Accessibility Evaluation Report:

Ethnologue

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Conducted by: Accessiblü, LLC

For: Library Accessibility Alliance (LAA)

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Summary of Accessibility Findings

Accessiblu conducted a high-level accessibility evaluation of the Ethnologue: Languages of the World platform (Essentials edition, accessed via University of Washington proxy) to assess its usability for individuals with disabilities. The review was conducted using the JAWS 2025 and NVDA screen readers, keyboard-only navigation, and manual inspection for conformance to select WCAG 2.2 AA success criteria.

Ethnologue is a comprehensive reference platform cataloging the world's 7,000+ living languages, maintained by SIL International. The platform provides statistical summaries, language family trees, geographic data, and country-level analyses used by academic researchers, linguists, and institutional libraries.

The platform demonstrates thoughtful design in several areas. The statistical data tables are well-structured with proper column and row scope headers, table captions, and multi-level header relationships that performed well with screen readers. The auditors noted these were among the best complex data tables encountered across LAA evaluations. The platform also provides skip-to-content navigation links and uses semantic heading structures for much of its content.

That said, our evaluation identified some accessibility barriers that may create challenges for users relying on assistive technologies. The primary navigation menu on the left sidebar could not be accessed or operated using a screen reader or keyboard alone, which prevented testers from reaching key sections like Languages, Families, and Statistics without a direct link. Several interactive map components on language pages lacked focus indicators and meaningful context for screen reader users. Color contrast ratios on multiple interactive elements fell below the 4.5:1 minimum required by WCAG. Addressing these concerns would strengthen the experience for all users and bring the platform closer to full WCAG 2.2 AA conformance.

Key Findings

Our testing revealed several opportunity areas that, when addressed, would strengthen the platform's accessibility for users with disabilities. The most impactful findings center on keyboard operability of the primary navigation, color contrast on interactive elements, and providing meaningful context for interactive map components. While these barriers affect the ability of screen reader and keyboard-only users to navigate the platform independently, the Ethnologue development team has demonstrated strong accessible coding practices in other areas, particularly in the construction of complex data tables on the Statistics page. Addressing the items below would bring the platform significantly closer to full WCAG 2.2 AA conformance and improve the experience for all users.

Top 3 Issues Identified

1. Inaccessible Primary Navigation Menu

- The left sidebar navigation menu (containing links to Languages, Countries, Families, Maps, Statistics, and Insights) could not be expanded or operated using keyboard or screen reader. The collapse/expand button used bracket characters in its accessible name and did not announce expanded or collapsed states. Users relying on assistive technology had no way to reach these core navigation destinations from the homepage.

- Impact: Blind and low-vision users, users with motor disabilities who rely on keyboard navigation.
- WCAG: 2.1.1 Keyboard (A), 4.1.2 Name, Role, Value (A)

2. Insufficient Color Contrast on Interactive Elements
- Multiple interactive elements across the platform have color contrast ratios below the required 4.5:1 minimum. The Login button (white text on cyan, 2.75:1), Shop link (white on gold, 1.74:1), Browse Country Digests button (white on green, 2.5:1), and descriptive text on the homepage (gray on light gray, 3.91:1) all present readability challenges.
- Impact: Low-vision users, users with color vision deficiencies, users in bright or low-light environments.
- WCAG: 1.4.3 Contrast (Minimum) (AA), 1.4.1 Use of Color (A)

3. Interactive Map Components Lack Accessibility Context
- The Leaflet-based interactive maps on individual language pages (e.g., Egyptian Sign Language) are focusable and include zoom and layer controls but lack meaningful context. Screen reader users encounter zoom in/out buttons and links without understanding what the map displays. Focus indicators are missing on all map controls (outline: none is explicitly set in CSS), and the map region has no descriptive label or role.
- Impact: Blind and low-vision users, users with motor disabilities, users relying on keyboard navigation.
- WCAG: 2.4.7 Focus Visible (AA), 1.1.1 Non-text Content (A), 4.1.2 Name, Role, Value (A)

Disabilities Impacted

Blind and Low-Vision Users

Issues: The primary sidebar navigation could not be accessed with screen readers, requiring direct URLs to reach platform sections. Multiple navigation regions shared identical labels, making it difficult to distinguish between different areas of the page. Heading hierarchy had gaps (no H1 on the homepage, jumps from H2 to H3). Alt text descriptions on some chart graphics described what the image was rather than conveying meaningful data. The bracket characters in button and link names created confusing screen reader announcements.

Impact: Screen reader users may have difficulty navigating to key content areas, understanding the page structure, and interpreting visual data like maps and charts. The well-structured data tables on the Statistics page are a positive example of how data-rich content can be made accessible.

