

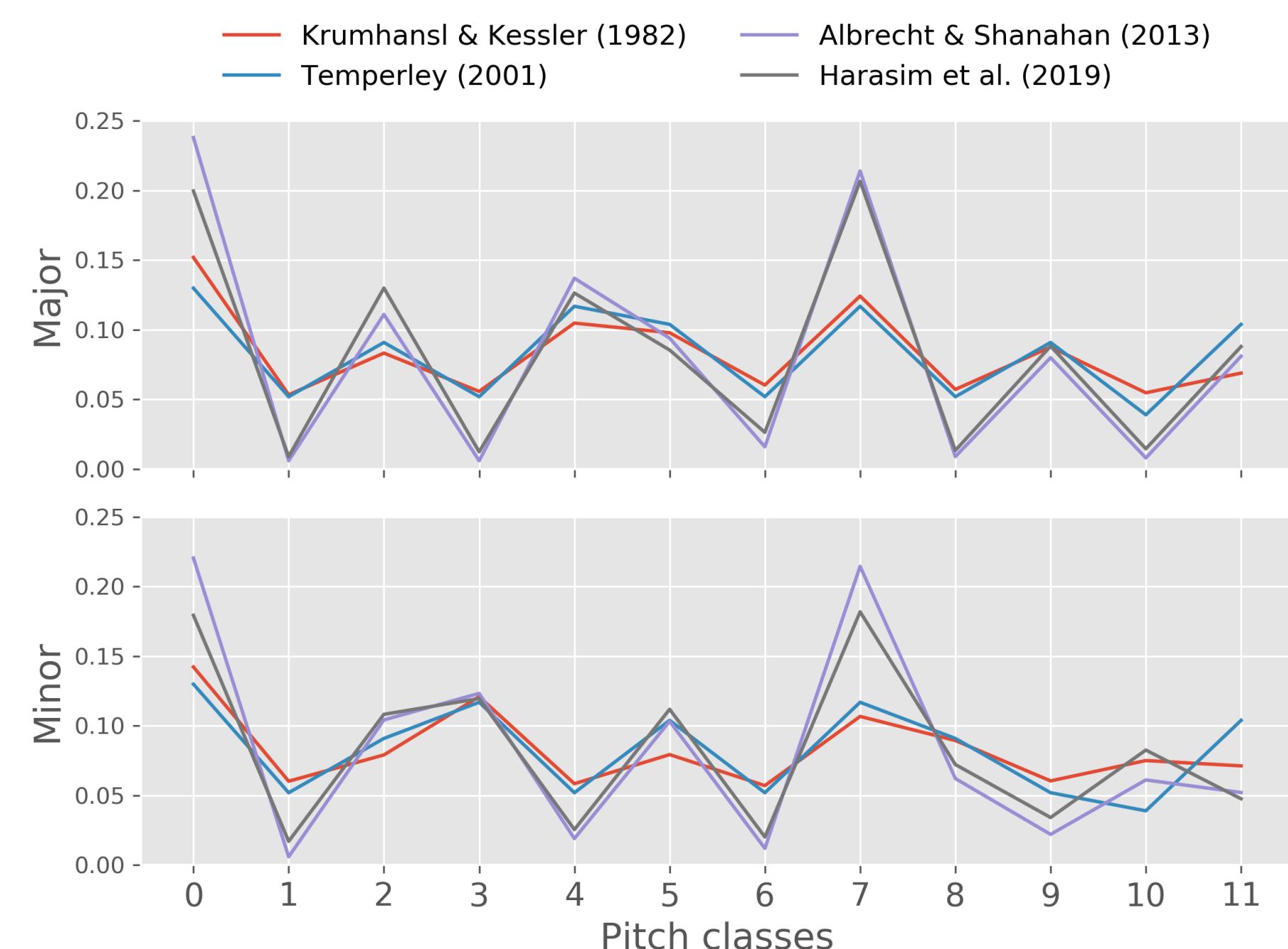
Inferring Tonality from Note Distributions: Why Models Matter

