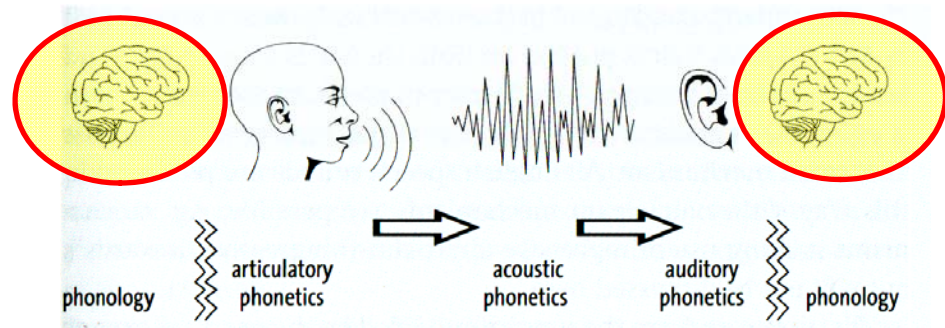


# Recap from last week

- We saw the basics of phonology
  - defining phonemes as ‘abstract sounds’
  - introducing allophones of phonemes
  - saw complementary distribution of allophones at work
  - saw the role of the phonological system as one of imposing *linguistic* order on the physical sound data



# Phones, Phonemes, Language

The **phonological system** of a language defines which ‘abstract sounds’ are available to distinguish meanings

It defines ‘abstract sounds’, or **phonemes**, as a collection of actual sounds (phones) that are **not distinguished** by speakers of the language.

# Phones, Phonemes, Language

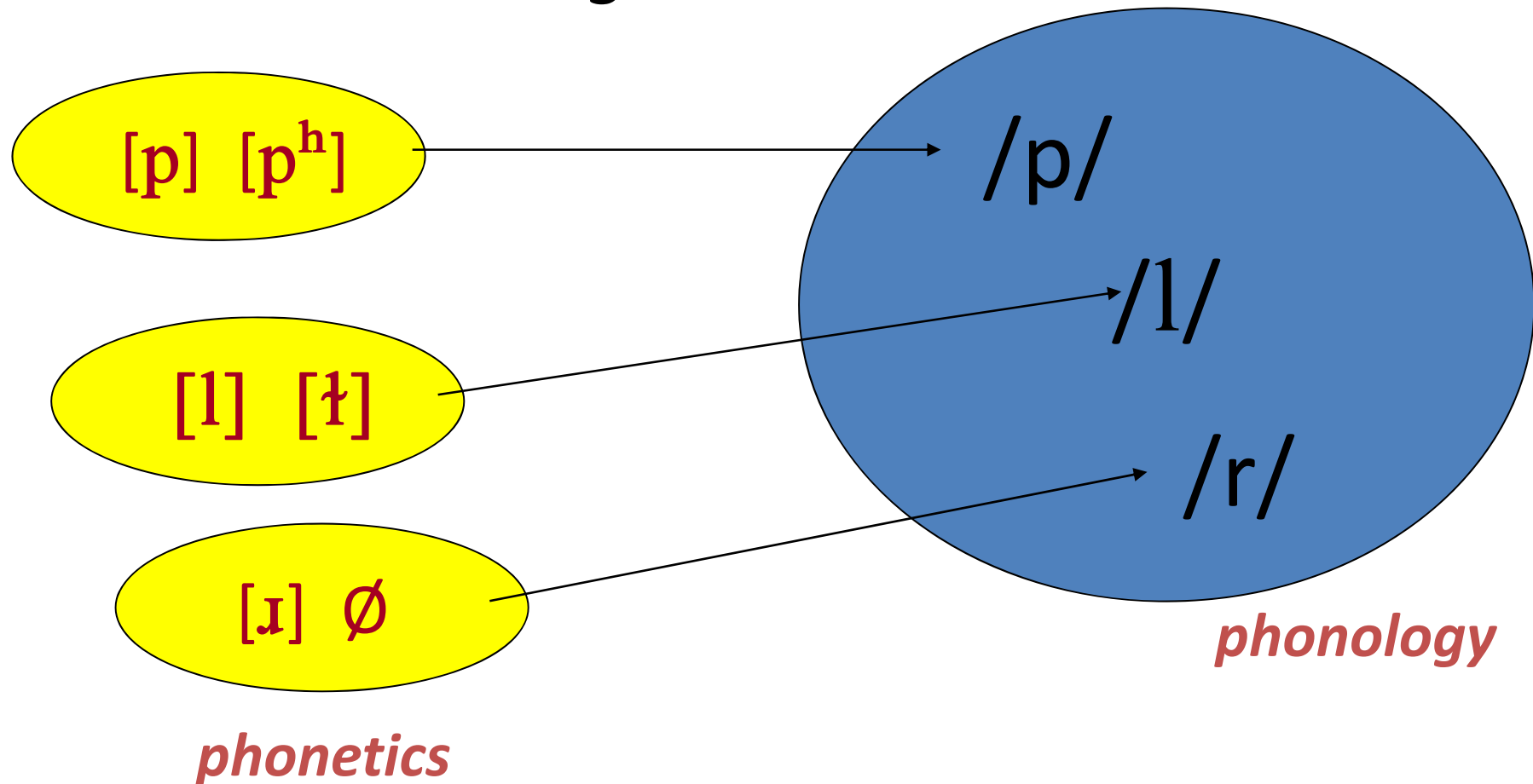
Which phones are allophones of which phonemes **depends on the language!!**

For example:

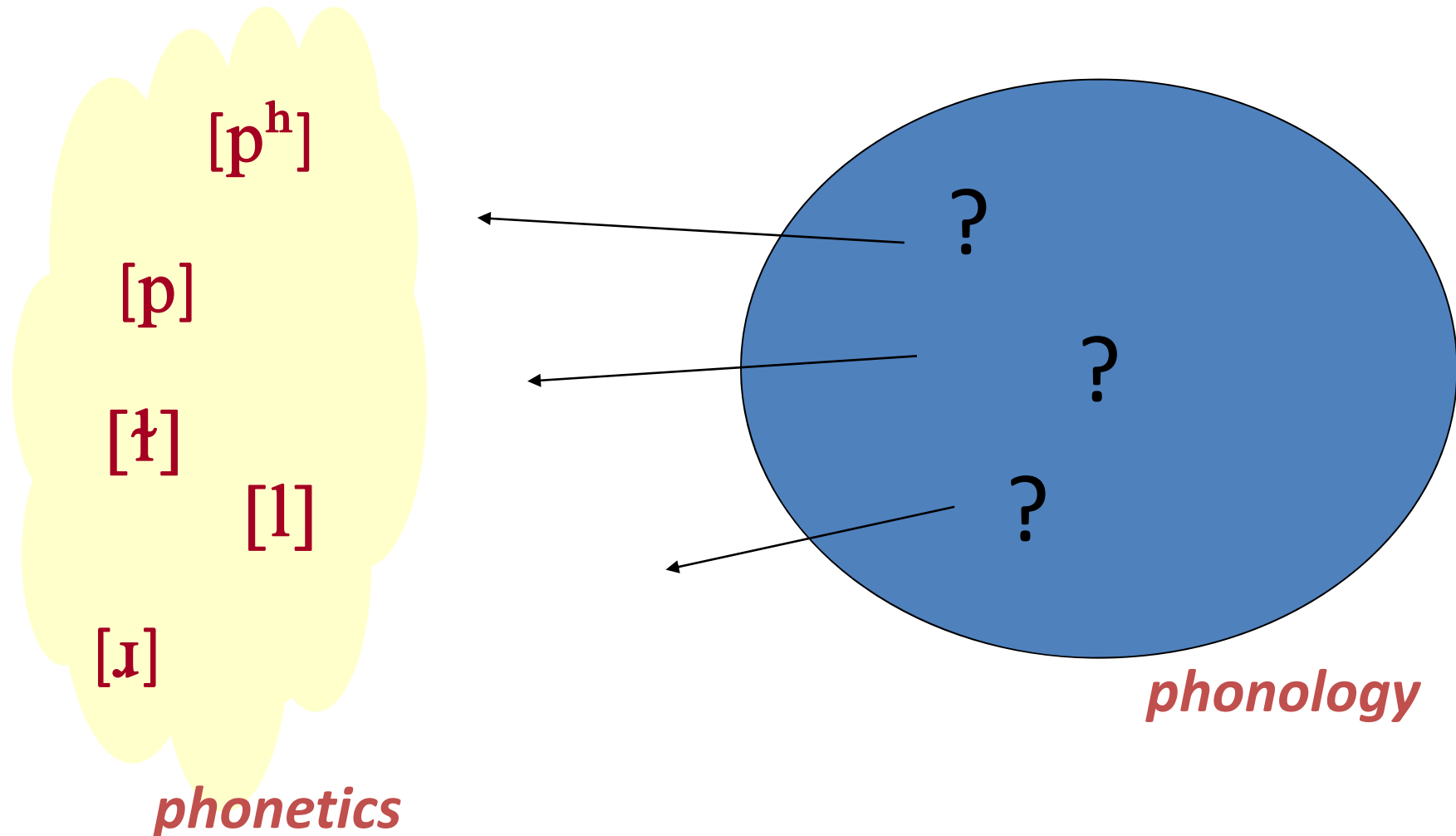
- Chinese / Japanese does not distinguish [l] and [ɭ], some other languages do!
- English does not distinguish [p] and [p<sup>h</sup>], some other languages do!

