Teochew Tone Calculator

Disclaimer: I am not a linguist so there may be incorrect uses of terminology or invalid claims in this document.

Teochew Tones

In Teochew, there are 8 tones as shown in the following table.

Tone Number	Tone Name
1	陰平 Dark Level
2	陰上 Dark Rising
3	陰去 Dark Departing
4	陰入 Dark Entering
5	陽平 Light Level
6	陽上 Light Rising
7	陽去 Light Departing
8	陽入 Light Entering

Determining the Pronunciation of a Character Using a Rime

When using dictionaries such as the KangXi Dictionary (康熙字典; Khang Hi Yī Tiáng; Kang^{1} Hi^{1} Yi^{7} Diang^{2}), the pronunciation is given in the form of two characters. E.g., the KangXi dictionary entry for “蝦” has its pronunciation recorded as “〔唐韻〕胡加切.”

The first character “胡” (白 hôo, 文 hû) contributes the “h-” initial. The second character “加” (白 ke) contributes the “-e” rime. Put together, we know that the character “蝦” is going to have the pronunciation of “he.”

In order to find the tone, we take the tone category of the first character (light or dark) and take the tone contour of the second character (level, rising, departing, or entering). We then combine the two and the resulting tone is the tone of the character we are looking up.

In this case, "胡" is tone 5 so it is "*light* level." The character "加" is tone 1 so it is "dark *level*." Combining the tone category of the first character (light) and the tone contour of the second character (level), we obtain that the tone of "蝦" is "light level." "Light level" precisely is tone 5.

Indeed, the character "蝦" meaning "shrimp" is pronounced "hê" which contains the "h-" initial contributed by the "胡" along with the "-e" final contributed from the "加" as expected. The tone of "蝦" is tone 5 (light level) as predicted through the "light" tone category contributed from the first character, "胡", and the "level" tone contour contributed by the second character "加."

Teochew Tone Calculator Program

As seen above, the process of determining the initial and final sound of the character is a triviality and can be easily. However, the process of finding the tone is a bit more tricky especially if one does not have prior knowledge in Chinese phonology. This program assists in the process by taking the tones of the two characters in the rime and outputting the expected tone (along with a short explanation). This automates a process that may be repetitive and inconvenient for people that do not have the tone numbers and their tone names memorized.

Program Logic

The program has three dictionaries that are predefined.

- ToneCategoryDict is a key-value pair that maps a tone number to its tone category. (E.g., “1”:“陰”)
- ToneContourDict is a key-value pair that maps a tone number to its tone contour. (E.g., “1”:“平”)
- ToneNameToNumberDict is a key-value pair that maps a tone name to the tone number. (E.g., “陰平”:“1”)

The program will prompt the user to enter the tone number of the first character and the second character and stores them in their own respective variables. Then, it will take the tone number of the first character and look it up in the ToneCategoryDict to find the tone category of the expected tone we are looking for. This tone category is added to an empty string called expectedToneName. Then, the tone number of the second character is looked up in the ToneContourDict. The contour is then added to the expectedToneName string. Now that the tone category from the first character and the tone contour from the second character is inputted into the expectedToneName string,

that string is looked up in ToneNameToNumberDict to find what tone number it corresponds to.

Finally, a summary is outputted for the user in the console that reports the expected tone and how that conclusion was arrived at.

Example Console

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Input the tone of the first character (1-8): 3
Input the tone of the second character (1-8): 6

 ⟨The expected tone is tone 2.⟩

The first character is tone 3 which contributes the 陰 tone category
The second character is tone 6 which contributes the 上 tone contour
The expected tone is then 陰上 i.e., tone 2
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Disclaimer

This process of determining the tone or pronunciation of a given character will not work if a character is being borrowed to represent a word that it is not etymologically related to. I.e., any character that is considered a 訓用字/訓讀字 (semantic borrowing character) will certainly not work.

E.g., the character “人” cannot be expected to output the pronunciation of “nâng.” Coincidentally, the rime for “人” is “如鄰切” which outputs tone 5, but the pronunciation of “yîng.”

Yet another example, “個” will not yield “kâi” as the sense of “個” recorded in the KangXi dictionary is etymologically distinct from the “kâi” used in Teochew. Instead, the expected pronunciation from “古賀切” is “kò.”

Furthermore, the expected pronunciations are not guaranteed to actually hold in practice. For example, 魚 has the rime of “語居切,” meaning that the expected pronunciation is “gir,” however, this word meaning “fish” is pronounced “hîr.”

Indeed, there are better ways to predict the pronunciation and tone of a word, however, this project’s scope at the current moment is just to assist with the tones as recorded in the KangXi dictionary despite its limitations.