**Definition**

Suppose $x$ A *maximum conditional estimate* for $x : \Omega \to \mathbf{R}^n$ given $y : \Omega \to \mathbf{R}^d$

It is also called the *maximum a posteriori estimate* or *MAP estimate.*

**Proposition 1.** *The MAP estimate also maximizes the joint pdf.*

Maximum Conditional Estimates

Random Vectors

Random Variables — Matrices

Topological Sigma Algebra — Measurable Functions

Topological Spaces — Vectors

Metrics — N-Dimensional Space

Distance — Absolute Value

Space Distance

Probability Measures

Event Probabilities — Measures — Plane Distance — Interval Length

Probability Events — Extended Real Numbers — Probability Distributions

Subset Algebras — Probability Outcomes — Real Limits — Intervals

Set Operations — Cardinality — Probability — Real Space — Real Plane — Real Line

Common Sense — Real Sequences — Real Summation — Direct Products — Real Order — Geometry — Fields

Real Numbers — Groups

Rational Numbers — Integer Additive Inverses

Natural Summation — Inverse Elements — Integer Arithmetic

Sequence — Family Operations — Element Functions — Natural Multiplicative Identity — Natural Additive Identity — Integer Sums

Families — Algebras — Identity Elements — Arithmetic — Function Inverses — Integer Products

Operations — Function Image — Natural Exponents — Function Composites — Integer Numbers

Function — Natural Products — Equivalence Relations

Relations — Natural Sums

Subset Systems — Cartesian Products — Recursion Theorem

Set Powers — Ordered Pairs — Peano Axioms

Natural Induction

Unordered Triples — Natural Numbers

Partitions — Intersection of Empty Set — Successor Sets

Set Symmetric Differences — Set Intersections — Pair Unions

Pair Intersections — Set Complements — Set Unions

Empty Set — Set Differences — Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities — Sets

Names

Letters — Objects