Users with Motor Disabilities

Issues: The sidebar navigation menu could not be operated by keyboard. Map controls on language pages had their focus indicators explicitly suppressed with CSS (outline: none). Touch targets on the Turkic language family tree links measured as small as 20px in height, below the 24px minimum. The Expand All/Collapse All buttons on the Families page did not respond when activated by keyboard.

Impact: Keyboard-only users cannot access the primary navigation or interact with map features. Small touch targets on the language family tree page increase the effort required to navigate between language subgroups.

Neurodiverse Users

Issues: Low color contrast on descriptive text and interactive buttons can increase cognitive effort required to read content. Inconsistent heading levels may make it harder to scan and understand page organization. The lack of a visible footer landmark and the presence of multiple unlabeled navigation regions add to the cognitive overhead of orienting oneself within the platform.

Impact: Users with cognitive disabilities or learning differences may find it harder to locate key content, understand the navigation structure, or process text with insufficient contrast. Improving these areas would benefit all users by creating a clearer, more predictable interface.

Page-Specific Findings and Impact Analysis

The following sections list the accessibility findings by page and WCAG criteria, along with their impact on users. Opportunity areas are listed in ascending order by WCAG success criteria number.

Ethnologue Homepage (ethnologue.com)

Opportunity Area	WCAG Success Criteria	Description	Example
Heading Hierarchy	1.3.1 Info and Relationships (A)	The homepage has no H1 heading. The heading structure jumps from H2 to H3, which may confuse screen reader users navigating by headings to understand page hierarchy.	JAWS announced 'Understand Every Language heading level 2' followed by 'What are the top 200 most spoken languages heading level 3' with no H1 preceding them.
List Structure	1.3.1 Info and Relationships (A)	The bar chart for Indigenous Language Vitality uses list items (li elements) inside an ordered list that has role='img', but the li elements are not contained in a proper list parent, creating a structural mismatch.	Axe flagged multiple li[data-category] elements where the parent element has a role that overrides the list semantics.
Color Contrast	1.4.3 Contrast (Minimum) (AA)	Several interactive elements have insufficient foreground-to-background contrast ratios. The Login	The Login button uses white (#ffffff) text on a cyan (#00a7e1) background. The

Opportunity Area	WCAG Success Criteria	Description	Example
		button shows 2.75:1, the Shop link shows 1.74:1, descriptive subtitle text shows 3.91:1, and contributor 'Learn more' links show 2.75:1. All require a minimum of 4.5:1.	Shop link uses white text on gold (#ffb71b).
Keyboard Access to Navigation	2.1.1 Keyboard (A)	The left sidebar navigation menu cannot be operated by keyboard or screen reader. The collapse/expand toggle button does not function when activated with Enter or Space, preventing users from accessing navigation links for Languages, Countries, Families, Maps, Statistics, and Insights.	JAWS announced 'Collapse sidebar navigation menu button, right bracket to collapse' but activating with Space or Enter produced no change in content or state.
ARIA Attribute Values	4.1.2 Name, Role, Value (A)	The search form uses aria-owns and aria-controls attributes that reference an element ID ('searchResults') that does not exist on the page. This creates invalid ARIA relationships that may confuse assistive technology.	The form element has aria-owns='searchResults' and the input has aria-controls='searchResults', but no element with id='searchResults' is present in the DOM.

