LOGIKA

What is Logika?

Logika (Logic in Esperanto) is a FSM (finite state machine) implementation for Ren'Py, FSM have a draw (graphic) that is a representation of the logic and the flow of process (label for Ren'Py).

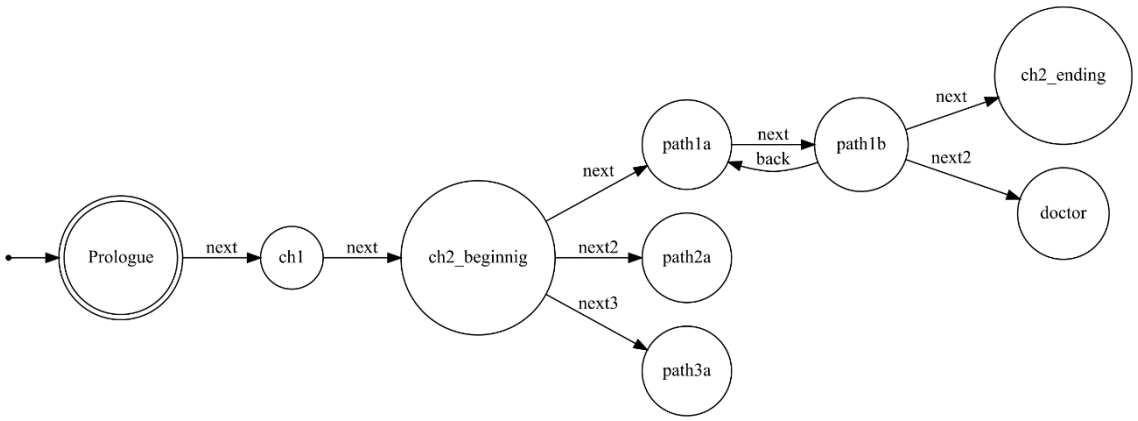


Figure 1 Flowchart example

We have three element of interest the Start label, scene (Label in renpy) and transition condition this will named Logika elements.

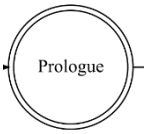
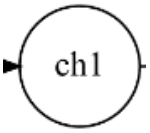
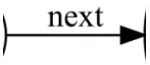
Name	Graph representation
Start	
scene	
Transition condition	

Table 1 Elements of Logika element

The "scene" or "start" have a representation in Ren'Py

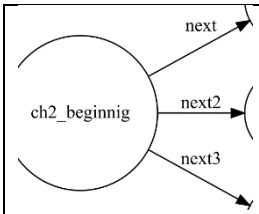
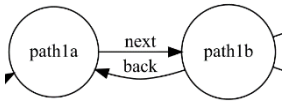
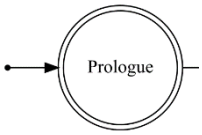
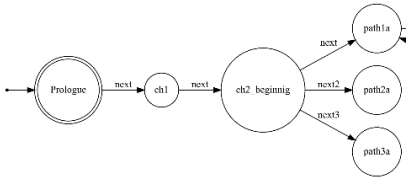
	Label ch2_beginning: A "blab la bla" … … If condition_inner1: Return "next" If condition_inner2: Return "next2" If condition_inner3: Return "next3"

Table 2Scene in Logika Unit is a Ren'Py label

The Logika Unit have a representation in logic.

	IF path1a SEND next GOTO path1b IF path1b SEND back GOTO path1a
	START Prologue
	START Prologue IF Prologue SEND next GOTO ch1 IF ch1 SEND next GOTO ch2_beginning IF ch2_beginning SEND next GOTO path1a IF ch2_beginning SEND next2 GOTO path2a IF ch2_beginning SEND next3 GOTO path3a

