Intermediate Summary

Phonological knowledge includes:

1) Knowing what the sound units of one's language are. These units are stored in an underspecified form.

2) Knowing how underspecified units are to be realised, given the context in which they occur.

Converting URs to SRs

- **Question:** How can underspecified phonological objects be realised?

- **Surface Representations** (SRs) are determined by context:

    e.g. /p/ is pronounced [p^h] at the start of a stressed syllable

- Thus, **Underlying Representations** (URs) can be converted into SRs

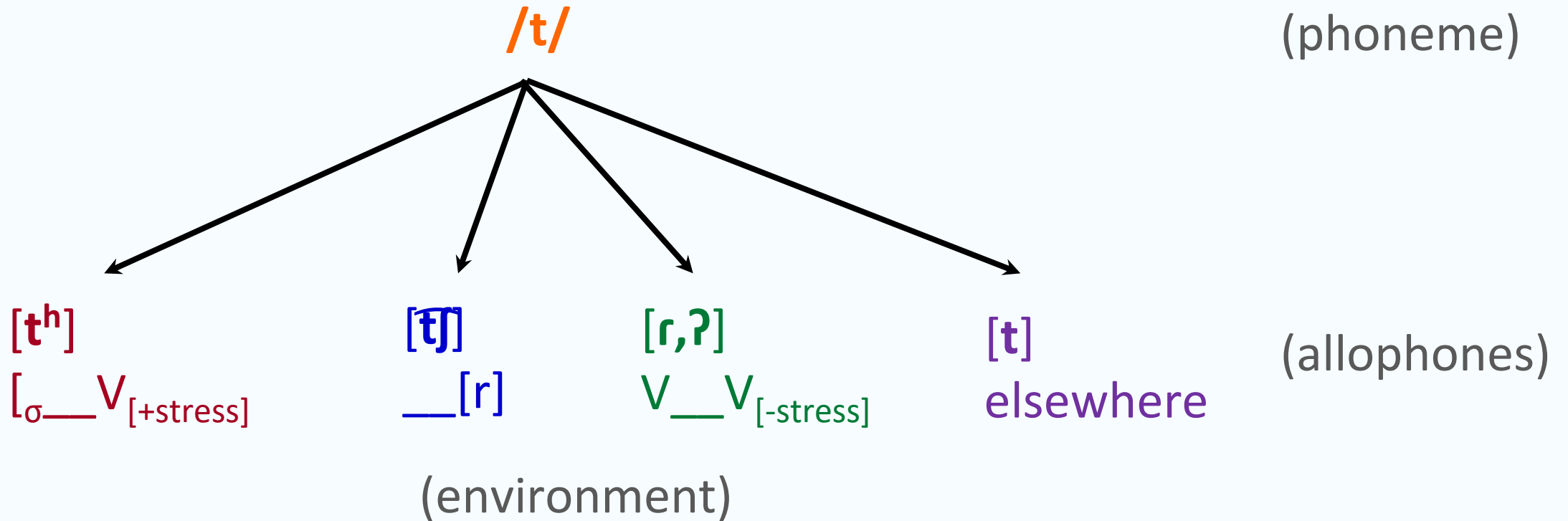   by simple, context-sensitive rules:

$$p \rightarrow [+asp]/\sigma\underset{[+stress]}{\overset{V}{\underline{\quad\quad}}}$$
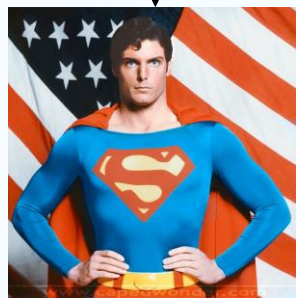
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Phonemes and Allophones

• The underlying units are called **phonemes**.

• Each phoneme has one **or more** realisations, determined by context.

• The various realisations of a phoneme are called **allophones**.