Impact Summary: The homepage serves as the gateway to all of Ethnologue's content, so the inaccessible sidebar navigation is the most significant barrier identified. Users who rely on keyboard or screen reader cannot reach Languages, Families, Statistics, or other sections from this page. Improving the sidebar keyboard operability, fixing the heading hierarchy, and adjusting color contrast ratios would make the homepage a welcoming entry point for all users. The search functionality and skip links are positive features that demonstrate the team's awareness of accessibility needs.
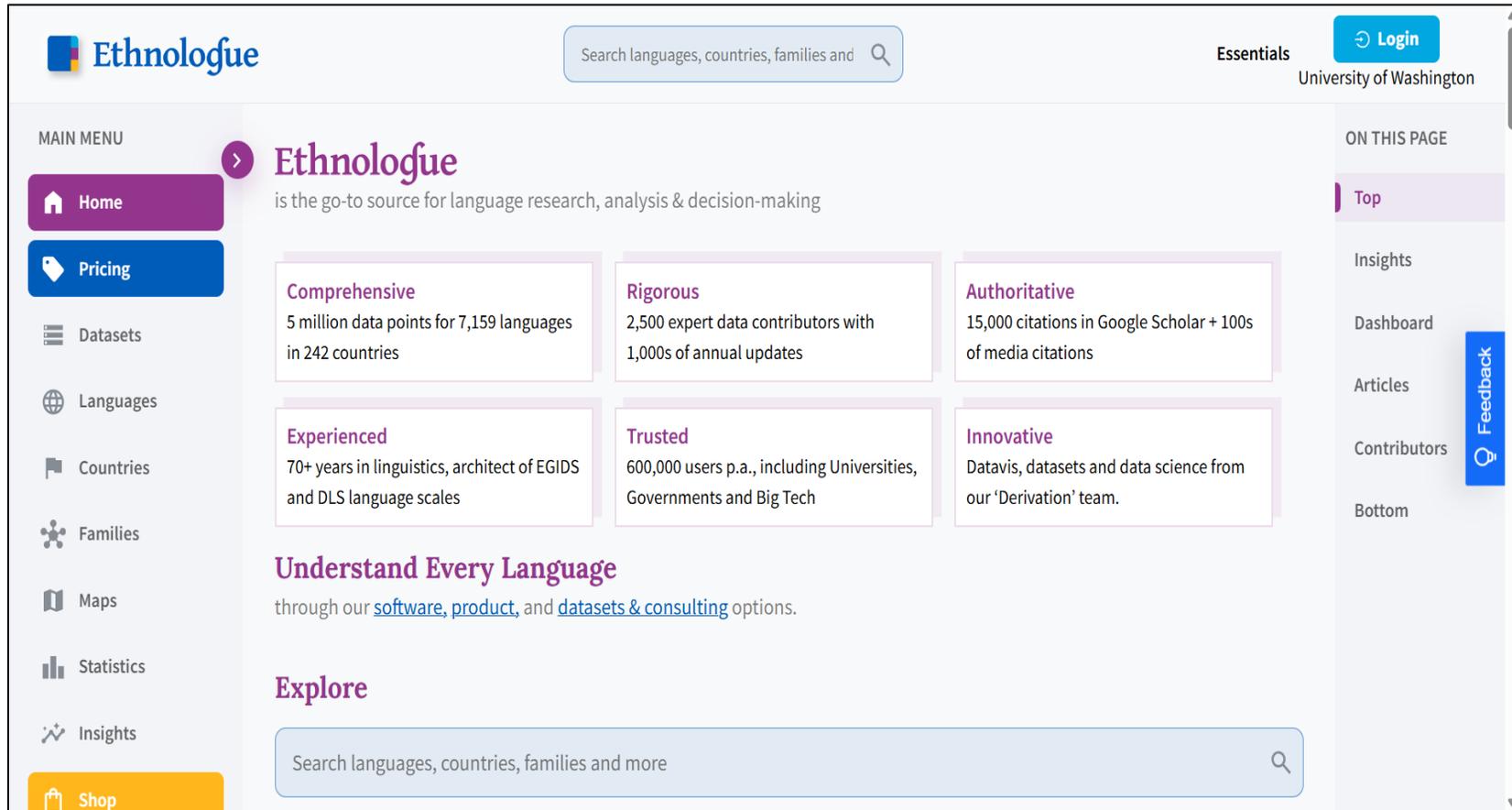
Ethnologue Homepage Screenshot

Figure 1. *Ethnologue homepage showing the main navigation sidebar, search bar, and feature highlights.*

Language Page: Arabic (ethnologue.com/language/ara)

Opportunity Area	WCAG Success Criteria	Description	Example
Link Distinguishability	1.4.1 Use of Color (A)	The ISO 639 code chip link ('ara') is distinguished from surrounding text only by color, without an underline or other non-color visual indicator. The contrast between link text and surrounding text is 2.62:1, below the 3:1 minimum required when color alone is used.	The 'ara' chip link next to the language title uses color alone to differentiate it from the surrounding subtitle text.
Color Contrast	1.4.3 Contrast (Minimum) (AA)	The 'Browse Country Digests' call-to-action button uses white text on a green (#5cb900) background, producing a contrast ratio of 2.5:1 against the 4.5:1 minimum.	Button with text 'Browse Country Digests' has foreground #ffffff on background #5cb900.
Language of Parts	3.1.2 Language of Parts (AA)	Content that appears in languages other than English (such as alternate language names in Arabic script) is not programmatically marked with the appropriate lang attribute, which may cause screen readers to mispronounce the text.	The alternate names field contains Arabic script text (e.g., Lughah al-Ishara) without a lang attribute to indicate the language change.
ARIA Attribute Values	4.1.2 Name, Role, Value (A)	Sections on the page use aria-labelledby to reference element IDs that do not exist in the page DOM (e.g., 'language-fields-heading' and 'languagesHeading'). This results in sections with no accessible names for screen reader users.	The language-fields section references aria-labelledby='language-fields-heading' but no element with that ID exists on the page.
Link Purpose	2.4.4 Link Purpose (In Context) (A)	ISO code abbreviation links within the Member Languages list (e.g., [arq], [aao], [abv]) are not descriptive. Screen readers announce the abbreviation and brackets without context about the destination. These links would benefit from more descriptive accessible names.	JAWS announced 'Link AAO right bracket' for the Algerian Saharan Arabic code link, providing no clear indication of the destination.

