Handy Functor Cheat Sheet

Parker Emmerson

March 2023

1 Introduction

Exponential map $f^* : \Omega \times X \to \Omega_\Omega(X)$
Recursion map $\frac{y}{x} : X^y - x^y \to X$
Principal homomorphism $\rho_x : \phi - \rho_y(x)^y \to \rho_y$
Bisimulation map $bisim_x : Bisim(x) \to \phi$
Classifying map $\Phi_c^X : L_{a_i^{a_j}}(X) \to \phi - L_{a_i^{a_j}}$
G^n-affine map $f^G : G - O_n \to O$
G^n-isotropy $G_{x_{y_z}} : G_{x_y} \to G_{\bar{x}} \times G^n_{x/y}$
G^n-orbit $G^n_Q(X, Y) : X \to G^n$
α-isomorphism type $I_\alpha : \overline{X} \to \Omega_{\mathcal{H}}(X)$
$C\omega$-set kinesis $\mathbf{C}\omega_x^{x_y} : O_n^n \to C\omega_{x_y}$
B-absorbing state $|B| \to \mathcal{H}_{a_i}^{\cong}$
P-shadow $p : \delta \to |P|$
s_u^a-action $\otimes_x^k : s_u^a \cong O_{3,1} \to \otimes_x^k$
tot_{x_y}-implication $im_x : |tot| \to |tot_{x_y}|$
S-embeddable $emb_S : S \to \mathcal{A}_{\mathcal{S}} - S$
cvg_y-incomplete $conv_{x_i} : \phi \to cvg_{x_i}$ $ag = bv \iff ag = bv : \bar{a}\ (G \times A \times V)\ \bar{g} \stackrel{?}{=} \bar{b}\ (G \times A \times V)\ \bar{v}$
$Q \vdash t\ \& : - \vdash_c Q$
$xr \stackrel{k_0}{\sim} y \sim_{k_0}^k : xr^\infty \to xr^\infty$
k_j-simple category $k_j \stackrel{\sim}{\to} \mathcal{H}_{k\,k}^\circ \cong \Omega^{\infty^{\infty^{\cdots^{\infty^{\emptyset}_{N_Z}}}}}$
xm-representation $\pi_\alpha : - \to (\pi, V)$
$(\alpha - k)$-map $h : \sigma_\alpha^M \to \Omega_{\Omega(\alpha-k)}(S)$
$\Omega_{\mathcal{H}}$-type $I_\alpha : \overline{X} \to \Omega_{\mathcal{H}}(X)$
∞_k-unit $U_n^\alpha : S^* \to O_1$
A-(anti-)composition $A : \infty_n^{\mathcal{H}} \to \mathcal{H}_A^\circ$
Trivial transitive group $t_z^{x_y} : xr_z^{\mathcal{H}} \to \infty^{\Omega^{\upsilon^{\Omega^{\upsilon^{\infty^{|\Omega|}}}}}}$
$R(\Omega^{\upsilon^\infty})$-representation
$(\phi$-$)$representation $R : \Omega^{\mathcal{H}} \to \Omega_\upsilon^\upsilon$
$r\# : \phi \to \Omega_\Omega$