# Phones, Phonemes, Language

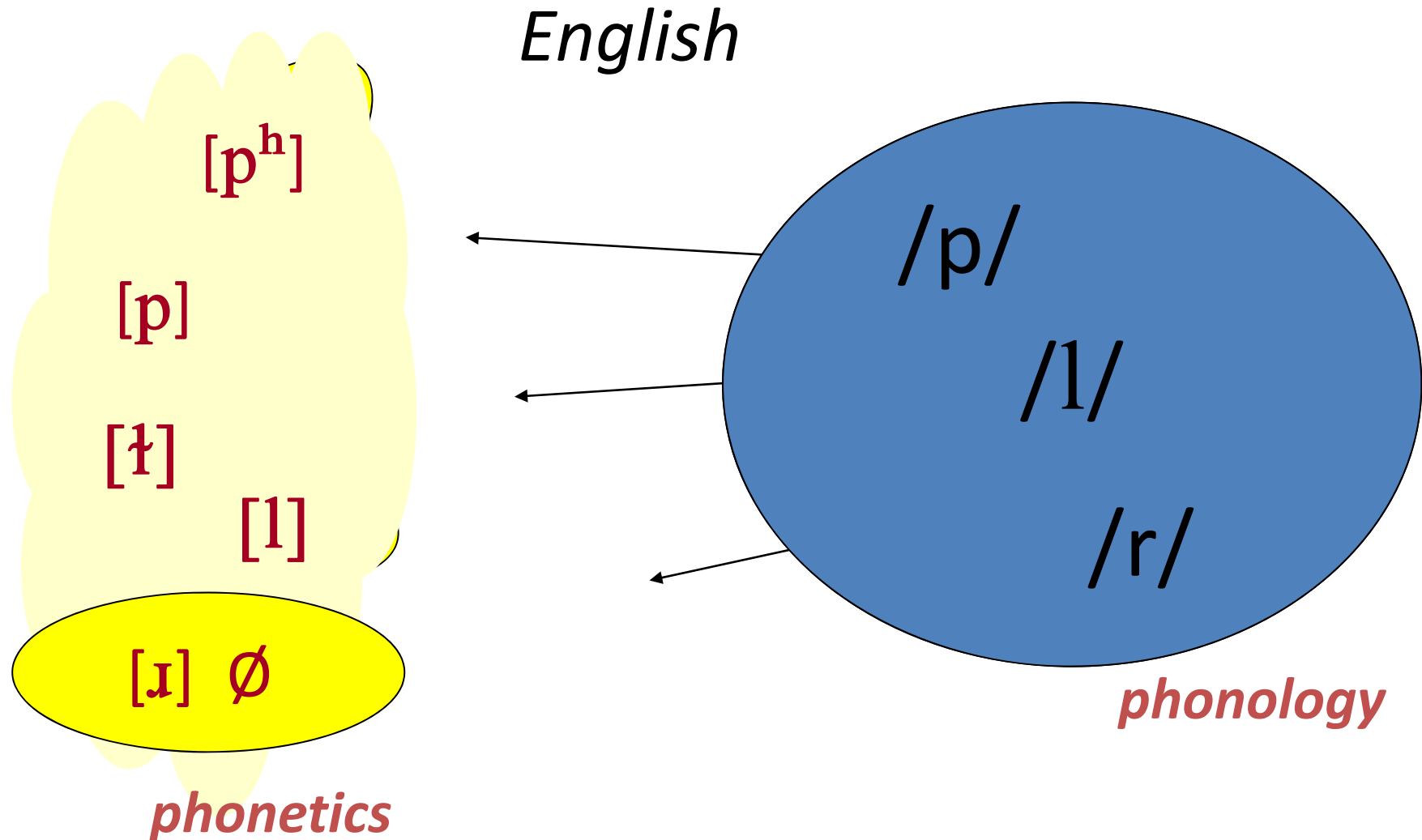
*English*



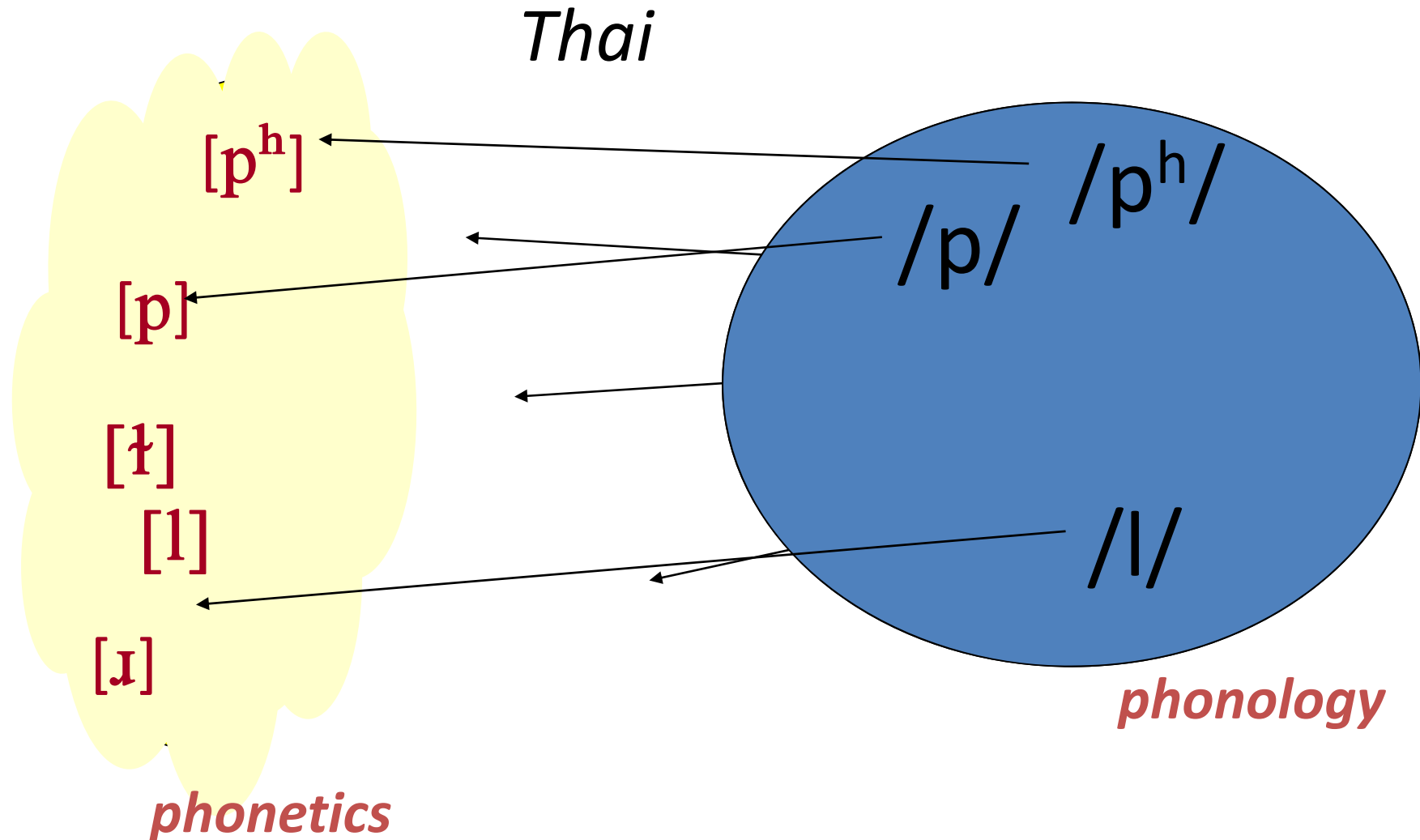
# Phones, Phonemes, Language



# Phones, Phonemes, Language



# Phones, Phonemes, Language



# Phones, Phonemes, Language

/p<sup>h</sup>/

[p<sup>h</sup>]

[p]

/p/

*Thai*

[t]

