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Formal Languages in IETF Documents

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Impedance Mismatch

Overview

- Want to use formal and structured languages to improve the quality of standards produced
- Generate documents written using formal languages or parse structures from within documents
- Use tooling to generate parser code or to prove properties about the protocols being specified

draft-mcquistin-augmented-ascii-diagrams

- Machine-readable format for specifying the syntax of protocol data units

- Packet header diagrams as they are (mostly) already written, just need consistency for parsing

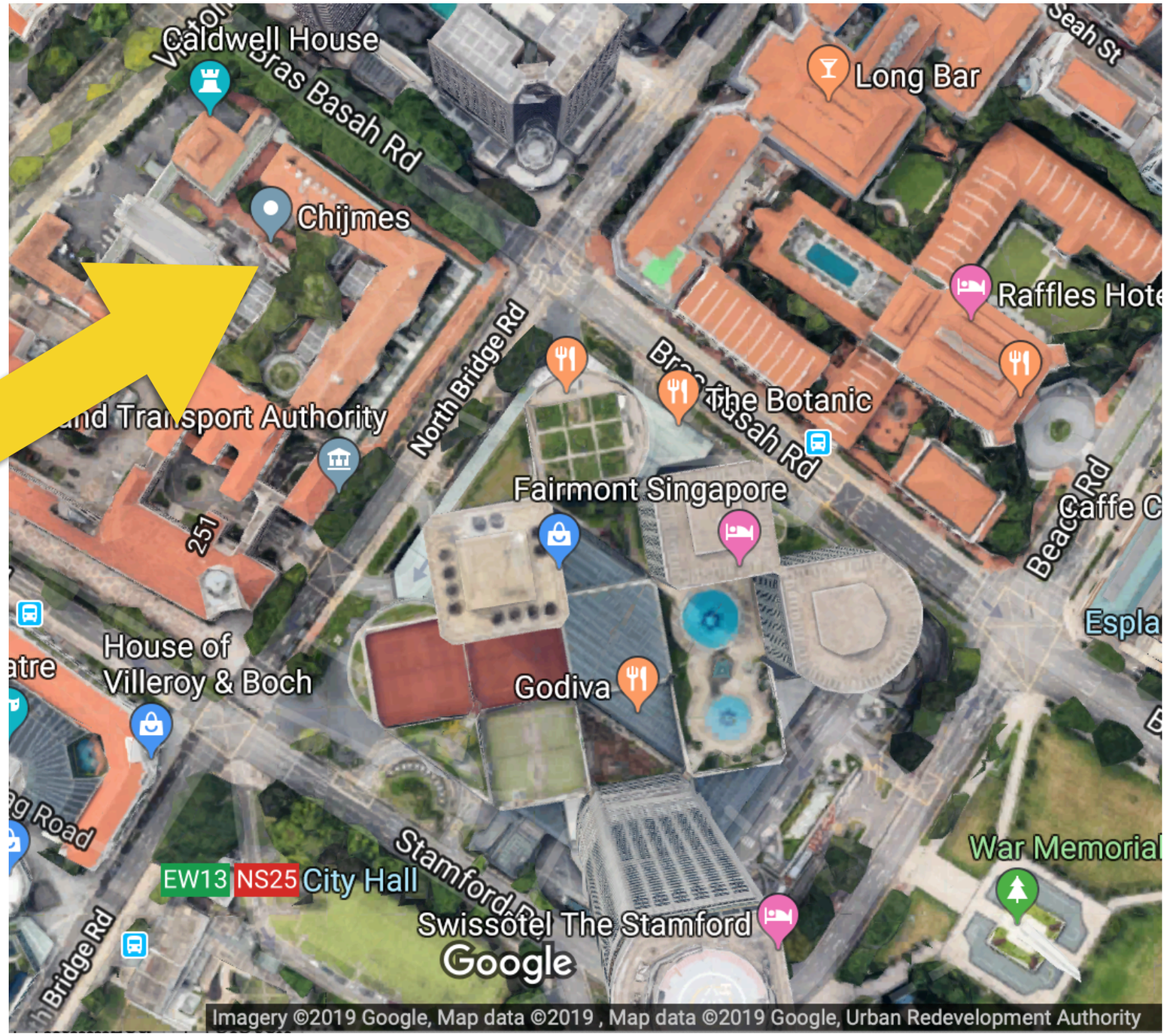
- Can make simple but effective checks (e.g., does the diagram match the text?)

- Generate parser code from the specification

Computerate Specifying

- Write your Internet-Draft in AsciiDoc (a markdown variant based on DocBook5)
- In the same file add formal protocol specifications in Idris with Dependent and Linear Types.
- Generate an xmlrfc3 file with:
  - examples that are correct by construction;
  - verified formal languages definitions in ABNF, etc…;
  - formal proof of the application of Postel's Law;
  - and much more…

across the road, downstairs



8pm on Thursday
The Winery at CHIJMES