<div focusgroup>
{ toggle: … }
and tabs

Proposals for affordances for common User Interface design patterns. A TPAC breakout session discussion.

21 October 2021
12:00 AM UTC and 3:00 PM UTC

Agenda

- General overview
- **focusgroup** concepts
- **toggle** concepts
- Use case: Tabs
- Discussion

focus and *state* management improvements

- Fundamental concepts of UI and control design
- Both available in the platform, but not exposed as reusable concepts for general developer use

<div focusgroup>

Concepts

Detailed Explainer | Open UI presentation/overview

Concept: `TAB` stop redux

Faster webpage navigation for keyboard users.

Group related components of a control together with one TAB stop, use Arrow Keys to navigate between items in the group.

Search or jump to... 1 / Pull requests 2 Issues 3 Marketplace 4 Explore 5 6 7 8

MicrosoftEdge 9 / MSEdgeExplainers 10 Public

11 Watch 12 34 13 Star 14 34 15 Fork 16 26

17 Code 18 Issues 69 19 Pull requests 2 20 Discussions 21 Actions 22 Security 23 Insights 24 Settings

25 main 26 MSEdgeExplainers / 27 Focusgroup / explainer.md 28 Go to file 29

30 31 travisleithead 32 Change expected venue to HTML WS. Latest commit 33 7 days ago 34 History

35 1 contributor

36 735 lines (604 sloc) | 36.7 KB 36 37 38 39 40

HTML focusgroup attribute

Authors: Travis Leithead, David Zearing, Chris Holt

Status of this Document

This document is a starting point for engaging the community and standards bodies in developing collaborative solutions fit for standardization. As the solutions to problems described in this document progress along the standards-track, we will retain this document as an archive and use this section to keep the community up-to-date with the most current standards venue and content location of future work and discussions.

- This document status: **Active**
- Expected venue: WHATWG HTML Workstream
- **Current version: this document**

1. Introduction

When writing custom controls, authors need to implement the semantics of various known controls (see ARIA authoring guide) to enable proper (and expected) keyboard support. Control examples include tabs and tabsets, combo boxes, accordion panels, carousels, focusable grid tables, etc. Many of these patterns expect arrow-key navigation, as well as support for page down/up, home/end, even "type ahead" behavior.

HTML focusgroup attribute

Authors: Travis Leithead, David Zearing, Chris Holt

Status of this Document

This document is a starting point for engaging the community and standards bodies in developing collaborative solutions fit for standardization. As the solutions to problems described in this document progress along the standards-track, we will retain this document as an archive and use this section to keep the community up-to-date with the most current standards venue and content location of future work and discussions.

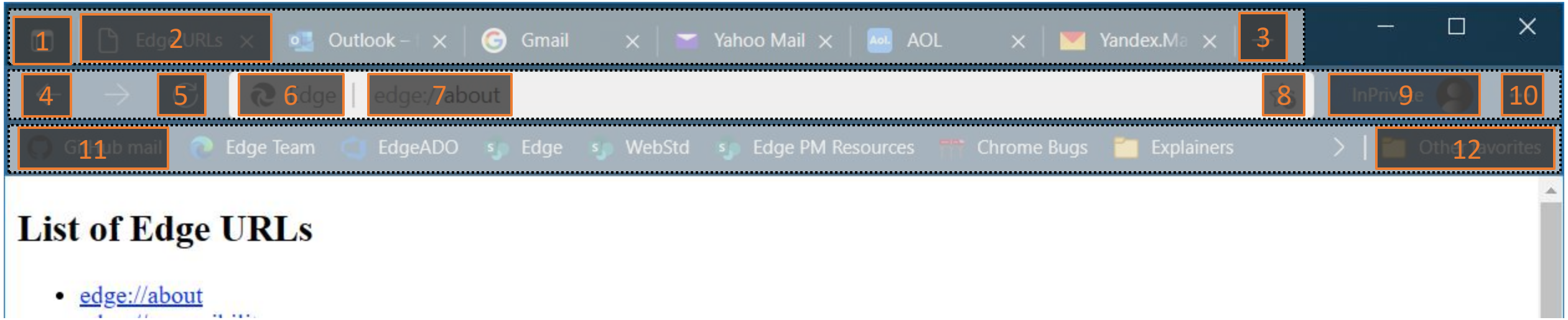
- This document status: **Active**
- Expected venue: WHATWG HTML Workstream
- **Current version: this document**

1. Introduction

When writing custom controls, authors need to implement the semantics of various known controls (see ARIA authoring guide) to enable proper (and expected) keyboard support. Control examples include tabs and tabsets, combo boxes, accordion panels, carousels, focusable grid tables, etc. Many of these patterns expect arrow-key navigation, as well as support for page down/up, home/end, even "type ahead" behavior.

