

Example action:

```
actions[IActionStHP]
= Action(IChar1, // character
        EAnimation::StHP, // animation
        {}, // collision box (note that this is an std::optional)
        Hitbox({ // hitbox
            Hitbox::make_pair(1, {}),
            Hitbox::make_pair(2, {Box(0.0, 100.0, 150.0, 200.0)}}),
        Hitbox(), // hurtbox
        10, // damage
        0, // blockAdvantage
        0, // hitAdvantage
        9, // lockedFrames (number of frames before player can cancel)
        12, // animationLength
        ActionType::Other, // ActionType
        FVector(0, 0, 0), // velocity
        6, // specialCancelFrames
        {{Button::QCFP, HActionFJump}} // chains
    );
```

1. character is obvious.
2. animation fairly obvious.
3. collision is an `std::optional`. A value of `{}` means "None", which means the collision box will default to the character's default collision box defined in their `Character` object. The `None` value is good for most cases. If the character moves or takes a large step forward during the action, and `velocity` is set to 0, then collision should instead be a `Hitbox` object where the boxes represent the collision boxes. The collision boxes should follow the character as they move.

If the character moves with a constant speed during the action, collision can be left as `{}` and `velocity` can be set to a nonzero value instead. Logic will move the whole character and their boxes by `velocity` every frame. Note that currently, if `velocity` is 0, the player will always return to their starting position after the action ends regardless of how the collision boxes move.

4. hitbox defines all the boxes that, when colliding with the opponents hurt or collision box, actually result in a hit. A `Hitbox` is a list of pairs. Each pair is a pair of (end frame, {boxes...}). The end frame is the last frame that the boxes described in {boxes...} are active. The boxes become active when the previous pair becomes inactive. Example:

```
Hitbox({
    // {} means no boxes. This is the first pair, so it's boxes
    // (which there happen to be none) become active on frame 0.
    // end frame is 1, so they are active only on frames 0 and 1.
    Hitbox::make_pair(1, {}),

    // This Hitbox contains one box. The previous pair ended on
    // frame 1, so this pair becomes active on frame 2. The end
    // frame for this pair is 2, so frame 2 is also its last active
    // frame. In other words, this pair is active for exactly one
    // frame: frame 2.
    Hitbox::make_pair(2, {Box(0.0, 100.0, 150.0, 200.0)})
});
```

```

    // The animation may be longer than 3 frames long, but we don't
    // have to specify empty hitboxes to cover the remaining
    // duration. We can stop at the last nonempty hitbox.
  }},

```

5. `hurtbox` is a `Hitbox` object defined just like `hitbox` was, but `hurtbox` specifies the boxes that when collided with the opponents hitbox will result in a hit.

6. `damage` is simply the amount of damage the move does.

7. `blockAdvantage` is the amount of "advantage" the attacker has when their attack is blocked. It can be negative to mean disadvantage.

E.g. a value of 3 means that the attacker can act 3 frames earlier than the blocking player. Specifically, it means that the attacker's `lockedFrames` will expire 3 frames earlier than the blocking player comes out of block stun. If `specialCancelFrames` is less than `lockedFrames`, then the attack can cancel into a chain move even earlier than 3 frames.

8. `hitAdvantage` is the amount of "advantage" the attacker has when their attack lands.

9. `lockedFrames` is the number of frames before the player can act again.

10. `animationLength` is the length of the full animation. If `lockedFrames` is less than `animationLength`, then it means that the player can perform actions like walking before the full animation has played.

Note that all the remaining fields are optional.

11. `type` is an `ActionType`. Most moves will use `ActionType::Other` (default).

12. `velocity` is the amount that the player moves each frame that they are in this action. Defaults to 0.

13. `specialCancelFrames` is the number of frames before the player can perform a move listed in chains.

14. `chains` is an `std::map<enum Button, HAction>`. It maps "buttons" to actions. Here a "button" can be a full command like QCFP. E.g.

```

{{Button::QCFP, HActionFJump}}

```

means that if the player performs a QCFP after `specialCancelFrames` have passed, they will jump.

```

{{Button::LP, HActionStLP}}

```

means that if the player performs a LP after `specialCancelFrames` have passed, they will do a StLP.