SCIENTIFIC REPORTS

OPEN

Corrigendum: Modeling crowdsourcing as collective problem solving

Andrea Guazzini, Daniele Vilone, Camillo Donati, Annalisa Nardi & Zoran Levnajić

Scientific Reports **5**:16557; doi: 10.1038/srep16557; published online 10 November 2015; updated 12 September 2016

This Article contains errors. In the 'Model' section,

"Capacity is simply the number of iterations in which at least one collectivist has solved the task, regardless of R. It models the collective knowledge of a group, i.e., the group's capacity to solve increasingly challenging tasks. It is defined for each group, regardless of its iteration-dependent divisions into collectivists and individualists. Initially we set for all groups $\Sigma_j = 0$. We update $\Sigma_j \to \Sigma_j + 1$ each time at least one player playing as a collectivist solves the task (and regardless of how many individualists solve it)".

should read:

"Capacity is simply the number of iterations in which one collectivist has solved the task, regardless of R. It models the collective knowledge of a group, i.e., the group's capacity to solve increasingly challenging tasks. It is defined for each group, regardless of its iteration-dependent divisions into collectivists and individualists. Initially we set for all groups $\Sigma_j = 0$. We update $\Sigma_j \to \Sigma_j + 1$ each time one player playing as a collectivist solves the task".

Additionally in this section,

"The group's capacity increases by one $\Sigma_j \to \Sigma_j + 1$. Fitness updates are as follows: …"

should read:

"The group's capacity increases by S $\Sigma_j \to \Sigma_j + S$. Fitness updates are as follows: … "

In the 'Results' section,

"… where, by definition, $\overline{G} = 11/5$ is the mean value of the integer random number $G_i \in \{1, 2, \ldots, 10\}$".

should read:

"…where, by definition, $\overline{G} = 11/2$ is the mean value of the integer random number $G_i \in \{1, 2, \ldots, 10\}$".

Additionally in this section,

"This clearly implies that δ increases monotonically with R, going from 0 to 11/5. This means that, with increasing R cooperative groups have to reach a higher capacity to thrive, but this is balanced by the higher ease to solve the tasks: the combined effect is that, given the group size, the final cooperation level does not depend strongly on R, as shown in Fig. 1. On the other hand, increasing R enhances the global fitness, because it is easier to solve the tasks and, for a cooperative group, reach a higher capacity with respect to the others, as depicted in equation (5). This behavior is confirmed in Fig. 3, where an increase for increasing R is observable in the average agent fitness. The narrow tilt change for $R \simeq 0.5$ can be understood considering that when R becomes smaller than $R^* = 0.5$, also δ gets smaller than ¬¬ $\delta^* \simeq 0.5$, that is, there is practically no need to reach a higher capacity for cooperators to thrive, lowering the global fitness".

should read:

"This clearly implies that δ increases monotonically with R, going from 0 to 11/2. This means that, with increasing R cooperative groups have to reach a higher capacity to thrive, but this is balanced by the higher ease to solve the tasks: the combined effect is that, given the group size, the final cooperation level does not depend strongly on R, as shown in Fig. 1. On the other hand, increasing R enhances the global fitness, because it is easier to solve the tasks and, for a cooperative group, reach a higher capacity with respect to the others, as depicted in equation (5). This behavior is confirmed in Fig. 3, where an increase for increasing R is observable in the average agent fitness. The narrow tilt change for $R \simeq 0.5$ can be understood considering that when R becomes smaller than $R^* = 0.5$, also δ gets much smaller than ¬¬ $\delta^* \simeq 0.5$, that is, there is practically no need to reach a higher capacity for cooperators to thrive, lowering the global fitness".