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HOW TO ASSIGN POINTS FOR CHORES

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Abstract

Many parents reward their children for doing different chores. The problem is that: while in the beginning, kids are very enthusiastic about performing chores and collecting points, by the time when they have accumulated a sufficient number of points, they become less and less interested. In this paper, we provide a decision theory solution on how many points to assign for consecutive chores.

Keywords: *chores, utility theory*

Many parents reward their children for doing different chores. Some parents give their kids money so that the kids can use them however they want. Other parents assign points based on which the kids can get some pre-agreed rewards. Usually, there is a fixed scale according to which each specific chore bring a certain number of points.

There is, however, a problem with this fixed-scale assignment, a problem with which many parents are very familiar: while in the beginning, kids are very enthusiastic about performing chores and collecting points, by the time when they have accumulated a sufficient number of points, they become less and less interested.

This phenomenon makes perfect sense: e.g., if we have no money and someone gives us 10 dollars, it is a great gain, but if we already have 1000 dollars, then having 10 more dollars is practically not noticeable, not worth a serious effort.

So, to encourage the kids to continue performing chores, we cannot use a fixed-scale scheme, we need to increase the number of points per chore as the kids accumulate points. A question is: how exactly should we increase this number of points?

To answer this question, let us consider this situation from the viewpoint of utility theory; see, e.g., [1,3-6]. According to utility theory, decisions of a rational person aim at maximizing the value of a certain quantity called utility. It has been empirically shows that the utility u of owing an amount of money m is proportional to the square root of m: $u = c * sqrt(m)$; see, e.g., [2].

This is the utility that the kid gets if he or she stay with what they have accumulated. If a kid decides to perform a chore, then this kid gains some award a, but at the same time, loses some amount e of utility -- since he/she has to perform a not-so-pleasant chore like washing dishes or taking out garbage. If the kid decides to take on the chore, his/her amount of money raises to $m + a$, so the money-related utility is now

$$c * sqrt(m + a),$$

and the resulting overall utility is $c * sqrt(m + a) - e$.

In line with the general decision theory, the kid will select performing a chore if the utility resulting from performing a chore is greater than the utility resulting from not performing a chore, i.e., if

$$c * sqrt(m + a) - e > c * sqrt(m).$$

This inequality is equivalent to $sqrt(m + a) > sqrt(m) + E$, where we denoted $E = e/c$. This inequality, in its turn, is equivalent to $m + a > m + E^2 + 2E * sqrt(m)$, i.e., to

$$a > E^2 + 2E * sqrt(m).$$

Thus, in the situation when a kid has already accumulated the amount m and the effort of performing the chore is e, the smallest amount of the award should be equal to $E^2 + 2E* sqrt(m)$.

In particular, for the case when a kid perform several (k) identical chores, with the same amount e (thus same amount of E) for each chore, then the formula $sqrt(m + a) = sqrt(m) + E$ translates into $sqrt(m(k+1)) = sqrt(m(k)) + E$, where $m(k)$ is the number of points that the kid will have after k chores. For $k = 0$, we have $m(0) = 0$, thus $sqrt(m(k)) = k * E$, hence $m(k) = E^2 * k^2$ and the award $a(k)$ for the k-th chore should be equal to $a(k) = m(k) - m(k-1) = E^2 * (2k - 1)$. In other words, the award should grow linearly with the number of iterations.

Will it work? Some of our friends have been using this system in determining chore awards for his own children, and it seems to be working very well.

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