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Aesthetic Innovation in Indigenous Typefaces

Designing a Lushootseed font

dx̌ʷləšucid

By Juliet Shen

The role of new typeface designs in language preservation

This past June, I sat among 350 linguists and educators in Eugene, Oregon, and listened to a keynote address by one of the last surviving native speakers of her Athabascan language. The Northwest Indian Language Institute at the University of Oregon hosted the Stabilizing Indigenous Languages Symposium, which I attended to speak about aesthetic innovation in the design of Native American typefaces. Innovation is needed to give indigenous typefaces a stronger cultural identity, since the Latin typographic design tradition, which originated in Europe, is not historically germane to the culture of Native American peoples. Both the small stroke terminals that we call serifs and the relative position of thick and thin strokes on the letters themselves are beholden to the broad-nib pen, the predominant tool of scribes in the 15th century when the technology of printing from cast metal type literally solidified the appearance of the prototypical roman typeface we are accustomed to reading. Its appearance has changed very little over the centuries since then.

Today, design innovations in typefaces made for reading are necessarily subtle and difficult to perceive without a trained eye because too much innovation diverts the reader's attention from the content of the text to its appearance. This reigning conservatism was abetted by the large capital investment required of printers while typesetting remained within their exclusive purview. But so long as principles of legibility are observed, orthodoxy in typeface design is less relevant in cases where literacy has been imposed so recently upon an oral tradition, as is the case with most American indigenous languages. Although the more recent designs of text typefaces without serifs (sans serif) may offer a more neutral springboard from which to design new Native American fonts, raising the cultural and aesthetic appeal of these fonts calls for more than neutrality.

Most Native American languages had no written script until the late 20th century, when linguists began recording the stories, songs and everyday speech of elderly native speakers. (This movement came too late for many indigenous languages, after a century of public policy attempted to stamp them out.) Today most of the extant indigenous languages in the U.S. are written in the Latin alphabet amplified by diacritical accents and phonetic characters, a system of writing devised by linguists. Unlike the typography of the traditional Latin alphabet, these scripts do not form a harmonious interwoven texture on the page. The idea that indigenous fonts should be aesthetic as well as functional, that they should look as balanced as Latin text on the page, has not yet taken root among linguists and educators, concentrated as they are on capturing and analyzing the speech of elders while it's still possible, and on finding effective ways to teach fluency to second-language learners. Typographic aesthetics are just not on their radar. As a result, the appearance of most devised writing systems

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(This page) *Lushootseed wood type created by the Hamilton Museum of Wood Type & Printing, Two Rivers, Wisconsin. The press was used at the 2010 Tulalip Lushootseed Language Camp in Washington. Image courtesy of The Tulalip Tribes of Washington.*

for indigenous languages is more likely to intimidate youthful learners than invite them to decode the mysteries of the script.

Typographic needs of indigenous language fonts

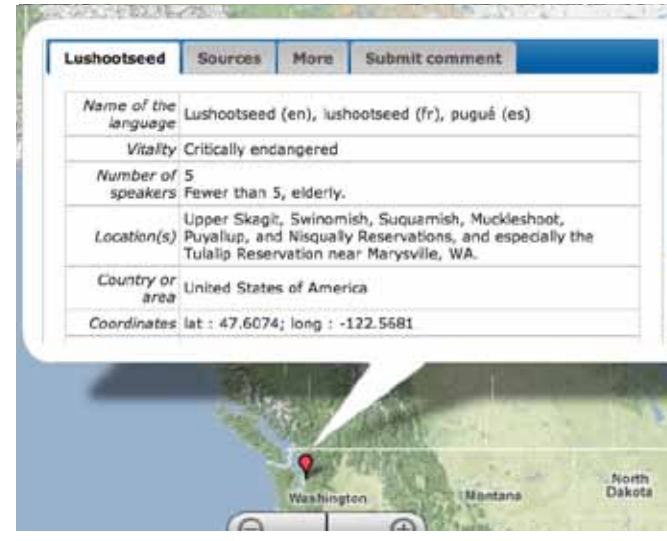
Currently, the need for typefaces with indigenous language characters is sometimes met through the illegal but still common practice of opening "free" fonts and editing them to add the missing characters. Most of the so-called "free" fonts are bundled with operating systems and office software programs and have licensing agreements that prohibit editing and redistribution. A better way to obtain typefaces for indigenous language characters is to use fonts with extensive character sets that seek to meet the needs of any and all such scripts. But because of the sheer volume of characters contained in these pan-indigenous fonts (numbering in the thousands) and the tiny size of some indigenous language communities, not all scripts are well served by these sets, and may call for a customized font instead (Figure 1).

sə̌čitils tuʔal

(Figure 1) Note the poor default display of the two comma accents, one above the *c-caron* (*c-wedge*) and one belonging to the *el*, in this extended unicode font.

