

The Flexibility of Drupal

drupalnights.org/events/2015/michael-miles-flexibility-drupal

BioRAFT Drupal Nights

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All the Places: mikemiles86

[mike-miles.com](#)

Flexibility?

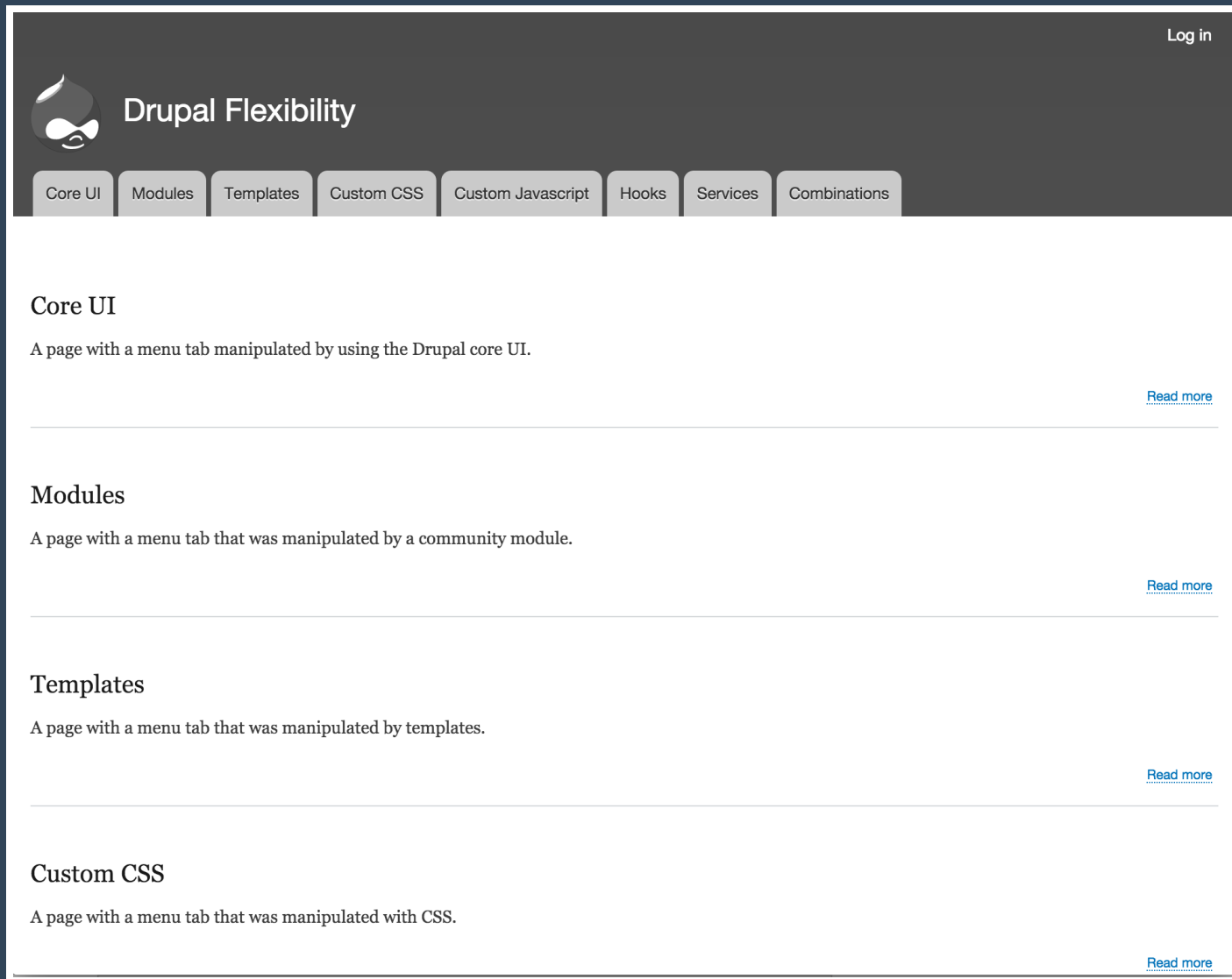
- *Many manipulation methods*
- *Supports different skillsets*
- *Do what works for you*

Focus of this Session

- *8 methods of manipulation*
- *Change title, destination & display of menu tabs*
- *Menus are universal*

Session Environment

- *A standard Drupal 8.0.1 install*
- *Bartik sub-theme with Slate color*
- *Not live. (blame Murphy)*



Environment starting point. A boring gray Drupal 8.0.1 site, with 8 menu tabs.



Drupal Flexibility

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Core UI Alt

Modules Alt

TEMPLATES ALT

Custom CSS

Custom Javascript Alt

Hooks Alt

Services Alt

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Core UI

A page with a menu tab manipulated by using the Drupal core UI.

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A page with a menu tab that was manipulated by a community module.

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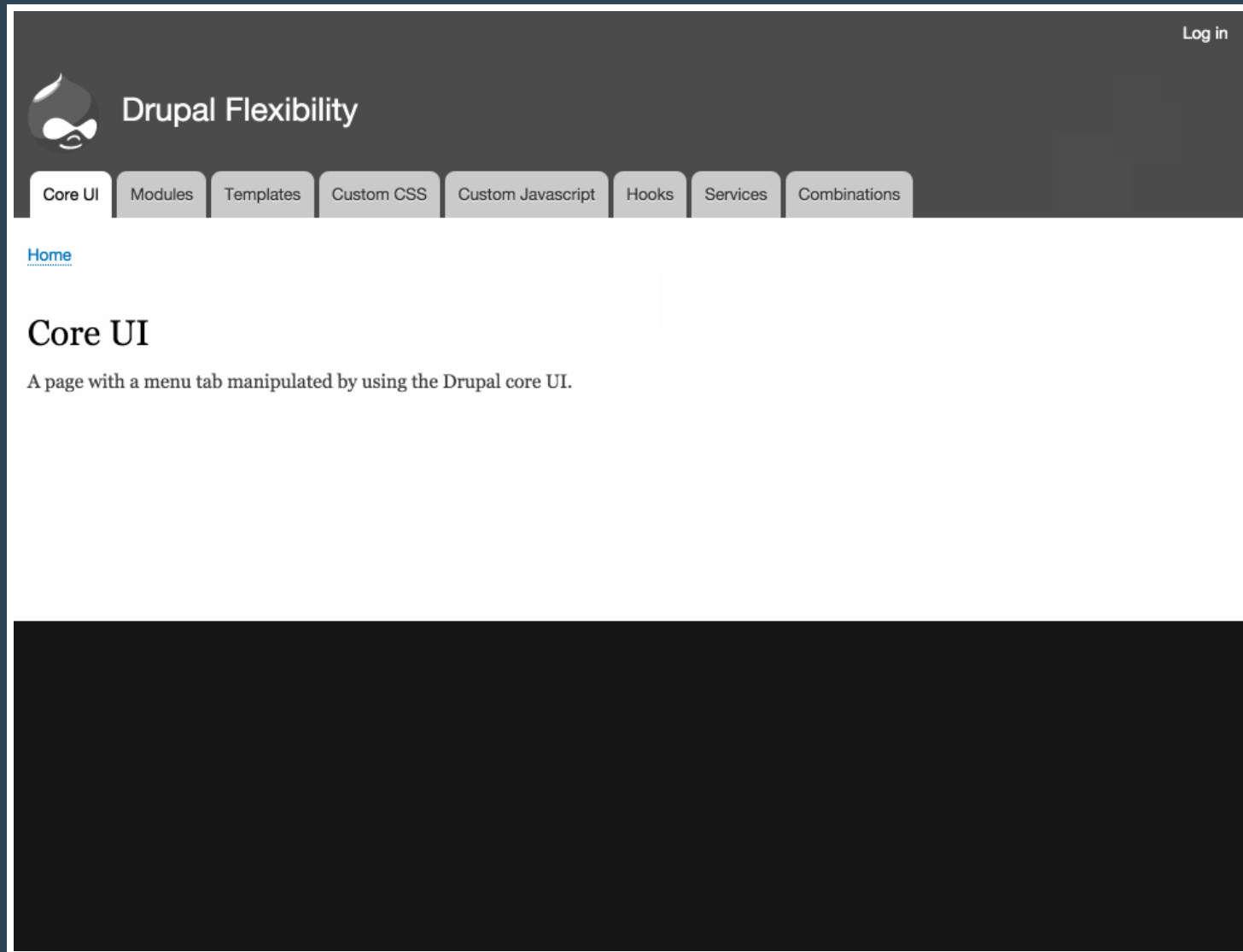
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Environment end point. Colorful menu tabs, each on altered using a different method

#1. Core Admin UI

Change data by clicking buttons.

