other domains (house, pottery) shape is an important factor and speakers' spatial orientation depends on the human body.

Both Basso (1967) and Friedrich (1969) report systematic extension of terms from
the body part domain to other domains. Although other languages don't necessarily use body part terms outside of the body part domain with the same degree of systematicity, it is still interesting to examine which body part terms are used metaphorically, in what domains they are used, and what motivates their extended senses.

In the present study the term 'extension' refers to two different, but related phenomena—'metaphorical and metonymic extension' and 'morphosyntactic elaboration', or derivation. While both of these phenomena are found all over the language, I am particularly interested in their manifestation with respect to the body part domain.

Extension by metaphor and metonymy refers to the use of a body part term as a name for something outside the body part domain. In the present study, this includes those lexical items which when naming something outside the body part domain exhibit no change in morphological structure. For example, the body part term roš - 'head' refers to the top part of an object as in roš ha-har (head of the-mountain) - '(the) summit'. The position of the head at the top of the body is the basis of the metaphorical extension.

The metaphorical uses discussed here are 'egressive'—native to the body part domain and extended in use to some other domain— not 'ingressive'—native to some other domain and extended in use to the body part domain.

As Matisoff (1978) points out in his discussion of "trans-field semantic associations of body part terms" in the Tibeto-Burman language family, sometimes the directionality of the association is clearly from the body part domain to the outside world. (However, it should be noted that it is not necessarily the case that the concrete or specific sense of a word is closer to its original meaning than the abstract or general sense of a word.) Thus, for example, in English it is clear that the term shoulder first referred to a part of the body and then to parts of clothing and roads. Similarly, in Hebrew it seems clear that
*ros* - 'head' applied to a part of the body before applying to the top portions of objects. Other times it is clear that a word belongs to some other semantic domain and was extended into the body part domain. In English, "the names of the three important bones of the middle ear, the 'hammer' (*malleus*), the 'anvil' (*incus*), and the 'stirrup' (*stapes*) referred originally to artifacts and have only secondarily applied to body parts" (Matisoff 1978:190). In Hebrew, the slang term *becim* (literally, "eggs") - 'balls' (influenced by Yiddish *ey/eyer* (egg/eggs) - 'balls') for testicles exemplifies the same process of extension into the body part domain from some other domain. The difference between 'egressive' and 'ingressive' can be demonstrated by considering a man seated in a chair. Calling a part of the chair its *back* is 'egressive' and calling a part of the man his *seat* is 'ingressive'.

Sometimes it is not possible to determine which of a word's senses is the primary one and which is a secondary one. In such cases the linguist can only document the different senses of the word and provide evidence for the belief that the senses are indeed related. It is also important to distinguish between the direction of extension as determined by linguistic analysis and the beliefs of native speakers regarding the direction of extension since these do not always coincide. In this section, the discussion is limited to egressive extensions—words that are native to the body part domain and extended in use to some other domain. (See section 4.7 for some discussion of ingressive terms.)

6.1 Metaphor and Metonymy

Metaphorical and metonymic extensions of body part terms may be based on any one of a variety of physical and/or functional characteristics of the body part. The data presented here are organized according to the semantic basis of the extension. What is the underlying similarity between the body part sense of the term and its extended sense outside the body part domain that allows the metaphor to obtain? Is there any systematic extension of body part terms in Modern Hebrew to other semantic domains? Is
the metaphor broader than an isolated incidence of extension from the body to another entity in the world? Based on the kinds of extensions made, what things in the world can be seen as structured in the same way as the human body?

6.1.1 Function

The term יֶלֶד - 'skeleton' is used outside the body part domain in the sense of 'frame' as in יֶלֶד הָבִיָּנָן (skeleton (of) the-building) - 'building frame'. While the function of the body part (or set of parts) seems to be the basis of the extension, its physical structure and position are also important for the metaphor. The skeleton serves as the internal frame for the body. Without such an internal frame the body would not have its stability and form; it would be a mass of various kinds of tissue without a fixed form. Similarly, the frame of a building provides the internal structure for the building onto which parts of the building attach and connect one to the other. Furthermore, in some respects skeletons and building frames are similar in appearance—the horizontal parts of the mid and upper sections of a building frame can be compared to the ribs of a skeleton. The use of a construction term, borrowed into the body part domain, for the naming of certain bones has been discussed regarding בֶּט הָזָאֶז (house (of) the-chest) - '(the) rib cage'. The term בֶּט (the construct of בָּיִיט) - 'house' serves as the head of a compound noun which names the set of bones in the chest. With יֶלֶד הָבִיָּנָן (skeleton (of) the-building) - 'building frame' a body part term is borrowed into the semantic field of construction to name part of a building.

As discussed above (section 4.5.2), the term יֵגֶל has two senses within the body part domain—it names the whole leg including the foot or just the foot. The term יֵגֶל is used metaphorically to name other things which perform the same function as a leg or a foot. Thus, for example, יֵגֶל הָזְוַקְצָנ (legs (of) the-table) - '(the) table legs' refers to the long and relatively thin objects which support the tabletop. Notice that the extension
obtains in part because of the shape of the referent. If a support for a tabletop is not 
sufficiently leg-shaped the term *regel* - 'leg' is not used; the word *basis* - 'base' would be 
used for a box-like table support. The metaphor in the expression *yes raglayim la-
davar* (there-are legs to-the-thing) - 'there's a basis to the thing', where the "thing" 
might be an argument or an explanation in a line of reasoning, seems to derive solely from 
the function of the body part, which is to support the body. Both *ragley ha-sulzan* and 
*yes raglayim la-davar* presume the canonical vertical orientation of the human body. 
While *ragley ha-sulzan* refers to a concrete entity, *raglayim*, as in *yes raglayim la-davar*, 
refers to an abstract one. With a bit of imagination, it is possible to "see" *raglayim* in the 
expression *yes raglayim la-davar* as the "legs" which support the "thing".

The term *regel* in the sense of 'foot' is also used metaphorically where the position of 
the foot at the bottom of the body is the basis of the extension. This and other body part 
terms with metaphorical extension based on position are documented in greater detail fol­
lowing the present discussion of extensions based on function and the discussion of exten­
sions based on shape.

There are two other terms in the body part domain of Modern Hebrew for which the 
function of the body part is the basis of the metaphorical extension of the term. These 
are *la'son* - 'tongue' and *safa* - 'lip': in both cases the extended sense of the term is 
'language'. Both the tongue and the lips are used in the production of speech sounds. In 
both, there is a metonymic relationship between the body part as an instrument and the 
work to which the instrument can be put. As such, there are not really two disjoint 
semantic fields. However, they are included here because in both cases the metaphorical 
use of the term refers to something other than a part of the body.

The term *la'son* 'language' occurs in expressions such as *la'son rakanim* (language (of) 
wise (ones)--sages' language) - 'Mishnaic Hebrew' and *la'son ha-ra* (language (of)
the evil) - (the) gossip'. Thus, *lašon* can refer to a codified or institutionalized language, such as Mishnaic Hebrew or a kind of talk such as gossip. The term *safa* occurs in the nominal compound *sfat 'em* (mother language) - 'mother tongue' and in phrases such as *safa zara* - 'foreign language' and *safa šel šabat* (language of sabbath) - 'fancy language'. As was the case with *lašon*, *safa* refers to a language (e.g. a national language such as Hebrew) as well as to types of talk. Although somewhat more restricted, the English term *tongue* is used metaphorically comparable to the use of *lašon* in Hebrew, as apparent from *foreign tongue*. The slang usage of the term *lip* can be used to refer to a kind of talk, as shown by *Don't give me any more of that lip!*

6.1.2 Shape

Both *lašon* and *safa* have metaphorical extensions based on other characteristics of the body part. In particular the shape of the tongue and the position of the lip serve as the basis of extended senses of *lašon* - 'tongue-shaped entity' and *safa* - 'edge', respectively. Metaphorical extensions of body part terms based on the shape of the body part are presented followed by those based on the position of the body part.

The shape of the tongue is the basis of metaphorical uses of *lašon* as in *bšon ha-na' al* (tongue (of) the-shoe) - '(shoe) tongue' and *bšon yam* - 'fjord', literally (tongue (of) sea) "sea tongue". While *bšon ha-na' al* - '(shoe) tongue' might be a calque from English, *bšon yam* - 'fjord' clearly is not since we don't speak of "sea tongues" in English. Thus, it seems that shape as the basis of extension for this body part term exists in Hebrew independently of the English.

Several other body part terms in Modern Hebrew are extended metaphorically based on the shape of the body part. These are *šen* - 'tooth', *pe* - 'mouth', *yad* - 'arm', *beten* - 'belly', and *roš* - 'head'. Each of these is discussed below.
The term 'tooth' occurs in the compound forms 'siney ha-masrek (teeth (of) the-comb) - '(comb) teeth' and 'sen šum (tooth (of) garlic) - 'clove of garlic'. In the former, as the head noun of the compound, 'siney refers to the teeth-like protrusions of the comb. In the latter, 'sen also refers to a tooth-like part of a bulb of garlic. Although 'siney ha-masrek - '(comb) teeth' might be a calque from English, 'sen šum (tooth (of) garlic) - 'clove of garlic' is not since in English we do not talk about the individual pieces of a bulb of garlic as "teeth". Metaphorical extension based on shape for the body part term 'sen - 'tooth' exists in Hebrew aside from any borrowing from English.

Another metaphorical extension based on the shape of the body part is the use of pe - 'mouth' in the sense of 'opening' as in pi ha-ma'ara (opening (of) the-cave) - 'mouth of the cave' and pi ha-ba'er (opening (of) the-well) - 'mouth of the well'. The term pi ha-ma'ara - 'mouth of the cave' assumes a vertical orientation and pi ha-ba'er - 'mouth of the well' assumes a horizontal orientation of the human body. Furthermore, in both cases it seems that the metaphor obtains because a mouth is an opening and it is easy to imagine the configuration of an open mouth necessary for this particular extension. It seems that the metaphor is based on the shape of the mouth in a specific configuration.

The term pe also occurs in compounds that name other openings in the body: pi ha-taba'at (opening (of) the-ring) - '(the) anus'; and pi ha-kares (opening (of) the-stomach) - '(the) womb', both of which are euphemisms. The term pi ha-taba'at - '(the) anus' is a technical term in Modern Hebrew and might be a calque from Latin anus - 'ring'. Even-Shoshan (1982) glosses pi ha-kares as tabur ha-beten - "navel of the stomach/belly" perhaps suggesting that the analogy is between the round shape of a mouth and a navel. However, the form occurs in Mishnaic Hebrew in the context of a discussion on purity and women's monthly cycles which suggests that 'womb' is the more appropriate interpretation. (cf. Nid. 9.8) The term pi ha-kares is not commonly used in
the modern language. Both *pi ha-tabā’at* - *(the) anus’* and *pi ha-kares* - *(the) womb’* are of Mishnaic Hebrew origin.

As discussed above (section 4.5.1), the term *yad* has two senses—it names the arm including the hand or just the hand. Outside the body part domain the term *yad* is used in the sense of ‘monument’ as in *yad la-banim* - ‘Monument to the Sons’ and *yad ‘avsalom* - ‘Absalom’s Monument’. The metaphorical extension seems to be based on the similarity of shape of an arm (extended upward) and an obelisk-shaped structure, which in some sense might be considered a typical monument. It is not arbitrary that Hebrew chooses the term that names the limb on the upper part of the body for this extension rather than the term for the lower limb even though the upper limb and the lower limb are similarly shaped. While legs support the body on the ground, arms extend into space. The metaphorical extension of *yad* goes back to the Bible and has a metonymic base, *yad xazaka u-zro’a natuya* (arm strong and-arm extended) signifying God’s power and providence. Originally, to erect a *yad* was an act of commemorating God’s power. In Modern Hebrew the expression *yad ‘elohim*, literally “God’s arm”, is still used as a metaphor for fate, the will of God.

Both *beten*—belly, stomach’ and *roš* - ‘head’ are used outside the body part domain in metaphors based on their rounded shape. As shown above (section 4.3), the term *beten* names an external area of the trunk—‘belly’ as well as an internal organ—‘stomach’. The external body part sense of the term *beten*—‘belly’ figures in the metaphor in the phrase *ha-beten ū-l ha-mandolina* (the-belly of the-mandolin) - ‘the body of the mandolin’ which is a rounded object. Of course, the belly of a mandolin also has an inner space. A similar use of *beten* is given in (#1).
The term roš - 'head' occurs in phrases such as roš kruv - 'head of cabbage', šney rasey bacal (two heads (of) onion) - 'two onions', and roš šum (head (of) garlic) - 'bulb of garlic'. Although cabbages, onions, and bulbs of garlic are different sizes and somewhat different shapes, they are all sufficiently head-like in shape to be designated with the term roš.

6.1.3 Position

Both roš - 'head' and beten - 'belly, stomach' are also used metaphorically based on their respective positions: roš - 'head' is at the top of the body; and beten in the sense of 'stomach' is inside the body. Metaphorical extensions of roš - 'head' and of other external body part terms based on position are presented followed by a discussion of extended uses of terms which name internal body parts.

The position of the head at the top of the body also serves as the basis of extended uses of the term roš - 'head'. The compound form roš ha-har (head (of) the-mountain) - '(the) summit' and roš ha-ilan (head (of) the-tree) - '(the) tree top' provide evidence that the location of the head is the basis of another extended sense of the term roš. Both compounds refer to concrete objects and presume the canonical vertical orientation of the human body. In these contexts the term roš might best be translated as 'top end'. The compound forms roš ha-sulzan (head (of) the-table) - 'head of the table' and roš ha-šura (head (of) the-line) - 'head of the line' also show that the position of the head serves as the basis of the metaphor, but here a horizontal orientation of the human body is presumed. In these contexts, the term roš might best be translated as 'front end'.

In English, the opposite end of the head of the table is called foot of the table and the
opposite end of the head of a line is called *tail of the line*. As is the case in Hebrew, both "heads" are at the front end. However, while the *head of the table/foot of the table* opposition suggests a horizontal orientation of the human body, the *head of the line/tail of the line* opposition suggests a down-on-all-fours orientation of the human body, the orientation of quadrupeds. In other words, the human body schema is not used in the same way for the two extended senses. Note that in Hebrew no body part term, human or quadruped, is used to refer to either the opposite end of *ros ha-sulzan* - 'head of the table' or the opposite end of *ros ha-šura* - 'head of the line'.

It should be pointed out that although both of the body part terms *ros* - 'head' and *regel* - 'leg' name parts of a table, *ros ha-sulzan* - 'head of the table' presumes a horizontal orientation of the human body and *ragley ha-sulzan* - '(the) table legs' presumes a vertical orientation, as illustrated in Figure 1.

The distinction between the vertical and the horizontal orientations can be demonstrated with the verbs *'ala* - 'go up' and *'avar* - 'pass', respectively.
2) a. dan 'ala lɔ-roš ha-har  
Dan went up to-the-summit 
Dan went (up) to the summit.

b. *dan 'avar lɔ-roš ha-har  
Dan passed to-the-summit.

3) a. dan 'avar lɔ-roš ha-sura  
Dan passed to-head (of) the-line  
Dan went to the head of the line.

b. *dan 'ala lɔ-roš ha-sura  
Dan went up to-head (of) the-line

While both 'ala - 'go up' and 'avar - 'pass' indicate movement to a place, 'ala requires that the place be "horizontally away" from the starting point. Thus, (#2b) is unacceptable because a summit is "vertically away" from some understood starting point and (#3b) is unacceptable because the head of a line is "horizontally away" from some understood starting point.

The term roš - 'head' also occurs in roš ha-'ir (head (of) the-city) - '(the) mayor', roš ha-memšala (head (of) the-government) - '(the) prime minister', and roš ha-mišpaza (head (of) the-family head) - 'head of the family'. Mayors, prime ministers, and heads of families are not physically at the top or the front end of cities, governments, or families. Rather, they are the leaders of these artificially constructed "bodies" who figuratively "head" those who have chosen or appointed them. Figuratively, they are at the top or the front end. In these contexts, the term roš might best be translated as 'leader'. Thus, there is a systematic metaphor of a political or social organization as a living "superorganism".