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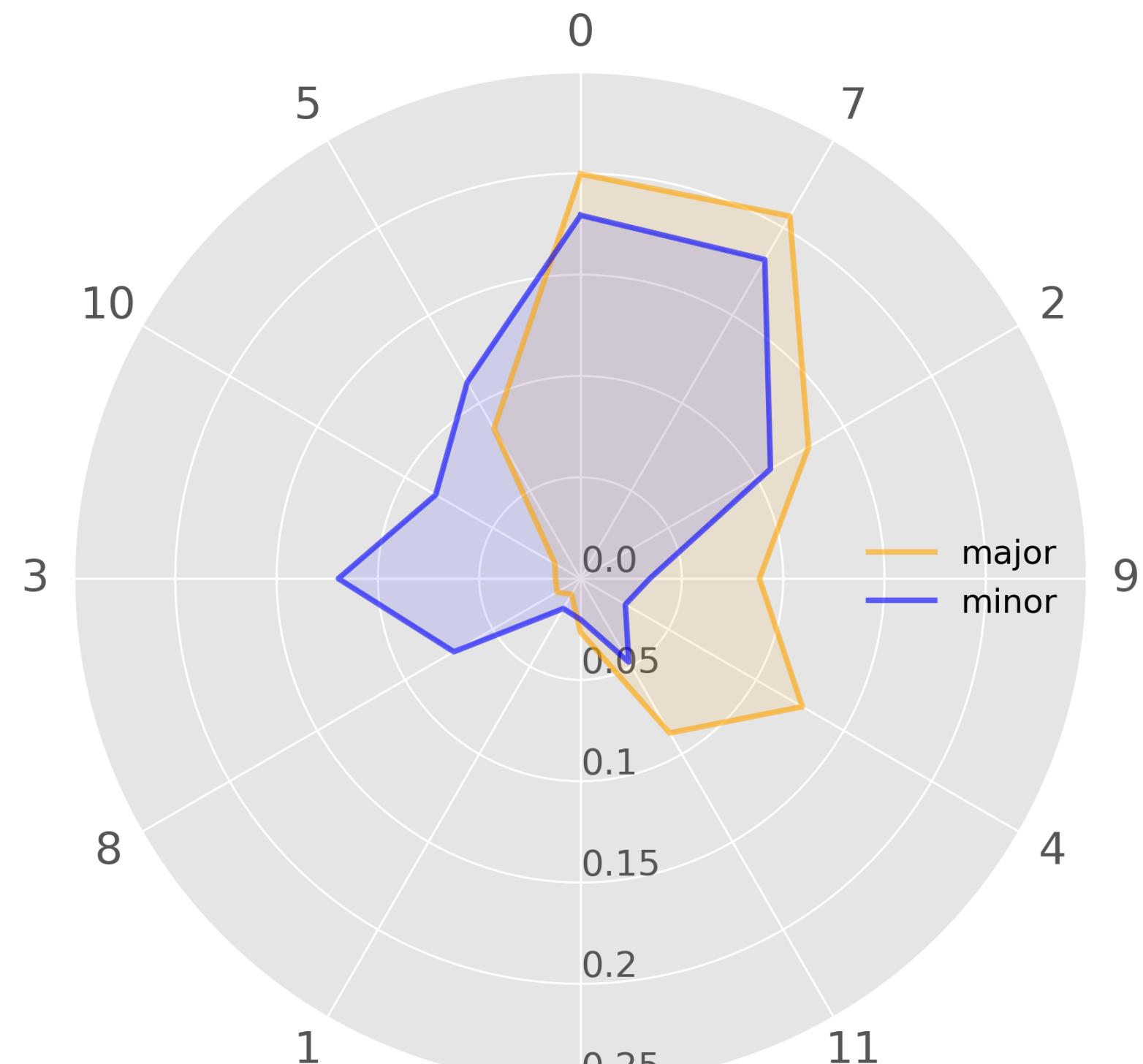
Background

Pitch-class statistics in pieces correspond to cognitive representations of tonality [1, 3, 4, 5] and assumed to constitute the basis for statistical learning.