- *"Easy" to use*
- *No dev skills needed*
- *Capabilities are limited*



Login as admin. Go to Structure, Menus and edit the main menu. Then edit the first menu link. Able to change the title and destination using Admin interface.

[Log in](#)

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Have changed the title and destination of first menu link. Was not able to change the display with Admin UI.

#2. Modules

Change data by extending Drupal core.

- *Many options available*
- *Can build your own*
- *Require long term maintenance*

← → ↻ https://www.drupal.org/project/menu_link_attributes    

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Menu Link Attributes

[View](#) [Version control](#) [Automated Testing](#)

Posted by [yannickoo](#) on *October 2, 2015 at 9:14am*

This module allows you to add attributes to your menu links.

Let's see whether we can merge this module into [Menu Attributes - #2174435: Port Menu attributes to Drupal 8](#)

You can create [issues](#) and [pull requests](#) on [Github](#).

Project Information

Maintenance status: [Actively maintained](#)
Development status: [Under active development](#)
Module categories: Content Display , Utility
Reported installs: **102** sites currently report using this module. [View usage statistics](#).
Downloads: 470
Last modified: October 20, 2015

Downloads

Recommended releases

Version	Download	Date
8.x-1.0-beta1	tar.gz (10.17 KB) zip (13.18 KB)	2015-Oct-17

Development releases

Version	Download	Date
8.x-1.x-dev	tar.gz (10.19 KB) zip (13.2 KB)	2015-Nov-05

[View all releases](#)

Maintainers for Menu Link Attributes

[yannickoo](#) – 16 commits
last: 2 months ago, first: 3 months ago
[View all committers](#)
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Resources

[Home page](#)
[Read documentation](#)
[Read license](#)
[Read complete log of changes](#)
[Try out a demonstration](#)
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Development

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Want to extend core to change display of second menu link. Find, download and install the Menu Link Attributes module from drupal.org. Use Drupal Admin as in last method to alter menu tab. Module extends the form to allow adding HTML attributes such as inline styles.

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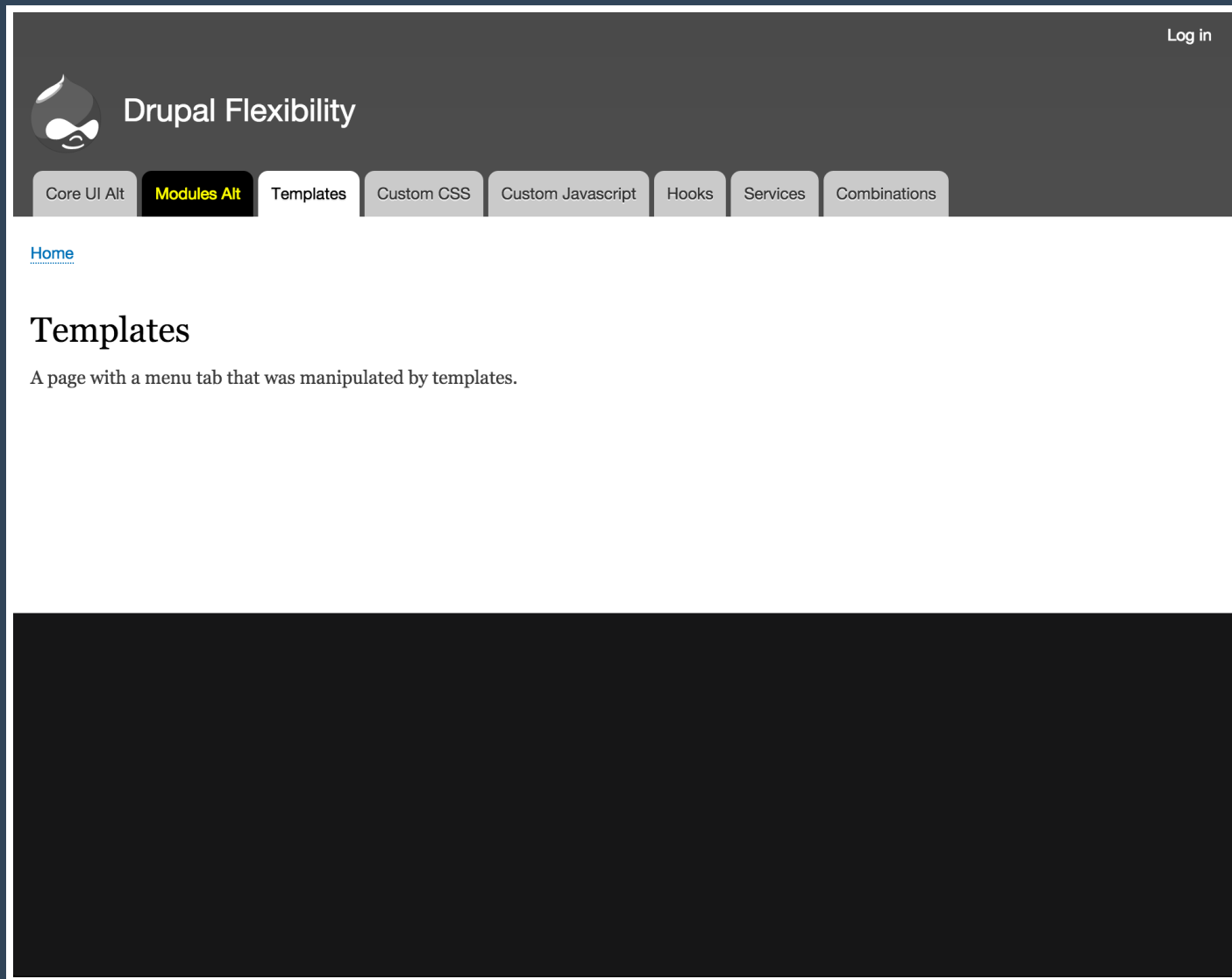
[Read more](#)

Used a module to extend Drupal to change the text and background colors of second menu tab.

#3. Templates

Change data by controlling rendered HTML.

- *Almost everything is templated*
- *Change HTML/Twig code*
- *Requires a custom theme*



