

LETTER TO THE EDITOR

Dear Editor,

On clumping effects in models of isolation by distance

I wish to bring the following controversy to the attention of your readers since it involves by implication a recent article in this journal. This article by Sudbury (1977) extends some results by Felsenstein (1975) which pertain to a model of isolation by distance, proposed by Malécot (1969), to predict under various circumstances the coefficients of consanguinity of individuals separated by given distances in a continuous space. Felsenstein claims that Malécot's model appears to make three assumptions: (I) individuals are distributed randomly on the line with equal expected density everywhere; (II) each individual reproduces independently, the number of offspring being drawn from a Poisson distribution with a mean of 1; and (III) each offspring migrates independently, the displacements being drawn from the same distribution. Felsenstein demonstrates that Assumption I is incompatible with Assumptions II and III, and that a model embodying II and III will lead to the formation of larger and larger clumps of individuals separated by greater and greater distances. Sudbury has confirmed these results. However, Lalouel (1977) has questioned whether Felsenstein's interpretation of Malécot's writing is correct. According to Lalouel, Malécot assumes density to be *constant in time and space*, hence it belongs to the domain of certainty, and therefore cannot be evaluated by a probability: it is a *parameter* in the model. In other words Felsenstein's interpretation of the assumptions may be incorrect and, using a different interpretation, Lalouel has shown there to be no incompatibility between the three assumptions.

References

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Yours sincerely,
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