Another metaphorical extension deriving from the position of the body part is pney - 'surface', the construct form of panim - 'face', as in pney ha-binyan (surface (of) the-building)-'surface of the building', pney ha-yam (surface (of) the sea) - 'surface of the sea', and pney ha'adama (surface (of) the-land) - 'surface of the land'. These are
illustrated in sentences (#4), (#5), and (#6), respectively.

4) cav'u pasim yrukim
   they-painted stripes green-pl.
   'al pney ha-binyan
   on surface (of) the-building

   They painted green stripes on
   (the surface of) the building.

5) ha-'oniya ha-ktana cafa 'al pney ha-yam
   the-ship the-small floated on surface (of) the-sea
   The small ship floated on (the surface of) the sea.

6) ha-šeleg kisa 'et pney ha-'adama
   the-snow covered OBJ surface (of) the-land
   The snow covered (the surface of) the land.

Example (#4) assumes a vertical orientation and examples (#5) and (#6) assume a horizontal orientation of the human body. With respect to the human body panim - 'face' refers to the external part of the front of the head. In contrast, pney as in pney ha-binyan is not restricted to the front surface of the building. Rather, pney ha-binyan - 'surface of the building' can refer to any of the building's four vertical surfaces as long as it is visible to the speaker/viewer. The expression pney ha-šir (appearance (of) the-city) - 'appearance of the city', as illustrated in (#7), suggests that pney may be used without assuming either a vertical or a horizontal orientation of the human body. pney ha-šir refers to the general appearance of the city and not, for example, the skyline which would typically be viewed assuming a vertical orientation of the human body.
7) mivca ha-nikayon 'sinet
   project the-cleanness changed OBJ

   pney ha-'ir
   appearance (of) the city

   The cleaning project changed the appearance of the city.

As already mentioned, safa - 'lip' is used outside the body part domain in the sense
of 'edge' as in sfat ha-yam (edge (of) the-sea) - '(the) seashore' are sfat ha-nahar(edge (of)
the-river) - 'bank of the river', a metaphor based on the position of the body part, the
lips being the outer edge of the mouth. Some example sentences follow.

8) yasavnu 'al sfat ha-yam 'ad 'ski'at ha-šemes
   we-sat on the-seashore until setting (of) the-sun
   We sat on the seashore until sunset.

9) saxavnu 'al sfat ha-nahar v?-histakalnu
   we-lay on bank (of) the-river and-we-looked

   ha-šamayim-ā
   the-heaven-directional suffix

   We lay on the bank of the river and looked towards heaven.

Perhaps it is significant that this metaphor occurs in a part of the world where a sea can
be conceived of as "closed". (Consider the Mediterranean Sea.) Thus, the seashore
(example #8) is at the edge of the sea in the same way that the lips are at the edge of the
mouth. Once the metaphor has been established with "closed" bodies of water, it may
then be further extended and applied to rivers (example #9).

As mentioned above, the position of the foot at the bottom of the body serves as the
basis of an extended meaning of the term regel - 'foot'. The compound noun ragley ha-
har (feet (of) the-mountain) - 'foot of the mountain' illustrates this sort of extension. It
is interesting that in Hebrew mountains have "feet" and not "a foot" as in English--;*regel

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ha-har is an unacceptable form. The terms ros - 'head' and ragley - 'feet', the top most and the lower most parts of the body, respectively, as applied to mountains also designate the top most and lower most parts. The way in which certain parts of mountains are designated — ros ha-har - '(the) summit' and ragley ha-har - 'foot of the mountain' — reflects a correspondence with the vertical orientation of the human body.

The term 'akev - 'heel' names a body part as well as a part of a shoe. The shoe sense of the term seems to derive from the position of the body part, the back and bottom part of the foot. The shoe sense of the term is illustrated in sentence (#10).

10) našim no'alot na'alayim ba'alot
women wear-shoes shoes possessors (of)
'akevim gvohim
heels high-pl.

Women wear shoes with high heels.

The body part term gav - 'back' occurs in a number of compound forms including gav ha-har (back (of) the-mountain) - 'back of the mountain', gav ha-kise (back (of) the-chair) - 'back of the chair'. and gav ha-sefer (back (of) the-book) - 'spine of the book'. Different languages choose different ways of orienting objects in the environment which do not inherently provide front/back orientations. In Hebrew, as in English, objects in our environment are schematized as "facing" us, so that the close part is "front" and the more distant part is "back". Thus, given a typical encounter, the back of a mountain, a chair, or a book is its distant part. The phrase yišuvey gav ha-har(settlements (of) back (of) the-mountain) - 'settlements of the back of the mountain' refers to a group of settlements located behind the city of Jerusalem which sits on the Judaean Hills. The phrase presumes that the city is viewed as being at the close part, i.e. the "front" of the mountain. The use of the compound gav ha-kise - 'back of the
chair' is illustrated below.

11) dan tala 'et ha-mes'il 'al gav ha-kise
Dan hung OBJ the-coat on back (of) the chair
Dan hung the coat on the back of the chair.

12) gav ha-kise ֳשׁלְשֶׁפֶץ 'et ha-kir
back (of) the chair scraped OBJ the-wall
The back of the chair scraped the wall.

Given the term gav ha-yad (back (of) the-hand) - 'back of the hand' in which gav - 'back' focuses on the location of the part, it might be suggested that gav ha-kise - 'back of the chair' refers to the rear part of the chair, as opposed to the part of the chair which supports one's back. Obviously, with a typical chair the rear part is the part which supports one's back. Notice the difference between the Hebrew phrase gav ha-sefer (back (of) the-book)-'spine of the book' and the English back of the book. In Hebrew, the "back" of a book is the 'spine of the book', suggesting a scenario in which a person encounters a book on a shelf where the spine of the book is the close part of the book. This scenario differs from the typical encounter of a person reading a book in which the "back" is the distant part of the book. Thus, the Hebrew phrase gav ha-sefer differs from the English back of the book since the former requires some modification of the typical kind of encounter for interpretation and the latter does not.

A number of terms which name internal body parts are used metaphorically outside the body part domain. These are lev - 'heart', 'ecem - 'bone', and beten - '(belly)/stomach'. In each case it seems that the position of the body part inside the body is an important part of the metaphor.

When used outside the body part domain, the term lev - 'heart' occurs in the sense of 'center' as in lev ha-ir (heart (of) the-city) - 'center/heart of the city' and lev ha-'inyan (heart (of) the-matter) - 'heart of the matter'. Although the heart is not at the
physical center of the body, it does play a "central" role in the functioning of the body. Comparably, lev ha-'ir - 'center/heart of the city' is the part of a city where much activity takes place. Furthermore, while lev ha-'ir is not necessarily at the precise geographical center of the city, it is more likely to be an inner section of the city as opposed to near its outskirts. The expression lev ha-'inyan - 'heart of the matter' refers to a much more abstract 'heart'. Although lev ha-'inyan can be reached, it is not physically findable the way that lev ha'ir - 'center/heart of the city' is. Compare the following sentences.

13) ha-xanut sel grossman nimcet
    the-store of Grossman is-found

    bɔ-lev ha-'ir
    in-heart (of) the-city

Grossman's store is in the heart of the city.

14) *hitvakxu sa'atayim vɔ-lo mac'u 'et
    they-argued two hours and-not they-found OBJ

    lev ha-'inyan
    heart (of) the-matter

15) hitvakxu sa'atayim vɔ-higi'u
    they-argued two hours and-they-reached

    lɔ-lev ha'inyan
    to-heart (of) the-matter

They argued for two hours and got to the heart of the matter.

Example (#14) is unacceptable in part because of the presence of the verb mac'a - 'they found'. The verb maca - 'find' locates something which in some sense is physically tangible. Unlike xanut - 'store' (example #13), lev ha-'inyan - 'heart of the matter' is not physically tangible. In contrast, the object of the verb higi'a - 'reach' need not be something which is physically tangible (example #15).
The body part term 'ecem - 'bone' is used metaphorically in the sense of 'essence' or 'substance' as in 'ecem ha-inyin - 'essence of the matter' and 'acm-o - 'himself'. Physically and tangibly, the bones inside the body provide the body with its essence or substance. In English *essence* is defined as "basic underlying or constituting entity" (s.v. *essence* #1a, Webster's Third). Thus, 'ecem ha-inyin - 'essence of the matter' is the substantive part of an issue. A literal morpheme for morpheme translation of the reflexive pronoun 'acm-o would be "his bone", metaphorically "his essence" or "his substance" and idiomatically 'himself'. Hence, the metaphorical transfer is not only from 'bone' to 'essence', but also from 'bone' to 'self', the defining feature of self-identity.

Another physical property of bones plays an important role in this metaphorical extension. In particular, bones are solid hard objects; they are substantive entities (cf. *seled*, above). It is interesting that other Semitic languages use different parts of the body for the reflexive pronoun. In Arabic, *nafs* - 'soul' is the term to which pronoun suffixes are attached to form reflexive pronouns. Thus, for example, *nafs-o* - 'himself' literally means "his soul". And in Geez *rasing* - 'head' is the stem of the reflexive pronouns--*rasing-o* - 'himself' is literally "his head".

The internal organ sense of the term *beten* - 'stomach' is extended metaphorically in the naming of internal parts of things outside the body part domain. For instance, as the head noun in the compounds *beten ha'adama* (stomach (of) the-earth) - 'bowels of the earth' and *beten ha-oniya* (stomach (of) the-ship) - 'hold of the ship', *beten* designates inside parts. In addition, the internal body part *beten* - 'stomach' is a container which may be full as shown in example (#16).

16) ha-beten sel-i mle'a 'oxel
the-stomach of-mine full food
My stomach is full of food.
Similarly, beten ha-'adama - ‘bowels of the earth’ and beten ha-'oniya - ‘hold of the ship’ are also container-like things. Some examples follow.

17) ma'ayanot xamim nov'im springs hot-pl. gush forth

mi-beten ha-'adama from bowels of the earth

Hot springs gush forth from the bowels of the earth.

18) hit'inu 'et ha-maxoniot ha-xadasot they-loaded OBJ the-cars the-new-fem.pl.

ba-beten ha-'oniya yaradnu in-hold of the-ship we-went-down

li-r'ot 'otan to-see them-fem.pl.

They loaded the new cars in the hold of the ship—we went down to see them.

In both cases it is clear that beten refers to an internal container. In (#17), water can only gush forth from a place in which it is being held; in (#18), things are loaded into containers which hold them.

The metaphorical extension of the body part term cavar - ‘neck’ is particularly interesting because it is based upon both the shape and the position of the body part. As noted above (section 4.2), the position of cavar - ‘neck’ determines its status as a transitional link between the head and the trunk. The compound noun cavar ha-bakbuq (neck (of) the-bottle) - ‘(the) bottleneck’ refers to the narrowed area of the upper part of a bottle. This compound would not be used for the upper portions of containers that are not narrowed nor for containers that are narrowed at the bottom. The compound noun cavar ha-bakbuq - ‘(the) bottleneck’ may be a calque from English bottleneck. Both the English and the Hebrew have a more figurative sense which is primarily based on the shape of the
body part. In English the term bottleneck refers to a narrowed area, for example, in a stretch of road where traffic is obstructed. The term is used comparably in Hebrew as shown in example (#19).

19) ha-keta beyn kikar cion va-taxanat the-section between Zion Square and station 'eged hu cavar ha-bakbuk sel ha-'ir Egged is the-bottleneck of the-city

The section between Zion Square and the Egged station is the bottleneck of the city.

The compound noun cavar ha-rexem (neck (of) the-uterus) - '(the) cervix’ names the narrowed outer end of the uterus. Thus, it seems that the metaphorical transfer of cavar - ‘neck’ based on the shape of the body part occurs within the body part domain as well as outside of the domain. Note that the English term cervix, as used by the expert observer, comes from Latin cervix - ‘neck’.

6.1.4 Size

As discussed above (section 4.3), the term guf has two senses within the body part domain— it names the entire body and it names the trunk, a major portion of the body in terms of its size and in terms of its importance to the body. The extended sense of the term guf - ‘main part’ as in guf ha-'avoda - 'main part of the work' (i.e. ‘body of the work’) seems to derive from the ‘trunk’ sense of guf. An example follows.
20) dan gamar li-xtov 'et guf ha-’avoda
Dan finished to-write OBJ body (of) the-work
hu ’adayin carix li-xtov ’et ha-hakdama
he still must to-write OBJ the-introduction
v-’ha-siyum
and-the-conclusion

Dan finished writing the body of the work—he
still has to write the introduction and the conclusion.

In terms of size and in terms of its importance, _guf ha-’avoda_ - ‘body of the work’ is the
major portion of the work. Similarly, _guf ha-’oniya_ (main part (of) the-boat)–‘(the) hull’
names the major portion of a ship in terms of its size and its importance to the function­
ing of the ship. This is based on the implication that _guf_ is not the whole thing.

Note that _guf_ is comparable to _’ecem_ - ‘bone’ since both can be used to describe the
essence: _guf ha-’inyan_ (body/trunk (of) the-matter) and _’ecem ha-’inyan_ (bone (of)
the-matter) are equivalent and mean ‘the essence of the matter’.

The term _guf_ is also used in the sense of ‘person’ as in _guf rišon_ - ‘first person’, _guf_
šeni - ‘second person’, etc. This sense of the term _guf_ is illustrated in sentence (#21).

21) ha-sipur masupar b-’guf rišon
the-story is-told in-person first
The story is told in the first person.

The first person voice in a narrative is the direct manifestation of the narrator in a way
comparable to the way in which the body is the physical manifestation of a person. In
English, _to harm his person_ is to physically harm someone’s body. Related to this is the
use of the term _parcuf_ - ‘(unattractive) face’ to refer to an individual—‘someone’. This
slang usage, illustrated in example (#22), indicates that the speaker does not think highly
of the person designated with the term _parcuf_. This is somewhat comparable to the
English expression *what's his face*.

22) *ha-parcuʃ ha-ze me'iz la-daber*
   *the-someone the-this dares to-speak*
   *This so-and-so dares to speak.*

The use of *guf* in example (#21) is an instance of metonymy; the voice of the person is replaced by the person's body. *parcuʃ* in example (#22) is also an instances of metonymy, more specifically synecdoche; the face, a part of the person, represents the whole person.

A number of terms in the body part domain of Modern Hebrew are extended in use to the domain of measure terms. More specifically, several terms that name parts of the arm also name units of distance. These include *'ama* - 'lower arm, forearm' or 'cubit'; *'ecba* - 'finger' or 'finger(breadth)'; and *zeret* - 'pinky' or 'span'. For each of the Hebrew terms mentioned above, the first sense given is the body part sense and the second is the measure sense of the term. (See also section 4.5.1) With *'ama* and *'ecba*, the measure sense of the term derives from the size of the body part. For *'ama* it is the length of the body part and for *'ecba* it is the width of the body part that serves as the basis of the extension. With *zeret* the measure sense of the term is not based solely on the size of the body part. The size of the pinky contributes to the length of the span, but it is not the sole determiner of the hand span size. Note that all of these terms occur in Biblical Hebrew and are used in literary Modern Hebrew, but not in the colloquial language. In addition, the term *regel* is used as a translation of the English measure term *foot*; it is familiar to speakers of Modern Hebrew from translated literature.

Although not a body part term in English, the word *cubit* - 'the length of the forearm from the elbow to the tip of the middle finger'--is ultimately related to the Latin term *cubitum/cubitus* - 'elbow, cubit'. It is reasonable to presume that the measure sense of the Latin term derives from the body part sense of the term in the same way that the
measure sense of the Hebrew term 'ama derives from the body part sense of that term.

Similarly, the measure term ell, whose Old English reflex eln - 'ell' constitutes part of the body part word elbow, is akin to Old Norse eln - 'forearm, ell' and Latin ulna - 'elbow'. Comparable to the Hebrew term 'ecba, the English term finger also names a unit of length based on the width of a finger as apparent from the phrase a finger of whiskey.

Hebrew only uses body part terms from the upper part of the body as names for some units of measure. In addition, since no numerical value is given and since the size of a particular body part may differ from person to person, the measure sense of each term is vague. Along with the measure terms that are etymologically related to upper body part terms (cubit, ell), English uses one upper body part term as a measure term (finger) as well as one lower body part term. The word foot is a unit of length based on the length of a human foot. Human feet may differ in size from person to person, but the measure term has been stipulated with a numerical value—twelve inches.

