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Compiling an Online Dictionary based on Field Data:

The Case of Kelabit Utilizing TEI/XML, XSLT and ChatGPT

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Abstract

Introduce Kelabit and ODK project

*Online Dictionary of Kelabit

How NLP assists in this project

ChatGPT helped the author create...

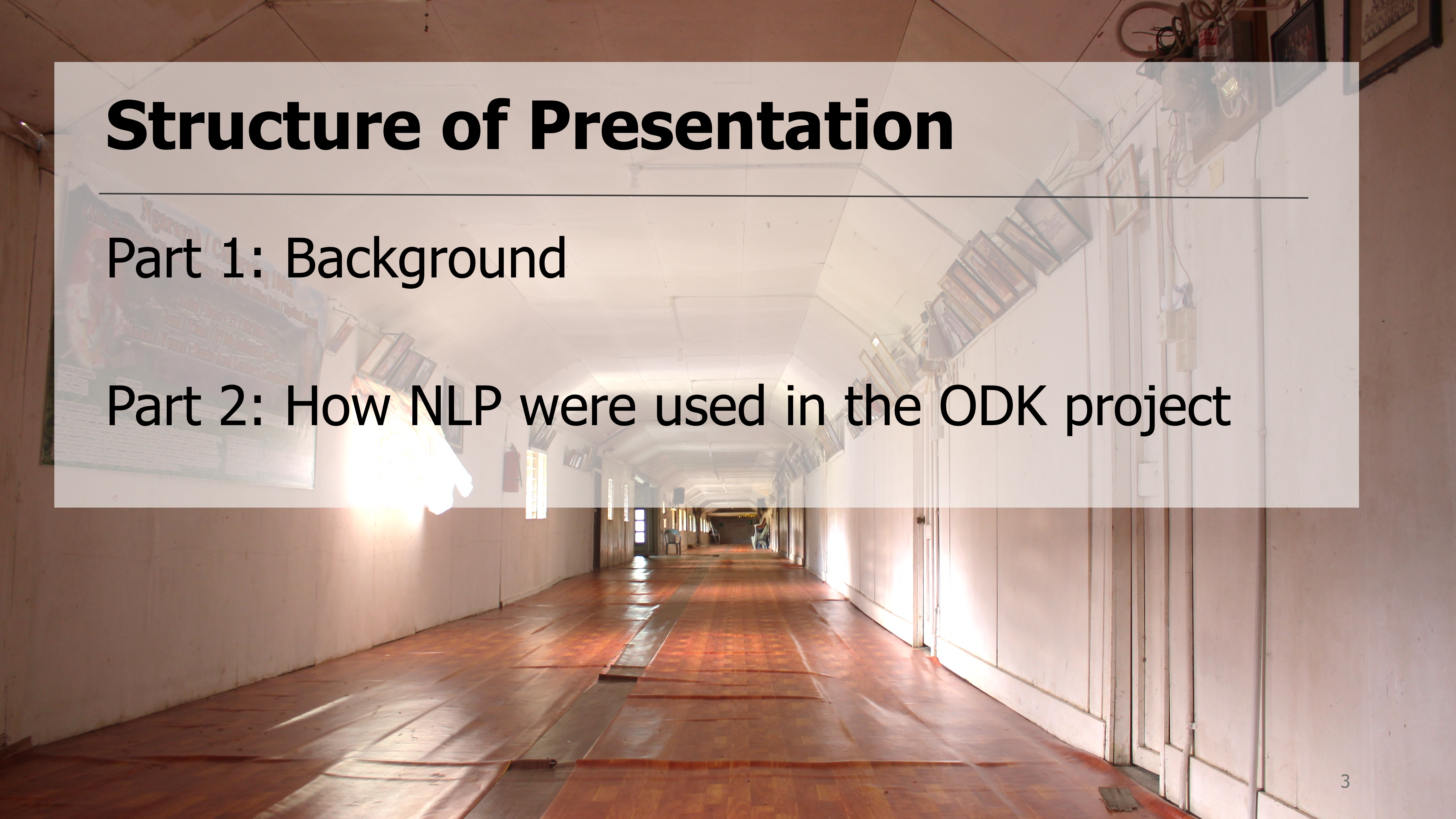
XSLT (to transform XML to HTML)

