Introduction to R
Chi-square testing

R-peer-group

QUB

March 4, 2013

Session outline

Goodness of fit test	Example of the binomial test and proportional testing. Chi-sq goodness of fit tests on contingency tables including die rolling and genetic sampling.
Homogeneity of samples	Are my trout populations different?: An example using microsatellite data.
DIY chi-sq	Breaking chi-sq down to its' basics and building it back up again.
Test of independence	Is there a gender bias associated with university subject selection, both historically and today?
Homework	Are firemen more likely to have a heart attack while fighting a fire than while doing other task of their job?

Homework

Considering that firemen spend 2% of their time fighting fires, 16% of their time responding to fires (i.e. getting gear together and travelling to and from calls), 8% exercising and 74% doing other duties, devise a null hypothesis to test given the following data:
Deaths while fighting fires = 144
Deaths while responding to calls = 138
Deaths while training = 56
Deaths while doing other duties = 111

Some questions you might ask:

* What are the expected numbers?
* Should I use the **goodness of fit test**, **the sample homogeneity** test or **the Independence of variables test**?
* what is the simplest way to do the test? Has a similar test been demonstrated?