Impact Summary: The Arabic language page provides a clean data presentation using a definition list structure. Screen reader users could navigate through the primary name, ISO code, population, and member languages. The main opportunities center on making abbreviation links more descriptive, ensuring ARIA references point to valid IDs, and improving the color contrast on the call-to-action button. Fixing these issues would make it easier for all users to understand what each link does and navigate the page content with confidence.

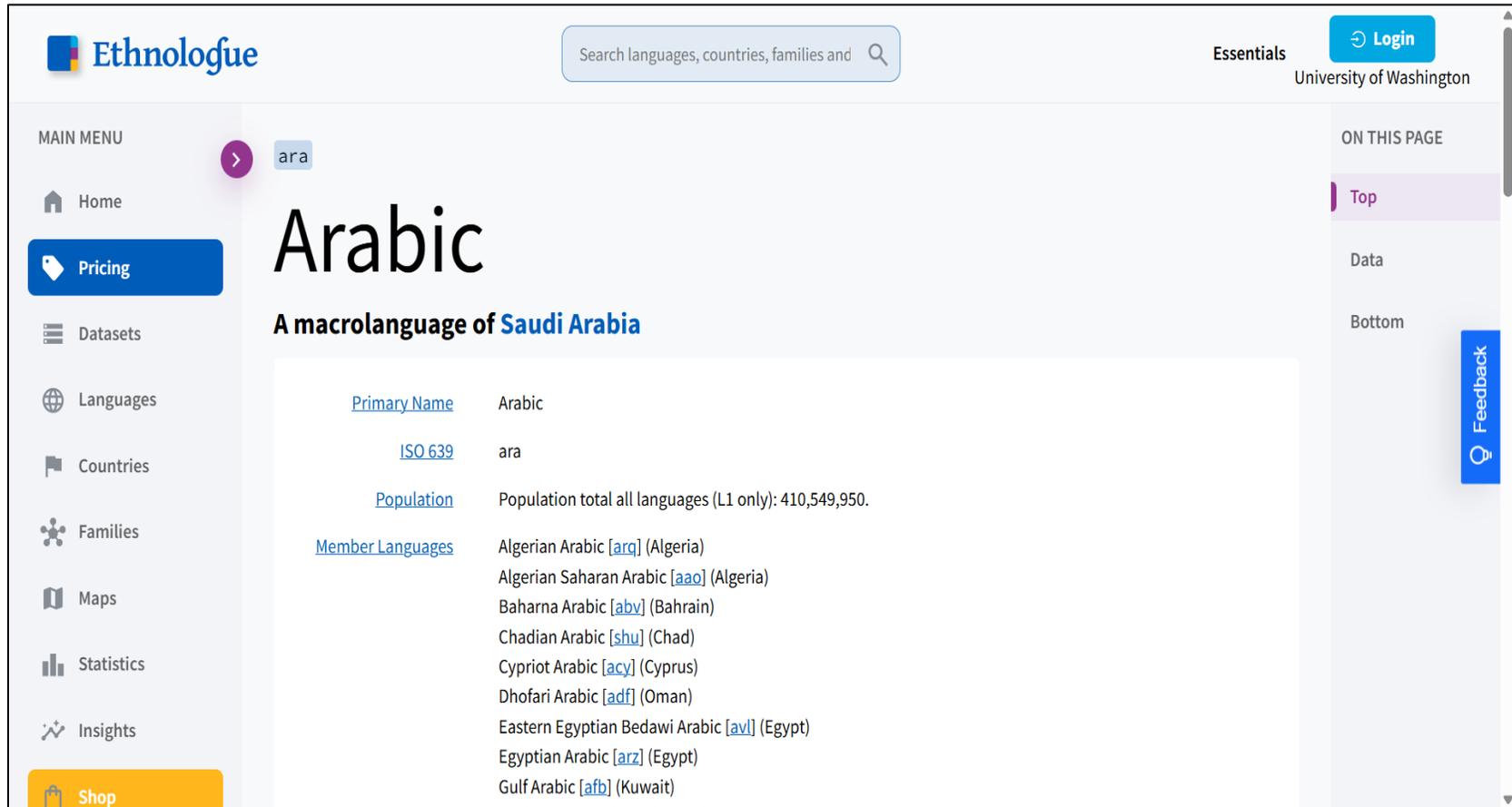**Ethnologue Arabic Language Page Screenshot**

Figure 2. *Ethnologue Arabic language page showing the definition list layout with language data fields.*

Language Page: Egyptian Sign Language (ethnologue.com/language/esl)