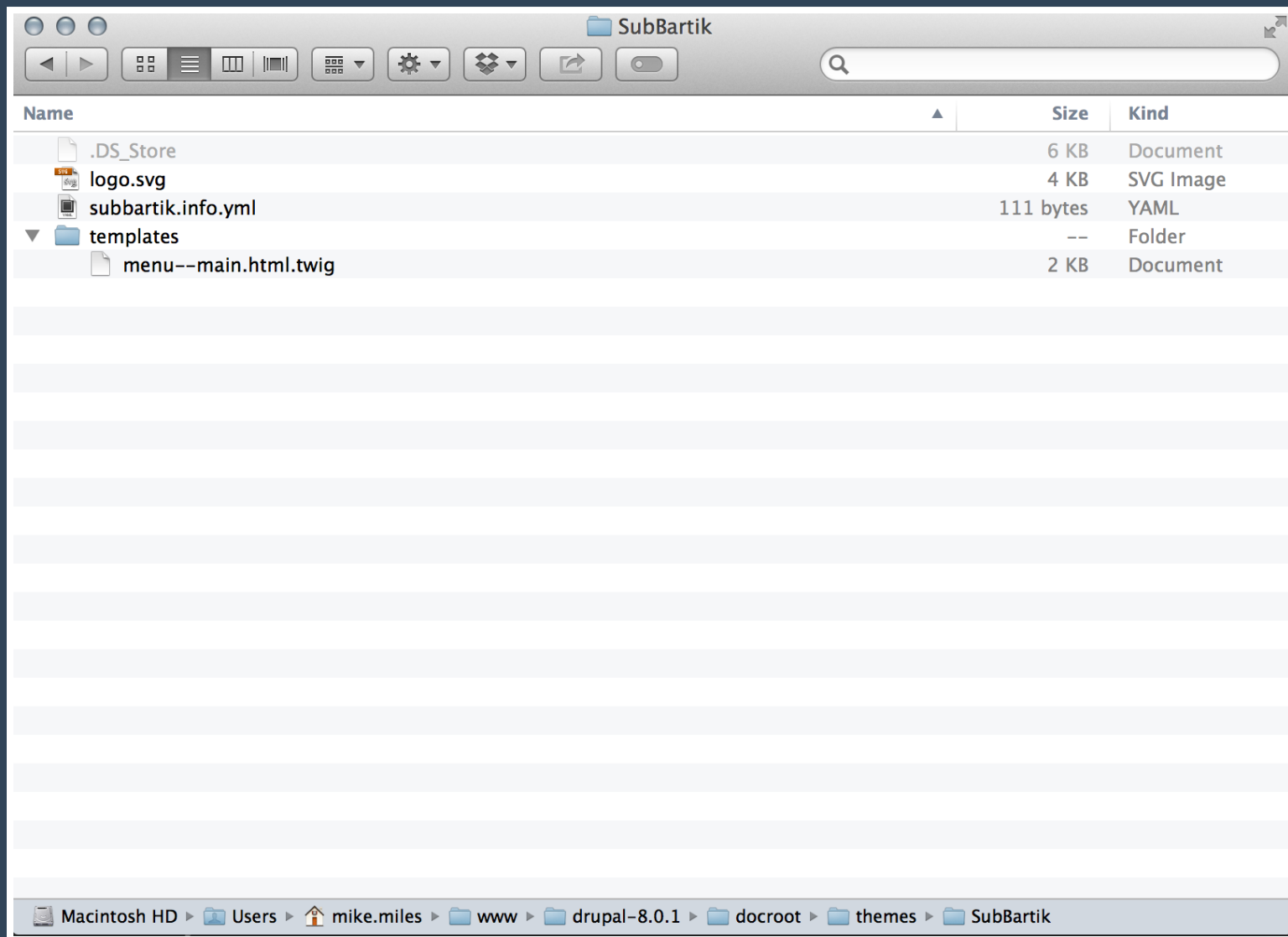
Want to change third menu tab using an overridden template.

a.is-active 81.4688px × 37.1875px

Can use development configuration to debug theme and template data for main menu.


```
<!-- THEME DEBUG -->
<!-- THEME HOOK: 'menu__main' -->
<!-- FILE NAME SUGGESTIONS:
  * menu--main.html.twig
  x menu.html.twig
-->
<!-- BEGIN OUTPUT from 'core/themes/classy/templates/navigation/menu.html.twig' -
<ul class="clearfix menu">
<!-- // ... -->
  <li class="menu-item menu-item--active-trail">
    <a href="/node/3" data-drupal-link-system-path="node/3" class="is-active">Ter
  </li>
<!-- // ... -->
</ul>
<!-- END OUTPUT from 'core/themes/classy/templates/navigation/menu.html.twig' -->
```

*Use theme debug info for main menu. Tells the template used (line 5) and where to locate it (line 7).
Provides template suggestion on how to override for just the main menu (line 4).*



Copy the menu twig template from classy theme. Save as menu--main.html.twig in templates directory of custom "subBartik" theme.

```

{% macro menu_links(items, attributes, menu_level) %}
{# ... #}
{% for item in items %}
  {# ... #}
  <li>{{ item.attributes.addClass(classes) }}>
    {% if item.title == 'Templates' %}
      <a href="node/9" style="color:#F00;background:#0F0">TEMPLATES ALT</a>
    {% else %}
      {{ link(item.title, item.url) }}
    {% endif %}
    {% if item.below %}
      {{ menus.menu_links(item.below, attributes, menu_level + 1) }}
    {% endif %}
  </li>
{% endfor %}
{# ... #}
{% endmacro %}

```

themes/SubBartik/templates/menu--main.html.twig

Alter markup in template override. For menu list item markup (lines 5 - 14). If 'Templates' is the title of the current menu item (line 6), then use a hardcoded HTML link (line 7).

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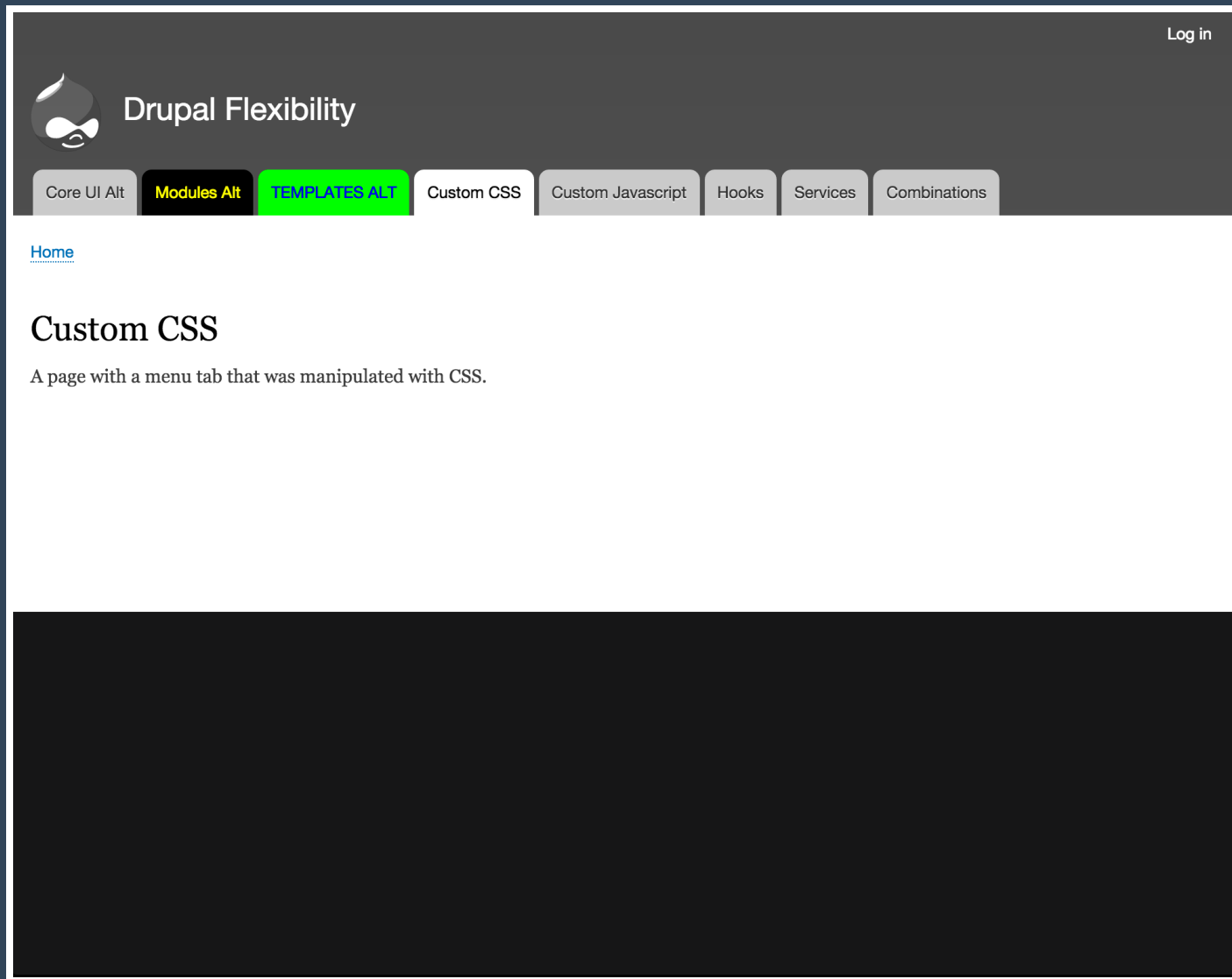
[Read more](#)

Clear the Drupal cache to see the changes. When rendering, Drupal uses template override for main menu. Custom logic alters the 'Templates' tab to displays a different styled link.

#4. Custom CSS

Change data by controlling display.