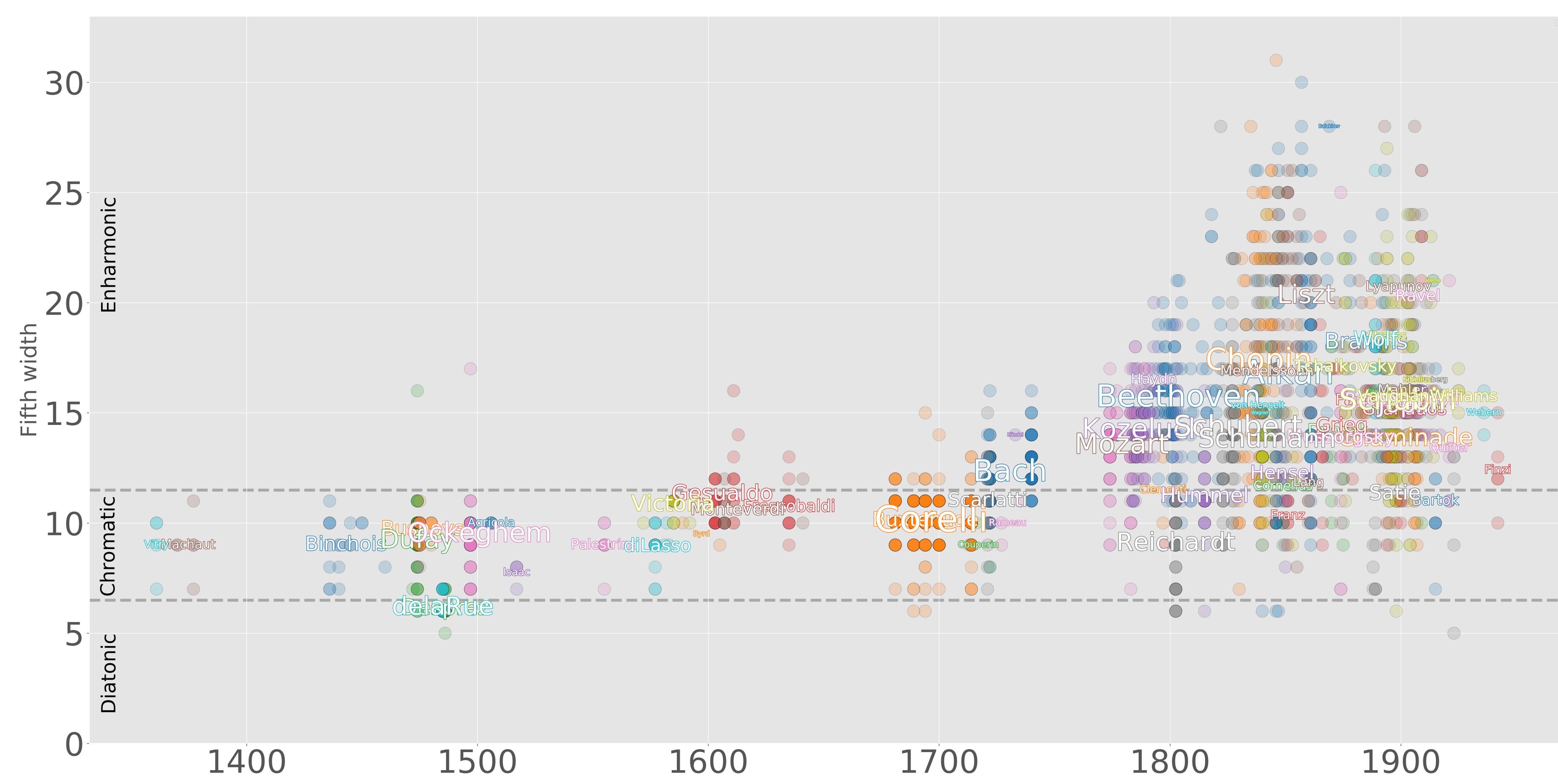


Model 1: Circle of Fifths

Reordering pitch classes by $x \mapsto 7x \pmod{12}$ and arranging them on the **circle of fifths** emphasizes differences and similarities of the major and the minor mode [3]. **IMPORTANCE OF THE FIFTH**