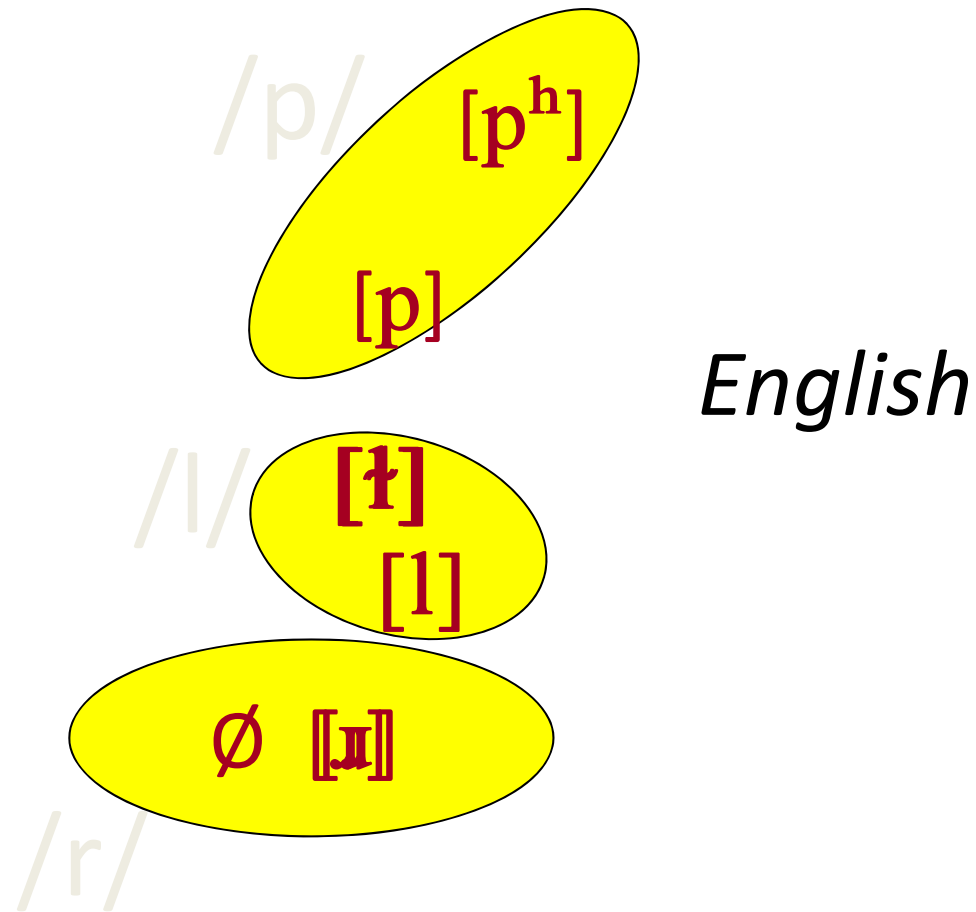
[l]

[ɾ]

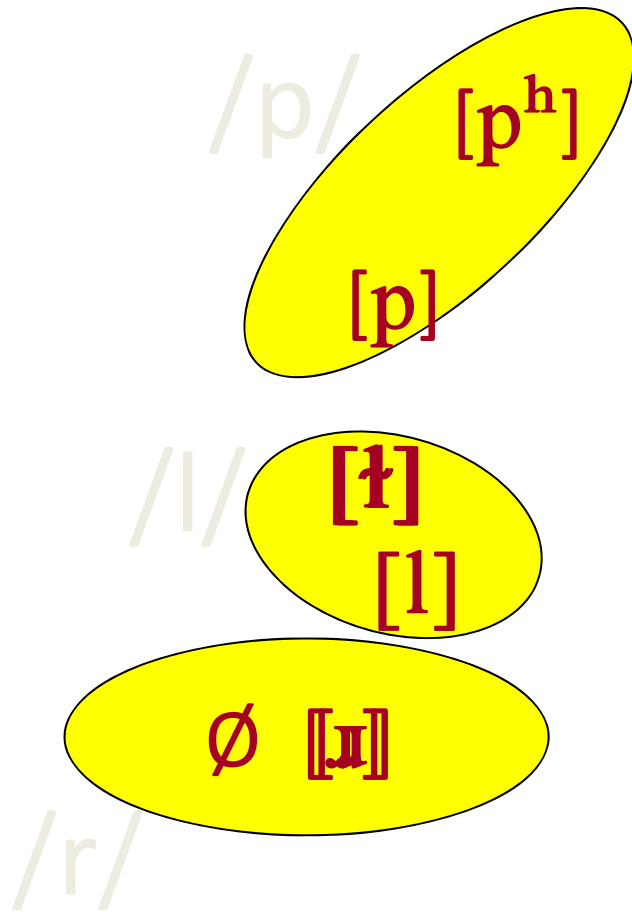
/l/



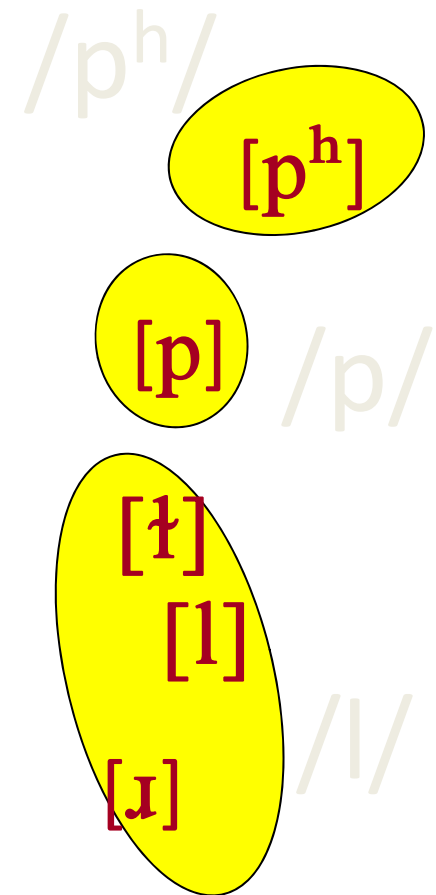
# Phones, Phonemes, Language



# Phones, Phonemes, Language



*English*



*Thai*

# Phones, Phonemes, Language

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# Description vs. Prescription

