1. Phonological rules in Japanese

1.1. Devoicing of high vowels

1. (1) Does devoicing NOT occur with vowels other than high vowels?
   (2) From among the following factors, which ones clearly affect vowel devoicing, and how?
      (a) regional variation; (b) individual speaker variation;  (c) speech style (e.g. casual vs. careful);
      (d) speech speed;  (e) position within a word;  (f) preceding sound;  (g) following sound;  (h) accent

2. (1) How do you think the following word is pronounced? Render the phonetic transcription.
   *ikimasu#* ‘go (polite)’
   (2) Does it seem that “the situation under which the voiced and voiceless variants appear is completely predictable” (p. 27)?

3. Write the rule for high vowel devoicing.

1.2. Nasal assimilation

4. (1) Is nasal assimilation affected by any of the following factors? If yes, which ones, and how?
      (a) position within a word;  (b) preceding sound;  (c) following sound
   (2) Is *[n]* a phoneme in Japanese? Why, or why not?

5. Write the rule for nasal assimilation.

1.3. Alveolar alternations

6. What are the allophones of /t/, /s/, and /z/, respectively?

7. Write the rules for alveolar alternations.

1.4. *[h]*//*f*/[č]/alternations

8. Write the rule for *[h]*/[č]/alternations

1.5. Digression on the phoneme status of *[t, č, š, j, φ, č]*

NOTE: p. 37, ll. 1-2 (typos): *[ju]*, /zu/ should be *[ji]*, /zi/

9. (1) Can any of the sounds *[t, č, š, j, φ, č]* occur in environments other than the ones specified in the rules #7-8 above? If yes, give examples.
   (2) In what situations should *[t, č, s, φ, č]* be regarded as allophones and not separate phonemes?

1.6. Verbal conjugation rules

10. (1) What is wrong about a rule like the following?  *k* → *i*  / ____ + *ta*
   (2) What would happen if we wrote rules like the following?
      a.  *∅* → *i*  / *C*  ____  *C*
         [velar]  [alveolar stop]
      b.  *C* → *∅*  / ____  *i*  *C*
         [velar]  [alveolar stop]
      cf.  *kak-u* ‘write (non-past)’;  *kai-ta* ‘wrote’;  *kaki-tai* ‘want to write’ (kai-tai ‘want to buy’)

1.7. Rule ordering

Exercises #2, 5, 6