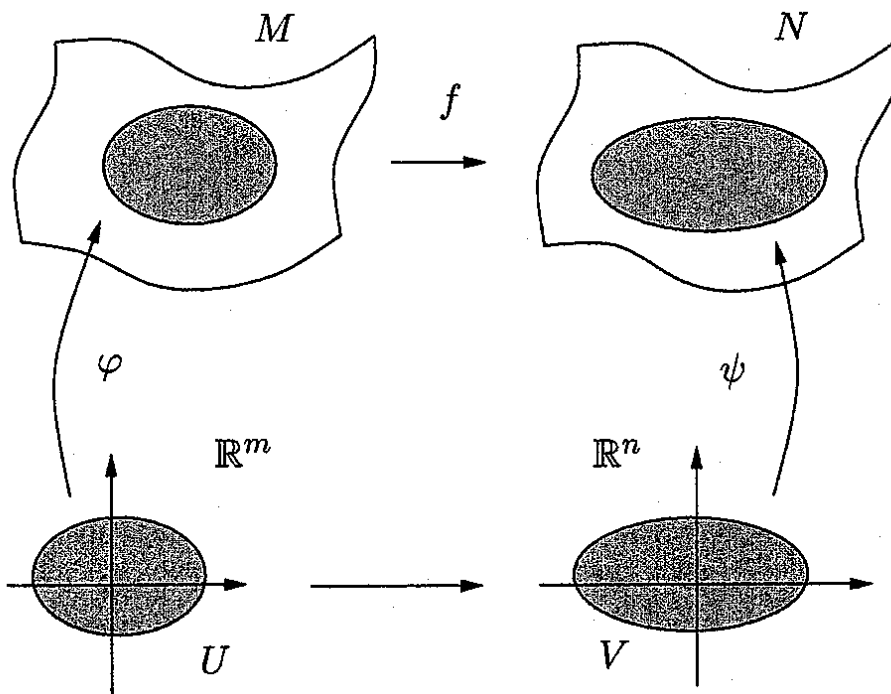
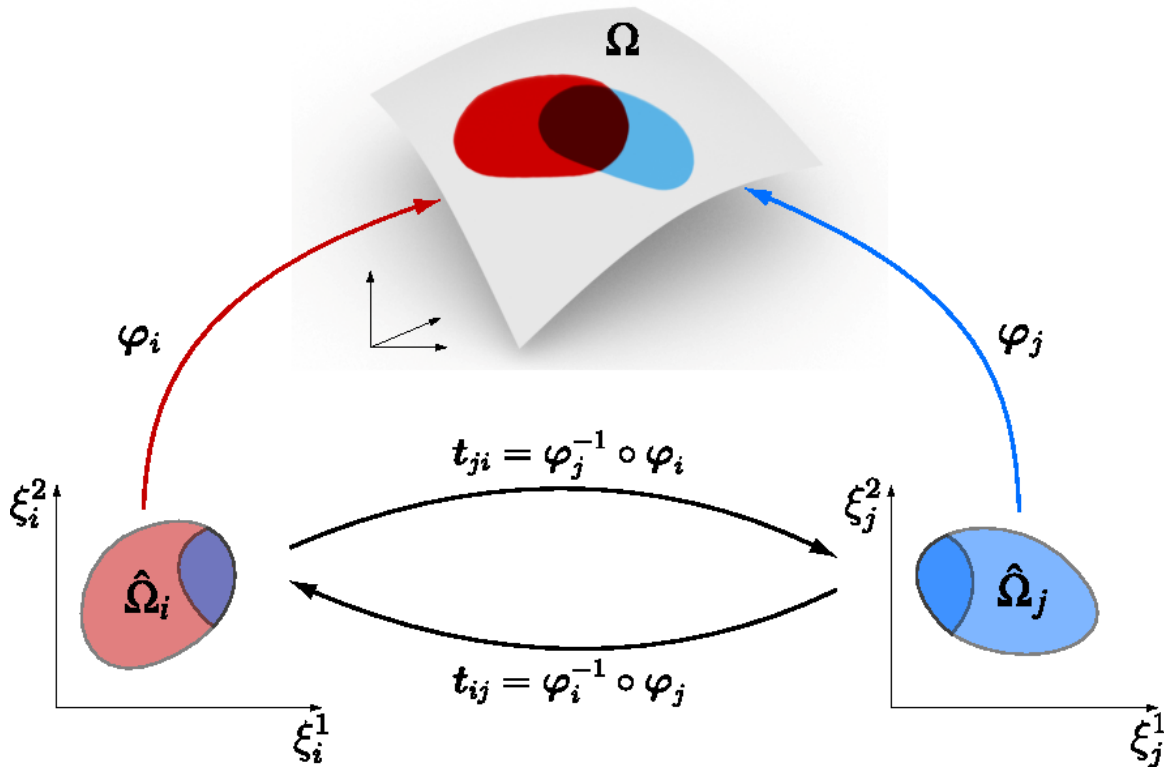
