LEVEL access

Using Design Tokens to up your Accessibility Game

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Meet Karen Hawkins

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Level Access

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Today's Goals

1. Learn what types of design token decisions affect the accessibility of UI (User Interface) elements.
2. Learn how to use design tokens to improve the accessibility of UI elements.
3. Understand the importance of using design tokens to ensure a consistent experience across a wide set of UI elements.

SECTION 1

Little Ditty about Design and Designs Systems

“

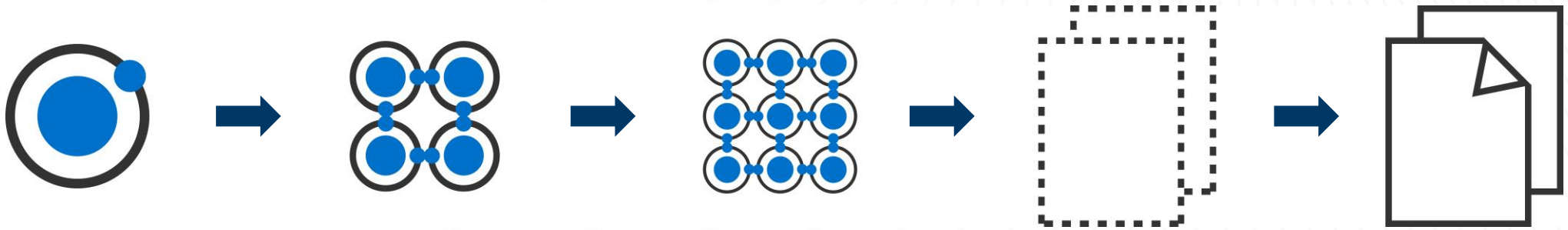
A **design system** is a complete set of standards intended to manage design at scale using reusable components and patterns.

”

Nielsen Norman Group

Atomic Design

Atomic design is a methodology for creating design systems. It is a framework to break interfaces down into fundamental reusable building blocks and build them back up in potentially infinite variations.



Concept reference: Brad Frost

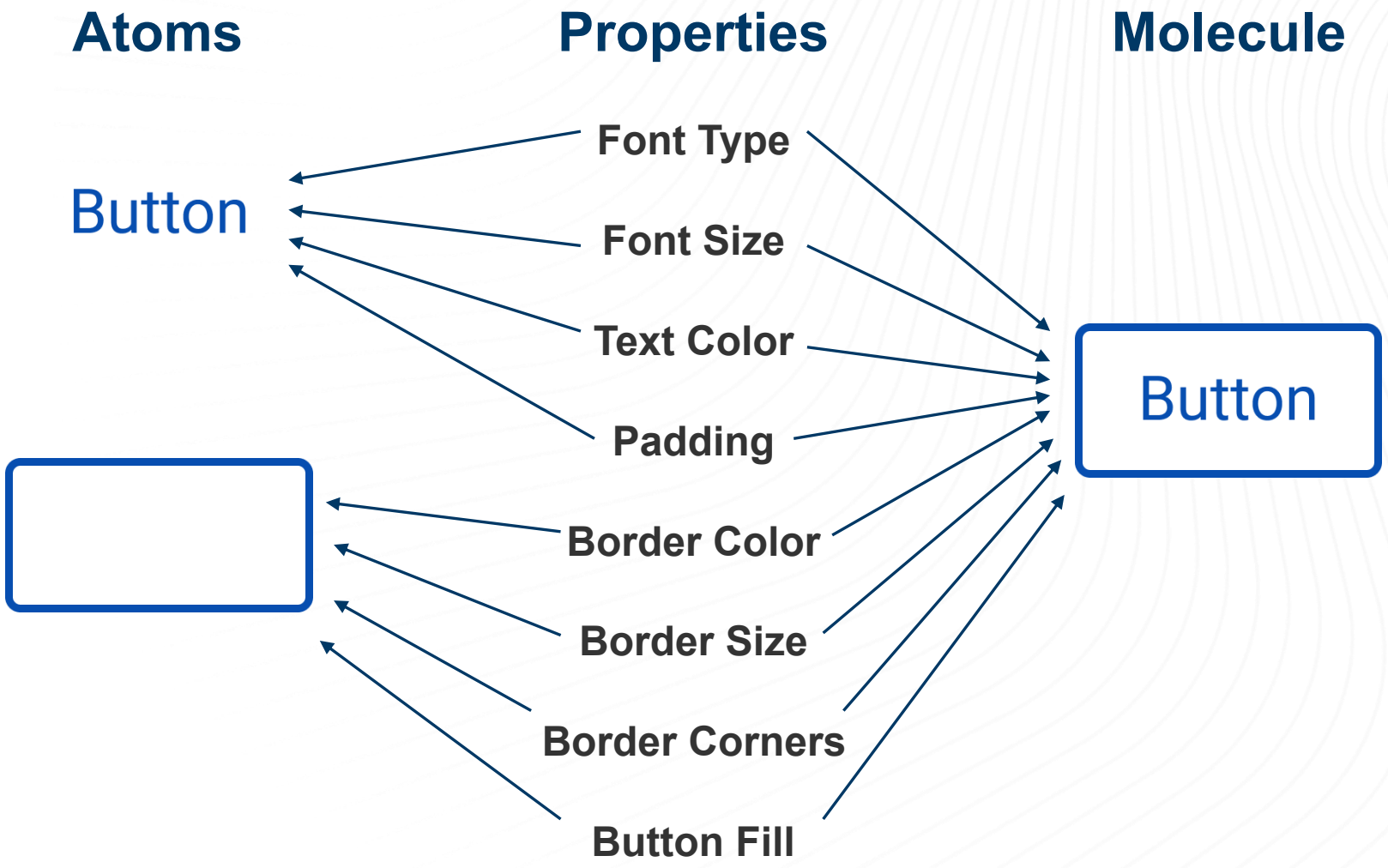
Atomic Breakdown of a Button

Atoms

Button

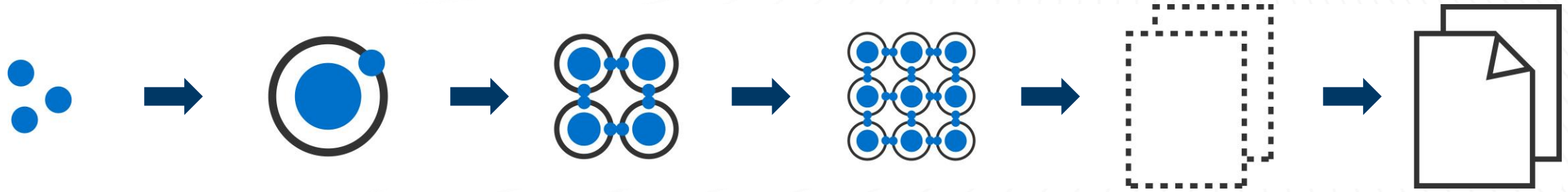
Molecule

Atomic Breakdown of a Button: Further Analysis



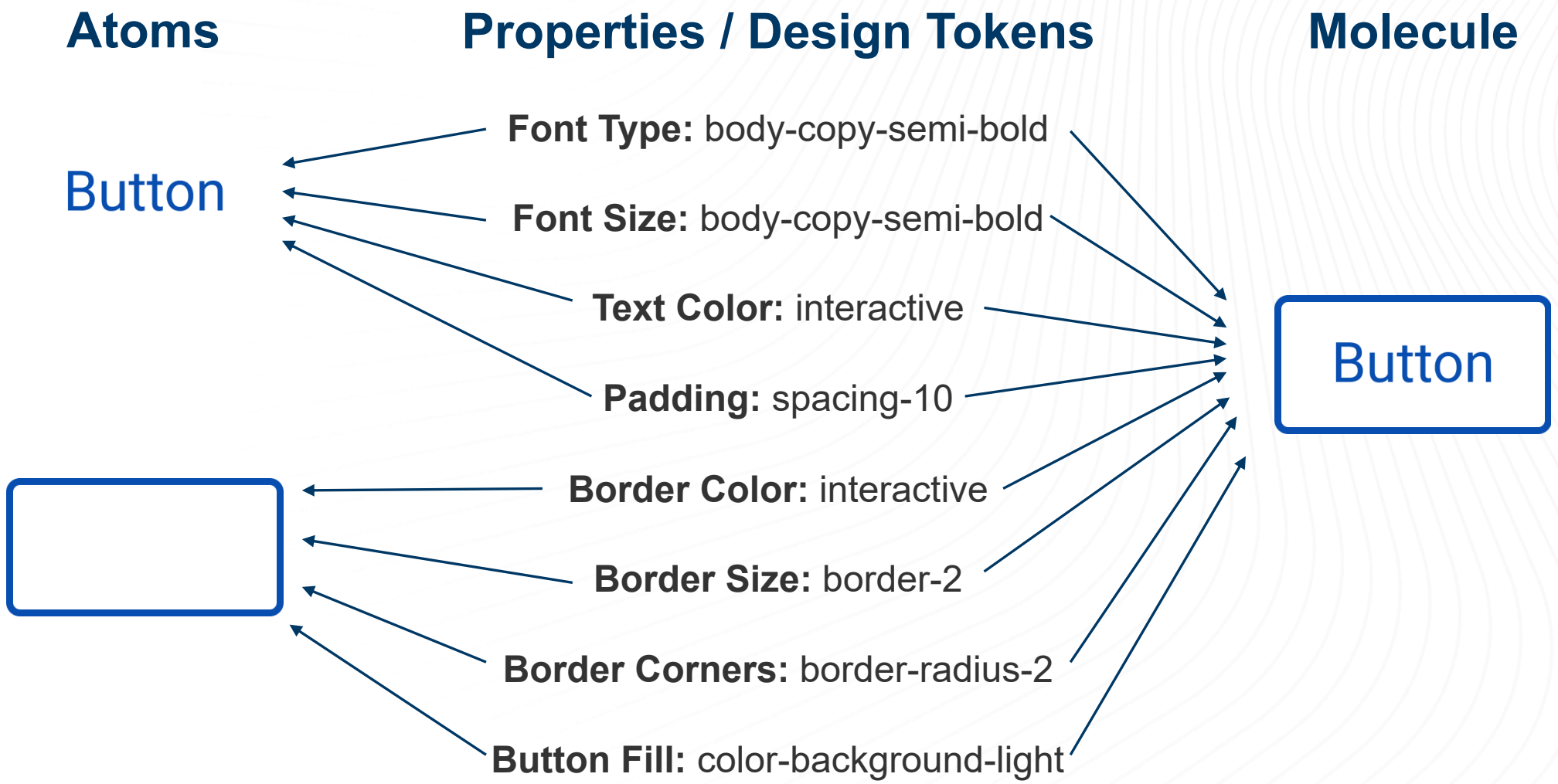
Subatomic Design

Design tokens are small, repeatable design decisions, that store a design system's visual attributes. They ensure the same style values are used across design files and code.