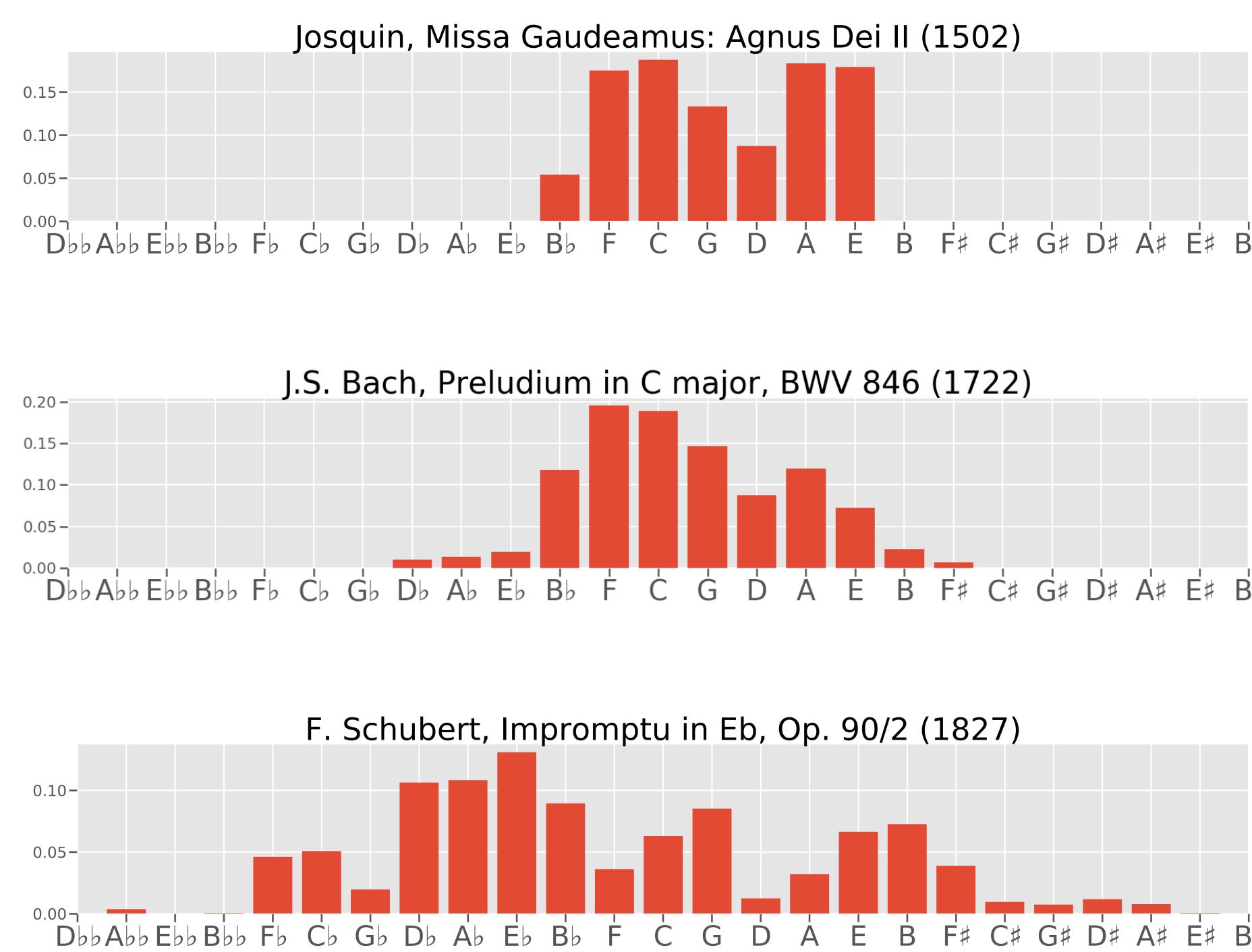


Historical Development



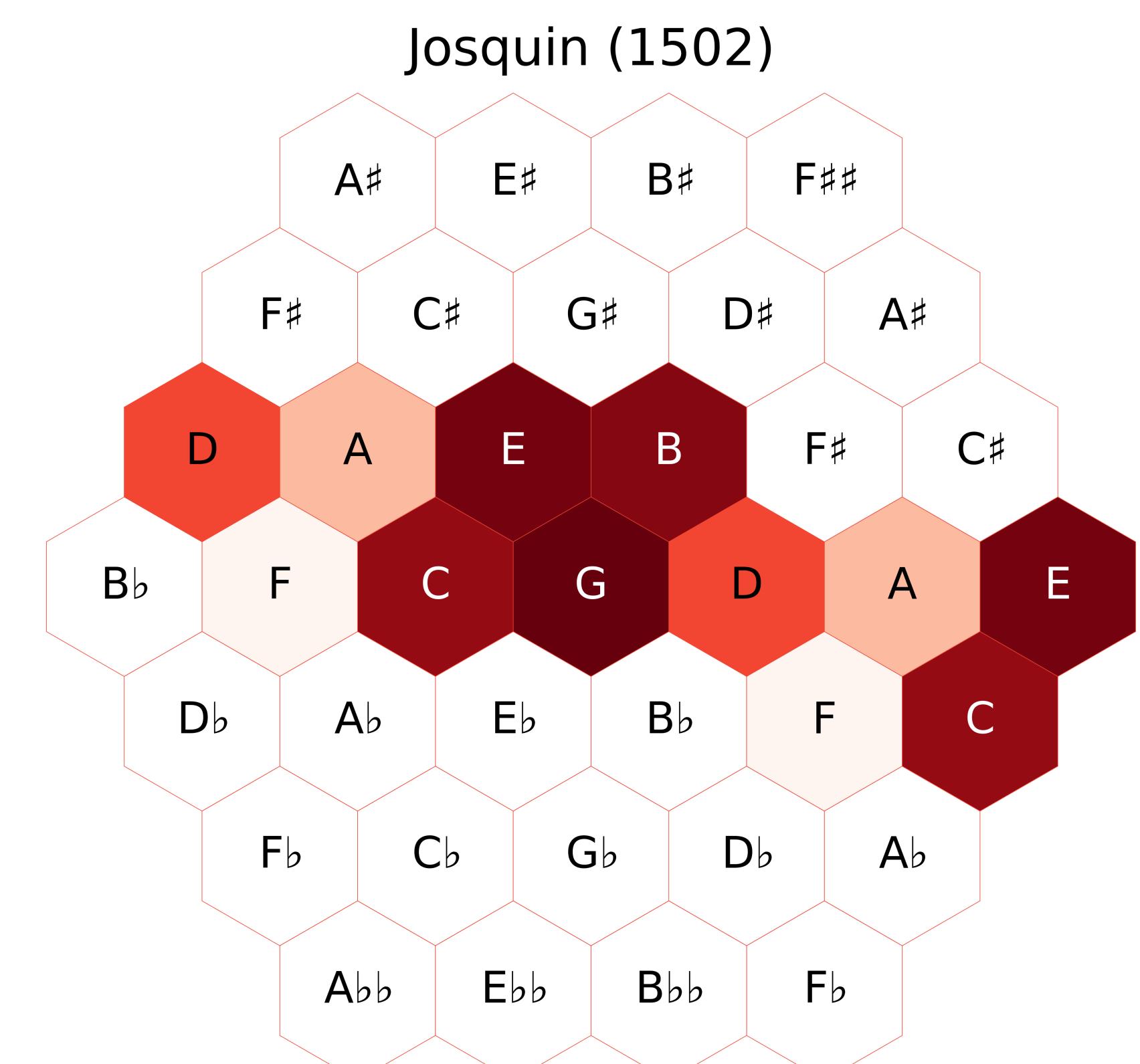
Model 2: Line of Fifths

Using **spelled pitch classes** enables the distinction between diatonic, chromatic, and enharmonic pieces [2] and indicates a historical trend towards expansion of the tonal material (see "Historical Development") **EXPANSION IN FIFTH-DIRECTION.**



Model 3: Tonnetz

More general models of tonal space reveal further developments in tonality. **EXPANSION IN THIRD-DIRECTION**