The Tulalip Tribes commissioned me to custom design a sans serif, Unicode-compliant font for Lushootseed, a member of the Salish family of languages. The United Nations Educational, Scientific and Cultural Organization (UNESCO) ranks Lushootseed as critically endangered, the final status before extinction (Figure 2). We named the new font "Lushootseed School" since its primary purpose was as a tool for teaching children.

On the Tulalip reservation, a 20,000-acre area on the Salish Sea about 40 miles north of Seattle, Lushootseed instruction begins at the preschool



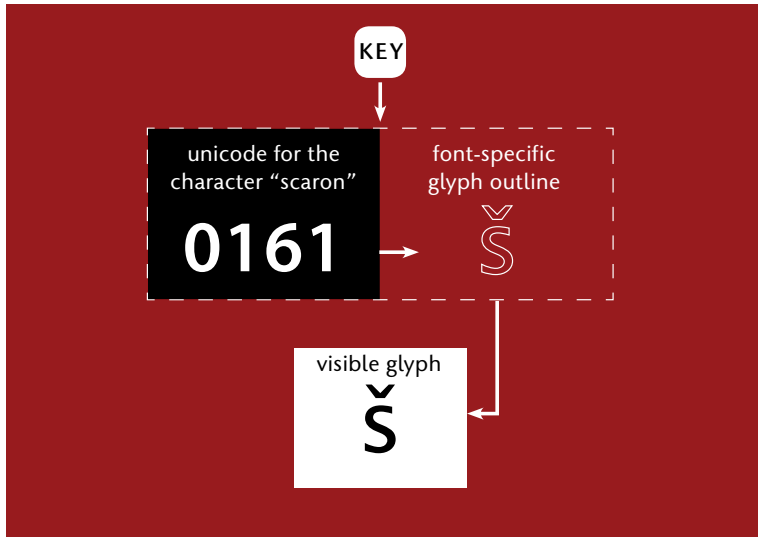
(Figure 2) UNESCO Interactive Atlas of the World's Languages http://www.unesco.org/culture/languages-atlas/index.php. Image courtesy of the author.

level. The teachers in the Tulalip Lushootseed Department explained to me that children laboriously copied the serifs on some letters when a font like Times Roman was used in pedagogic materials. Though research with young readers has found no advantage to using sans serif fonts, educators still prefer them when teaching reading and writing simultaneously.

Designing a Lushootseed font

Lushootseed is indigenous to the place where it once thrived, spoken by peoples who revered the natural world that sustained them. The sound of it blends into the natural sounds of the Pacific Northwest: water lapping on the shore, wind rustling through cedar trees, the consonantal clicking of creatures in the wild. At our very first meeting, a master teacher pointed out to me that the written script did not do justice to the spoken language. I went home and listened to recordings of elders telling traditional stories, and made it my design brief to produce a typeface that looked as graceful on the page as the language sounded.

There are some tasks that must precede the design of glyphs for an indigenous language font. Unicode compliance means that the font follows international encoding standards, ensuring that one may change



(Figure 3, above) *Font software works by connecting a character outline with a unicode value which remains constant. Different fonts like Helvetica and Times Roman may have different character outlines, but the unicode value for a character is the same in both fonts. Image courtesy of the author.* **(Figure 4, right)** *A figure collected in 1792 from Puget Sound displays stylization typical of Salish figures from before the time of contact into the 20th century. Image courtesy and © Trustees of the British Museum.*

the font of a document without affecting its actual text (Figure 3). Fonts with Unicode private use area (PUA) or incorrect encoding produce documents that can only be read in the font with which they were created. This impedes the exchange of information among academics, for example, who may not have the same font installed on their computers. It also creates headaches for archivists since the digital documents are unreadable if the original fonts are lost. So the first step in designing a font for an indigenous language is to determine the standard Unicode for its characters. Sometimes similar-looking glyphs are linked to different Unicodes. For example, the *el-caron* (Unicode 013E) that is used in central European languages is rendered as the letter *el* followed by an apostrophe-like accent and looks identical to the *glottalized el* (Unicode 0063 + Unicode 0315) in Lushootseed. Selection of the right code for a particular language requires consulting with speakers and linguists and then applying the standard consistently in all subsequently designed fonts.