Subatomic Particles **Atoms** **Molecules** **Organisms** **Templates** **Pages**

Subatomic Breakdown of a Button



Design Tokens Fill Some of the Gap

Molecule

Postal Code

Design Tokens

Border Color: color-text-dark

Border Size: border-1

Border Color: color-focus

Border Size: border-3

Border Color: color-error

Border Size: border-3

Molecular States

Focused / Typing

Postal Code

A1A

Focused / Typing / Formatted

Phone Number

(55_)-___-____

Error

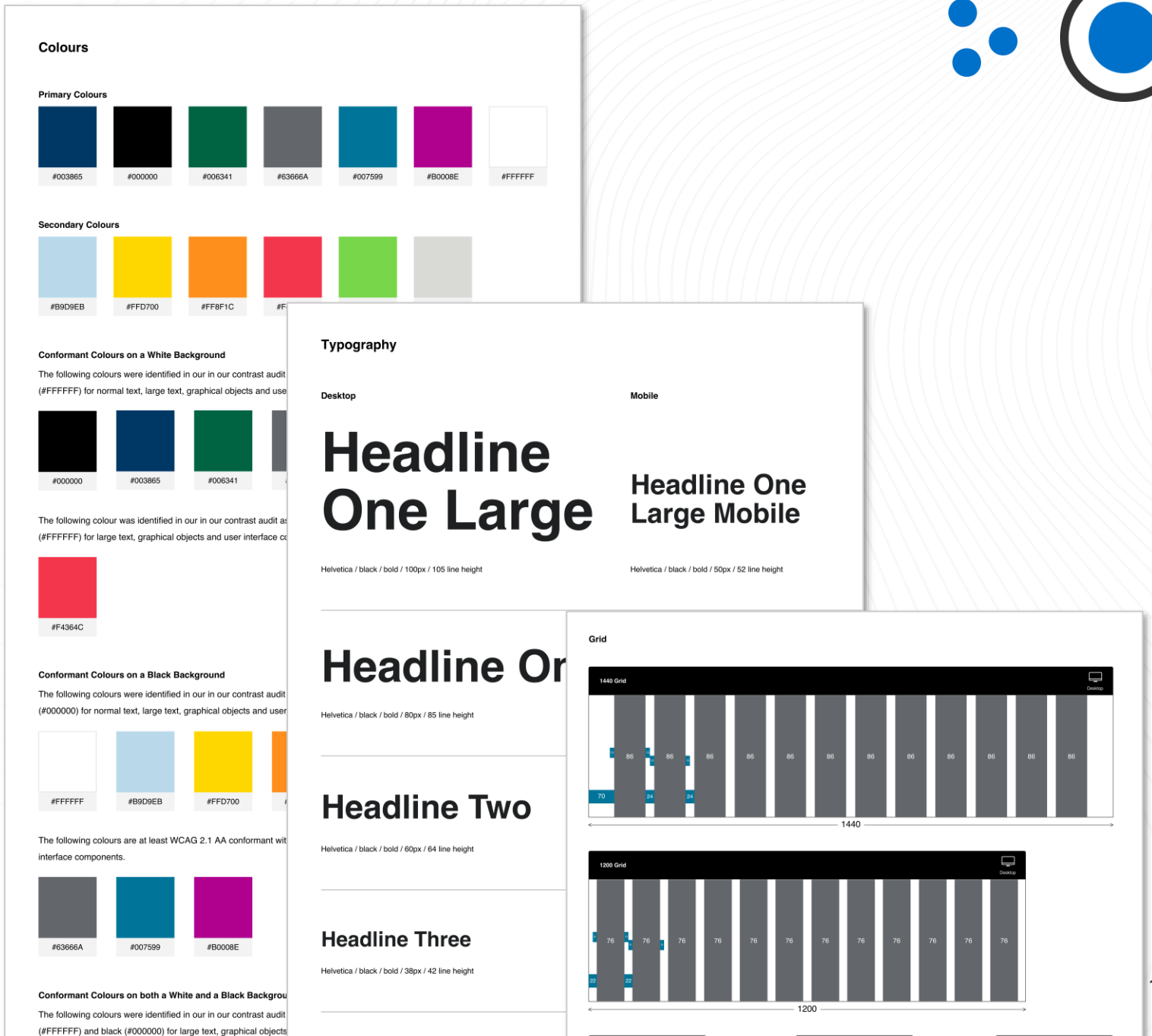
Postal Code

A1A

Postal code is too short

Style Guides Map to Atoms and Subatomic Particles

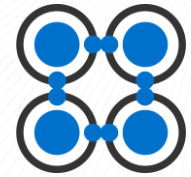
Focus on design tokens



Components Map to Molecules

Focus on foundational aspects:

- States
- Variations
- Keyboard interactions
- Screen reader experiences
- Etc.



This link is an inline link in the middle of some text.

Button

Button

Button

Checkbox group *

Instructions

- Select all
- Label
- Selected label
- Label
- Selected label
- Label
- Selected label
- Label
- Selected label

Radio button group *

Instructions

- Label
- Selected label
- Label
- Selected label
- Selected label
- Label

Select label *

Instructions

Select an option

Label *

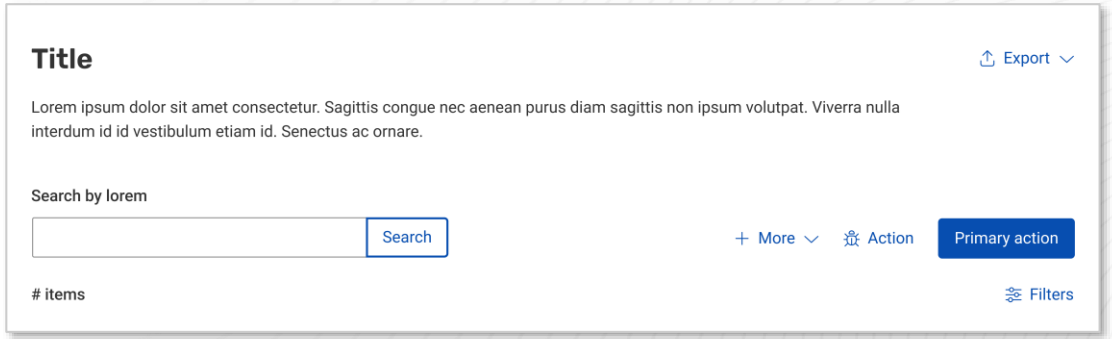
Instructions 0/###

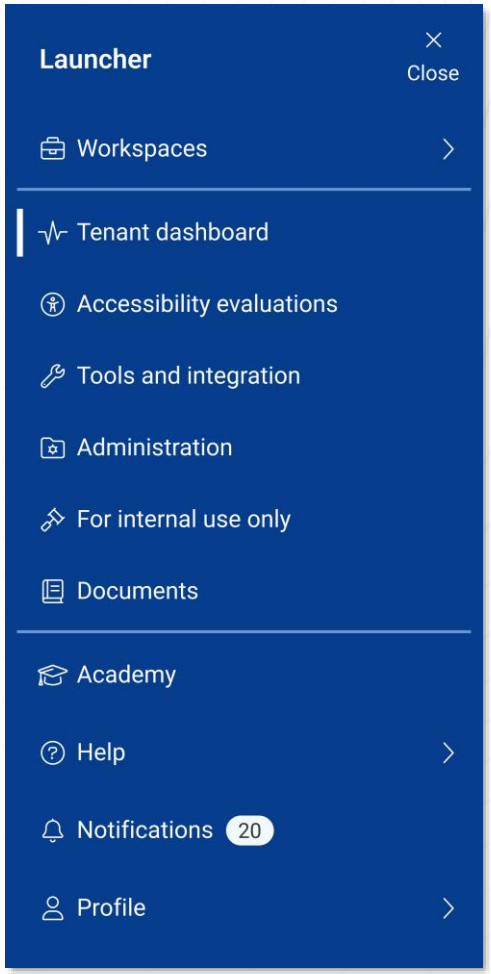
Text

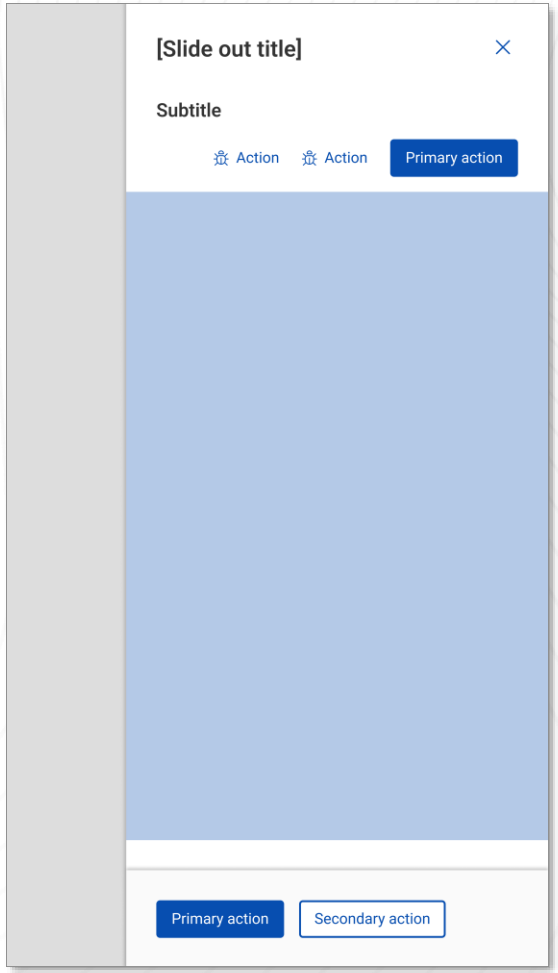
Patterns Map to Organisms

Focus on higher order thinking:

- Reading order
- Landmarks
- Skip links
- Interdependencies between multiple components
- Etc.



