Scratch Jr.

Tufts University + MIT Media Lab. + Playful Invention Company + Two Sigma

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Scratch Jr.

Scratch for <u>prescholar</u> children

App for Android or IOS (or desktop)

NO variables

Scenes + Actors (background and sprites)

Simple interactions (start, touch, hit)

Simple messages (6 "colours" only)

PARALLEL execution of scripts for the same event (interleaved)

Games made of (up to 4) scenes
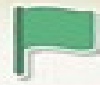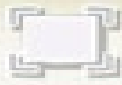
No interaction between Scenes (apart "switch to")

Beeps and/or recorded sounds

Repeat N times
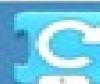
NO if-then-else

SCRATCH

ACTORS

Cat

Barn

Chicken

SCENES

Categories

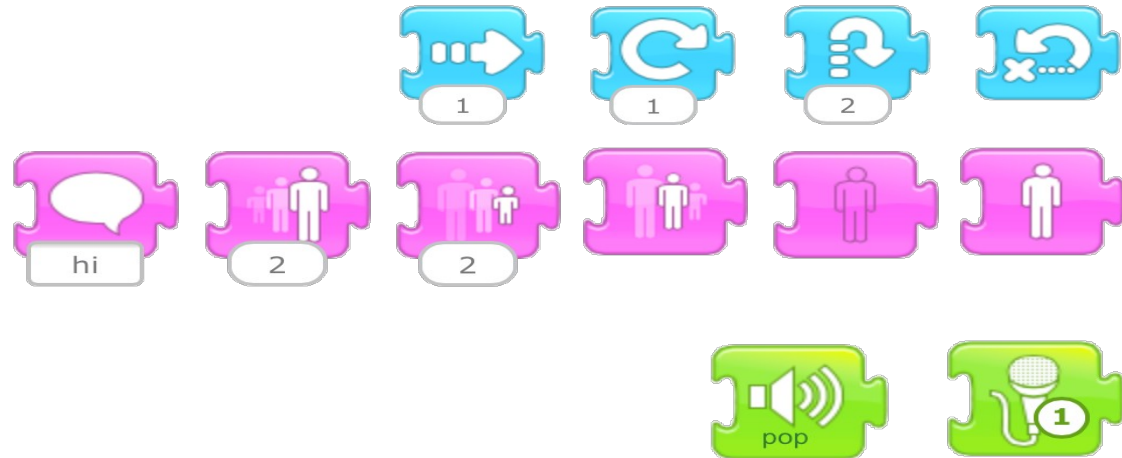ACTIONS

REACTIONS (events)

Action Blocks

Motion

move/rotate/jump/go back to start

Look

say/grow/shrink/hide/…

Sound

"pop"/play recording

Triggers/Event defs

start on flag/touch/hit/got msg./send msg.

Control

wait/speed/halt/repeat N times

End

end/repeat forever/go to screen X

WHO'S MISSING?   IF/THEN/ELSE!!!

Interactivity

TOUCH

     Kid vs. Agent   (touch Agent picture on screen)

     Agent vs. Agent   (Agent hits Agent)

HINT: to interact with the background use an "obstacle" Agent
        e.g. when you want to detect when the agent hits a wall of a labyrinth

TEXT or SOUND

     Agent to kid   (Agent shows a message)

                                (Agent plays a sound)

                                (Agent plays a recording)

Styles of programming

Concurrent

Concurrent execution of multiple scripts for the same event

Event-based

Agent reactions to standard interactions AND/OR messages

Coordination

Message-based (messages are broadcasted to all agents <u>in the SAME scene</u>)

Time-based (by inserting wait)

MISSING

Variables!

Values!   there's no input apart from movement/touch

IF-THEN-ELSE?

it's "implicit" in the different events that could happen while the actors interact with each other

E.g. go to the "WIN/LOST" screen if goal reached/or the wall hit

C.T. concepts

Sequence/Algorithm   ordered actions to solve a task

Loops / nested loops   repeat the same sequence (but not conditioned)

Parallelism   different actions done at the same time
e.g. composition of movements

Events   something starting a reaction

External: touch/hit

Internal: messages   agents' collisions

Example: build an Interactive Labirynth

Agents:
- Arrows
    send msg
- Star moving
    (if got msg)

- Walls
    To be avoided
    go to "LOST"
- Goal
    go to "WIN"

Jr.