After the encoding for Lushootseed School was agreed upon, I studied traditional Salish art forms, benefiting from the fortuitous presence of a Salish art exhibit named *S'abadeb, The Gifts,* at the Seattle Art Museum. I hoped to discover authentic forms that could be used in the font design. I found that the symmetry of Salish art does not fit the rigid geometry of the

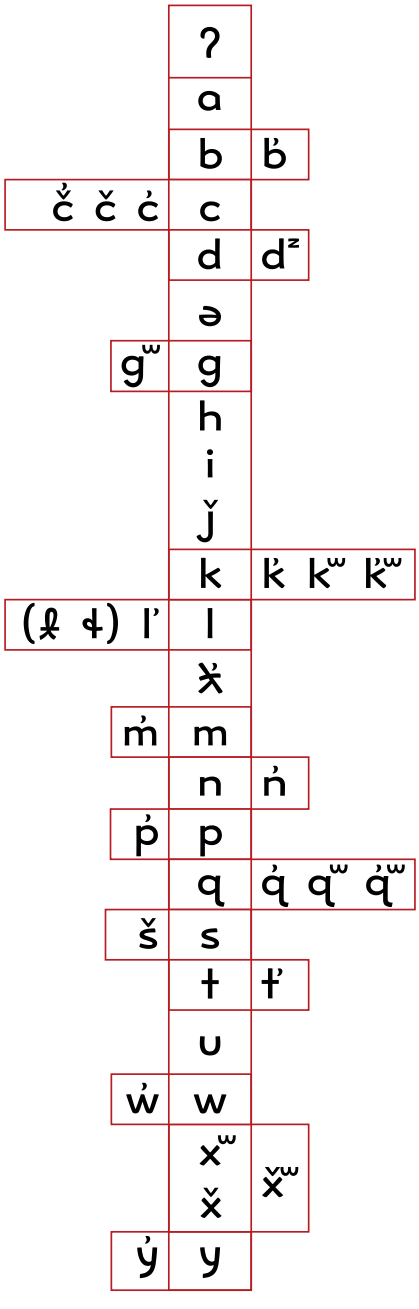
digital environment. It is the symmetry of nature, where lines curve and there are no true circles. In Salish objects, generosity in volume is favored over elongation, so that conical baskets have convex sides and circular shapes are always wider in the middle. Most strikingly, the persistent repetition of certain formal motifs, the reduction and simplification of shapes, and a heightened awareness of the interaction between the interior space of a shape and the exterior space defined by its perimeter—all these attributes of Salish art are mirrored in the way typeface designers see letter forms (Figures 4–9).

Designing in the spirit of wood

Next, I considered how to incorporate the influence of traditional Salish art in the Lushootseed typeface. Metal typecasting was a technology well suited to reproducing thin parts of a stroke that withstood the pressure of the printing platen, and broad areas that inked evenly, all in the same small letter. It faithfully reproduced the sharp edges of the pen stroke and the small serifs. But traditional Salish art and artifacts are infused with the spirit of wood. Objects sculpted of wood have softer edges and broader details.

To preserve the spirit of wood in Lushootseed School, I avoided the true straight edge that is the natural extension of the digital pixel and made straight strokes with slightly curved edges and terminals. The basic round unit in the typeface is broader across than it is tall. Stroke intersections, such as the center of the *x*, are rounded instead of pointed (Figures 10 and 11).

