Phonemic Analysis Example

1. [esfěrə] ‘sphere’
2. [kása] ‘houses’
3. [asusjár] ‘frighten’
4. [pěska] ‘s/he fishes’
5. [rú̞sos] ‘Russians’
6. [lősas] ‘tiles’
7. [soé̞ño] ‘dream’
8. [asoe̞to] ‘vacation’
9. [ízla] ‘island’
10. [ezβě̞̞kto] ‘slender’
11. [dé̞z̞o̞e] ‘since’
12. [sé̞sos] ‘brains’
13. [eleksjón] ‘election’
14. [píso] ‘apartment’
15. [káși] ‘almost’
16. [kése̞o] ‘cheese’
17. [de̞sje̞rtọ] ‘desert’
18. [sjérọ] ‘certain’
19. [mízmọ] ‘same’
20. [áznos] ‘asses’
21. [rázyọ] ‘feature’

1. Tabulate the environments

|        | e__f (1) | o__a (6) | a__i (15) |        | a__a (2) | a__# (6) | e__o (16) |        | a__u (3) | #__o (7) | e__j (17) |        | u__t (3) | a__o (8) | #__j (18) |        | e__k (4) | #__e (12) |        | u__o (5) | k__j (13) |        | o__# (5,12) | i__o (14) |        |
|--------|----------|----------|-----------|--------|----------|----------|-----------|--------|----------|----------|-----------|--------|----------|----------|-----------|--------|----------|----------|--------|----------|----------|----------|
| [s]    |          |          |           |        |          |          |           |        |          |          |           |        |          |          |           |        |          |          |        |          |          |           |
| [z]    | i__l (9) |          |           |        |          |          |           |        |          |          |           |        |          |          |           |        |          |          |        |          |          |           |
2. Look for patterns

\[
\begin{array}{l}
\text{[s]} \quad \text{V\_C} \ (1,3,4) \\
\text{V\_V} \ (2,3,56,14,15,16) \\
\text{V\_\#} \ (5,6,12) \\
\text{\#\_V} \ (12) \\
\text{\_Glide} \ (7,8,13,18)
\end{array}
\]

\[
\begin{array}{l}
\text{[z]} \quad \text{V\_C\_voiced} \ (\text{except glides}) \ (9,10,11,19,20,21)
\end{array}
\]

3. Formulate competing hypotheses

Hypothesis A: \( /s/ \rightarrow [z] / \_\_C\_\text{voiced (except glides)} \)

Hypothesis B: \( /z/ \rightarrow [s] / \{\_\_\text{C\_voiceless , \_V, \_\#, \_Glide}\} \)

Hypothesis A is simpler, hence preferred

4. Look at syllable structure

The ‘except glides’ part of hypothesis A is inelegant. We see, however, that when \([s]\) is followed by a glide, the glide and \([s]\) are part of the same syllable:

- [sué . ño]
- [a . sué . ño]
- [e . lek . sjón]
- [sjér . ño]

On the other hand, we find that \([z]\) is always at the end of a syllable:

- [íz . la]
- [ez . bé\_ . ño]
- [dêz . ðe]

Thus, hypothesis A can be reformulated:

Hypothesis A`: \( /s/ \rightarrow [z] / \_\_C\_\text{voiced} \)

5. Conclusion

The phoneme is \( /s/ \), with two allophones: \([s]\) and \([z]\); their distribution is governed by the rule in hypothesis A`.