Zipping and Integration

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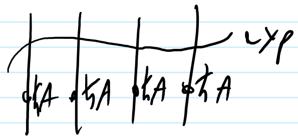
$$\det(A+\epsilon B) = \det A\cdot\det(1+\epsilon A^{-1}B) = \det A\,(1+\epsilon\, tr(A^{-1}B))$$

$$\frac{\partial}{\partial t}\det(1-tA) = -\det(1-tA)\cdot tr(1-tA)^{-1}A$$

$\frac{\partial}{\partial t}$ 

divergent unless f has a counter-Gaussian term.

$$\int f(z,\zeta)\,d\zeta\, dz = \langle f e^{\zeta z}\rangle \qquad \int f(x+y)\,dx = \int f(x)$$

$$\int f(z+y,\zeta)\,d\zeta\, dz = \langle f(z+y,\zeta)e^{\zeta z}\rangle_\zeta = \langle f(z+y,\zeta)e^{\zeta(z+y)}e^{-\zeta y}\rangle_\zeta$$

$$\left(= \langle f(z'+y,\zeta)\, e^{\zeta(z''+y)}e^{-(\zeta'+\zeta'')y}\rangle_{\zeta',\zeta''}\right)$$

$$= \langle f(z'+z''+y,\zeta')e^{\zeta'(z'+z''+y)}e^{-\zeta''y}\rangle_{\zeta',\zeta''}$$

$$= \langle f(z'-y+y,\zeta')e^{\zeta'(z'-y+y)}\rangle_{\zeta'}$$

$$= \langle f(z,\zeta)e^{\zeta z}\rangle_\zeta = \int f(z)\,d\zeta\, dz$$

Q. Is there a good class of f's for which this works?

(171205) (Approx.) On $H^{*cop}\otimes H$ with $R = Id = \rho\otimes r$ (summed), $\int\phi\otimes x := \langle\phi\bar\rho \mid xr\rangle$ is an integral. $\frac{1}{2}$**Pf.** $x_1\int\phi\otimes x_2 = x_1\langle\phi\bar\rho\mid x_2r\rangle = x_1r^ar^b\langle\phi\bar\rho\bar\rho^a\rho^b \mid x_2r\rangle \sim x_1r_1r^b\langle\phi\bar\rho\rho^b\mid x_2r_2\rangle \sim (xr)_1r^b\langle\phi\bar\rho\mid(xr)_3\rangle\langle\rho^b\mid(xr)_2\rangle \sim (xr)_1(\overline{xr})_2\langle\phi\bar\rho\mid(xr)_3\rangle = 1\langle\phi\bar\rho\mid(xr)_3\rangle$.

Properties of $\langle\ \rangle$ used above:

$$\langle z m^{ij}_k f(z_i, z_j, \zeta_k) \rangle_k = \langle \zeta \Delta^k_{ij} f(z_i, z_j, \zeta_k) \rangle_{ij}.$$

$$\langle f(z) e^{\zeta y} \rangle = f(y)$$