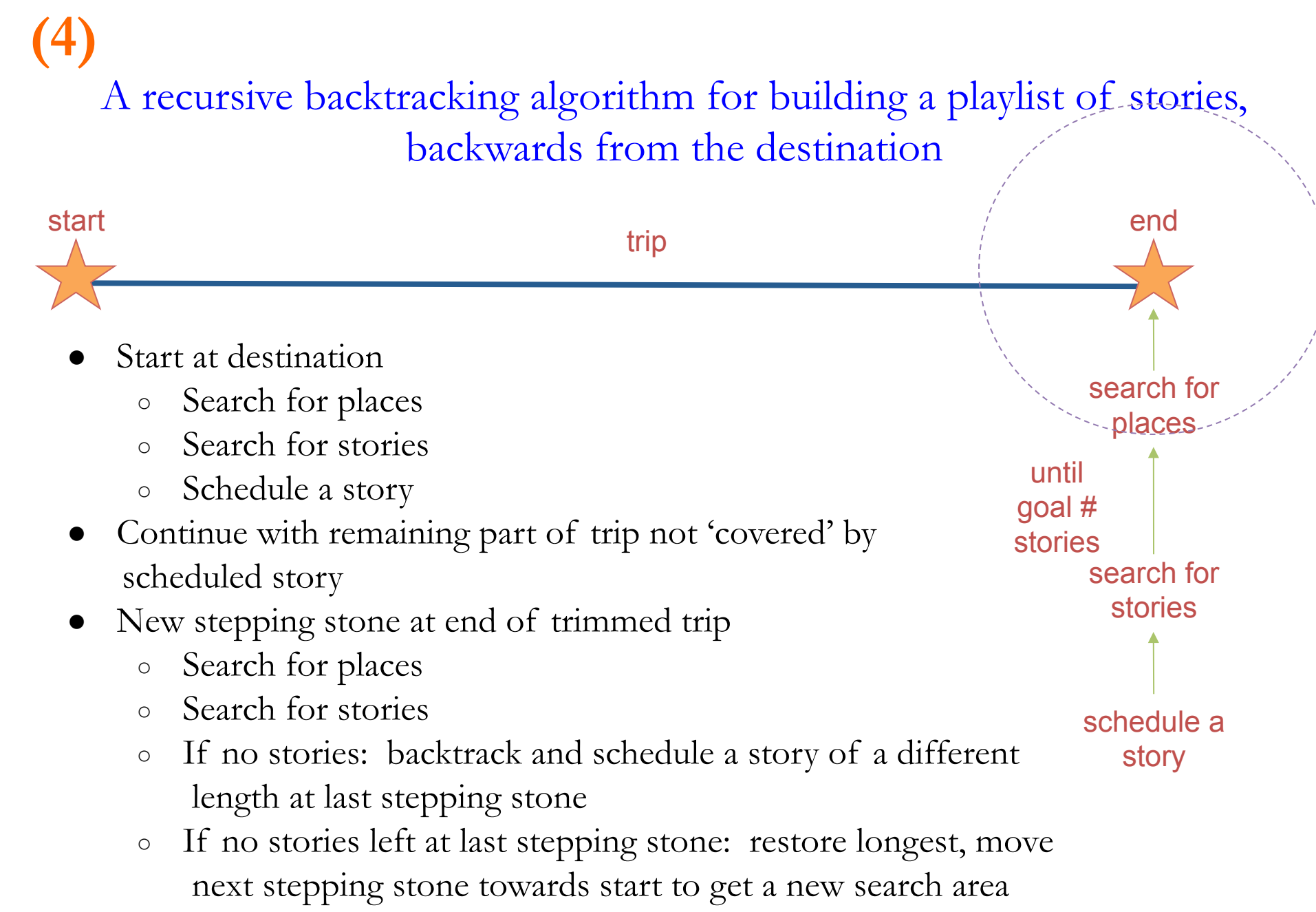
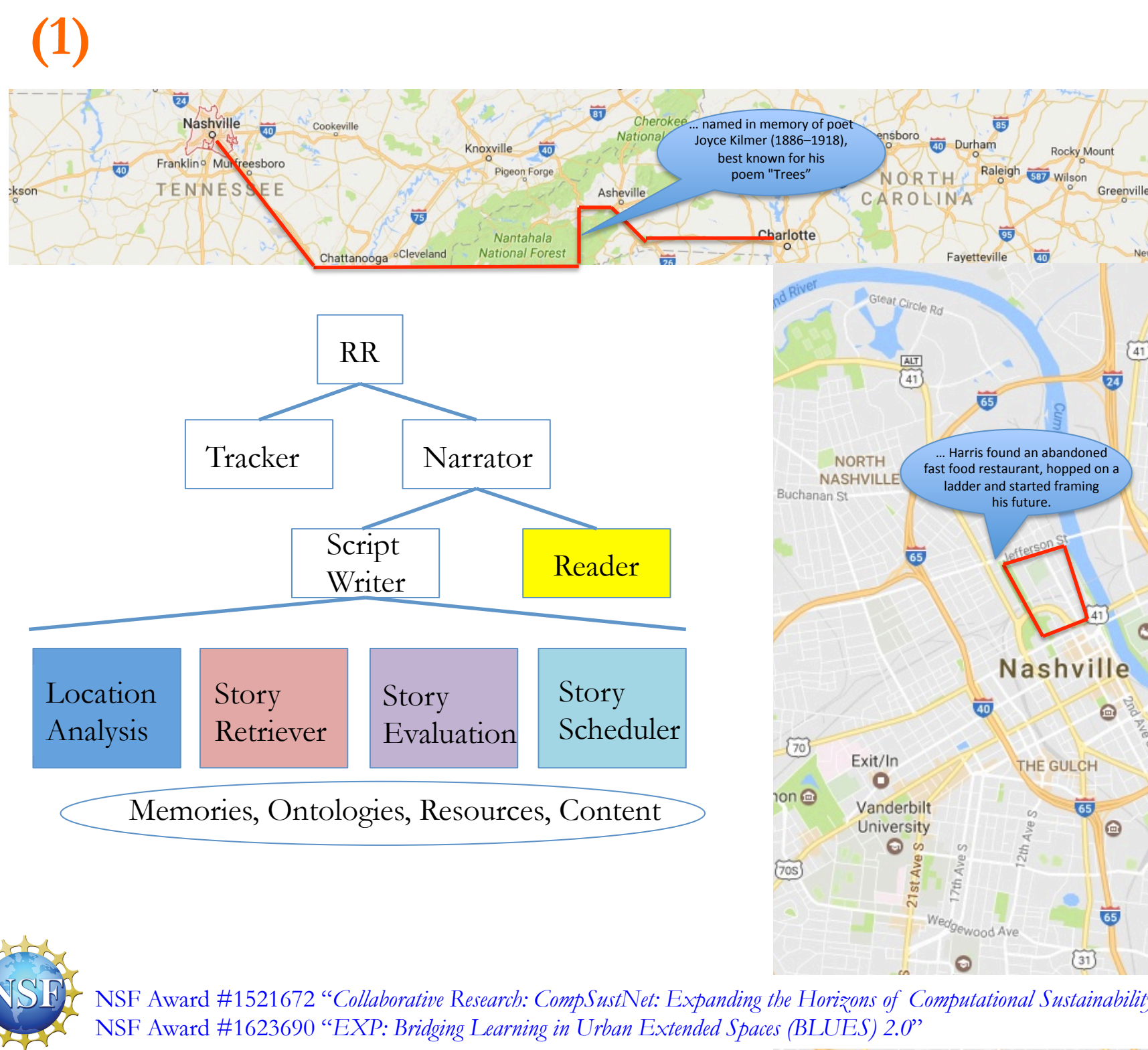