- Description
  - describing how language **is**, systematising our observations in order to serve as a basis for proposing theories.
- Proscription / Prescription
  - saying how language **should be**, based on norms and social standards, sense(s) of aesthetics, ‘folk’-feelings about language.
  - **Not linguistic!**

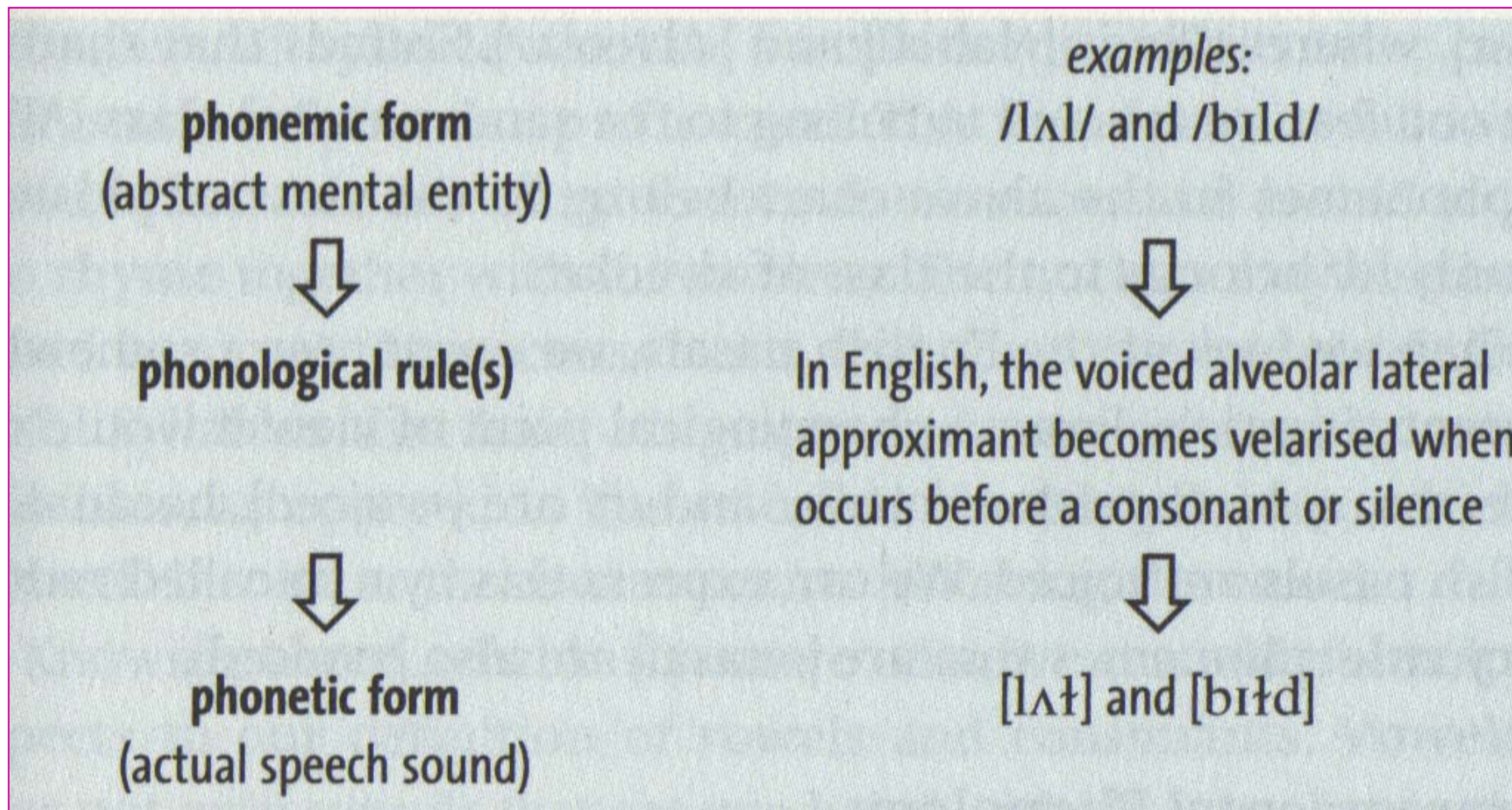
# Description vs. Prescription

- Description
  - describing how language **is**, systematising our observations in order to serve as a basis for proposing theories.
  - **Empirical.**

- ~~• Proscription / Prescription
  - saying how language **should be**, based on norms and social standards, sense(s) of aesthetics, 'folk'-feelings about language.
  - **Not linguistic!**~~

# Doing Phonology

- Phonology
  - is about how languages **divide up** the individual sounds into units for making distinct meaning-carrying elements
  - so we have to look at languages to see how they are doing this
  - we try to explain this using phonological rules and structures that capture **generalisations**



Introduction to English Linguistics  
(Bieswanger / Becker)

**Fig. 3.25**

*Phonological rules*

# Linguistic features

- We always use linguistic features
  - phonetic features
  - syntactic features
  - phonological features
  - morphological features

to make **generalisations**



# Another example of a phonological rule

allophonic realisations of /ɪ/ in RP

*/ɪ/* → {  
[ɪ̥] / C<sub>[-voiced]</sub> \_  
[ə] / V<sub>[+center]</sub> \_ #  
*zero* / V<sub>[+long]</sub> \_ #  
[ɪ] or [ɹ] / V \_ V  
[ɪ] / *elsewhere*