JavaScript (to add research function)

Structure of Presentation

Part 1: Background

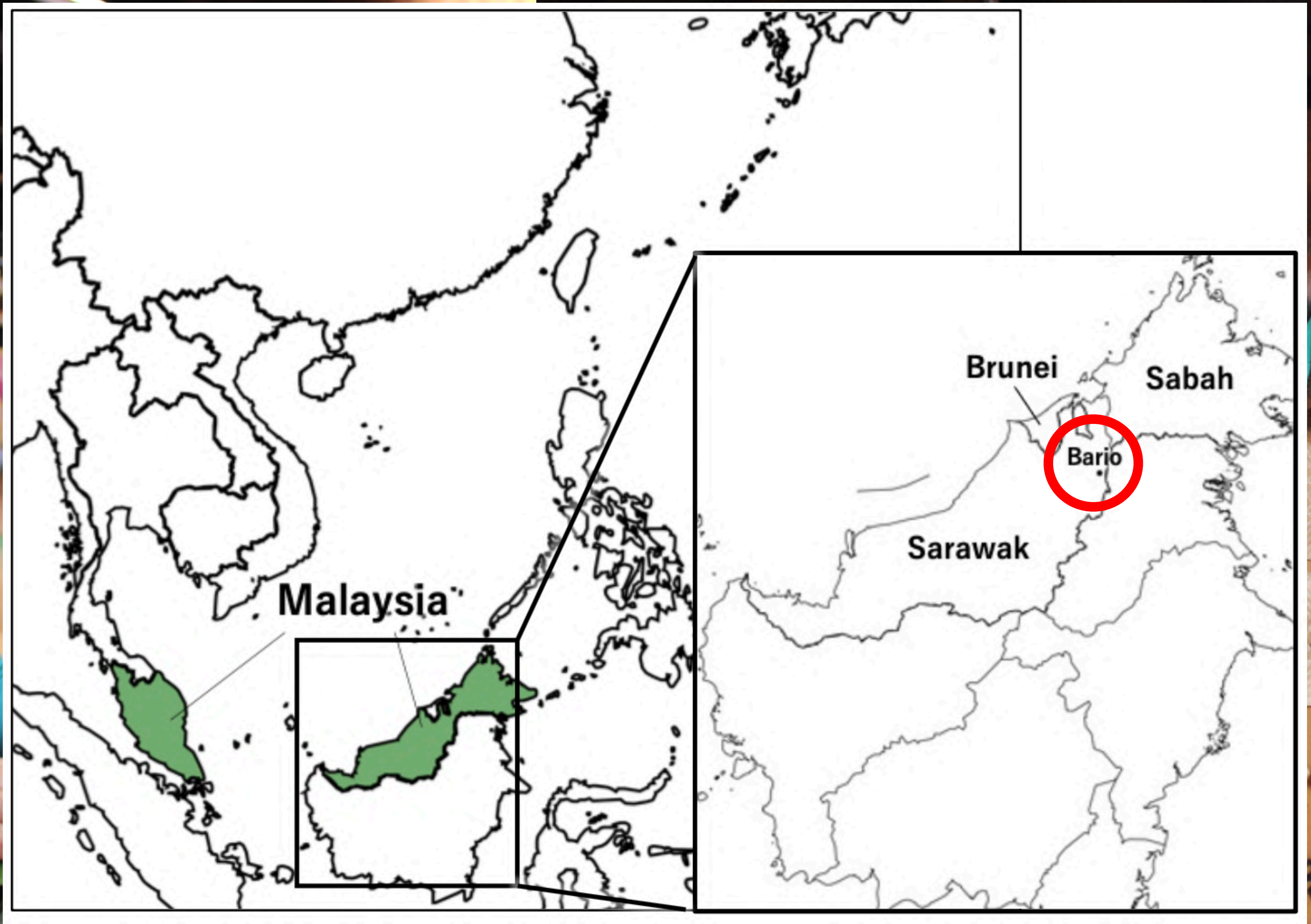
Part 2: How NLP were used in the ODK project

