

Orientlib: Using S Version 4 Objects

D.J. Murdoch*

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Abstract

R supports two systems of object oriented programming. The S version 3 objects work by a naming convention. Chambers (1998) introduced the S version 4 object system. Here a registration system connects objects to their methods. In this presentation, I will describe Orientlib, an R package using S version 4 objects.

Orientlib (JSS, 2003) is an R package to facilitate working with orientation data, i.e. elements of $SO(3)$. It provides automatic translation between different representations of orientations, including rotation matrices, quaternions, Euler angles and skew-symmetric matrices; it also has functions for fitting regression models and displaying orientations. This presentation reviews simple properties of orientation data and describes Orientlib.

Keywords: S version 4 objects, $SO(3)$, orientation data, Euler angles, quaternions, rotation matrices

*University of Western Ontario