Concept: navigate control groups

Logical Arrow Key navigation among related concepts (may or may not reduce TAB stops)


1
2
Outlook
Gmail
Yahoo Mail
AOL
3
4
5
6
edge:/7about
8
9
10
11
Edge Team
EdgeADO
Edge
WebStd
Edge PM Resources
Chrome Bugs
Explainers
12
List of Edge URLs
edge://about

Concept: accessibility affordance

Keyboard navigation with Arrow Keys (or equivalent) is required for accessibility conformance in common controls (built-in or otherwise)

BUILT IN

Radio button groups

What would you like to drink?
- Coffee
- Tea
- Soda

test

(cycle forward with right/down; cycle backward with left/up)

Select menus

customer
ayaro
category
customer
Employee
Module
Module Access
Role

(up/down to change focused option; home/end; type-ahead to search)

CUSTOM

Cut ⌘X
Copy ⌘C
Paste ⌘V
Save as Picture...
Edit Text
Edit Points
Reorder Objects
Reorder Overlapping Objects
Arrange
Grouping
Set as Default Shape
Format Text...

role=menu

Category 1
Category 2
Your Category 2 contents Here
Your Category 2 contents Here
Your Category 2 contents Here
Category 3
Category 4
Category 5

Accordion

Home Forms Tables Pages Charts Layouts

role=tablist

Data Table

User	Product	Sale	Actions
Jacob	Photoshop	28.76%	View
Messsy	Flash	21.06%	View
John	Premier	35.00%	View
Peter	After effects	82.00%	View
Michael	Illustrator	98.05%	View

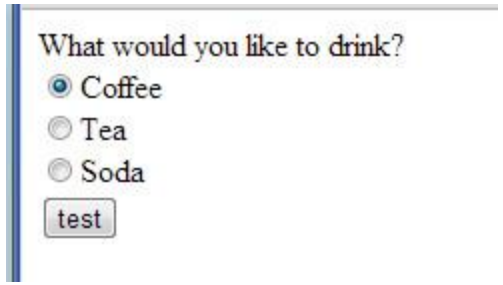
data table (role=grid)

Concept: focus vs state

Often combined, but separate concepts

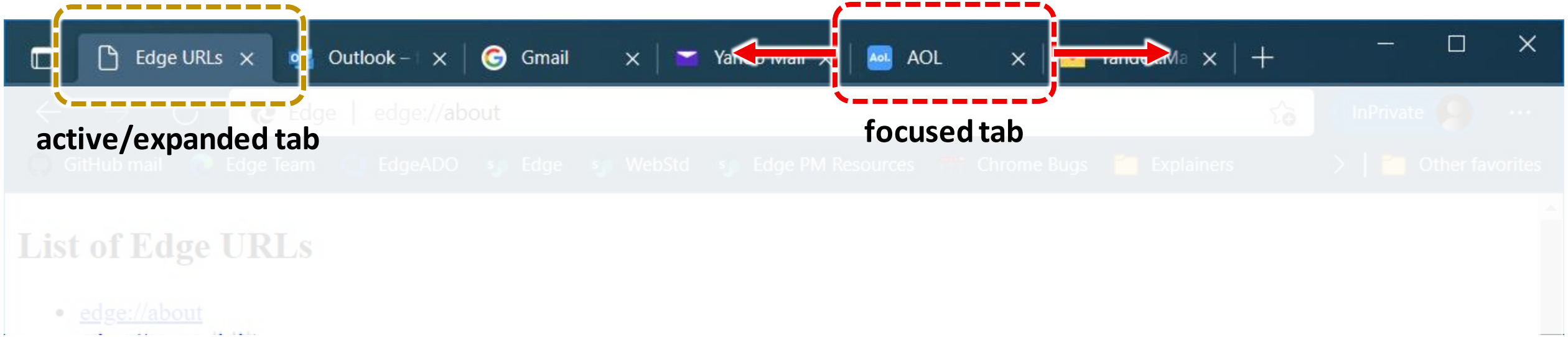
Linked focus and state

Radio button groups



- As focus moves, so does `checked` state

Focus and state separated



- focus allows exploration/navigation; *activation* on focused control changes state

Focusgroup proposal *short summary*

- Enables existing focusable elements within a scope to respond to arrow keys, home/end, etc.
  - Does not change the focusability (or TAB order) of anything.
- Intended for content navigation (not layout navigation)
- Only deals with focus change (does not persist any state)
- Has various options: wrap, horizontal/vertical nesting, table content based navigation