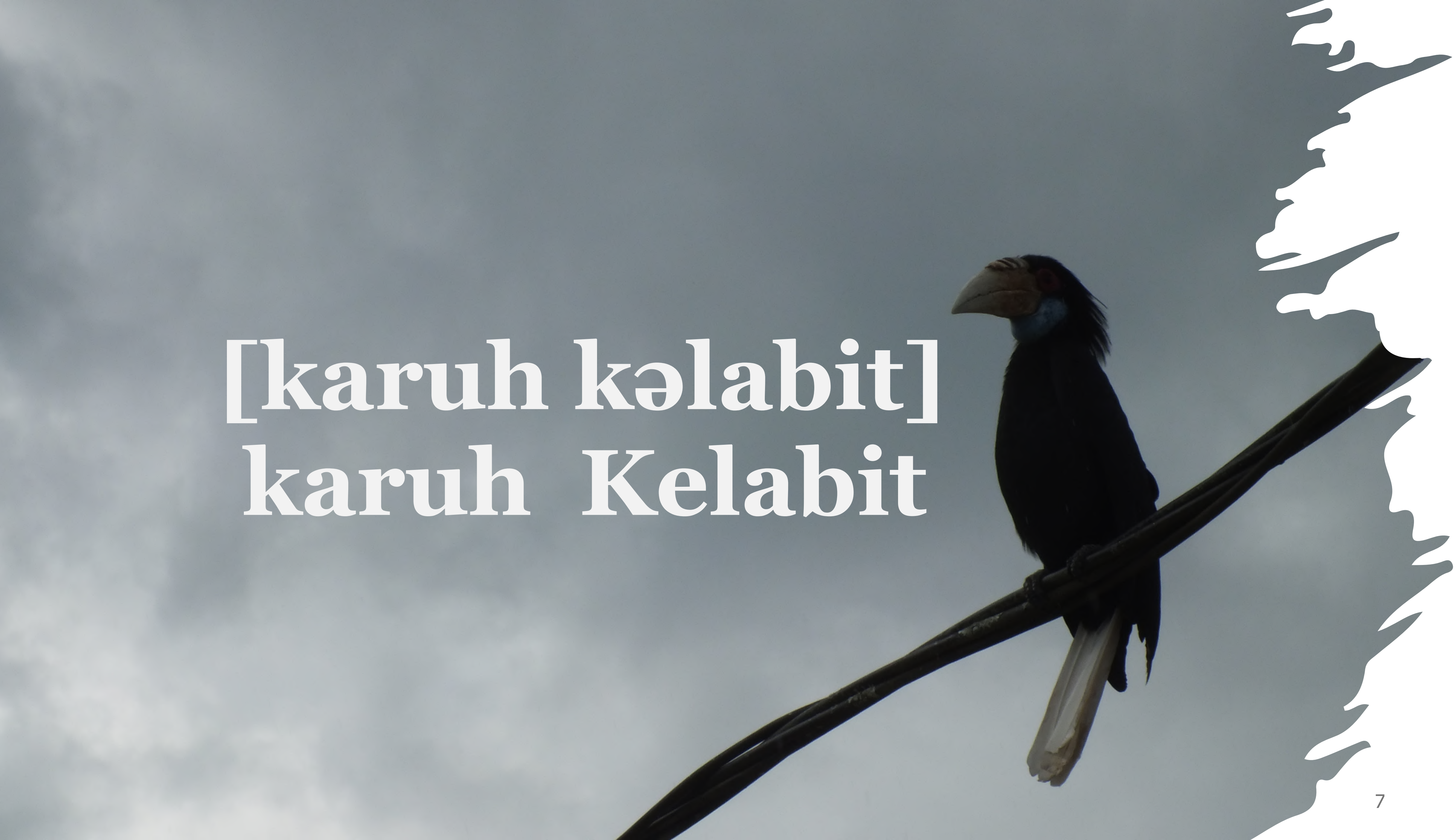


Part 1: Background

Bario, Sarawak, Malaysia

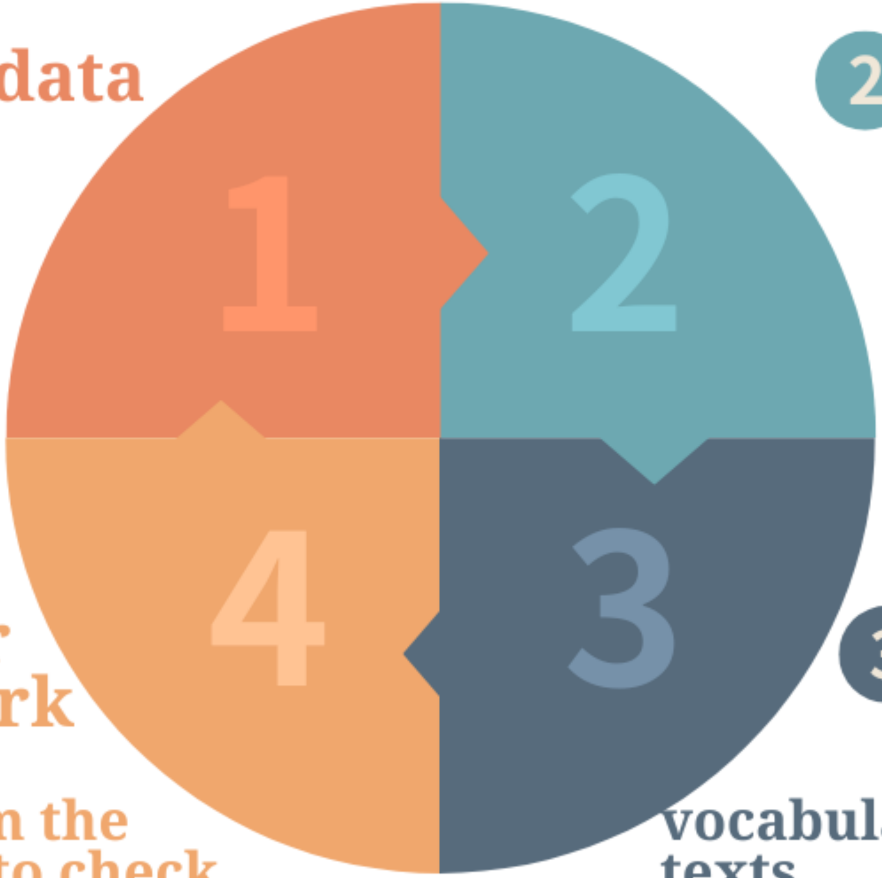
Kelabit





[karuh kəlabit]
karuh Kelabit

Process of grammar description



1 Collect data

2 annotation
analysis
(ELAN)

