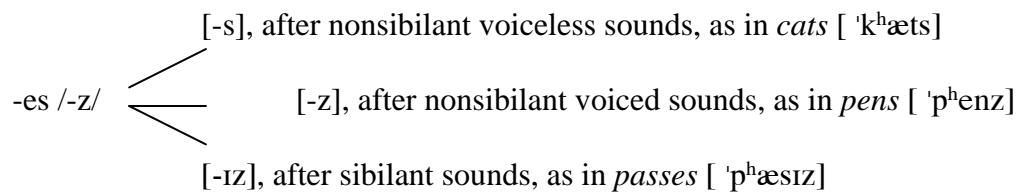


Taken from: Zapata Becerra, A. A. (2000). Handbook of general and applied linguistics. Trabajo de Ascenso sin publicar. Mérida, Venezuela: Escuela de Idiomas Modernos, Universidad de Los Andes.

PHONETIC REALIZATIONS OF MORPHEMES

A morpheme usually takes different forms, depending on the linguistic environment where the morpheme occurs. Each of the different phonetic forms (realizations or variants) that a morpheme can have is called an **allomorph**. All the allomorphs of a given morpheme are semantically related to one another; they usually have the same meaning. Moreover, the allomorphs of a morpheme are generally in **complementary distribution**; i.e., in the context where one allomorph appears, the other allomorphs cannot occur. For example, the regular plural morpheme **-es** has three allomorphs that occur in different contexts as follows.



Morphophonemics, a branch of a structural linguistics, is in charge of studying the variations in the forms of morphemes because of phonetic factors (Richards et al., 1985). In this sense, when the different forms that a morpheme takes can be predicted or accounted for by the phonological environment (or context) in which they occur, without reference to the morpheme itself, the **allomorphs** are said to be **phonologically conditioned** or to exhibit **automatic alternation**. For instance, the three allomorphs of the regular plural morpheme are phonologically conditioned because their different shapes are determined by the nature of the preceding sounds. Besides, as the allomorphs are in complementary distribution, they alternate with each other. Such an alternation is graphically represented as follows:

/-z/ = [-s] ~ [-z] ~ [-ɪz]

The symbol ‘~’ is read ‘alternates with’ or ‘is in phonologically conditioned alternation with.’

On the other hand, when the allomorphs of a morpheme do not conform to any phonological reason as to why they exist; i.e., when they cannot be explained or predicted by the phonological environment, they are said to be **morphologically conditioned allomorphs**. These allomorphs can take many forms and are usually considered irregularities or exceptions of the language. These irregularities are the result of historical (or diachronic) processes and must be learned as characteristics peculiar to specific morphemes (cf. Byrne, 1978). For instance, the different allomorphs for the irregular plural in English are cases of morphologically conditioned allomorphs, such as **-en** in *child/children, ox/oxen, pensum/pensa, brother/brethren*; **-a** in *criterion/criteria*; **-ta** as in *schema/schemata*, and so on.

There are other cases of irregularities that consist in internal changes within the vocalic structure of free morphemes as in *foot/feet, man/men, mouse/mice*; and so forth. The vowel sound that replaces another vowel sound in the morpheme is sometimes called a **replacive morpheme** and the process is represented as follows:

foot/feet: [ʊ → i:], tooth/teeth [u: → i:]

sing/sang: [ɪ → æ], parenthesis/parentheses [ɪ → i:].

The arrow should be read ‘is replaced by’.

There is still another case of irregularity that is represented by no overt linguistic change, or zero change, in the form of the morpheme. Structural linguistics have coined the term **zero allomorph** to refer to this irregularity and have used the null sign, [∅], to

represent such an ‘allomorph’. It is worth noting that the idea of zero allomorph has been introduced for paradigmatic reasons, i.e., to fill gaps or absences in a given paradigm. For example, it can be said that the plural *books* is the result of adding the allomorph [-s] to the singular morpheme [bʊk], or differently stated: *books* = *book* + [-s]. In a similar manner, the plural *sheep* could be accounted for as the result of ‘adding’ the zero allomorph to the singular morpheme [ʃi:p], or differently stated:

$$\textit{sheep (plural)} = \textit{sheep (sing.)} + [-\emptyset]$$

In order to indicate that some morphologically conditioned allomorphs alternate, the symbol ‘∞’ has been proposed. For instance, the irregular plural allomorph /-ən/ alternates with [-ə]; this latter allomorph alternates with [-tə], [-tə] with [u: → i:], [ʊ → i:] and [-∅], and so on. At the same time, the regular plural allomorphs themselves would also alternate with the irregular allomorphs. Then, the allomorphs of the plural morpheme in English would be the following:

$$\{-es\} = ([-s] \sim [-z] \sim [-ɪz]) \infty [-ə] \infty [-ən] \infty [-tə] \infty [ʊ \rightarrow i:] \infty [aʊ \rightarrow aɪ] \infty [u: \rightarrow i:] \infty [æ \rightarrow e] \infty [ʊ \rightarrow ɪ] \infty [ɪ \rightarrow i:] \infty [-\emptyset], \text{ etc.}$$

Besides occurring in complementary distribution, **allomorphs** can also appear in **free variation**, i.e., as phonetically slightly different allomorphs of the same morpheme that can occur in the same environment without causing differences in meaning. For example, the noun-forming suffix is realized as **-er** /-ər/ American English but as /-ə/ in British English (cf. Gleason, 1961).