- *Target specific elements*
- *Control inclusion with a library*
- *Requires custom theme or module*



Can alter a menu tab using custom CSS, by adding css to a library in a custom theme.

```
menu-alter:  
  version: VERSION  
  css:  
    css/menu_alter.css: {}
```

themes/SubBartik/subbartik.libraries.yml

Modules/Themes define libraries in a [name].libraries.yml file. Defining a library named 'menu-alter' (line 1) and the css files it includes (lines 2 -3)..

```
.menu--main .menu li a[data-drupal-link-system-path="node/4"] {  
  background: #0000FF;
```

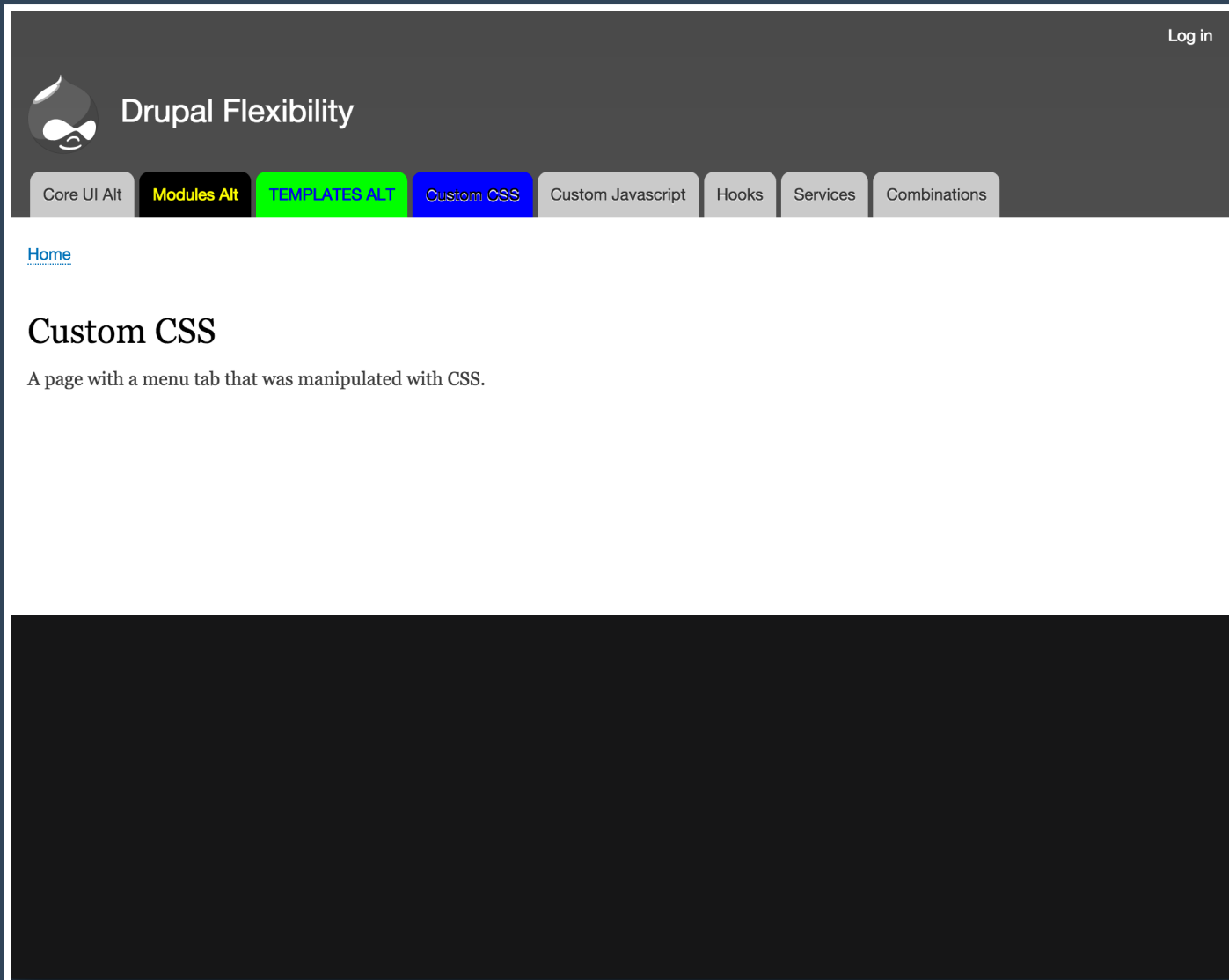
themes/SubBartik/css/menu_alter.css

CSS selector chains can become complicated. Targeting a link item in the main menu list, based on data attribute value. Anything that matches will have background color changed.


```
name: Sub Bartik
type: theme
base theme: bartik
description: 'A sub-theme of Bartik'
version: VERSION
core: 8.x
libraries:
  - subbartik/menu-alter
```

themes/SubBartik/subbartik.info.yml

*Themes can include libraries globally by adding to *.info.yml file. Including 'menu-alter' library globally for sub-theme (lines 7 - 8).*



Site is using custom theme so it includes the library, which includes the custom css. The selectors target the 'Custom CSS' tab and changes the background color.

```
menu-alter:
  version: VERSION
  css:
    css/menu_alter.css: {}
menu-alter-main:
  version: VERSION
  css:
    css/menu_alter_main.css: {}
```

themes/SubBartik/subbartik.libraries.yml

*A *.libraries.yml file, can include many libraries. Each library has a unique name and included files. Add a new 'menu-alter-main' library (line 5 - 7).*


```
{{ attach_library('subbartik/menu-alter-main') }}
{% import _self as menus %}
{{ menus.menu_links(items, attributes, 0) }}
{% macro menu_links(items, attributes, menu_level) %}
    {% import _self as menus %}
    {% if items %}
        {% if menu_level == 0 %}
            <ul{{ attributes.addClass('menu') }}>
        {% else %}
            <ul class="menu">
        {% endif %}
        {% for item in items %}
            {# ... #}
```

themes/SubBartik/templates/menu--main.html.twig

Include libraries for specific templates by using the 'attach_library' Twig function. Include the 'menu-alter-main' library will only when rendering the main menu.



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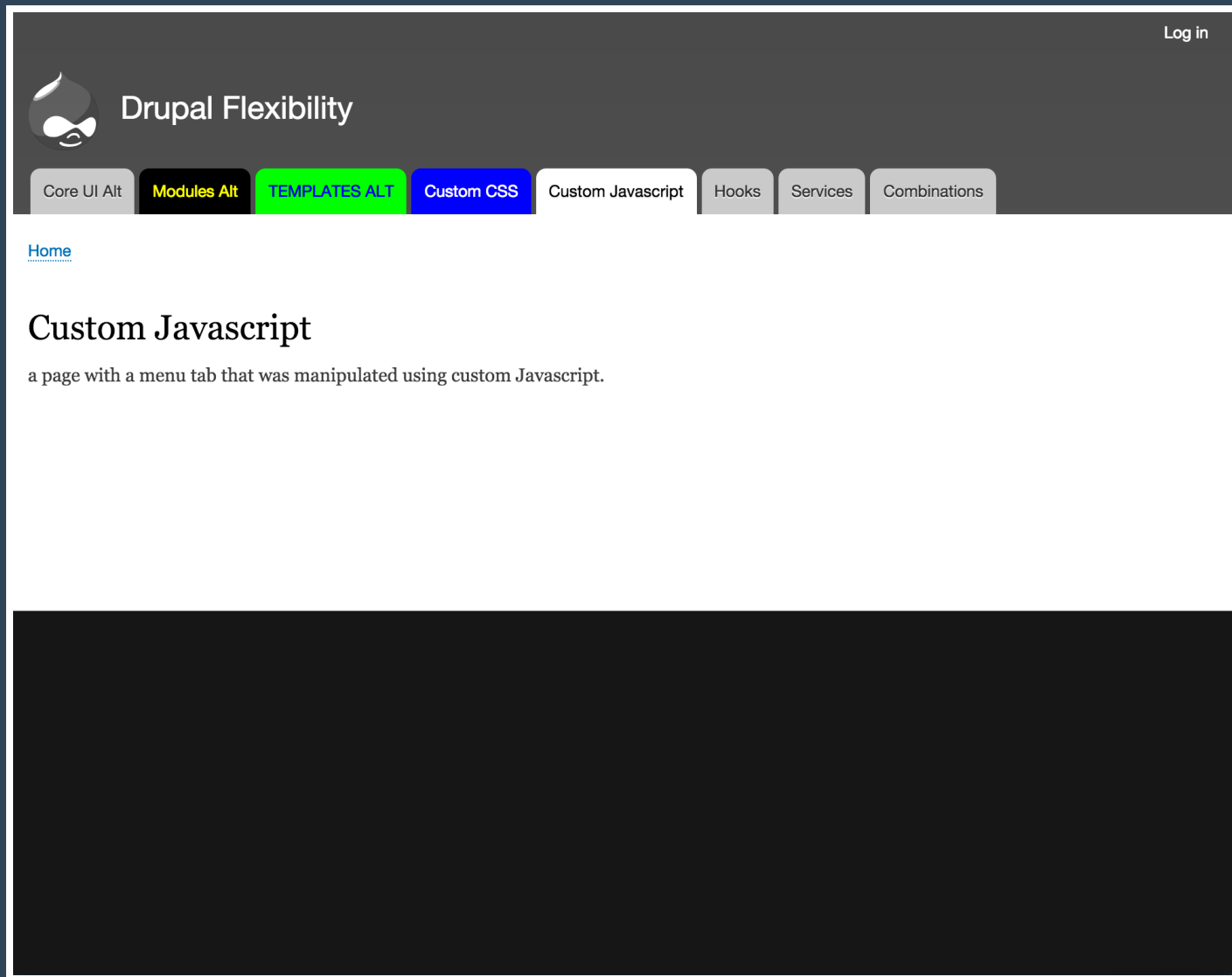
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Drupal renders main menu using template override. Template includes function to attach library (and css) on the page. Custom CSS causes the text in the tab to display as white.