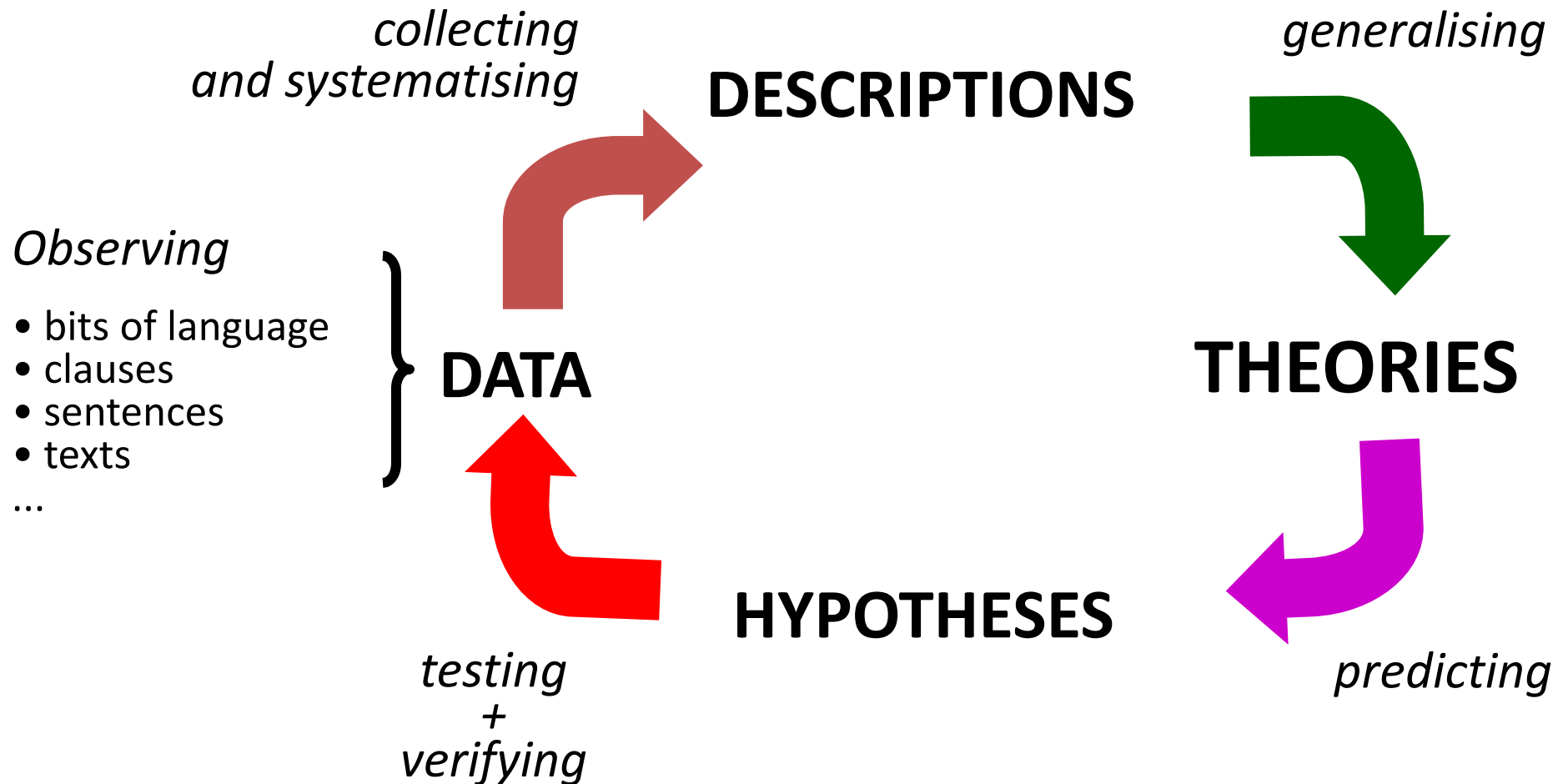
# Phonological rules as hypotheses

- A rule like the preceding can be seen as a **hypothesis**
- It can be **tested**
- and so it can also be found out to be **wrong!**

**“It is a capital mistake to theorize  
before one has data.”**

Sherlock Holmes

# Linguistics as a 'scientific' inquiry

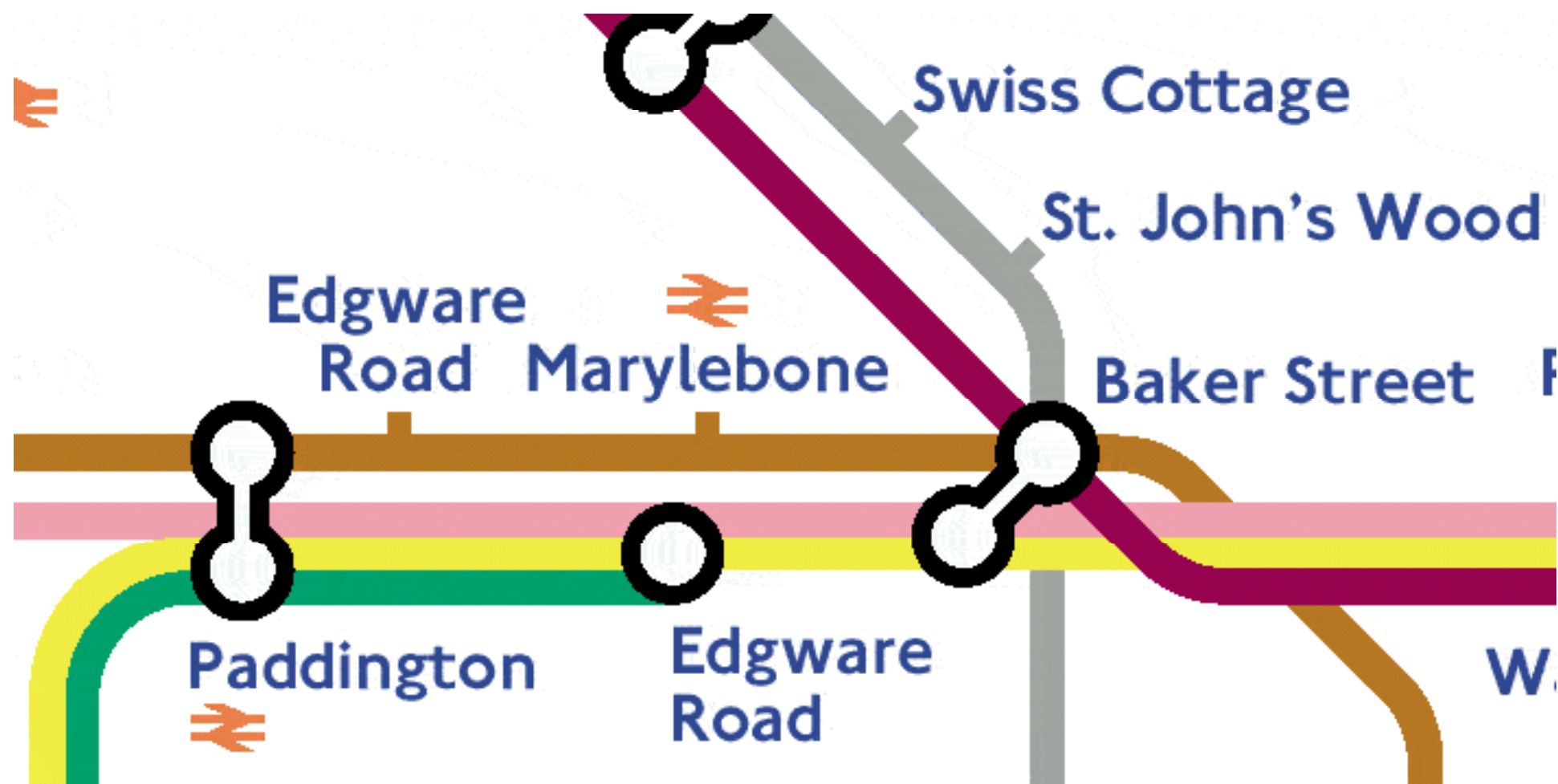


“Always simplify.”