IV. MORPHOPHONEMIC RULES

When morphemes are arranged together, they usually undergo phonetic changes due mainly to the influence of the neighboring sounds. The processes or operations that morphemes undergo and that affect their phonetic structure are often referred to as **modification, sandhi**, or simply **morphophonemic processes**. Among such processes are assimilation, dissimilation, addition, deletion, etc. In order to account for the changes in form that some morpheme undergo when they come into contact with other morphemes and in order to explain the processes involved in such changes, a few morphophonemic rules have been proposed. **Morphophonemic rules** aim to account for the occurrence of the different allomorphs (or **surface representations**) of a morpheme. The application of such rules is determined by both the phonology and the morphology of particular languages.

Morphophonemic rules apply to morphemes only, whether they are single sounds, syllables or whole words. Below some morphophonemic rules are given, together with their possible formalization. Some of the morphophonemic rules described here could as well be presented as phonological rules in Unit 2.

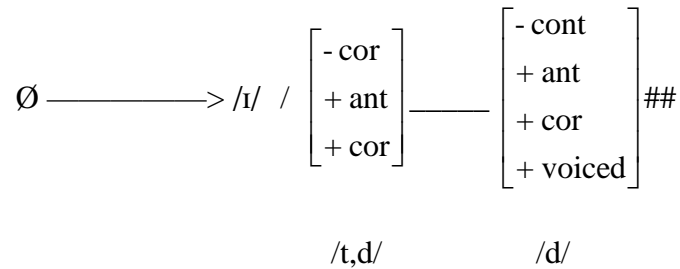
Plural Epenthesis Rule:

$$\emptyset \longrightarrow /ɪ/ / \left[\begin{array}{l} + \text{ cor} \\ + \text{ str} \end{array} \right] \left[\begin{array}{l} + \text{ ant} \\ + \text{ cor} \\ + \text{ str} \\ + \text{ voiced} \end{array} \right] \#\#$$

/s,z,ʃ,ʒ,tʃ,dʒ/ /z/

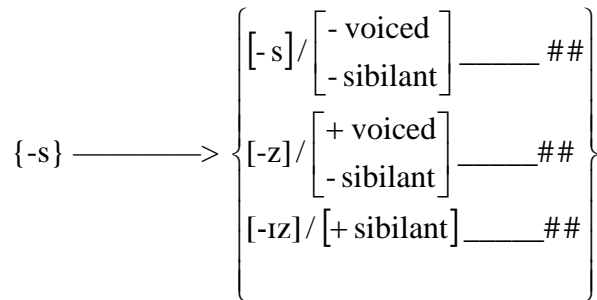
Read: Add an /ɪ/ between a verb base ending in a sibilant consonant and the plural morpheme, as in *buses* ['bʊsɪz], *ashes* ['æʃɪz].

Past Epenthesis Rule:



Read: Add an /ɪ/ between a verb ending in an alveolar stop and the past morpheme, as in *insulted* [ɪn 'sʌltɪd], *pretended* [pɪ 'tʰendɪd].

The Regular Plural Rule:



Read: The regular plural morpheme {-s} is pronounced [-s] after nonsibilant voiceless sounds, [-z] after nonsibilant sounds and [-ɪz] after sibilant sounds. E.g. *book/books* [bʊk]/[bʊks], *pen/pens* [pʰen]/[pʰenz], *ash/ashes* ['æʃ]/['æʃɪz].

A formalization and statement similar to the ones just given above can be made for The Third Person Rule, the Possessive Rule, and The 's (= is, has, does) Rule.

The Regular Past Rule

$$\{-ed\} \longrightarrow \left\{ \begin{array}{l} [-t] / \begin{array}{l} [- \text{voiced}] \\ [- \text{alveolar stop}] \end{array} \text{---} \#\# \\ [-d] / \begin{array}{l} [+ \text{voiced}] \\ [- \text{alveolar stop}] \end{array} \text{---} \#\# \\ [-ɪd] / [+ \text{alveolar stop}] \text{---} \#\# \end{array} \right\}$$

Read: The regular past morpheme {-ed} is pronounced [-t] after voiceless sounds except /t/, [-d] after voiced sounds except /d/, and [-ɪd] after the alveolar stops /t/ and /d/. E.g., *pass/passed* [pʰæs]/[pʰæst], *turn/turned* [tʰɜ:rn]/[tʰɜ:rnd], *decide/decided* [dɪ'saɪd]/[dɪ'saɪdɪd].

A formalization and statement similar to the ones just given above can be made for The Regular Past Participle Rule.

The Assimilation of *n*-ending Prefixes Rule:

$$\{in-\} \longrightarrow \left\{ \begin{array}{l} [ɪm-] / \text{---} [+ \text{bilabial}] \\ [ɪŋ-] / \text{---} [+ \text{labiodental}] \\ [ɪn-] / \text{---} \left\{ \begin{array}{l} [+ \text{alveolar}] \\ [- \text{lateral}] \end{array} \right\} \\ \quad \quad \quad [+ \text{vocalic}] \\ [ɪl-] / \text{---} [+ \text{lateral}] \\ [ɪr-] / \text{---} [+ \text{frictionless cont.}] \\ [ɪŋ-] / \text{---} [+ \text{velar}] \end{array} \right\}$$

Read: The **n** of the prefix **in-** (and in general of any **n**-ending prefix) assimilates in place of articulation to a following obstruent. For instance, the **n** of **in-**, as in *intolerable*, becomes **m** in *impolite*, **l** in *illegal*, **r** in *irrelevant*.