$\mathcal{F}$	$\Sigma_{\mathcal{F}}(\mu)$	$H^{\times}(\mu\|\mathcal{F})$
$\mathcal{G}_{\Sigma}$	Σ	$\frac{N}{2}\ln(2\pi)+\frac{1}{2}\mathrm{tr}(\Sigma^{-1}\Sigma_{\mu})+\frac{1}{2}\ln\det(\Sigma)$
$\mathcal{G}_{r\mathcal{I}}$	$r\mathcal{I}$	$\frac{N}{2}\ln(2\pi)+\frac{1}{2r}\mathrm{tr}(\Sigma_{\mu})+\frac{N}{2}\ln r$
$\mathcal{G}_{(\cdot\mathcal{I})}$	$\frac{\mathrm{tr}(\Sigma_{\mu})}{N}\mathcal{I}$	$\frac{N}{2}\ln(2\pi e/N)+\frac{N}{2}\ln(\mathrm{tr}\Sigma_{\mu})$
$\mathcal{G}_{\mathrm{diag}}$	$\mathrm{diag}(\Sigma_{\mu})$	$\frac{N}{2}\ln(2\pi e)+\frac{1}{2}\ln(\det(\mathrm{diag}(\Sigma_{\mu})))$
$\mathcal{G}$	Σ_{μ}	$\frac{N}{2}\ln(2\pi e)+\frac{1}{2}\ln\det(\Sigma_{\mu})$

Table 1: Table of cross-entropy formulas with respect to Gaussian subfamilies.

1 Entropy formulas

$\mathcal{G}$ - family of all normal distributions
$\mathcal{G}_A$ - where A proper matrix(square, symetric positvelly defined) is a subfamilly of $\mathcal{G}$ which covariance equals A
$\mathcal{G}_{(\cdot\mathcal{I})} = \cup_{r\in\mathbb{R}-\{0\}}\mathcal{G}_{r\cdot\mathcal{I}}$

2 Cluster formulas

Assume we we have a cluster A with parameters l, m, Σ and we add to this cluster point y we will get a new cluter A_{+y} with paramter given by formulas:

$$
\begin{aligned}
l_{+y} &= l+1, \\
m_{+y} &= \tfrac{lm+y}{l+1}, \\
\Sigma_{+y} &= \tfrac{l}{l+1}[\Sigma + \tfrac{1}{l+1}(m-y)(m-y)^T].
\end{aligned}
$$

Let's assume we'll substract point y from cluster A our new cluster will have parameters given by formula :

$$
\begin{aligned}
l_{-y} &= l-1, \\
m_{-y} &= \tfrac{l}{l-1}m - \tfrac{1}{l-1}y, \\
\Sigma_{-y} &= \tfrac{l}{l-1}[\Sigma - \tfrac{1}{l-1}(m-y)(m-y)^T],.
\end{aligned}
$$