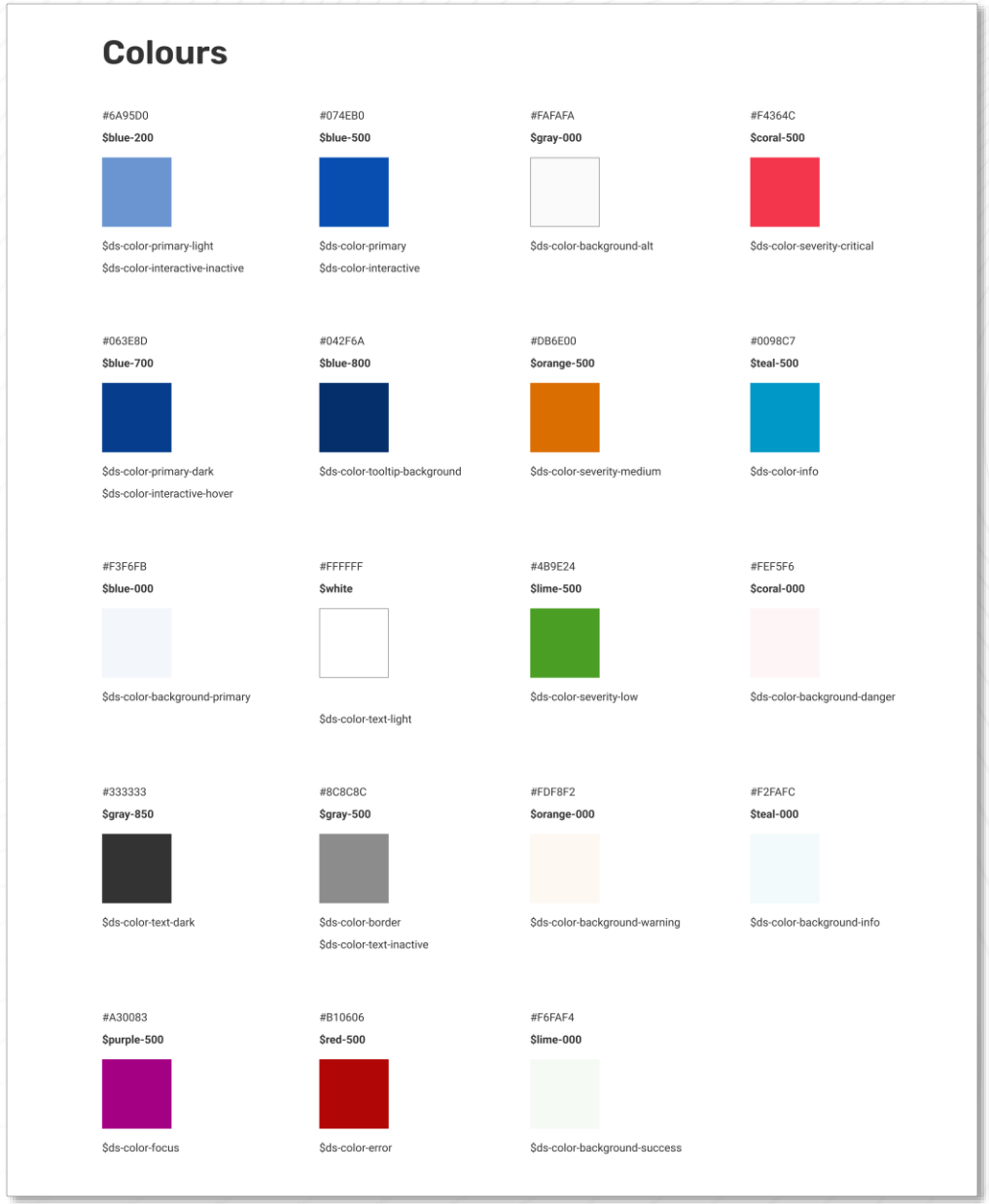




SECTION 2

Design Tokens in Style Guides

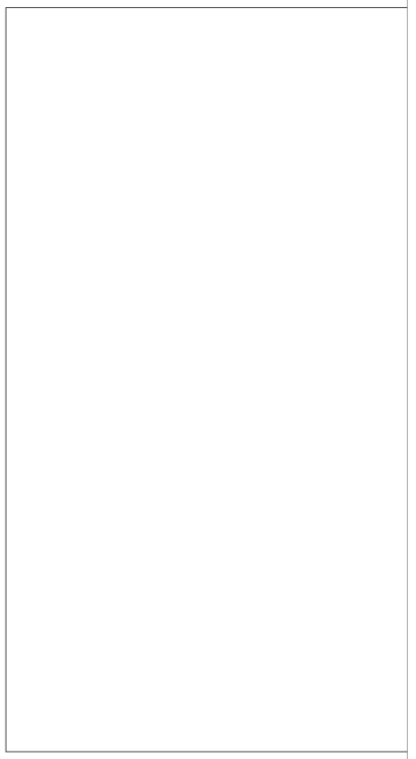
Colours


Colours
#6A95D0
$blue-200
$ds-color-primary-light
$ds-color-interactive-inactive
#074EB0
$blue-500
$ds-color-primary
$ds-color-interactive
#FAFAFA
$gray-000
$ds-color-background-alt
#F4364C
$coral-500
$ds-color-severity-critical
#063E8D
$blue-700
$ds-color-primary-dark
$ds-color-interactive-hover
#042F6A
$blue-800
$ds-color-tooltip-background
#DB6E00
$orange-500
$ds-color-severity-medium
#0098C7
$teal-500
$ds-color-info
#F3F6FB
$blue-000
$ds-color-background-primary
#FFFFFF
$white
$ds-color-text-light
#4B9E24
$lime-500
$ds-color-severity-low
#FEF5F6
$coral-000
$ds-color-background-danger
#333333
$gray-850
$ds-color-text-dark
#8C8C8C
$gray-500
$ds-color-border
$ds-color-text-inactive
#FDF8F2
$orange-000
$ds-color-background-warning
#F2FAFC
$teal-000
$ds-color-background-info
#A30083
$purple-500
$ds-color-focus
#B10606
$red-500
$ds-color-error
#F6FAF4
$lime-000
$ds-color-background-success

Grid

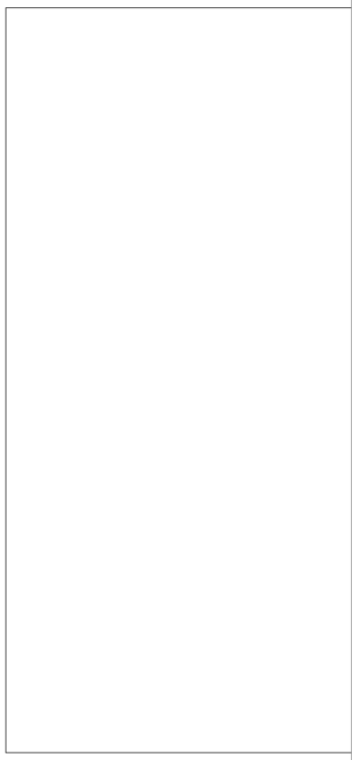
Large Grid

Token name	Max width	Min width
$ds-grid-large	1440	992



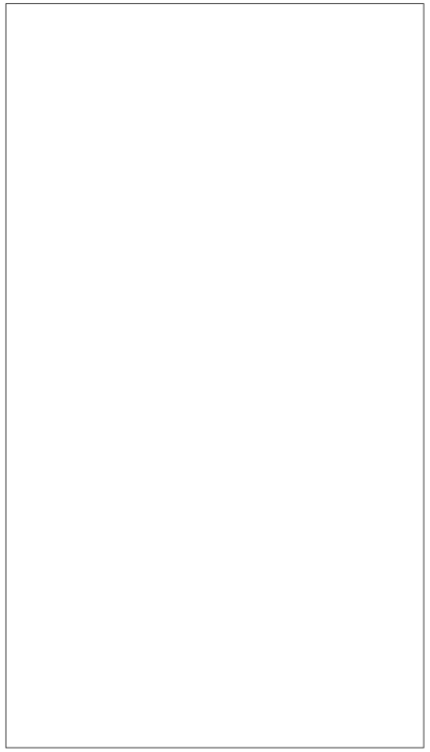
Medium Grid

Token name	Max width	Min width
$ds-grid-medium	991	576



Small Grid

Token name	Max width	Min width
$ds-grid-small	575	320



Typography

Headings

Characteristics	Breakpoint	Visual
ds-heading-100 Font: Rubik Weight: semi bold (600) Size: 28 px (1.75 REM) Line height: 42 px (~2.625 REM)	Desktop and tablet	**Lorem ipsum dolor si consectetur adipisci morbi magna ornare dictum sit.**
ds-heading-100 Font: Rubik Weight: semi bold (600) Size: 24 px (1.5 REM) Line height: 36 px (2.25 REM)	Mobile	**Lorem ipsum dolor sit an adipiscing elit. Quam am ornare nunc netus dictu**
ds-heading-200 Font: Roboto Weight: semi bold (600) Size: 24 px (1.5 REM) Line height: 36 px (2.25 REM)	Desktop and tablet	**Lorem ipsum dolor sit ame adipiscing elit. Quam amet nunc netus dictum sit.**
ds-heading-200 Font: Roboto Weight: semi bold (600) Size: 22 px (1.375 REM) Line height: 33 px (~2.100 REM)	Mobile	**Lorem ipsum dolor sit amet, elit. Quam amet morbi magna dictum sit.**
ds-heading-300 Font: Roboto Weight: semi bold (600) Size: 20 px (1.25 REM) Line height: 30 px (1.875 REM)	Desktop, tablet, and mobile	**Lorem ipsum dolor sit amet, co Quam amet morbi magna ornar**
ds-heading-400 Font: Roboto Weight: semi bold (600) Size: 18 px (1.125 REM) Line height: 27 px (~1.690 REM)	Desktop, tablet, and mobile	**Lorem ipsum dolor sit amet, conse amet morbi magna ornare nunc ne**
ds-heading-500 Font: Roboto Weight: semi bold (600) Size: 16 px (1 REM) Line height: 24 px (1.5 REM)	Desktop, tablet, and mobile	**Lorem ipsum dolor sit amet, consectet magna ornare nunc netus dictum sit.**
ds-heading-600 Font: Roboto Weight: medium (500) Size: 16 px (1 REM) Line height: 24 px (1.5 REM)	Desktop, tablet, and mobile	**Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.**

Body copy

Characteristics	Breakpoint	Visual
ds-body-copy Font: Roboto Weight: regular (400) Size: 16 px (1 REM) Line height: 24 px (1.5 REM)	Desktop, tablet, and mobile	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.
ds-body-copy-highlight Font: Roboto Weight: medium (500) Size: 16 px (1 REM) Line height: 24 px (1.5 REM)	Desktop, tablet, and mobile	**Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.**
ds-body-copy-semi-bold Font: Roboto Weight: semibold (600) Size: 16 px (1 REM) Line height: 24 px (1.5 REM)	Desktop, tablet, and mobile	**Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.**
ds-small-copy Font: Roboto Weight: regular (400) Size: 14 px (0.875 REM) Line height: 21 px (~1.315 REM)	Desktop, tablet, and mobile	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.
ds-body-copy-200% Font: Roboto Weight: regular (400) Size: 32 px (2 REM) Line height: 48 px (3 REM)		Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.
ds-small-copy-200% Font: Roboto Weight: regular (400) Size: 28 px (1.75 REM) Line height: 42 px (2.625 REM)		Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.

