Data Set 1: Spanish

In the following data, [b] and [β] are in complementary distribution, as are [g] and [ɣ].

1. Determine the distributions of the allophones.

2. For both pairs of allophones, state which one is the more likely candidate as the underlying phoneme. Explain your reasoning.

3. Write formal rules that describe the distribution of the allophones. (Challenge: Can you summarize the allophone distributions using just one rule, instead of two separate rules?).

Spanish	English
1 - [beβer]	"to drink"
2 - [laβar]	"to wash"
3 - [buskar]	"to seek"
4 - [suβtitulo]	"subtitle"
5 - [ambɾe]	"hunger"
6 - [aβɾasar]	"to hug"
7 - [aβlar]	"to talk"
8 - [blusa]	"blouse"
9 - [oβliɣaðo]	"obligated"
10 - [ambos]	"both"
11 - [gloria]	"glory"
12 - [reɣalar]	"to present"
13 - [gɾaβar]	"to engrave"
14 - [reɣla]	"rule"
15 - [teŋgo]	"I have"
16 - [iɣlesia]	"church"
17 - [aɣɾio]	"sour"
18 - [tiɣɾe]	"tiger"
19 - [saŋgɾe]	"blood"
20 - [gama]	"range"
21 - [goβeɾnar]	"to govern"

Data Set 2: Bukusu

Bukusu is a Niger-Congo language of the Bantu family, spoken in Kenya. Examine the distribution of nasal consonants in the data below.

1. Explain how you know that nasal consonants are likely in complementary distribution in Bukusu, rather than contrastive distribution. Then, state the distributions of the nasal consonants.

2. In plain speaking (i.e., without writing any formal rules), how would you summarize the phonological process that is occurring with nasal consonants in Bukusu?

3. Why is it difficult to ascertain what the underlying phoneme is, among the nasal consonants?

4. Imagine that a Bukusu speaker tells you the word "_geta", but you cannot hear the first sound. What do you think is the most likely identity of the missing initial consonant?

Bukusu	English
1 - [ndi:la]	"I hold"
2 - [se:nda]	"I move"
3 - [mbuka]	"I perish"
4 - [ndasa]	"I add"
5 - [mbula]	"I roam"
6 - [ndula]	"I trample"
7 - [mbala]	"I count"

Data Set 3: Russian

In these data, [a] and [ɑ] are in complementary distribution. State: (a) the distribution of both allophones; (b) the more likely underlying phoneme (with an explanation as to your reasoning); (c) a formal rule accounting for the distributions.

Russian	English
1 - [ɑlʲt]	"viola"
2 - [tɑk]	"so"
3 - [pʲatkə]	"heel"
4 - [mɑtʲ]	"mother"
5 - [pʲatʲ]	"five"
6 - [trʌvɑ]	"grass"
7 - [dʲadʲə]	"uncle"
8 - [mʲatʲ]	"to crumple"
9 - [vɑʃ]	"your (plural)"
10 - [zʲatʲ]	"son-in-law"