



An Animated and Narrated Glossary of
Terms used in Linguistics
presents

SPE-type Rule



SPE type-rule

- SPE-type rules have the following form
$$A \rightarrow B / [E _]$$
, where A, B are items, and E is the environment where A would alternate with B.
- Read “A becomes B in environment E”.
- An SPE-type rule states the relationship between two forms as a process of one becoming the other.



SPE

- SPE stands for *Sound Pattern of English*
- It is the title of an important book
Chomsky, Noam and Morris Halle (1968)
The Sound Pattern of English. The MIT Press.
- Chomsky & Halle (1968) focused their discussion on English, but main ideas extend beyond English.

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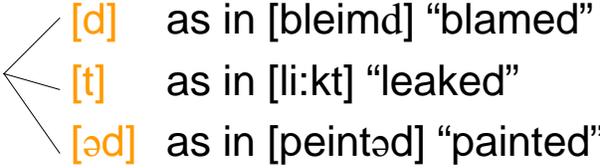
A Central Idea in SPE

- The grammar of a language is the system of rules that specifies the correspondence between an ideal phonetic form and an associated intrinsic semantic interpretation.
(p.3)

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Example: Past Tense

Consider the regular English Past Tense which has the following forms:

Past tense 

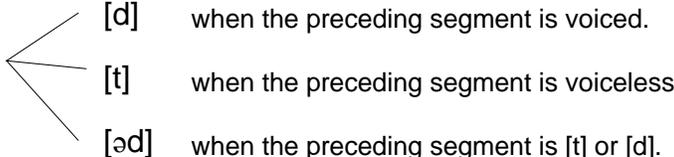
- [d] as in [bleimd] “blamed”
- [t] as in [li:kt] “leaked”
- [əd] as in [peintəd] “painted”

How can we state this pattern in the form of grammatical rules?

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Past Tense: Environment

The phonetic form of the past tense is predictable.

Past tense 

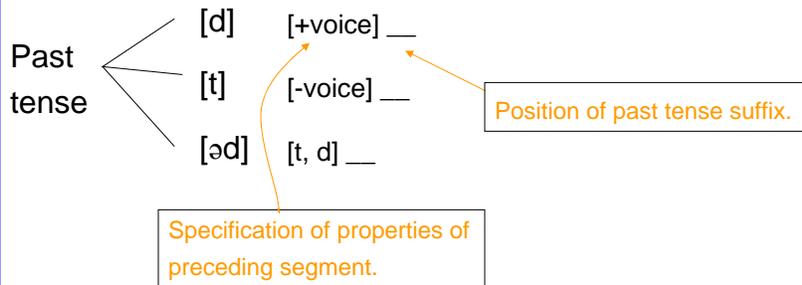
- [d] when the preceding segment is voiced.
- [t] when the preceding segment is voiceless.
- [əd] when the preceding segment is [t] or [d].

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Formal Statement of Environment

Stating the environment of each phonetic form can be done in the following way.



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Formal Statement of Environment

__ indicates the position of the item under discussion.

Hence,

E __ = in the environment where E precedes the item under discussion.

__ F = in the environment where F follows the item under discussion.

E __ F = in the environment the item under discussion is sandwiched between E and F

G
⊥ = in the environment where G dominates the item under discussion.

E, F and G could be any linguistic entity such as a phonological feature, a morpheme, a boundary, etc.

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So far we have statements of the environments for each of the phonetic forms of the past tense.

However, we still have not captured the correspondence between the semantic interpretation of Past Tense with the Phonetic forms.

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Past Tense as Alternation

- Let's assume that the English Past tense is really /d_{past}/.
- Thus we must explain that
 - /d_{past}/ becomes [t] in a certain environment
 - /d_{past}/ → [əd] in a certain environment
 - Otherwise /d_{past}/ stays as [d]

→ = becomes

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Past Tense as Alternation

- /d_{past}/ → [t], Environment: [-voice] __

SPE notation:

/d_{past}/ → [t] / [-voice] __

In the environment

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Deriving [ə]

- If we assume that the past tense is /d_{past}/, then [ə] must be an inserted element when the past tense is preceded by [t] or [d].

∅ → ə / alveolar plosive __ alveolar plosive

∅ = nothing

Read: *Nothing becomes [ə] when sandwiched between two alveolar plosives.*

Insert [ə] between two alveolar plosives.

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SPE-type Rules

- Because Chomsky & Halle (1968) used rules of the format

$$A \rightarrow B / [\text{Environment } __]$$

Rules that have this format became known as SPE-type Rules.

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Extending SPE-type Rules

Examples outside of Linguistics

/alien from Krypton/ → Superman / [_{trouble} $__$]

/alien from Krypton/ → Clark Kent / [_{no trouble} $__$]

/insomniac guy/ → Batman / [_{trouble} $__$]

/insomniac guy/ → Bruce Wayne / [_{no trouble} $__$]

/frog/ → prince / kiss $__$

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Further reading

Chomsky, Noam and Morris Halle (1968) *The Sound Pattern of English*. MIT Press.

Gussenhoven, Carlos and Haike Jacobs (2005) *Understanding Phonology*, 2nd edition, Chapter 6. New York: Hodder Arnold.

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The End

Wee, Lian-Hee and Winnie H.Y. Cheung (2009)
An animated and narrated glossary of terms used in Linguistics.
Hong Kong Baptist University.