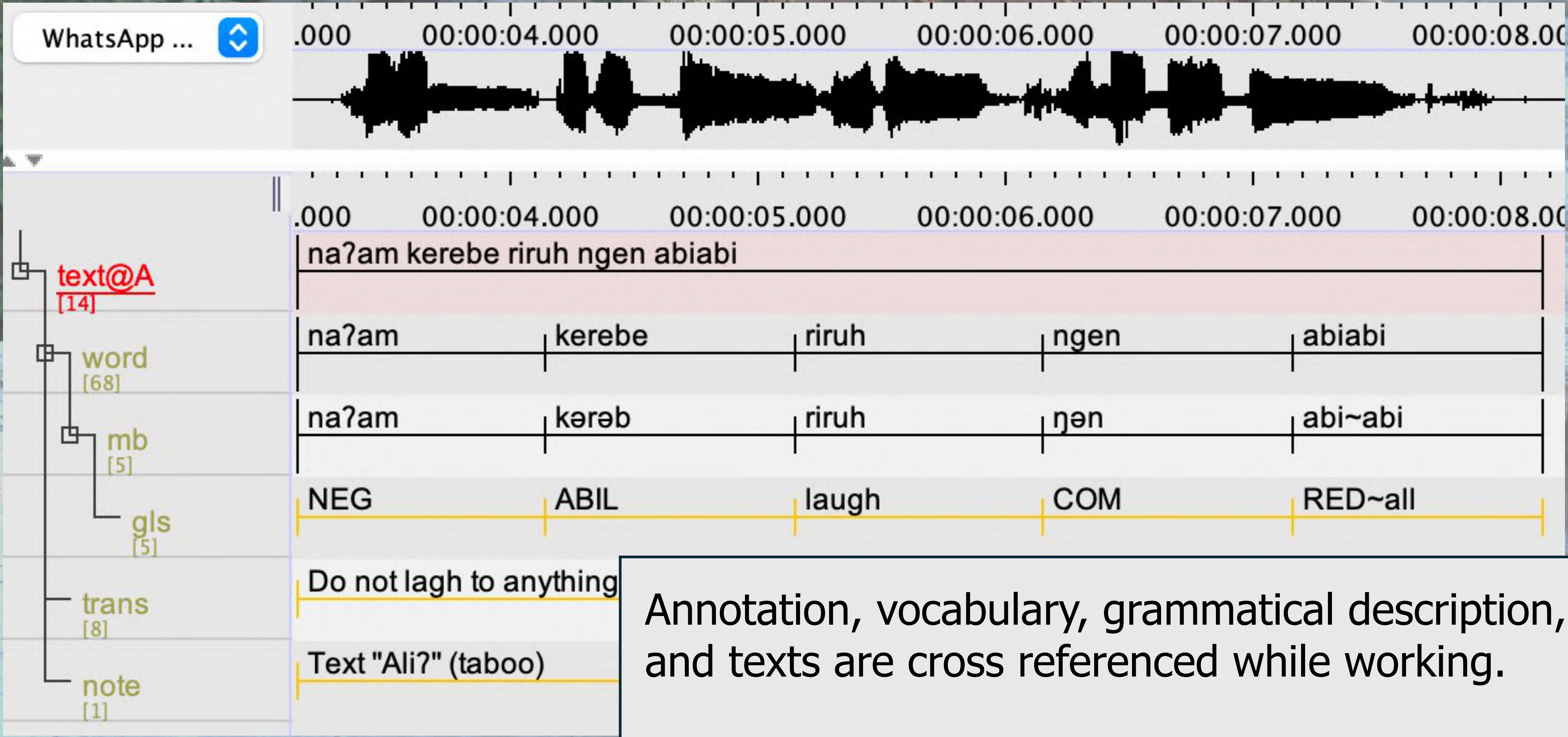
3 cross
referencing

vocabulary
texts
grammatical description

4 another
fieldwork

to confirm the
analysis, to check
another grammar…

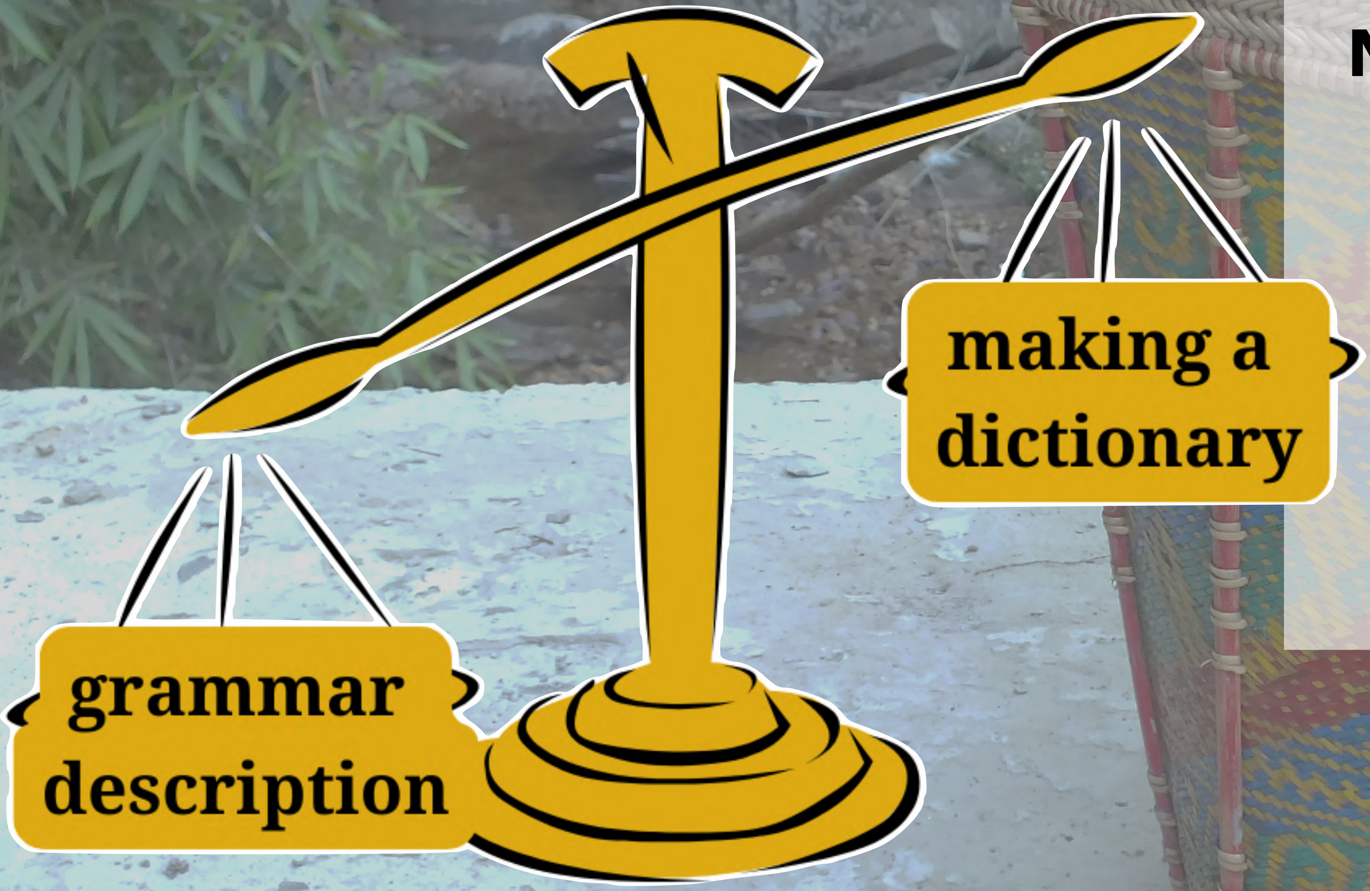
Annotation work using ELAN



text@A [14]	naʔam kerebe riruh ngen abiabi				
word [68]	naʔam	kerebe	riruh	ngen	abiabi
mb [5]	naʔam	kərəb	riruh	ŋən	abi~abi
gls [5]	NEG	ABIL	laugh	COM	RED~all
trans [8]	Do not lagh to anything				
note [1]	Text "Aliʔ" (taboo)				

Annotation, vocabulary, grammatical description, and texts are cross referenced while working.

We have lexical data for a dictionary…



