

ISLA: An Algorithmic Approach to Assisted Narrative Planning and Assembly

Djyron F. Sarroza
Master of Science in Computer Science
University of the Philippines, Los Baños

abstract

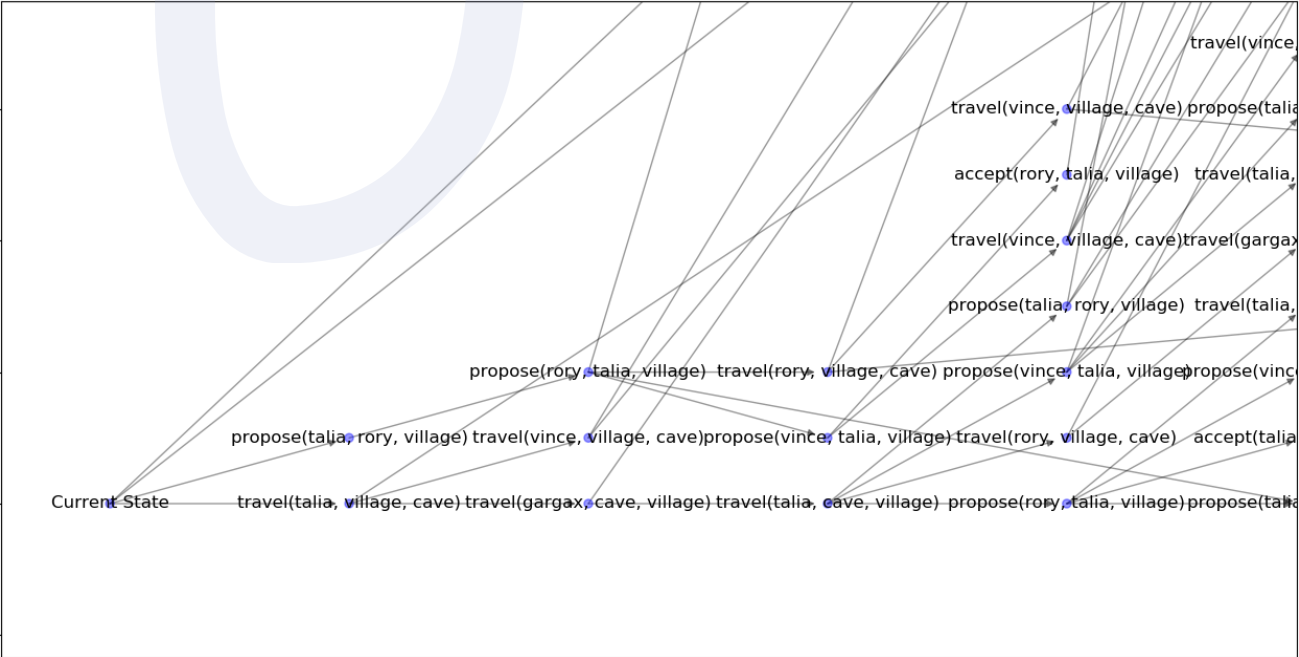
Intelligent Story Layout Assistant (ISLA) is a forward-chaining narrative planner based on Stephen Ware's GLAIVE. It constructs story layouts that achieve the author's goals while making sure that most steps in the plan have clear motivations.

These layouts, or solution plans, are based on a handcrafted knowledge-base of story universe elements. The current output is capable of displaying the underlying motivations of each action, and state transition information.

As a whole, ISLA has the underlying data structures needed to potentially further assist the author in fleshing out the produced story layout.

