

List of Symbols

*Tout objet abstrait,
obtenu, par exemple, par thématisation,
est un geste sur un geste,...sur un geste
sur le sensible primitif.*
Jean Cavallès [13, p. 178/9]

Symbol	Meaning	page of first occurrence
\wp	Transformation from symbolic reality of a score to physical reality of sounds	28
E	Symbolic/mental time	48
e	Physical time	48
S	Spatial position of a moving car	48
$speed(S)$	Inverse derivative of function $S \mapsto e$	48
$speed(e)$	Derivative of function $e \mapsto S$	48
$speed(E)$	Inverse derivative of function $E \mapsto e$	49
$T(E)$	Tempo function at onset E	49
A	Amplitude of air pressure variation	59
Hz	Hertz: unit of frequency, 1 cycle/second	59
d	Physical duration	60
$w(t)$	Periodic pressure wave in time	59
I	Unit interval of real numbers between 0 and 1	60

P	Period of a periodic function of time	59
l	Physical loudness	60
h	Physical pitch	62
Ct	Cent: physical pitch unit (1/100 semitone)	60
$p(t)$	Air pressure at time t	60
t	Physical time	61
o	Octave coefficient	61
q	Fifth coefficient	61
t	Third coefficient	61
H	Symbolic/mental pitch	62
$S(H)$	Intonation: same as tempo, but in pitch	63
$speed(H)$	Inverse derivative of function $H \mapsto h$	62
L	Symbolic/mental loudness	67
$I(L)$	Dynamics: same as tempo, but in loudness	67
\wp_L	Performance transformation on L	67
dB	deziBel: unit of physical loudness	67
X_P	Real value of parameter of type P	70
\wp_{EHL}	Performance transformation on EHL	70
\mathbb{R}^{eh}	Real value of parameter of physical onset e and pitch h	70
\mathbb{R}^{EH}	Real vector space for onset E and pitch H	70
$J(\wp)(X)^{-1}\Delta$	Performance field for \wp at symbolic point X	73
$\mathbf{Ts}(X)$	Performance field at symbolic point X	73
\mathbb{R}^{ED}	Real vector space for onset E and duration D	78
$\partial T(E, D)$	Parallel articulation field	78
$\mathbf{Ts}(E, D)$	Performance field of articulation	78
D	Symbolic/mental duration	78
G	Symbolic/mental glissando	79
g	Physical glissando	79
$\partial S(H, G)$	Parallel tuning field	79
C	Symbolic/mental crescendo	79
c	Physical crescendo	79
$\partial I(L, C)$	Parallel dynamic field	79

Δ	Constant diagonal field	81
$\mathbf{T}s_P$	Performance field at parameter sequence P .	81
$\int_X \mathbf{T}s$	Integral curve of field $\mathbf{T}s$ through the point X	82
\mathbb{R}^P	Real vector space for music parameters of sequence P .	82
\mathcal{C}	Performance cell	83
\mathcal{D}	Performance hierarchy diagram	89
$\mathbb{R}^{EHL D}$	Real vector space for onset E , pitch H , loudness L , and duration D	89
G	Geometric constraints	127
M	Mechanical constraints	127
φ_{score}	Performance transformation of score symbols	127
$X(G, M)$	Manifold of continuous curves of hand movements given by the geometric and mechanical constraints G and M	129
$\gamma_{\text{Physical}}(t)$	Physical hand movement curve	129
$\gamma_{\text{Symbolic}}(t)$	Symbolic hand movement curve	129
\mathbb{Z}_{12}	12 chromatic pitch class group	138
$I_{f\# / g}$	Pitch inversion between $f\#$ and g	138
PARA	One of the real parameter vector spaces	149
w	Analytical weight	149
$\mathcal{N}(X)$	Nerve of maximal meter covering of composition X	151
$Sp(x)$	Function: simplex of maximal local meters containing a point x	152
ν_i	Weight distribution strength	153
$w_\epsilon(M)$	ϵ -weight of a motif M	155
T	Tonic function	156
D	Dominant function	156
S	Subdominant function	156
$riem$	Set of Riemann function values	156
$val_{ton,riem}(Ch_i)$	Fuzzy Riemann function value	156

$Q_w(E, D)$	Transformation matrix of generalized tempo operator as a function of weight w	161
$\partial T_w(E, D)$	Tempo field with weight w distortion	160
$L_X(f)$	Lie derivative of function f in direction of field X	162
Λ	Weight on a space for Lie operators	162
$\mathbf{T}s_w(E, D)$	Articulation field at onset E and duration D	161
Dir	Directional endomorphism for Lie operators	162
$\mathbf{T}s_{\Lambda, Dir}$	Performance field of Lie type	162
δ	Decoding function in Todd's generic approach	164
γ	Encoding function in Todd's generic approach	164
Π	Performance procedure in Todd's generic approach	164
Ψ	Listening procedure in Todd's generic approach	164
$Z(\partial, \mu)$	Articulation field for harmonic analysis μ	197
K_b	Naradaya-Watson kernel function with width b	219
$b \diamond f$	b -smoothed function f	220
\hat{b}	Support function with width b	219
Ω_ω^X	Beran operator yielding the logarithm of tempo in statistics	222
$\wp^{-1}(P)$	Fiber of performance map over performance P	227
M	Model of expressive performance for piano hand	230
P_M	Hand performance function for model M	230
P	Output parameters of performance	230

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