(α_κ, κ)-representation $rep_{\alpha_\kappa} : J_{\kappa_\kappa} \to \cong^{(\alpha_x,\kappa)}$ (κ_κ)-action $act_k : k_\kappa^{\infty_k} \to k_\kappa^k$
ϕ-maps $\phi : \kappa \to N_A$
ϕ-maps $\phi : k \to \mathcal{H}_A$
pre-facade $\langle \omega_\omega \rangle \cong \inf\ _{(\infty_n^m)_{\omega_\omega} \cong cvg_{\mathcal{H}}^\infty}$
post-facade $\langle \mathcal{H}^\circ_{a_i^{a_i}} \rangle \cong \inf^\omega \infty_{a_i}^{a_i} \cong Cvg_{\mathcal{H}}^\omega$
fictive operation **??**$(a \to (\phi^{\Omega a}))_i \to \Omega_\infty$
1-parameter $\langle \Omega / {k_k}^{\Omega_k} \rangle / \Omega$
2-parameter $\langle \Omega / X^{\Omega_Z} \rangle / \Omega$
3-parameter $\langle \Omega / X^{\Omega_Z} \rangle / \Omega$
delta refinement $\lfloor \mathcal{H}^{\mathcal{H}_k} \rfloor$
Q^n-refinement $\lfloor \Omega^n \rfloor$
description $\lfloor \{ \cong \rfloor$
(x, x^{-1})-quasi-projection $Q_m^n : 1 - hom(T) \to D_{(x,x^{-1})}$
$\widetilde{\widetilde{p}}$-partition $\lfloor \Phi_E^\circ \rfloor$ cM-projection P_c
Φ-projection $P(\sigma_s^s) : xm^s \to \Phi - \phi^{xm^s}$
ϕ-distinguishability $dist_{x_y} : xy \to \phi$
p-partition $p : \delta \to P$
r-representation $r : R_\alpha^n \to \phi - R_\alpha^n$
r-extension $\otimes_r : \mathcal{H}_{a_i}^{\otimes_r} \cong \delta_r^{\infty_r} \to \Omega_{\mathcal{H}_{a_i}^{\otimes_r}}$
Approximation map $\Phi_\Omega : V \to b(V)$
Coalgebra map $\alpha_c : {}_X\mathrm{Hom}(C, X) \rho \to \mathrm{Hom}({}_X\mathrm{Hom}(C, X), X)$
Coalgebra map $\alpha_x : Gr_{x_y} \to \mathrm{Hom}(\Omega_{x_y}(x_y), x_y)$
α-map $\alpha : S \times X \to S \times \Gamma X$
Double literal map $\leftrightarrow : \overline{\phi} \to \phi \to \overline{\phi}$ s-extension $\cong'_\infty : S^\infty \to \mathcal{H}_{-\infty}^{\cong}$
Leveling $\overset{\ll}{\longleftarrow}\!\!\!\!\!\!\!\!\varepsilon\ : \phi^{x-x} \to \mathrm{level}_{x-x}$
Partial lifting $\ell_x : (-) \downarrow_{x_y} \to_{\mathcal{H}_y^x}^{\mathcal{H}_x}$
Right lifting $\downarrow_x : xr_x^{xr} \to \downarrow_{xr_x^{xr}}$
Lifting $\downarrow_x : \mathcal{H}_x^{xr} \to \mathcal{H}_{\mathcal{H}_x^{xr}}^{xr}$
$\star$-pullback $\overset{\star}{\leftarrow} : \Omega_{\mathcal{H}_{a_i}^{a_i}} AD \to \Omega_{\mathcal{H}_{a_i}^{a_i}} A$
x-pushout $_x : xk_x \downarrow \to xk_x \downarrow_x^{\mathcal{H}}$
-pushout : $\to \infty_{\mathcal{H}}$
1-point extension $\widetilde{q} : xm \to \widetilde{q}\mathrm{Hom}(X, \Sigma^{\mathbf{N_N}})$
κ-reflection $1_{\kappa\leftrightarrow} : \kappa \to \kappa'$
Inclusion $k \Rightarrow k_j$
Extension $e : S \hookrightarrow Sc'$
$p\mathcal{H}$-reflection $k \to \phi - k$
Reflection $R : \widetilde{I}_k^{\gamma_i} \to \phi - \widetilde{I}_k^{\gamma_i}$
1-quasi-inclusion $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
0-quasi-inclusion $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
$y = x$-quasi-inclusion $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
x_{-1}-quasi-inclusion $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
Set-theoretical embedding "$\in$": $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$