6.1.5 Miscellaneous

Apart from those body part terms already discussed as having metaphorical extensions outside the body part domain, two other lexical items are worth mentioning separately. These are 'ayin - 'spring' which might be related to 'ayin - 'eye' and regel - '(one) time' which might be related to regel - 'foot'. These terms are considered separately because for each pair of words, it is not clear whether the words are related semantically by some kind of metaphorical extension or if they are examples of accidental homophony. Traditional scholars of the Hebrew language go to great lengths to determine semantic connection between words which share a common consonantal root. Even-Shoshan (1982) suggests that 'ayin - 'spring' might be an extension of 'ayin - 'eye', the source of tears. The semantic connection between the two words derives from a common function—both are sources of flowing liquids. Even-Shoshan (1982) also suggests that
regel - '(one) time' might be related to regel - 'foot' through their mutual connection to pa'am - 'once' whose original sense is 'footstep'. (There are a number of such uses of pa'am in Biblical Hebrew. See, for example, Isa. 26:6 and Song of Sol. 7:2.) Related to this is the expression šalōś ṭalātim (three times) to refer to the three major festivals pesaz - 'Passover', ḥāv'ot - 'The Feast of Weeks', and sukot - 'Tabernacles'. During the time of the Temple people went on pilgrimages to Jerusalem on these three occasions to celebrate the festival. Thus, there seems to be a connection between regel - '(one) time' and regel - 'pilgrimage, feast'.

While these connections may seem far-fetched at first, one's imagination need only be slightly stretched to find them plausible. Remarks made by Michel Bréal in an essay entitled 'The History of Words' are fitting here: "The changes which have supervened in the meaning of words are as a rule the work of people...we must be prepared...for associations of ideas, sometimes unexpected and strange, but always easy to follow" (1900:279-280).

6.1.6 Summary

The summary of this section is divided into two parts: some of the data given in the course of the discussion is reviewed for the purpose of examining those things outside the body part domain which seem to be structured in ways which parallel the structure (and structures) of the human body; body part terms used metaphorically are categorized in two different ways each of which reveals something about the nature of metaphorical extension of these terms.

It would be impossible to list all of the things outside the body part domain of Modern Hebrew named with body part terms. The examples used in the above discussion are only representative. They were chosen for inclusion here in part because they illustrate different aspects of metaphor, in part because they are easily elicited from native
speakers, and in part because they often appear in (standard) Hebrew dictionaries. The items listed in Table 1 are limited to those examples already cited which designate physical entities outside the body part domain that name more than one part with a term from the body part domain. When two parts of an object are named with body part terms it is possible to examine the ways in which the structuring of that object corresponds to the structure of the human body.
binyan - building

'šeled ha-binyan - frame of the building  skeleton
pney ha-binyan - surface of the building  face

har - mountain

roš ha-har - (the) summit  head
ragley ha-har - foot of the mountain  foot
gav ha-har - back of the mountain  back

'oniya - ship

guf ha-'oniya - hull of the ship  trunk
beten ha-'oniya - hold of the ship  stomach

šulxan - table

roš ha-šulxan - head of the table  head
ragley ha-šulxan - legs of the table  leg

yam - sea

pney ha-yam - surface of the sea  face
sfat ha-yam - (the) seashore  lip
ləšon yam - fjord  tongue

na'al - shoe

bəšon na'al - (shoe) tongue  tongue
'akev - heel  heel

'adama - land, earth

pney ha-'adama - surface of the land  face
beten ha-'adama - bowels of the earth  stomach

šum - garlic

roš šum - bulb of garlic  head
šen šum - clove of garlic  tooth

Table 1
It seems that the general structuring of a binyan - 'building' corresponds to the structuring of the human body at least as far as can be determined from selel ha-binyan - 'frame of the building' and pney ha-binyan - 'surface of the building'. In a body and in a building selel names an internal all-over part (set of parts); in a body and in a building panim/pney- names a readily visible external surface area. Note that in both of these collocations the metaphor is based on the position of the body part. Similarly, the structuring of a har - 'mountain' parallels the structure of the human body. In both, ros names the top-most part, ragleyim/ragley- refers to the lowest part, and gav designates a back part. As was the case with the terms which refer to the parts of the building, in each of these the metaphor also derives from the position of the body part.

The terms guf ha-'oniya - 'hull of the ship' and beten ha-'oniya - 'hold of the ship' also suggest a structural correspondence between an 'oniya - 'ship' and the human body. In both guf names a main part in terms of size and importance and beten designates an internal container-like part.

When describing the structuring of the human body, the canonical vertical orientation is presumed. ros ha-sulzan - 'head of the table' and ragley ha-sulzan - 'legs of the table' presume different orientations of the human body as do sfat ha-yam - '(the) seashore' and pney ha-yam - 'surface of the sea'. (In each pair, the first item of the pair presumes a vertical orientation and the second member presumes a horizontal orientation.) In order to say that the structuring of sulzan - 'table' or yam - 'sea' corresponds to the structuring of the human body, it is necessary to allow for the imposition of two different orientations.

Based on the two examples given, it does not seem that na'ul - 'shoe' corresponds to the human body in terms of their structuring. This is no doubt in part a function of the fact that one of the parts of a shoe--lson na'ul - '(shoe) tongue'--uses a metaphor based
on shape and the other one—'akev - 'heel' is a metaphor based on position. While pney ha-'adama - 'surface of the land' is similar to panim - 'face' since both designate visible external surface areas and beten ha-'adama - 'bowels of the earth' is similar to beten - 'stomach' since both refer to internal container-like parts, the structuring of 'adama - 'land' does not seem to correspond to the structuring of the human body. Although beten - 'stomach' is an internal part, it is not an internal part whose corresponding external part is panim - 'face'.

Finally, it is possible although perhaps fanciful to conceive of ṣum - 'garlic' as being structured comparable to the human body in the same way that a ṣen - 'tooth' is inside the ros - 'head', so too is a ṣen ṣum - 'clove of garlic' "inside" a ros ṣum - 'bulb of garlic'.

When talking about the structuring of the human body or any other physical entity in the world, we are essentially talking about the relative position of parts. Given the limited amount of data in Table 1, it seems that the structuring of concrete objects outside the body part domain corresponds to the structuring of the human body when parts of the object are named with metaphorical extensions of body part terms based on the position of the body part. Furthermore, all parts of the object must assume the same orientation as the presumed orientation of the human body.

Tables 2 and 3 include lists of the body part terms covered in the discussion of metaphorical extension.
guf - trunk

**EXTERNAL**

Upper

ros - head
panim - face
parcuf - face
pe - mouth
šen - tooth
lašon - tongue
safa - lip

cavar - neck
yad - arm
beten - belly
gav - back

**INTERNAL**

All Over

šeled - skeleton
'ecem - bone

Upper

lev - heart
beten - stomach

guf - trunk

**Lower**

guf - trunk

regel - leg, foot
'akev - heel

**Table 2**

The terms given in Table 2 are organized according to readily apparent anatomical characteristics of the body part. The primary distinction is between external and internal parts; external parts are further divided between the upper part and the lower part of the body. Note that there are more metaphorical extensions of terms which name external parts than internal parts. There are only two metaphorical extensions of terms that exclusively name parts on the back of the body: gav - 'back' and 'akev - 'ankle'. Obviously, this is a result of only having a few body part terms for the back of the body. Among the terms for external parts, there are more metaphors with terms for parts on the upper body than the lower body. Most of the terms extended metaphorically from the
upper part of the body are names for the head and parts of the head. Again, this is in part a function of the fact that there are many named parts on the face. Among the terms for internal parts, two lexical items name parts that are all over the body: šeled - 'skeleton' and 'ecem - 'bone'. The other two name organs are situated in the upper part of the body: lev - 'heart' and beten - 'stomach'. Note, however, that this information is not a factor in the metaphorical extensions of lev and beten outside the body part domain.

Most of the metaphorical extensions of body part terms in Modern Hebrew presented here are based on similarities of shape, position, and size, all of which are physical features that must be visually perceived. Table 3 lists body part terms with metaphorical extensions according to the characteristic of the body part which is the basis of the metaphor.

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>SHAPE</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>šeled - skeleton</td>
<td>roš - head</td>
<td>roš - head</td>
</tr>
<tr>
<td>lašon - tongue</td>
<td>pe - mouth</td>
<td>panim - face</td>
</tr>
<tr>
<td>saf - lip</td>
<td>šen - tooth</td>
<td>saf - lip</td>
</tr>
<tr>
<td>regel - leg</td>
<td>lašon - tongue</td>
<td>gav - back</td>
</tr>
<tr>
<td></td>
<td>yad - arm</td>
<td>regel - foot</td>
</tr>
<tr>
<td></td>
<td>beten - belly</td>
<td>'akev - heel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lev - heart</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'ecem - bone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>beten - stomach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>guf - trunk</td>
</tr>
<tr>
<td>'ama - lower arm</td>
</tr>
<tr>
<td>'eeba - finger</td>
</tr>
<tr>
<td>zeret - pinky</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHAPE &amp; POSITION: cavar - neck</th>
</tr>
</thead>
</table>

Table 3
Among the body part terms given in Table 3, only a few have extended senses based on a function of the body part. These are seleh - 'skeleton' or 'frame'; lason - 'tongue' or 'language'; saf - 'lip' or 'language'; and regel - 'leg' or 'basis'. It has already been noted that the physical structure and the position of the body part seleh - 'skeleton' play a role in the extended sense of the term. It has also already been noted that aside from the extension based on function, lason - 'tongue' and saf - 'lip' have other extended meanings based on a physical characteristic—las on yam (sea tongue) - 'fjord' derives from the shape of the tongue and saf yam (sea edge) - 'seashore' derives from the position of the lip. It seems that even for those terms that are extended metaphorically based on function, physical properties of the body part are nevertheless recognized and acknowledged in some way. Given that visual perception seems to be an important factor in the creation and existence of metaphorical extensions of body part terms in Modern Hebrew, it stands to reason that the most visually perceivable parts of the body—i.e. those on the upper part of the body—would participate in these metaphors.

Within the body part domain of Modern Hebrew, there are various kinds of polysemy including part-whole polysemy of which surface-volume polysemy is a subtype, genus-species polysemy, and upper-lower polysemy. (See section 4.7 for a detailed summary.) The data presented here on metaphorical and metonymic uses of body part terms suggest that another kind of polysemy is relevant as well—polysemy by metaphorical extension, some quite close to a word's basic sense (e.g. am - 'lower arm, forearm' for 'cubit') and others requiring greater imagination (e.g. raglayim - 'legs' for 'basis' as in yeš raglayim la-davar - 'there's a basis for the thing'. Of course, polysemy by metaphorical and metonymic extension is not limited to the domain of body part terminology. It pervades the vocabulary operating across all kinds of semantic domains effecting a language diachronically and synchronically. It is clear that metaphorical extension is an
important factor in semantic change as well as in the existence of multiple meanings of lexical items at a single point in the history of a language. As Lyons states, "...polysemy—the product of metaphorical creativity—is essential to the functioning of languages as flexible and efficient semiotic systems" (1977:567).

6.2 Derivation

As mentioned above, 'extension' refers to two different, but related phenomena—'metaphorical and metonymic extension' and 'morphosyntactic elaboration', or derivation. Having covered 'metaphorical extension'. I shall now discuss 'morphosyntactic elaboration', or derivation.

Extension by derivation refers to one of a variety of derivational processes operating on a body part term the result of which is a morphologically and semantically more complex word which names, describes, qualifies, or designates an object or action. The derivational process changes the morphological structure of the word in one or more of a variety of ways and may also change the lexical category of the term. In other words, in this section I examine denominals derived from body part terms including nouns, adjectives, and verbs. Of utmost importance is the fact that the derived word is semantically related to the body part term from which it was derived.

As discussed above (section 2.2), content words—nouns, adjectives, and verbs—in Hebrew can be characterized in terms of two components—consonantal root and morphological pattern. While many of these lexical items have a tri-consonantal radical base and are related to other words in the language, especially verbs, some nouns are traditionally considered "primitive" (Gesenius 1910:225), "basic or non-derived" (Berman 1978:69). Gesenius himself pointed out that "...several names of members of the body in men or beasts..." (Gesenius 1910:225) are included in the group of "primitive" nouns. In the
present work, the predominance of morphologically simple monolexemic terms in the body part domain of Modern Hebrew has been noted along with the paucity of deverbal body part nouns and the small number of ingressive transfers to the body part domain. (See section 4.7)

Body part terms as well as other "primitive" nouns may serve as the basis of morphologically and semantically more complex words. The formal apparatus of Hebrew derivational morphology is such that the creation of vocabulary using native material is a relatively simple and straight-forward matter. It is easy enough to determine the consonantal stem of an existing noun and "plug it into" one of the many verbal or nominal morphological patterns. Similarly, other existing derivational processes (e.g. reduplication or suffixation) can be employed in the formation of lexical items.

What follows is a discussion about the various kinds of derivation or morphosyntactic elaboration involving body part terms in Modern Hebrew. It is important to consider the semantic motivation behind the derivation as well as the form and the meaning of these morphosyntactically elaborate words. Which body part terms serve as the basis for the derived words? What feature of the body part term is focused upon and lexicalized in the derived form? What morphological patterns are used? What, if any, is the correspondence between the form and the meaning of the morphologically complex term? How do these data fit into theories about word formation in Hebrew? What do the data reveal about the lexical semantic domain of body part terminology?

The order of presentation of derived words is nouns, adjectives, and verbs. This ordering suggests that deriving a noun from a noun is in some respect simpler than, for example, deriving a verb from a noun and in part to acknowledge the traditional treatment of nouns and adjectives together "under the category of 'substantives'" (Berman 1978:70).
6.2.1 Nouns

6.2.1.1 Body Part Root + Suffix

The first group of words to be discussed are derived nouns. The data presented below are organized according to the *miškal* — morphological pattern—of the derived word where for the most part this can be characterized as *Body Part Root + Suffix*. In addition, there are two other *miškalim* represented in these data as well as words which have been formed by reduplicating parts of the base word and by the blending of two other existing lexical items. The discussion begins with those derived nouns which are characterized as *Body Part Root + Suffix*.

A) Body Part Root + -a

<table>
<thead>
<tr>
<th>Bitna - lining</th>
<th>Beten - stomach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kfafa - glove</td>
<td>Kaf - hand (see section 4.5.1)</td>
</tr>
<tr>
<td>Piya - mouthpiece</td>
<td>Pe - mouth</td>
</tr>
<tr>
<td>Spout</td>
<td></td>
</tr>
<tr>
<td>'Ikvot - traces</td>
<td>'Akev - heel</td>
</tr>
<tr>
<td>(Plural of 'Ikva)</td>
<td></td>
</tr>
</tbody>
</table>

The derived nouns given in (A) are feminine gender nouns marked as such with the suffix -a. There is no unitary derivational process linking the nouns with the -a suffix to those without final -a. In strictly morphological terms, except for *piya* - 'mouthpiece' and *pe* - 'mouth' (where *piy-* is the construct form of *pe*), the -a form is never the straightforward feminine form of its "masculine" counterpart; for each pair of words, the relationship between the two *miškalim* is idiosyncratic—even the underlying vowel differs. In spite of this it is clear that for each pair of words listed in (A), the body part term is the root of the corresponding derived word and there is a semantic relationship between the two words, even though the entire set cannot be characterized in terms of a single semantic relationship.
Two of the derived terms given in (A) are clothing words: bitna - 'lining'; and kfafa - 'glove'. The terms bitna - 'lining' and beten - 'stomach' are semantically related in that they both name inside parts, the former an inside part of clothing and the latter an internal organ. Thus, it seems that the position of the body part serves as the basis of the extension. The word kfafa - 'glove' refers to an article of clothing worn on the body part named by the term from which it is derived. That there would be names for articles of clothing derived from body part terms is not particularly surprising given the purpose of clothing and given the physical closeness of clothing and the body. There is a metonymic link between body part terms and clothing terms. The English term glove is in fact related to a name for a part of the body also. The word glove has been traced back to a Germanic reconstructed form *lofa - 'palm of the hand'. There is a distinct difference between the Hebrew terms and their English equivalents, at least in terms of their form. The Hebrew clothing terms are much more obviously related to their corresponding body part terms than the English term. It is likely that a speaker of Hebrew could identify the consonantal stem of a derived word and perhaps even connect it with other semantically related words with the same consonantal stem. As for the English term, only a trained specialist with knowledge of the structure of the English lexicon and expertise in etymology is likely to make the connection between the clothing term and the corresponding body part term. It should be noted that there are a number of clothing terms derived from body part words in Modern Hebrew which surface in several different mifkalim each of which is discussed in the section on the appropriate miskal.