• Example:

  • The phoneme /p/ has at least two allophones:

    1) [pʰ] (before stressed vowels)

    2) [p] (elsewhere)

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Allophones of /t/ in English

Examples: **t**op, **t**ree, bu**tt**er, s**t**un

/t/   (phoneme)

[**tʰ**]   [**t͡ʃ**]   [**ɾ,ʔ**]   [**t**]   (allophones)

$[_\sigma \underline{\quad} V_{[+stress]}$ $\underline{\quad}[r]$ $V\underline{\quad}V_{[-stress]}$ elsewhere

(environment)

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Entities and their **allos** in fiction
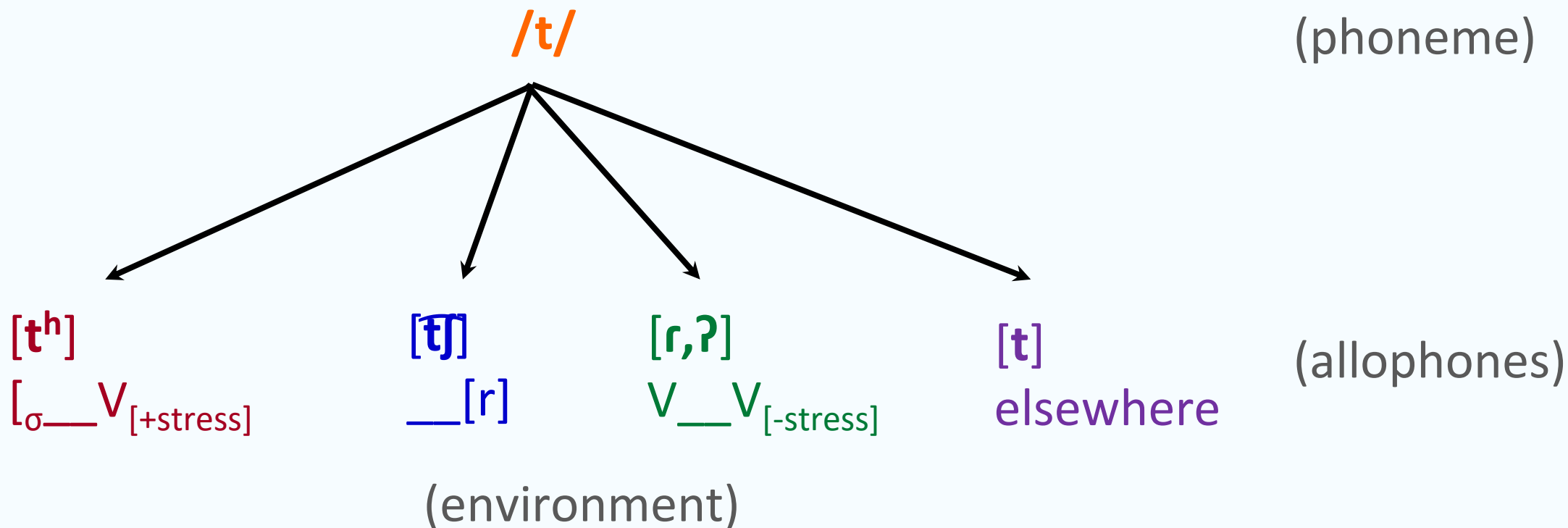
Rule:

CK → SM $/$ someone is in danger

When someone is in danger   Elsewhere

CK and SM are in **complementary distribution**:

where one appears, the other does not.

Entities and their **allos** in linguistics

Examples: **t**op, **t**ree, bu**tt**er, s**t**un

/t/   (phoneme)

[**tʰ**]   [**t͡ʃ**]   [**ɾ,ʔ**]   [**t**]   (allophones)

[$_\sigma$__V$_{[+stress]}$ __[r]   V__V$_{[-stress]}$ elsewhere

(environment)

These variants of /t/ are also in **complementary distribution**:
where one occurs, the others do not.

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Phonological Rules

- **/A/ → [B] / C**

'A' is realised as 'B' in environment 'C'.

- Examples:

  - $/t/ \rightarrow [t^h] / [_\sigma\underline{\quad}[\overset{V}{+stress}]$

  - $/t/ \rightarrow [t͡ʃ] / [_\sigma\underline{\quad}[ɹ]$

  - $/t/ \rightarrow [ɾ] / V\underline{\quad}[\overset{V}{-stress}]$

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A Closer Look at English /l/