{ toggle: … }

Concepts

Proposal Draft

Concept: "toggleable" state

How to save your activated state

state=toggle

Built-in <input type=checkbox>

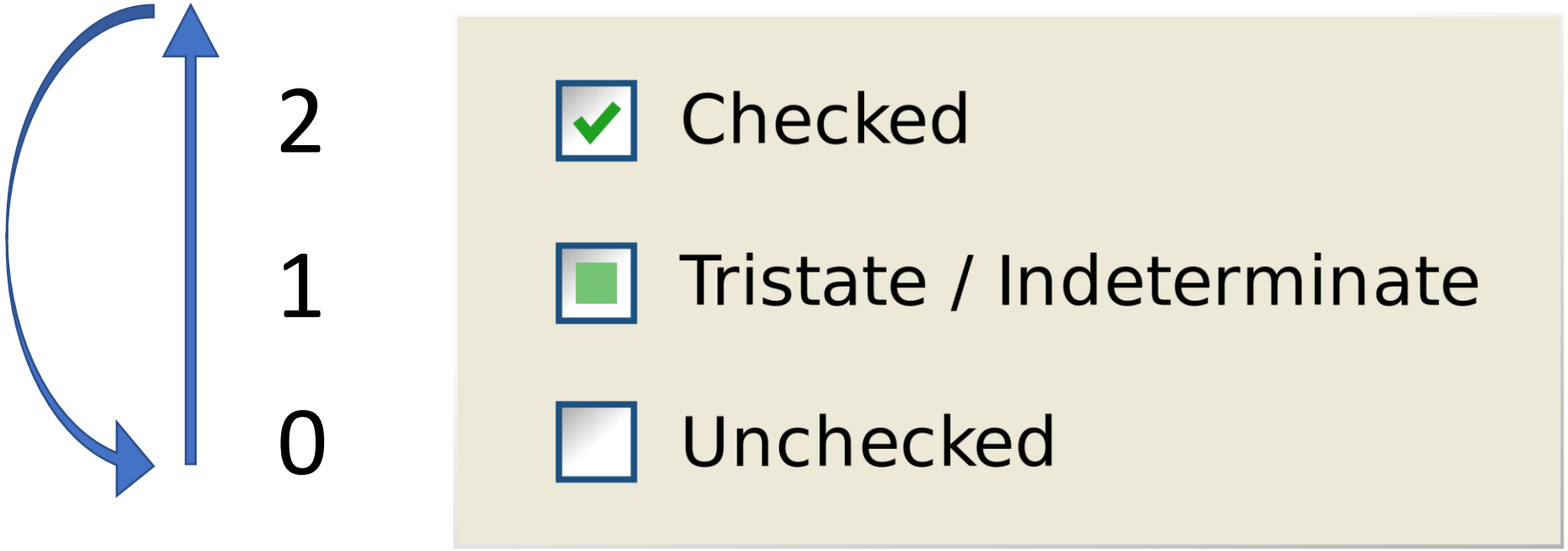
- Includes persistent toggle (checked)
- User can "activate" it with keyboard/mouse to change the state.
- Developers can leverage the toggle state (e.g., to adjust UI)
  - :checked pseudo class
  - DOM-accessible state

Toggle

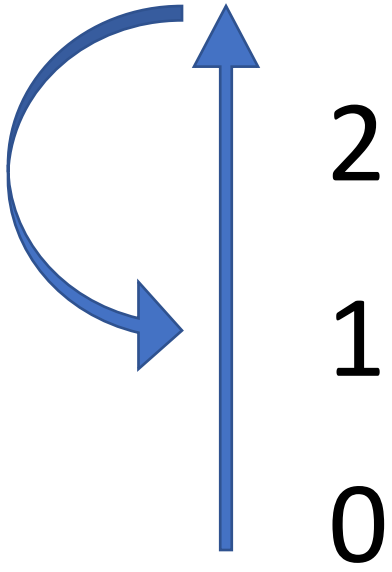
- Add persistent toggle state
- User can "activate" it with keyboard/mouse to change the state.
- Developers can leverage the state (e.g., to adjust UI)
  - :toggle() pseudo class
  - DOM-accessible state (TBD)

