

Exercises

1. Assume a segmental inventory composed of: [ʃ k t d s z n p f b i u e o a w h].
Indicate what feature or features characterize the following classes of sounds.
 - i. ʃ k u o a w
 - ii. f p k h
 - iii. f p b t s d z n
 - iv. ʃ u o w a b d z n i e

Do sub-exercises (iii) and (iv) The partial solution includes charts for this inventory and answers to (i) and (iii). Feel free to copy the charts.

For each sub-exercise:

- (1) Chart the given inventory, or the relevant part of the given inventory.
- (2) Identify the segments in the given class. (e.g., circle using color.)
- (3) Give the minimal set of features needed to specify the given class in a language with the given inventory.

Charts: Consonants (and glides [w] and [h])

Vowels (and glide [w])

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2. Given the segments [w j h ʔ i ε a o ə u ɱ l r m ŋ p t k^h k q b ð d^h g γ], describe the following segment classes, being as economical as you can with your use of features.

i. ɱ l r m ŋ p t k^h k q b ð d^h g γ

ii. w j i ε a o ə u ɱ l r m ŋ

iii. w a o ə u ŋ k q g γ

iv. w j h i ε a o ə u l r ð γ

v. j i k^h d^h

vi. i ε a o ə u ɱ

Do sub-exercises (ii), (iii), (iv), and (vi). The partial solution includes charts for this inventory and answers to (i) and (v). Feel free to copy the charts.

For each sub-exercise:

- (1) Chart the given inventory, or the relevant part of the given inventory.
- (2) Identify the segments in the given class. (e.g., circle using color.)
- (3) Give the minimal set of features needed to specify the given class in a language with the given inventory.

Charts: Consonants (and glides [j], [w] & [h])

Vowels (and glides [j] & [w])

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3. Assume the following segmental inventory:

p t tʰ q b d g s s̺ β ʒ γ ŋ l j i i e o ε ə æ

Give the minimal feature description which identifies exactly the following subsets of the inventory:

i. p t b s β n l

ii. t tʰ d s s̺ ʒ n l

iii. p t tʰ q b d s s̺ β ʒ n l e o ε ə æ

iv. q g γ ŋ i o ə

v. tʰ d s̺ ʒ j i e ε æ

Do sub-exercises (ii), (iii), and (iv). You'll need to do your own charts for exercise 3.

The Partial Solution handout gives answers for (i) and (v).

For each sub-exercise:

(1) Chart the given inventory, or the relevant part of the given inventory.

(2) Identify the segments in the given class. (e.g., circle using color.)

(3) Give the minimal set of features needed to specify the given class in a language with the given inventory.

Charts: Consonants (etc.)

Vowels (etc.)

Odden Chapter 3 Worksheet

4. State *all* of the features which are changed in each of the following rules:

- i. $p \rightarrow f$
- ii. $t \rightarrow \eta$
- iii. $o \rightarrow w$
- iv. $k \rightarrow s$
- v. $s \rightarrow t$
- vi. $a \rightarrow i$

Note that this exercise does not provide a specific language inventory; you must assume that all the features in Chapter 3 are potentially relevant. You don't need to give a chart. Odden's exercise asks for a list of the features that change, but I am asking you to give a full rule statement, so you need to do substantially more.

Do sub-exercises (ii), (iv), (v), and (vi). The Partial Solution handout models (i) and (iii).

For each sub-exercise, follow a model of specifying a rule three times, once in English, once in segments, and once in features:

(1) Copy the given rule and state the rule change in English.

(2) Identify the features that change and write the given change in features, giving the input feature set (defining the "target") and the output feature set (defining the "structural change").

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5. Formalize the following rules using distinctive features (segmental inventories to be assumed for each language are given after the rule in brackets). In each case, if the inventory includes segments [w x y z] and the rule is stated as changing [w] and [x], assume that /y, z/ can appear in the specified context and appear as [y, z] after the rule applies.

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|-------|--|--|
| i. | $b, d, g \rightarrow \beta, \delta, \gamma / V _$ | [p t k b d g β δ γ m n ŋ r i u a ə] |
| ii. | $\emptyset \rightarrow j / i, e _ o, u, a$ | [p t k b d n j w i y e æ o u a] |
| iii. | $t \rightarrow s / _ j$ | [p t k h v d s r l m n j i y e ø a o u] |
| iv. | $s \rightarrow r / V _ V$ | [p t k b d g s r l m n h w j e i o u a] |
| v. | $p, t \rightarrow [t^f] / _ i, e, a, o, u, k, t^f, \eta$ | [p t t^f k n ŋ i e a o u] |
| vi. | $p, \lambda, t, k \rightarrow \varphi, \theta, \tau, x / i e a o w j$
$h _ _ i e a o r l$ | [p λ t k b d g φ θ τ x r l w j h r l i e a o] |
| vii. | $p, t^f, k, q \rightarrow t / _ p, b, m, t, d, n$ | [p t t^f k q b d g ð l r m n i u a ε] |
| viii. | $k, g, \eta \rightarrow k^j, g^j, \eta^j / p p^j m b t t^j n$
$d t^f d^s \eta k^j g^j \eta^j f s f x^j j _ _$ | [p p^j m b t t^j n d t^f d^s η k^j g^j η^j k g η
q f s f x^j j w i u e o a æ] |

Do sub-exercises (ii), (iv), (vi), and (viii). The Partial Solution handout gives a model for (i). For each sub-exercise, follow a model of specifying a rule three times, once in English, once in segments, and once in features:

- (1) Chart the given inventory, or the relevant part of the given inventory.
 - (2) Copy the given rule and state the rule in English.
 - (3) Identify the segments in the input, output, and environment of the given rule. (e.g., circle using different colors.)
 - (4) Identify the features that change and write the given rule in features, giving the input (the “target” of the rule) and the output (the “structural change”), and the environment, following the conventions in 3.4.2 and 3.5.
- (You will need one or more additional sheets to show your answers.)