Opportunity Area	WCAG Success Criteria	Description	Example
Non-text Content (Map)	1.1.1 Non-text Content (A)	The interactive Leaflet map showing the geographic region for Egyptian Sign Language has no accessible label or description. Screen reader users encounter zoom controls and map links without understanding what the map represents or what geographic area is displayed.	JAWS announced 'Zoom In button. Zoom Out button. Link View Full Screen. Link Ethnologue. Link SIL Global.' with no context about the map content.
Color Contrast	1.4.3 Contrast (Minimum) (AA)	The 'Browse Country Digests' button uses white (#ffffff) text on a green (#5cb900) background, producing a 2.5:1 contrast ratio.	Same contrast issue as on the Arabic language page; the button is a shared component across all language pages.
Focus Visible	2.4.7 Focus Visible (AA)	All interactive controls within the Leaflet map component have their focus indicators explicitly suppressed with inline CSS (outline: none). This includes the zoom in/out buttons, fullscreen toggle, layers control, mini map toggle, and attribution links.	Map controls include style='outline: none;' which removes the browser's default focus indicator.
Duplicate IDs in ARIA	4.1.2 Name, Role, Value (A)	The page contains multiple elements using the same ID value ('content--cloud') in ARIA attributes. Duplicate IDs can cause assistive technology to reference the wrong element, creating confusion about which content is associated with which control.	The summary element for the Language Cloud details uses id='content--cloud' and aria-controls='content--cloud', and this ID appears on more than one element.
Alt Text Quality (Language Cloud)	1.1.1 Non-text Content (A)	The Language Cloud graphic includes alt text that describes what the image is ('Language cloud graph showing the position of Egyptian Sign Language among world languages') but does not convey the actual data or positioning shown in the visualization.	JAWS read the alt text as a general description of the chart type rather than communicating where Egyptian Sign Language falls relative to other languages.

Impact Summary: The Egyptian Sign Language page includes rich visual content (interactive maps, language cloud graphs) that presents accessibility challenges for non-visual users. The map is technically interactive but provides no context about what it shows. Focus indicators are suppressed on all map controls, making keyboard navigation unreliable. The language data section performs similarly to the Arabic page, with the same ARIA referencing and contrast issues. Improving map accessibility, restoring focus indicators, and enhancing alt text descriptions would make this valuable geographic and linguistic data accessible to all researchers.

Ethnologue Egyptian Sign Language Page Screenshot

Figure 3. *Ethnologue Egyptian Sign Language page showing the interactive geography map.*

Statistics Page (ethnologue.com/statistics)

Opportunity Area	WCAG Success Criteria	Description	Example
Table Header Markup	1.3.1 Info and Relationships (A)	One data table (Table 2: Distribution by Number of First-Language Speakers) has a row where the first cell contains a population range value formatted as a td element instead of a th element with appropriate scope. This creates an incomplete header relationship for that row.	Axe flagged a td element containing '10,000,000 to 99,999,999' that should be marked as a row header with th scope='row'.
Duplicate Banner Landmark	Best Practice (Landmark Structure)	The page contains two banner (header) landmarks. The page header and the Statistical Summaries page header are both coded as header elements, which can cause screen readers to announce multiple banner regions.	Both the site-wide header and the page-specific header element create separate banner landmarks.

Impact Summary: The Statistics page is a standout. Our auditors described these as 'the best tables we've ever seen' across all LAA evaluations. The complex data tables use proper multi-level header scoping, column and row header associations, and accessible table captions. Screen readers were able to navigate row by row, hearing the correct column and row context at each cell. This is exactly how complex data tables should be built, and the Ethnologue development team deserves recognition for this work. The only minor findings are a single row header cell coded as td instead of th, and the duplicate banner landmark that appears across the entire site.

