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A New Approach to Etymology

By

Kambiz Badie
and Maryam Tayefeh Mahmoudi

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To the late Nasser Badie,
Homadokht (Ghadimi) Badie,
&
Taghi Tayefeh Mahmoudi
…who did their best to bring us up in a way
caring for humanity & human knowledge

TABLE OF CONTENTS

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FOREWORD

The book presented on the following pages is representative of the contact between so-called western traditions in linguistics and other traditions in linguistics. The authors, KAMBIZ BADIE and MARYAM TAYEFEH MAHMOUDI, take up the issue of semantic relations between certain kinds of linguistic expressions and the scenarios they are taken to refer to. They suggest specific clusters of speech sounds–represented by written expressions–in the roots of words, i.e. they 'consider the role of semantic relevance between structurally similar roots' and they call such structurally similar roots MOLECULAR CONSTITUENTS. The idea has, evidently, been borrowed from the natural sciences, and it has, for the undersigned, been wholly new. By means of data from a variety of languages they demonstrate that the approach and the ensuing conceptual understanding is both relevant and appropriate. I acknowledge the substantial work that lies behind the outcome of analyses and theoretical contemplation, and I shall recommend that researchers in the language disciplines let themselves be inspired by the framework of ideas that are characteristic of the book. It has been an honour for me to contribute to the final version by giving advice on language, on specific terminology and on the detailed reasoning offered by the authors.

—Hans Götzsche Aalborg University Denmark

PREFACE

Our world is full of ambiguities related to existing phenomena. The main mission of science, regardless of the field of study, is to resolve these ambiguities with the aim of discovering the causalities behind them by means of well-established methodologies. A major concern in science within the past centuries, and natural sciences in particular, is to figure out how various phenomena may emerge based on the activation of some fundamental operators. By mentioning fundamental operators, we refer to operators which benefit from properties or characteristics that are almost invariant with regard to space and time. We have disciplines such as Physics, Chemistry, Biology, and Genetics (in the Natural Sciences), and Psychology, Linguistics, Sociology and Economics (from the Human/Social Sciences) within which the related phenomena emerge as the result of interactions between some basic sub-structures in the corresponding domains of interest. In this regard, we can mention examples like the interaction between atoms, which depends on their relative electronegativity, yielding new molecules, and interaction between the amine and residues in proteins and the basis in DNA. Such types of interaction may generally be perceivable in terms of combining the constituents belonging to different sub-structures with the aim of materializing either a new structure with new properties, or a structure with somewhat modified, improved or enhanced characteristics; a fact which is somehow valid in the case of Genetics and Chemistry.

The question is how far these views can be consistent in the case of human phenomena as well. Let us say, it may be significant to investigate whether an interaction between the constituents of human behavioral patterns (human actions, human thoughts, human sayings, etc.) may as well yield the formation of new structures in the way discussed above. Having considered this point, we decided in this book to reflect on the process by which linguistic roots (as morphemes) come into existence on the ground of some basic constituents particularly at the molecular level. What we were especially curious about in this regard was to see to what extent the presence of certain constituents in the structure of word roots has the ability to justify the emergence of a root with a somewhat new signification. Such a curiosity not only addresses the role of a constituent in characterizing the entire signification of a root, but also includes the means by which aggregation of

constituents with certain significations may yield a new signification for the resulted root. In this regard, the so-called interaction discussed above is supposed to be performable in terms of a kind of integration (with semantic nature) between the significations of the individual constituents, preferably with molecular nature.

In this book, having described the nature of molecular constituents in word roots, it will be shown how the very signification behind a molecular constituent can be characterized through considering the meaning of a variety of roots including it. Within this scope, we first consider the role of semantic relevance between structurally similar roots (from the viewpoint of Grimm's Law), and then we demonstrate how the physical processes behind the essence of roots–which share some similar properties/characteristics–hold a decisive role in forming the signification of a molecular constituent. As the next step, we discuss how the so-called semantic integration can occur between the constituents of a root to yield its final meaning. Within this context, we consider a variety of molecular constituents, each having their own peculiar role from a certain perspective. In the meantime, we show that interpretative approaches supported by a variety of operators are of particular significance in this respect. In the book, we equally explain all the items discussed above, for both the Indo-European (group of) languages and the Arabic language to show in particular the significance of molecular constituents' significations in giving shape to the final meaning of roots. We found out, through a variety of examples, that there are cases in which molecular constituents with similar structures hold similar significations in both Indo-European languages and the Arabic language. We also saw that the way of conceptualizing a word's meaning (based on its root) is almost the same in the Indo-European as well as the Arabic language. These facts lead us to the point that different language families, despite their apparent differences, share interesting similarities in many aspects. Finally, to show how the content of this book can be helpful in generating new topics for research, we mention a range of topics with regard to a variety of scientific disciplines. As a final point, we do hope that the ideas reflected in this book can be quite helpful, not only in broadening the existing hypothetical knowledge on the nature of word roots and the possible relevance between them, but also in leveraging the applied knowledge in the domain of linguistics in general and the area of language learning in particular.