Region Radio: An Artificially Intelligent Story Teller about Conservationism

Emily Markert, Abigail Roberts, Kamala Varma, and Douglas Fisher

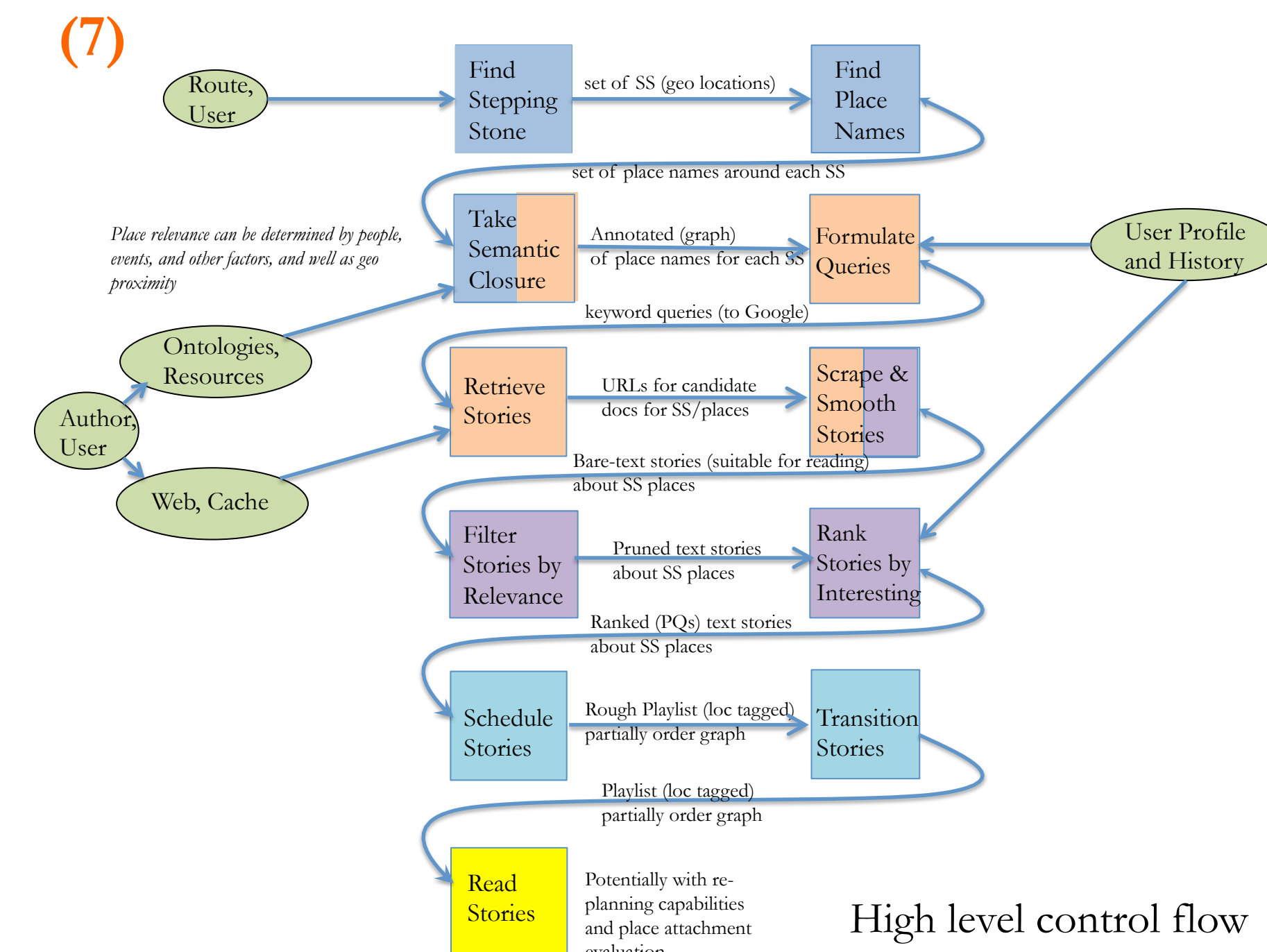
Vanderbilt University



- Start at destination
 - Search for places
 - Search for stories
 - Schedule a story
- Continue with remaining part of trip not 'covered' by scheduled story
- New stepping stone at end of trimmed trip
 - Search for places
 - Search for stories
 - If no stories: backtrack and schedule a story of a different length at last stepping stone
 - If no stories left at last stepping stone: restore longest, move next stepping stone towards start to get a new search area

Motivation for backward search:

- tell a story about a place as you approach that place;
- if there is a long story about the destination (or subgoal) then that story should be a candidate



(2) Region Radio: An Artificially-Intelligent Story Teller about Environmental and Cultural Conservation

- Region Radio constructs playlists of conservation-themed (typically non-fiction) online stories about places that are encountered during a trip
- Recorded stories in the playlist are played as a trip progresses
- One goal is to educate travelers about environmental and cultural history, current regional conservation challenges, and the people involved
- A second goal is to incentivize local historians, environmentalists, students, teachers, and others to write and read stories about their region;
- and to incentivize citizen scientists and citizen journalists to contribute to information infrastructure like Wikidata
- The source stories, and CompSust research, if related, are available to the traveler
- Our premise is that conservation education about place will promote conservation
- One evaluation metric is the extent to which listeners donate to the source of the story or the focus of the story