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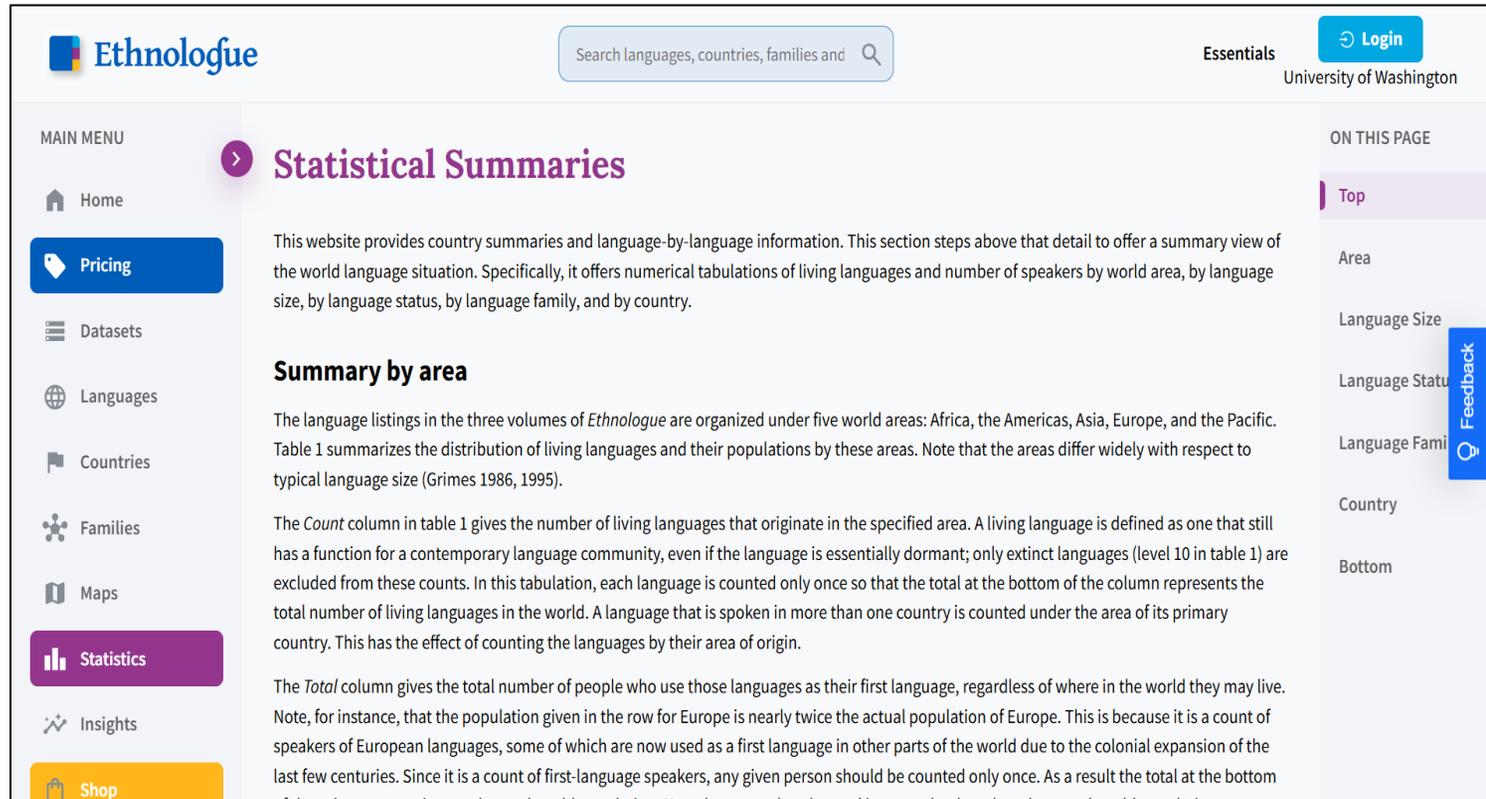**Ethnologue Statistical Summaries Page Screenshot**

Figure 4. *Ethnologue Statistical Summaries page showing the descriptive text and table of contents sidebar.*

Families Page: Turkic (ethnologue.com/subgroup/27)

Opportunity Area	WCAG Success Criteria	Description	Example
List Structure	1.3.1 Info and Relationships (A)	The language family tree uses a ul element that directly contains details elements as children. The HTML specification requires ul elements to only contain li, script, or template elements. This structural error may cause screen readers to misrepresent the tree hierarchy.	The subgroup__branches ul contains details.subgroup__branch elements instead of li elements.
Target Size	2.5.8 Target Size (Minimum) (AA)	The links to language subgroups (Bolgar, Eastern, Northern, Southern, Western) within the expandable tree have a click target height of only 20px. WCAG 2.2 requires interactive targets to be at least 24px by 24px.	The 'Bolgar' link measures 43.6px wide by 20px tall. Similar measurements were found on all five subgroup links.
Nested Interactive Controls	4.1.2 Name, Role, Value (A)	Each expandable branch in the language tree contains a summary element with a nested anchor (link) element inside it. Both the summary and the link are focusable and interactive, creating a nested interactive pattern that screen readers may not announce correctly and that can cause focus management confusion.	HTML structure: summary > a.subgroup__to-page, where both the summary disclosure toggle and the link compete for user interaction.
Expand/Collapse State	4.1.2 Name, Role, Value (A)	The Expand All and Collapse All buttons at the top of the page did not function when activated by keyboard. The individual branch disclosure controls (Bolgar, Eastern, Northern, etc.) do expand and collapse correctly and announce their states, but the bulk action buttons appear non-functional for keyboard users.	Pressing Space or Enter on the 'Expand All' button produced no visible or announced change. The page remained in its collapsed state.

