WHAT IF THE 'WHEN' IMPLIES THE 'WHAT'?

Human harmonic analysis datasets clarify the relative role of the separate steps in automatic tonal analysis

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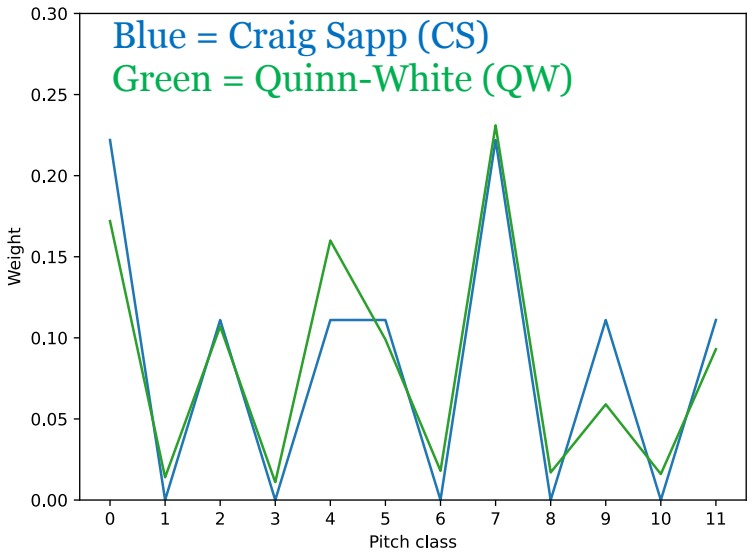
Given *WHEN* test *WHAT* with existing Pitch Class Profiles (PCP). E.g., Keys:

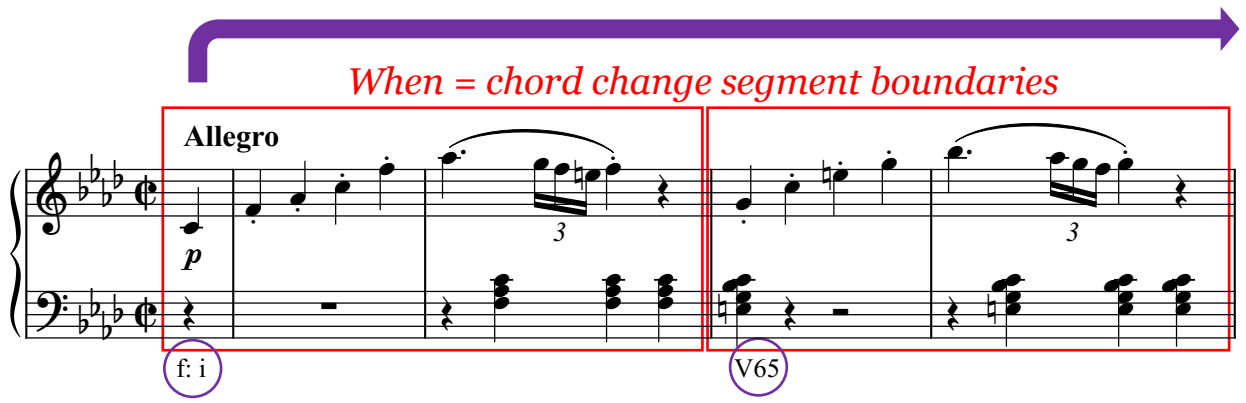


% segments w. 'correct' key identified: Existing PCPs (e.g., CS,QW →) with several corpora (↓)	**Craig Sapp (a priori)**	**Quinn-White (corpus)**
Lieder (symbolic)	74.6 %	77.6 %
Beethoven (symbolic)	70.5 %	85.4 %
Beethoven (audio)	51.3 %	68.8 %

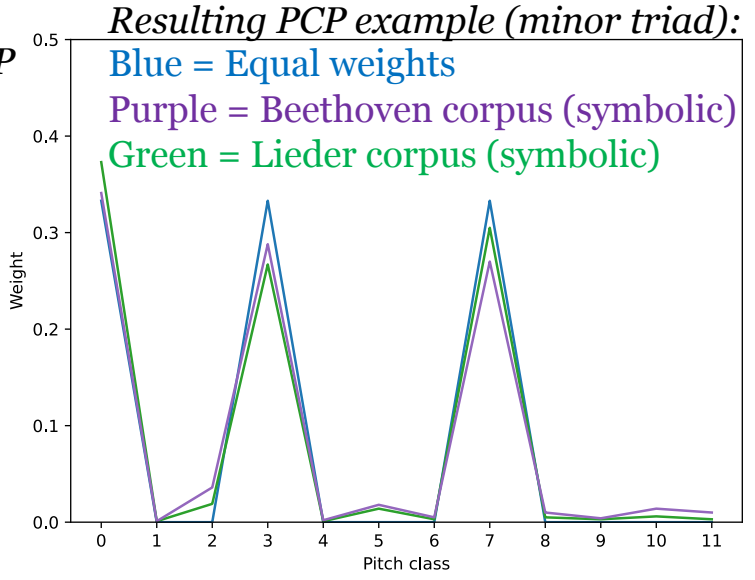
PCP prototypes based on relevant empirical evidence improve performance for this task.
... This motivates the next section ...

Given *WHEN* and *WHAT* from analyses build refined PCPs. E.g., Chords:

Pitch usage in each segment of source contributes to the relevant PCP



Resulting PCP example (minor triad):



Given *WHAT* vary *WHEN*. Test sensitivity to segmentation errors. E.g., Keys:

Change Alignment:

Change Segment Length:	Length	Center	End	Start
Shorter	-2 sec	57.8 %	58.8 %	57.3 %
	+/- 0 sec	68.8 %	-	-
Longer	+2 sec	63.9 %	61.7 %	62.6 %

Introducing 'errors' yields interestingly asymmetric performance deterioration.

Acknowledgements

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