—Kambiz Badie and Maryam Tayefeh Mahmoudi
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CHAPTER 1

BRIEF HISTORY OF APPROACHES TO ETYMOLOGY

History of Etymology with a Short Look

The search for meaningful origins for words, whether familiar or strange, is far older than the modern understanding of linguistic evolution and interrelationships between languages, which is rather recent. During ancient times, etymology had been a form of wordplay, in which people used to creatively imagine some conjectures as alternatives for a word's origins in order to satisfy their contemporary requirements. A typical example in this regard is the effort of the Greek poet named Pindar who used to employ inventive etymologies to flatter his patrons (Murray (1996); Watkins (1990); Shankman (1994); Cook (2020); Phillips (2013)). Plutarch also employed etymologies in an insecure way solely based on fancied resemblances in sounds (Richter (2001); Harrison (2000); Pelling (1973); Nikolaidis (2009); Gehman (1916)). Isidore of Seville's Etymologiae was an encyclopedic tracing of early ideas that remained unchallenged in Europe until the 16th century (Burrows (2008)). *Etymologicum genuinum* is a grammatical encyclopedia edited in Constantinople in the 9th century, which is regarded as one of the important books of the Byzantine era. After that, *Legenda Aurea* of the 13th century, as written by Jacobus de Voragine, contains a remarkable number of etymologies dedicated to the lives of saints (Rice *et al.* (1986); Voragine (1924)). As for Sanskrit, which is an old Indo-European language, Sanskrit linguists and grammarians of ancient India were the first to make a comprehensive analysis of linguistics and etymology. Such a study has in reality provided Western scholars with the basis of historical linguistics and modern etymology (Lehman (1962); Burrow (2001)). The core activity of modern Sanskrit grammarians was to follow a line of ancient grammarians of Sanskrit who lived several centuries earlier. The earliest versions of attested etymologies are traceable in Vedic literature in the philosophical explanations of the Brahmanas, Aranyakas, and Upanishads (Gopal (1983); Coward & Kunjunni (1990); Harold *et al.*

(2015)). The analysis of Sanskrit grammar done by these linguists involved extensive studies on the etymology of Sanskrit words, because sound and speech have been considered to be sacred enough by the ancient Indo-Aryans, to the extent that the words of the sacred Vedas contained deep encodings related to the mysteries of the soul and God.

With regard to the ancient Greco-Roman period, one of the earliest philosophical texts of the Classical Greek period to address etymology was the Socratic dialogue *Cratylus* by Plato (Sedley (1998); Barney (1998)). During much of the dialogue, Socrates makes guesses as to the origins of many words, including the names of the gods. In his odes, Pindar spins complementary etymologies to flatter his patrons. Within the Medieval Period, Isidore of Seville was also the one who compiled a volume of etymologies to illuminate the triumph of religion.

It's also worth mentioning that each saint's legend in Legenda Aurea (written by Jacobus de Voragine) begins with an etymological discourse on the saint's name.

Basic Approaches in Etymology

The main concern of Etymology, as a well-established area of Linguistics, is to study the history of words (Szathmáry & Számadó (2008); Melo (2014)). Etymologists make use of texts, particularly texts about language, together with knowledge about how words (in a language or a group of languages) were used in the past, and how words belonging to different objects/entities might have shared similar concepts in a certain culture. Within this scope, methods of comparative linguistics or comparative historical linguistics (formerly comparative philology (Anttila (1972); Greenberg (1957); Anttila (1989); Beekes (1995); Beekes (2011); Trask (2000); Aikhenvald & Dixon (2002); Wardhaugh (1992); Gogic *et al*. (1995); Warnow (1997); Arlotto (1972)), are used to reconstruct information on old languages for which direct information is not easily available. It is worth noting that comparative linguistics, as a branch of historical linguistics, is mainly concerned with comparing languages to establish their historical relatedness. In practice, comparative methods enable linguists to make sound inferences concerning the patterns shared by languages and their vocabularies. It should be noted that word roots can be configured as the elements belonging to their origin language family like the family of Indo-European or Semitic languages. Within this scope, methodologists have made use of a variety of methods to study the origin of words. Some of these methods are as follows:

a. Philological research based on which changes in the form and meaning of words are traceable using available old texts (Boas (1906); Pimentel *et al*. (2009); Szondi (1978); Hornbacher (2016); Wyld (1906); Van Peursen (2010); Ziolkowski (1990); Plag (2016)). We thereby assume that bulks of old text may exist that are sufficiently able to illustrate the very changes which have occurred in both the form and meaning of words through the course of time.
b. Using dialectal data (as a source of clues about earlier history) based on which the form or meaning of words might show variations between dialects (Nerbonne & Kleiweg (2007); Britain (2012); Hansen *et al*. (2012); Jonas *et al*. (2010); Bauer & Bauer (2002); Buchstaller *et al*. (2013); Franco (2017); Hock (1988); Britain (2017)). We thereby assume that we are able to show how the very peculiarities of a dialect may affect the form or meaning of words in a certain language.
c. The comparative method between the related languages, which offers the etymologist the ability to detect words which have been derived from their common ancestor language, and distinguish them from those borrowed from another language (Collier (1993); Harrison (2003); Barðdal & Eythórsson (2012); Hoenigswald (1962); Givón (2000); Dyen (1969); Hoenigswald (1992); Dunn *et al*. (2005); Lowe & Mazaudon (1994); Hammel (1980)). We thereby assume that we are able to show–through a process of comparison between languages belonging to the same family, e.g., the families of Indo-European, Semitic or Uralic languages–the way a word may originally belong to its own language, or an imported word may derive from its ancestor word belonging to another family of languages.
d. Studying semantic change based on which etymologists find the opportunity to make some hypotheses about changes in the meaning of particular words (Traugott & Dasher (2001)). General knowledge of semantic shift is the ground for testing the hypotheses obtained in this way (Rahmati (2015)). For example, we may substantiate the assumption of a particular meaning change by showing that the same type of change has happened in other languages.

According to the basic ideas of etymological theory, words originate through a limited number of basic mechanisms. Out of these mechanisms, language changes (Aitchison (1991); McMahon (1994); Keller (1994); Brinton *et al*. (2005); Lass (1997); Lightfoot (1991); Weinreich *et al*. (1968); Kroch (1989); Clark & Roberts (1993); Bergs & Diewald (2008);

Lyons (1968); Lyons (1977)), the adoption of loanwords from other languages (Peperkamp (2005); Kang (2010); LaCharité & Paradis (2005); Vendelin & Peperkamp (2006); Kang (2011); Peperkamp & Dupoux (2003); Shinohara (2001); Yvan & Demuth (2006); Paradis (1996); Paradis & LaCharité (2001)), word formation such as derivation and compounding, and onomatopoeia and sound symbolism (Hinton *et al*. (1994); Nuckolls (2003); Imai *et al*. (2008); Klink (2000); Imai & Kita (2014); Klink (2001); Ozturk *et al*. (2013); Westbury (2005); Monaghan *et al*. (2012)), are of high importance. Despite the fact that newly emerged words are more or less transparent in origin, they however become obscured (losing their apparent relation with their source/root) gradually due to a change supposed to be performed over time. Considering this point, the entire aspects of *history*, *society*, and *evolution* come to be significant in this respect. Many commentators have the feeling that language change constitutes a sort of degradation in the quality of language, especially when a kind of prescriptively discouraged usage intervenes with the entire process of change. However, from a scientific viewpoint, this concept is not valid since such innovations cannot be judged in terms of being either good or bad. John Lyons notes that, "any standard of evolution applied to language change must be based upon a recognition of the various functions a language is expected to fulfill in the society which uses it" (Lyons (1968); Lyons (1977)). A loanword, as is clear from the appearance of the word, is a word adopted from one language, and incorporated into another language with no particular concern for translation. Of course, this is in contrast with cognates, which are words in two or more languages that are similar due to sharing an etymological origin, and calques, which are words or phrases whose meaning or idiom is adopted from another language by word-for-word translation into existing words, or word forming roots of the recipient language (Hoffer (2002)). Word formation, which discusses the creation of a new word, is in contrast with semantic change, which stands for change in a single word's meaning. It is, however, difficult to differ between the two, because a new use of an old word itself can be regarded as a new word derived from an old one and identical to it in form. Sound symbolism, phonaesthesia or phonosemantics puts forward the idea that vocal sounds or phonemes carry meaning in and of themselves. Mikhail Lomonosov was the one who propagated a theory in the 18th century, saying that words containing certain sounds should bear certain meanings (Lomonosov (1970)). However, Ferdinand de Saussure, known as one of the founders of modern scientific linguistics, regards words that we use to indicate things and concepts just as a consensus agreed upon by the speakers of a language, a consensus which has no discernible pattern or relationship to the thing. He

also emphasizes that, due to the arbitrariness of words, they have meaning only in relation to other words. These ideas have permeated the study of words since the 19th century.

Due to different pronunciations, it is not readily obvious that, for instance, the English word *set* is in relation with the word *sit*. It is even less clear that the word *bless* is related to the word *blood*, since the scenario connecting these two words (at a certain time in the past) does not easily occur to one's mind. Due to variations in meaning, called semantic changes, the English word *bead*, which originally means 'prayer', acquires its modern meaning through the practice of accounting the recitation of prayers by using beads.

As far as it concerns the history of words, we should say that the search for a meaningful origin for familiar or strange words is far older than the modern understanding of linguistic evolution and the relationships between languages, which began no earlier than the 18th century. From Antiquity through the 17th century, etymology had been a form of wordplay, in which the supposed origin of the words used to come into existence in a creative way to satisfy contemporary requirements. The method of employing the methodology was quite shaky as it was mostly concerned with fancied resemblances in sounds.

Due to the very significance of both Grimm's Law and onomatopoeia in the areas of historical linguistics in general, and etymology in particular, below we give brief overviews on these two topics.