Spacing

Spacing

Token name	Pixel value	REM value	Image
$ds-spacing-00	0 px	0 REM	
$ds-spacing-02	1 px	0.0625 REM	
$ds-spacing-05	2 px	0.125 REM	
$ds-spacing-10	4 px	0.25 REM	
$ds-spacing-20	8 px	0.5 REM	
$ds-spacing-30	16 px	1 REM	
$ds-spacing-40	24 px	1.5 REM	
$ds-spacing-50	32 px	2 REM	
$ds-spacing-60	40 px	2.5 REM	
$ds-spacing-70	48 px	3 REM	
$ds-spacing-90	64px	4 REM	

Border Thickness

Border Thickness

Token name	Pixel value	REM value	Image
$ds-border-1	1 px	0.0625 REM	
$ds-border-2	2 px	0.1250 REM	
$ds-border-3	3 px	0.1875 REM	
$ds-border-4	4 px	0.25 REM	
$ds-border-8	8 px	0.5 REM	

Border Radius

Border Radius

Token name	Pixel value	REM value	Image
$ds-border-radius-0	0 px	0 REM	
$ds-border-radius-1	2 px	0.125 REM	
$ds-border-radius-2	4 px	0.25 REM	

Shadow

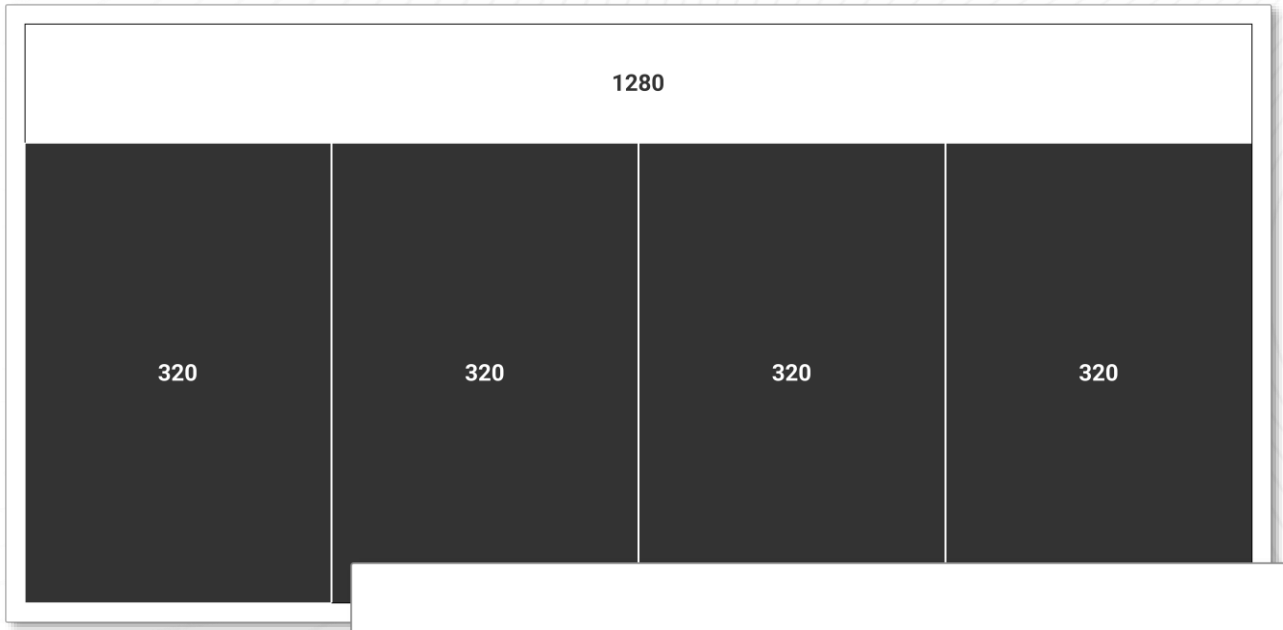
Shadow

Token name	Color	X	Y	Blur	Spread	Image
$ds-shadow-01	$ds-color-border 50%	0	2	4	0	
$ds-shadow-02	$ds-color-border 50%	1	1	4	0	
$ds-shadow-03	$ds-color-border 50%	-2	0	4	0	
$ds-shadow-04	$ds-color-border 50%	0	-2	4	0	

Grid Accessibility

1.4.10: Reflow

- 400% zoom: 1280 / 4 = 320
- Mobile designs are on a 320px viewport for vertically scrolling content
  - Or 1024 / 4 = 256 for horizontally scrolling content
- Benefits:
  - Ensures a design for 1 column of content
  - Enforces designing responsively / for mobile (**1.3.4 Orientation**)



Grid size	Token name	Min width	Max width
Small	$ds-grid-small	320	575
Medium	$ds-grid-medium	576	991
Large	$ds-grid-large	992	1440

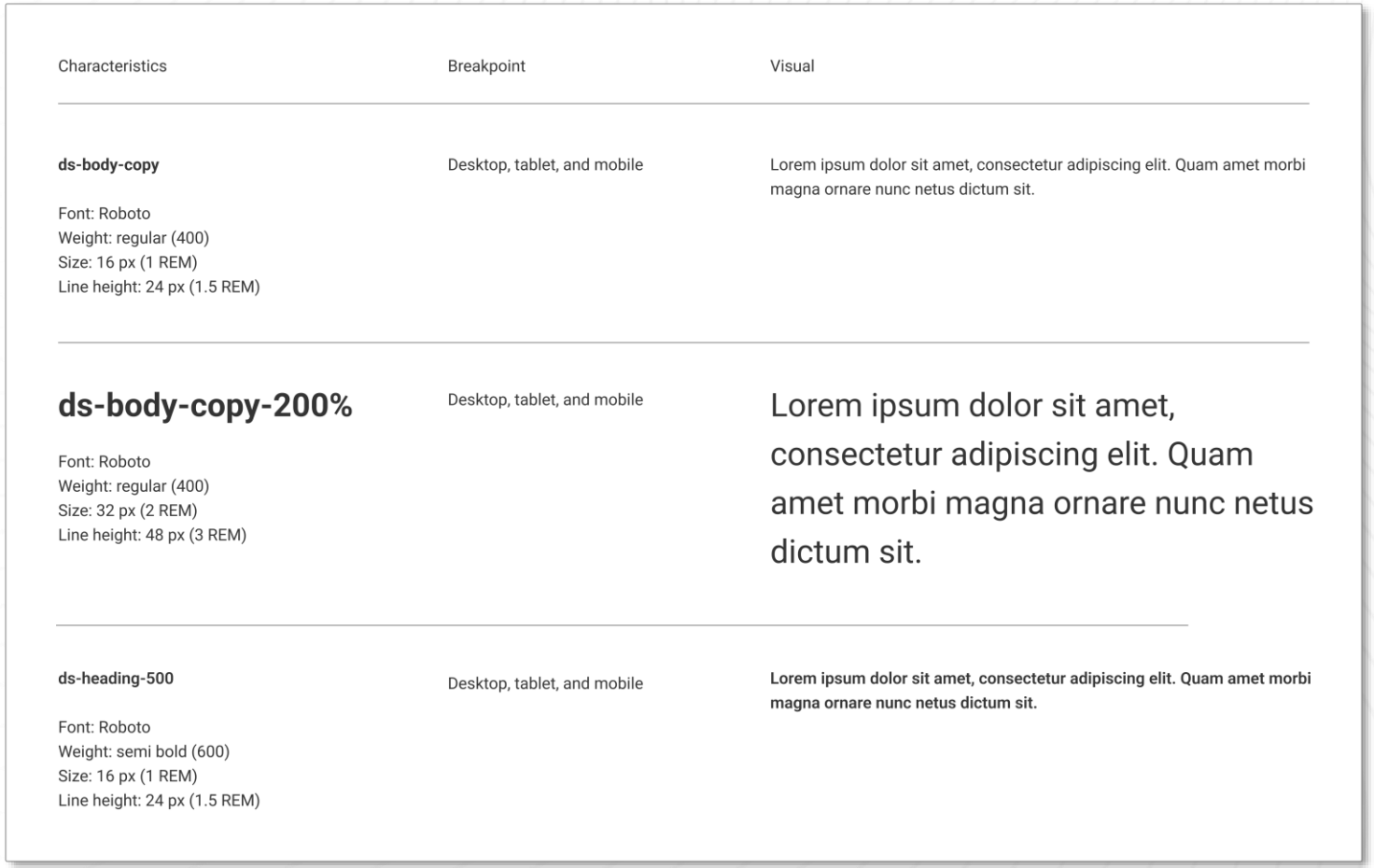
Typography Accessibility

Best Practices

- Font type: Selected for perceived readability
- Min font size: 12pt / 16px / 1 REM
- Body copy font weight: Regular / 400
- Body copy line height: 1.5X font size
- Heading font weight: Semi-bold / 600

1.4.4 Resize Text

- 200% font size: 24pt / 32px / 2 REM
- 200% line height: 3X font size

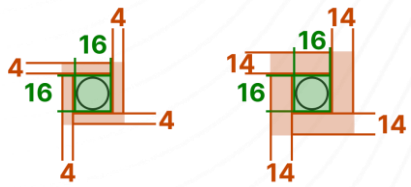


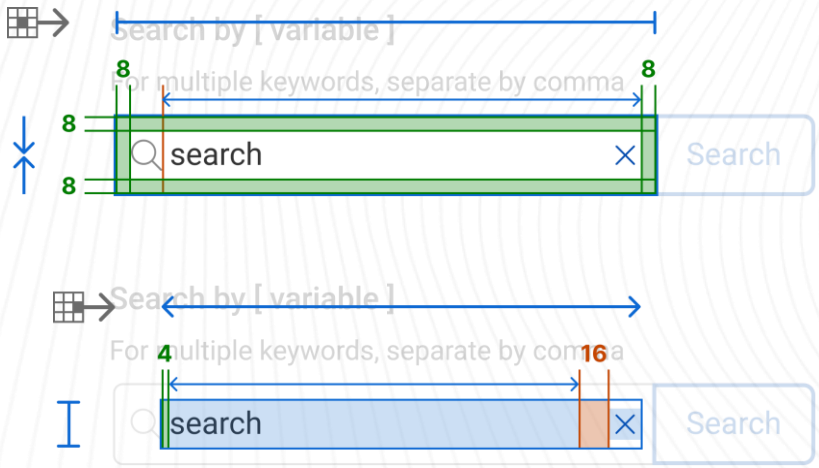
Characteristics	Breakpoint	Visual
ds-body-copy Font: Roboto Weight: regular (400) Size: 16 px (1 REM) Line height: 24 px (1.5 REM)	Desktop, tablet, and mobile	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.
ds-body-copy-200% Font: Roboto Weight: regular (400) Size: 32 px (2 REM) Line height: 48 px (3 REM)	Desktop, tablet, and mobile	Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.
ds-heading-500 Font: Roboto Weight: semi bold (600) Size: 16 px (1 REM) Line height: 24 px (1.5 REM)	Desktop, tablet, and mobile	**Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quam amet morbi magna ornare nunc netus dictum sit.**