Henry David Thoreau

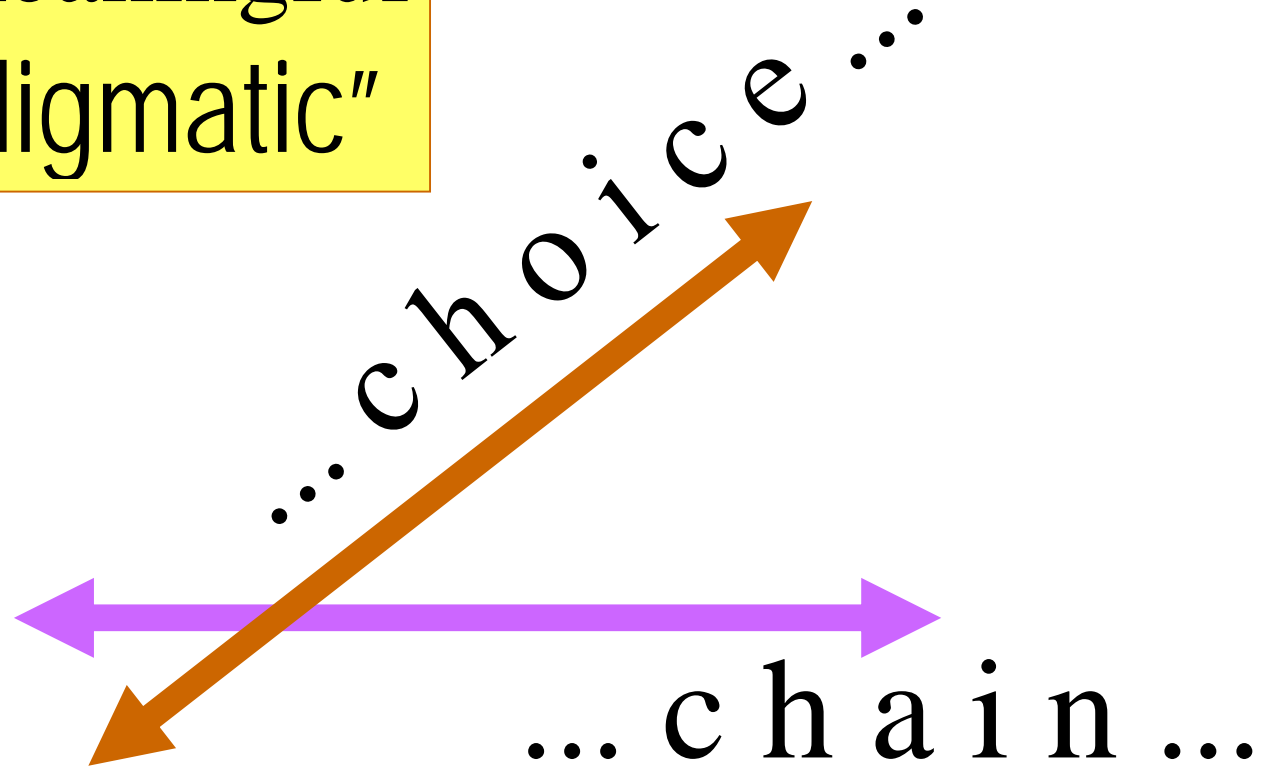
“Theories should be as simple as possible, but not more so.”

Albert Einstein

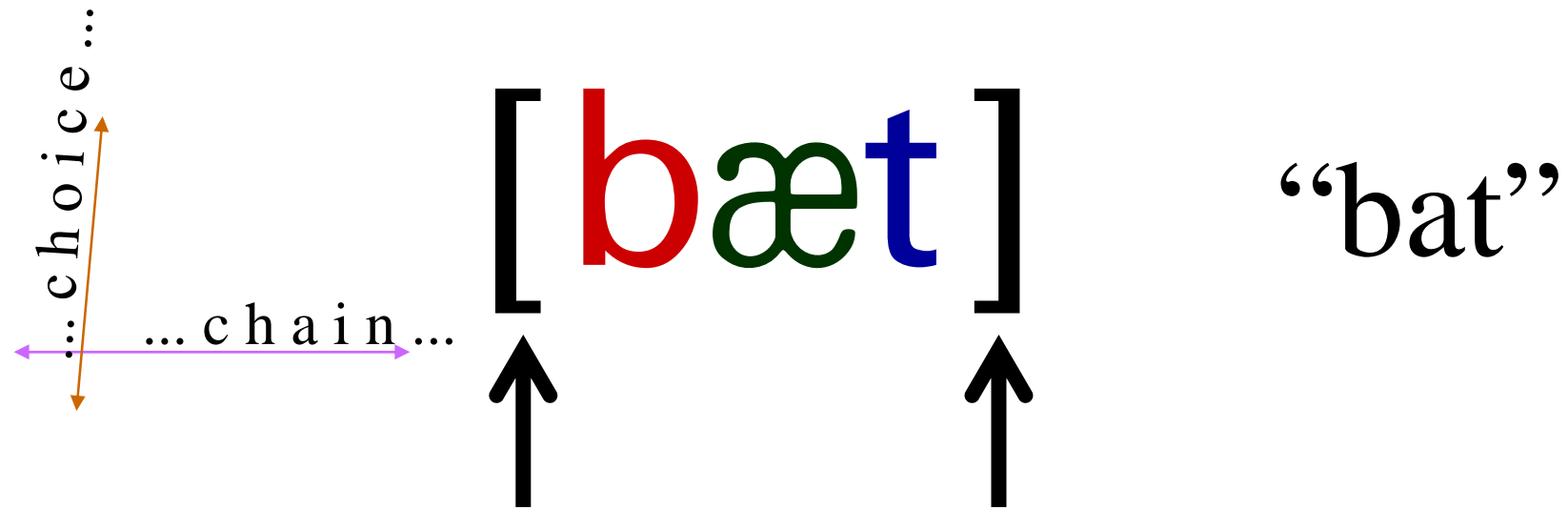


# Ferdinand de Saussure

choice is meaningful  
"paradigmatic"



"syntagmatic"



phonetics

| |

a chain of **phones**



# Is a 'chain' of phones enough...?

- When we try and explain some further phonetic/phonological regularities, there seems to be more going on...
- How do we know?
  - our rules start looking too **complicated**
  - our rules start having **exceptions**
  - our rules start having to say things that they **don't want** to say...

# The syllable...

- Any chain of phones in a language appears to divide itself up into **syllables**
- But what *is* a syllable?

# Data: *collecting and systematising*

Alfred, Al

[æɪ]

[fɪəd]

Susan, Sue

[su:]

[zən]

Patricia

[pə]

[tɹɪ]

[ʃə]

Trish

[tɹɪʃ]

is there anything  
that these all have  
in common?

# Data: *collecting and systematising*

Alfred, Al

[æɪ]

X

[fɪəd]

fɪ

Susan, Sue

[su:]

s

[zən]

z

Patricia

[pə]

p

[tɹɪ]

tɹ

[ʃə]

ʃ

Trish

[tɹɪʃ]

tɹ

# Data: *collecting and systematising*

Alfred, Al

[æɪ]

æ

[fɪəd]

ə

Susan, Sue

[su:]

u:

[zən]

ə

Patricia

[pə]

ə

[tɹɪ]

ɪ

[ʃə]

ə

Trish

[tɹɪʃ]

ɪ

# Data: *collecting and systematising*

Alfred, Al

[æɪ]

ɪ

[fɪəd]

d

Susan, Sue

[su:]

X

[zən]

n

Patricia

[pə]

X

[tɹɪ]

X

[ʃə]

X

Trish

[tɹɪʃ]