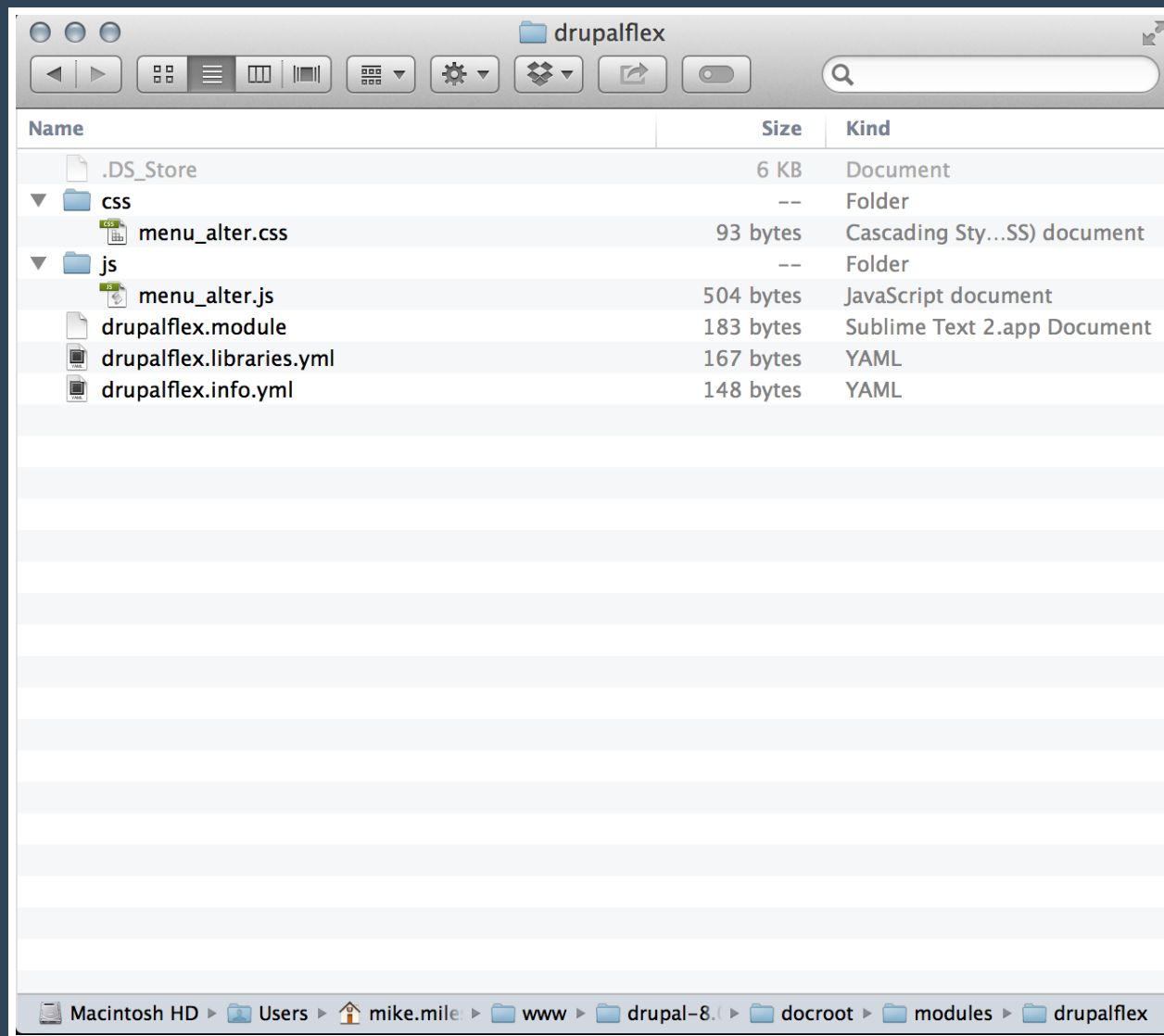
#5. Custom JavaScript

Change data by manipulating DOM elements.

- *Change based on actions*
- *Control inclusion with a library*
- *Dependent on client browser*



Can alter a menu tab using custom JavaScript, by including it in a library in a custom module.



*Like themes, modules need to define libraries in a *.libraries.yml file. Will add a library to custom "drupalflex" module to include custom JavaScript.*

```
menu-alter:
  css:
    css/menu_alter.css: {}
  js:
    js/menu_alter.js: {}
  dependencies:
    - core/jquery
    - core/jquery.once
    - core/drupal
```

modules/drupalflex/drupalflex.libraries.yml

A library can contain many files as well as, depend on other libraries. Library contains css files (lines 2 - 3), javascript files (lines 4 - 5) and dependencies on other libraries (lines 6 - 9).

```
(function ($, Drupal) {  
  "use strict";  
  Drupal.behaviors.drupalFlexMenuAlter = {  
    attach: function (context) {  
      $('.menu--main ul.menu li a').each(function(){  
        if ($(this).attr('href') == '/node/5') {  
          $(this).addClass('yellow-menu');  
          $(this).attr('style', 'color:#000;');  
          $(this).attr('target', '_blank');  
          $(this).attr('href', '/node/9');  
          $(this).text($(this).text() + Drupal.t(' Alt'));  
        }  
      });  
    }  
  }  
})(jQuery, Drupal);
```

modules/drupalflex/js/menu_alter.js

Drupal behaviors are like jQuery document ready events. Drupal executes them when DOM loads. Create a custom behavior (line 3). Loop through each link item in the main menu (line 5). If link points to node/5 (line 6) alter display and destination (lines 7 - 11).

```
<?php

/**
 * Implements hook_page_attachments().
 */
function drupalflex_page_attachments(array &$attachments) {
  $attachments['#attached']['library'][] = 'drupalflex/menu-alter';
}

modules/drupalflex/drupalflex.module
```

Modules need to use PHP code to include libraries onto pages. Use an instance of the page_attachments hook to include the menu-alter on every page.