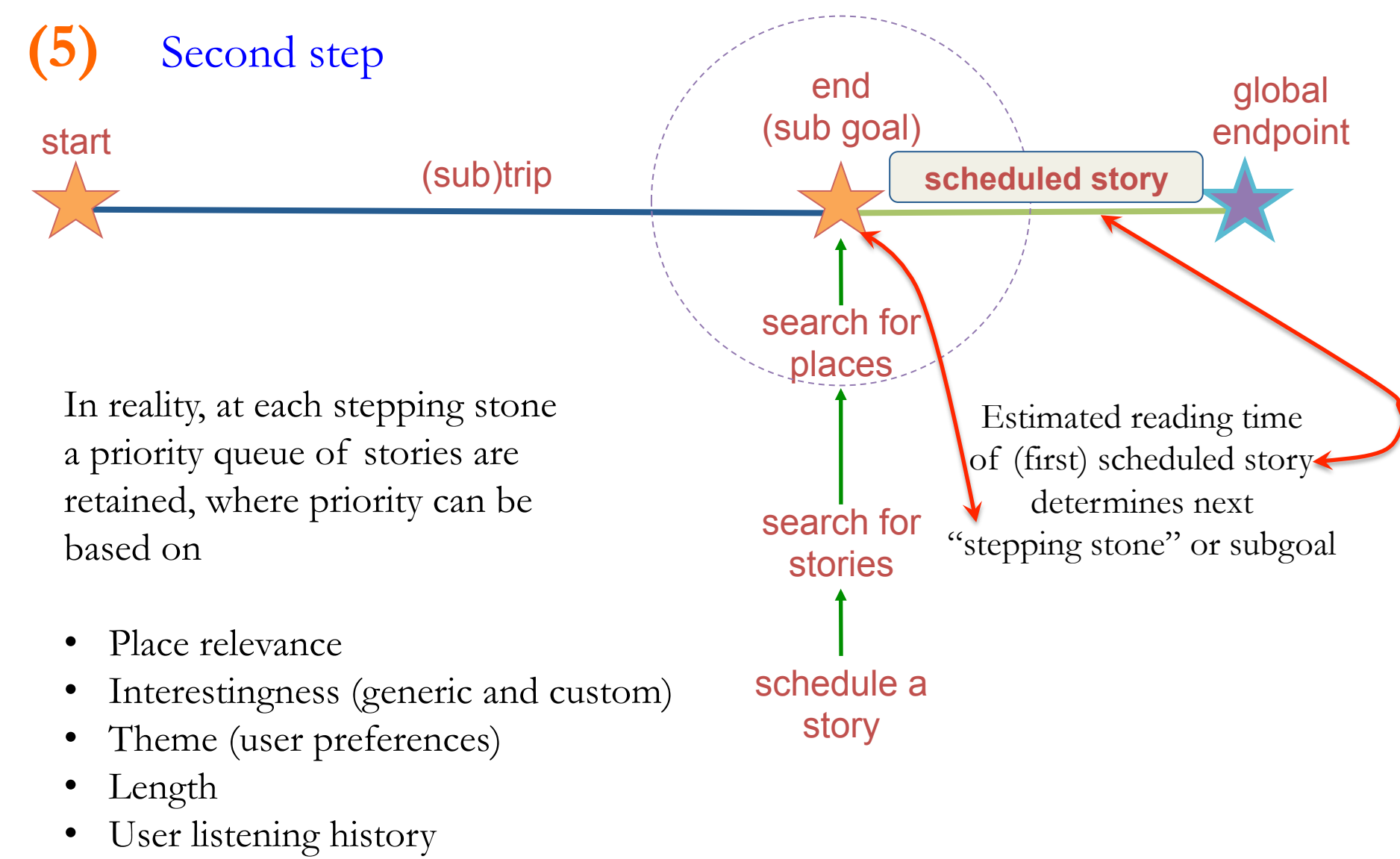
(3) A sample story Relevant to a Nashville-to-Charlotte road trip

Joyce Kilmer Memorial Forest
Trees, Patriot and Poet

*I think that I shall never see
A poem lovely as a tree*
Joyce Kilmer

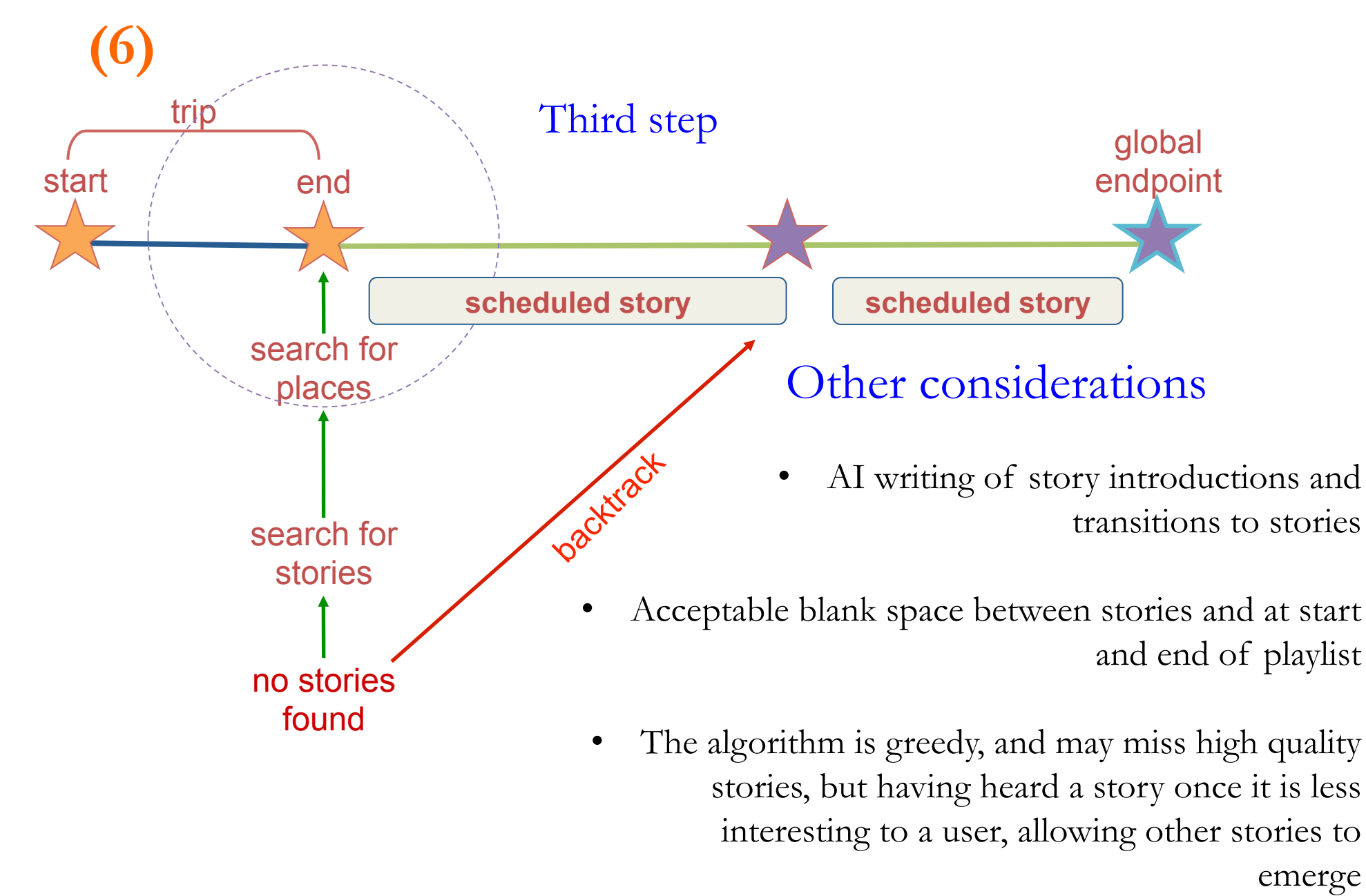
Lost within a mountain forest, locked away from the world and hidden along the Little Santeehah Creek watershed is a rare woodland paradise. Protected from the outside world, held within an eternal sanctuary of peace, solitude and magnificent grandeur of the "old growth forest," are the ancient giants trees, standing as monuments to life and time. In the far away Unicoi Mountains of western North Carolina's Nantahala National Forest and eastern Tennessee's Cherokee National Forest is a remote and nearly isolated 17,013-acre tract of virgin forest...the Joyce Kilmer Memorial Forest and Slickrock Wilderness Area.

