Minecraft + MS Makecode / Tynker
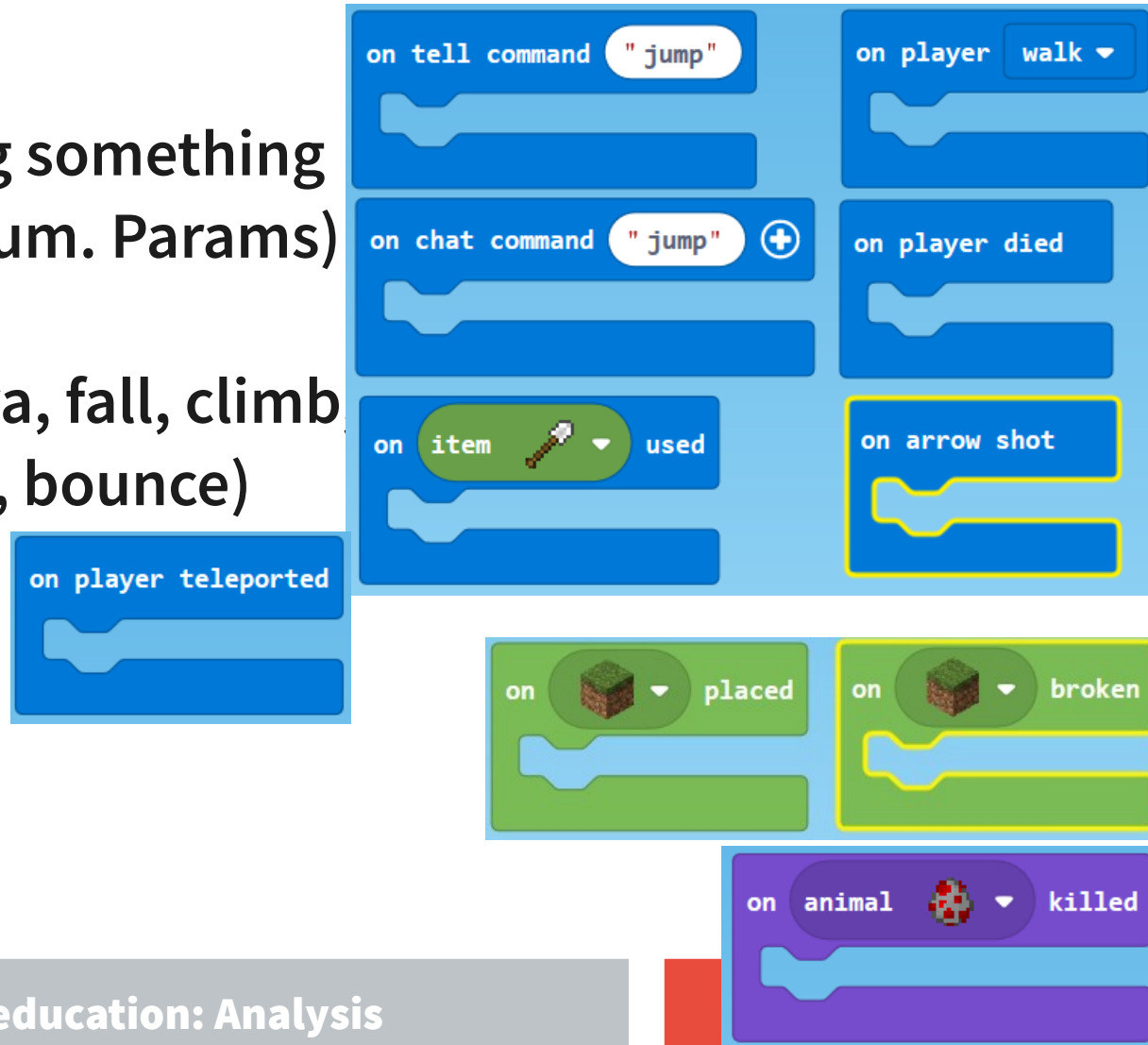
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Minecraft programming with MS Makecode
http://minecraft.makecode.com

Events associated to:

- the player:

    - hearing someone saying something

    - chat commands (with num. Params)

    - actions

        (walk, swim water/lava, fall, climb,

        fly, ride, sneak, sprint, bounce)

    - using some tool/arrows

    - dying/teleporting

- blocks placed/broken

- animals killed

Control blocks

External blocks:
- <u>Forever</u>   (MANY allowed)
- <u>OnStart</u>   (only one allowed)
- <u>RunInBackground</u>   NEW!!!   (only one allowed)

Loops: repeat N times, counted loop, foreach, while-do

Function definition:
- WITH parameters   NEW!!!   (text, number, bool, position)
- NO return   (ONLY in JavaScript)

Full (statically typed) JavaScript mode

Programming style

Event-based programming

ONE foreground thread   (onStart)

ONE background thread   (but MANY forever loops !?!)

Functional?   (only in JavaScript)

Object-oriented?   (only in JavaScript)

Threads?   NO

Messages?   ONLY TO PLAYERS   (Say XXX to player YYY)

Minecraft-specific elements

Player: position and chat commands

Player's Agent: move/teleport/destroy/collect/carry

Other Entities: teleport/enchant/give/apply effect/execute command

Blocks: fill/clone block in layer/volume, test for block

Mobs: spawn/kill

Gameplay: set   weather/difficulty/time/game rules
                                survival/creative/adventure

Builders: for building big structures

Reporters for: positions, nearest entities, named players, …

Shapes: lines/circles/spheres of blocks

Minecraft programming with Tynker
http://tynker.com

Events: onStart

             when XXX/Any   Block   Placed/Broken

             when XXX/Any   Item   Acquired/Dropped/Used

             when XXX/Any   Received   Chat Message/Tell

             when Player   Travels/Dies/Teleported/Bounced

             when XXX   Mob   Killed/Spawned

Agent   move/turn/place/detect/attack/destroy

             collect/till/drop/teleport

TynkerBot   test

             start/run/clear buffer

             move/turn/point to/checkpoint

Programming style

NO JavaScript mode

Event-based programming

Sending/receiving/waiting messages (with parameter)

Functions WITH args and WITH return statement
(they can be used both as block or as reporters if needed)

Other actors

World:
- give XXX/kill/enchant player/entity
- weather …

Agent: (visible agent)

TynkerBot: (invisible agent)   NEW!

Block Language properties

Types: numbers, strings, lists, items, mobs, blocks

Messages with values (and wait)

Loops with BREAK and CONTINUE

Functions with arguments and return

Local variables (to function, actor or global) with initializer

Object properties, "keys of" → dictionary?

NO print/say/drawtext ?

Demo

http://minecraft.makecode.com

DEMO

http://tynker.com