1023-11-1349   **Thomas Noll*** (`noll@cs.tu-berlin.de`), Pfarrstr. 6, D-04860 Torgau, Germany. *Musical Intervals and Special Linear Transformations.*

The paper presents a transformational approach to musical intervals with particular focus on their constitutive role for well-formed scales. Transposition classes of well-formed scales are characterized by two step intervals, their multiplicities and the characteristic maximally even binary pattern of their distribution. We study three actions of the modular group $\Gamma = SL(2, \mathbb{Z})$, namely (1) on interval pairs, through transvections, (2) on quadruples of two intervals and their multiplicities through canonical transformations and (3) on binary cycle words through parallel rewriting rules. The maximally even patterns form exactly one orbit of this group action. The submonoid $SL(2, \mathbb{N})$ exemplifies the Stern-Brocot tree and anchors this approach in the classical theory of well-formed scales by Norman Carey and David Clampitt. The extension of this theory can be musically explored by the technology of Sethares spectra and new questions arise from an inspection of intrinsic properties of the modular group Γ: Enharmonic identification of intervals corresponds to a factorisation of the Modular group by $\Gamma(12)$. We argue that the prominence of the 12-tone system relates to the fact that $\Gamma(12)$ sits in the commutator subgroup of Γ. (Received September 25, 2006)