Set aside by the U.S. Forest Service, this forest and wilderness area serves the public as a protected preserve and as an evident example of what eastern North American forest looked like when the first European arrived in this New World.
... <https://theblueridgehighlander.com/Joyce-Kilmer-Memorial-Forest/history.php>



- Place relevance
- Interestingness (generic and custom)
- Theme (user preferences)
- Length
- User listening history

A priority of stories promotes re-planning in case of user preference or trip changes

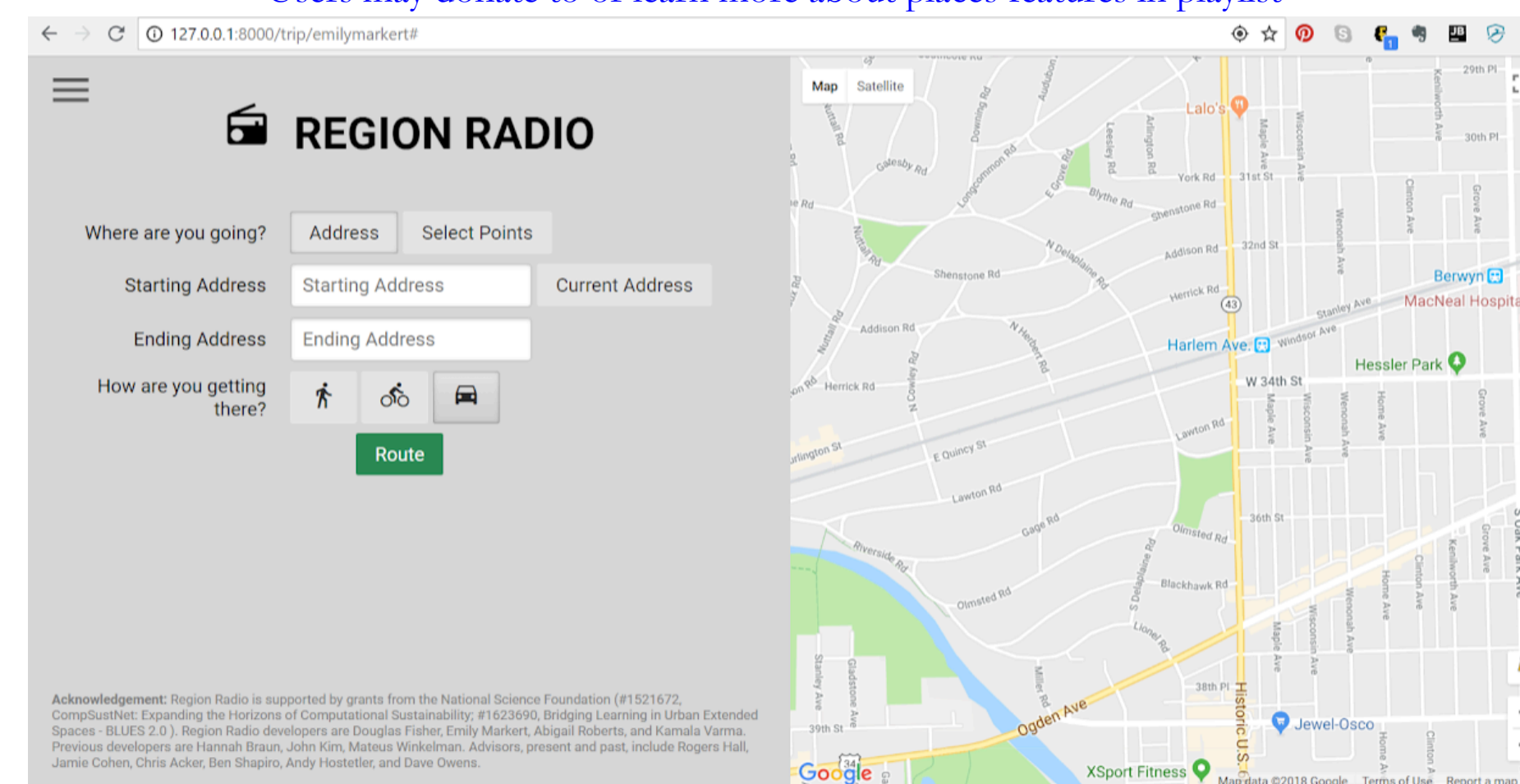


(13) Concluding Remarks

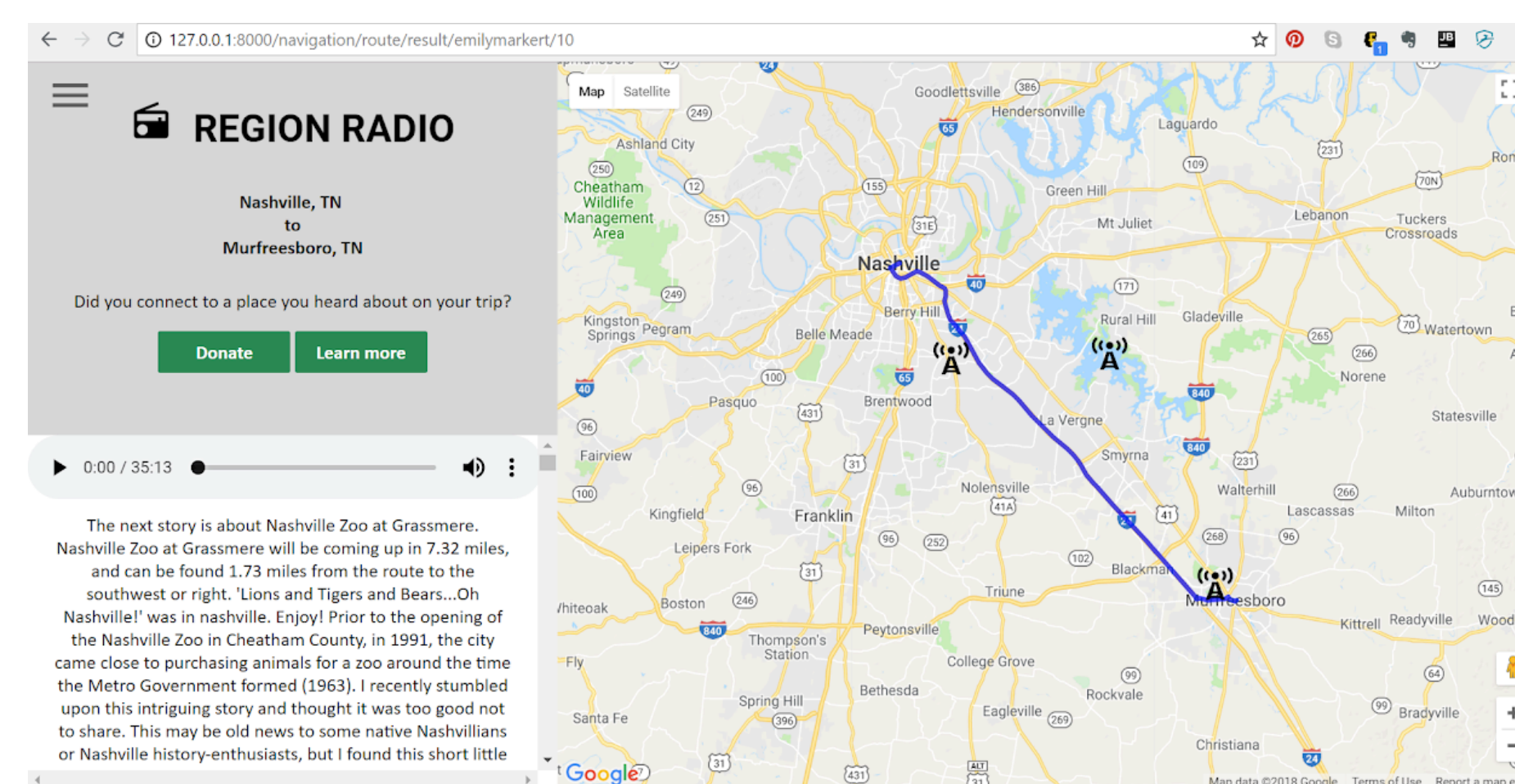
- RR is in prototype form only, but ready for discussions with Technology Review Committee and soon-to-be-released for public use on a restricted scope (e.g., TN State Park stories only)
- RR is intended to educate public on conservationism
- RR is intended to incentivize historians, educators, students to write and read stories, and citizen scientists and journalists to contribute to information infrastructure
- RR is intended to bring NLP, Semantic Web, and AI Story Telling into CompSustNet
- RR is a test bed for continued undergraduate research into story interestingness, relevance, machine learning of customer preferences, mobile applications, dynamic scheduling, to name but a few of the present and future topic areas