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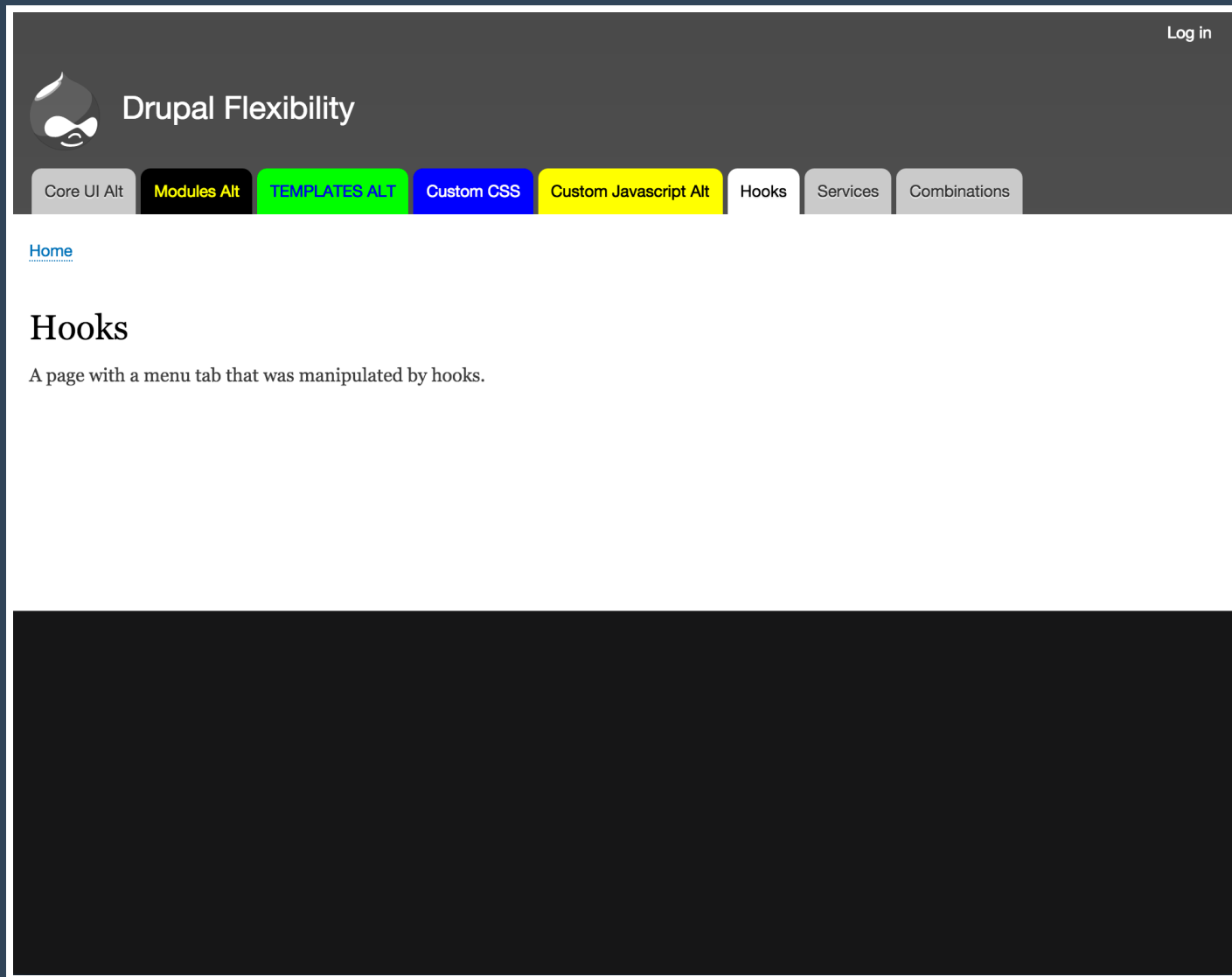
[Read more](#)

When Drupal loads the page it will invoke the hook instance in the "drupalflex" module. This will tell Drupal to include the library the contains the custom JavaScript. After DOM loads, JavaScript gets executed and alters the menu tab.

#6. Hooks

Change data by interacting with core code.

- *Provided by core and modules*
- *Requires custom theme or module*
- *Requires PHP skillset*



Can alter a menu tab by using a hook in a custom theme or module.

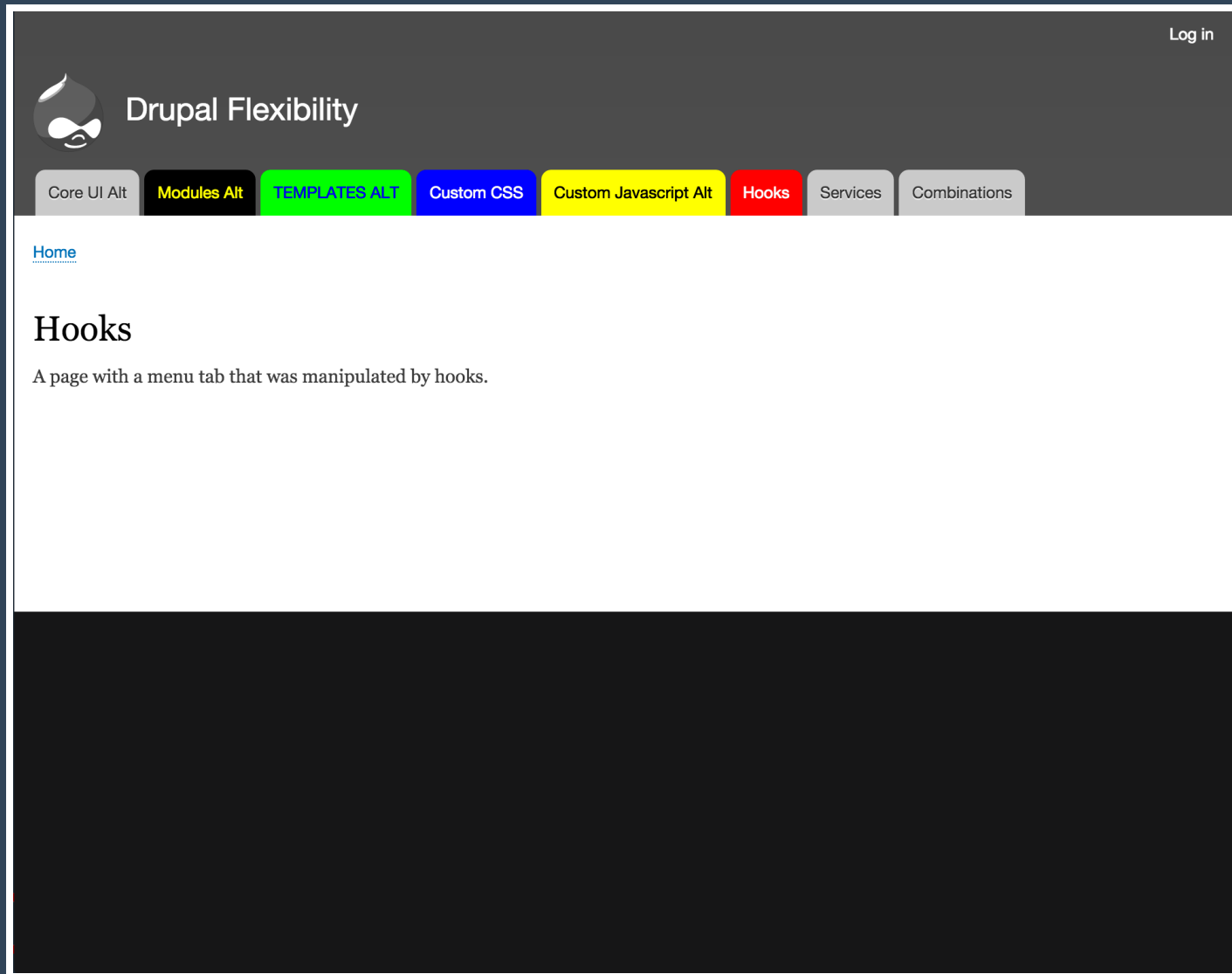
```
<!-- THEME DEBUG -->
<!-- THEME HOOK: 'menu__main' -->
<!-- FILE NAME SUGGESTIONS:
  * menu--main.html.twig
  x menu.html.twig
-->
<!-- BEGIN OUTPUT from 'core/themes/classy/templates/navigation/menu.html.twig' -
<ul class="clearfix menu">
<!-- // ... -->
  <li class="menu-item menu-item--active-trail">
    <a href="/node/6" data-drupal-link-system-path="node/6" class="is-active">Hoc
  </li>
<!-- // ... -->
</ul>
<!-- END OUTPUT from 'core/themes/classy/templates/navigation/menu.html.twig' -->
```

