

## PGE input

- within PGE all non fixed objects are free moving
  - only circles (and springs) can be free moving at present
- we can interfere with circles by adding an impulse
- so we could
  - push it left with the left mouse button
  - push it right with the right mouse button
  - up with the middle mouse button

## PGE input

```
def mouse_hit (e):  
    global m  
    mouse = pge.pyg_to_unit_coord (e.pos)  
    if e.button == 1:  
        m.put_xvel (gb.get_xvel ()-0.3)  
    elif e.button == 3:  
        m.put_xvel (gb.get_xvel ()+0.3)  
    elif gb.moving_towards (mouse[0], mouse[1]):  
        pos = m.get_unit_coord ()  
        # print ``mouse ='', mouse, ``ball ='', pos  
        m.apply_impulse (pge.sub_coord (mouse, pos), 0.4)  
    else:  
        m.put_yvel (m.get_yvel ()+0.4)
```

## PGE input

- in the main function we register the mouse event with our function

- ```
pge.register_handler (mouse_hit, [MOUSEBUTTONDOWN])
```

- please see the implementation of breakout to see how this is integrated into a game [breakout example](http://floppsie.comp.glam.ac.uk/Glamorgan/gaius/pge/homepage.html) `<http://floppsie.comp.glam.ac.uk/Glamorgan/gaius/pge/homepage.html>`

## Collisions in PGE

- referring again to the [breakout source code example](http://floppsie.comp.glam.ac.uk/Glamorgan/gaius/pge/example_games.html) ([http://floppsie.comp.glam.ac.uk/Glamorgan/gaius/pge/example\\_games.html](http://floppsie.comp.glam.ac.uk/Glamorgan/gaius/pge/example_games.html))
- notice that the section of code containing `delete_me` and `box_of`

## Collisions in PGE

```
def delete_me (o, e):
    global blocks, winner, loser

    blocks.remove (o)
    o.rm ()
    if blocks == []:
        if not loser:
            winner = True
            pge.text (0.2, 0.3, ``Winner``, white, 100, 1)
            pge.at_time (4.0, finish_game)

def box_of (pos, width, height, color):
    global blocks

    blocks += [pge.box (pos[0], pos[1], width, height, color)\
        .fix ().on_collision (delete_me)]
```

## Collisions in PGE

- the function `box_of` creates a blue box at `pos` with a `width` and `height`
- it also stipulates that this box is `fixed`
- furthermore if anything hit this box then the function `delete_me` is called

## Collisions in PGE

- the function `delete_me` is a call back registered by the call to `on_collision` (described on the previous slide)
- this call back must be defined taking two parameters
  - the first, `o`, is the object whose callback is being called
  - the second, `e`, is the collision event which describes the collision
- by using the event, `e`, it is possible to find out the other object in collision and other properties (if necessary)