TURKISH

Examine this data set from Turkish and answer the questions below.

gloss	nominative singular	dative	nominative plural	ablative
'book'	kitap	kitaba	kitaplar	kitaptan
'vessel'	kap	kaba	kaplar	kaptan
'son-in-law'	damat	damada	damatlar	damattan
'worm'	kurt	kurda	kurtlar	kurttan
'taste'	tat	tada	tatlar	tattan
'color'	renk	renge	renkler	renkten
'bread'	ekmek	ekmege	ekmekler	ekmekten
'cap'	kep	kepe	kepler	kepten
'stem'	sap	sapa	saplar	saptan
'horse'	at	ata	atlar	attan
'bottom'	alt	alta	altlar	alttan
'girl'	kiz	kize	kizler	kizden
'bus'	otobos	otobosa	otoboslar	otobostan
'house'	ev	eve	evler	evden
'ice'	buz	buza	buzlar	buzdan

1. Are there any minimal pairs with voiced and voiceless consonants in the data? If so, what are they?

2. Are there any alternations?

3. Specify the phonetic environments in which voiced and voiceless consonants alternate.

4. Is this a case of allophony or allomorphy? Support your argument.

5. What rules can account for the observed alternations?

6. Provide sample derivations for the following words: [tat], [tada], [tatlar], [tattan], [buz], [buza], [buzlar], [buzdan]. In each case, explain why the rule does or does not apply. Be sure to show the morpheme boundaries in the underlying representations.

7. How can you explain these alternations using a different theoretical framework, e.g., feature geometry or autosegmental phonology?

8. Which theoretical framework provides the most elegant solution? Support your argument.