Clockwise from above-left. (Figure 5, above left) *Housepost of Tsimalano, Musqueam, late-19th century. Image courtesy of University of British Columbia Museum of Anthropology, Vancouver, Canada.* **(Figures 6 and 7, top right)** *Canoe paddles carved more than a century apart:* Thunderbird and Serpent, *by Shaun Peterson, Puyallip/Tulalip, 2006 (above) and* Canoe Paddle of Princess Angeline *(Chief Seattle's daughter), Suquamish/Duwamish, 1882 (below). Courtesy of the Burke Museum of Natural History and Culture, catalog numbers 2006-158/1 and 2.5E1556.* **(Figure 8, right)** *Spindle-whorl, Cowichan, 19th century. Image © Trustees of the British Museum.* **(Figure 9, above)** *Coast Salish D-adze, Puget Sound, late-19th or early-20th century. This tool illustrates a consciousness of the interaction of interior and exterior space on form that is essential to typeface design as well. Courtesy of the Burke Museum of Natural History and Culture, catalog number 8611.*



(Figure 10, above) *Lushootseed alphabet tree with core characters and their diacritical branches. There are no capital letters, allowing all characters to fit on the keyboard with use of the shift key. Image courtesy of the author.*
(Figure 11, right) *Enlarged characters showing the rounded intersections and slightly curved strokes and terminals. Image courtesy of the author.*

Improving the texture of Lushootseed on the page

The typography of Lushootseed in continuous text suffers most from the frequent use of characters incorporating a raised small *w*, which modifies the pronunciation of the letter immediately preceding it. The spaces under the raised small *w* leave disturbing holes in the middle of words. For Lushootseed School, this glyph is based on the handwritten, or informal form. The rounded vertices of the informal w capture more white space within the letter, allowing it to be reduced in size without filling in. Reducing the size in turn reduces the unsightly gaps in the middle of words (Figure 12).

In Lushootseed the space above the x-height, the area where letters with ascenders like *h* poke up, must also accommodate two levels of diacritical accents. This leaves too shallow an area below for letters such as *s, k* and *x* that have mid-section subdivisions. This difficulty was solved by abandoning the traditional four-line grid of the Latin alphabet and adding a second x-height (Figure 13).

Additional characters in Lushootseed School have an unorthodox design. The glottalized stroked lambda looks more like its popular name, *running man* (see the final character in Figure 11), than the typical typeset Greek lambda. One character in particular proved to be controversial. Among the three crossed *el* characters in Unicode, the correct linguistic choice for the Tulalip Tribes' font is one with a looped belt, but the teachers considered this letter awkward to write and too similar to an ampersand. They had their own way of writing the character as a cursive looped *el* with a bar across the intersection. With any script for a major world language, such an anomaly would not be incorporated into the typeface, but for endangered languages such as Lushootseed, small indigenous teaching communities are all that stand between survival and extinction. Their preferences should trump standard typographic usage and they should be permitted to develop distinctive glyphic styles, just as the European scribes did in the centuries before the Latin alphabet was cast as type (Figure 14).

(Figure 14) *The three els below each have a distinct unicode. The Tulalip Lushootseed community uses the character on the right,*

ɬ ɬ ɬ

but the teachers dislike it and requested a design based on handwriting (below, left) for the Lushootseed School *font. An alternate font called* Lushootseed Sulad *with the standard glyph (right), was also made.*

ɬ ɬ

akxýs!ƛ̓

gʷəl ʔalililəxʷ ti səčitils dxʷʔal kʷi səťsils. gʷəl ɬuʔəƛ̓axʷ əlgʷəʔ. ɬubəbəlkʷaxʷ əlgʷəʔ dxʷʔal tiʔəʔ diʔəʔ čit ɬq̓ucid ʔə tiʔəʔ diʔəʔ sʔilucid ʔə dxʷqəlb. ʔal kʷədiʔ tusʔəsɬaɬlils əlgʷəʔ. tulʔal gʷəl, gʷəl ʔətxʷaxʷ əlgʷəʔ tiʔəʔ stabs əlgʷəʔ ʔal tiʔəʔ dadatu. gʷəl ʔuʔabgʷasəxʷ əlgʷəʔ ʔal tiʔəʔ q̓xʷabac ʔal tiʔəʔ stkʷab.