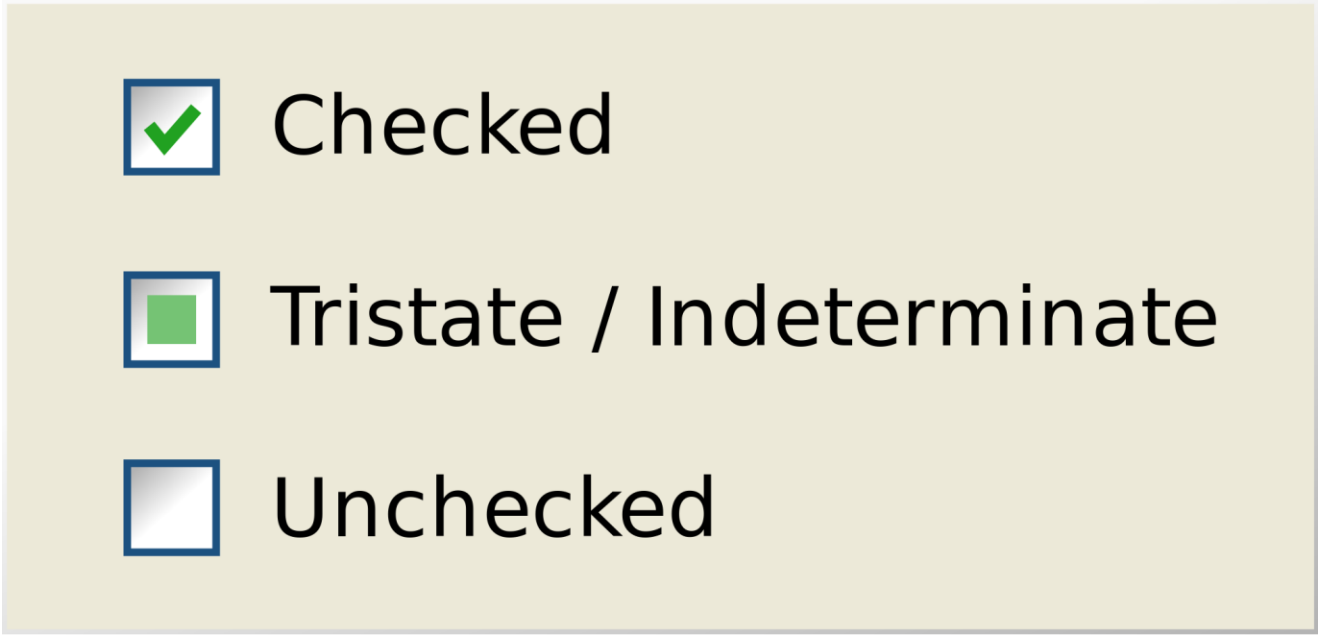
Concept: non-boolean toggles

Support tri-level state toggles and beyond


2
1
0
Checked
Tristate / Indeterminate
Unchecked

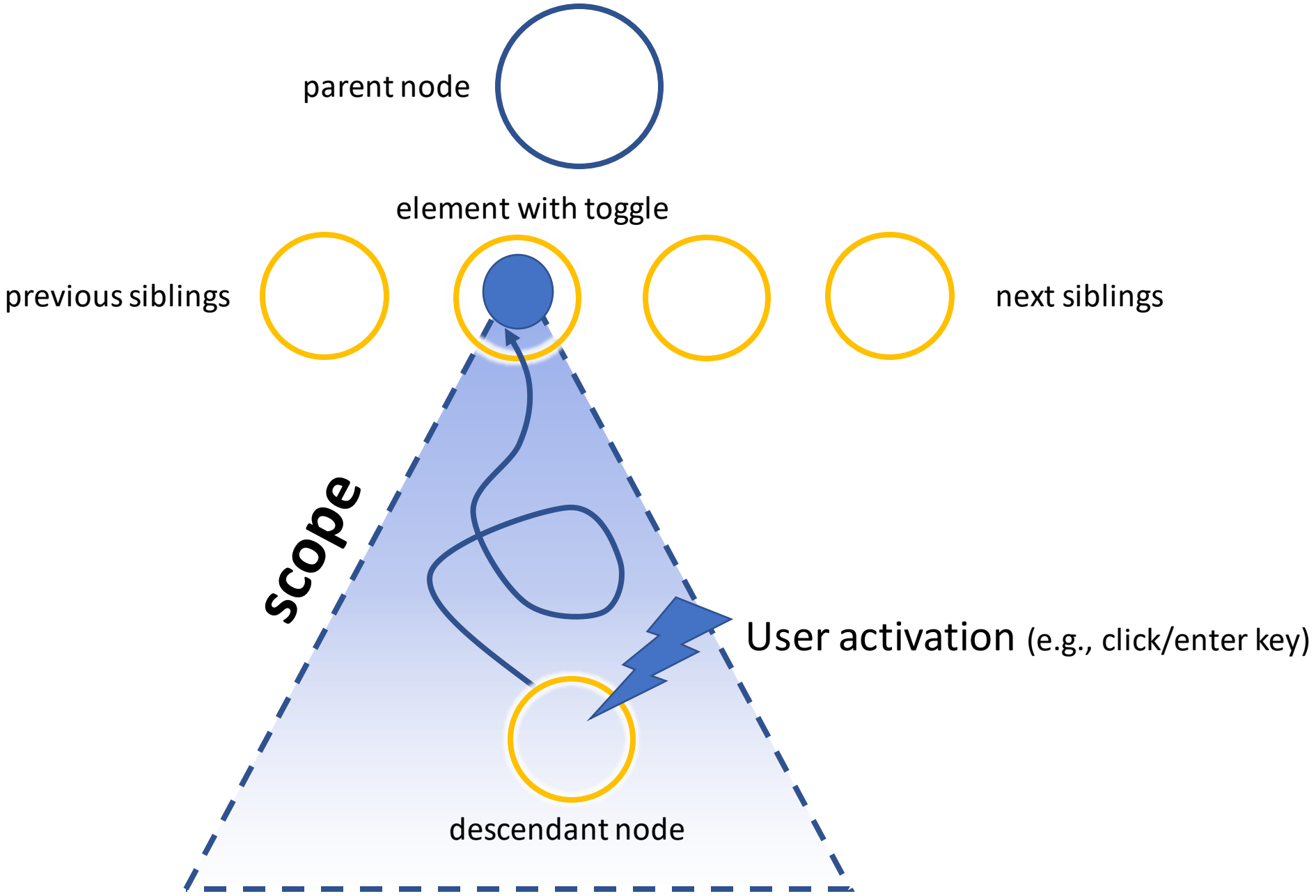