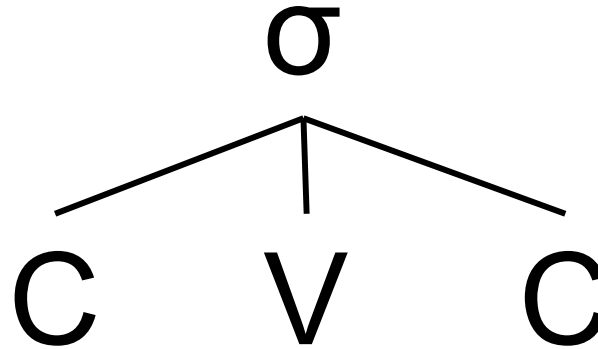
ʃ

# Data: *collecting and systematising*

Alfred, Al	optional	obligatory	optional
[æɪ]		æ	ɪ
[fɪəd]	fɪ	ə	d
Susan, Sue			
[su:]	s	u:	
[zən]	z	ə	n
Patricia			
[pə]	p	ə	
[tɪɪ]	tɪ	ɪ	
[ʃə]	ʃ	ə	
Trish			
[tɪɪʃ]	tɪ	ɪ	ʃ



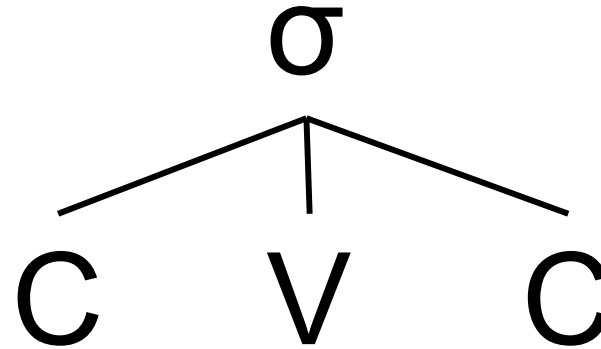
# Data: *collecting and systematising*



	optional	obligatory	optional
[fɪəd]	fɪ	ə	d



Data: *collecting and systematising*  
*description and hypothesis*

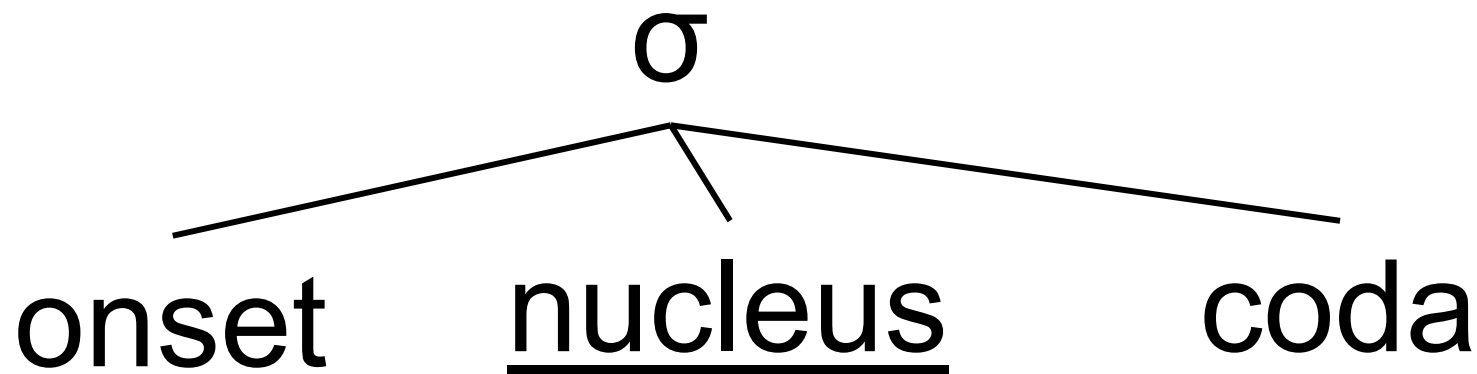


- ***Predictions:***

- there are syllables that only have vowels
- only one consonant before
- only one consonant after
- syllables must have vowels

*little, button, cupboard* [Am]

Data: *collecting and systematising*  
*description and hypothesis*  
*new hypothesis*



1 + x consonants

*which?*

vowel

diphthong

syllabic consonant

*which?*

1 + x consonants

*which?*

# Using syllable structure: syllabification

- How are chains of phones segmented into syllables?

pətɹɪʃə

pətɹɪʃə

pətɹ.ɪʃə

pə.tɹɪʃ.ə

pə.tɹɪ.ʃə

**Maximal Onset Principle**

# Using syllable structure: syllabification

- How are chains of phones segmented into syllables?

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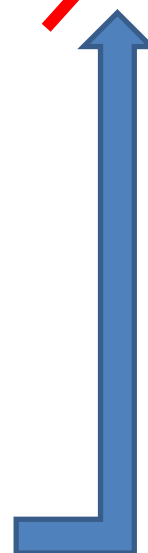
ælfɹəd

ælfɹəd

~~æ.lfɹəd~~

**Maximal Onset Principle**

**Sonority Sequencing Principle**



# Sonority Scale

vowels

> [w], [j]

> [ɹ]

> [l]

> C+nasal

> C+fricative, C+affricative

> C+plosive

# Onsets rise; codas fall

vowels

[w], [j]

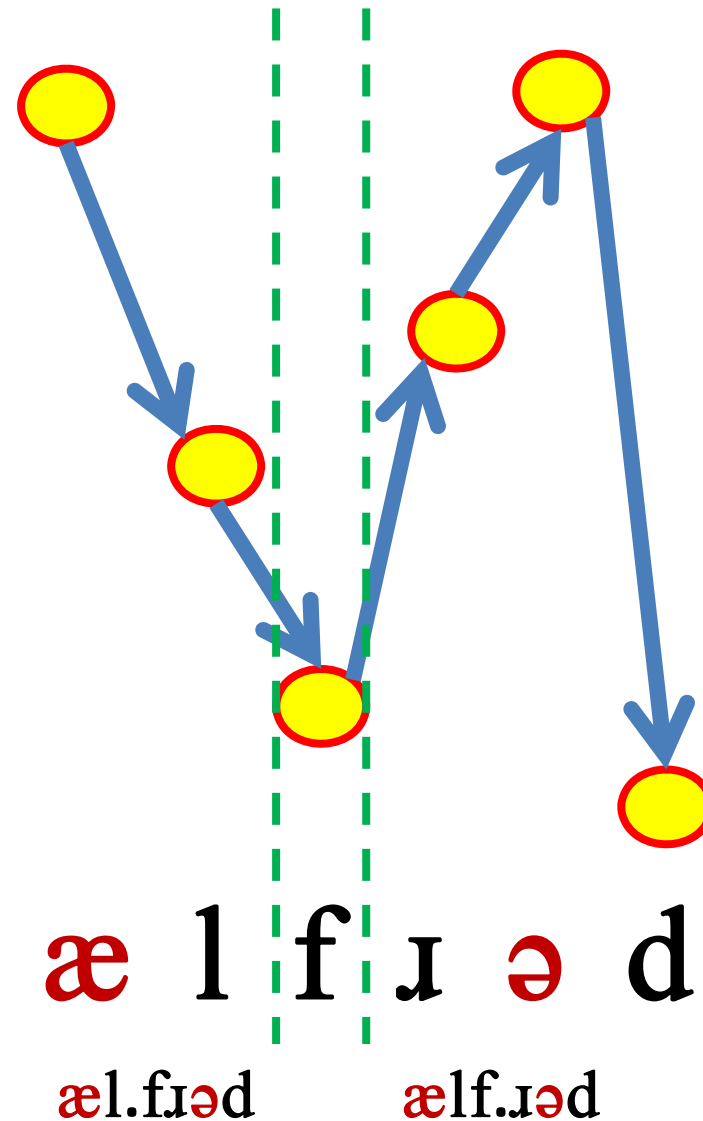
[ɹ]

[l]

