

## Distinctive Features

1. List the feature or features which distinguish the sounds below:

Example: [m] vs. [n] - [labial] vs. [coronal]

[s] vs. [z] - [voice]

- a. [f] vs. [p]
- b. [ʒ] vs. [dʒ]
- c. [θ] vs. [t̪] (̪ = dental)
- d. [n] vs. [ɲ]
- e. [b] vs. [m]
- f. [a] vs. [æ]
- g. [r] vs. [r̥]
- h. [i] vs. [j]
- i. [o] vs. [ɔ]
- j. [i] vs. [y]

2. Write phonological rules using distinctive features for the following phenomena:

- a. Rule of Japanese: /t/ becomes [ts] before [i, u] but not before [a, e, o]
- b. Rule of Lamba (a language of Zambia): /i/ is lowered to [e] after the mid vowels /e, o/ but not after /i, u, a/
- c. Rule of Neapolitan (Italian dialect): /s/ becomes [ʃ] before [p, k] but not before [t].
- d. Rule of Florentine Italian (Italian spoken in Florence): /tʃ, dʒ/ become [ʃ, ʒ] when intervocalic.
- e. Rule of Polish: /b, d, g, z, ʒ/ become [p, t, k, s, ʃ] when word final.
- f. Rule of Spanish, Greek and Kimatuumbi: The nasal consonants [m, n] must have the same place of articulation as the following consonant:

**Phonemicization****Catalan (North Eastern Spain)**

In the following Catalan data set a contrast is neutralized in certain contexts. The goal of this problem is to identify the contexts and write rules which express the contextual limitations you observe.

1. Can all Catalan vowels occur in all environments? What are the contextual limitations?
2. What are the vowel phonemes in Catalan and what are the allophones for each phoneme? For this part of the problem you should take a closer look at examples 19. through 34. You will find pairs that contain the same root word, but the root words in these pairs contain different surface realizations of the same underlying vowel (the root is highlighted in the polysyllabic words: e.g. 19. [sék] 'dry' and 20. [səkák] 'dry branch of tree').
3. Write a rule, or rules, that accounts for the distribution of vowel phonemes and allophones. Again, your rules should relate the monosyllabic root vowels (e.g. 19 [sék]) to the polysyllabic root vowels (e.g. 20. [səkák]). Remember to name your rule(s), state your rule(s) in words, formalize the rule(s) using the standard notation and distinctive features, and provide all necessary illustrative derivations.

**Catalan Vowel Data Set**

1.	[sí]	'yes'	2.	[sé]	'I know'
3.	[ós]	'bear'	4.	[ós]	'bone'
5.	[bé]	'well'	6.	[bé]	'sheep'
7.	[té]	'he has'	8.	[té]	'tea'
9.	[ké]	'what?'	10.	[ká]	'dog'
11.	[nú]	'naked'	12.	[nó]	'no'
13.	[nét]	'clean'	14.	[nét]	'grandson'
15.	[dó]	'doh' [musical note]	16.	[dó]	'gift'
17.	[sék]	'crease'	18.	[súk]	'juice'
19.	[sék]	'dry'	20.	[səkák]	'dry branch of tree' 'very skinny person'
21.	[sák]	'sack'	22.	[səkét]	'small sack'
23.	[pél]	'hair'	24.	[pəlút]	'hairy'
25.	[sérp]	'snake'	26.	[sərpótə]	'big snake'
27.	[pórt]	'harbor'	28.	[purtuári]	'of a harbor'
29.	[gós]	'dog'	30.	[gusás]	'big dog'
31.	[prím]	'thin'	32.	[əprimá]	'to make thin'
33.	[lúm]	'light' (noun)	34.	[luminós]	'light' (adj.)

### Peninsular Spanish

1. This problem deals with just the sounds [p, t, k, b, d, g, β, ð, γ] in Peninsular Spanish. What is the phonological status of these sounds? Provide a phonological analysis. Remember to provide minimal/near minimal pairs, name your rule(s), state your rule(s) in words, formalize the rule(s) using the standard notation and distinctive features, and provide all necessary illustrative derivations.
2. What is the phonetic motivation for the rule(s) you have identified?
3. What problem, if any, would a native Spanish speaker have learning to pronounce the following Greek words: [ðíno], [péde], [enðiaféron], [γámos], [agónas], [éγγamos]?
4. How does the psychological reality of the sounds [b, d, g, β, ð, γ] differ in Spanish and Greek?

### Spanish Data Set

1.	[bés]	'you see'	2.	[alkánθo]	'I reach'
3.	[éste]	'this'	4.	[láðo]	'side'
5.	[ustéð]	'you' [formal]	6.	[eðáð]	'age'
7.	[láryo]	'long'	8.	[álβa]	'dawn'
9.	[péθ]	'fish'	10.	[póka]	'little' [fem.]
11.	[báso]	'cup', 'glass'	12.	[r:ásko]	'I scratch'
13.	[déðo]	'finger'	14.	[pisθína]	'pool'
15.	[bámos]	'let's go'	16.	[aβoyáðo]	'lawyer'
17.	[káða]	'each'	18.	[láβa]	's/he washes'
19.	[r:ómpo]	'I break'	20.	[náða]	'nothing'
21.	[r:ázyo]	'trait', 'feature'	22.	[korporál]	'bodily'
23.	[bóka]	'mouth'	24.	[imbíta]	's/he invites'
25.	[bólsa]	'purse', 'bag'	26.	[árβol]	'tree'
27.	[kánta]	's/he sings'	28.	[bérðe]	'green'
29.	[ályo]	'something'	30.	[dézðe]	'since'
31.	[kása]	'house'	32.	[gáto]	'cat'
33.	[álpes]	'Alps'	34.	[áspa]	'spool'
35.	[páθ]	'peace'	36.	[patáta]	'potato'
37.	[dós]	'two'	38.	[góta]	'drop'
39.	[θapátos]	'shoes'	40.	[ámbo]	'both'
41.	[kúrso]	'course', 'class'	42.	[sáβe]	's/he knows'
43.	[áltó]	'tall'	44.	[r:ezβála]	's/he slips'
45.	[konóθko]	'I know'	46.	[θéta]	'zed'
47.	[kalθetínes]	'socks'	48.	[xúθyo]	'I judge'
49.	[ásko]	'disgust'	50.	[béθ]	'time'
51.	[párke]	'park'	52.	[kúlpa]	'blame'
53.	[kansaðo]	'tired'	54.	[ezβéltó]	'slender', 'svelte'
55.	[káθa]	'hunting'	56.	[tú]	'you' informal
57.	[áyo]	'I do'	58.	[árto]	'fed up'
59.	[oŋgo]	'fungus'	60.	[θíŋko]	'five'
61.	[ánda]	's/he goes'	62.	[mápa]	'map'