Spacing Accessibility

2.5.8 Target Size (Minimum)

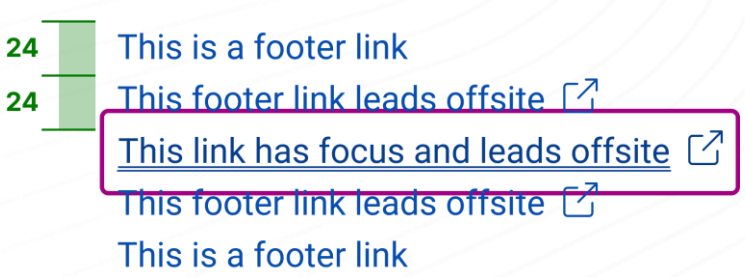
- Minimum target size for icons:
  24px X 24px

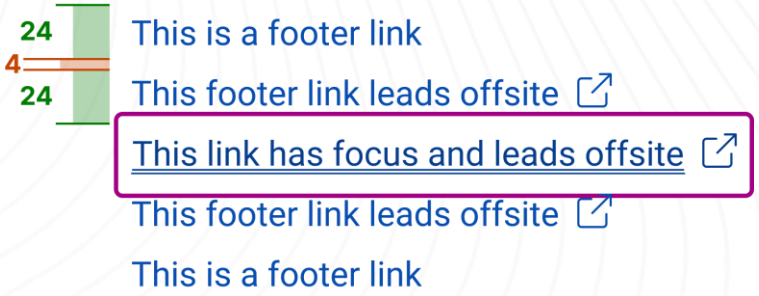




Best Practices

- Aiming for 44px X 44px (**2.5.5 Target Size**)
- Considerations for contextual spacing requirements for improved operability and readability

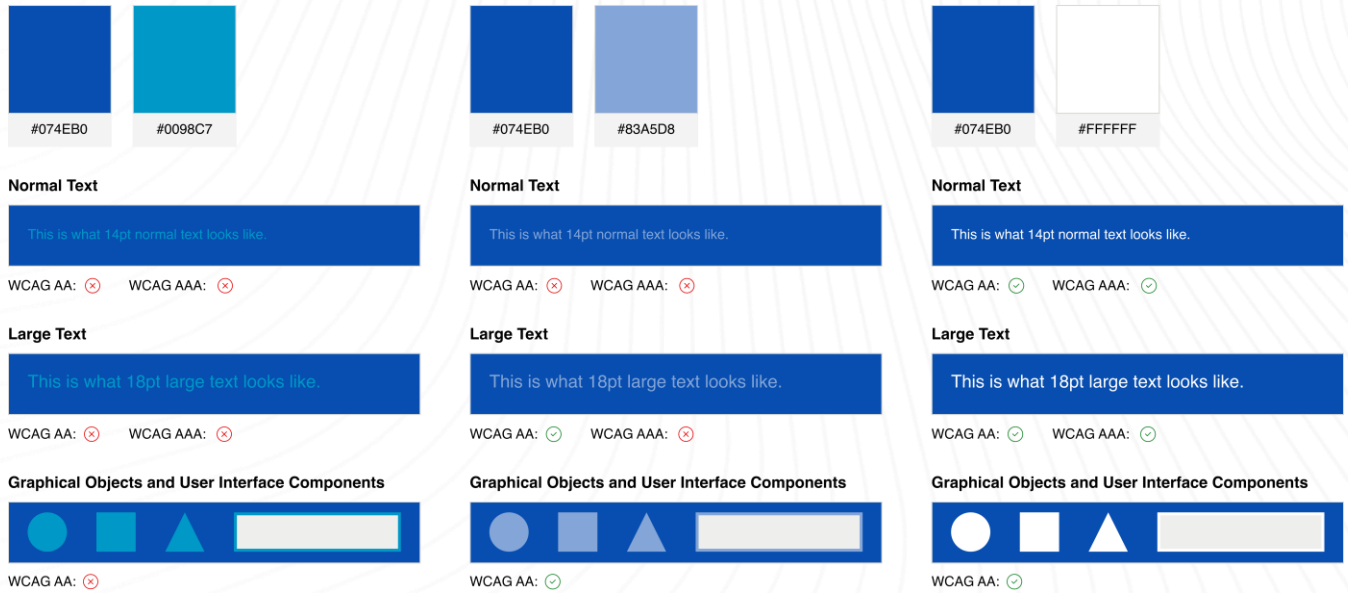




Colour Accessibility (1 / 2)

Best Practices

- Documented colour pairs that meet minimum standards with guidelines for usage
- No placeholder text (**1.4.3 Minimum Contrast, 3.3.2. Labels or Instructions**)
- No images of text (**1.4.3 Minimum Contrast**)



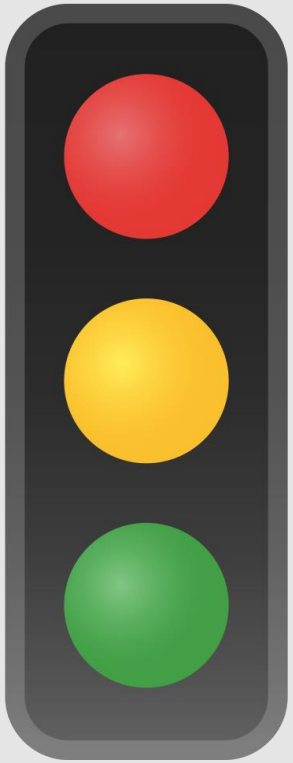
Sidebar: Dual Modality Design

Colour

Read means stop.

Yellow means slow down.

Green means go.



Position

Top means stop.

Middle means slow down.

Bottom means go.

Colour Accessibility (2 / 2)

1.4.1 Use of Colour

- Not using colour alone to indicate meaning, information, etc.
  - Particular attention to state design and chart design
- Inline links underlined by default
- Using at least 1 dimension to convey meaning, with or without the addition of colour

1.3.3 Sensory Characteristics

- Not using colour alone to indicate meaning, information, etc. in instructions

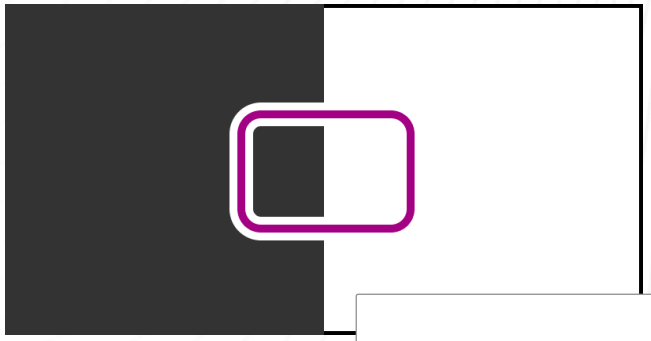
Contrast

- Aiming for greater than 7:1 contrast for text (**1.4.6 Contrast Enhanced**)
- Aiming for greater than 4.5:1 contrast for graphical objects and user interface components (**1.4.11 Non-Text Contrast**)
- Aiming for greater than 3:1 contrast for inactive elements (**1.4.3 Minimum Contrast**)

Focus Indicator Accessibility

Best Practices

- Focus indicator is always situated outside an element
- Focus indicator is made of 3 rings which meets contrast requirements between the rings (white, medium pink, white)
    - Each ring is 2px thick (**2.4.13 Focus Appearance**)
- Contrast is guaranteed with any adjacent colour in our design system



Anatomy

Outline name	Token names
Inner outline	$white outline-M border-radius-M
Middle outline	$focus outline-M border-radius-M
Outer outline	$white outline-M border-radius-M

Usage

Token name	Usage
spacing-S	Around text
spacing-00	Around boxes
spacing-M	Around icons