(8) Web Interface

- Establishes user profiles to track user interests and history
- Allows user to enter starting point, end point, and mode of travel
- Results page presents playlist audio file, transcript, and route
- Users may donate to or learn more about places features in playlist



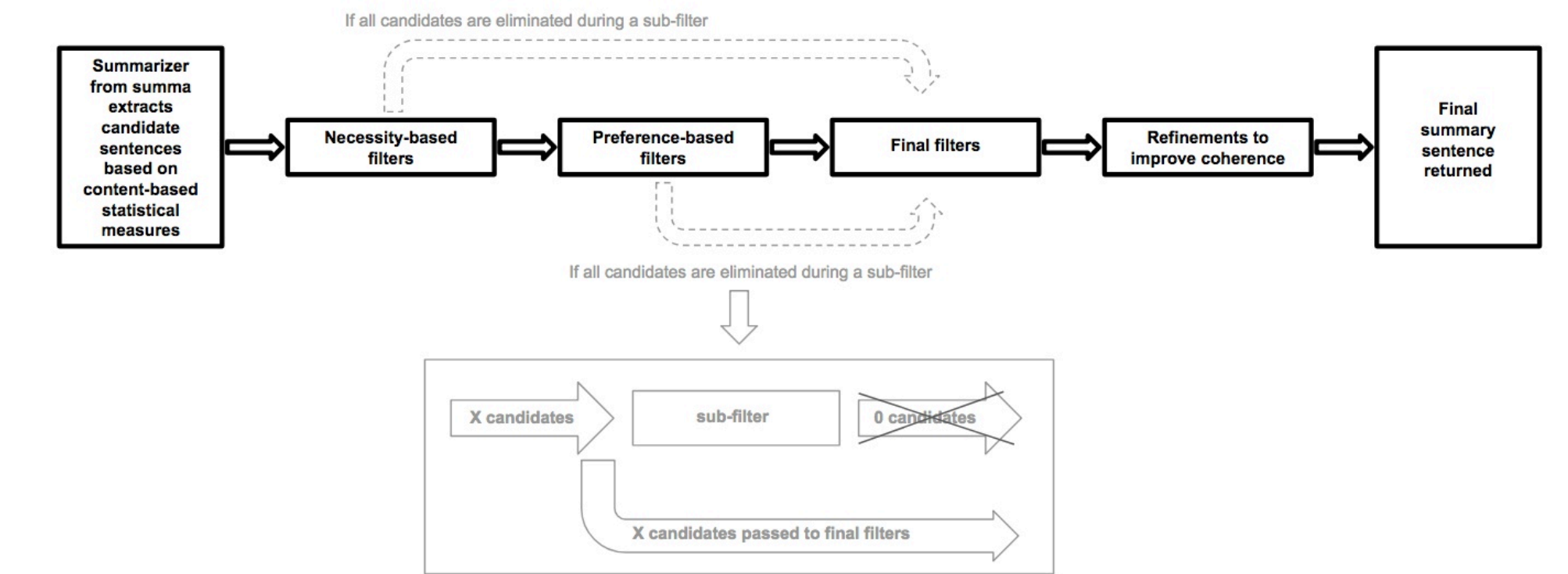
(9) Region Radio is in alpha prototype form



(10) Selected issues at a glance: determining place relevance of documents

- Entity Recognition**
 - Google Named Entity Recognition finds and categorizes nouns in a text
 - Pulls information about nouns categorized as "LOCATION" and tagged as "PROPER"
- 'Euclidean' Distance**
 - Use Google geocoder to find coordinates for the places identified in the text
 - Calculate the Haversine difference between each candidate place and the query place
 - Final ED score for this text is the average of those distances
- Hierarchical Distance**
 - build a hierarchical graph for the query place (using Wikidata)
 - for each candidate place, add hierarchical information to the query place graph
 - determine which places are exclusive super places of the query place
 - determine which places exclusive super places of the candidate place
 - determine "levels" by finding path lengths from the root (Earth) to the place
 - sum up to get a hierarchical distance score
- Combine ED and HD**
 - As a weighted sum of the distance scores