C+nasal

C+fricative, C+affricative

C+plosive



# Onsets rise; codas fall

vowels

[w], [j]

[ɹ]

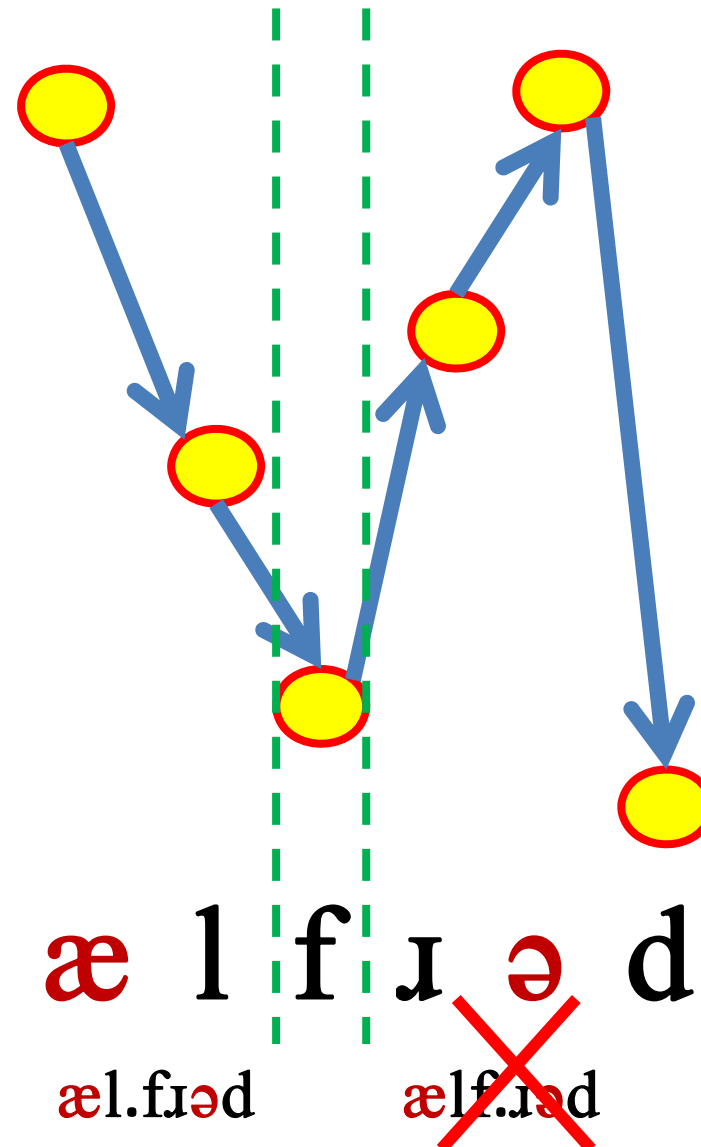
[l]

C+nasal

C+fricative, C+affricative

C+plosive

**Maximal Onset Principle**





# Syllables

- Now we have another abstraction, or generalisation, to use in our phonological rules...

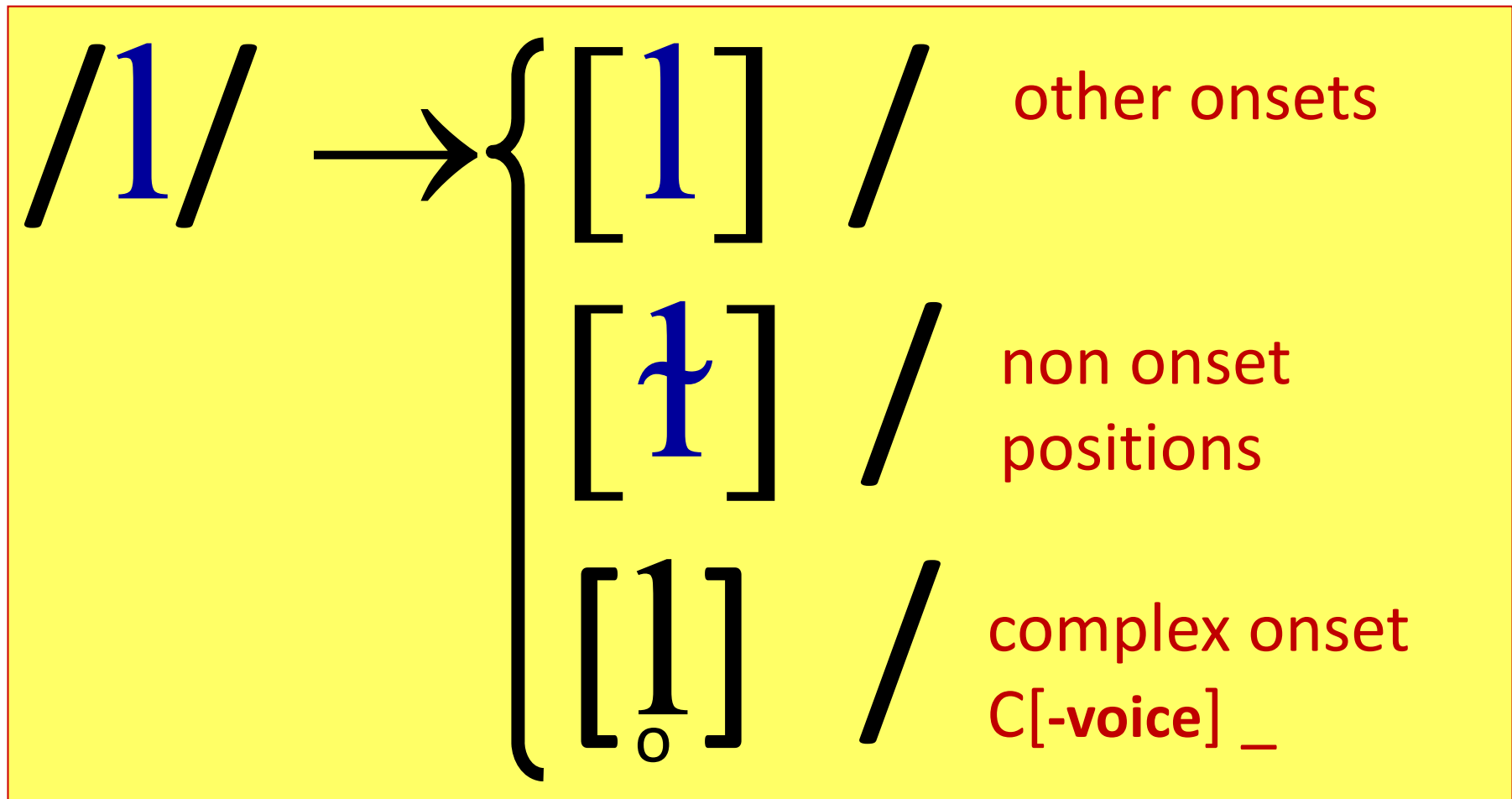
$$/1/ \rightarrow \begin{cases} [1] / \_ \textcolor{red}{V}_{\text{front}} \\ [ɹ] / \text{elsewhere} \end{cases}$$

# Phonological Rule (generalised)

$$/1/ \rightarrow \begin{cases} [1] & / \text{ } _V \text{front} \\ [ɹ] & / \text{ elsewhere} \\ [1] & / \text{ ?} \end{cases}$$

# Phonological Rule

(generalised alternative with syllables)



# Which one's best?

“Theories should be as simple as possible, but not more so.”

Albert Einstein

- How many **rules** do we need?
- How many **‘abstractions’**?
- How much do we have to **‘stipulate’**?
- How much follows from general **principles**?