Each of the remaining two derived nouns given in (A) bears a different relationship to the body part term with which it is associated. The term piya designates either an instrument used by the mouth ('mouthpiece') or a mouth-like instrument ('spout'). The latter sense is evident from the compound piyat ha-kumkum (mouth (of) the
teakettle) - '(the) spout'. Whereas articles of clothing are worn on a particular part of the body, piya - 'mouthpiece' is used in the mouth and piya - 'spout' does not involve the use of the mouth at all. As already mentioned (section 4.5.2), the term 'akev - 'heel' is morphologically related to the verbal root 'KV - 'follow'. Obviously, 'ikvot - 'traces' derives some of its meaning from its relationship to the verbal root as well. With regards to the relationship between 'ikvot - 'traces' and 'akev - 'heel', 'ikvot - 'traces' is that which remains from 'akev - 'heel' when, for example, it has been placed in sand and then lifted out. Thus, 'ikvot is quite literally a trace of 'akev.\(^6\)

The morphological pattern of the data in (B) can be characterized as Body Part Root + -on. The data are divided into two groups, one of which designates something worn on the body part with which the derived word is associated and the other of which designates a diminutive.

\[ \text{B) Body Part Root + -on} \]

1) 'ecba'on - thimble  
   cavaron - collar  
   'ecba - finger  
   cavar - neck

2) sfamon - small moustache  
   batnon - small belly  
   'apon - small nose  
   yašvanon - small butt  
   safam - moustache  
   beten - belly  
   'af - nose  
   yašvan - buttocks

Although a thimble is not an article of clothing in the same way that a collar is, it is worn on a finger. As mentioned above, many clothing terms in Modern Hebrew derive from body part terms and the derived terms occur in a variety of morphological patterns, one of which is Body Part Root + -a and another of which is Body Part Root + -on.

As was the case with clothing terms of the pattern Body Part Root + -a, it is interesting to compare the Hebrew terms of the form Body Part Root + -on with their English equivalents. Whereas the Hebrew word 'ecba'on - 'thimble' is based on the term
'ecba - 'finger' (or 'index finger'), the English word *thimble* derives from the body part term *thumb*. The different etymologies of the terms might suggest different views of sewing given that a thimble is worn as a protection on the finger which pushes the needle. While the Hebrew term *'ecba'on* suggests that a thimble may be worn on any finger including possibly the thumb, the English term *thimble* suggests only the thumb. As anyone who sews can verify, when sewing towards oneself the thimble is worn on the index finger or possibly the middle finger; when sewing away from oneself the thumb pushes the needle through the fabric and hence the thimble is worn on the thumb. The Hebrew term *'ecba'on* allows either view; the English term allows only the latter view. Furthermore, given that there are a number of homophonous -on suffixes in Hebrew, it is not clear which of these occurs in *'ecba'on*. The term *'ecba'on* - 'thimble' has been grouped separately from *sfamon* - 'small moustache' and *bainon* - 'small belly', both of which are clearly diminutives (cf. *išon* - 'pupil', literally "little man"—*iš* - 'man + -on - diminutive suffix—in section 4.1). *'ecba'on* names something that is "worn" in a different way from *batnon* and *sfamon*—a thimble is added on to the body from an external source; bellies and moustaches, even small ones, are added on to the body from inside the body. While *'ecba'on* - 'thimble' is metaphorical, *batnon* - 'small belly' and *sfamon* - 'small moustache' are literal. Nevertheless, it seems possible to analyze *'ecba'on* - 'thimble' as *'ecba* - 'finger' + -on, diminutive suffix, given the size and shape of a thimble. In this case the morphological structure of *'ecba'on* and *thimble* would be parallel—the term *thimble* is also a diminutive as apparent from the suffix.

The Hebrew term *cavaron* - 'collar' is obviously related to the body part term *cavar* - 'neck'. Interestingly enough the English word *collar* is also related to the body part term *neck*, but in a much less obvious way. The term *collar* is ultimately related to the Latin word *collum* - 'neck'. As previously mentioned, both *'ecba'on* - 'thimble' and
cavaron - 'collar' are worn on the body part with which the word is associated. Unlike 'ecba' on, it does not seem possible to analyze cavaron as having been formed with a diminutive suffix.

The other two derived words given in (B) are also diminutives: 'apon - 'small nose'; and yasvanon - 'small buttocks'. They are similar to batnon - 'small belly' and sfamon - 'small moustache' in that they are literal and name parts of the body designated as small. They differ in that they name small parts with which one is endowed as opposed to small parts added on to the body.

Another set of derived nouns is given in (C). The morphological pattern of these nouns can be characterized as Body Part Root + -it.

C) Body Part Root + -it

<table>
<thead>
<tr>
<th>Noun</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>resit - beginning</td>
<td>ros - head</td>
</tr>
<tr>
<td>xazit - facade, front</td>
<td>xaze - chest</td>
</tr>
<tr>
<td>yadit - handle</td>
<td>yad - hand</td>
</tr>
<tr>
<td>karsolit - gaiter</td>
<td>karsol - ankle</td>
</tr>
<tr>
<td>bsonit - lingule</td>
<td>lason - tongue</td>
</tr>
</tbody>
</table>

Each of the derived words given in (C) is a feminine gender noun in part a result of adding the -it suffix to the body part stem. As has been the case with the other two sets of data presented here so far, there is a semantic relationship between the complex word and the corresponding body part term, but several different semantic relationships are needed to characterize all of the data in the set.

Both of the complex terms resit - 'beginning' and xazit - 'facade, front' seem to derive from the position of the body part with which they are associated. With resit - 'beginning', the position of the head at the top of the body serves as the basis of the extension. Here the -it suffix creates an abstract noun from a concrete noun, ros - 'head'. With xazit - 'facade, front', the position of the chest at the front of the
body serves as the basis of the extension. Notice that the English word *facade* is related to the body part term *face*, both of which derive from the Latin word *facies* - 'face'. Although both *rešit* - 'beginning' and *zašit* - 'facade' derive from the positions of the body parts with which they are associated, the -it suffix serves a different function in each.

The term *yadit* - 'handle' names an object used by the hand in some way. Thus, for example, *yadit ha-delet* - '(the) door handle' is that part of the door with which the hand makes contact in order to open the door. The -it suffix is a diminutive. As a diminutive suffix, -it occurs rather commonly in Modern Hebrew as for example in *nakbuvit* - 'small pore' from *nakbuv* - 'perforation' (itself a diminutive by reduplication from *nekev* - 'hole') and *luxit* - 'plate' related to *luax* - 'board'.

The term *karsolit* - 'gaiter' names an article of clothing worn on the body part with which it is associated: *karsolit* - 'gaiter' is worn around the ankle. Other clothing words derived from body part terms name articles of clothing worn on the body part. This is no doubt in part a function of the different physical structures of the particular body part. Derived nominals of different morphological patterns are used for names of articles of clothing, no matter how they are worn. The non-correspondence of form and meaning in derived nominals in Modern Hebrew is discussed further below.

The technical botanical term *lesonit* - 'lingule' is most probably a calque from Latin. In botany the Latin term *lingula* names a small tongue-shaped part of a plant. The motivation for the use of the Latin term is clear: *lingua* - 'tongue' and *lingula* - 'small tongue'. Thus, the Hebrew term *lesonit* is a morpheme by morpheme calque from Latin in which the suffix -it is a diminutive.

The derived nouns given in (D) are characterized as *Body Part Root + -iya*. Most of these complex terms name articles of clothing or parts of articles of clothing worn on or near the body part with which the term is associated.
D) Body Part Root + -iya

<table>
<thead>
<tr>
<th>Hebrew Term</th>
<th>English Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>gufiya - undershirt</td>
<td>guf - trunk</td>
</tr>
<tr>
<td>xaziya - bra</td>
<td>xaze - breast</td>
</tr>
<tr>
<td>motniya - vest</td>
<td>moten - waist</td>
</tr>
<tr>
<td>ktefiya - shoulder strap</td>
<td>katef - shoulder</td>
</tr>
<tr>
<td>micxiya - visor</td>
<td>mecax - forehead</td>
</tr>
<tr>
<td>'ozniya - earphone</td>
<td>'ozen - ear</td>
</tr>
<tr>
<td>rošiya - header</td>
<td>roš - head</td>
</tr>
</tbody>
</table>

For several clothing terms where Hebrew uses a complex term English has a compound form. Compare gufiya with undershirt, motniya with vest, and ktefiya with shoulder strap. In addition, the English terms do not always include a body part term. Compare gufiya with undershirt: the Hebrew term derives from the part of the body on which the article of clothing is worn; and the English term derives from the name of another garment under which this one is worn. While the connection between the forms xaziya and xaze is readily apparent, the connection between bra and a body part term is not. In fact, bra is a shortened version of brassiere which is ultimately related to the French term bras - 'arm'. Thus, the English term bra is etymologically related to a body part word, but it is unlikely that the average speaker of English knows this. Similarly, whereas the relationship between the forms micxiya and mecax is apparent, the relationship between visor and a body part term is not. The English term visor is etymologically related to the French body part word visage - 'face' (and ultimately to the Latin verb videre - 'see'), suggesting that a visor was originally something worn on the face. The etymology of the Hebrew term micziya suggests that it is worn on (or near) the forehead.

Notice that neither 'ozniya - 'earphone' nor rošiya - 'header' refer to articles of clothing, although 'ozniya - 'earphone' can be viewed as something that is worn. In particular, 'ozniya is worn on or in the ear. The term rošiya - 'header' is a hit of a soccer ball with the head. With both 'ozniya - 'earphone' and rošiya - 'header', it is necessary to use the body part with which the complex term is associated, albeit in different ways.
With 'ozniya - 'earphone' the ear is more like a patient or recipient and with rošiya - 'header' the head is the agent.¹⁹

Although there seems to be a high degree of correspondence between Body Part Root + -iya forms and the meaning of such words, it should be pointed out that there are many derived nouns with the suffix -iya in Modern Hebrew which have nothing to do with clothing. Some of these include: cimziya - 'vegetation' related to the verbal root CMX-'grow'; knesiya - 'church' related to the verbal root KNS-'gather'; and zanukiya - 'Hanukkah lamp', derived from zanuka - 'Hanukkah, Feast of Lights' related to the verbal root XNX - 'inaugurate, have a house-warming (of the Temple)'. In each case, the -iya suffix serves a different function and hence it is not possible to assign a single meaning to it.

As discussed earlier (section 4.7), many body part terms use the morphological dual for their plurals where the suffix of the word is -ayim. Thus, for example, the plural of šad - 'breast' is šadayim - '(two) breasts' and the plural of regel - 'leg, foot' is raglayim - '(two) legs, feet'. There are also derived words which name things outside the body part domain which can be characterized as Body Part Root + -ayim. The term yarkatayim - '(two) ends' is the dual form of yarexa - 'end', the morphological feminine of yarez - 'thigh', and occurs in the compound yarkatey ha-sfina (ends (of) the-ship) - '(the) stern of the ship'. The word moznayim - 'scale' is ultimately derived from the body part term 'ozen - 'ear' through the denominal verb 'tzen - 'balance' (See section 6.2.3). The term moznayim names the type of scale on which something is weighed by balancing it with an object whose weight is known. The scale is a kind of balance, literally "two balances".²⁰
6.2.1.2 Other Miṣkalim

All of the data presented in (A)-(D) can be characterized as *Body Part Root + Suffix*. There are other *miṣkalim*—morphological patterns—represented in derived nominals related to body part terms. One of these is the pattern CaCeCet mentioned above as denoting diseases, some additional examples of which are given in (E).

**E) CaCeCet**

<table>
<thead>
<tr>
<th>Derived Word</th>
<th>Body Part Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>damemet - hemophilia</td>
<td>dam - blood</td>
</tr>
<tr>
<td>kavedet - cirrhosis of the liver</td>
<td>kaved - liver</td>
</tr>
<tr>
<td>'acevet - neurosis</td>
<td>'ecev - nerve</td>
</tr>
<tr>
<td>šatenet - urosis</td>
<td>šeten - urine</td>
</tr>
</tbody>
</table>

Each of the derived words given in (E) names a disease of the body part with which the term is associated. In each case the consonantal root of the body part term has been extracted and plugged into the pattern CaCeCet. In most cases, the body part term has a tri-consonantal root as for example *kaved* - 'liver' (KBD) and *šeten* - 'urine' (STN).

With other terms the language resorts to different devices to ensure a tri-consonantal root. For example, with *damemet* - 'hemophilia' it seems that the underlying form of *dam* - 'blood', which is tri-consonantal, is used to create the "root" DMM.

There is another way to name diseases in Modern Hebrew. A compound noun whose first term is *daleket* - 'inflammation, infection' and whose second term is the inflamed or infected part may be used as for example, *daleket ha-prakim* (inflammation (of) the-joints) - 'arthritis' and *daleket re'ot* (infection (of) lungs) - 'pneumonia'. Notice that the morphological pattern of *daleket* - 'inflammation, infection' is CaCeCet.²¹

Two other word formation processes have been used in the derivation of complex nouns related to body part terms: reduplication and blending. Some examples of complex words formed by reduplication are given in (F).
F) Reduplication

<table>
<thead>
<tr>
<th>gufif - corpuscle</th>
<th>guf - body</th>
</tr>
</thead>
<tbody>
<tr>
<td>b'waw - heart</td>
<td>lev - heart</td>
</tr>
<tr>
<td>sfamfam - small moustache</td>
<td>safam - moustache</td>
</tr>
<tr>
<td>zkanakan - small beard</td>
<td>zakan - beard</td>
</tr>
</tbody>
</table>

The data in (F) illustrate different kinds of reduplication: reduplication of the final consonant as in *gufif* - ‘corpuscle’ from *guf* - ‘body’; and reduplication of the final syllable as in *sfamfam* - ‘small moustache’ from *safam* - ‘moustache’. These data also show that reduplication is used in the creation of expert terms such as *gufif* - ‘corpuscle’ from *guf* - ‘body’ as well as everyday terms such as *zkankan* - ‘small beard’ from *zakan* - ‘beard’. Note that although the term *gufif* - ‘corpuscle’ is technical in origin, it is used quite commonly. In all but one case (*b'waw* - ‘heart’), the reduplication creates a diminutive. Note that reduplication is used for other body part terms including *'af'af* - ‘eyelid’ (see section 4.1) and *lavlav* - ‘pancreas’ (see section 5.2).

The process of blending involves the joining of two or more existing words to create a new word. This can be done by deleting parts of the existing words and joining the remaining parts together or by joining together the two existing words as such. Two examples of derived words formed by blending one or more body part terms are *ragleset* - ‘maxillipedes’ and *senhav* - ‘ivory’.

The term *ragleset* - ‘maxillipedes’ is a blend of the body part terms *regel* - ‘foot’ and *leset* - ‘jaw’ in which the term *regel* has been shortened and attached to the term *leset*. The morpheme by morpheme translation of the term *ragleset* is ‘foot jaw’; *ragleset* names the part of a crustacean which is a foot that has turned into a jaw used for gathering food or emitting poison. The motivation for the blending of the two terms is clear. Although *ragleset* is a technical term in zoology, its morphological structure has the flavor of a folk term; *ragleset* appears to be more similar to a novel compound such as *footjaw*.
than to the Latin zoological term \textit{maxillipedes}. It is likely that the Hebrew term is a calque from the Latin perhaps by way of English where its use predates the revival of Hebrew as a spoken language. The term \textit{\check{e}nhav} - ‘ivory’ is believed to be a blend of the body part term \textit{\check{e}n} - ‘tooth’ and the Hebrew version of an Egyptian word \textit{’ev} - ‘elephant’ (Even-Shoshan 1982). The Hebrew version of the Egyptian word is \textit{hav}.

Assuming this etymology is correct, the morpheme by morpheme translation of \textit{\check{e}nhav} - ‘ivory’ is ‘elephant tooth’. The term \textit{\check{e}nhav} is an example of a blend in which two existing words are joined together without changing the form of either one. Unlike \textit{ragleset} - ‘maxillipedes’, the term \textit{\check{e}nhav} - ‘ivory’ is well-known among speakers of Modern Hebrew. This is no doubt in part a function of the different status of each word in the vocabulary and in part a function of the age of the word. \textit{ragleset} - ‘maxillipedes’ is a relatively new coinage; \textit{\check{e}nhav} - ‘ivory’ occurs in Biblical Hebrew.

