

```
ClearAll[LogCoupledProbability];
```



```
LogCoupledProbability[dist_, κMult_, x_, xmin_ : -∞, xmax_ : ∞] :=
```

```
LogCoupledProbability[dist, κMult, x, xmin, xmax] =
```

```
FullSimplify[
```

```
(1 - κMult) (Log[PDF[dist, x]] - Log[ $\int_{x_{\min}}^{x_{\max}} \text{Exp}[\text{Log}[\text{PDF}[\text{dist}, y]]] \, dy$ ])
```

```
]
```