Phonemic Analysis: Contrastive and Complementary Distribution—Examining environments and grouping phones

1. Italian

Focus on the phones [k] and [t]—do they contrast? What about their nasal counterparts [ŋ] and [n]? ([''] means that the following syllable is stressed.)

- ['ne:ro] black
- ['staŋko] tired
- ['tap:o] tap

- ['aŋke] also
- ['fi:ne] end
- ['teŋgo] I hold

- ['njente] nothing
- [fran'tʃeze] French

- ['lunɡo] long
- ['ʊŋɡja] claw

- ['ka:pɔ] head
- ['liŋɡwa] language

- ['onda] wave
- [in'verno] winter

2. Distributions:

1. [k] and [t]:

<table>
<thead>
<tr>
<th>environment</th>
<th>generalisations</th>
</tr>
</thead>
<tbody>
<tr>
<td>[k] /</td>
<td>ŋ ___ e</td>
</tr>
<tr>
<td></td>
<td>ŋ ___ o</td>
</tr>
<tr>
<td></td>
<td># ___ a</td>
</tr>
<tr>
<td>[t] /</td>
<td>n ___ e</td>
</tr>
<tr>
<td></td>
<td>s ___ a</td>
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Since both [k] and [t] can occur in the same environment (#___a), they have contrastive distribution. Note also the sub-minimal pair [ka:pɔ] and [tap:o].

Notice also the very similar environments of ŋ ___ e and n ___ e.

Further searching would reveal MINIMAL PAIRS like 'kɔnto (account) versus 'tɔnto (dull). Because [t] and [k] contrast, they must be members of two different phonemes in Italian. (How about English—can you demonstrate the contrastive status of [t] and [k]?)
Do [ŋ] and [n] occur in the same environment, and hence have contrastive function? No, because according to the data, [n] never occurs before a velar stop [k or g] and [ŋ] never occurs anywhere else BUT before a velar stop. They are therefore in **COMPLEMENTARY DISTRIBUTION**. And since both sounds are phonetically similar, i.e. nasals, they can be grouped together as members of one phoneme. Is the situation the same for these sounds in English?

**Rule:**

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[ŋ] before velar stops

[ŋ] elsewhere
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