$\widetilde{g}_x$-curve-arbitrary "R": $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
Boen joint restriction $\wedge$: $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
x-Gersten joint restriction $\wedge_{x_y}^x$: $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
Joint surjection Φ, ϕ, μ $T_a^b : x^{\infty^{\mathcal{H}}} \to x^{\infty^{\mathcal{H}}}$
Omega-bicompletion Φ, ϕ, μ, Ω
Theorem $k \leftrightarrow \mathcal{H}$: $\widetilde{g}_x \leftrightarrow h_{\mathcal{H}} = s^{s_s}$
Deformation map $\gg$: $X_F \to \gg (X_F)$
Connected homomorphism $\sigma^{X_\mu}(x_\mu) : X_\mu \to \sigma^{X_\mu}(X_\mu)$
Diagonal embedding : $X \to X^{X \downarrow_{\Lambda^\infty}}$
Lift $\Lambda X : X \downarrow_{\Lambda^\infty} \to X^\infty$
Section $\sec x : x_\Lambda \to \sec X_\Lambda$
$\Downarrow$-pullback $\Downarrow$: $\mathcal{H}^{\Downarrow}\langle\nu\rangle AB \to \mathcal{H}^{\Downarrow}\langle\nu\rangle A \Downarrow BB \Downarrow A$
Convolution integral $\mathcal{X}_\Lambda = \int\limits_{\mathcal{H}^\circ_{a_{iem}}}^{\Lambda} \mathcal{D}_{\alpha+\frac{1}{\infty}, f(\infty)} \left(\sum_{k=1}^{\infty} (a_k \Omega_k^{\alpha+\frac{1}{\infty}} + \theta_k) \right) \tan^{-1}(x^{f(\infty)}; \zeta_x, m_x)\, dx$
Normal fractional integral $11 + y^2 dx = \int_0^\infty 11 + y^2 dx$
Inverse limit $\mathcal{O}_\infty := \mathcal{O}_n : \mathcal{O}_n \mathcal{O}_{n+1}$
Inverse integral $\int dyy := \int_0^\infty dyy$

The n-waveform is a mathematical representation of a wave through the equation

$$\psi_n(t) = \sum_{n=1}^{\infty} A_n \cos(\omega_n t + \phi_n)$$

where A_n, ω_n, and ϕ_n are constants.

$$\mathcal{F}_{speck} = \sum_{i,j,k} \sin(\vec{p}_i \cdot \vec{q}_j) \cos(\vec{r}_k \cdot \vec{s}) - \sqrt{S_n T_m} \tan(\vec{v} \cdot \vec{w}).$$

$$\varphi(y_1, y_2, \ldots, y_n) = \sqrt{\frac{\sin\left(\sum_{i=1}^n y_i\right) + \sum_m \cos\left(\prod_{j=1}^m y_j\right)}{\sqrt{\prod_{k=1}^n p_k}}}.$$

$$\mathcal{H} = \mathcal{F}_{speck} \circ \mathcal{K}_{ker} \circ Presheaf \circ \mathcal{C}_{comp}$$

where $\mathcal{F}_{speck}$ is the Speck functor, $\mathcal{K}_{ker}$ is the Ker functor, Presheaf is the presheaf, and $\mathcal{C}_{comp}$ is the computational functor.

The global theory is then expressed as:

$$E_{total} = \Omega_\Lambda \left(\sin\theta \star \sum_{[n]\star[l] \to \infty} \left(\frac{1}{n - l \tilde{\star} \mathcal{R}} \right) \times \mathcal{H} \otimes \prod_{\Lambda} h - \cos\psi \diamond \theta \leftrightarrow \overset{\mathcal{ABC}}{F} \right).$$

Speck functor:

$$\mathcal{F}_{speck} : (C, R, \Omega_\Lambda) \to (C', R', \Omega'_\Lambda)$$

such that

$$\mathcal{F}_{speck} = \sin(\vec{p}_i \cdot \vec{q}_j)\cos(\vec{r}_k \cdot \vec{s}) - \sqrt{S_n T_m}\tan(\vec{v} \cdot \vec{w})$$

with

$$\Omega'_\Lambda \leftrightarrow \mathcal{F}_{speck}, \Omega_\Lambda, R, C \to R', C'.$$