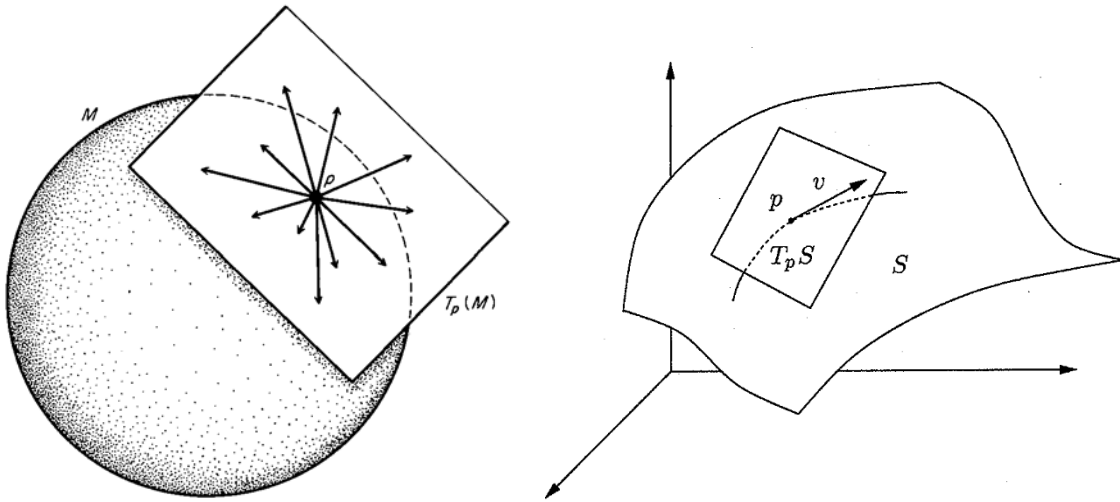


