

## 23-LIMIT TUNEABLE INTERVALS below "A4" (HEJI 2020 revision)

*tested and notated in three gradations of difficulty (large open notehead = easiest ; small black notehead = most difficult)*

by Marc Sabat (violin/viola) with assistance from Wolfgang von Schweinitz (cello), Beltane Ruiz (bass), Anaïs Chen (violin)—Berlin, 2005

# NACH GEHÖR STIMMBARE 23-LIMIT INTERVALLE (HEJI 2020)

über „A“ notiert

*The Extended Helmholtz-Ellis JI Pitch Notation*

*microtonale Vorzeichen konzipiert von Marc Sabat und Wolfgang von Schweinitz, 2004 rev. 2018*

The musical score displays 23-limit intervals, organized into 10 rows of 8 intervals each. Each interval is represented by a ratio in a box, a musical notation on a staff, and a microtonal deviation value.

Row 1: 1/1 (+31), 8/7 (-33), 7/6 (+16), 6/5 (+47), 11/9 (-14), 5/4 (+35), 9/7 (-46), 13/10 (-2).

Row 2: 11/8 (D# -49), 7/5 (+17), 10/7 (Eb +37), 13/9 (Eb +49), 16/11 (+2), 3/2 (F -18), 14/9 (+14), 11/7.

Row 3: 13/8 (F +41), 5/3 (-16), 12/7 (-31), 7/4 (+18), 9/5 (+49), 11/6 (-28), 13/7 (-12), 15/8 (+26).

Row 4: 2/1 (B -35), 13/6 (+4), 11/5 (+16), 9/4 (+36), 7/3 (-14), 19/8 (-33), 12/5 (-2), 17/7 (-14).

Row 5: 18/7 (+35), 13/5 (D# -49), 8/3 (+3), 11/4 (+17), 14/5 (+28), 17/6 (+2), 20/7 (-46), 23/8 (-2).

Row 6: 28/9 (-46), 25/8 (-2), 22/7 (-17), 19/6 (+14), 16/5 (F -18), 13/4 (+6), 10/3 (+19), 27/8.

Row 7: 24/7 (-35), 7/2 (-27), 18/5 (-4), 11/3 (F +41), 15/4 (-16), 19/5 (-16), 23/6 (+11), 27/7 (+26).

Row 8: 25/6 (+33), 21/5 (+18), 17/4 (+49), 13/3 (+11), 22/5 (+26), 9/2 (+37), 23/5, 14/3.

Row 9: 24/5 (+5), 5/1 (B -35), 26/5 (+4), 21/4 (+42), 16/3 (+29), 11/2 (-16), 28/5 (-33), 17/3 (-2).

Row 10: 25/4 (+16), 19/3 (D# -49), 13/2 (-17), 20/3 (+3), 27/4 (+28), 7/1 (+2), 22/3 (-14), 15/2 (-46).

Row 11: 25/4 (-27), 19/3 (-4), 13/2 (F +41), 20/3 (-16), 27/4 (-31), 7/1 (+6), 22/3 (+49), 15/2 (+26), 23/3 (-12), 8/1.