Images from Omniglot.com
Why create a constructed script?
Companion to a Conlang

- Adds depth to the language/world
- Can provide a social or historical feature
- Provides the public face of a conlang
- Can either enhance, or detract from, a conlang
Companion to a Conlang

- Tolkien’s constructed scripts
  - Tengwar
  - Cirth
  - Sarati
  - Many others...
International Alphabets

- International Phonetic Alphabet (IPA)
  
- Interbet

- Universal Phonetic Alphabet
Shorthand Scripts

Gregg Shorthand
Shorthand Scripts

Gregg Shorthand

Other optimization scripts
Non-Linguistic Uses

• Mathematical shorthand

\[ 0 < |x - x_0| < \delta \implies |f(x) - L| < \varepsilon \]

• Musical notation

• Computer Programming

DO :1 <- #0¢#256
Educational Con-scripts

- A novel way to introduce the study of languages in the classroom
- Gets children excited about learning languages
- Recruiting!
The Neuroscience of Language
Audiovisual Pathways

• Connection between how we process:

  • Written language
  • Speech
  • Emotion

• Conlangers can play on this connection to create better scripts
Synesthesia

• Neurological disorder where phonemes/graphemes are associated with a sensory experience

• Grapheme/color

• Ordinal-Linguistic Personification
"T’s are generally crabbed, ungenerous creatures. U is a soulless sort of thing. 4 is honest, but... 3 I cannot trust... 9 is dark, a gentleman, tall and graceful, but politic under his suavity."

-Anonymous Synesthete
I am a synesthete!

(But so are all of you!)
Kiki / Bouba Effect

• Based on classic 1929 psychology experiment

• 95%-98% agreement across subjects
Neuroscience of Language

- Language is complex

- Integration of many pathways:
  - Auditory
  - Visual
  - Vocal
  - Motor
Wernicke’s Area

- Wernicke’s Area is focal point of this language nexus
- Brain region responsible for “meaning” of language
- Integrates these different pathways
Wernicke’s Area

- Causes cross-pathway echoing of different forms of language
- Reading & subvocalization
- Visual phenomena when speaking
So, what does this mean for constructed scripts?
• Spoken and written language are connected!

• Written features can accentuate certain features of spoken language

• Design a more natural-looking script for your conlang
• I will discuss a number of properties from the context of linear scripts

• Non-linear or otherwise innovative forms are possible

• Ex: Circular Gallifreyan
Script Features

- Fundamental feature shapes
- Density and Alignment
- Breaks
- Structure
- Frequency
- Phonemic matching
Fundamental Feature Set

- Our perception of shapes is neurologically limited to a set of fundamental shapes:
  - Curve
  - Point
  - Dot
  - Line

These are the fundamental shapes
Lines

- Contributes to the perceived flow or lack thereof in a script
- Direction-sensitive
- Very quick visual processing
- Best paired with short/a abrupt phonemes
Curves

- Circular Glass patterns take longer to process
- Concentrates eye movement
- One possible effect of a curve is "implied subvisualization"
- Best paired with longer sounds
Points

• (Or hyperbolic approximations)

• Depends on context

• When isolated, treated as a line

• When surrounded by other features, takes on their qualities

• “A” vs “m”
Dots

- Technically not a feature of its own
- Does not affect the perception of overall shape
- Creates “low-density” or “textured” lines
Intersections

- Compound shapes made from lines and curves
- L-intersection
- T-intersection
- X-intersection
- Provides a focal point / emphasis for visual processing
Density & Alignment

- Eye movements follow script feature alignments
- Use to create a sense of movement (smooth or halting)
- Low feature density also contributes to flow
Breaks

• How frequently are breaks used in a script and what are they used for?
  • Word breaks
  • Line breaks
  • Sentence/clause breaks
  • Paragraph breaks

• Provide necessary mental divisions and pauses for a script

• Think creatively about punctuation!
Structural Features

- Recurrent shapes that frame the structure of a script
- When used, has enormous impact on script
A Rule of Thumb

About **80%** of the impression of a conscript comes from the **20%** most frequently used characters.

So choose wisely!
Featural Matching

- One common trend in conscripts is to match similar phonemes with similar structural elements

- Example: “b” & “p”

- However, languages with lots of inflection or nuance should potentially avoid this
Other Features

- Writing system (alphabet, abjad, abugida...)
- Direction of writing
The Ryonic Script Family
# Ryonic Blades

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<th>Bilabial &amp; Labiodental</th>
<th>Interdental</th>
<th>Palatal</th>
<th>Alveopalatal</th>
<th>Velar &amp; Glottal</th>
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<td>SH [ʃ]</td>
<td>H</td>
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</table>
Ryonic Family Tree
Non-Linguistic Scripts

• Many cultures have specialized scripts or symbols for non-linguistic tasks, such as:
  
  • Mathematics
  
  • Music
  
  • Chemistry
  
  • Many others...
Mathematical Script

• I suppose you could call this con-math...

\[ \sin^2\theta + \cos^2\theta = 1 \]
I suppose you could call this con-math...

\[ \sin^2 \theta + \cos^2 \theta = 1 \]
Questions?