"sticky" cycling

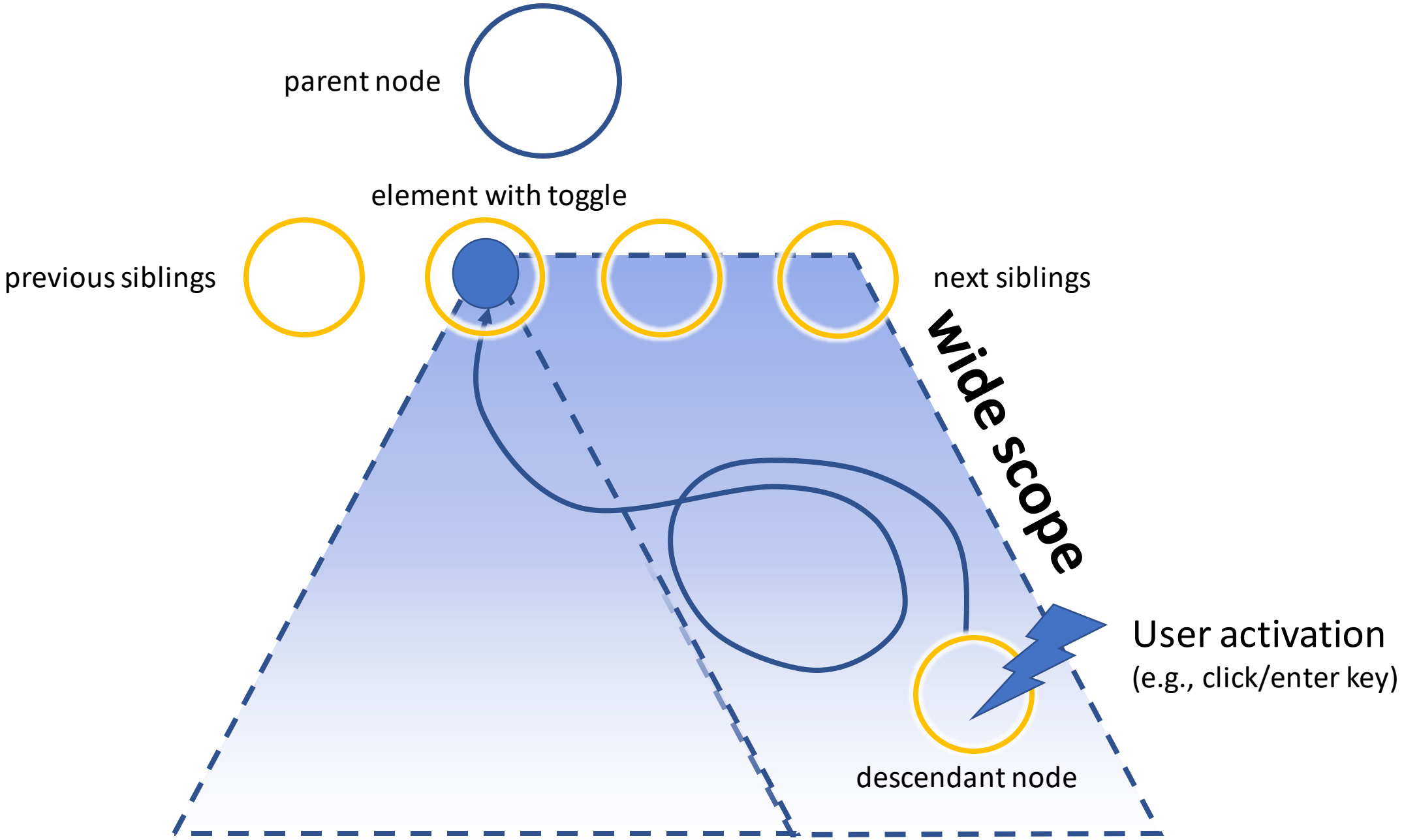




Concept: toggle scopes

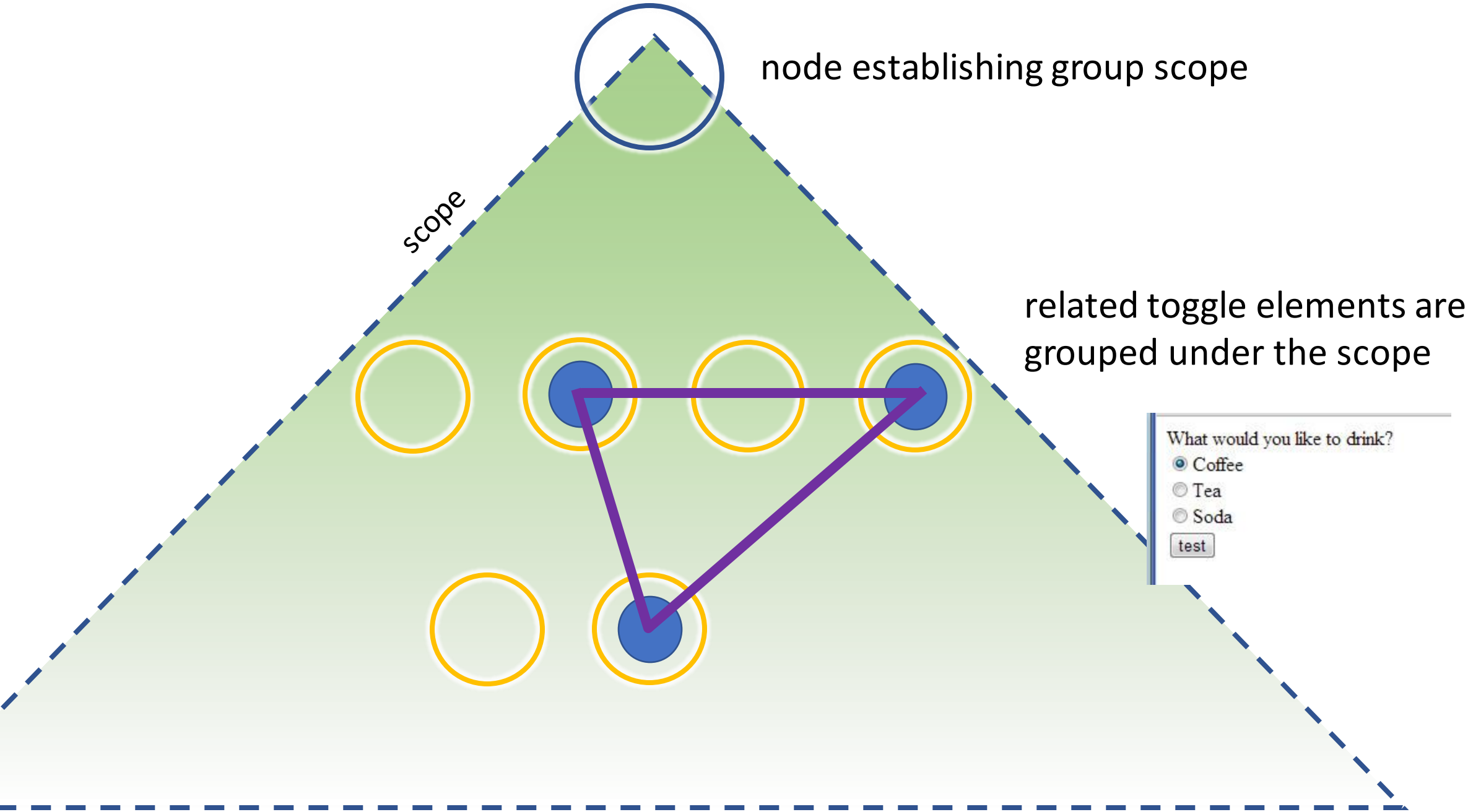
Activation element is separable from the toggle-containing element


