

## What can we learn from the new game CTBT that I devised for my stu

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In order to play the game you need a white board or a white wall or a white table (even a large piece of paper will do) and a black felt-tip (in case of paper you can use a pencil).

The game is played by two persons, named Alice and Bob, of course. Alice paints a set of big black points (real points, not Euclidean points) on the white surface. (If the surface belongs to the wall of a house, be sure to obtain permission from the owner!) Bob pays one cent and is allowed to draw a big black continuous line from one point, called center- or root-point, over the surface. The line need not be straight, but the felt-tip or pencil must always increase its distance from the root-point. If Bob hits another one of the points, he receives one cent from Alice. If he hits  $n$  other points, he receives  $n$  cents from her. Afterwards Bob can pay one cent again and repeat his action in order to strike further points. For every point he hits for the first time Bob receives one cent. The game is continued until either Bob runs out of money or all points have been stroken. If Bob can hit all points without going bankrupt, he has won. Otherwise Alice wins.

My question is: What can we learn from that game when applying it to a structure like the infinite binary tree? (That's where the name of the game comes from: "Conquer The Binary Tree".) [Hint: Clever students usually answer this question without trouble within 10 seconds.] Here is an animation of the game: <http://www.hs-augsburg.de/~mueckenh/GU/GU12c.PPT#365.33.Folie> 33

Regards, WM

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