Needs of speakers' community

- **language inheritance**

  dictionary
  children's book
  textbook for grown-ups
  …

Part 2:
How NLP were used in the ODK project?

The process of creating ODK

- **The process of making lexical data for the dictionary**

  Raw data → transcription (ELAN) **Done while grammar writing**

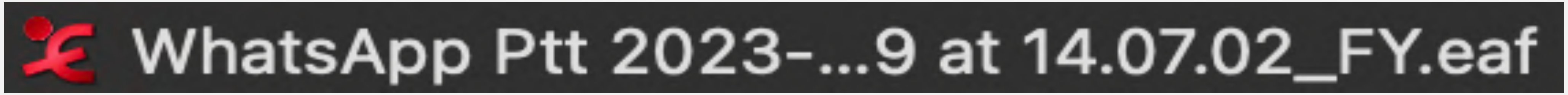
  → **transformation to TEI/XML (Oxygen)**

- **The process of getting the output in different formats**

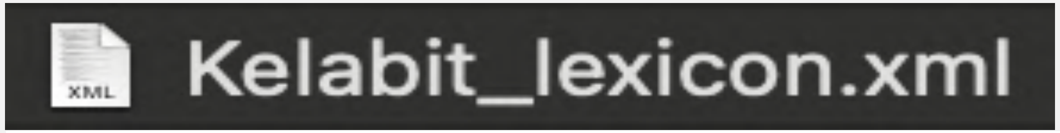
  XSLT(ChatGPT) → XML to HTML (Oxygen)

  → search function in JavaScript (ChatGPT)