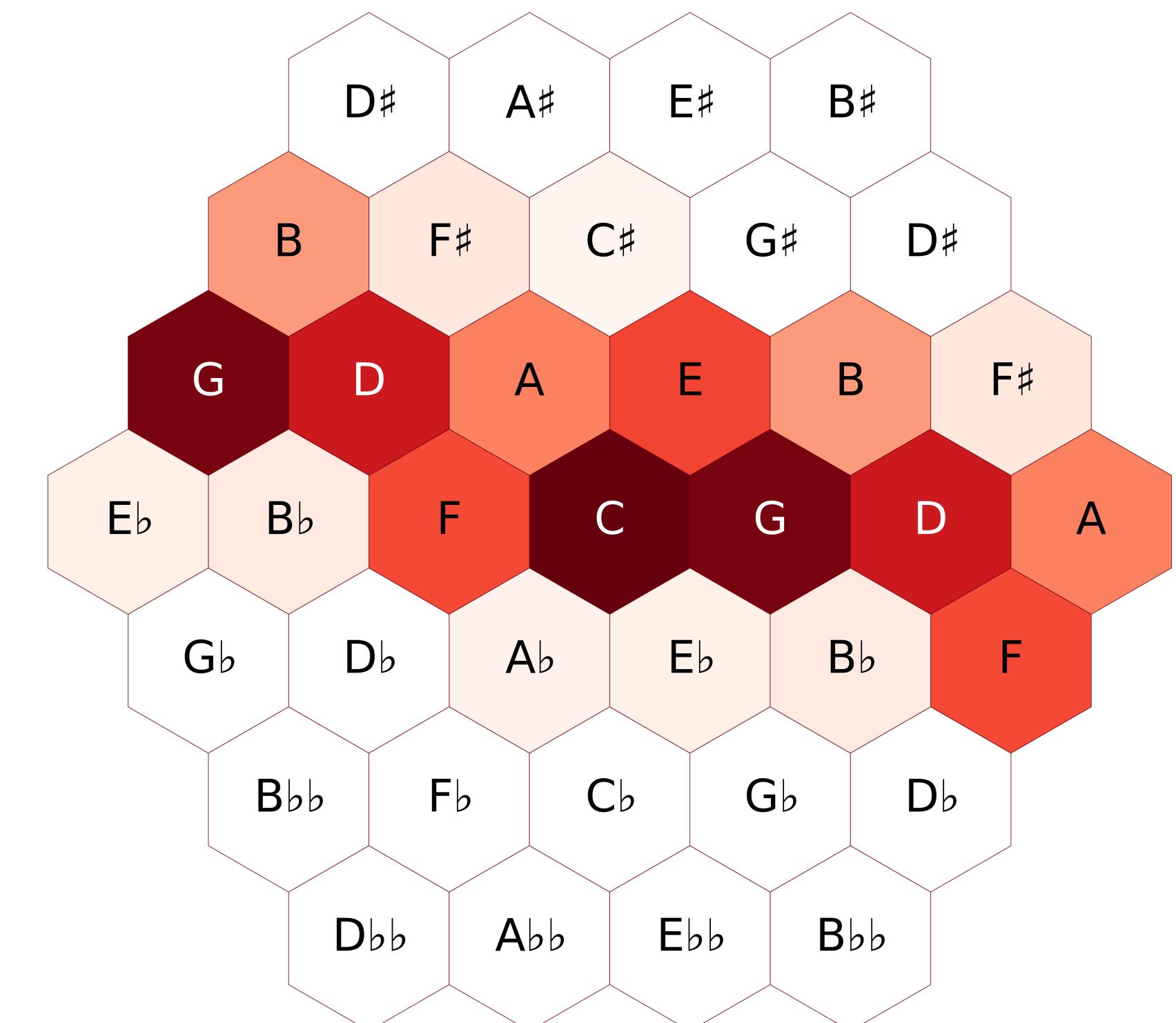
Conclusion

The often implicit or unconscious **modeling assumptions about tonal spaces** underlying both pitch-class distributions in musical pieces and cognitive schemata greatly affect research outcomes. Making these assumptions explicit as well as incorporating music-theoretical knowledge about the structure of tonal spaces incorporates modeling as an integral part to the research on the history of tonality.

