

General Notes:

Player Path – The **trajectory path** we see in the game of our Jumping Caveman (Assisted Path). It will show as **green color** if the visualization is on.

Real Trajectory – The **path** that is created based on the participant's given velocity. Shown as **Red color** if the visualization is on.

Shortcut – By default the visualization for **Player Path** and **Real Trajectory** is off. The shortcut to turn the visualization on/off is Right CTRL + Right ALT+T. The left ctrl/alt will not work.

Assistance Technique: The assistance works in the following way:

- a. Based on the Random Threshold Method it randomly assigns a value for a given range. The range differs in two levels. I will describe the range later in this document.
 - Low Trajectory
 - High Trajectory
- b. If the participants' given velocity is good enough to reach the pole, then it ignores the assistance.
- c. To remove any suspicion about the system, it ignores any assistance while the participant's suppressed mouse click is extremely low/just a flick for a millisecond or something like that. If anyone just click the mouse to see what's happening, the caveman will just use the given velocity and ignore any assistance.

Version Naming Convention in this dropbox folder:

Type of Level-assistance_Technique.Level

Easy → Lowest Pole Variation

Hard → Highest Pole Variation

Levels with 0, 90 and 100 Trajectory Assistance:

01. *Easy-Traj_Assist0*: Easy Level with '0'/no Trajectory Assistance.
02. *Hard-Traj_Assist0*: Hard Level with '0'/no Trajectory Assistance.
03. *Easy-Traj_Assist90/ Easy-Traj_Assist100*: Easy Level with 90/100% Assistance.
04. *Hard-Traj_Assist90/ Hard-Traj_Assist100*: Hard Level with 90/100% Assistance.

N.B: In these levels (except 90%), since the assistance is either zero (0%) or full (100%) and the green path overlaps the red one, you will see only a green trajectory line (if the visualization is on).

Random Threshold Method:

Debugging Process:

1. Debugging has been done with a range of 10 (10-20, 20-30... ...80-90) or 15 (20-35,30-45, 35-50,45-60... ... 75-90)
2. The lowest margin (for example xx-zz; xx is the lowest value) has been decided in such a way that any value lower than this is practically useless.
3. The highest margin (for example xx-zz ; zz is the highest value) has been decided so that participant must exert more than average effort for success – for low trajectory and can't use full mouse pressure for high trajectory.

Two levels of assistance:

1. Low Trajectory:

a. Range → (30-45)

- b. Lower than 30 is not much effective unless the caveman is super close to the pole.
- c. To succeed participants must provide more than average effort. By more than average I mean participant's assumed velocity/suppressed mouse pressure must be more than 50% perfect.
- d. Any assistance value more than the highest margin (45) is too powerful. Good enough to reach about 75% poles of Easy levels. So, that has been avoided.
- e. Of course, full mouse pressure (filling up the power bar)/half mouse pressure (half filling the power bar) doesn't work to reach constantly all poles with this low trajectory assistance.

2. High Trajectory:

a. Range → (65-80)

- b. Assistance would be quite higher for both easy and hard levels with this High Trajectory Assistance range.
- c. For a range of 65-80, the participants exert less than average effort to succeed.
- d. In my tests, I have found around 85-90% of times participants can succeed in easy levels and around 70-80% times for Hard level. However, this range ensures that no one can use the full mouse pressure to constantly score.
- e. Any value more than 80 is too powerful for Easy levels. If we use more than 80, participants might use full mouse pressure in easy levels and finish the whole level.
- f. In my tests, with a trajectory range like this it still confirms that there is a difficulty variation between easy and hard levels.

Previous Version of our experiment and the current version:

In our previous experiment, we used No Magnetism vs Magnetism. In that way, our levels were like this:

	Easy	Hard
Magnetism	ME	MH
No Magnetism	NE	NH

For our new experiment, if we consider two levels of trajectory assistance crossed with overt difficulty then our newer levels would look like these:

	Easy	Hard
High Trajectory	Easy- High Trajectory	Hard- High Trajectory
Low Trajectory	Easy- Low Trajectory	Hard- Low Trajectory

Hence, we will be recreating all 4 levels and we will not have any level with zero assistance (where participants see their real performance only.)