As has been the case with other data presented here, doubling and blending are processes of word formation in Modern Hebrew in general and not only in the creation of derived lexical items related to body part terms. Some examples of doubling outside the body part domain are \textit{xelkik} - ‘particle’ from \textit{zelek} - ‘part’ and \textit{\check{e}manman} - ‘chubby’ from \textit{\check{e}amen} - ‘fat’. Some examples of blending outside the body part domain are \textit{ramzor} - ‘traffic light’ from \textit{remez} - ‘hint’ and \textit{\check{e}or} - ‘light’, \textit{kolno‘a} - ‘cinema’ from \textit{kol} - ‘sound’ and \textit{no‘a} - ‘move’, and \textit{\check{e}martaf} - ‘baby-sitter’ from \textit{\check{e}amar} - ‘watch, guard’ and \textit{taf} - ‘children’.

6.2.1.3 \textbf{Summary of Nouns}

The data presented here on nouns derived from body part terms in Modern Hebrew can be summarized as follows. Some of these derived nouns are folk terms and others are technical terms. Among the folk terms there are many names for articles of clothing. Among the technical terms there are many names for medically related people, conditions,
and processes. Whereas the technical terms can be characterized in terms of a one-to-one correspondence between form and meaning, the folk terms cannot be characterized in this way. A recapitulation of the different mîškalim used for clothing terms illustrates this point.

There are clothing terms derived from body part nouns in four of the mîškalim exemplified here. These include: Body Part Stem + -a as in bitna - 'lining'; Body Part Stem + -on as in cavaron - 'collar'; Body Part Stem + -it as in karsolit - 'gaiter'; and Body Part Stem + -iya as in gufiya - 'undershirt'. In addition, each of these mîškalim is used for a variety of other kinds of nouns including instruments such as piya - 'mouthpiece' and yadit - 'handle', diminutives such as batnon - 'small belly' and 'apon - 'small nose', and abstract nouns such as rosiya - 'header'. Furthermore, it is also possible to designate parts of articles of clothing with body part terms as for example gav ha-sveder (back (of) the-sweater) - 'back of the sweater', ecba'ot ha-kfafa (fingers (of) the-glove) - 'fingers of the glove', marpâkim mutla'im - 'patched elbows', and birkayim kru'ot - 'torn knees'. In each of these the body part term is the head noun of an expression, either a nominal compound or a noun + adjective phrase. Finally, there are also clothing terms that bear no relationship at all to body part terms Some examples are: xaca'it - 'skirt'; sarvul - 'sleeve'; and gerev - 'sock'. These data provide additional evidence for the non-correspondence of of form and meaning in Hebrew nominals.

6.2.2 Adjectives

6.2.2.1 -ı Adjectives

Perhaps the most common way of forming adjectives based on nouns in Modern Hebrew is the addition of the suffix -ı . The addition of the suffix -ı creates a word which denotes an attribute. Sometimes the derived word refers to one aspect or feature of the
body part; other times the derived adjective is more general, meaning ‘of or related to X’ where X is the body part. Some examples are given in (G).

G) Body Part Root + -i Adjectives

1) raśi - main, chief
   'ikvi - consistent
   lāsoni - linguistic
   groni - guttural
   bāvāvi - warm, kind
   šriri - muscular
   bsari - meaty

2) 'orki - arterial
   vridi - venous
   kvedi - hepatid
   lavlabi - pancreatic
   re'ati - pulmonary

<table>
<thead>
<tr>
<th>Body Part Root + -i Adjectives</th>
<th>Derived Adjective</th>
</tr>
</thead>
<tbody>
<tr>
<td>raśi - main, chief</td>
<td>roś - head</td>
</tr>
<tr>
<td>'ikvi - consistent</td>
<td>'akev - heel</td>
</tr>
<tr>
<td>lāsoni - linguistic</td>
<td>lašon - tongue</td>
</tr>
<tr>
<td>groni - guttural</td>
<td>garon - throat</td>
</tr>
<tr>
<td>bāvāvi - warm, kind</td>
<td>bāvav - heart</td>
</tr>
<tr>
<td>šriri - muscular</td>
<td>šrir - muscle</td>
</tr>
<tr>
<td>bsari - meaty</td>
<td>basar - meat, flesh</td>
</tr>
<tr>
<td>'orki - arterial</td>
<td>'orek - artery</td>
</tr>
<tr>
<td>vridi - venous</td>
<td>vrid - vein</td>
</tr>
<tr>
<td>kvedi - hepatid</td>
<td>kaved - lier</td>
</tr>
<tr>
<td>lavlabi - pancreatic</td>
<td>lavlav - pancreas</td>
</tr>
<tr>
<td>re'ati - pulmonary</td>
<td>re'a - lung</td>
</tr>
</tbody>
</table>

The data in (G) are divided into two groups for several reasons. The adjectives listed in (G-1) are used in everyday speech while those listed in (G-2) are not. The derived words listed in (G-2) are technical terms used by trained specialists, if at all. For the most part, each of the items listed in (G-1) denotes an attribute related to the body part from which it was derived, but the set as a whole cannot be characterized in terms of a single attribute. In other words different features of the related body part have been lexicalized into the different adjectives. In contrast, the adjectives listed in (G-2) can be characterized as a whole set. Rather than focusing on a single feature, these adjectives regularly and literally refer to the body part in question. The derived adjectives in (G-1) are discussed below with particular attention to the feature of the related body part which has been incorporated in the adjective.

The denominal adjective raśi - 'main' is related to the body part term roś - 'head' and occurs in expressions such as kvēś raśi - 'main road' and raś raśi - 'chief rabbi'. The important function of the head and the position of the head at the top of the body play a
role in the meaning of the derived adjective. The word 'ikvi - 'consistent' is derived from the body part term 'akev - 'heel'. In some respect the preposition ba-'ikvot - 'following' (literally, on heels (of)) elucidates the relationship between 'ikvi - 'consistent' and 'akev - 'heel'. (Perhaps 'ikvi is a secondary derivative of 'akev - 'heel' being more closely related to 'ikvot - 'traces'.) Someone or something 'ikvi follows an established pattern as in the sentence hu ben 'adam 'ikvi maw'od - 'He's a very consistent man'. The derived adjective bšoni - 'linguistic' ultimately derives from the body part term lašon - 'tongue' and occurs in the phrases du-bšoni - 'bi-lingual' and ma'abada bšonit - 'linguistic laboratory'. Note that the adjective bšoni - 'linguistic' is based on the extended sense of lašon - 'language' and not the body part sense of the term. The term groni - 'guttural' is related to the body part noun garon - 'throat' and occurs in the expressions 'otiyot groniyot - 'guttural letters' and š'ul groni - 'guttural cough'. The position of the throat is incorporated into the meaning of the adjective groni - 'guttural'. The derived form bvavi - 'warm, kind' as in ziyuz bvavi - 'warm smile' and 'ixulim lavaviyim - 'kind, heartfelt greetings' is related to the body part term lev - 'heart' (as well as š'uv - 'heart'). Notice that bvavi - 'warm, kind' does not mean 'hearty'. Here it seems that the meaning of the adjective is based on an association made between the part of the body and its connection to the emotions. The adjective šriri - 'muscular' derives from the body part term šrir - 'muscle'. Notice that šriri - 'muscular' as in the phrase guf šriri - 'muscular body' describes an entity with lots of muscles and not an entity which is like a muscle in some way. Finally, bsari - 'meaty', a denominal adjective from the term basar - 'meat, flesh', occurs in the phrase 'ozel bsari - 'meaty food' or 'meat-like food'. The term bsari - 'meaty' differs from the other derived adjectives listed in (G-1) in that it does not incorporate a particular feature of meat.
6.2.2.2 -ani Adjectives

Another adjectival suffix used in the creation of attributives related to body part terms is -ani. Some examples of Body Part Root + -ani adjectives are given in (H).^24

H) Body Part Root + -ani Adjectives

1) gufani - physical  
   'acbani - nervous  
   basrani - fleshy  
   guf - body  
   'ecev - nerve  
   basar - meat, flesh

2) 'orkani - arterial  
   vridani - venous  
   kvedani - hepatic  
   'orek - artery  
   vrid - vein  
   kaved - liver

The terms given in (H-1) are comparable to those in (G-1) in that they are used in everyday speech; the terms in (H-2) are comparable to those in (G-2) in that they are not used in everyday speech. Furthermore, the derived adjectives in (H-2) are consistently general in meaning while those in (H-1) are not.

The term gufani - 'physical' is derived from guf - 'body' and occurs in the phrases xinux gufani - 'physical education' and maka gufani - 'physical contact'. The adjective gufani literally means 'of the body'—i.e. 'bodily'. The derived form 'acbani - 'nervous', related to 'ecev - 'nerve', is comparable to 'vriri - 'muscular' since they both refer to a great quantity of the body part. Thus, for example, the expression yeled 'acbani - 'nervous child' characterizes a child in terms of the amount of active or activated nerves. Similarly, keva 'acbanit - 'nervous stomach' refers to a stomach with much activity "nerve-wise". Note that 'acbani does not mean 'nervey'—i.e. 'with a lot of nerve'. A folk theoretical explanation of this involves people's beliefs that emotional and mental problems are located in the nerves. Thus with keva 'acbanit - 'nervous stomach', the folk theory is that an upset stomach is caused by emotional i.e. "nerve" factors.

Finally basrani - 'fleshy' (i.e. 'fatty, fleshy'), as in safayim basraniyot - 'corpulent lips'
and *cemaz basrani* - 'succulent plant', incorporates a physical feature of *basar* - 'meat'.

Each of the *-ani* adjectives listed in (H-2) has an *-i* counterpart with the identical meaning given in (G-2). (In the present data there is one occurrence of an *-i*/*-ani* pair of adjectives with a meaning difference: *bsari* - 'meaty'; *basrani* - 'corpulent.' The existence of the *-i*/*-ani* pairs of adjectives without any meaning difference seems to indicate a concern for creating words with stipulated meanings as well as a desire to make use of as many morphological patterns in the language as possible. This provides additional evidence that these derived adjectives have been created purposely.

The adjectives listed in (G-2) and (H-2) are considered technical for several reasons. They are derived from terms that name internal organs—i.e. terms used by the expert observer of the human body. (See section 5.2) While a speaker of Hebrew is likely to recognize these words as adjectives because of their forms and even determine their meanings, it is unlikely that they would ever use these terms. Furthermore, the one-to-one correspondence between form and meaning is a result of the fact that the meaning of the form has been stipulated. Stipulating meanings of words is characteristic of expert terminology. The technical terms given in (G-2) and (H-2) differ distinctly from the non-technical terms in (G-1) and (H-1) in another important way. Whereas the technical terms only have a literal meaning, the non-technical terms are not restricted to literal meanings. The meaning of any one of these technical terms is determinable from the meaning of the sum of its parts. The meaning of any one of the non-technical terms is not predictable since there is no way of determining a priori which of the features of the part that serves as the basis of the derived word will be lexicalized in that word.

The data presented here on derived adjectives related to body part terms are limited to two *miškalim*: *Body Part Root* + *-i* and *Body Part Root* + *-ani*. This was done mainly because these were the most frequently occurring forms in the data.25 Even this limited
amount of data illustrates the variety of kinds of information that can be incorporated into words derived from body part terms. In addition, these data provide additional evidence for the distinction between folk terms and technical terms, as well as the difference between real words and made-up words.

6.2.3 Verbs

As discussed above (section 2.2), content words—nouns, adjectives, and verbs—in Hebrew can be characterized in terms of two components—consonantal root and morphological pattern. Nouns (and adjectives) are classified according to their miskal—'pattern'; verbs are classified according to their binyan—'conjugation'. In the following section, I shall discuss verbs which are morphologically and semantically related to body part terms. In most cases it is clear that the verb is denominal; a few problematic cases are included as well. I am particularly concerned with characterizing the semantic relationship between the derived word and the body part with which it is associated. Assuming that a verb derived from a body part term incorporates the notion of using the body part, it is important to consider in what way the body part is used.

6.2.3.1 PA‘AL Verbs

The data are presented according to the binyan—conjugation—of the verb. The discussion begins with verbs in the pa‘al (or kal) conjugation, traditionally considered the "pure" stem (Gesenius 1910:115). Verbs in the pa‘al conjugation related to body part terms are given in (I).
I) PA'AL Body Part Verbs

<table>
<thead>
<tr>
<th>Verb</th>
<th>Meaning</th>
<th>Body Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>'araf</td>
<td>behead at the neck</td>
<td>'oref - neck, nape</td>
</tr>
<tr>
<td>'akav</td>
<td>follow</td>
<td>'akev - heel</td>
</tr>
<tr>
<td>naxar</td>
<td>snore</td>
<td>nxir - nostril</td>
</tr>
<tr>
<td>yarak</td>
<td>spit</td>
<td>rok - spit</td>
</tr>
<tr>
<td>zaken</td>
<td>be old</td>
<td>zakan - beard</td>
</tr>
<tr>
<td>pana</td>
<td>turn</td>
<td>panim - face</td>
</tr>
</tbody>
</table>

It seems intuitively obvious that the verbs 'araf - 'behead at the neck', 'akav - 'follow', and naxar - 'snore' are derived from 'oref - 'neck, nape', 'akev - 'heel', and nxir - 'nostril', respectively. In each case were it not for the existence of the body part, the action designated by a verb with the same consonantal root as the body part term would be odd. To illustrate, some example sentences demonstrating the use of these verbs are given.

23) ha-talyan 'araf 'et roš-o
    the-executioner "necked" OBJ head-his

    šel ha-ne'ēsam
    of the-indicted

The hangman beheaded the indicted man (at the neck).

24) ha-balas 'akav 'axarey ha-xašud
    the-detective "heeled" after the-suspect

The detective followed the suspect.

25) dan naxar kol ha-layla vū-lo natan
    Dan "nostriled" all the-night and-not gave

    li li-šon
    to-me to-sleep

Dan snored all night and didn't let me sleep.

In sentence (#1), the action designated by the verb 'araf occurs at the location of the body part 'oref - 'neck, nape'; the notion of location is incorporated into the verb. Notice that the obligatory object of the (transitive) verb 'araf is roš - 'head';
ros - 'head' is the affected object. As indicated in sentence (#24), in Hebrew 'akav - 'follow' does not take a direct object; rather, it is necessary to "follow after" someone. The body part 'akev - 'heel' is incorporated into the verb 'akav - 'follow' in that the heel is being followed. The Biblical Hebrew name ya'akov (rendered in English as 'Jacob') is the third person masculine singular imperfect form of the verb 'akav. According to the Bible, Ya'akov was so named because he was holding on to his older twin brother's heel when he was born (Ber. 25:26). At birth Ya'akov "follows" his older brother Esau by holding his heel. In (#25) it is difficult to imagine snoring without the nose or some part of the nose.\textsuperscript{25} With both 'araf - 'behead at the neck' and 'akav - 'follow', the body part affected by the action indicated with the verb is not on the person performing that action.

Both 'araf and 'akav can be used figuratively as shown in sentences (#26) and (#27).

26) 'im 'aliyat ha-mistar ha-xadas la-silton
with rise (of) the-regime the-new to-the-power

yə'arfu harbe rašim
will-be-"necked" many heads

With the rise to power of the new regime, many heads will roll.

27) ha-katav 'akav 'axarey
the-correspondent "heeled" followed

hištalšlut ha-mikre
development (of) the-incident

The correspondent followed the development of the incident.

In (#26), the verb has a figurative sense because nobody is actually beheaded; in (#27), the verb has a figurative sense because incidents don't have heels which can be followed the way human heels can be followed.
The verb *yarak* - 'spit' is similar to other verbs mentioned so far in that it is necessary for *rok* - 'spit' to exist before any action can be performed with it. However, *yarak* - 'spit' differs from these other verbs in that the noun related to it names a body fluid. Body fluids that serve as the basis of derived verbs are also the products that result from the action designated by the verb.