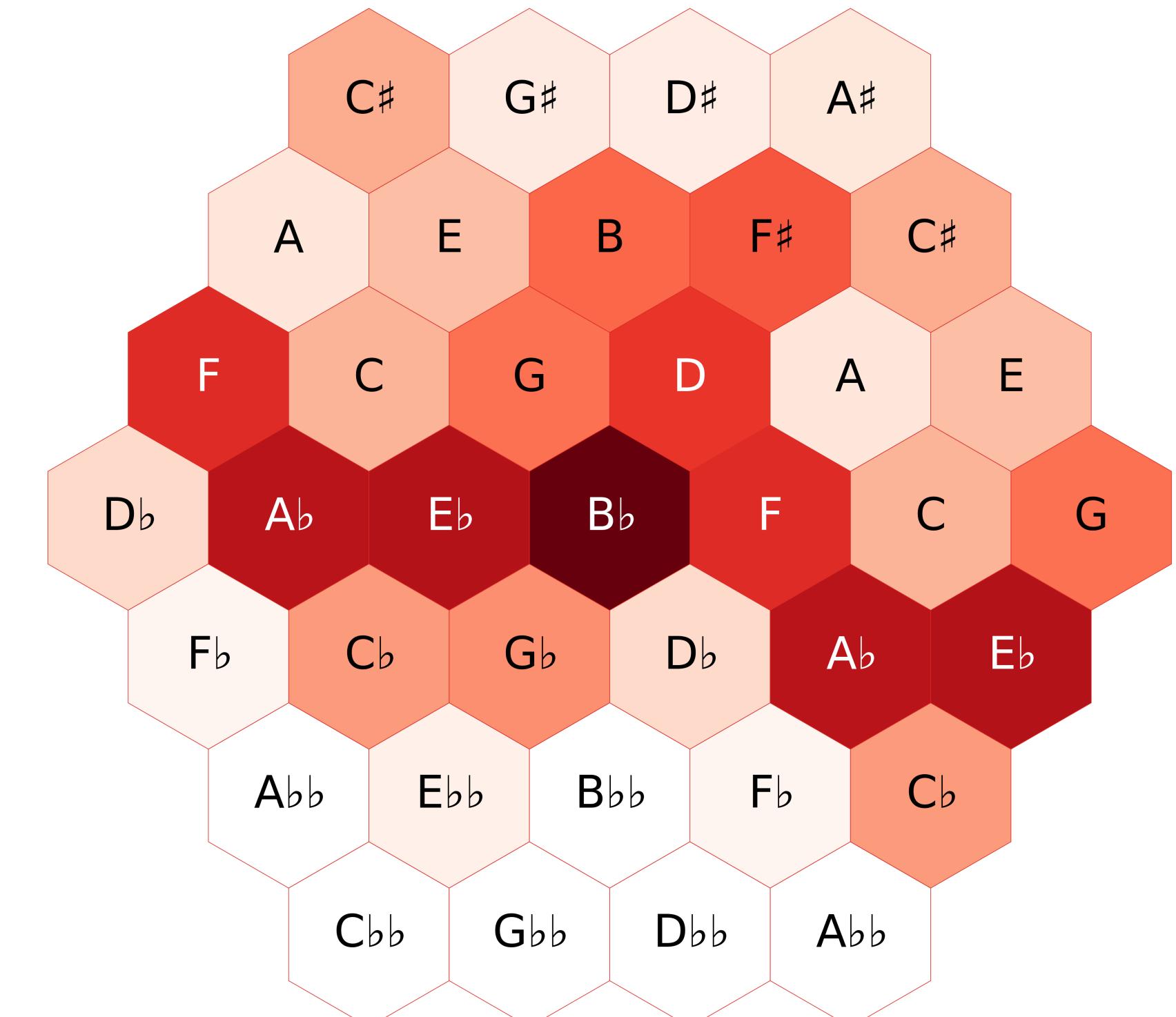
References

- [1] J. Albrecht and D. Shanahan. "The Use of Large Corpora to Train a New Type of Key-Finding Algorithm: An Improved Treatment of the Minor Mode". In: *Music Perception: An Interdisciplinary Journal* 31.1 (2013), pp. 59–67.
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Bach (1722)



Schubert (1827)



Acknowledgements & Contact

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