Smooth manifold and transition maps

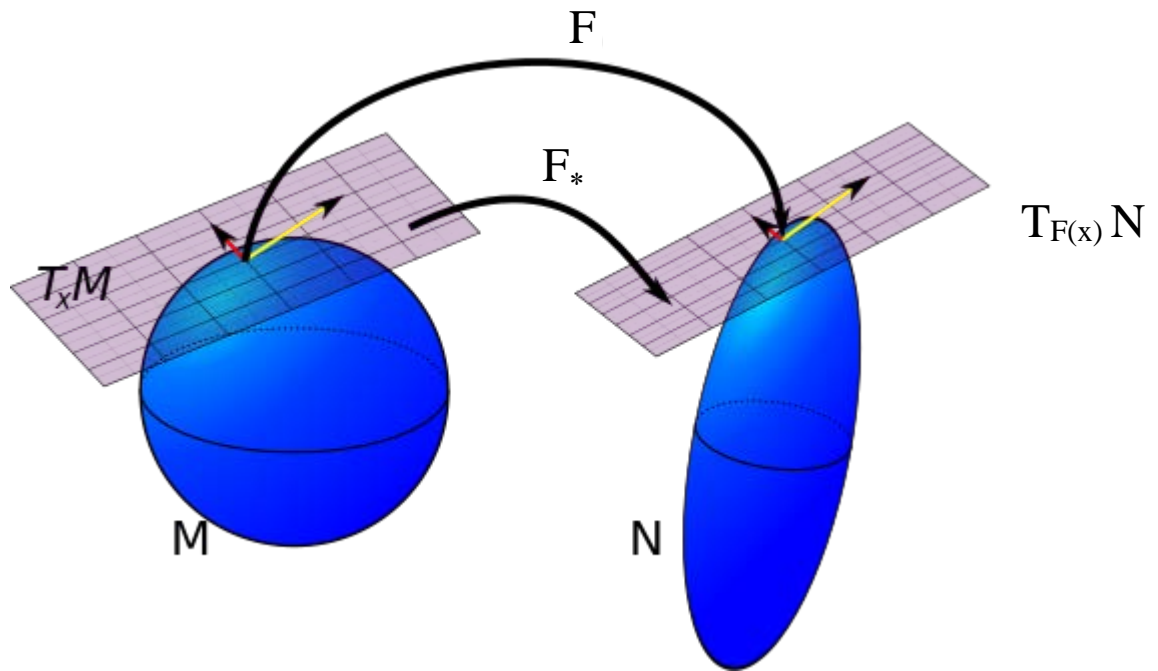


A smooth function f and its local representation given by the composition of three functions

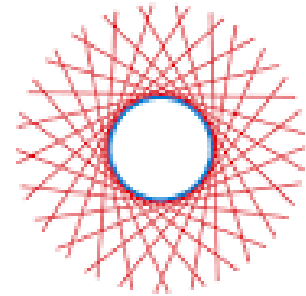
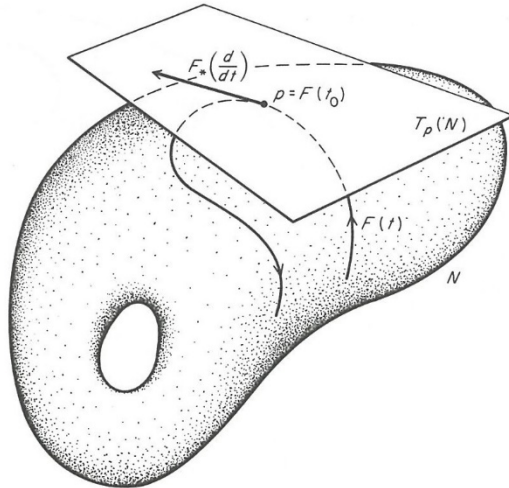
Two tangent planes in the extrinsic representation



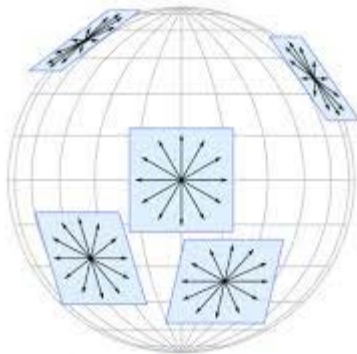
A function F and its differential $F_* = dF$



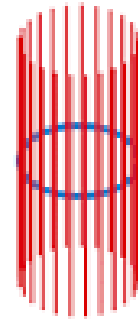
A curve (denoted by F) on a manifold and a representation of the corresponding tangent vector at the point $p = F(t_0)$



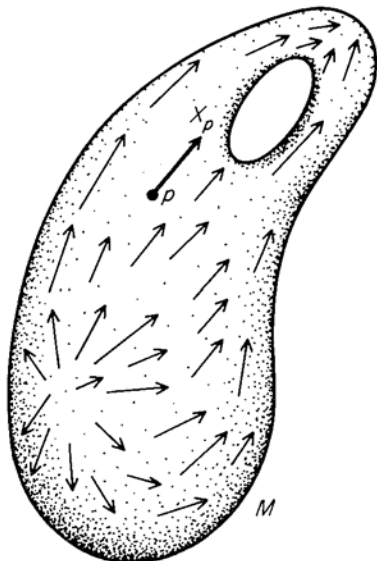
Some tangent bundles



Tangent bundle on a 2-sphere



The tangent spaces have been reoriented



A vector field on a smooth manifold M