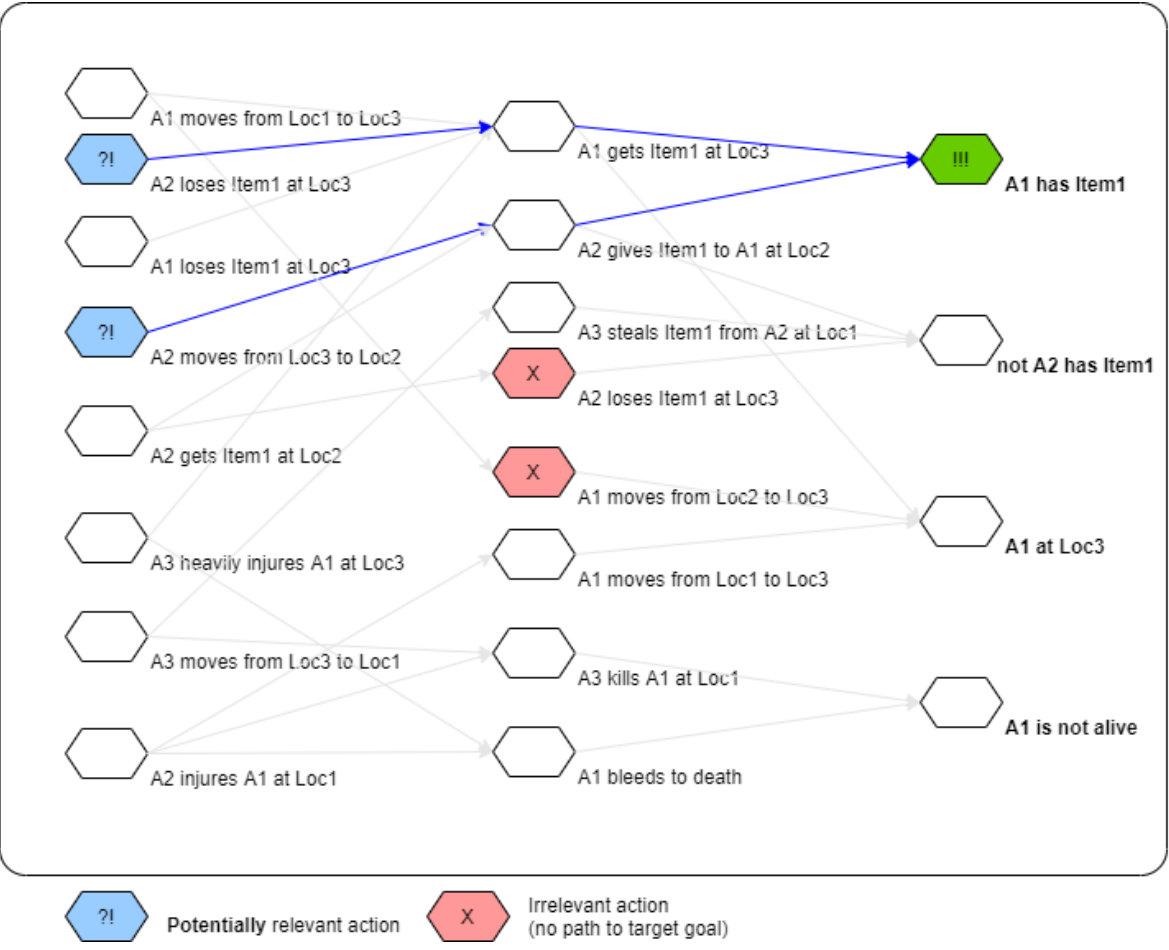
how plan graph

ISLA's main data structure is the Plan Graph – a tree-like directed graph with **states** as nodes, and **actions** as edges. The graph can be seen as a search space where ISLA is looking for solution nodes – states that fulfill a story chapter's goals. How this graph is grown is assisted by another structure: the **goal graph**.



goal graph

As the main heuristic that ISLA utilizes involves estimating how close to actor goals any particular state node is. This is achieved by using the goal graph, which embodies the 'backward reasoning' paradigm. In order to create a goal graph, we start at the goal nodes (on the right, layer G). These goal nodes represent all the possible actor-goal pairs that can exist. The goal graph is then grown backwards by creating a new layer of nodes (layer G-1), with actions as edge that may lead to the previous nodes. Any path from layer (G-n) -> (G) represents a *potential* course of action in order to achieve a specific actor goal.



output

Here are some sample output screen-captures from ISLA.

This show a specific action (part of a sequence of actions) with supporting state-transition information on the right

LostChild takes a long trek from southfunglglade to openplains.

long_trek(LostChild, southfunglglade, openplains)

Full State

Positive:change

State predicates that were added by the action

[+] LostChild is at openplains.

Negative:change

State predicates that were removed by the action

[-] LostChild is at southfunglglade.

Normal Predicates:Only

[>]Dull_Octahedron is at centergrassland.

[>] LostChild has Left_Shoe.

[>] LostChild is at openplains.

[>] Magical_Stick is at southfunglglade.

[>] Non_Orientable_Bottle is at westgrassland.

[>] centergrassland is the location of an exit portal.

[>] middleriver is the location of an exit portal.

[>] northriverbank is the location of an exit portal.