While it is clear that *zaken* - 'be old' and *zakan* - 'beard' are related morphologically and semantically, it is not intuitively obvious that the verb is derived from the noun, although traditional lexicographers (e.g. Even-Shoshan) do make this claim. Both the verb and the noun appear in the early books of the Bible, the only documentation of Biblical Hebrew. As such, which form appeared first cannot be determined. Perhaps in Biblical times having a beard implied being old. If so, *zaken* - 'be old' might have originally meant 'be bearded'. Of course, nowadays one need not be old to have a beard nor must someone who is old have a beard. While all adult males have beards, not all adult males let their beards grow.

Similarly, the verb *pana* - 'turn' and the body part noun *panim* - 'face' seem to be related, although their derivational history is not clear. The semantic relationship between *pana* - 'turn' and *panim* - 'face' is apparent—typically when someone turns their face is in the direction they turn. The English verb *face*, a back-formation from the body part word *face*, captures the connection between *pana* - 'turn' and *panim* - 'face'.

6.2.3.2 PI'EL Verbs

Verbs in the *pi'el* conjugation derived from body part terms are given in (J).27
J) PI'EL Body Part Verbs

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>'inpef</td>
<td>talk nasally</td>
</tr>
<tr>
<td>'iyan</td>
<td>look into</td>
</tr>
<tr>
<td>'izen</td>
<td>balance</td>
</tr>
<tr>
<td>ziyen</td>
<td>fuck</td>
</tr>
<tr>
<td>yida</td>
<td>throw</td>
</tr>
<tr>
<td>rigel</td>
<td>spy</td>
</tr>
<tr>
<td>'ifef</td>
<td>wink, blink</td>
</tr>
<tr>
<td>girger</td>
<td>gargle</td>
</tr>
<tr>
<td>dimem</td>
<td>bleed</td>
</tr>
<tr>
<td>libev</td>
<td>warm the heart</td>
</tr>
<tr>
<td>'icben</td>
<td>annoy</td>
</tr>
<tr>
<td>'af</td>
<td>nose</td>
</tr>
<tr>
<td>'ayin</td>
<td>eye</td>
</tr>
<tr>
<td>'ozen</td>
<td>ear</td>
</tr>
<tr>
<td>zayin</td>
<td>penis (slang)</td>
</tr>
<tr>
<td>yad</td>
<td>arm, hand</td>
</tr>
<tr>
<td>regel</td>
<td>leg, foot</td>
</tr>
<tr>
<td>'af'</td>
<td>eyelid</td>
</tr>
<tr>
<td>garon</td>
<td>throat</td>
</tr>
<tr>
<td>gargeret</td>
<td>Adam's Apple</td>
</tr>
<tr>
<td>dam</td>
<td>blood</td>
</tr>
<tr>
<td>lev</td>
<td>heart</td>
</tr>
<tr>
<td>'ecev</td>
<td>nerve</td>
</tr>
</tbody>
</table>

For the most part the denominal verbs derived from body part terms listed in (J) can be characterized as designating actions performed by the possessor of the body part where the body part is the instrument used to perform the action. The exceptions are dimem - 'bleed', libev - 'warm the heart', and 'icben - 'annoy'; these verbs will be discussed following the discussion of the others.

The verb 'inpef - 'talk nasally' is derived from the term 'af - 'nose'. The quadrilateral verb 'inpef is formed by duplicating the final consonant of the underlying form of 'af which is 'NP. Note that the sign itself imitates its signification: 'af is the basis of 'inpef in which nasalization represents nasal speech. An example illustrating the use of 'inpef is given in (#28).

28) ba-mesex ha-ra'ayon dan lo xadal in-during the-interview Dan not refrain-from me-lɔ-'ianpef from-to-"nose"

During the interview Dan didn't refrain from talking nasally.

As is apparent from sentence (#6), in Hebrew to "nose" is to use one's nose to talk nasally. In contrast, in English to nose as in to nose around in someone's business means
to pry and *to nose one's way into a crowd* means to push or move with the nose forward. Both of these have a negative connotation. In Hebrew, one achieves this effect with the phrase *doxef 'et ha-af* (push OBJ the-nose into) - 'stick the nose in' shown in (#29) 

29) dan doxef 'et ha-af la-inyanin sel 'axerim  
Dan pushes OBJ the-nose to-matters of others  
Dan sticks his nose in other peoples' business.

The verb *'iyen* - 'look into' is based on the body part term *'ayin* - 'eye'. The body part is the instrument with which the action is performed. Looking into something by definition involves using the eye as does seeing, although looking is more conscious and deliberate than seeing. The verb *'iyen* is illustrated in (#30).

30) dan 'iyen ba-mismaxim se-natnu lo  
Dan "eyed" into-the-documents REL-they gave to-him  
Dan looked into the documents that they gave him.

The verb *'iyen* incorporates the idea of looking carefully and examining. In this respect it is similar to the English denominal verb *eyeball* as in *eyeball the data*. Note that the Hebrew verb *'iyen* is different from the English verb *eye* as in *eye the girls on the beach* in the sense of noticing and watching with fixed attention. A comparable Hebrew expression for this is *sam 'ayin 'al* (put eye on) - 'take notice of' which can also have the sense of 'watch over' or 'keep an eye on'. These are illustrated in (#31) and (#32), respectively.

31) rina sama 'ayin 'al ha-gever 'im ha-safam  
Rena put-fem. eye on the-man with the-moustache  
Rena noticed the man with the moustache.
The verb 'izen - 'balance' is derived from the body part term 'ozen - 'ear'. This verb, which occurs in Biblical Hebrew, reveals folk knowledge about certain anatomical processes. In particular it suggests an awareness of the connection between the ear and balance. While the possessor of the body part is the one who performs the action designated by the verb, the body part is not the instrument with which the action is performed. However, the (internal) ear can be viewed as the instrument with which a person's sense of balance is controlled. Thus, in a metaphorical sense, the ear is the instrument with which the action of balancing is performed. Parts of the internal ear control balance "inside" the body. The ear, as a sense organ providing contact with the outside world, handles balance "outside" of the body. (See sections 4.1 and 5.2)

The denominal verb ziyen - 'fuck' is based on the slang term zayin which names the male sexual organ. The verb is used as in (#31) to designate the action of sexual intercourse.

It is also used figuratively as in 6-zayen 'et ha-moaz (to "penis" the brain) - 'to confuse, to bother'.

The verbs yida - 'throw' and rigel - 'spy' are derived from the body part nouns yad - 'arm, hand' and regel - 'leg, foot', respectively. The verb yida - 'throw' is somewhat restricted occurring in expressions such as l6-yadot 'avanim (to-"hand" stones) - 'to throw stones' and l6-yadot goral(to "hand" lot) - 'to cast lots' both of which
are of Biblical origin. Note that only ל-יָדָתָא 'בָּנָים - 'to throw stones' is used in the modern language. The body part with which the verb is associated is the instrument with which the action is performed. Notice that the Hebrew verb יָדָתָא - 'throw' differs from the English denominal verb hand which means 'give with the hand' although both involve using the hand (and arm). The verb רִגֵּל - 'spy' is illustrated in (#34).

34) דָּנִיָּלָה רִגֵּל בֵּא-הָבְּרָן
Dan was sent to "foot" in-the-north
Dan was sent to spy up north.

The Hebrew verb רִגֵּל - 'spy' lexicalizes the notion of going by foot which is somewhat different than using the foot to perform the action as spying involves the eyes as well. As discussed above (section 4.5.2), the Hebrew term רֵגֵל names the whole leg including the foot or just the foot. The action designated by the verb רִגֵּל - 'spy' obviously presumes the use of the whole leg. The verb רִגֵּל - 'spy' can be compared to the English denominal verbs foot and leg as in to foot it and to leg it out of here both of which refer to walking, an action which involves the use of the leg and foot.

Both 'יָפְף - 'blink, wink' and גִּרְגֶר - 'gargle' are reduplicated forms. The verb 'יָפְף is derived from the body part term 'אַפֶּף - 'eyelid' which is itself a reduplicated form. (See section 4.1) The verb גִּרְגֶר - 'gargle' is derived from the body part noun גָּרָון - 'throat' (or perhaps from גָּרָגֶרֶת - 'Adam's apple') by reduplicating the first two of the three consonants in the word (or by extracting the consonants from the stem of the word). Both 'יָפְף - 'blink, wink' and גִּרְגֶר - 'gargle' designate actions performed by the possessor of the body part associated with the verb and in each case the body part is the instrument with which the action is performed. Some examples follow.
35) ha-ma'avar me-xosēx la-'or garam
the-transition from-dark to-light caused
li lō-'af'ef
to-me to-"eyelid"
The transition from dark to light made me blink.

36) kše-yeš li kō'ev garon 'ani
when-there-is to-me pain throat I
magargeret bō-mey melax
"throat"(A's apple) with-water salt
When I have a sore throat I gargle with saltwater.

In (#35) the syntactic object of the verb 'if'ef is understood to be
'af'apayim - 'eyelids'--i.e. lō-'af'ef et ha-'af'apayim (to blink OBJ the-eyelids) - 'to
blink'.

As previously mentioned, dimem - 'bleed', lišev - 'warm the heart', and
'īcben - 'annoy' cannot be characterized in the same way as the other pi'el body part
verbs. The term dam - 'blood' names a body fluid which is the basis of the derived verb
dimem. Similar to rok - 'spit', dam - 'blood' is also the product resulting from the
action designated by the verb. An example illustrating the use of dimem is given in
(#37).

37) rina mdamamemet harbe bō-zman ha-maxzor
Rena "bleeds" a lot at-time (of) the-period
Rena bleeds a lot during her period.

While both the Hebrew verb dimem - 'bleed' and the English verb bleed (also related to
the noun blood) are intransitives, only the English verb can be used transitively. As a
transitive verb bleed means 'let blood' where the person who performs the action is not
the possessor of the product resulting from that action. The verb bleed is also used figura-
tively as in **bleed him dry** in the sense of ‘extort money’. A comparable Hebrew expression conveys a similar meaning: *macac ‘et dam-o* (sucked OBJ blood-his) - ‘exploit, take advantage’.

The body part term *lev* - ‘heart’ is the basis of the derived verb *libev* - ‘warm the heart’, the use of which is illustrated in (#38).

38) **mamaš məlabev li-r’ot ‘otam kol kax mə’ušārim**

It really "hearts" to-see them all so happy

As is apparent from (#16), according to the folk theory the heart is the object affected by the action designated by the verb. In addition, the possessor of the body part is not the performer of the action. The verb *məlabev* - ‘warm the weart’ is somewhat comparable to the English verb *hearten* meaning ‘encourage’ or ‘cheer’.

Both *dimem* - ‘bleed’ (DMM) and *libev* - ‘warm the heart’ (LBB) are derived from biliteral nouns. In each case the final consonant of the noun has been duplicated to create a triliteral verbal root. The quadriliteral verb *'icben* - ‘annoy’ derives from the adjective *'acbani* - ‘nervous’ (sharing its consonantal base ‘CBN) and ultimately is related to the body part term *'eev* - ‘nerve’. An example illustrating the use of *'icben* - ‘annoy’ is given in (#39).

39) **dān ’adayin mə’acben ’oti**

Dan still "nerves" me

Dan is still annoying me.

Dan still gets on my nerves.

As was the case with *libev* - ‘warm the heart’, the body part which ultimately serves as the basis of *'icben* - ‘annoy’ is the object affected by the action indicated in the verb and the possessor of the body part is not the performer of the action. Whereas the Hebrew
verb 'icben - 'annoy' refers to an action which increases the amount of nerves, the
English verb *enervate*, related to the body part term *nerve*, refers to an action which
decreases the amount of nerves.

6.2.3.3 *Hif'il* Verbs

Verbs in the *hif'il* conjugation derived from body part terms are given in (K).

K) *Hif'il* Body Part Verbs

<table>
<thead>
<tr>
<th>Verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>hivrix</td>
<td>cause to kneel</td>
</tr>
<tr>
<td>hixtif</td>
<td>put on the shoulder</td>
</tr>
<tr>
<td>hicbi'a</td>
<td>raise a finger</td>
</tr>
<tr>
<td>he'ezin</td>
<td>listen</td>
</tr>
<tr>
<td>histin</td>
<td>urinate</td>
</tr>
<tr>
<td>berex</td>
<td>knee</td>
</tr>
<tr>
<td>katef</td>
<td>shoulder</td>
</tr>
<tr>
<td>'ecba</td>
<td>finger</td>
</tr>
<tr>
<td>'ozen</td>
<td>ear</td>
</tr>
<tr>
<td>'seten</td>
<td>urine</td>
</tr>
</tbody>
</table>

Traditional grammarians characterize the *hif'il* conjugation as being the causative or
inchoative counterpart of the *pa'al*. Among the *hif'il* body part verbs given in (O) only
one is explicitly causative: *hivrix* - 'cause to kneel'. Note, however, that there is no
non-causative *pa'al* form of this verb in use in Modern Hebrew. The verb *hivrix* is derived
from the body part term *berex* - 'knee'; an illustration of its use is given in (#40).

40) *dan hivrix 'et ha-gmalim*
    Dan "kneed" OBJ the-camels
    Dan made the camels kneel.

Notice that the affected body part does not belong to the person performing the action.
Furthermore, it is not possible to *hivrix* oneself; the subject and the object of the verb
*hivrix* may not be identical.

Another derived verb which designates an action affecting the body part with which
it is associated is *hixtif* - 'put on the shoulder' as in the commonly heard army command
*haztef sek* ((you) "shoulder" weapon) - 'Shoulder arms!' (sek is an abbreviated form of
The body part *katef* - 'shoulder' is the affected object of the action and also designates its location. With *hixtif* - 'put on the shoulder', the affected body part does belong to the person performing the action.

Both *hici'â* - 'raise a finger' and *he'ezin* - 'listen' can be paraphrased as "use the body part". The way in which the body part is used depends in part on the physical structure and the anatomical function of the body part. A finger is a relatively flexible part of the body which can be raised; listening is the conscious and deliberate counterpart to hearing, an anatomical function of the ear. Some example sentences are given below.

41) talmidim nohagim la-hici'â
   students are accustomed to-'finger'

   ba-kita
   in-the-class

Students are accustomed to raising their hands in class.

42) ha-'ezraxim hicbi'â ba-bxirot
   the-citizens "fingered" in-the-elections
   The citizens voted in the election.

43) dan he'ezin la-xadasot
   Dan "eared" to-the-news
   Dan listened to the news.

In (#41) and (#42), two slightly different but obviously related uses of *hici'â* are illustrated; the common factor in these is getting recognition as a result of raising the finger. In the context of a classroom *la-haci'â* - 'to raise a finger' is more literal than in an election, although using *hici'â* for 'vote' suggests that voting was at one time done by raising a finger. In both (#41) and (#42) the body part with which the verb is associated is the instrument with which the action is performed. Notice the difference between the Hebrew verb *hici'â* - 'raise a finger' and the English denominal verb *finger* as in *finger the material* which can be paraphrased 'touch with the fingers'. The Hebrew verb lexicalizes a
feature of the physical structure of the body part and the English verb lexicalizes a func­tion of the body part. In (#43) he'ezin - 'listen' also refers to an action performed with the body part associated with the verb—people listen with their ears. Perhaps in some respect the verb he'ezin can also be considered a causative since the possessor of the body part causes the ear to hear in the act of listening.

Finally, the verb hištin - 'urinate' is derived from the noun seten - 'urine'. The action designated by the verb is performed by the possessor of the body part—i.e. body fluid—which is the product of the action. In everyday speech the more common expression for this action is la'asot pipi - 'to make pipi', a periphrastic verb using the children's term pipi. (See section 4.6) Note that although seten - 'urine' is medical and hence not rude, k-haštin is quite vulgar. Whereas it is acceptable for a man to say 'ani cariz h-haštin (I have to-urinate) - 'I have to take a piss', a woman would only say 'ani criza la-asot pipi (I have to-make peepee) - 'I have to pee'.

6.2.3.4 Summary of Verbs

The data presented here on morphosyntactically elaborate verbs derived from body part terms are summarized in Table 4. The verbs are divided into groups according to the role of the body part whose name serves as the basis of the derivation. The body part term is given alongside the verb.
Table 4

Derived verbs whose parent nouns are instruments designate actions performed by the possessor of the body part. Except for **hixtif** - ‘put on shoulder’, derived verbs whose parent nouns are affected objects designate actions performed by someone other than the possessor of the body part. Note that **hivrix** - ‘cause to kneel’, **hixtif** - ‘put on shoulder’, and **'araf** - ‘behead at the neck’, all indicate the location of the action. The verb **'araf** is slightly different than other verbs whose parent nouns are affected objects. While the neck is affected when the action is performed, the major consequence of the action is to the head. It is impossible to remove a neck without also removing a head. Derived verbs whose parent nouns are products designate actions performed by the possessor of
the body fluid.

