

GENETICS, JOKE

CENTRAL LIMIT THEOREM

8.03.2008 2 COMMENTS

The central limit theorem states that a sum of independent identically distributed random variables (lets say allele counts in genomewide association scans) of finite variance will be approximately normally distributed. Unfortunately the maximum of the distribution will not reflect the true value ... or did I get it wrong?

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2 THOUGHTS ON “CENTRAL LIMIT THEOREM”

Rege

8.03.2008 AT 21:03

I'm not clear on what you mean.

The normal distribution is unbounded, consequently it has no maximum value. The appropriately normalized sum is exactly normal only in the limit of an infinite number of observations and an infinite sum of bounded random variables, as are the random variable in your example, doesn't have a maximum either. Hence there is no discrepancy. However, if you are using the CLT to approximate the actual distribution of the finite sum, then there will be a discrepancy.

Or are you actually asking about the limiting distribution of the maximum of a sequence of iid random variables as the number of observations goes to infinity? In this case, you would not use the CLT. It is fairly easy to show that the limiting distribution of the maximum observation in an iid sequence is a point mass at the upper bound of the population distribution.

I hope this helps.

admin

11.03.2008 AT 14:31

Dear Rege – many thanks for helping me to understand that there is no maximum, this was my error...

COMMENTS ARE CLOSED.