Theme debug information gives a suggestion of what "theme" hook to implement (line 2).


```
// Implements hook_preprocess_HOOK().
function subbartik_preprocess_menu__main(&$variables) {
  // Loop through all menu tabs.
  foreach ($variables['items'] as &$menu_tab) {
    // Current tab pointing to node/6 ?
    if ($menu_tab['url']->toString() == '/node/6') {
      // Change location.
      $menu_tab['url']->setRouteParameter('node', '9');
      // Existing attributes?
      if (!$attributes = $menu_tab['url']->getOption('attributes')) {
        $attributes = array('style' => '');
      }
      elseif (!isset($attributes['style'])) {
        $attributes['style'] = '';
      }
      // Add custom styling.
      $attributes['style'] .= 'color:#FFF;background:#00F;';
      // Add back modified attributes.
      $menu_tab['url']->setOption('attributes', $attributes);
    }
  }
}
```

themes/SubBartik/subbartik.theme

*Themes place hooks in a *.theme file. Creating an instance of the preprocess_menu__main hook (line 4). Looping through all items in the main menu (line 6). If menu item points to node/6 (line 8), then alter the destination and styling (lines 10 - 21).*



When building main menu, drupal invokes hook implementation. Logic alters menu item and changes text and background color.

```

<?php
// Implements hook_preprocess_HOOK().
function drupalflex_preprocess_menu(&$variables) {
  if ($variables['theme_hook_original'] == 'menu__main') {
    foreach ($variables['items'] as &$menu_tab) {
      if (strtolower($menu_tab['title']) == 'hooks') {
        // Add 'Alt' to title.
        $menu_tab['title'] .= ' Alt';
        // Existing attributes?
        if (!$attributes = $menu_tab['url']->getOption('attributes')) {
          $attributes = array('target' => '_blank');
        }
        else {
          $attributes['target'] .= '_blank';
        }
        // Add back modified attributes.
        $menu_tab['url']->setOption('attributes', $attributes);
      }
    }
  }
}

```

modules/drupalflex/drupalflex.module

*Custom modules invoke hooks in the *.module file. In custom "drupalflex" module, creating an instance of preprocess_menu hook (line 3). Check if processing main menu (line 4), and loop through menu items (line 5). For menu item titled 'hooks' (line 6) alter title and target (lines 7 - 17).*



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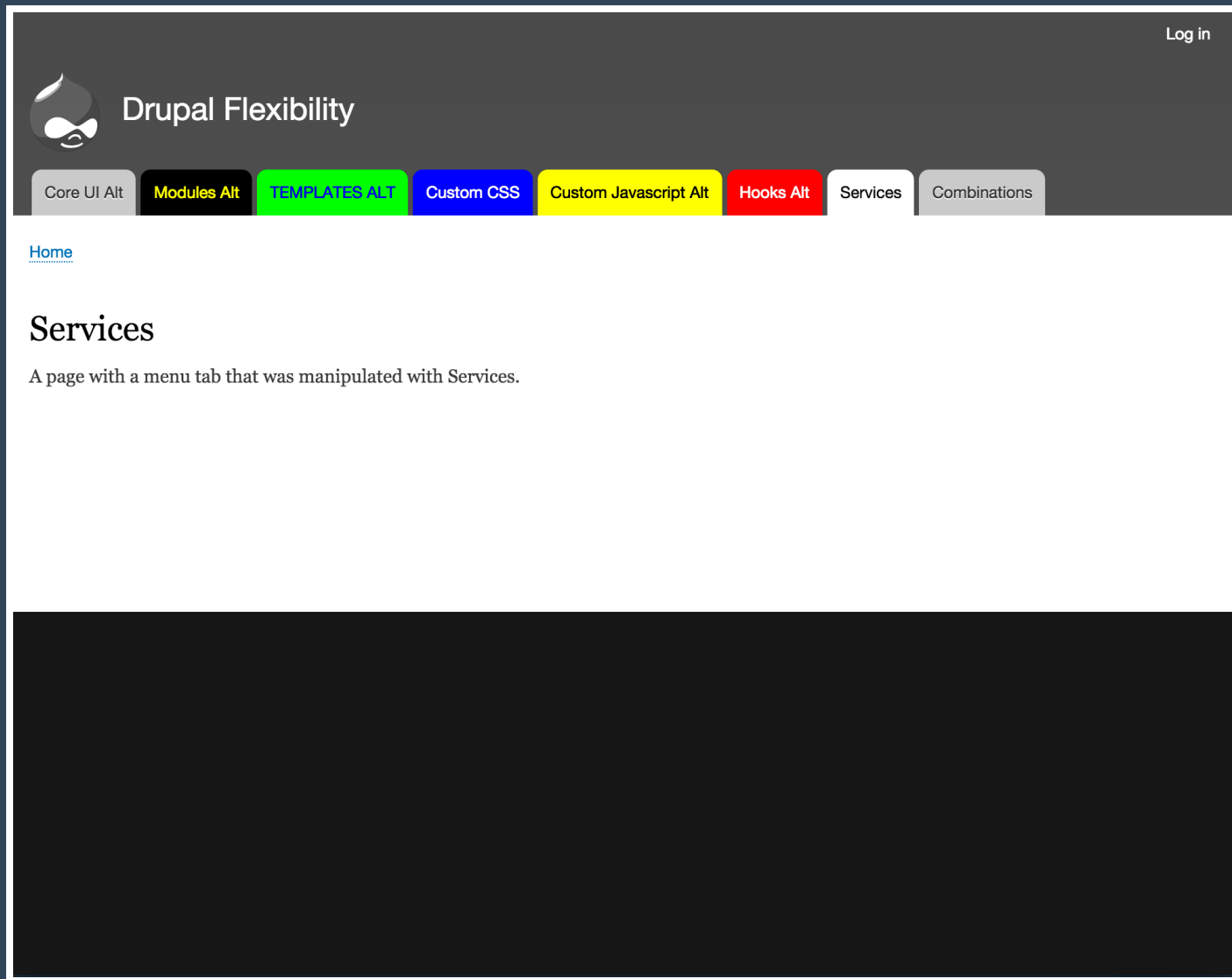
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Building of menus, drupal invokes hook implementation. Logic alters menu item and changes title and target.

#7. Services

Change data by replacing core functionality.

- *Control global tasks*
- *Requires OOP skillset*
- *Requires a custom module*



Will change menu tab by overriding the Menu Service in a custom module.

```
namespace Drupal\drupalflex;

use Drupal\Core\DependencyInjection\ServiceProvidersBase;
use Drupal\Core\DependencyInjection\ContainerBuilder;

class DrupalflexServiceProvider extends ServiceProvidersBase {
    /**
     * {@inheritdoc}
     */
    public function alter(ContainerBuilder $container) {
        // Override menu_link_tree class with custom.
        $definition = $container->getDefinition('menu.link_tree');
        $definition->setClass('Drupal\drupalflex\DrupalflexMenuLinkTree');
    }
}
```

modules/drupalflex/src/DrupalflexServiceProvider.php

*To override a Service, modules need a *ServiceProvider.php file in an src directory. Service Provider class implements an alter method (line 10). Retrieves definition for menu link tree (line 12) and points it to a custom PHP class (line 13).*

```

namespace Drupal\drupalflex;
use Drupal\Core\Menu\MenuLinkTree;

class DrupalflexMenuLinkTree extends MenuLinkTree {
    // Overrides \Drupal\Core\Menu\MenuLinkTree::build().
    public function build(array $tree) {
        $build = parent::build($tree);
        if (isset($build['#items']) && $build['#theme'] == 'menu__main') {
            foreach ($build['#items'] as &$item ) {
                if ($item['url']->toString() == '/node/7') {
                    // Change Title, path and add styling.
                    $item['title'] .= ' Alt';
                    $item['url']->setRouteParameter('node', '9');
                    $item['url']->setOption('attributes', array(
                        'style' => 'color:#00F;background:#00CEFD;',
                    ));
                }
            }
        }
        return $build;
    }
}

```

modules/drupalflex/src/DrupalflexMenuLinkTree.php

Custom MenuLinkTree service class that extends the core base class (line 4). Override build method (line 6), which builds array of menu links. For only the main menu (line 8), loop through each menu item (line 9). If menu item points to node/7 (line 10) alter location and display (lines 11 - 16).



