Selected topics in theoretical linguistics
Homework 1

Quechua (Cuzco dialect)
Describe the distribution of the following four sets of segments: {k, x, q, χ}; {ŋ, N}; {i, e}; {u, o}. Some pairs of these segments are allophones (positional variants) of a single segment. You should state which contrasts are phonemic (unpredictable) and which could be predicted by a rule. For segments which you think are positional variants of a single phoneme, state which phoneme you think is the underlying variant, and explain why you think so; provide a rule which accounts for all occurrences of the predictable variant. The rule should be succinctly formulated in English, and then you should attempt to write a formal statement. Are there any noteworthy relationships between the rules that you posited? (Reminder: N is a uvular nasal).

qori	'gold'	t͡ʃoχlu	'corn on the cob'
q'omir	'green'	niŋri	'ear'
moqo	'runt'	hoq'ara	'deaf'
pʰulʸu	'blanket'	yuyaŋ	'he recalls'
tulʸu	'bone'	api	'take'
suti	'name'	oNqoy	'be sick!'
t͡ʃilwi	'baby chick'	t͡ʃʰit͡ʃiŋ	'be whispers'
t͡ʃʰaNqay	'granulate'	aNqosay	'toast'
qet͡ʃuŋ	'he disputes'	p'isqo	'bird'
musoχ	'new'	t͡ʃuŋka	'ten'
yaNqaŋ	'for free'	t͡ʃulʸu	'ice'
qʰelʸa	'lazy'	q'eNqo	'zigzagged'
t͡ʃeqaŋ	'straight'	qaŋ	'you'
noqa	'I'	t͡ʃaxra	'field'
t͡ʃeχniŋ	'he hates'	soχta	'six'
aχna	'thus'	lʸixlʸa	'small shawl'
qosa	'husband'	qara	'skin'
alqo	'dog'	seNqa	'nose'
karu	'far'	atoχ	'fox'
qaŋkuna	'you pl.'	pusaχ	'eight'
t'eχway	'pluck'	t͡ʃaki	'dry'
wateχ	'again'	aŋka	'eagle'
waχtay	'hit!'	haku	'let's go'
waqay	'tears'	kaŋka	'roasted'
waxt͡ʃa	'poor'	waleχ	'poor'
tʰakay	'drop'	reχsisqa	'known'