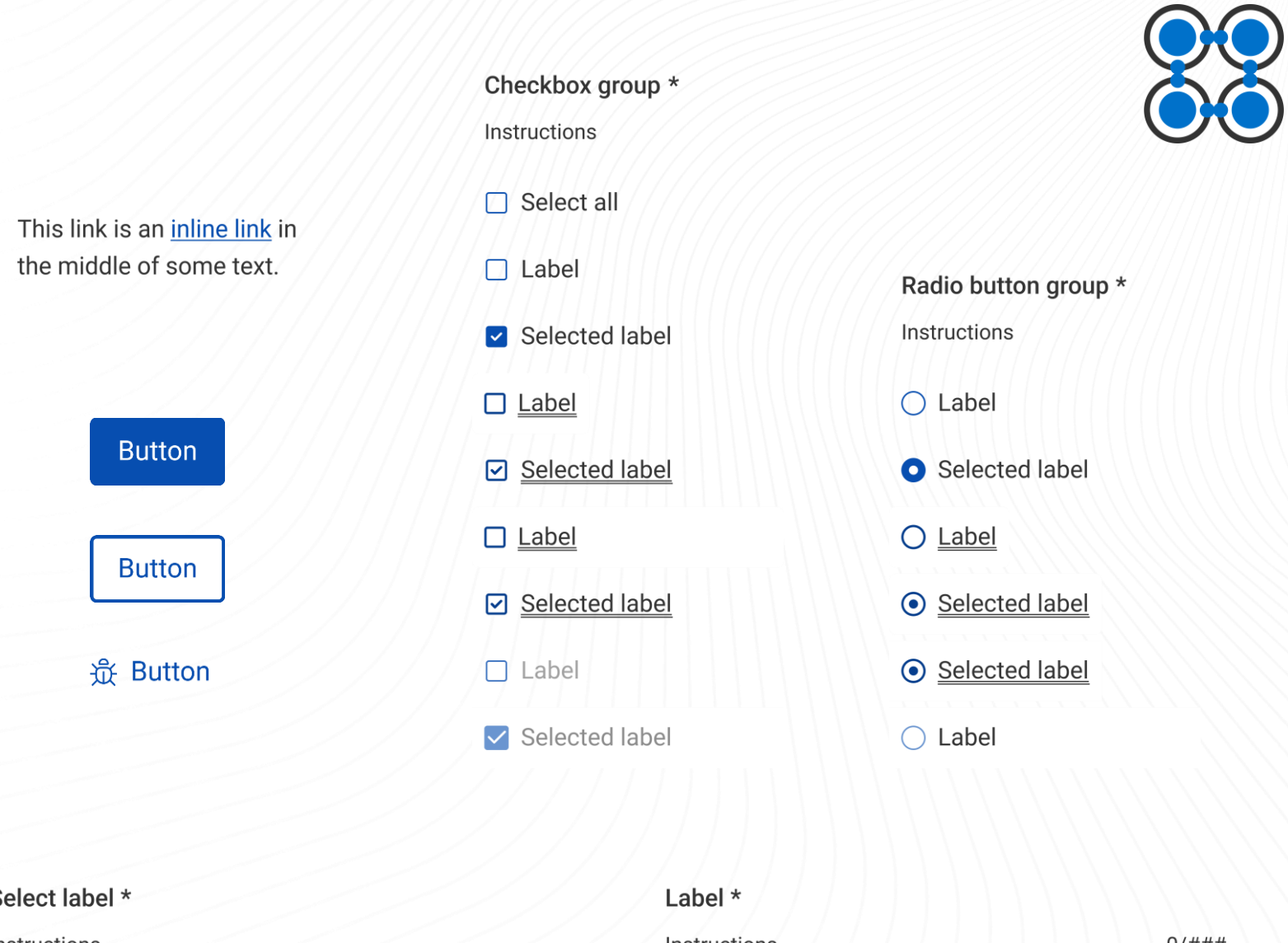
SECTION 3

Design Tokens in Component Libraries

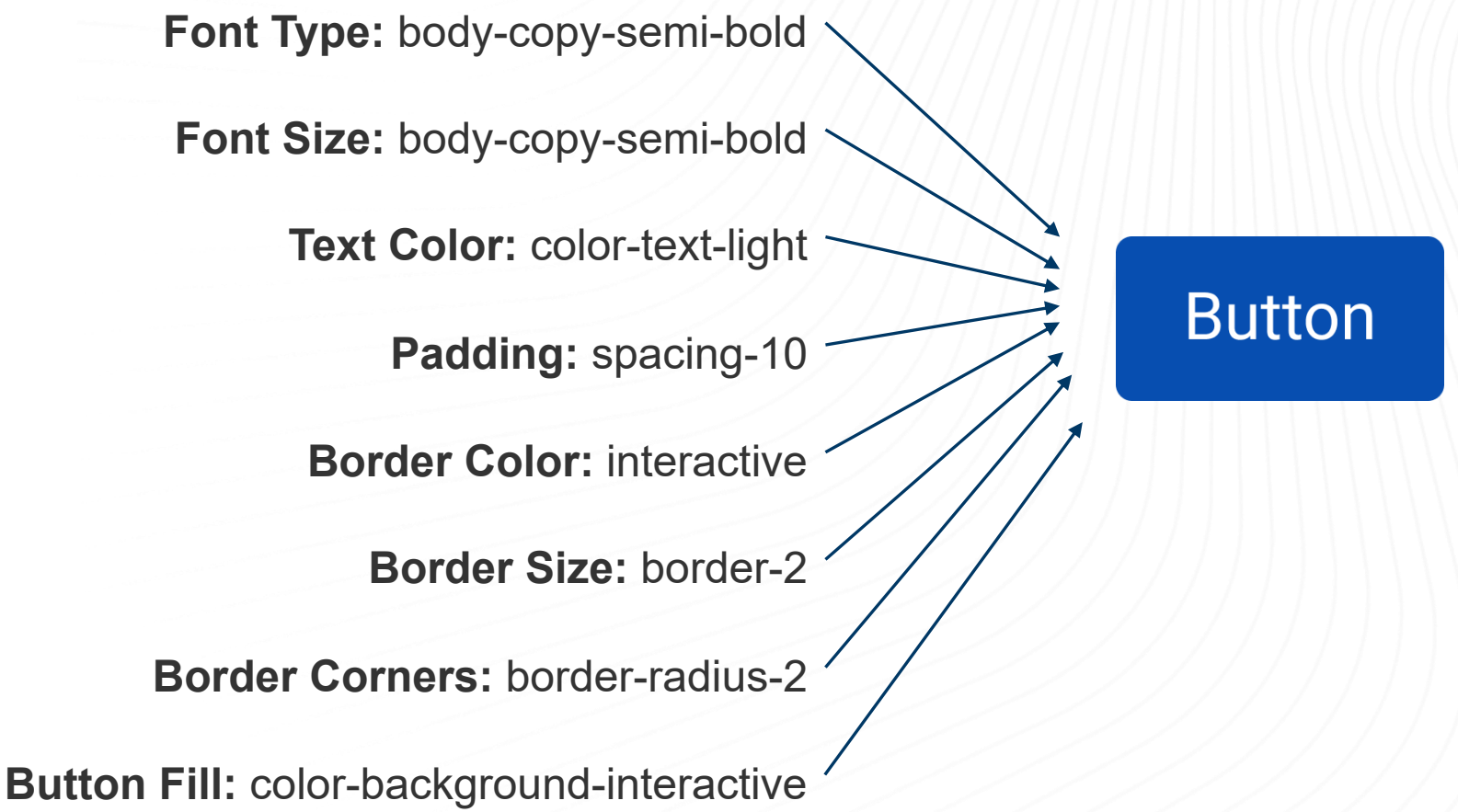
Components Map to Molecules

Design tokens help with:

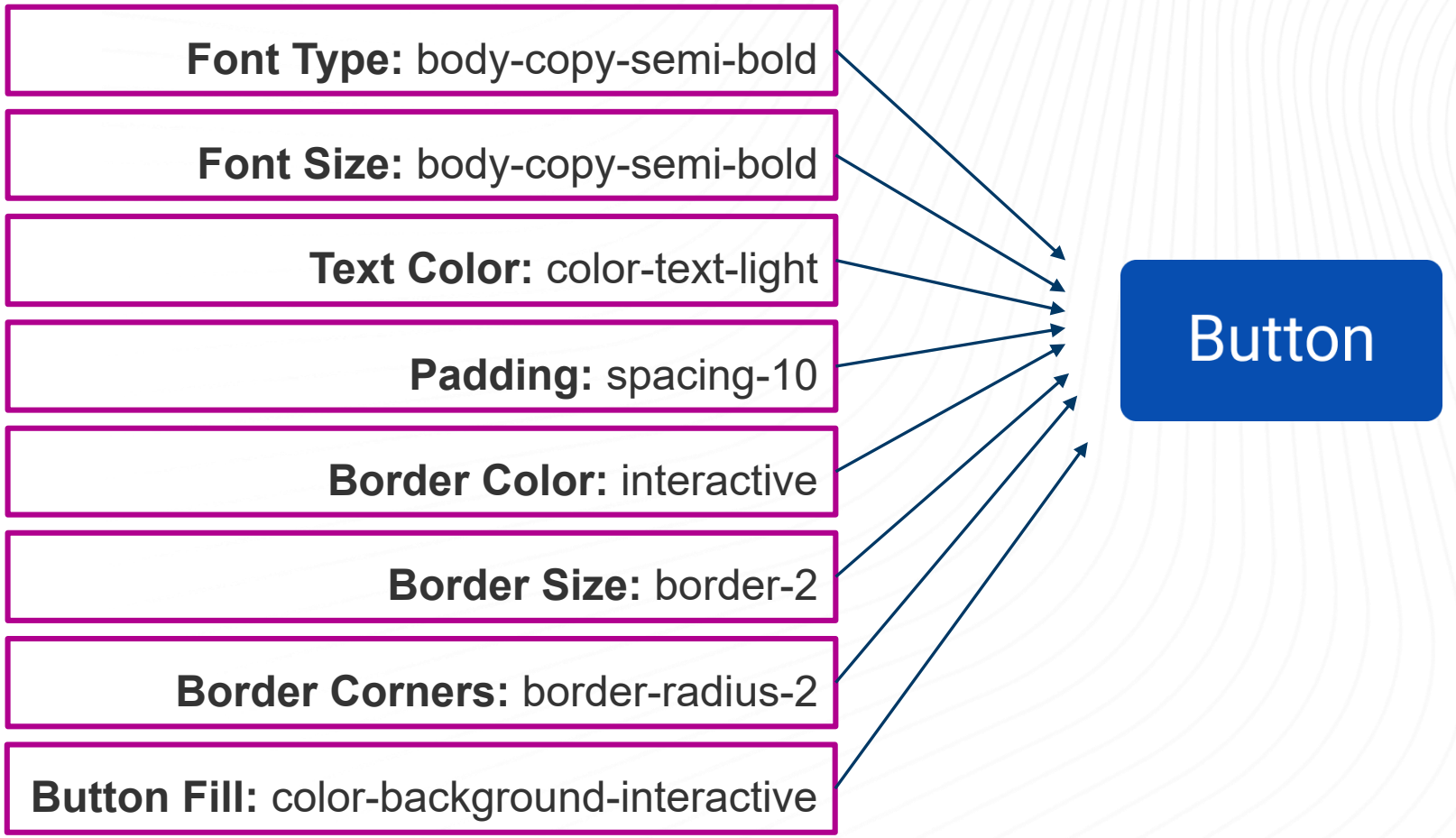
- State design
- Variation design



Primary Button Design Token Example



Primary Button Design Token Example



State Change Design Examples

Default

Button

Hover

Button

- **Background colour change (token)**
- Underlined

Focus

Button

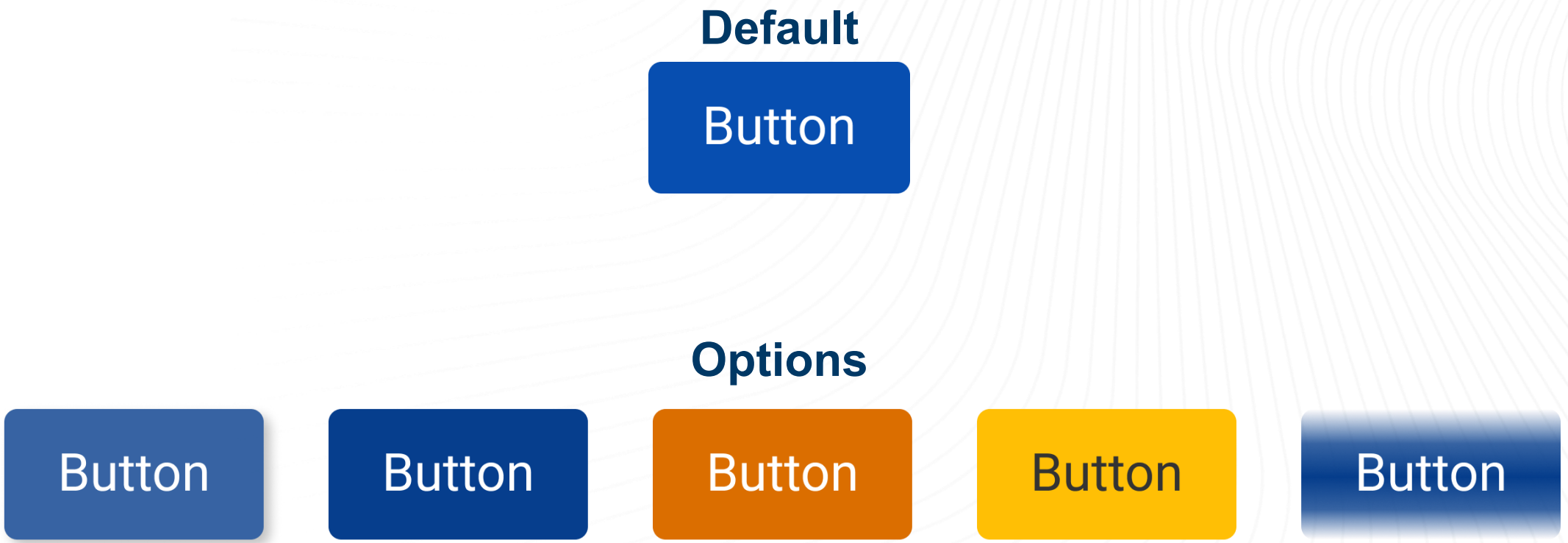
- **Background colour change (token)**
- Underlined
- Focus indicator

