Why

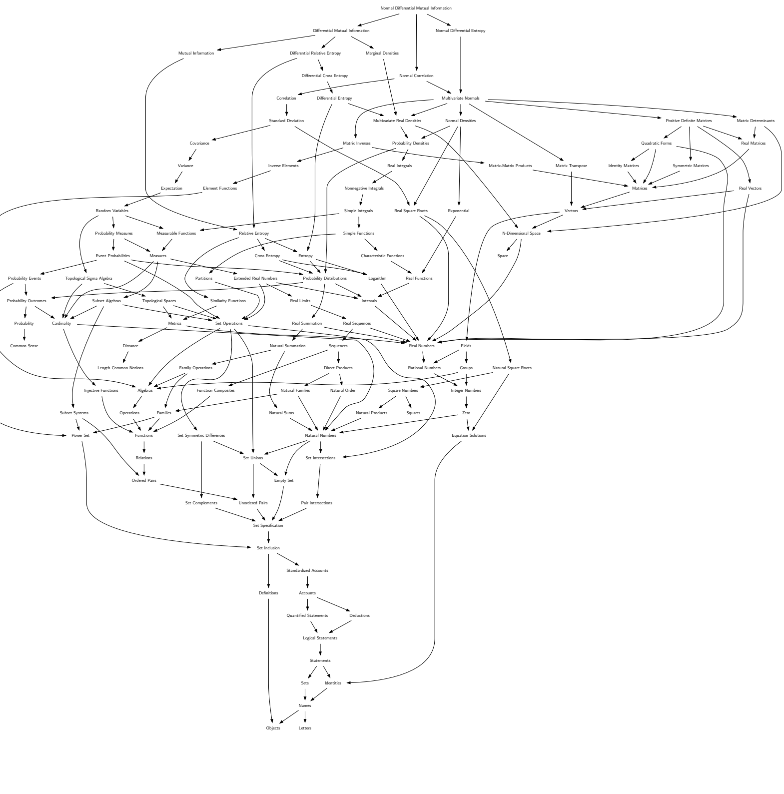
What is the differential mutual information between two components of a multivariate normal.

Result

Proposition **1.** *Let $g \sim \mathcal{N}(\mu, \Sigma)$. Then the mutual information between component i and component j is*

$$-\frac{1}{2}\ln(1-\rho_{ij}^2)$$

where ρ_{ij} is the correlation between components i and j.


Normal Differential Mutual Information
Differential Mutual Information
Normal Differential Entropy
Mutual Information
Differential Relative Entropy
Marginal Densities
Differential Cross Entropy
Normal Correlation
Correlation
Differential Entropy
Multivariate Normals
Standard Deviation
Multivariate Real Densities
Normal Densities
Positive Definite Matrices
Matrix Determinants
Covariance
Matrix Inverses
Probability Densities
Quadratic Forms
Real Matrices
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Real Integrals
Matrix-Matrix Products
Matrix Transpose
Identity Matrices
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Expectation
Element Functions
Nonnegative Integrals
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Probability Measures
Measurable Functions
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Event Probabilities
Measures
Cross Entropy
Entropy
Characteristic Functions
Space
Probability Events
Topological Sigma Algebra
Partitions
Extended Real Numbers
Probability Distributions
Logarithm
Real Functions
Probability Outcomes
Subset Algebras
Topological Spaces
Similarity Functions
Real Limits
Intervals
Probability
Cardinality
Metrics
Set Operations
Real Summation
Real Sequences
Common Sense
Distance
Natural Summation
Sequences
Real Numbers
Fields
Length Common Notions
Family Operations
Direct Products
Rational Numbers
Groups
Natural Square Roots
Injective Functions
Algebras
Function Composites
Natural Families
Natural Order
Square Numbers
Integer Numbers
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