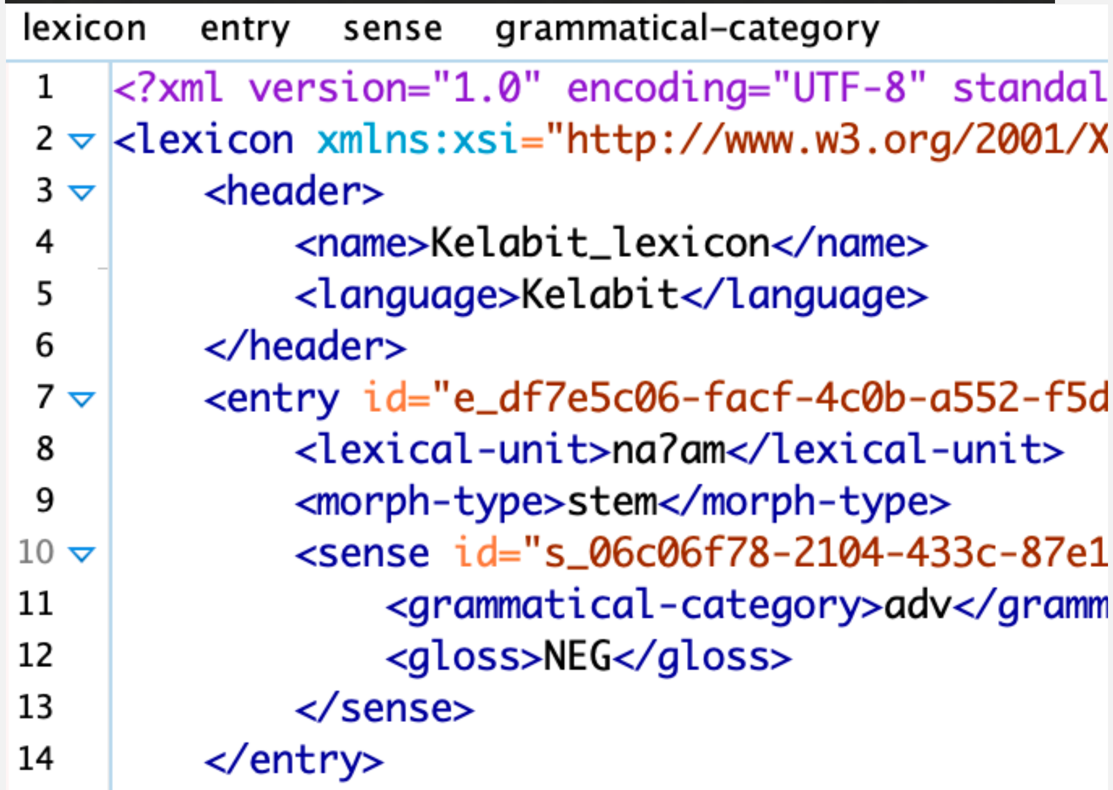
ELAN --> TEI/XML (OxygenXMLEditor)