Impact Summary: The Turkic language family page presents an expandable tree of 41 languages organized into subgroups. The individual expand/collapse controls work well and properly announce their states, which is a positive finding. The main opportunities are fixing the Expand All/Collapse All bulk action buttons for keyboard users, separating the nested interactive elements (links inside summary elements), increasing the touch target size on subgroup links, and correcting the list structure to use proper HTML nesting. These improvements would make the family tree fully navigable for all users.
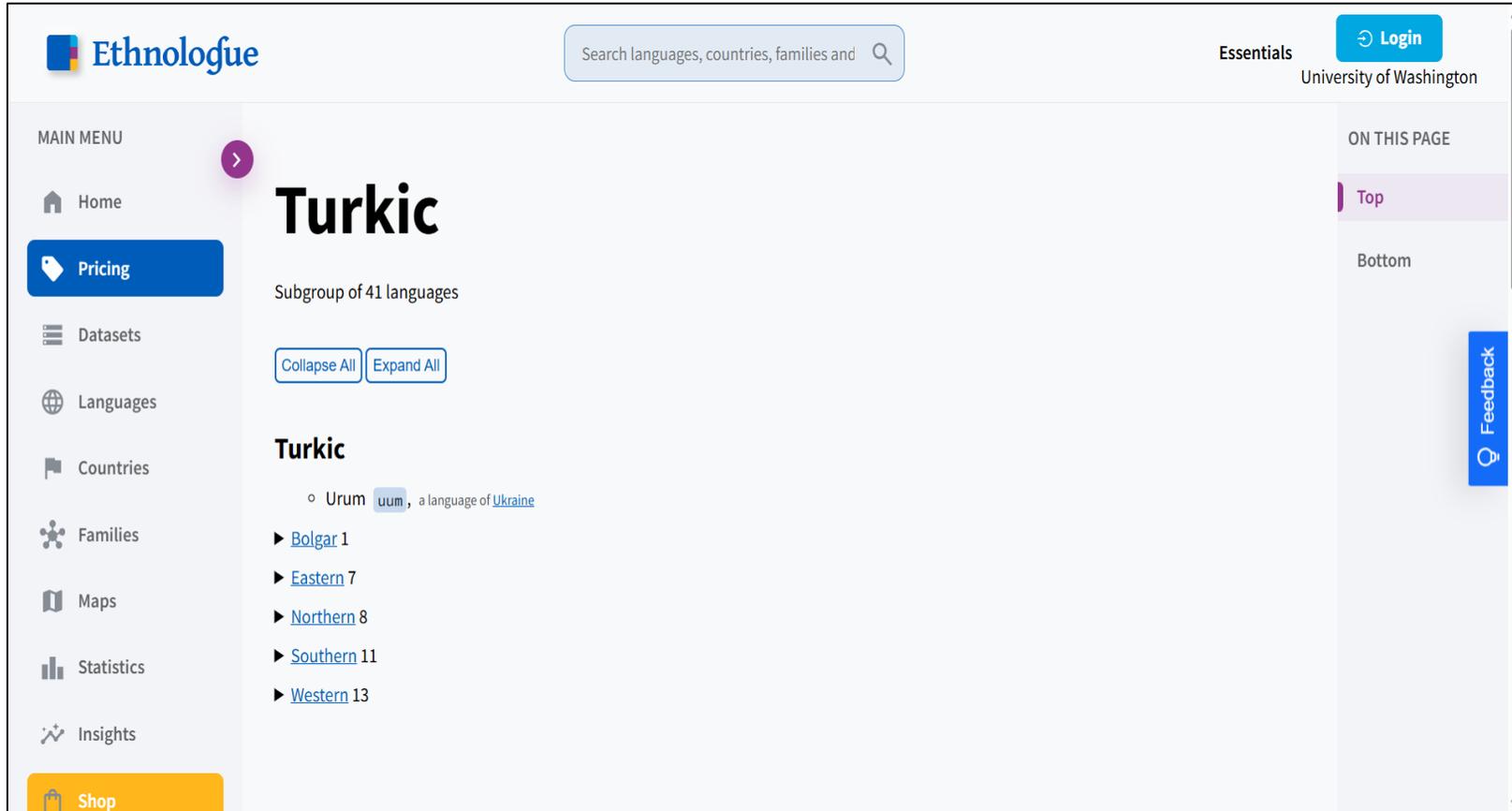
Ethnologue Turkic Language Page Screenshot

Figure 5. *Ethnologue Turkic language family page showing the expandable subgroup tree.*

Code Recommendations

The following code examples provide recommended HTML-first approaches for addressing the top findings. These are suggestions, not prescriptions. Developers have flexibility to implement these improvements using alternative approaches with CSS and JavaScript, as long as the underlying accessibility principles are met.

1. Sidebar Navigation Button (WCAG 2.1.1, 4.1.2)
Current: The sidebar toggle button uses bracket characters in its label and does not announce expanded/collapsed state.

Recommended:
```
<button aria-expanded="false" aria-controls="main-nav"
  aria-label="Main navigation menu">
  <span aria-hidden="true">Menu</span>
</button>
```

2. Color Contrast Fix for Login Button (WCAG 1.4.3)
Current: White text (#fff) on cyan (#00a7e1) produces 2.75:1 contrast.