parent node
element with toggle
previous siblings
next siblings
scope
User activation (e.g., click/enter key)
descendant node


parent node
element with toggle
previous siblings
next siblings
wide scope
User activation
(e.g., click/enter key)
descendant node

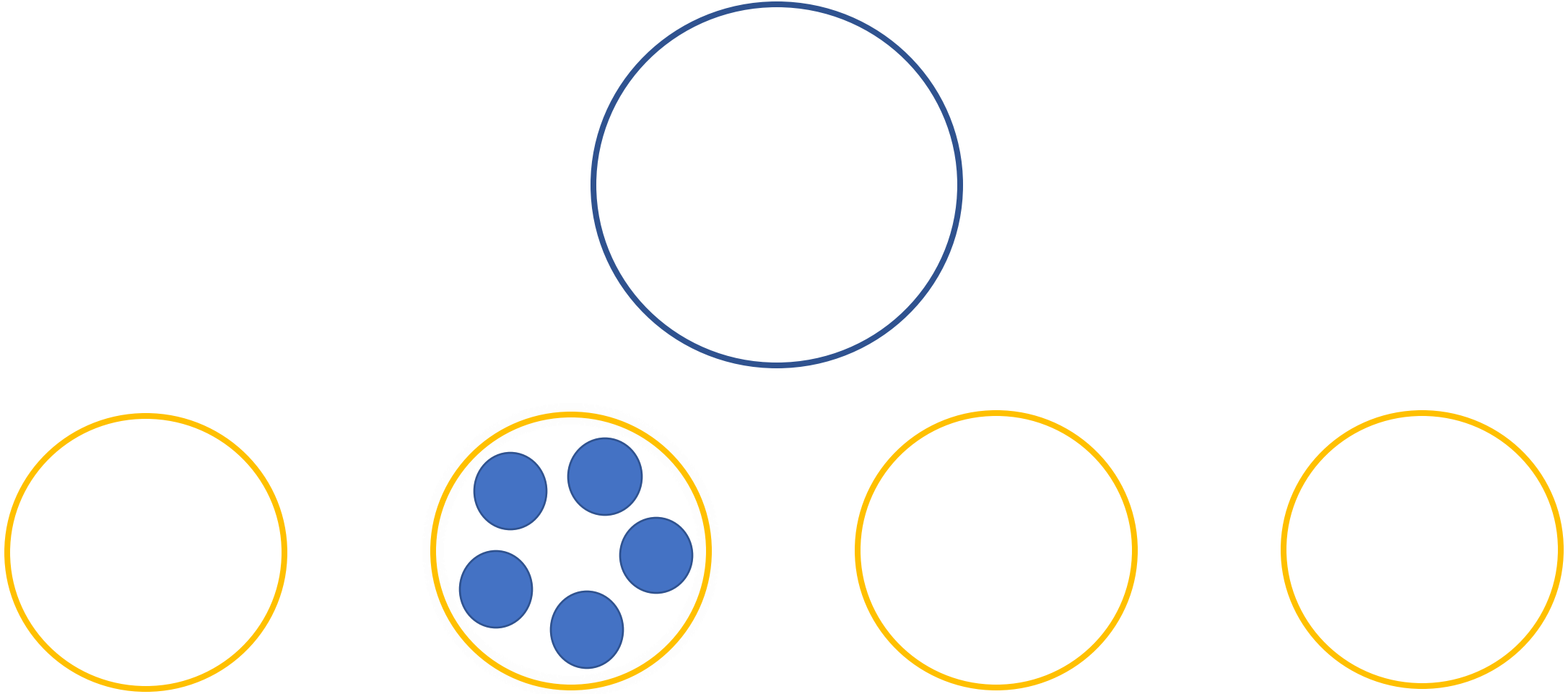
Concept: linked toggle groups

i.e., like radio button groups


node establishing group scope
scope
related toggle elements are grouped under the scope
What would you like to drink?
Coffee
Tea
Soda
test

Concept: n-toggles per element

Elements not restricted to only one toggle—can have as many toggles as needed



element with five toggles

toggles differentiated by name

Toggle proposal *short summary*

- Grants toggleability to all elements
  - Toggles are named and have N states
  - Any number of toggles per element
- Toggle "triggers" (toggle-set) make elements activatable
- Named toggle groups link same-named toggles together under scope
- Toggles can be selected with :toggle(<name>)
- TODO
  - Provide toggle state names (currently numbers)
  - Provide DOM access to toggle state

tabs

One use case: pulling it all together

spicy-sections
Brian Kardell + Follow

Settings | Sign Up | Log In

HTML

```
<script type="module" src="https://spicy-sections.glitch.me/SpicySections.js"></script>

<h1>
```

CSS

```
spicy-sections {
  /* Big hand-wave over how we'd ultimately express this, but for this custom element, this is how you inform when you'd like to emply which
```

Showing off Spicy Sections

This demo shows different designed affordances at different screen sizes (resize your viewport and view the source too)…

- `0-30em`: collapsable sections
- `30-60em`: structured content
- `60em+`: tab-bar

Tabs Collapse Structured Content

The `tab-bar` affordance can use shadow-dom to establish a styleable tab-bar and panels. The required parts can be exposed for styling with consistent pseudo-elements.

