# Carving pumpkins

## General

The idea of “slice a shape into any other shape” was not applicable in my rolling game.

But it still works and it has potential, so let’s make a different game out of it. The most logical conclusion: a fighting game where you *literally* slice your opponents.

**Titles:** Carving Pumpkins and Dwarfing Dumplings

## Main mechanic

When slashing/attacking, you *literally (realistically)* *slice their shape*. They become the “biggest shape”, the other one is simply lost. Once the biggest shape is below a threshold, a player is considered completely dead.

## Objective

Multiple game modes

* **Deathmatch** => slice your opponents until they’re all gone
* **Collector** => you can *collect* the slices of opponents; the first one to get X of them wins.
* **Bullseye** => targets appear across the map; hit one with your knife to get it, the first to get X wins
* **Dumplings** => players can eat dumplings, which will *grow* you, and then *appear inside of you*. When slicing a player, if you hit a dumpling, you get it. (You grow, they shrink.)
* **Dwarfing Dumpling =>** each player/team gets their own *huge* dumpling. Players themselves cannot be hit (and are rather small), but if your *dumpling* is completely sliced, you lose.
* **Ropes =>** each player has a few objects attached to them with ropes. If another player slices through a rope, it comes loose, and you lose that “life”.
* **Capture the Flag** => one player from each team has a *flag* inside of them. However, this is hidden information. (The player who has the flag cannot throw knives, that’s how they know.) If you slice through that player, you capture the flag. The first to X captures wins.
  + This would require *teams*. I see no way to adapt it to single player or individual players.

Multiple player configurations (1-6 players max): Team-based, AI-bots

## Input

Arrow keys / Joystick = Move

Button = Slash

* Quick-press it to slice straight ahead. (The normal across your looking direction, with a small maximum range.)
* Long-press it to throw your knife.
  + This shoots a narrow rectangle, which functions as a bullet, and will keep flying until it reaches a non-player object.
  + There it gets stuck. Touch it to retrieve it again.

I could add the “Totems of Tag” rule where *rotating adds curve*. But then the games look too much alike. (And doing so *loses* the ability to move around and re-aim.)

Instead, let’s keep it this way. Just add an item to the arenas like “curver”, which adds curve to any knife flying through it.

## Powerups

Powerups are shown as “packages”. You need to *slice them open* to see what’s inside. (You can also grab them the normal way, but then you don’t know what you get.)

As always, they are grouped by *category*, where each category follows the exact same color scheme.

### Shape

* **Grow**
* **Shrink**
* **Morph** => reset to a *different* shape (from predefined list)
* **Ghost (temporary)** => you are temporarily unslicable
* **Hungry (temporary)** => walking over pieces makes you *eat* them (to grow yourself)

### Knife/Slashing

* Longer range
* Shorter range
* Extra knife
* Lose knife
* Boomerang knives
* Curved
* Faster throw speed
* Slower throw speed

### Moving

* Faster move
* Slower move
* Reversed controls (temporary)
* Ice (temporary)

### Collecting

* Magnet (temporary) => you *attract* stuff to yourself
* Duplicator (temporary) => any dumplings you eat/parts you collect are *duplicated*
* Clueless (temporary) => you can’t collect anything

### Misc

* **Switch teams!** (Randomly. Can’t really show all colors on such a thing.)
* **Vampire** =>
  + The game has light/dark. Vampires can’t enter the light?
  + A vampire can only slice you from *close range*, but does *more damage* if so. (As they “drink your blood”.)

**Repeater =>** Throw *all* your knifes at the same time.

## Arenas

**IDEA:** Something that *deflects* knives.

**IDEA:** Something in which knives can *get stuck*.

**IDEA:** Parts of the arena/map/environment are *also* slicable!

Graveyard, Dinner party, Spooky forest, Haunted House

(One with actual *rooms* inside a house. Regularly, some rooms have their light *turned off.* Allowing you to hide, but also to do dumb stuff.)

(One with a big *wall* between players, dividing the map into sections. You first need to *slice* through parts of the wall to get somewhere.)

## Collision Layers

1. All
2. Players
3. Terrain
4. Powerups
5. Ghosts => used for dead players to interact in *some way* with the environment.

## Groups

* Players => actual, controlled player entities (includes bots)
* Parts => loose player parts; still have a rigid body and value, but can’t be controlled
* Deflectable => knifes get deflected by them
* Stuckable => knifes get stuck in them
* Sliceable => knifes slice through these
* Unpullable => can’t be moved by e.g. a magnet pulling on it

# TO Do

**Take some devlog images, early on.**

**Better Bot physics checking:**

* Calculate bounding box every time shape changes. (Use shape manager code.) Save it somewhere.
* Place raycasts precisely at edges (though slightly inward) and make sure they *just* extend beyond us. (Draw them for good measure?)
* This way we know *for sure* if we fit through something
* Bots:
  + When completely stuck/surrounded, set a “stuck” variable, and prefer getting unstuck for 1 second? (Just move as far away as possible from obstacles.)
  + Create a generail fail-safe against flipflopping. (Check vector over X subsequent frames. If the average “dot product” between them is too low, we’re flip-flopping, so go to the “unstuck”-phase again.)
  + Give personality.
  + If no knives, *and* no knives for grabs, flee from others?
  + Add the niceties.
* If I switch to new control scheme, I obviously need to update much of this code.

