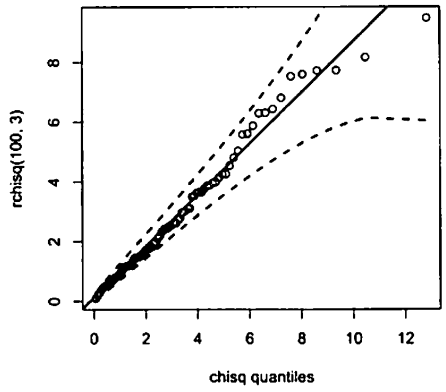

Figure 3.5 Quantile-comparison plot of a sample of size $n = 100$ from the $\chi^2(3)$ distribution against the distribution from which the sample was drawn.

the distribution from which it was drawn, producing Figure 3.5:

```
> set.seed(124) # for reproducibility
> qqPlot(rchisq(100, 3), distribution="chisq", df=3)
```

The points should, and do, closely match the straight line on the graph, with the fit a bit worse for the larger values in the sample. The confidence envelope suggests that these deviations for large values are to be expected, as they reflect the long right tail of the $\chi^2(3)$ density function.

3.1.4 BOXPLOTS

The final univariate display that we describe is the *boxplot*. Although boxplots are most commonly used to compare distributions among groups (as in Section 3.2.2), they can also be drawn to summarize a single sample, providing a quick check of symmetry and the presence of outliers. Figure 3.6 shows a boxplot for `income`, produced by the `Boxplot` function in the **car** package:[6]

```
> Boxplot( ~ income, data=Prestige)

[1] "general.managers"          "lawyers"
[3] "physicians"                "veterinarians"
[5] "osteopaths.chiropractors"
```

The variable to be plotted is given in a *one-sided formula*: a tilde (`~`) followed by the name of the variable. This variable is contained in the data frame `Prestige`, and the `data` argument is used to tell the function where to find the data. Most graphical functions that use a formula accept a `data` argument.

[6]The standard R `boxplot` function can also be used to draw boxplots, but `Boxplot` is more convenient, automatically identifying outliers, for example; indeed, `Boxplot` is simply a front-end to `boxplot`.