Overview of Grimm's Law

Grimm's Law refers to a set of statements describing the Proto-Indo-European (PIE) stop consonants in the way they developed in Proto-Germanic (the common ancestor of the Germanic branch of the Indo-European family). It covers a set of regular correspondences between early Germanic stops, fricatives and the stop consonants of other certain centum Indo-European languages. Grimm used mostly Latin and Greek to illustrate these regular correspondences. Grimm's Law was the first discovery of a systematic sound change, which later led to the creation of historical phonology as a discipline of historical linguistics. Let us consider the example of the correspondence between Latin /p/ and Germanic /f/. Friedrich von Schlegel was the first person who noted this in 1806. Rasmus Rask was also the one who extended it later in 1818 to other Indo-European Languages like Sanskrit and Greek, and to the full range of the existing consonants. In 1822, Jacob Grimm put forth the role in his book (Grimm (1822)) and extended it to include standard German. He noticed that there

were many words which had different consonants from what was predicted by his law. These exceptions defied linguists for a few decades, but they finally were explained by the Danish linguist Karl Verner in the form of Verner's Law (Encyclopedia (2020); Noske (2009); Diver & Huffman (2012); Bennett (1968); Wells (1905)).

Grimm's Law consists of three parts, which form consecutive phrases in the sense of a chain shift (Campbell (2004a); Campbell, 2004b); Douse (2009)). The phrases are usually constructed as follows:

a. Proto-Indo-European voiceless stops change into voiceless fricatives.
b. Proto-Indo-European voiced stops become voiceless stops
c. Proto-Indo-European voice aspirated stops become voiced stops or fricatives.

This chain shift (in the order 3, 2, 1) can be abstractly represented in the following way (Campbell (2004a); Weinstock (1968)):

- $b^h > b > p > \varphi$
- $d^h > d > t > \theta$
- $g^h > g > k > x$
- $g^{wh} > g^w > k^w > x^w$

Here moving each sound one position to the right loads to its new sound value. It should, however, be noted that details of the shift are unknown in an exact sense, and it may have progressed in a variety of ways before arriving at the final situation. The three stages mentioned above show the progression of a sort of *pull chain* in which each change leaves a *gap* in the phonological system that *pulls* other phonemes into it to fill the gap. However, one may also think of the possibility that the shift might have happened as a *push* change, where the changes happened in the reverse order, with each change *pushing* the next forward to avoid merging the phonemes (Campbell (2004a); Weinstock (1968)).

The steps could also have occurred somewhat differently. Another possible sequence of events could have been:

1. Voiceless stops are allophonically aspirated under most conditions.
2. Voiced stops become unaspirated voiceless stops.
3. All aspirated stops become fricatives.

This sequence would lead to a similar result. This variety of Grimm's Law is often suggestible in the context of the glottalic theory of Proto-Indo-European, which is followed by a minority of linguistics. This theoretical framework assumes that *voiced stops* in PIE were actually voiceless to begin with, so that the second phase did not actually exist as such, or was not actually devoicing but was a loss of some other articulatory feature such as glottalization or ejective consonants. This alternative sequence also accounts for the phonetics of Verner's Law (Noske (2009)), which are easier to explain within the glottalic theory framework when Grimm's Law is formulated in this manner. Additionally, a change from aspirated stops to fricatives is known to have happened in the transition between Proto-Indo-European and Proto-Italic, which therefore represents a plausible potential change from Proto-Indo-European to Proto-Germanic.

It should be noticed that, based on the changes described by Grimm's Law, only one type of "voiced consonant" was left with no distinction between voiced stops and voiced fricatives. They eventually became stops at the beginning of a word, or nasal consonants, but fricatives elsewhere. It is therefore not clear whether they were plosives or fricatives in the beginning. It seems that the voiced aspirated stops may have first become voiced fricatives, before hardening to stops under certain conditions.

However, the possibility exists that they have become stops in the beginning and were altered by softening to fricatives in most positions. Another change known as Verner's Law–the voicing of the voiceless fricatives that resulted from Grimm's Law changes–may emerge under certain conditions, leading to apparent exceptions to the rule. The early Germanic /gw/ arisen from Proto-Indo-European /gwh/ (and from /kw/ through Verner's Law) underwent further changes, which are of particular significance from the viewpoint of phonetics.

Overview of Onomatopoeia

Onomatopoeia refers to a process of creating a word that phonetically imitates, resembles, or suggests the sound that it describes (Wells (1990); Jones (2011)).

Since such words are nouns uncountable in nature, onomatopoeia refers to their property. Examples can be mentioned for animal noises like *meow* (or *miaow*), *oink*, *chirp* and *rear*. The concept of a broader linguistic system (Bredin (1996)) can to some extent justify how onomatopoeia may differ between languages.

A typical example in this concern is the sound of a clock, which is *tick tock* in English, *Tic-Tac* in Latin languages and *Tik-Tik* in Hindi, (as far as

Indo-European Languages are concerned), while the same sound in Mandarin and Japanese are respectively /dī-dā/ and /Katchin-Katchin/. Some other common examples in the English Language are *hiccup*, *zoom*, *bang*, *beep*, *moo* and *splash*.

