Elements related to the largest complete excursion of a reflected Brownian motion. Application to the local score.

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We determine the distribution and the density function of the pair (U^*, T^*) where:

– U^* is the supremum of the absolute value of a Brownian motion up to its last zero before time 1

– T^* is time taken by the excursion to reach the level U^*.

We also show how this result can be applied for comparison of long biological sequences and in particular for the local score.