In a tab state, we likely want to style:

- The outer box
- The tab bar
- The tabs themselves
- The selected tab
- The tab panel area

Console | Assets | Comments | Shortcuts | Fork | Embed | Export | Share

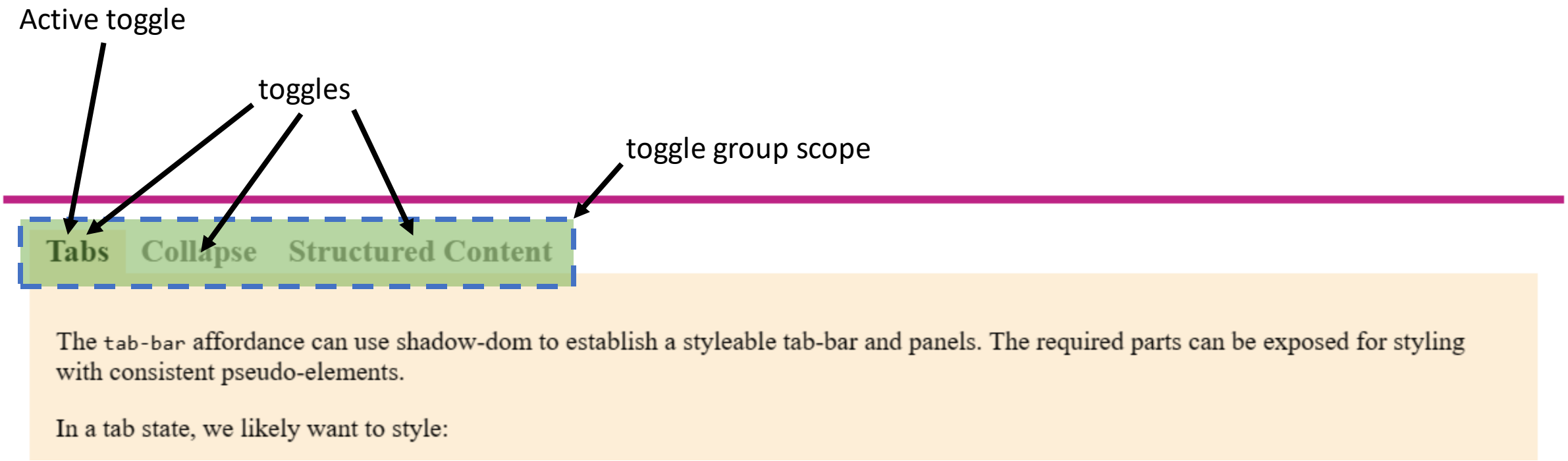
https://codepen.io/bkardell/pen/VwpJGGL

focusgroup keyboard behavior (with wrapping)

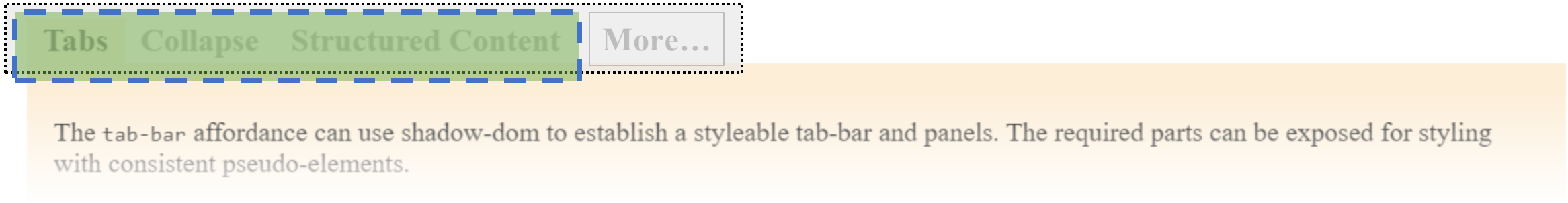
Tabs Collapse Structured Content

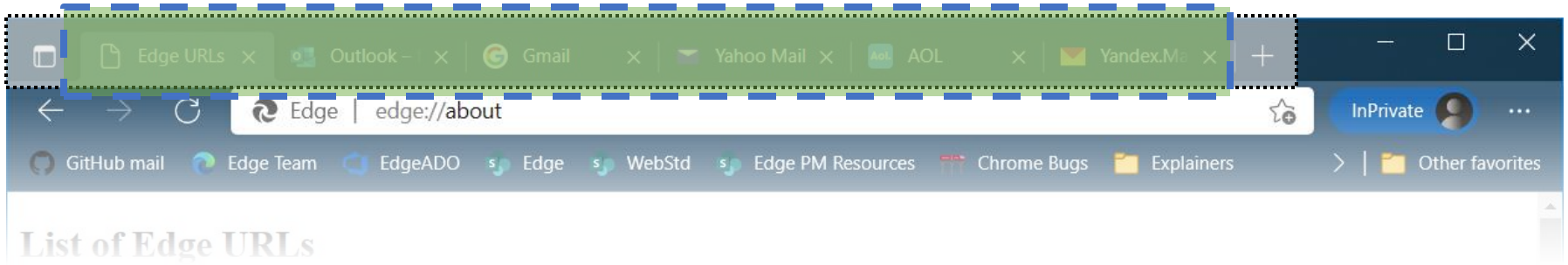
The `tab-bar` affordance can use shadow-dom to establish a styleable tab-bar and panels. The required parts can be exposed for styling with consistent pseudo-elements.