Sounds of machines such as *honk*, *beep-boop* (for the horn of an automobile) and *vroom* (for the engine) are also often described with onomatopoeia. It is also interesting to see that human sounds sometimes provide instances of onomatopoeia, as in the case of *kissing* where /mvah/ is used (Oxford Dictionary (2019)).

In the same way, animal sounds may also be described with onomatopoeia. As some examples we can mention *quack*, *moo*, *woof*, *roar*, *miaow*, *cluck* and *baa* which are respectively for a duck, cow, dog, lion, cat, chicken and sheep. Things are also occasionally named from the sounds they make. A typical example in English in this respect is the universal fastener, the *zip* being used in the UK or *zipper* being used in the U.S.

In many languages, we make use of onomatopoeic words to describe phenomena beyond the purely auditive. As typical examples, we may mention some Japanese words, according to which one would have the ability to describe feelings by figurative expressions about objects or concepts. For instance, Japanese people use the word *barabara* to reflect a state of 'disarray' or 'separation' in an object. Also, the word *shiiin* is the onomatopoeic form of a sort of silence.

We should notice that the meaning of a word could be purely determined by the way it sounds. However, these sounds are much less arbitrary in the case of onomatopoeic words. Although sounds with a vocal nature, which imitate natural sounds, do not necessarily gain meaning, we may expect them to hold a kind of symbolic meaning (Diffloth (1994); Hinton *et al*. (2006)). For instance, in case of the English language, some of the words starting with /sn-/ symbolize concepts related to the nose. As examples, we can mention *sneeze*, *snot* and *snore*. Of course, not all the words starting with this sound (/sn-/) are related to the nose, but at some level, we may expect a sort of symbolism to be associated with the sound itself. In this sense, onomatopoeia, while a fact of language, is also in a sense outside of the confines of language. In linguistics, what we expect from onomatopoeia is the connection, or symbolism of a sound that is subject to interpretation and reproduction within the context of a language, usually out of mimicry of a sound. Onomatopoeia can in this way be viewed as a figure of speech, in a sense. It also works in the sense of symbolizing an idea in a phonological context, with no necessary emphasis on constituting a direct meaningful word in the process (Laing (2014)). Therefore, depending on a language's connection to a sound's meaning, the phonetic inventory of that

language can differ proportionally. For example, a language like English, which generally holds little symbolic representation when it comes to sounds, tends to have a smaller representation of sound mimicry in comparison with a language such as Japanese that overall has a much higher amount of symbolism related to its sounds.

Our Concern about Etymology

As we discussed earlier, the main concern of etymology is to study the history of words. In this regard, we mentioned that an aspect of etymology is to see how words belonging to different objects/entities might have shared similar concepts in a certain culture. In this sense, the way a word's root is used in different words (with different meanings) is of particular significance. Here, we would like to focus on process and consequence as two indispensable factors with regard to the issue of *word formation*. Considering this point, it can be described either on the basis of the so-called process behind its formation, or the consequence of performing this process. This goes back to the fact that, from an epistemological point of view, a kind of process is necessary to give birth to a consequence which is supposed to stand for the mission of a concept.

A process in itself takes care of some elements, which subsequently take part in giving identity to a certain concept.

It is also possible that the concept of a word may be a specialization of the concept of another word either through adding a prefix or suffix to it, or in the case of a compound word (which comprises two separate words), through linking it to another word that can be any type of word in general.
Below, we mention some examples to clarify the points discussed above. Let us start with the word *science*, which is known as knowledge (of something) acquired by study. The proto-Indo-European root supporting this word is /skei-/ which means 'to cut' or 'to split'. Regarding this, we observe that the ground for forming the concept of *science* is the very process which allows it to be realized. Let us say, cutting, dividing or splitting the observed phenomena is supposed to provide suitable conditions for the person engaged with a scientific activity to obtain the desired knowledge (as the mission of science). In other words, the rigor of a scientific hypothesis depends strongly on the status/quality of this cutting/splitting process.

Now, coming to the word *savoir* meaning, 'to know' in French, the proto-Indo-European root supporting this word is /sep-(1)/ which means 'to taste' or 'to perceive'. In this sense, we can see that the basis for the concept of *savoir* is again a process which is essential to fulfill its mission. Let us say

that tasting or perceiving the environmental facts provides suitable conditions for a person to be able to make the claim of 'knowing'. Coming to the word *wisdom*, the proto-Indo-European root supporting it is /weid-/, which means, 'to see'. In this sense, we may see that the ground for forming this term is the final goal pursued by it, in contrast to *savoir*/*sapience* whose emphasis is on the process which is essential to achieving this goal.