Inactive

Button

- **Background colour change (token)**

Hover State Options: Colour-Only



Hover State Options: Underline, Bold Text, Larger Text, Smaller Text

Default

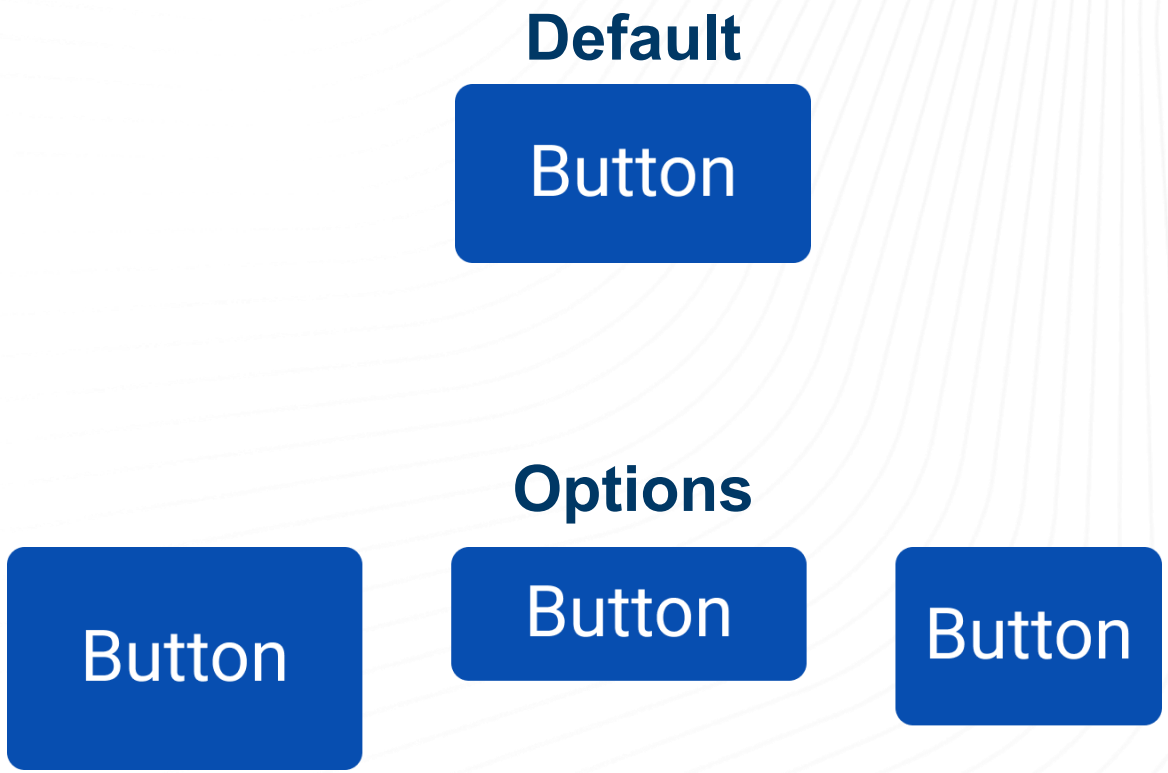
Button

Options

Button | Button | **Button** | Button | Button

Button | Button | **Button** | Button | Button

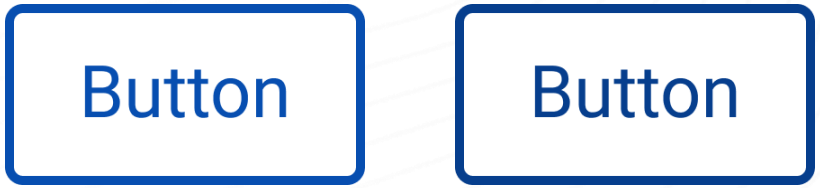
Hover State Options: Button Size



Hover State Options: Invert Colours

Default

Options



Hover State Options: Thick Lines

Default

Options

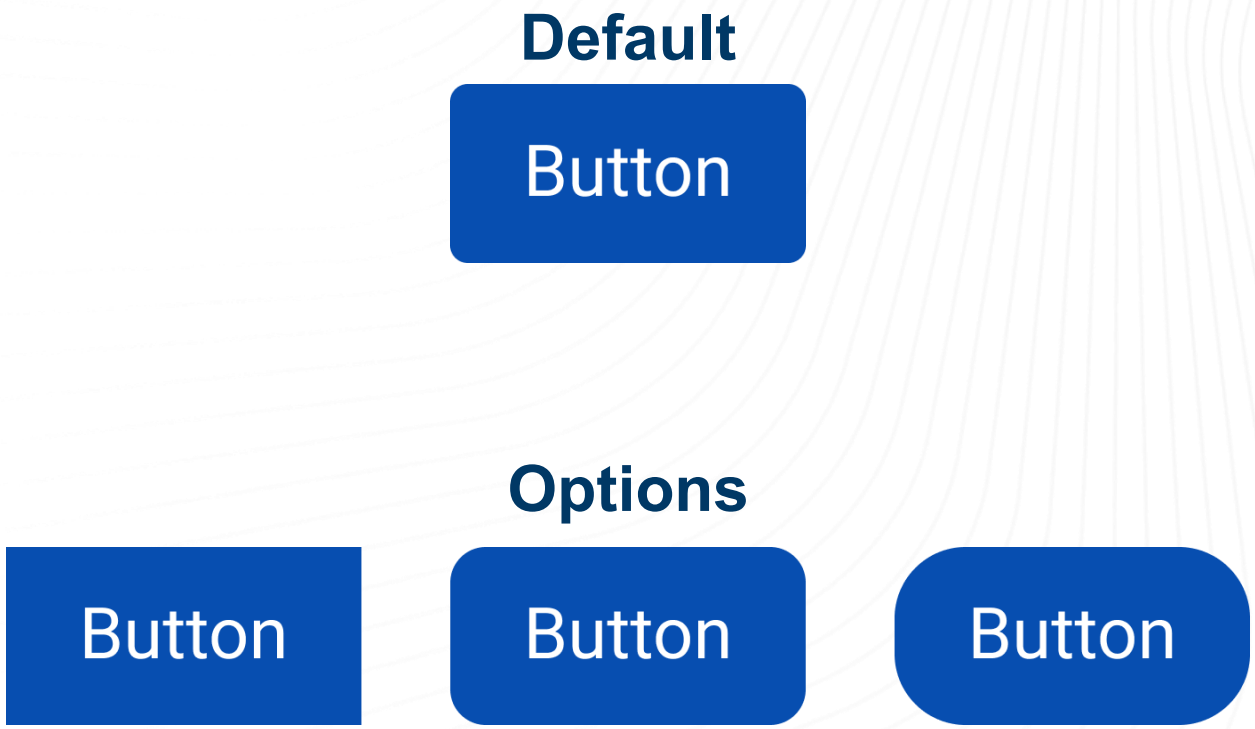
Hover State Options: Border Thickness

Default

Button

Options

Hover State Options: Border Radius



