Basic Concepts, p. 1

The phonetic representation of a word consists of the phones that make up the pronunciation of a word. It is enclosed in square brackets and is made up of phonetic symbols. For example (for most speakers of Hebrew):

[needar]	נהדר
[ǰip]	ג׳ יפ
[xozer]	חוזר
[leaɣzir]	להחזיר

If a word is pronounced differently by different speakers, the phonetic representation will be different.

[nehedar]	(careful pronunciation) נהדר
[ħozer]	(Oriental pronunciation) חוזר

However, there is more to pronunciation (phonetics) than this.

The crucial observation that lies behind phonology is that while most things about the way a word is pronounced are unpredictable, there are predictable aspects, too. If we want to understand the nature of pronunciation, we need to be aware of the distinction between the predictable and the unpredictable. What phonology does, then, is separate those aspects of pronunciation that are predictable from those that are not predictable.

For example, consider the fact that the first phone in חוזר is [x] and the fourth phone in להחזיר is [ɣ]. The fact that these are velar fricatives is unpredictable; there is no reason that these words should have such a sound. On the other hand, the fact that the one in להחזיר is voiced is predictable: in Hebrew, (almost) any obstruent which is followed by a voiced obstruent is voiced. In this respect, representing the fourth sound of להחזיר as [ɣ], while phonetically accurate, is misleading as a representation of what speakers of Hebrew do when they say the word. They pronounce a velar fricative, which is an unpredictable element in the pronunciation of this word. When they pronounce it, they (predicably) pronounce it with voicing. A linguistically accurate (as opposed to physically accurate) representation would therefore just say that להחזיר has a (voiceless) velar fricative—the same sound, in fact, as חוזר.

This sense of "sound" in which חוזר and להחזיר have the same sound is technically referred to as a **phoneme**, and the different predictable ways of pronouncing a phoneme are called its **allophones**. Notationally, phonemes are represented by putting them between slashes instead of square brackets. We can say that the Hebrew phoneme /x/ has the allophones [x] and [ɣ]. The formal expression of the unpredictable aspects of the pronunciation of a word is thus a list, in the correct sequence, of the phonemes of which the word is composed. This is called the

Basic Concepts, p. 2

phonemic representation or **underlying representation** of the word. The underlying representations of חוזר and להחזיר are:

|	
/xozer/	חוזר
/leaxzir/	להחזיר

The predictable aspects are expressed in rules of pronunciation, technically called **phonological rules**. We say that the phonological rules **derive** the phonetic representation from the underlying representation. In this case, a phonological rule called Voicing Assimilation derives [leaɣzir] from /leaxzir/. Informally, the relevant part of the rule says:

An obstruent becomes voiced in the environment: followed by a voiced obstruent.

More formally, we can write this as:

obstruent → voiced / ___ voiced obstruent

The pronunciation of a word is thus a result of the unpredictable aspects combined with the predictable aspects, or, in technical terminology, the phonetic representation of a word is the result of applying phonological rules to the underlying representation:

underlying representation

phonological rules

phonetic representation

☺   ☹   ☺   ☹
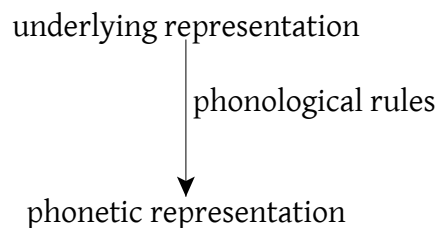
The arbitrary aspects of pronunciation are actually properties of morphemes, not words. A given morpheme (assuming it doesn't have allomorphs) has only one underlying form, regardless of what word it is in. The underlying representation of a word with more than one morpheme is made up of the underlying representations of its morphemes. For example, the words סוגר [soger] and לסגור [lizgor] have the same root, so the underlying representation of לסגור [lizgor] is

/lisgor/

Basic Concepts, p. 3

The difference in the pronunciation of the first sound of the root in these words ([soger] vs. [lizgor]) is the result of the operation of the phonological rule of Voicing Assimilation.

Another example: the plural morpheme in English, which is pronounced [s], [z], or [ɨz], depending on what sound comes before it. The underlying representation is always /z/; the pronunciation as [s] or [ɨz] is the result of the application of phonological rules (Voicing Assimilation and Epenthesis).

tree	[tri:z]	/tri:z/
latch	[læčɨz]	/læčz/
gum	[gʌmz]	/gʌmz/
myth	[mɪθs]	/mɪθz/
ridge	[rɪǰɨz]	/rɪǰz/
bat	[bæts]	/bætz/

To reiterate: underlying representation is a property of morphemes.

☺   ☹   ☺   ☹

Consider the [f] in each of the following Hebrew words:

[falafel]	פלאפל
[niftax]	נפתח
[difxu]	דיווחו
[leaftiax]	להבטיח

In the word פלאפל, the [f] is just /f/. But נפתח is derived morphologically from פתח. Since פתח starts with a /p/, the [f] in נפתח must be an underlying /p/. In דיווחו, the suffix /u/ is added to דיווח, which has a /v/, so the [f] of *electrician* is underlying /k/. Finally, להבטיח is derived from בטח, so the [f] is underlyingly /b/. A phonetic [f] in Hebrew can thus derive from underlying /f/, /p/, /v/, or /b/.