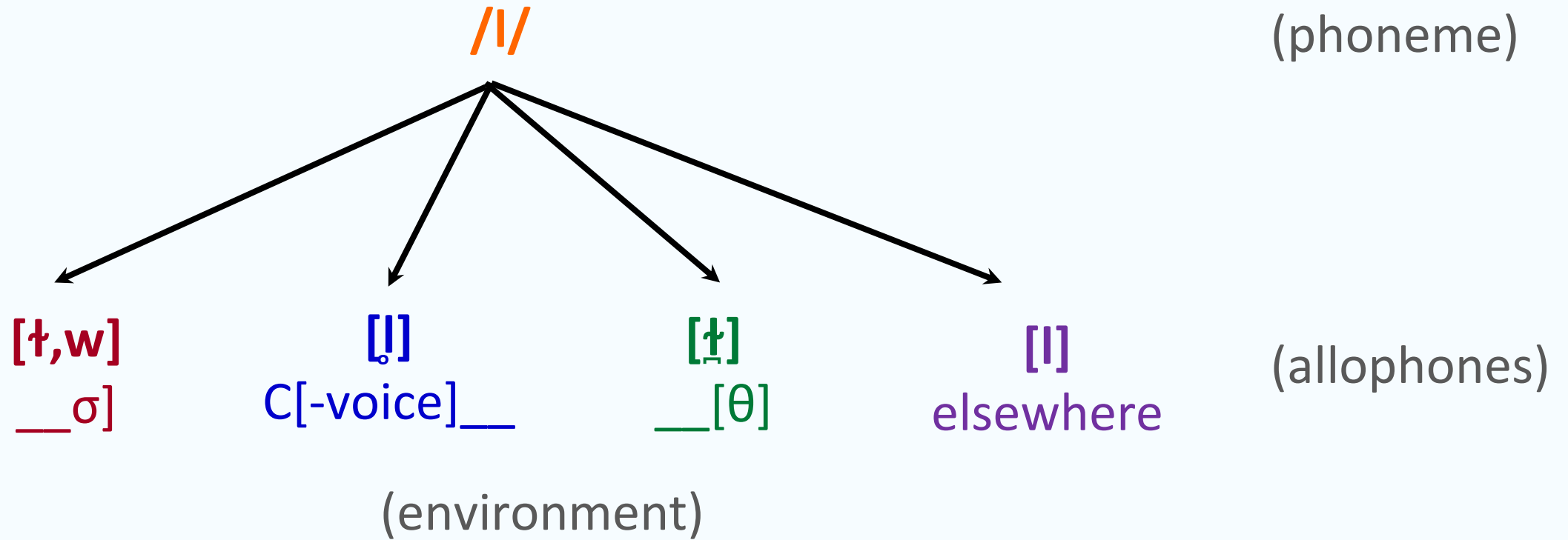[ɫ]   file, fool, all, ball, fell, feel   ([w] for some)

[l̥]   slight, flight, plow, cling, discipline

[ɫ̩]   wealth, health, filth, tilth, stealth

[l]   listen, lose, allow, aglow, blend

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Allophone Diagram for English /l/

Examples: fi**l**e, p**l**ay, stea**l**th, **l**one**l**y

/l/   (phoneme)

[ɫ,w]   [l̥]   [ɫ̪]   [l]   (allophones)
__σ]   C[-voice]__   __[θ]   elsewhere

(environment)

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Allophonic Rules for English /l/

- /l/-Velarisation:

$$/l/ \rightarrow [ɫ] \: / \underline{\hspace{1em}} \: \sigma$$

- /l/-Devoicing:

$$/l/ \rightarrow [l̥] \: / \: \begin{matrix} C \\ [-voice] \end{matrix} \underline{\hspace{1em}}$$

- /l/-Dentalisation:

$$/l/ \rightarrow [ɫ̪] \: / \underline{\hspace{1em}} \: \theta$$

Phonotactics

- Recall our discussion of word-initial #*sp*- and #*ps*- sequences:

  - English allows **#sp-**, but not ***#ps-** (spin, *psin)

  - Greek allows both **#sp-** and **#ps-**   (spanakhi, psikholoyía)

→ Speakers must have knowledge of a set of constraints which

  determine how the phonemes of their language can be combined.

→ We call these **phonotactic constraints**.

Syllables

- **Syllables** (σ) play an important role in characterising the combinatorial potential of phonemes.

- Example:

  - **[ft]** is impossible syllable-initially:

        *[**ft**a.leɪt]

  - **[ft] is** possible if [f] and [t] occur in different syllables:

        [aː**f**.**t**ə]

Summary

- Speech sounds consist of underspecified feature bundles.

- Speakers know which features of their language are contrastive.

- Sounds are grouped into natural classes based on shared features.

- Natural classes allow for generalisation of phonological patterns.

- Speakers know how individual phonemes are realised, given a context.

- Speakers know how phonemes can and cannot be combined into words.