In their discussion of denominal verbs in English, Clark and Clark (1979) include
denominal body part verbs in the category of instrument verbs—verbs whose parent nouns
denote instruments. While the majority of the Hebrew denominal body part verbs can be
categorized as instrument verbs, there are other categories of verbs as well. It should be
noted that the verbs included in the present discussion are all lexicalized verbs—none are
novel forms. It would be interesting to determine what role is assigned to parent nouns of
novel body part verbs as well as what kinds of body part actions would be designated by
these novel verbs. Of additional relevance is the binyan—conjugation—of the novel form.
In the present set of data there is no correspondence between the semantics of the verb
and the binyan in which it surfaces. Each of the other categories has verbs in the pa'el,
pi'el, and hif'il conjugations.33
Notes to Chapter 6

1. The morphological structure of a noun may change when it is in the construct state—the head noun of a smizut construction. (See section 2.2) These are included here because this morphological change is not derivational; it is simply the bound form of the noun.

2. The terms ‘egressive’ and ‘ingressive’ are taken from Stark (1969) who studied body part terms in Quechua and found a correlation between the morphological structure of a lexeme and its direction of extension. Simple lexemes egressively transfer and compound lexemes tend to include ingressively transferred terms.

3. Many of the examples given in this section are nominal compounds which take the form of smizut constructions. A brief description of some of the properties of this kind of construction as is relevant to the present work is given in section 2.2. The topic is discussed at greater length in Ornan (1964), Levy (1976), Berman (1978), and Petruck (1979b), each of which has a somewhat different theoretical approach. In the present discussion smizut forms that name things—concrete, abstract, natural, man-made—are cited with the closest English equivalent, not necessarily a (lexicalized) compound noun. Some nominal compounds (smizut forms) can be paraphrased with 'of' and some cannot. Whether or not a compound can be paraphrased with 'of' is in part a function of the semantic relationship between the two nouns in the compound and the degree to which the compound is lexicalized (reflected in part by its fixedness), as well as the degree and kind of metaphor in the compound, if any. For example, the compound noun bet sefer (house of book) - 'school' is lexicalized and a fixed form; it cannot be paraphrased with 'of' - *bait 'el sefer. This is so because it involves metaphor, not just colloca­bility. Other lexicalized compounds seem to be less fixed, as for example zanut sfarim (store of books) - 'book store'. Here the paraphrase zanut sfarim - 'book-store' is quite reasonable. A zanut sfarim - 'book-store' is literally a store with a lot of books, but a bet sefer - 'school' is not literally a house with a book. I am primarily interested in documenting the kinds of metaphorical extensions made with body part terms. Therefore, detailed discussions about the degree to which a smizut form is lexicalized, its fixedness, and the ability to paraphrase it with 'of' are not given.

4. yad la-banim - 'Monument to the Sons' is the name given to memorial monuments built in many cities in Israel honoring those who fell in combat. The monument differs from city to city, but usually includes a tower-like structure on which is written the names of those who have died.

5. There is an interesting subtle distinction between yad 'elohim, literally "God's arm", for either good or bad things and 'ecba 'elohim, literally "God's finger", just for good things that befall a person.

6. Perhaps this is an example of an 'area plural'—i.e. a plural form which designates an area such as panim - 'face' or outskirts. Another reason that the plural rather than the singular occurs might be that the singular is already used for something else. lo-regel is used in positive contexts such as lo-regel ha-zag ha-zanut
sgura (because-the-holiday the-store closed) - 'because of the holiday, the store is closed' in which δ-regel might be interpreted as 'on the happy occasion'. This usage is based upon the 'holiday' sense of the term regel which refers to holidays on which pilgrimages (on foot) to Jerusalem were undertaken.

7. All pronominal suffixes can be attached to the bound form of a word (– 'acm- is the bound form of 'ecem - 'bone'). Here, as elsewhere in this work, the third person masculine singular is used.

8. This sentence is adapted from one given in Ben-Yehuda and Ben-Amotz (1978:192).

9. See below for the possible extended use of regel - 'foot' as a time-related word.

10. Although several examples were given with 'ir - 'city', only one of them (lev ha-'ir - 'heart/center of the city') actually designates a part of the city. As such, 'ir - 'city' is not included in Table 1. Similarly, several examples were given with 'inyan - 'matter, issue'. These are not included in Table 1 since it is limited to names for parts of concrete objects.

11. The compound noun katef ha-har (shoulder (of) the-mountain) - 'shoulder of the mountain' is used in military/topographic Hebrew to name an area on the slope of a mountain that corresponds to the shoulder of the human body.

12. The term guf - 'trunk' occurs three times in Table 2 because it names a three-dimensional entity—external and internal—and because it is both part of the upper and the lower body assuming the division is made at the waist.

13. Besides the nouns, adjectives and verbs presented here, there are a number of other words in Hebrew related to and probably derived from body part terms. These include prepositions and prepositionals, adverbs, and conjunctions all of which are listed below.
Miscellaneous Body Part Derivatives

Prepositions and Prepositionals

'al yādey - by  yad - arm, hand
li-fney - before  panim - face
bi-fney - against  panim - face
kō-'eyn - sort of  'ayin - eye
kō-'eyn - in full view of  'ayin - eye
b-gabey - regarding  gav - back
bā-'ikvot - following  'akev - heel

Adverbs

mi-yad - immediately  yad - arm, hand
'al yad - next to  yad - arm, hand

Conjunctions

mi-pney - because  panim - face
b-regel - because  regel - foot
'ekev - because  'akev - ankle

Other than noting their existence, these words are not discussed in the present work.

14. Berman points out that there is a strong tendency to coin new verbs from the consonantal stems of so-called basic nouns. Some of these include the verb 'iyeš - 'man, staff' from 'is - 'man' (underlyingly 'YS') and the verb simel - 'symbolize' from semel - 'symbol' (1978:110). Denominal body part verbs are discussed at length in section 6.2.3.

15. I am grateful to Orin Gensler for his assistance in unraveling all of this.

16. In addition to those items listed in (A), the word kotfot - 'epaulettes', related to katef - 'shoulder', is heard in the army. The derived noun refers to an article of clothing worn on the body part named by the term from which it is derived.

17. The word resīt - 'beginning' is special for several reasons. First of all, it seems to be a secondary derivative of ros - 'head' being more closely related to rišon - 'first'. In addition, resīt - 'beginning' is a construct form occurring as the first term of compounds such as resīt kol (beginning (of) all) - 'first of all'. Finally, there does not seem to be another instance of the -it suffix creating an abstract noun from a concrete one.

18. It is curious that the diminutive suffix -it and the feminine adjectival suffix -it are homophonous. One is reminded of pairs such as kitchen, kitchenette and statue, statuette where the addition of the French feminine ending -ette denotes a diminutive.
19. The terms *patient*, *recipient*, *agent* are used more loosely here than usually used by grammarians dealing with case roles of noun phrases with respect to verbs.

20. In addition to the data cited in A-D, Even-Odem and Rotem (1967) list words which can be characterized as: 1) *Body Part Root* + *-ay*; 2) *Body Part Root* + *(t)an*; 3) *Body Part Root* + *-omet*; and 4) hit-*Body Part Root*-ut. Some examples of each type are given below.

1) *Body Part Root* + *-ay*

- damay - hematologist
- 'acakay - neurologist
- šitnay - urologist
- dam - blood
- 'ecev - nerve
- šeten - urine

2) *Body Part Root* + *(t)an*

- kilyatan - nephropath
- kevatan - gastropath
- re'atan - pulmonarius
- 'acakvatan - a neurotic
- šriratan - myopath
- kilya - kidney
- keva - stomach
- re'a - lung
- 'ecev - nerve
- šir - muscle

3) *Body Part Root* + *-omet*

- damomet - hematoma
- kvedomet - hepatoma
- 'acavomet - neuroma
- šriromet - myoma
- dam - blood
- kaved - liver
- 'ecev - nerve
- 'ecem - bone
- šir - muscle

4) hit-*Body Part Root*-ut

- hit'orkut - arteriolization
- hitmotnut - lumbarization
- hitkavdut - hepatization
- 'orek - artery
- moten - loin
- kaved - liver

Although these words are made-up and not used in the spoken language, they are mentioned here because of their similarity to existing words. Thus, for example, the words listed in (1) resemble other nouns with the agentive suffix *-ay* such as 'itonay - 'journalist' derived from *'iton* - 'newspaper' and zašmolay - 'electrician' derived from zašmal - 'electricity'. Similarly, the words in (2) resemble agent nouns of the form CaCCan, among other things, used for personality traits, such as pasdan - 'coward' related to PXD-‘be afraid’ and kamcan - ‘miser’ related to KMC-‘close, clench’. The words in (3) are suspiciously similar to disease nouns of the CaCeCet pattern such as cahov - ‘yellow’ and kalvev - ‘rabies’ related to the noun kelev - ‘dog’. (Derived words of this sort related to body part words are given in Table E.) There is also a suspicious similarity to the Hebrew suffix *-omet* and the Latin suffix *-oma* used to indicate tumors. Finally, the words in (4) which refer to an act or a process resemble the action nominal of the hitpa‘el conjugation which takes the form hitCaCCut,
as for example hitnagdut - 'opposition' from hitnaged - 'oppose' and hitkarsut - 'becoming cold' from hitkarer - 'become cold'. In all of the data cited in (1), (2), (3), and (4), the one-to-one correspondence between form and meaning is a function of the fact that the words have been made up.

21. Even-Odem and Rotem (1967) distinguish diseases named with daleket compounds—itis diseases—and diseases named with CaCeCet forms—for the most part -osis diseases. An example of this is daleket ha-kaved (infection (of) the-liver) - 'hepatitis' and kavedet - 'cirrhosis of the liver'.

22. The data in (G-2) as well as those in (H-2) were culled from Even-Odem and Rotem (1967).

23. When the -i suffix is added to lev the resulting form is libi - 'my heart'. The -i adjectival suffix and the first person singular possessive suffix are homophonous. Adding the adjectival suffix -i to bwas, a doublet of lev, avoids any potential ambiguity.

24. Note the similarity in form between Body Part Root + -ani adjectives and Body Part Root + -(t)an nouns. Body Part Root + -(t)an nouns are similar in form and meaning to CaCCan nouns which typically denote (pre)occupations, as for example pazdan - 'coward'. The adjectival suffix -i may also be added to CaCCan nouns: pazdani - 'cowardly'. There appears to be a connection between Body Part Root + -ani adjectives and CaCCan nouns.

25. There are other adjectives in Modern Hebrew derived from body part terms including sa'i - 'hairy' from se'ar - 'hair', rišon - 'first' from roš - 'head' and 'adom - 'red' from dam - 'blood'.

26. It is curious that Even-Shoshan (1982) suggests that the verb nazar - 'snore' may have been derived from the noun nazarayim - 'nostrils', but also lists the noun as being from the verbal root NXR.

27. The underlying form of pi'el verbs is CiCCeC. Since there are no geminates in Modern Hebrew the surface form of a tri-literal pi'el verb is CiCeC. Quadriliterals are most likely to surface in the pi'el conjugation because of the underlying form of pi'el verbs. The pi'el conjugation is also typically used for denominals. For a further discussion of this, see Berman (1978), especially Chapter 3.

28. As discussed above (section 4.3), zayin - 'penis' (slang) is an extension of zayin - 'weapon'. The verb ziyen was used in the sense of 'provide arms' which is based on the non-extended sense of zayin. The slang sense made this military use obsolete and hence the switch to ximes - 'equip with arms'.

29. The verb yida - 'throw' looks different than other pi'el verbs since its underlying consonantal root is YDH. As mentioned above (section 2.1), although the glottal fricative is not realized in contemporary Hebrew pronunciation, there are still surface phonetic manifestations of its underlying existence. The underlying form /yideh/ is realized as [yida] because in word-final position, a glottal lowers the preceding vowel.
30. The form *giren is certainly possible, but it does not exist.

31. There is an occurrence of a denominal body part verb with forms in two binyanim: hizkin - 'become old' from zaken - 'be old', the inchoative counterpart of zaken - 'be old'. Note, however, that hizdaken - 'become old' in the hitpa‘el conjugation is more commonly used in the spoken language today.

32. The underlying consonantal root of the verb hicbi’a is CB§ while that of ’ecba is ’CB§. It seems that the verb was formed by extracting three of the four consonants from the noun.

33. See section 2.2 for some discussion of the seven binyanim in Modern Hebrew.
Chapter Seven: Concluding Remarks

In this chapter, I will summarize the findings in the present study, discuss the implications of this work for the lexicon, and suggest areas for future research.

7.1 Summary

The present study uses the concept of 'frame' and 'prototype' for the characterization of the lexical semantic domain of body part terminology in Modern Hebrew. The words in the domain are divided into three categories, each corresponding to a mode of experiencing the body and each constituting an "experiential frame". The three categories are those of (1) the lay observer of the human figure as a visually perceived object; (2) the expert observer; and (3) the experiencer of body sensations. Each of these also corresponds to a perspective within which human understanding of the body is organized and within which terminologies expressing these understandings are anchored. The three perspectives are "external", "internal", and "personal", respectively. Within each perspective, or for each "experiential frame", it is possible to talk about prototypical terms and structures. This schematization of the domain allows for the inclusion of all of the relevant lexical items rather than only those linked partonomically, places the discussion of the data in the speaker's world, and offers a means of demonstrating and accounting for the multiple and simultaneous classifications of body part words in linguistic and cognitive terms.

The investigation of any lexical semantic domain presents the linguist with an opportunity to address a variety of topics regarding the words in the domain. Thus, aside from the unique characteristics of the body part domain mentioned previously (section 1.1), other sources of interest in this domain are, in principle, of interest for any lexical domain. These include the morphological structure of the terms, their motivation (if any), and the internal semantic structure of polysemous terms along with the semantic
basis for the polysemy. In addition the history of a word and its status as native or borrowed to the domain (and/or to the language) are relevant. In dealing with a set of nouns, the nature of the referents of those nouns is important. Finally, extensions involving the words in the domain can be discussed. All of these issues contribute to the assessment of domain-wide phenomena including semantic features used to organize the domain, patterns of polysemy in the domain, areas of lexical elaboration, areas of lexical density, and patterns of extension.

In the lexical semantic domain of body part terminology in Modern Hebrew, the following has been observed. Most of the terms in the lay observer's frame—i.e. terms for external body parts are simple unmotivated terms, native to the domain and native to the language. In addition, most terms are well-defined as opposed to vague. Unlike other areas of the vocabulary, many of these words make use of the morphological dual for their plural. The existence of paired parts and the possibility of viewing the body in halves, left and right or upper and lower, seems to have contributed to this. Lexically dense areas of the lay observer's frame include names for parts of the front and upper parts of the body, a result of the objective physical reality of the human body. In general, lexically elaborate areas of this frame include terms for parts involved in the sexual functioning of the male body, a linguistic manifestation of social and cultural factors.

Much of the polysemy in the domain is found in the lay observer's frame. The patterns of polysemy in the domain have been characterized according to the following types: whole/part including volume/surface; upper/lower; and genus/species. The various occurrences of the different kinds of polysemy are motivated by physical and functional characteristics of the part in question. One of the main differences between Hebrew and English is the way in which the two languages name the parts of the limbs. In Hebrew many of the parts of the limbs are named with polysemous terms. In fact, Hebrew limb
terms constitute a subset of terms in the domain which exhibits all of the different types of polysemy. In English, except for names of joints, none of the limb terms are polysemous within the domain. Note, however, that the two languages are similar with respect to other terms in the domain exhibiting volume/surface polysemy—i.e. terms for the eye, ear, and mouth.