Now as far as specialization of a word concept has been set as the ground for forming another concept, the word *farzāneh* (which means 'wise'/'learned' in Persian (influenced by Kurdish)) can be mentioned and in this *far* is a prefix standing for *glory*, and *zāneh* means 'knowing'. In this sense, we can see that the ground for forming the concept of *learned* in Persian is the specialization of the concept of *knowing* through applying a prefix to it standing for *glory*. The interesting point here is that, based upon a culture's perception toward a certain concept, a variety of words can be formed through specializing a certain concept by applying a prefix/suffix to it (putting it under a sort of constraint and directing it from a certain viewpoint) (Aryanpoor-Kashani and Assi (2005)).

Table 1-1 illustrates a variety of words formed on the ground of either the process yielding it, the ability/property obtained as the consequence, or the specialization of another concept.

Table 1-1. A variety of words formed on the basis of the so-called process and consequence

Indo-European Word	**Status of Description**
Science	Process-oriented (from PIE /skei-/ (to cut, to split))
Savoir ('to know' in French)	Process-oriented (from PIE /sep-(1)/ (to taste, to perceive))
Wisdom	Consequence-oriented in the sense of holding in itself the ability of *seeing* (from PIE /weid-/ (to see))
Sagesse ('wisdom' in French)	Process-oriented in the sense of practicing some action like *tasting* (from PIE /sap-/ (to taste))
Stone	Consequence-oriented in the sense of holding in itself the ability of becoming *stable*/*steady* (from PIE /stai-/ (to stiffen))
Flower	Process-oriented in the sense of practicing some action like *blooming* (from PIE /bhel-(3)/ (to thrive, to bloom))

Indo-European Word	**Status of Description**
Gol ('flower' in Persian)	Consequence-oriented in the sense of holding in itself the ability of *shining* (from PIE /ghel-(2)/ (to shine))
Leaf	Process-oriented in the sense of being like something *peeled off* (from PIE /leub(h)-/ (to peel off, to break off))
Feuille ('leaf' in French)	The same as *flower*
Barg ('leaf' in Persian)	Process-oriented in the sense of being like something *broken* off (from PIE /bhreg-/ (to break))
Feeling	Process-oriented in the sense of holding in itself some sort of action like *striking*/*driving* (from PIE /pel-(5)/ (to strike, to drive))
Sentiment	Process-oriented in the sense of holding in itself some sort of action like *going*/*travelling*/*striving after* (from PIE /sent-/ (to go))
Emotion	Process-oriented in the sense of holding in itself some sort of action like *moving*/*stirring* (from PIE /meue-/ (to push away))
Life	Consequence-oriented in the sense of holding in itself some functions like *sticking*/*adhering* (from PIE /leip-/ (to stick, to adhere))
Vie ('life' in French)	Consequence-oriented in the sense of holding in itself some *living* functions (like *breathing* or *smelling*) (from PIE /gwei-/ (to live))

We should pay attention to the fact that the concept of an object/entity in particular is describable in terms of the ability/property possessed by it. This leads us to the point that all the abilities or properties, which share the same aspect (at a high level of abstraction) from a semantic viewpoint may have the chance to be an alternative for selecting an appropriate term for that aspect. For example, we know well that all the abilities of 'stability'/'being steady', 'moving', 'heating', 'thinking', etc., share the same aspect of 'power'/'strength' at a high abstraction level. In this sense, we can see that the alternative terms for these abilities, and also that the alternative words for the objects holding these abilities would have the chance of being reasonable alternatives to the concept of 'power'/'strength' as well. Let us see how this point can come true. First, with regard to the English language, the

term *strength*, which comes from PIE /strenk-/ (tight, narrow), is in direct relation with 'stability'/'being steady' as an ability, which is observed well in objects such as 'stone' or 'stem'. Furthermore, the term *power* (or *puissance* in French), which comes from PIE /poti-/ (powerful, lord), is related to objects like a 'paw' (*patte* in French) or 'foot' (*pied* in French) which support the ability of 'moving'.

It is also not so strange to think that the same term of *power* can be in relation with *pie* or *food* which support the ability of 'living'/'being alive'.

Considering the ability of 'knowing'/'thinking'/'intelligence' as a symbol of 'strength'/'power', in Polish we have the term *moc*, and in Persian the term *mazand*, respectively for 'power' and 'powerful', which both take into account the 'brain' as an object which has the ability of 'knowing'/'thinking'/'intelligence'. The words for 'brain' in Polish and Persian are, respectively, *mózg* and *maghz* (or in middle Persian *mazg*). In this sense, we observe that a symbol of 'power' in these two languages is 'brain'; a fact that supports the motto of 'knowledge is power'. It is also possible to look at 'power'/'strength' from the perspective of the ability of 'heating'/'giving heat'. In this regard, there is again a term in Persian, namely *tāb*/*tavān* ('power'), which supports this fact. *Tāb* and *Tav* are the reformed versions of *tab* or *taf* which stand for 'heat' in Persian. Interestingly, even in Japanese, which is a non-Indo-European language, the term for 'hot' is *ātsui* which shares the part /tsu/ with the term *tsuyoi* that stands for 'strong'. In this sense /tsu/ seems to incorporate the signification of 'strength' with regard to any concept, which somehow includes it in itself. We may also, in this regard, mention some examples like *kitsui* (hard), *kitsune* (fox), *utsukushii* (beautiful), and *batsu* (punishment) as well. Obviously, an element of 'strength' exists in the concepts of 'hardness' and 'punishment' since something 'strong' is functioning in such a way as to make a situation 'hard' or make a person 'suffer'. On the other hand, one knows well that a 'fox' has a 'strong' sense of being shrewd. Finally, the word *beauty* incorporates some 'strong' elements in itself, capable of influencing others. Table 1-2 illustrates this way of considering the concept of ‘strength’/’power’ in some Indo-European languages.