Recommended:
```
/* Option A: Darken the background */
.header__login-link {
  background-color: #00729B; /* 4.56:1 with white text */
  color: #ffffff;
}
```

3. Map Accessibility Label (WCAG 1.1.1, 4.1.2)
Current: The map div has no accessible label or role to describe its purpose.

Recommended:
```
<div id="map" role="application"
  aria-label="Interactive map showing the geographic
  region for Egyptian Sign Language, centered on Egypt"
  tabindex="0">
</div>
```

4. Focus Indicator Restoration for Map Controls (WCAG 2.4.7)
Current: Map controls use inline style='outline: none;' which suppresses focus indicators.

Recommended:
```
/* Remove inline outline:none and add visible focus */
.leaflet-control a:focus-visible,
```

```
.leaflet-container:focus-visible {
  outline: 2px solid #005FCC !important;
  outline-offset: 2px;
}
```

5. Nested Interactive Fix for Family Tree (WCAG 4.1.2)

Current: Links are nested inside summary elements, creating competing interactive targets.

Recommended:
```
<details class="subgroup__branch">

  <summary>
    <span class="subgroup__name">Bolgar</span>
    <span class="subgroup__count">1</span>
  </summary>
  <div class="subgroup__content">
    <a href="/subgroup/2639/">View Bolgar subgroup</a>
    <!-- expanded language list here -->
  </div>
</details>
```

Testing Note: These code suggestions are recommendations and not guaranteed fixes. All changes should be thoroughly tested with assistive technology (screen readers, keyboard-only navigation) to confirm effectiveness before implementation. WCAG guidelines are designed to provide multiple paths to compliance. Developers have flexibility to implement these improvements using alternative approaches with CSS and JavaScript, as long as the underlying accessibility principles are met.

Final Thoughts and Recommendations

Ethnologue is a platform with a clear commitment to quality and depth. The data tables on the Statistics page demonstrate that the development team understands accessible HTML and is capable of building complex, well-structured content that works beautifully with screen readers. That foundation is something many platforms never achieve, and it positions Ethnologue well for addressing the remaining opportunities.

The areas for improvement are straightforward and achievable. Most of the findings fall into a few categories: keyboard operability for the sidebar navigation, color contrast adjustments, focus indicator restoration on map controls, and ARIA attribute corrections. None of these require major architectural changes to the platform.

Recommended Fixes by Priority

Immediate Priority (High Impact)

1. Make the sidebar navigation keyboard-operable. This is the single most impactful fix, as it unlocks the entire platform for keyboard and screen reader users.
2. Restore focus indicators on map controls by removing inline outline: none styles and applying visible: focus-visible styles.
3. Fix invalid ARIA attribute values (aria-owns, aria-controls, aria-labelledby) that reference non-existent element IDs.

High Priority (Significant Impact)

1. Adjust color contrast ratios on the Login button, Shop link, Browse Country Digests button, and descriptive text elements to meet the 4.5:1 minimum.
2. Add an H1 heading to the homepage and ensure heading levels follow a logical hierarchy without skipping levels.
3. Separate nested interactive elements in the language family tree (move links outside of summary elements).

Important Priority (Enhanced Experience)

• Add descriptive aria-label attributes to map containers so screen reader users understand the geographic context being displayed.
• Provide unique labels for duplicate navigation and search regions to help screen reader users distinguish between page areas.
• Improve alt text on chart graphics to convey data trends rather than just describing the chart type.
• Increase touch target sizes on language family tree links to meet the 24px minimum.

Complimentary Consultation Included

As part of this evaluation, Accessiblu's partnership with the LAA includes one hour of complimentary consulting with the team that conducted this evaluation. This session can be used to discuss implementation priorities, review technical approaches, or address questions about specific recommendations. To schedule this consultation, contact Jeff Rodgers directly at jeff@accessiblu.com.

Disclaimer

Accessiblu prepared this report as a high-level accessibility evaluation of the Ethnologue: Languages of the World platform (Essentials edition). The evaluation utilized industry-standard testing methodologies, including screen reader testing (JAWS 2025), keyboard-only navigation, automated scanning, and manual inspection for select WCAG 2.2 AA success criteria.

This report does not represent a comprehensive WCAG compliance audit and should not be seen as a certification of accessibility compliance. While we have identified significant accessibility concerns and usability barriers, this evaluation was limited in scope and may not encompass all accessibility issues on the platform.

No Legal Liability:

Accessiblu offers this report for informational purposes only. It assumes no legal responsibility for accessibility violations or compliance failures resulting from its use. Organizations seeking formal certification should conduct a comprehensive audit and user testing with people with disabilities.

Limitations of Testing:

This evaluation was conducted at a specific point in time, and platform updates may have occurred after testing was completed. Additionally, while automated tools and expert reviews were utilized, real-world users with disabilities determine the true measure of accessibility.