Here's an attempt to create output that is closer to natural language

ISLA.onlineAboutDomainsStory GeneratorStory ArchiveAccountLogout

Narrative Paragraphs

booker7plots_thequest_normal_02 | Booker7Plots - The Quest

[Intro - Roles]

The 'monster1' is Kiithnatal

The 'person1' is Talia

The 'person2' is Kairen

The 'hero1' is Kuraama

The 'oracleobj' is WeirdArtifact

The 'location1' is village

The 'location2' is forest

The 'guardian1' is Dragon

The 'seekedobj' is MysteriousTome

The 'author' is author

[Intro - Initial State] Dragon is alive. Dragon is at the forest. Dragon is single. Kairen is alive. Kairen is at the forest. Kairen is single. Kiithnatal is alive. Kiithnatal is at the forest. Kiithnatal is single. Kuraama has WeirdArtifact. Kuraama is alive. Kuraama is at the village. Kuraama is hungry. Kuraama is single. MysteriousTome is at the cave. Talia is alive. Talia is at the forest. Talia is sick. Talia is single. WeirdArtifact belongs to Dragon. WeirdArtifact is at the forest. cave is the home of Kiithnatal. cave is the home of Kuraama. forest is the home of Kairen. village is the home of Dragon. village is the home of Talia.

[Intro - Character Intentions] Dragon intends that Talia is sick. Kairen intends that Dragon is sick. Kiithnatal intends that Kairen is injured. Kiithnatal intends that Kiithnatal is inlove. Kiithnatal intends that Talia is injured. Kuraama intends that Kuraama is at the village. Talia intends that Talia has WeirdArtifact.

[Norm] Kairen realized that Kairen is not rich. Kairen may decide to do something about this.[+] Kairen realized that Kairen is not rich . >

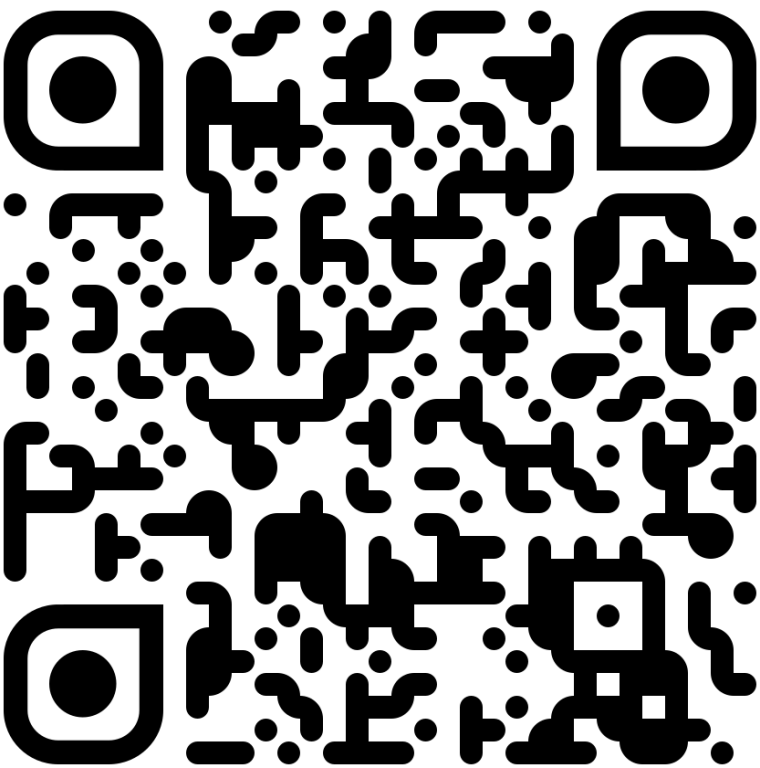
[Norm] Kiithnatal told Kairen to obtain MysteriousTome from forest.[+] Kairen intends that Kairen has MysteriousTome . >

[Norm] Talia injures Kairen at the forest.[+] Kairen is injured . >

[Norm] Dragon injures Talia at the forest.[+] Talia is injured . >

[Norm] Kiithnatal did something at the forest which put Kairen in a bad mood.[+] Kairen is in a bad mood . >

[Norm] from the village, Kuraama moves to the forest.[-] Kuraama is at the village -- is no longer true. [+] Kuraama is at the



Scan this QR code
to access the live
demo for ISLA

Contact me at:
dfsarroza@up.edu.ph