Taking a glance at different languages belonging to different families, we may occasionally face strange cases where two words belonging to different families of languages are very close to each other in sound, and also share the same meaning. Of course, in the case of the languages including the two words belong to the same family, such a matter is quite justifiable, since two words with a shared meaning may possibly have the same root; a fact which supports a similar phonetic structure for both of them.

Table 1-2. The way of considering the concept of 'strength'/'power' in some Indo-European languages.

Type of Ability	Words Semantically Related to the Corresponding Ability
Stability/Being Steady	*Stone, Stem, Strong, Stark, Stern, Stubborn, Stiff* **(English)** *Sztywny (*'stark'/'stiff'*)* **(Polish)** *Sotun (*'pillar'*), Suturg/Stabr (*'strong', 'coarse'*), Staft/Seft (*'stiff'/'hard'*)* **(Persian)**
Moving/Being Alive	*Foot, Paw, Food, Fat, Fist, Power, Potent* **(English)** *Pied* ('foot'), *Patte* ('paw'), *Puissance* ('power'), *Potentielle* ('potential') **(French)** *Pieść* ('fist') **(Polish)** *Pā/Pād* ('foot'), *Panjeh* ('paw'), *Pih* ('food'), *Pud* ('fabric'), *Puyā* ('dynamic'), *Pāyā* ('stable') **(Persian)**
Sensing/ Knowing/ Thinking	*Moźg* ('brain'), *Moc* ('power') **(Polish)** *Mazg/Maghz* ('brain'), *Mosht* ('fist'), *Mazand* ('powerful'), *Mazdā* ('wise') **(Persian)**
Heating/Giving Heat	*Tab/Taf* ('heat'/'warmth'), *Tavān* ('power'), *Tāb* ('strength') **(Persian)**

However, in the case that one word belongs to the Indo-European family of languages (European, Indo-Iranian) and the other to the Arabic language, such a justification does not make sense. Of course, it is quite true that, due to the geographical vicinity of Arabia with Europe (particularly Greek and Roman territory) and Aryan territory, the Arabic language has been in close contact with ancient Greek, ancient Latin and Avestan (an ancient north-eastern Iranian language), which itself is close to Sanskrit. In this sense, a kind of mutual influence between Arabic and these three languages, which belong to the same family, may be expectable. Table 1-3 illustrates some examples within which we see a particular similarity between an Arabic word and a word belonging to an Indo-European language (Oxford Arabic Dictionary (2014)). In the table, we have added the proto-Indo-European roots of the corresponding Indo-European words to envision the structure of these words. This provides a chance for us to make a better comparison between the status of the words belonging to Arabic and Indo-European languages. We may observe that the similarity under consideration seems to be found even more between the roots of Arabic words and the proto-Indo-

European roots of the corresponding words. An interesting point is that, finding the similarity between Arabic and Indo-European words in the way illustrated in Table 1-3 offers the opportunity to reflect on those terms in an Indo-European language, which are of an unknown origin. As we see from the table, there is the word *soin* which means 'care' in French and is of unknown origin. Here, based on the similarity which does exist between this word and صون(sun, preservation), a hypothesis can be built highlighting the connection between *soin* and صون at the root level.

Table 1-3. Examples for particular similarity between Arabic words and words belonging to Indo-European

Arabic Word	**Governing Molecular Constituent**	**Indo-European Word**	**Molecular Constituent (s) in the Related Root**	**Status of Equivalences between the Molecular Constituents**
جلاء (jala', clarity)	JL	*Glisten, Glass, Glimpse* (from PIE /Ghle-/ (to shine))	GhL	JL and GhL
جلب (jalb, bring/ fetch/ get)	JL, LB	*Grab* (from PIE /Gherbh-/ (to seize))	GhR and RBh	JL and GhR, LB and RBh
جنس (juns, genus/ gender)	JN, NS	*Genesis* (from PIE /Gen-/ (to give birth to))	GN	JN and GN
حل (hal, solution)	HL	*Solve* (from PIE /Se-lu-/ (to loosen, to divide))	SL	HL and SL