Hom Functor:

$$\mathcal{H}_{geom} : (R, \Omega_\Lambda) \to (R', \Omega'_\Lambda)$$

such that

$$\mathcal{H}_{geom} = \sum_{i,j,k} \Big(\sin(\vec{p}_i \cdot \vec{q}_j)\cos(\vec{r}_k \cdot \vec{s}) - \sqrt{S_n T_m}\tan(\vec{v} \cdot \vec{w}) \Big)$$

with

$$\Omega'_\Lambda \leftrightarrow \mathcal{H}_{geom}, \Omega_\Lambda, R \to R'.$$

Ker Functor:

$$\mathcal{K}_{simpl} : (R, \Omega_\Lambda) \to (R', \Omega'_\Lambda)$$

such that

$$\mathcal{K}_{simpl} = \sum_{i=1}^{n} \cos(\omega_i t + \phi_i)$$

with

$$\Omega'_\Lambda \leftrightarrow \mathcal{K}_{simpl}, \Omega_\Lambda, R \to R'.$$

Comp functor:

$$\mathcal{C}_{diff} : (R, \Omega_\Lambda) \to (R', \Omega'_\Lambda)$$

such that

$$\mathcal{C}_{diff} = \sqrt{\frac{\sin\left(\sum_{i=1}^{n} y_i\right) + \sum_m \cos\Big(\prod_{j=1}^{m} y_j\Big)}{\sqrt{\prod_{k=1}^{n} p_k}}}.$$

with

$$\Omega'_\Lambda \leftrightarrow \mathcal{C}_{diff}, \Omega_\Lambda, R \to R'.$$

Other Functors:

$$\mathcal{F}_{trans} : (C, R, \Omega_\Lambda) \to (C', R', \Omega'_\Lambda)$$

such that

$$\mathcal{F}_{trans} = \sum_{i=1}^{n} \frac{\sin\left(\vec{a}_i \cdot \vec{b}_j\right) + \sum_m \cos\left(c_m\right)}{\sqrt{D_n E_m} \tan\left(\vec{d} \cdot \vec{e}\right)}.$$

with

$$\Omega'_\Lambda \leftrightarrow \mathcal{F}_{trans}, \Omega_\Lambda, R, C \to R', C'.$$

Star Traveler Functor:

$$\mathcal{F}_{st} : (C, R) \to (C', R')$$

such that

$$\mathcal{F}_{st} = \sum_{i,j,k} \exp\left(\sqrt{\sum_n \sin\left(\vec{p}_i \cdot \vec{q}_j\right) \cos\left(\vec{r}_k \cdot \vec{s}\right) - \sqrt{S_n T_m} \tan\left(\vec{v} \cdot \vec{w}\right)}\right).$$

with

$$\Omega'_\Lambda \leftrightarrow \mathcal{F}_{st}, \Omega_\Lambda, R, C \to R', C'.$$

$$\mathcal{F}_{st}\left(F_{RNG}, \Omega_\Lambda, R, C\right) \to R';C''$$

$$\Rightarrow$$

$$F'_{RNG} \cong F' : (\Omega'_\Lambda, R', C') \to (\Omega''_\Lambda, C'') \quad \text{such that} \quad \Omega_{\Lambda''} \leftrightarrow (F', \Omega'_\Lambda, R', C') \to C''.$$

2 References

Quantization and torsion on sheaves I, Buchanan, Ryan J . 2023, Independent Journal of Math and Metaphysics

https://www.academia.edu/99676315/Quantization$_and_torsion_on_sheaves_I$

Morphic Topology of Numeric Energy: A Fractal Morphism of Topological Counting Shows Real Differentiation of Numeric Energy Emmerson, Parker 10.5281/zenodo.7963376