Hover State Options: Shadows

Default

Button

Options

Hover State Options: Animation

Default

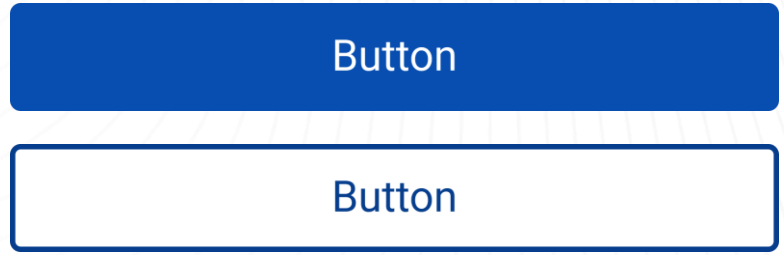
Options

Consider the Variations

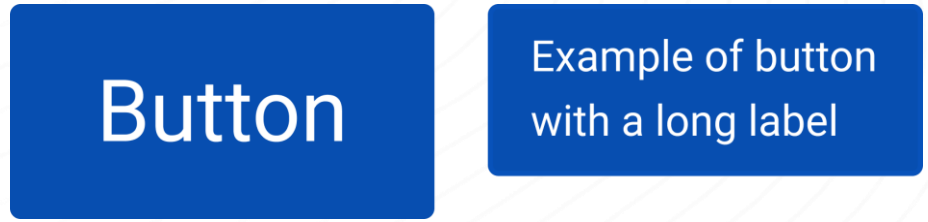
Versions

Types

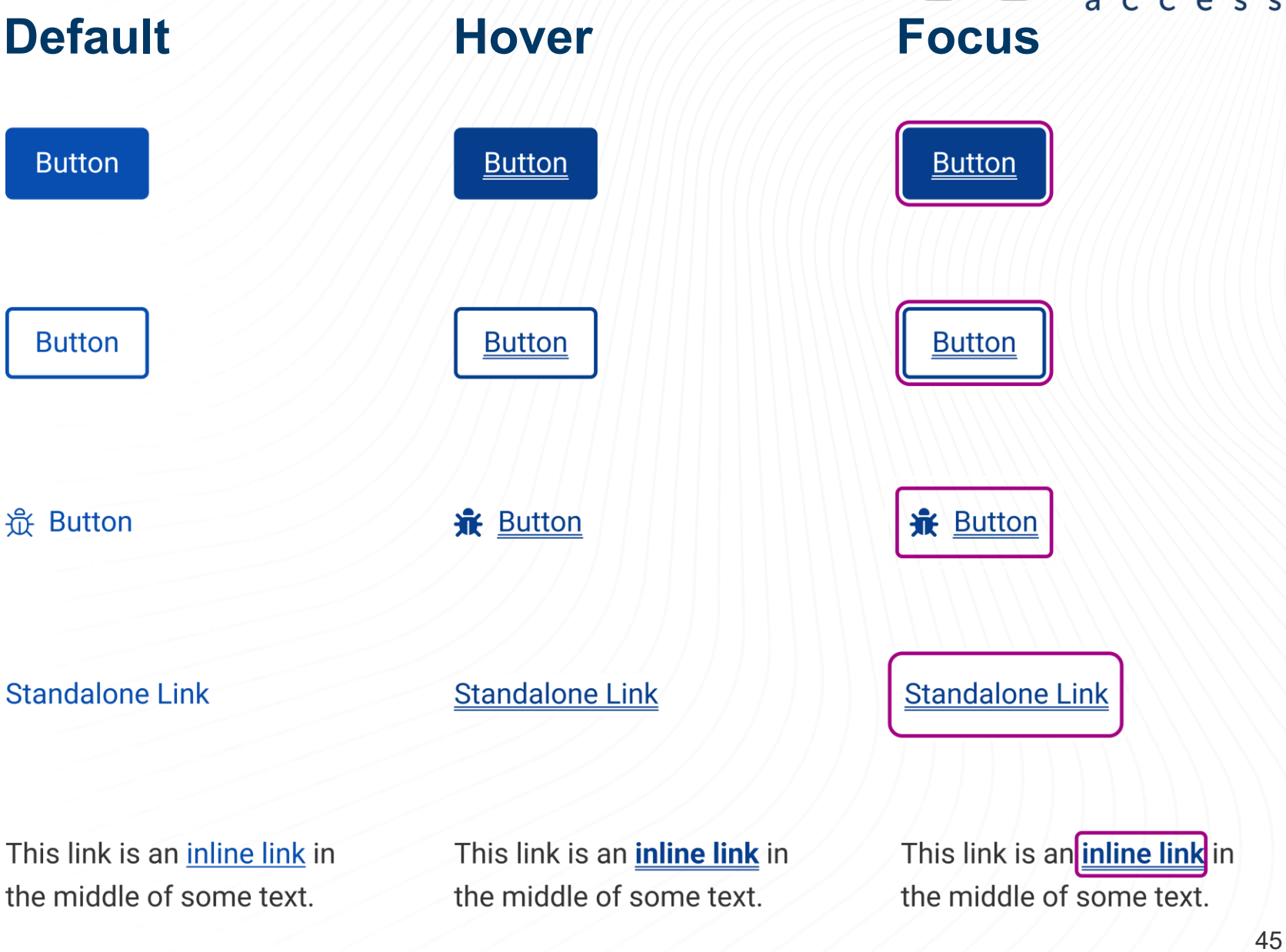
Mobile



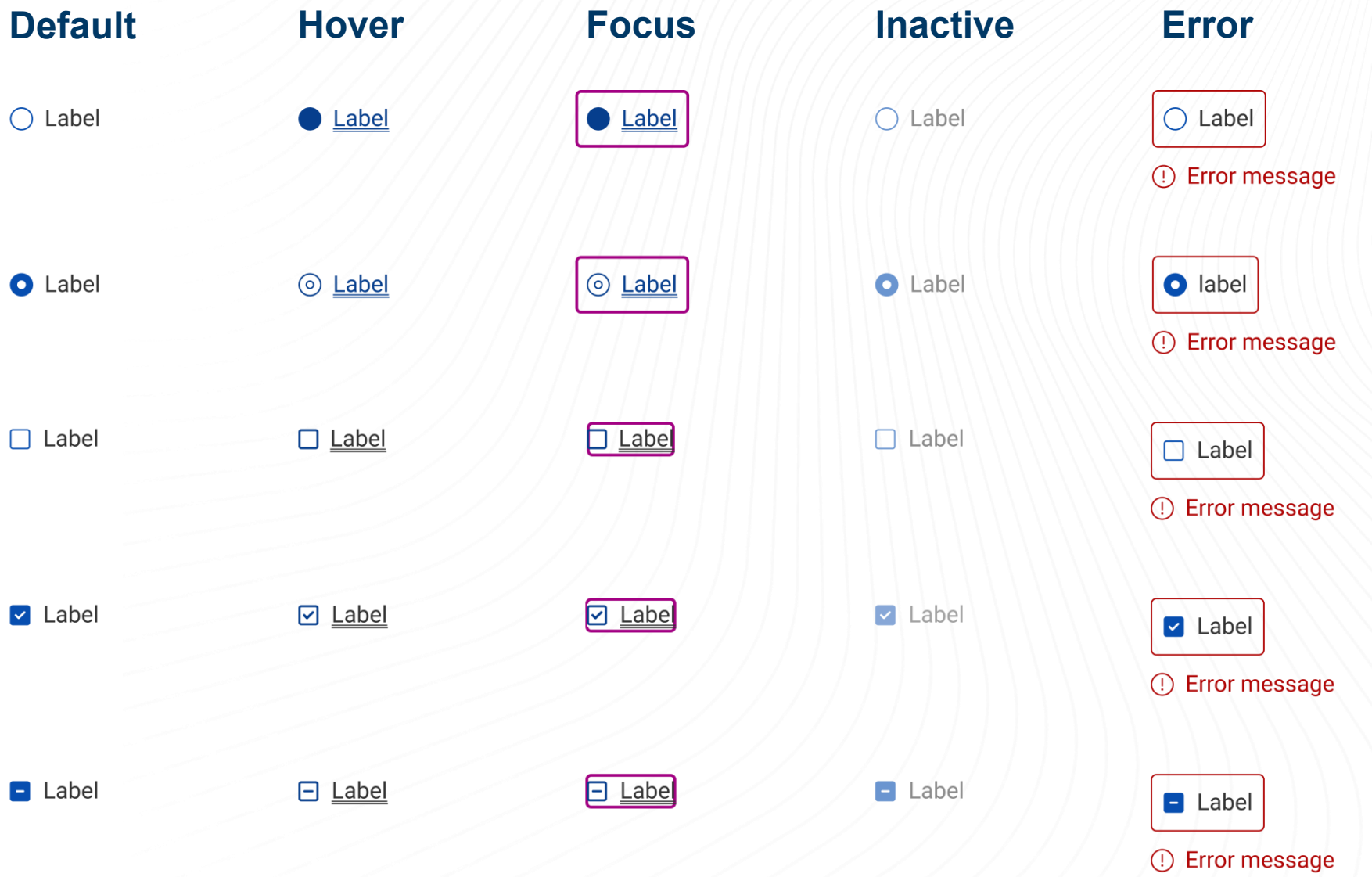
200% and Long Text



Apply Design Decisions to Links



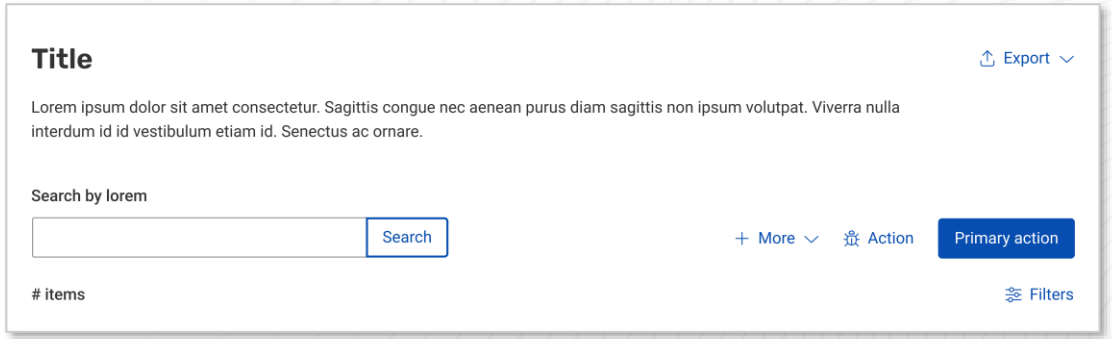
Apply Design Decisions to Other Elements

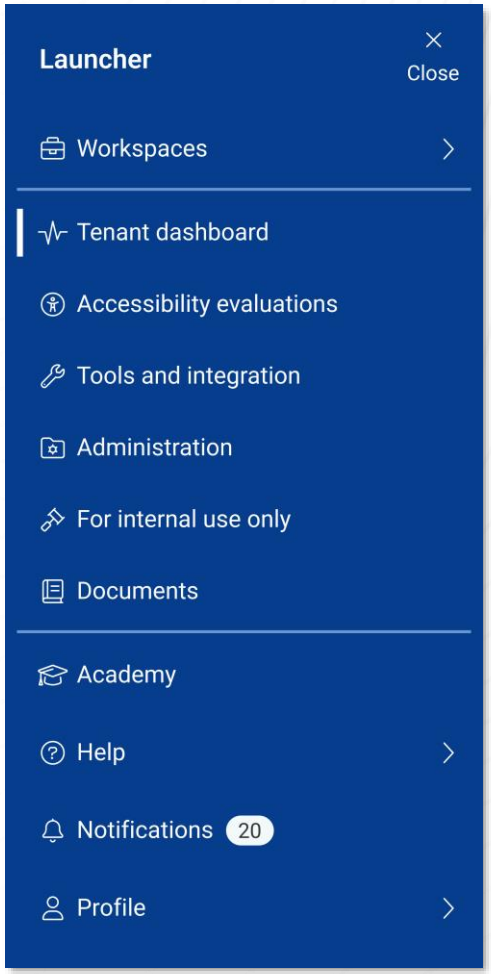


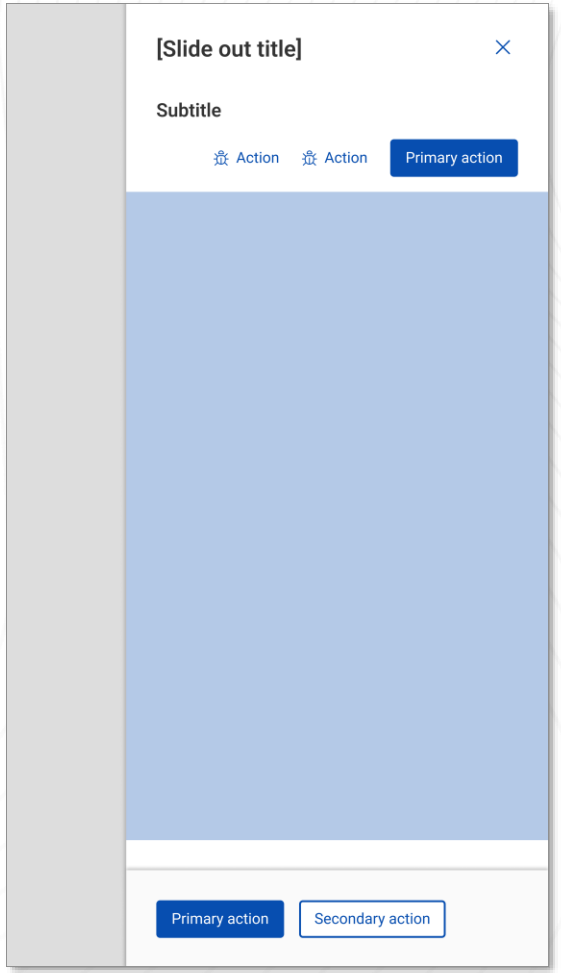
Patterns Map to Organisms

Design tokens help with:

- ?







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