Phonemehood

from Halle and Clements (1983) *Problem Book in Phonology: A Workbook for Introductory Courses in Linguistics and in Modern Phonology*. MIT Press.

In O'odham, [t] and [č] are allophones of a single phoneme, which we will call /t/, and [d] and [ǰ] are allophones of another phoneme, which we will call /d/. Note the following data and the phonemic representations. (The retroflex /ṭ/ and /ḍ/ are separate phonemes.)

1.	[bíǰim]	/bidim/	'turn around'	10.	[híwgid]	/hɨwgid/	'smell'
2.	[tá:pan]	/ta:pan/	'split'	11.	[číhaŋ]	/tihaŋ/	'hire'
3.	[hídoḍ]	/hidoḍ/	'cook'	12.	[tóɲi]	/toɲi/	'become hot'
4.	[číkid]	/tɨkid/	'vaccinate	13.	[wíḍut]	/wiḍut/	'swing'
5.	[gátwid]	/gatwid/	'shoot'	14.	[tá:taḍ]	/ta:taḍ/	'feet'
6.	[čúku]	/tuku/	'become black'	15.	[kí:čud]	/ki:tud/	'build a house for'
7.	[dágṣp]	/dagṣp/	'press with hand'	16.	[dó:dom]	/do:dom/	'copulate'
8.	[tóha]	/toha/	'become white'	17.	[tá:tam]	/ta:tam/	'touch'
9.	[ǰú:kĭ]	/du:kĭ/	'rain' (noun)				

How do we know that [t] and [č] are allophones of /t/ and [d] and [ǰ] are allophones of /d/? Not because they sound alike; to our ears, [t] and [č] sound very different from each other. We can tell by observing that [t,d] are in complementary distribution with [č,ǰ]. Fill in the following chart showing what comes before and after [t,d] and what comes before and after [č,ǰ]. Use the symbol # to mark the edge of a word. The results of words 1 and 2 have been done for you.

[t,d]	[č,ǰ]
#___a:	i___i

Characterize the distribution of each set of phones.

O'odham, formerly known as Papago, is a Uto-Aztecan language spoken by approximately 12,000 people in south central Arizona in the United States.