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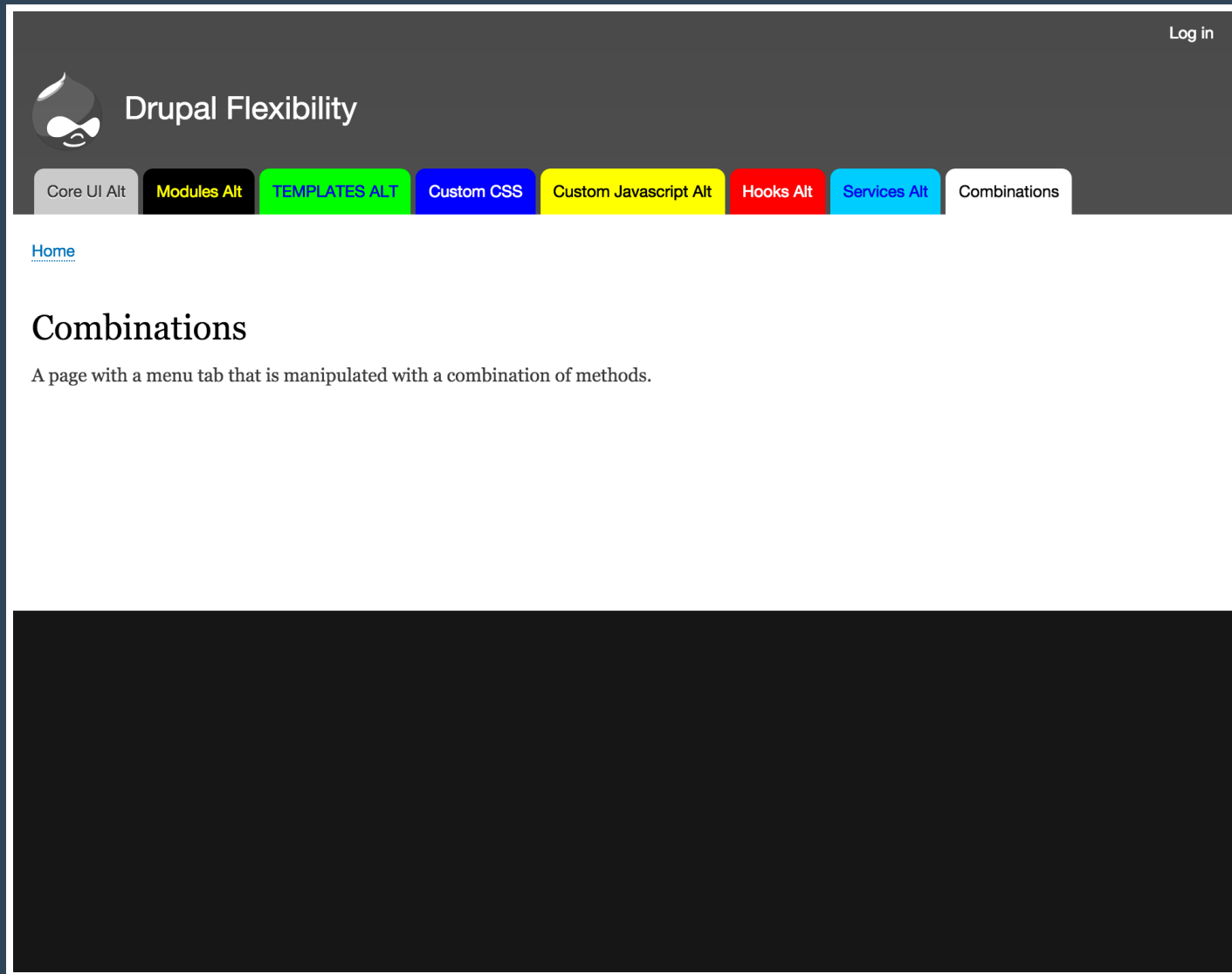
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Drupal will use custom version of menu service to now build all menus. Will hit logic to change the 'Services' menu tab in the main menu.

#8. Combinations

Change data by using multiple methods.

- *Real world scenario*
- *Use multiple skillsets*
- *Most control over Drupal*



Will alter a menu item using combination of multiple methods.

```
//...
public function build(array $tree) {
    $build = parent::build($tree);
    if (isset($build['#items']) && $build['#theme'] == 'menu__main') {
        foreach ($build['#items'] as &$item ) {
            // ...
            if ($item['url']->toString() == '/node/8') {
                $item['title'] .=' Alt';
            }
        }
    }
    return $build;
}
```

modules/drupalflex/src/DrupalflexMenuLinkTree.php

In custom menu service, Alter title for menu item pointing to node/8 (lines 7 - 9).

```
/**
 * Implements hook_preprocess_HOOK().
 */
function subbartik_preprocess_menu__main(&$variables) {
  // Loop through all menu tabs.
  foreach ($variables['items'] as &$menu_tab) {
    // ...
    $menu_tab['is_combo'] = ($menu_tab['title'] == 'Combinations Alt');
  }
}
```

themes/SubBartik/subbartik.theme

Preprocess hook in custom theme, add new boolean attribute 'is_combo' to menu items (line 8).

```

<ul class="menu">
  {# ... #}
  {% for item in items %}
    {# ... #}
    <li>{{ item.attributes.addClass(classes) }}>
      {% if item.title|lower == 'templates'|t %}
        {# ... #}
      {% else %}
        {{ link(item.is_combo ? item.title|reverse : item.title, item.url) }}
      {% endif %}
      {# ... #}
    </li>
  {% endfor %}
</ul>
{# ... #}

```

themes/SubBartik/templates/menu--main.html.twig

In overridden menu template, if `is_combo` is true reverse the menu item title (line 9).

```
.menu--main .menu li a.combo {
  color: #000;
  font-weight: 800;
  text-shadow: 0 0 #000 !important;
  background: red; /* not working, let's see some red */
  background: -moz-linear-gradient( top ,
    rgba(255, 0, 0, 1) 0%,
    rgba(255, 255, 0, 1) 15%,
    rgba(0, 255, 0, 1) 30%,
    rgba(0, 255, 255, 1) 50%,
    rgba(0, 0, 255, 1) 65%,
    rgba(255, 0, 255, 1) 80%,
    rgba(255, 0, 0, 1) 100%);
  background: -webkit-gradient(linear, left top, left bottom,
    color-stop(0%, rgba(255, 0, 0, 1)),
    color-stop(15%, rgba(255, 255, 0, 1)),
    color-stop(30%, rgba(0, 255, 0, 1)),
    color-stop(50%, rgba(0, 255, 255, 1)),
    color-stop(65%, rgba(0, 0, 255, 1)),
    color-stop(80%, rgba(255, 0, 255, 1)),
    color-stop(100%, rgba(255, 0, 0, 1)));
}
```

themes/SubBartik/css/menu-alter.css

Create css rule for links with class "combo" in main menu. Add to css file included in library that is included on all pages by custom theme.

```
(function ($, Drupal) {  
  "use strict";  
  Drupal.behaviors.drupalFlexMenuAlter = {  
    attach: function (context) {  
      $('.menu--main ul.menu li a').each(function(){  
        if ($(this).attr('href') == '/node/5') {  
          // ...  
        }  
        else if ($(this).attr('href') == '/node/8'){  
          $(this).addClass('combo');  
        }  
      });  
    }  
  }  
})(jQuery, Drupal);
```

modules/drupalflex/js/menu_later.js

Add logic into javascript that is part of library defined by custom module. Logic adds 'combo' class to link item in main menu that points to node/8 (lines 9 -11). .



Drupal Flexibility

Core UI Alt

Modules Alt

TEMPLATES ALT

Custom CSS

Custom Javascript Alt

Hooks Alt

Services Alt

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Log in

Core UI

A page with a menu tab manipulated by using the Drupal core UI.

[Read more](#)

Modules

A page with a menu tab that was manipulated by a community module.

[Read more](#)

Templates

A page with a menu tab that was manipulated by templates.

[Read more](#)

Custom CSS

A page with a menu tab that was manipulated with CSS.

[Read more](#)

Using a custom service, custom css, custom javascript, template override and hook instance together to alter last menu item.

Drupal is flexible!

No "right" way. Only "Right for me" way.

Slides & Notes

bit.ly/bioFlex

This presentation

bit.ly/bioFlexSlides

Annotated slides on Slideshare.

bit.ly/drupalREAD

Blog post on how to select modules.

Thank You!

Feedback/Questions? [@mikemiles86](#)



@BioRAFT_dev



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