**Auto throwing/Alternate control scheme:**

* Don’t allow throwing with buttons in this scheme.
* Set throwing force to maximum, by default
* Use quick-slash when something is near
* Add some “easing” to the rotation.
* Show indicator (growing circle underneath player, inside quick slash bounds?) when it’s time to throw again?
* Slightly randomize the throwing, so it doesn’t all happen at the same time *and* keeps players guessing.

**Improvements:**

* Obviously, don’t *die* if you’re too small on levels where dying is impossible. (Set GlobalDict => “players\_can\_die”)
* Make it more obvious when a knife has lost its owner => change the sprite own owner changes, and create a sprite (rainbow outline) for “no owner”)

**Sound effects**

* Knife
  + Slice
  + Throw/Move through air
  + Deflect
  + Get stuck
  + (Grab?)
* Players
  + Move
  + Wind up throw
  + Die
* Powerups
  + Collect
  + Wear off
* Collectible
  + Collect
* General
  + Menu (go to next screen/load screen/add player)
  + Game over/Game start

And, of course, the soundtrack as a whole.

**Particles/Animations**

* Explosion particles on slice
* Trail particles knifes
* “Grab powerup” particles
* “Eat slice” particles/effect
* Bounce on powerup appear. Bounce on reveal. Bounce on grab.
  + When possible, permanently show the effects of a powerup

**Game Modes:**

* “Bullseye”: how to get back your knives, if you can’t get close to it?
* “Frightening Feast”:
  + Spawn dumplings. (Spawn multiple types, some worth more points, some poisonous??)
  + When touched, grow (considerably), position dumpling randomly inside.
  + When sliced, check if line intersects dumpling circle. (Should be easy algorithm for that.)
  + If so, give dumpling to attacker.
  + *Question:* do you lose the dumplings that came loose as well? Can you eat them again?
* “Dwarfing Dumplings”:
  + Spawn one huge dumpling per team. (Predefined locations per arena?)
  + Make it sliceable. After each slice, keep the biggest part, and recalculate its size.
  + If below threshold, all players in team die.
  + (Players themselves are super small.)
  + (Players need some way to actually *protect* the dumpling. Maybe a knife automatically dies if it hits a player? This is where the “dumpling catches knife” system comes in?)
* “Ropeless Race”:
  + Figure out how to attach ropes to players.
  + At start, attach ropes, then attach something valuable at the other end.
  + When body is sliced from group “Ropes” => reconnect resulting bodies to the old PinJoints, remove this item from player. (Use collector for that.)

**Arena:**

* Improve the graveyard
* Make sure I can *set* different parameters for each map, so some arenas can be *bigger* than others. (Smaller player starting size, smaller ranges, etc.)

**Nice features:**

* Limit maximum/minimum size of players growing/shrinking.
* **IDEA: Different aiming (using original control scheme)?** When you start to aim, your movement becomes *slidy* or *slowmo*. Which means you continue moving, yet can also properly aim
* **IDEA:** Other things to throw? (Like the dumplings?)
  + That might also simply *deflect/protect against* knives, instead of slicing things themselves.
  + **EVEN BETTER:** Those other trowables are *also* positioned around you, as knives are. This means they can be a **shield** for incoming stuff.
* **IDEA:** Different *ground terrains*. As long as you’re on that terrain, you are influenced by its special effect (whatever it is).
* **IDEA:** Make another powerup for “auto-unwrapping” powerups? (Or just keep it as an optional setting.)
* Add thicker outlines to players? (Use a *shader* for that, as any other algorithm is most likely to be bad, complex, and annoying.)
* AI bots => controller button for *removing* them??
  + Create Human/Bot version for all player colors, pick correct one.
* Mobile version as well?

**Screens:**

* Show summary of current configuration on main screen
* Create deep-dive settings screen. (Same concept as Totems, maybe clean up the structure a bit.)
* Create Pause Menu.

**Extra settings/Rules:**

* Aim helper => aims you at the nearest player (in your current direction)
* Front knife is always in front of you => whenever the front knife is selected, it is teleported to the front of you, for easier aiming
* Disable the “flashing” effects.
* Shrink area => after a while, the game area shrinks, forcing the game to an end
  + Really only makes sense for deathmatch, right?