In the expert observer's frame, or when taking the "internal" perspective, the following has been observed. The well-known internal parts tend to be named with simple unmotivated terms and less well-known parts are named with complex and compound terms, which are motivated. The more specific parts tend to be named with compound terms or noun + adjective expressions. Obviously, most internal part terms are well-defined since they name parts as opposed to areas. For the most part, the experiencer of body sensations, whose perspective is "personal", uses words from both the lay observer's frame and the expert observer's frame. Rather than providing additional information about the forms of words in the domain, the "personal" perspective offers some evidence for the knowledge that speakers have about the body and the way it functions. Furthermore, the "personal" perspective underlies some of the inner/outer shifts in the domain and can be seen as the starting point for a more detailed exploration of the kind of language used to express different sensations in the body.

Average speakers know less about the internal body than the external body. While they may know the names, they do not always know about all the physical characteristics and functions of all internal organs and connective tissues. Some evidence for this was provided by responses to the picture-based elicitation task in which informants could not always correctly identify a part having volunteered its name. In addition, some informants did not know the names of these parts. While the "personal" perspective, illustrated by the way people talk about pain, demonstrates that average speakers do have
some knowledge about the body, including the internal body, this knowledge is not as complete as that of experts.

It might be said that the mode of the lay observer of the human figure as a visually perceived object is the primary mode of thinking and talking about the human body. In other words, most of the terms known and commonly used by the average speaker are those which name external parts of the body. For the average speaker, the typical experience with the human body involves the parts which (s)he can see. While many of the terms used by the lay observer can be characterized in terms of the 'part-of' relationship, others must be characterized in terms of other relationships ('kind-of', 'in', 'on'). Similarly, the terms used by the expert observer must be characterized with more than one relationship. It is clear that a number of semantic relationships are needed to characterize the links between different words and groups of words in the lexical semantic domain of body part terminology. In the domain there is partonomic structure, taxonomic structure, as well as other kinds of structure.

The kinds of structure, the patterns of polysemy, the areas of lexical density, and the areas of lexical elaboration in the domain can be seen as deriving in part from the physical reality of the human body and in part from the way human beings deal with that reality. The referential domain for the words in the lexical semantic domain of body part terminology is the human body. In an important way, the structural complexity of the human body contributes to the domain-wide characteristics of body part terminology. Ultimately all of the parts of the body are connected, albeit some more closely than others. The human body is three-dimensional; it has a front, a back, and sides. It has moveable parts of various shapes sizes as well as imprecisely defined areas. It has orifices whose internal parts are accessible to the human eye and it has internal parts which are not visible under normal circumstances. The human body has protrusions and contours; it can assume

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various positions and configurations. Speakers perceive the physical characteristics of the human body and incorporate those perceptions as well as knowledge about the functioning of the body and beliefs about the body into names for parts of the body.

A language can expand its lexical capacity by giving new senses to existing words and by creating new words based on existing forms. The factors which contribute to the naming of parts of the body also contribute to extensions—metaphorical, metonymic, and morphological—based on body part terms. In other words, physical and functional characteristics of a body part serve as the basis of nouns, adjectives, and verbs derived from body part terms where the derived word names, describes, or designates an object or action outside the body part domain.

In the present work, most of the metaphorical extensions of body part terms in Modern Hebrew were based on similarities of physical, as opposed to functional, characteristics of the body part and the non-body part word. This suggests the importance of visual perception in this process. Morphologically derived words discussed here included nouns, adjectives, and verbs. Derived nouns can be categorized in terms of the different morphological patterns and word formation processes used in creating the word. The derived nouns included names for articles of clothing, man-made objects, and diseases as well as abstract nouns and diminutives. For the most part, it is not possible to characterize the set of derived nouns based on body part words in terms of a one-to-one correspondence between form and meaning. Derived adjectives based on body part terms either refer to one characteristic of the body part or are more general meaning 'of or related to X' where X is a body part. While many denominal body part verbs in Modern Hebrew can be categorized as instrument verbs—i.e. the parent noun denotes an instrument, there are other types as well including verbs whose parent nouns are affected objects and products. As was the case with derived nouns, there is no correspondence between the form
and the meaning of denominal body part nouns.

For both morphological and semantic reasons these words have been included in the present study. Morphologically, the connection between such words cannot be denied. In some cases, there is no change in the morphology of the word and it is clear that this is not purely coincidental. In other cases, the consonantal root of the body part term is used with a morphological pattern the combination of which is the derived word. Thus, as with other content words in Hebrew, morphologically derived words based on body part terms can be characterized in terms of a consonantal root and a morphological pattern. More specifically, these words are characterized in terms of a body part root and a morphological pattern.

As for the semantics, the meaning of a metaphorically or morphologically derived word is dependent in part on the meaning of the word from which it is derived. Understanding a derived word based on a body part word depends upon the ability to access the Body Frame. For example, it is necessary to know that roš - 'head' names a part at the top of the body in order to understand the phrase roš ha-memšala (head (of) the-government) - 'prime minister' and furthermore that the head has an important function to understand the adjective rast - 'main'. Similarly, one needs to know the role that the head plays in intelligence in order to understand the phrases roš tov (head good) - 'smart' roš katan (head small) - 'stupid'. (The latter is also used in army slang in reference to someone who does the bare minimum, never volunteering or initiating.) It seems to me that speakers must know (even if they don't know they know) that derived words are related to the words from which they are derived. Thus, it would seem that these items are part of the Body Frame.
7.2 Implications for the Lexicon

The term ‘semantic domain’ has been used by linguists to designate a set of words that have shared meaning and are of a single lexical category. One way of talking about the lexicon is in terms of the different sets of grammatical and lexical categories which are further sub-divided into groups according to a common feature of meaning. In the present work the concept ‘frame’ is used, among other things, to characterize the structure of the lexical semantic domain of body part terminology. I would like to suggest that in a more general way the concept ‘frame’ can be used to provide a structural organization for the lexicon as a whole. The items in a frame are related because of a common feature of meaning. However, a frame is bigger than a domain since it includes metaphorically and morphologically derived words from the domain as well as phrases and expressions using domain words. A frame includes a domain; the items in a frame are of more than one lexical category; and the size of these items is not limited to the word.

Viewing the domain as a frame within which there are smaller and overlapping frames offered a way of talking about basic and peripheral terms, the different semantic relationships that link the terms, and various kinds of polysemy. In viewing a larger area of the lexicon as a frame, it is possible to talk about the same sorts of things. There will be items in the frame that are basic and others that are peripheral, but all are included. There are a variety of relationships that link the terms in the frame including those of metaphor, metonymy, and morphological derivation. Frames provide an account of polysemy within the set of body part terms as well as for polysemy by extension-i.e. when a word comes to name something outside the domain. Similarly, morphologically derived terms based on body part terms can be seen as a kind of extension, one which involves morphosyntactic elaboration. The body part sense of a term is taken from the body part domain. Derivatives of body part terms are anchored in the domain although they belong
to different smaller frames within the Body Frame.

The concept of a prototype figures in here as well. For example, a prototypical *regel* - 'leg, foot' is a part of the body; the word belongs to the domain of body part terminology. The prototypical frames for derivatives of the term will not be the body part domain. For example, *ragley ka-sulzan* (legs of the table) - '(the) table legs' and *ragley ha-kar* (feet of the mountain) - 'foot of the mountain' name parts of a table and mountain, respectively. Their prototypical frames might be the "furniture frame" and the "topography frame", respectively. Similarly, the denominal verb *riegel* - 'spy' might prototypically belong to a domain of verbs within the "espionage frame". Of course, each of these frames may contain many frames and will overlap with other frames.

While the Body Frame constitutes only a small section of the lexicon, it can serve as a model for the lexicon in general. Although different in scope, the suggestion being made here is consistent in spirit with the organizing principle behind Matisoff's Tibeto-Burman Etymological Dictionary, exemplified by his study of body part terminology. Matisoff states, "the kind of study we have in mind focuses on one particular area at a time, exploring its internal structure in depth and tracing its interconnections with other areas as necessary" (1978:147).

7.3 Future Research

Given this sort of organizational principle for the lexicon, certain areas for future research can be suggested. Work on lexical universals of body part terminology (Brown, 1976; Andersen, 1978) is limited to names for external parts. Are there lexical universals of internal parts? Is it the case that all languages have names for certain internal organs? If so, which organs? Do these names tend to be of a particular morphological type—i.e. simple, complex, or compound? Do the patterns of naming which obtain for external body part terms also obtain for internal body part terms? How does (the lack of)
knowledge about the internal body bear upon the naming of internal parts. Are there universal patterns of extension for these terms? In the sense of 'extension' used here, this includes metaphorical and morphologically derived uses of body part terms. Only a systematic study of the 'Body Frame', which includes names for internal organs and other parts along with metaphorical and morphologically derived uses of body part terms, in a wide variety of geographically well-distributed and genetically unrelated language will provide answers to these questions.

The human body is universally the same: only certain parts of the body are used for particular functions, some of which are taboo. Are these parts (and their functions) universally taboo so that languages will tend to have lots of ways of referring to them? In other words, are there universals of lexical elaboration in the body part domain? Related to this is the issue of using non-human animal body part terms (e.g. beak, claw, paw, fang, and mane) to designate comparable parts of the human body in a derogatory or humorous way. Do languages generally use non-human animal body part terms in this way?

For a variety of reasons, I considered only nouns, adjectives and verbs, although some others exist as well. For example, there are prepositions such as 'al yodey (on hands (of)) - 'by', li-fney (to-face (of)) - 'before', and bi-fney (in-face (of)) - 'against' all related to (and probably derived from) body part terms as suggested by the literal translations. These prepositions figure into the Body Frame. There are other cases of prepositions used as body part terms as for example the English word behind as a euphemism for the buttocks. Recall that the Hebrew term tazat - 'ass' is historically related to the word tazat - 'below'. Other languages use different parts of speech for parts of the body. For instance, Tarascan, an American Indian language, has body part suffixes which are part of a large set of suffixes of space. A Tarascan body part word consists of a root, one or more
suffixes including the body part suffix, one or more inflectional morphemes, and a postposition. The body part suffix doesn’t occur in isolation, only as part of a string of morphemes which makes up the body part word. Thus, for example, the body part suffix *su* - ‘arm’ occurs in the word *aŋa-su-ri-ni* meaning ‘to stop’, ‘to raise the arm’, or ‘to become erect’ (Friedrich 1969b:7-9).

Another relevant question is to what extent and how do other languages exploit their own word formation devices and processes for the creation of lexical items? As mentioned above, for many denominal verbs in the Body Frame the parent noun names a body part which is the instrument performing the action designated in the verb. The kind of action is in part a function of the physical characteristics of the part. Different languages may create denominal verbs based on the same body part which do not designate the same action. For example, consider the English verb *hand* meaning ‘give’, the Hebrew the verb *yida* meaning ‘throw’, and the Finnish verb *kädella* meaning ‘greet (by handshake)’. In each language, the body part term for ‘hand’ is the parent noun for the derived verb. While each can be paraphrased as ‘use the hand’, each uses the hand in a different way. In other words, each language lexicalizes different kinds of information. Investigating the ways in which different languages create words also provides a means of determining the kinds of information that different languages lexicalize.

In the discussion of the "personal" perspective, I mentioned some of the ways in which the experience of fear can be expressed including some phrases which used names for parts of the body. Sometimes these acknowledged actual physical responses such as *birkayim ro'adot* - trembling knees. Obviously, there are other experiences and feelings that can be talked about using body part terms. Thus, for example one can express the feeling of indifference with the phrase *noge'a li 'ad kce ha-X* (touches to-me until the end (of) the-X) where X is can be one of three body part terms, *ciporen* - ‘fingernail’,
pupik - 'belly button', or zayin - 'penis'. This suggests that (the ends of) these body parts are thought of as insignificant little things. Further work is needed on these sorts of phrases and expressions in Modern Hebrew and other languages to determine what kinds of associations speakers make with different parts of the body.

A final area for future research involves the concepts 'basic term' and 'basic level category'. In the present study, the issue of a basic term arose in the context of characterizing the morphological structure of lexical items in the body part domain of Modern Hebrew. The concept of a basic term involves a number of questions aside from that of morphological structure, although morphological simplicity/complexity is one criterion for determining a word's status as a basic term. Other criteria include: the word's status as a native or borrowed term, with respect both to the domain and to the language; speaker familiarity with the term as measured by ease of elicitation; and frequency of extension into other areas of the vocabulary. These criteria are related to the salience of the term which is also dependent upon the salience of the part named. It might also be necessary to consider other factors such as whether a term is cognate with semantically equivalent or related words in its language family and when children acquire the term. The issue of what is a basic term plays a role in discussions of basic level categories.

The concept of basic level categories has received considerable attention in anthropology, linguistics, and psychology (Berlin and Kay, 1969; Berlin, Breedlove, and Raven, 1973; Rosch, 1977) through the study of color words, plant and animal taxonomies, and taxonomies of concrete objects. "In essence, the basic level phenomenon is that categories at one level of specificity in a taxonomy are psychologically and linguistically more primary than more general and more specific categories" (Tversky and Hemenway 1984:170). Does the basic level phenomenon obtain in partonomies? In other words, are there categories at one level of specificity in a partonomy that are psychologically and linguisti-
cally more primary than more general and more specific categories? While there are studies of body part terminology which include a discussion of the number of levels in the partonomical structuring of the domain as well as which categories occur at each level (e.g. Brown, 1976; Andersen, 1978), none address the questions regarding basic level categories in the domain. The partonomically structured area of the Body Frame is an appropriate place to seek answers to these questions.

The area of lexical semantics has received relatively little attention in modern linguistics and in Hebrew language studies. And, as noted by both Blau (1981) and Berman (1978) there is a serious lack of research in the tradition of modern linguistics on Modern Hebrew as a spoken language. Although in recent years the gap has begun to be filled, there is still much that remains to be done. Until now there has been no in-depth study of the domain of body part terminology in the context of FRAME SEMANTICS and no study of the domain in Modern Hebrew. Although some of the topics that were explored are unique to body part terminology and to Hebrew, others are of more general interest to (lexical) semantics and language universals. It is hoped that the present study is seen as a contribution to a growing body of work in lexical semantics in general and Modern Hebrew in particular.
Appendix I

A list of the pictures used in the picture-based elicitation task is given below. A copy of the set of pictures follows.

A) FEMALE - FRONT
B) FEMALE - BACK
C) MALE - FRONT
D) MALE - BACK
E) SKELETON - FRONT and BACK
F) MALE FACE - FRONT
G) MALE FACE - SIDE
H) MOUTH
I) HAND - FRONT and BACK
J) FOOT - TOP and BOTTOM
K) INTERNAL ORGANS - FRONT
L) INTERNAL ORGANS - BACK
M) REPRODUCTIVE ORGANS - FEMALE and MALE
N) MUSCLES - LEG, FLEXED ARM, and STRAIGHT ARM
Appendix II

Appendix II contains composite drawings of vague terms in Modern Hebrew body part terminology. For each term there are two illustrations, one showing individual responses and one showing the group response. For some terms, there are drawings for both the male and the female illustrations. This was done since the female informants began the elicitation task with the illustration of the female and the male informants began the task with the illustration of the male. Thus, in order to document all the responses it is necessary to include composite drawings from the illustrations of both the female and the male.
Appendix III contains a copy of the set of data sheets on which data collected during the picture-based elicitation task were recorded.

A) FEMALE - FRONT
B) FEMALE - BACK
C) MALE - FRONT
D) MALE - BACK
E) SKELETON - FRONT and BACK
F) MALE FACE - FRONT
G) MALE FACE - SIDE
H) MOUTH
I) HAND - FRONT and BACK
J) FOOT - TOP and BOTTOM
K) INTERNAL ORGANS - FRONT
L) INTERNAL ORGANS - BACK
M) REPRODUCTIVE ORGANS - FEMALE and MALE
N) MUSCLES - LEG, FLEXED ARM, and STRAIGHT ARM
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(1) INTERNAL ORGANS-FRONT

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Appendix IV

The set of Hebrew words used in the card sorting task are listed below along with their English equivalents. The transcribed Hebrew words are listed alphabetically; words beginning with ' are listed first.

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<td>'ama</td>
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<td>'armonit</td>
<td>prostate</td>
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<td>sweat</td>
</tr>
<tr>
<td>zera</td>
<td>semen</td>
</tr>
<tr>
<td>zeret</td>
<td>little finger</td>
</tr>
<tr>
<td>zif</td>
<td>whisker</td>
</tr>
<tr>
<td>zro'a</td>
<td>upper arm</td>
</tr>
</tbody>
</table>

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