سقم (saqim, sickness)	SQ	*Sickness* (from PIE /Sag-/ (to crack down))	SG	SQ and SG
شم (shm, sniff/ smell)	ShM	*Smell* (from Proto-Germanic /Smel-/)	SM	ShM and SM
روضه (ruduh, garden)	RD	*Rose* (from Iranian root /Vrda-/)	(V) RD	RD and (V) RD
صلاة (salah, prayer)	SL	*Salute* (from PIE /Sol-/ (whole, well–kept))	SL	SL and SL
ضوء (daw', light)	DW	*Światlo* (light in Polish)	SW	DW and SW
طرق (turuq, methods)	TR, RQ	*Trace* (from PIE /Tragh-/ (to draw, to drag))	TR and RGh	TR and TR, RQ and RGh
كسر (kasr, break)	KS	*Casser* (to break in French) (from PIE /Kes-/ (to cut))	KS	KS and KS
كلم (klm, speak)	KL	*Claim* (from PIE /Kele-/ (to shout))	KL	KL and KL
لفظ (lfaz, pronun-ciation)	LF	*Lefze* (from Proto-Germanic for Lip)	LP	LF and LP

مرض (marad, illness)	MR	*Maladie/Malady* (sickness) (from PIE /Mel-(3)/ (false, bad, wrong))	ML	MR and ML
وجه (wajah, face)	WJ	*Visage* (face in French) (from PIE /Weid-/ (to see))	WD	WJ and WD
قلب (Qalb, heart)	QL, LB	*Grab* (from PIE /Gherbh-/ (to seize))	GhR and RBh	QL and GhR, LB and RBh
قرب (Qurb, near)	QR, RB	*Grab* (from PIE /Gherbh-/ (to seize))	GhR and RBh	QR and GhR, RB and RBh
شد (Shada, tighten)	ShD	*Stiff* (from PIE /Steip-/ (to press together))	ST	ShD and ST
فرح (Farah, joy)	FR, RH	*Fresh* (from Proto-Germanic /Friskaz/)	FR and RS	FR and FR, RH and RS

This takes us to the point that the similarity under consideration would be more meaningful, once propounded between the roots of those words, which seem to be similar to each other. Considering this, we may end up with the idea that a sort of similarity must exist between the constituents of the two roots, making the corresponding words sound similar. We will, in the next sections, show that both Indo-European and the Arabic language share what we call *molecular constituents*, a function that has the ability to

influence the entire meaning of a root through its peculiar signification. Based on this reasoning, it will be suggested that a *molecular constituent* should be the basis for justifying the semantic relevance between those roots which have structural similarity. Since the roots in both Indo-European and Arabic are compound in nature (in other words: a root may include more than one molecular constituent), we will show in the next section how a sort of semantic integration between the significations belonging to these constituents can eventually lead to a meaning for the entire root (Oxford Arabic Dictionary (2014)).

As is seen from the table, the Indo-European words whose molecular constituents in the related roots have been realized to be similar to those belonging to the considered Arabic words (from the viewpoint of Grimm's Law), share some semantic similarity with these words. For instance, words such as *glisten*, *glass* and *glimpse* whose root (/Ghle-/) means 'shining', share semantic similarity with the Arabic word *Jalā* whose root means 'clarity'. In the same manner, the word *grab* whose root (/Gherbh-/) means 'seizing', share semantic similarity with the Arabic word *Jalb* whose root means 'bringing', 'fetching' or 'getting'. As another example, one may mention the semantic similarity between the word *casser* in French with the root /Kes-/ which means 'cutting' with the word *Kasr* in Arabic whose root means 'breaking'.

CHAPTER 2

SEMANTIC RELEVANCE: WHAT IT IS AND HOW TO CHARACTERIZE IT

A. Basic Motivation

A basic effort in etymological studies is to work on the roots of words, which are the most basic parts holding their most basic meaning. We would like to put forward the point that, in the conventional approach to etymology, no particular concern exists to show how roots themselves, especially those with different structures, may be regarded as correlated to each other. However, it is possible that such roots may be somehow correlated with each other in their meaning because of the presence of some partial similarity in their structures. This becomes more significant when the similarity between the basic structures existing in the roots is not obvious at a first glance, which may call for further investigation for it to be justified in a reasonable way. For instance, in the case of the proto-Into-European roots /pa-/ (which means 'food') and /ped-/ (which means 'foot'), a sort of semantic relevance may exist between these two roots due to the fact that both 'food' and 'foot' have basically some relation with the concept of 'potency' (power). Let us say, 'Eating food yields potency' and 'To be able to stand on one's feet, potency is needed'. Consider the case of the proto Indo-European roots /wegh-/ (which means 'to move' or 'to go' and is the root of words like *wagon* or *weigh*) and /weg-/ (which means 'to be strong' or 'to be lively' and is the root of words like *vigil* or *vigor*). The two roots /wegh-/ and /weg-/ may share a kind of semantic pertinence, due to the fact that, to be able to move or to go, one needs to be strong or lively.

Two questions, however, are of particular significance: (i) what is the criterion for regarding two roots as structurally similar? And (ii) how the semantic pertinence between roots with partial structural similarity may be justified? With regard to the first question, we assume that the presence of strings of those consonants which are equivalent to each other in phonology from the viewpoint of Grimm's Law is a criterion for their structural similarity. With regard to the second question, we assume that the structural