gᷤəl ʔaliləxᷤ ti səčitils dxᷤʔal kᷤi səťsils. gᷤəl ɬuʔəƛ̓axᷤ əlgᷤəʔ. ɬubəbəlkᷤaxᷤ əlgᷤəʔ dxᷤʔal tiʔəʔ diʔəʔ čit ɬq̓ucid ʔə tiʔəʔ diʔəʔ sʔilucid ʔə dxᷤqəlb. ʔal kᷤədiʔ tusʔəsɬaɬlils əlgᷤəʔ. tulʔal gᷤəl, gᷤəl ʔətxᷤaxᷤ əlgᷤəʔ tiʔəʔ stabs əlgᷤəʔ ʔal tiʔəʔ dadatu. gᷤəl ʔuʔabgᷤasəxᷤ əlgᷤəʔ ʔal tiʔəʔ q̓xᷤabac ʔal tiʔəʔ stkᷤab.

gʷəl ʔaliləxʷ ti səčitils dxʷʔal kʷi səťsils. gʷəl ɬuʔəƛ̓axʷ əlgʷəʔ. ɬubəbəlkʷaxʷ əlgʷəʔ dxʷʔal tiʔəʔ diʔəʔ čit ɬq̓ucid ʔə tiʔəʔ diʔəʔ sʔilucid ʔə dxʷqəlb. ʔal kʷədiʔ tusʔəsɬaɬlils əlgʷəʔ. tuʔal gʷəl, gʷəl ʔəƛ̓txʷaxʷ əlgʷəʔ tiʔəʔ stabs əlgʷəʔ ʔal tiʔəʔ dadatu. gʷəl ʔuʔabgʷasəxʷ əlgʷəʔ ʔal tiʔəʔ q̓xʷabac ʔal tiʔəʔ stkʷab.

(Figure 12, left above) *The same text set in Lushootseed School (center) and two other fonts available to the Tulalip Tribes' language teachers. Excerpt from "The Legend of the Boy Who Could Not Walk," as narrated by Emma Conrad (Sauk-Suiattle). Image courtesy of the author.*
(Figure 13, left below) *The Lushootseed font was adapted to a 6-line grid with two lowercase x-heights and two tiers of diacritic accents. Image courtesy of the author.*

Observations on designing for a different culture

Working for the Tulalip Tribes proved to be different from designing for any other client in my 30 years of professional practice. As mentioned, the community's preferences were a large factor in decisions that would customarily be based solely on established typographic norms. On a deeper level, there were cultural differences in communication. Designers usually receive important feedback about the direction of their work in face-to-face meetings, even if it means reading between the lines or identifying a decision-making hierarchy within the group. In this community, etiquette did not permit expressions of open praise or criticism, and the social structure of the group remained opaque, so these avenues for gaining insight were closed. I had to adjust my expectations and be patient.

To the indigenous language community, I offer these recommendations for working with a typeface designer: 1) that a tech-savvy point person liaise with the designer and be available to test and troubleshoot the font software; 2) that the approval process include consultation with all stakeholders, such as linguists, teachers, and technology aides; and 3) that a flexible attitude be adopted regarding keyboarding habits. This latter point is important because the use of a non Unicode-compliant font permits some keyboarding habits that cannot then be sustained when switching to a Unicode font.

Pedagogical values of an aesthetic typeface

Endangered Native American languages deserve harmonious, balanced typefaces that reflect something of their indigenous aesthetic tradition. A typeface that appeals to the eye and has a cultural connection to its speakers will attract new learners to an indigenous language and provide affirmative reinforcement of their efforts—much as a well designed and beautifully crafted tool will encourage the apprentice cabinetmaker to do fine joining. This power should be exploited by indigenous language communities in the uphill endeavor to save their language from extinction by restoring it to everyday use.

Adding hand typesetting and printing to the language acquisition stream can enhance cognition for those who benefit from the integration of kinetic activity with learning. Using wood type modeled on the digital font design, the Tulalip Tribes first combined a printing workshop with language instruction during their Language Camp in August, 2010.

(Figure 15, far left) *Lushootseed teacher Rebecca Posey teaches students to print on the 19th-century proofing press donated to the Tulalip Tribes by Sandra Lyon, a retired teacher. Image courtesy of the Tulalip Tribes of Washington.*

(Figure 16, left) *Students at Language Camp print with their Lushootseed wood type. Image courtesy of the Tulalip Tribes of Washington.*

(Figure 17, below) *Showing off their letterpress prints of the Lushootseed word, "listen." Image courtesy of the Tulalip Tribes of Washington.*