# Game Design Exercise: HeapCraft

Our idea is to create a Minecraft mod that introduces new mechanics that encourage (and more readily enable) cooperation between players. There will be a system where a player can create and become a leader of a team, and other players can then join as members of that team. Teams can acquire territory, which allows them to protect regions of land where only members of that team can build/break blocks. They also have some tools to help cooperation within the team, like a private chat, and the ability to see the location/status of all people within the team. There will be some adversarial mechanics as well, such as methods for enabling one team to overtake parts of another team’s territory, or for players within a team to vote to elect/dethrone people to/from leadership positions.

Leaders of a team have the abilities to accept requests from people to join the team, send out invitations for people to join, and to kick members out of the team. They can change attributes about the team, such as its name, and the team’s color. They have stronger stats (HP, attack power, armor) while in friendly territory, but are very vulnerable when outside their territory. Killing a leader provides more bounty and rewards. They are capable of determining diplomatic attitude with other teams.

There are several ways to claim territory. A single-use item can be crafted that allows you to instantly claim a single column of land (a 1x1 area of land that extends infinitely in the vertical direction) by right clicking on a block. However, this only works on unclaimed land. A variant of this that allows you to instantly revert a 1x1 area of a certain team’s claimed land back to unclaimed land can be obtained by slaying a member of that team. There are two machines that can be built which serve similar purposes. One will very slowly convert any unclaimed land in a certain radius around it into your team’s territory. The other will very slowly convert any claimed land in a certain radius around it into unclaimed territory. This rate is inversely proportional to the number of people in that team that are currently online, so if no one from a team is online, you cannot steal their territory. This latter machine does not follow block protection, so it can be destroyed, inactivated, or stolen by a member of any team regardless of the territory it occupies.

There will be a trading and marketing system. Players can trade resources, items, and even territory with other players. Two forms of trade are provided. The first is a direct peer-to-peer style, where players can initiate trade sessions with one another by pressing an interact button on a player and simply selecting “Trade” from a menu. A trade windows then pops up and is separated into two parts horizontally, each side containing the items the respective players wish to trade. The second trading style is a global market system, where players can post trade offers to a bulletin. When players need something, they can search the posted trades, then manually choose offers they like, or the game can automatically select a lowest price offer for the player. We could potentially have a common currency (like gold), or just stick to a plain bartering system. Ultimately, everything can be priced by players as they see fit, and this could provide interesting insights into the economics of the game.

From this type of gameplay, we can extract plenty of useful data relevant to inter-player cooperation, and individual play styles. Some potential metrics:

* Territory acquired/stolen
* # of player kills
* The number of different groups a player has been in
* Resources collected/used
* Proportion of times using own items versus items collected by other people
* Size of each of the teams over time
* The rate of people joining/leaving a group as a function of its size

We can potentially also store snippets of chat logs with certain events, to get a better idea of why people choose to leave groups, why people get voted out of leadership positions, etc.

Ultimately, the data collected from the players’ interactions could potentially be generalized to any activity that involves a team, such as in a work environment. The data can be mined in ways that link the personalities of the team’s members to how successful the given team was. This general analysis would be of great use to Industrial-organizational psychologists, who strive to better the workplace.