In a tab state, we likely want to style:


Active toggle
toggles
toggle group scope
Tabs
Collapse
Structured Content
The tab-bar affordance can use shadow-dom to establish a styleable tab-bar and panels. The required parts can be exposed for styling with consistent pseudo-elements.
In a tab state, we likely want to style:

Observation: focusgroup and toggle "scope"





Scenario Gap*: tab stop for toggled item(s)

Tab stop from somewhere before…

Tabs Collapse Structured Content

The `tab-bar` affordance can use shadow-dom to establish a styleable tab-bar and panels. The required parts can be exposed for styling with consistent pseudo-elements.

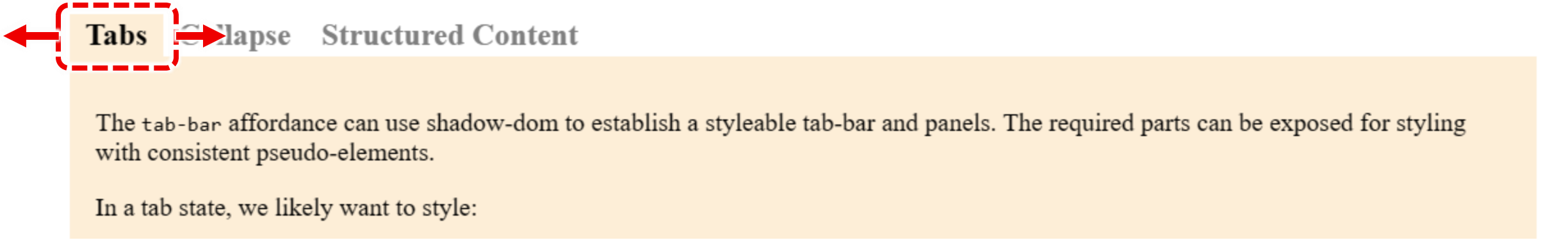
In a tab state, we likely want to style:

Tab stop to somewhere after…

```
<!-- abbreviated markup... -->
<spicy-sections affordance="tab-bar">
  <h2 id="cp1" role="tab" aria-controls="cp2" tabindex="0">...</h2>
  <div id="cp2" role="tabpanel"></div>
  <h2 id="cp3" role="tab" aria-controls="cp4" tabindex="-1">...</h2>
  <div id="cp4" role="tabpanel"></div>
  <h2 id="cp5" role="tab" aria-controls="cp6" tabindex="-1">...</h2>
  <div id="cp6" role="tabpanel"></div>
</spicy-sections>
```

*Assumes a motivation to avoid JavaScript

Scenario Gap*: toggle-on-focus



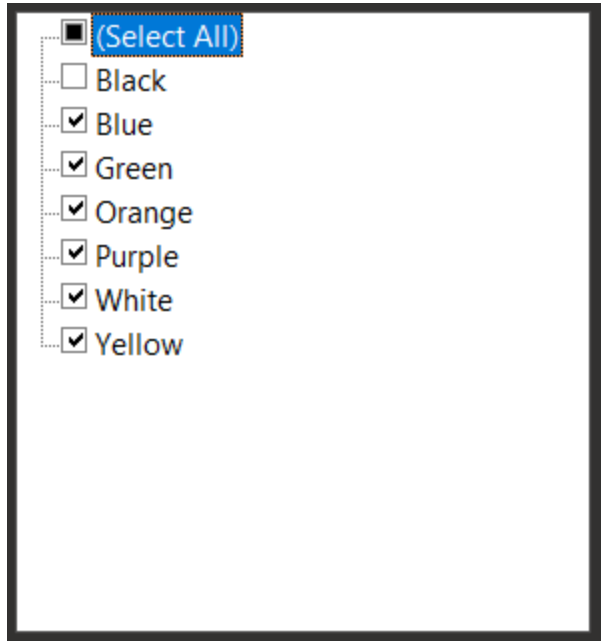
*Assumes a motivation to avoid JavaScript

Solution rough ideas…

- *Tab stop for toggled items*: enable the active toggle (in a group) to participate in sequential keyboard navigation (inactive toggles wouldn't)
  - (replaces roving tabindex method)
- *Toggle-on-focus*: provide a configuration for a toggle to be activated by *focus* or by [explicit action/click/enter]
  - (enables linked focus vs unlinked toggle selection)

Other Toggle Scenarios (non-tab)

- Multi-selection groups? Toggle groups with N>1 maximum active toggles
  - Ex: (Survey) Chose 3 of the following...
- Select All/None linked Toggle
  - Ex:



CSS or HTML?

- Should focusgroup be exposed via CSS?
  - Grouping mechanisms could be aligned?
- toggle one-time creation in HTML?
  - toggle-create has unusual CSS semantics, may be better suited to HTML attribute?

Open Discussion