

Quail: Quantitative Analysis in Lisp.

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Quail is a quantitative programming environment written in Common Lisp (CL) and is largely object-oriented (based on the CL Object System). Quail is designed to extend the CL language to better support quantitative analysis. The minimal extension is to add extended arithmetic, rich array manipulation facilities, smooth access to other languages (esp. Fortran and C), and uniform access to a mouse and window system.

The quail extensions peculiar to statistical analyses are the following:

1. Graphics.

- Completely object-oriented system for building interactive displays.
- Collection of stock statistical graphics – Histograms, boxplots, function plots, scatterplots, 3d-rotating scatterplots, scatterplot matrices, ...
- Arbitrary linking of display elements.

2. Statistical Response models

- generalized linear models

3. Probability Measures

- Borel Sets
- Measures
- Integration, expectation, etc.
- Quantiles and pseudo-random numbers.

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In this talk an overview of the Quail design and implementation will be given with particular attention paid to the areas of primary statistical interest.