This procedure, which is based on the binomial distribution, but assuming the special case $p = 0.5$, is used with dichotomous data, i.e., where an experiment has only two possible outcomes, and it is wished to test if the outcomes, say success or failure, are equally likely. The test is usually described in terms of positive signs (+) or negative signs (-) but, as it is only concerned with a succession of observations that can only be one of two types and does not necessarily involve any sort of measurement scale, it has much wider application. Unfortunately the test does not take into account the order of positive and negative signs and would not differentiate between the patterns $+-+-+-+-+-$ and $+++++-----$, so the test is rather weak and large samples, say greater than 20, are usually recommended. The run test does take the order of occurrence into account, and should be used where order in the sequence of signs has significance.

Open the SIMFIT main menu, choose [Statistics] then [Standard tests] and run the sign test option. This can be used to input numbers of positive and negative signs and, using the default options for number of positive signs $m = 5$, and negative signs $n = 5$, the next results are obtained.

Sign test analysis 1, $m + n = 10$		
$P(+ve = m)$	0.24609	$m = 5$
$P(+ve > m)$	0.37695	
$P(+ve < m)$	0.37695	
$P(+ve \geq m)$	0.62305	
$P(+ve \leq m)$	0.62305	
$P(-ve = n)$	0.24609	$n = 5$
$P(-ve < n)$	0.37695	
$P(-ve > n)$	0.37695	
$P(-ve \leq n)$	0.62305	
$P(-ve \geq n)$	0.62305	
Two tail sign test statistic = 1.00000		

The test could be used, for instance, to find out how many consecutive successes you would have to observe before the likelihood of an equiprobable outcome would be questioned. From these five successes and five failures it is quite clear that such an outcome is perfectly consistent with the null hypothesis $H_0 : p = 0.5$,

On the other hand, the case with $m = 9$, and $n = 1$, summarized in the next table is obviously more extreme.

Sign test analysis 2, $m + n = 10$		
$P(+ve = m)$	0.00977	$m = 9$
$P(+ve > m)$	0.00098	
$P(+ve < m)$	0.98926	
$P(+ve \geq m)$	0.01074	
$P(+ve \leq m)$	0.99902	
$P(-ve = n)$	0.00977	$n = 1$
$P(-ve < n)$	0.00098	
$P(-ve > n)$	0.98926	
$P(-ve \leq n)$	0.01074	
$P(-ve \geq n)$	0.99902	
Two tail sign test statistic = 0.02148, Reject H_0 at 5% significance level		

Clearly, nine outcomes of one kind but only one of the opposite kind, suggests rejection of the null hypothesis that both outcomes are equally likely irrespective of the order of occurrence of the observations.