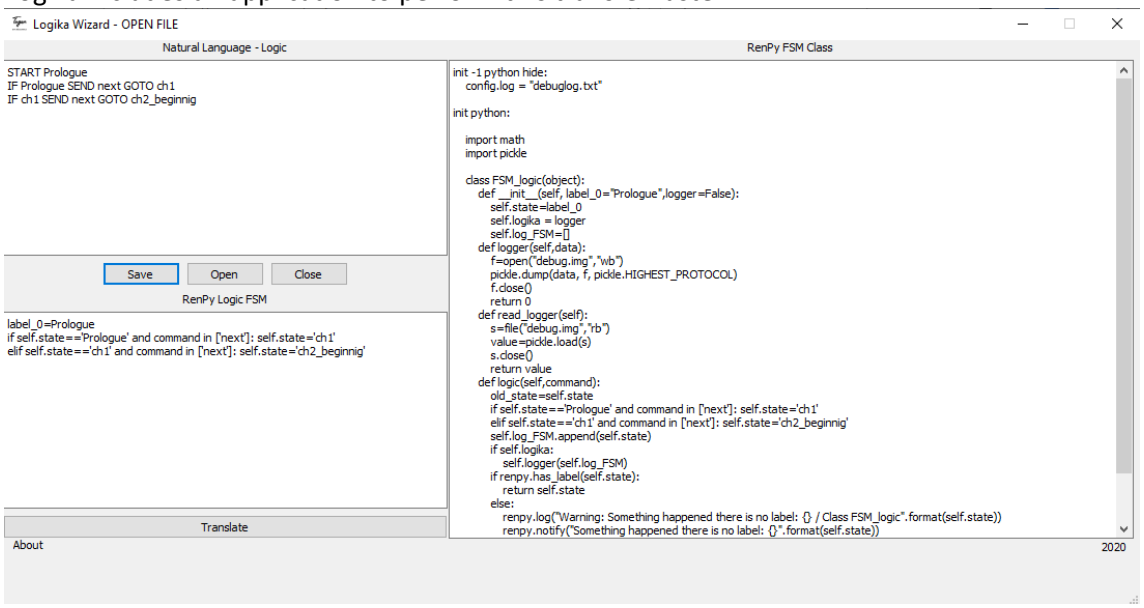
Whit the logic, we can translate to renpy(python) logic using an aplication or doing manual.

```
IF path1a SEND next OR next2 GOTO path1b
```

This translation is like this.

```
If scene==”path1a” and transition in [“next”,”next2”]: scene=”path1b”
```

Logika includes an application to perform this transfer faster



Why use this?

Well, when your history/game have very complex paths, is more easy only change the logic, with that you can concentrate in the writing process. For example you need to add a new scene between two scenes, that need to check the code and validate that don’t break the code, but with Logika (FSM) you only change the logic add a new line and change one. The logic before change:

```
IF scene_old1 SEND next GOTO scene_old2
IF scene_old2 SEND next GOTO scene_old3
```

The logic after change:

```
IF scene_old1 SEND next GOTO scene_new1
IF scene_new1 SEND next GOTO scene_old2
IF scene_old2 SEND next GOTO scene_old3
```

Think in Logika like the oldest choose your adventure book, like a book you change page and don't need to think what will show, this validate the logic.

How to use?

Create the class with the application or do it manual, then write this in your code (script.rpy).

```
Label start:
$ logic_game=FSM_logic()
    $ state=logic_game.logic("")
    call expression state
    while (_return!="gracias"): #key phrase to finish
        $ state=logic_game.logic(_return)
        call expression state
        # $ print logic_game.read_logger()
    return
```

Table 3 script.rpy code

The Class

```
init python:
    import math
    import pickle
    class FSM_logic(object):
        '''Finite State Machines logic for game'''
        def __init__(self, label_0="Prologue",logger=False):
            self.state=label_0
            self.logika = logger
            self.log_FSM=[]
        def logger(self,data):
            f=open("debug.img","wb")
            pickle.dump(data, f, pickle.HIGHEST_PROTOCOL)
            f.close()
            return 0
        def read_logger(self):
            s=file("debug.img","rb")
            value=pickle.load(s)
            s.close()
            return value
        def logic(self,command):
            old_state=self.state
            ####### put logic here
            if self.state=="Prologue" and command=="next": self.state="ch1"
            elif self.state=="ch1" and command=="next": self.state="version_end"
            #######
            self.log_FSM.append(self.state)
            if self.logika:
                self.logger(self.log_FSM)
            if renpy.has_label(self.state):
                return self.state
            else:
                renpy.log("Warning: Something happened there is no label: {}
                          / Class FSM_logic".format(self.state))
                renpy.notify("Something happened there is no label:
                             {}".format(self.state))
                #puedo configurar para que retroceda un paso
                return old_state
                #return "error404"
```

This class have this structure, you only need to use logic(<transition condition>) and receive the next scene (label name), logger and read_logger is for have a record of the path, this create a file “debug.img”. label_0 is the start point in FSM.

FSM_logic
self.state=label_0 self.logika = logger self.log_FSM=[]
Logic(command) read_logger() logger(data)