(11) Selected issues at a glance: radical document summarization for previews and reminding

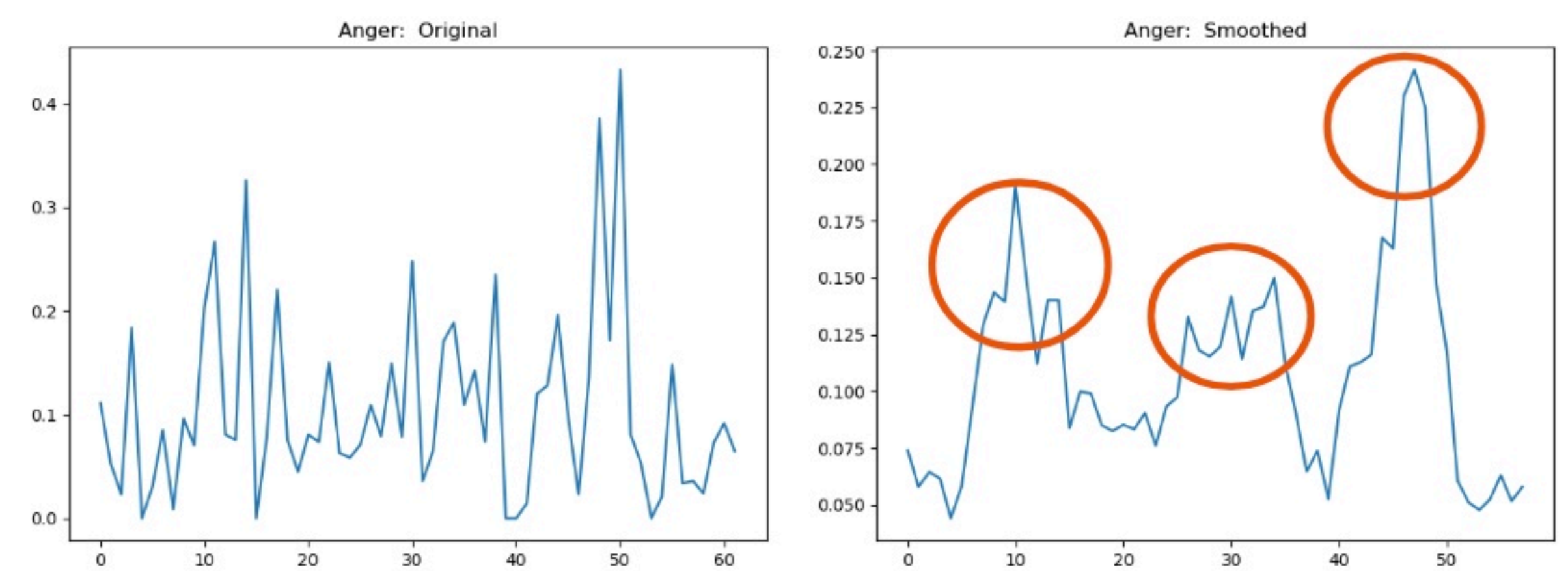


	Summa alone	Summa with additional filters
Blackberry farm	As Michael adds biochar and uses cover crops, and quits tilling, soil carbon will increase and buffer the soil from pH decreases. Blackberry Farm has made major strides to increase soil health with the use of various no-till and cover crop practices.	Blackberry Farm has made major strides to increase soil health with the use of various no-till and cover crop practices.
Shelby park	"Apart from the guys who fish at the lake, people just didn't use Shelby Park much back then, except for baseball and softball after work, and the picnic shelters on a weekend." Steve recalls. In 1994, Shelby Park welcomed Nashville's first municipal golf course.	According to Tim Nesch, Metro Parks' assistant director for planning and facilities, the \$ 1.5 million being spent this year in Phase Lake Sevier will include construction of a freestyle multipurpose event field in the area beneath the lake dam on which everything got sooner to the symphony can be staged.

(12) Selected issues at a glance: measuring story and playlist interestingness by their narrative trajectories

- Using IBM Watson Tone Analyzer on a sliding text window, measure
- Emotion Tones: anger, disgust, fear, joy, sadness
 - Language Tones: analytical, confidence, and tentative
 - Social Tones: openness, conscientiousness, extraversion, emotional range, and agreeableness

Correlate tone scores, smooth sliding window trajectories, and characterize stories by their tone trajectories (standardized to range of 0-100 across stories). For example, consider "anger"



Raw signal for anger

Smoothed signal for anger

- Posit that more interesting stories (and playlists) have ups and downs along tonal trajectories
- Use machine learning (SVMs) to predict ratings of interesting or not