WhatsApp Ptt 2023-...9 at 14.07.02_FY.eaf



Kelabit_lexicon.xml



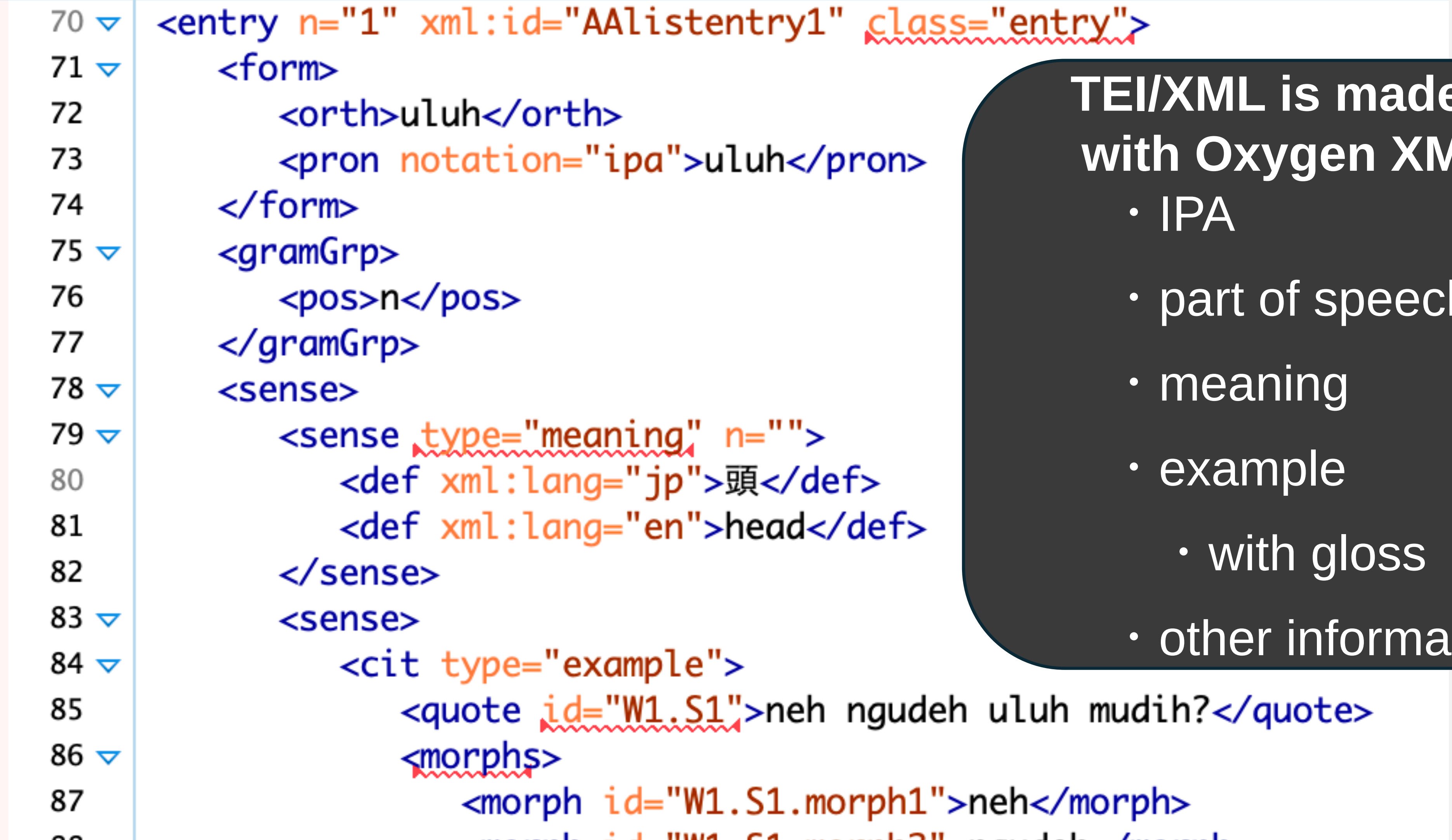
```
<?xml version="1.0" encoding="UTF-8" standal
<lexicon xmlns:xsi="http://www.w3.org/2001/X
    <header>
        <name>Kelabit_lexicon</name>
        <language>Kelabit</language>
    </header>
    <entry id="e_df7e5c06-facf-4c0b-a552-f5d
        <lexical-unit>na?am</lexical-unit>
        <morph-type>stem</morph-type>
        <sense id="s_06c06f78-2104-433c-87e1
            <grammatical-category>adv</gramm
            <gloss>NEG</gloss>
        </sense>
    </entry>
```

```
<entry>
    <lexical-unit>...
    <morph-type>...
    <sense>
        <grammatical-category>...
        <gloss>...
    </sense>
</entry>
```

NOT suitable for ODK

TEI/XML for ODK (TEI Guideline Ch. 10 Dictionaries)

https://tei-c.org/release/doc/tei-p5-doc/en/html/DI.html



```
<entry n="1" xml:id="AAlistentry1" class="entry">
    <form>
        <orth>uluh</orth>
        <pron notation="ipa">uluh</pron>
    </form>
    <gramGrp>
        <pos>n</pos>
    </gramGrp>
    <sense>
        <sense type="meaning" n="">
            <def xml:lang="jp">頭</def>
            <def xml:lang="en">head</def>
        </sense>
        <sense>
            <cit type="example">
                <quote id="W1.S1">neh ngudeh uluh mudih?</quote>
                <morphs>
                    <morph id="W1.S1.morph1">neh</morph>
                    <morph id="W1.S1.morph2">ngudeh</morph>
```

TEI/XML is made by hand with Oxygen XML editor.

- IPA
- part of speech
- meaning
- example
    - with gloss
- other information

The process of creating ODK

- **The process of making lexical data for the dictionary**

  Raw data → transcription (ELAN)

  → transformation to TEI/XML (Oxygen)

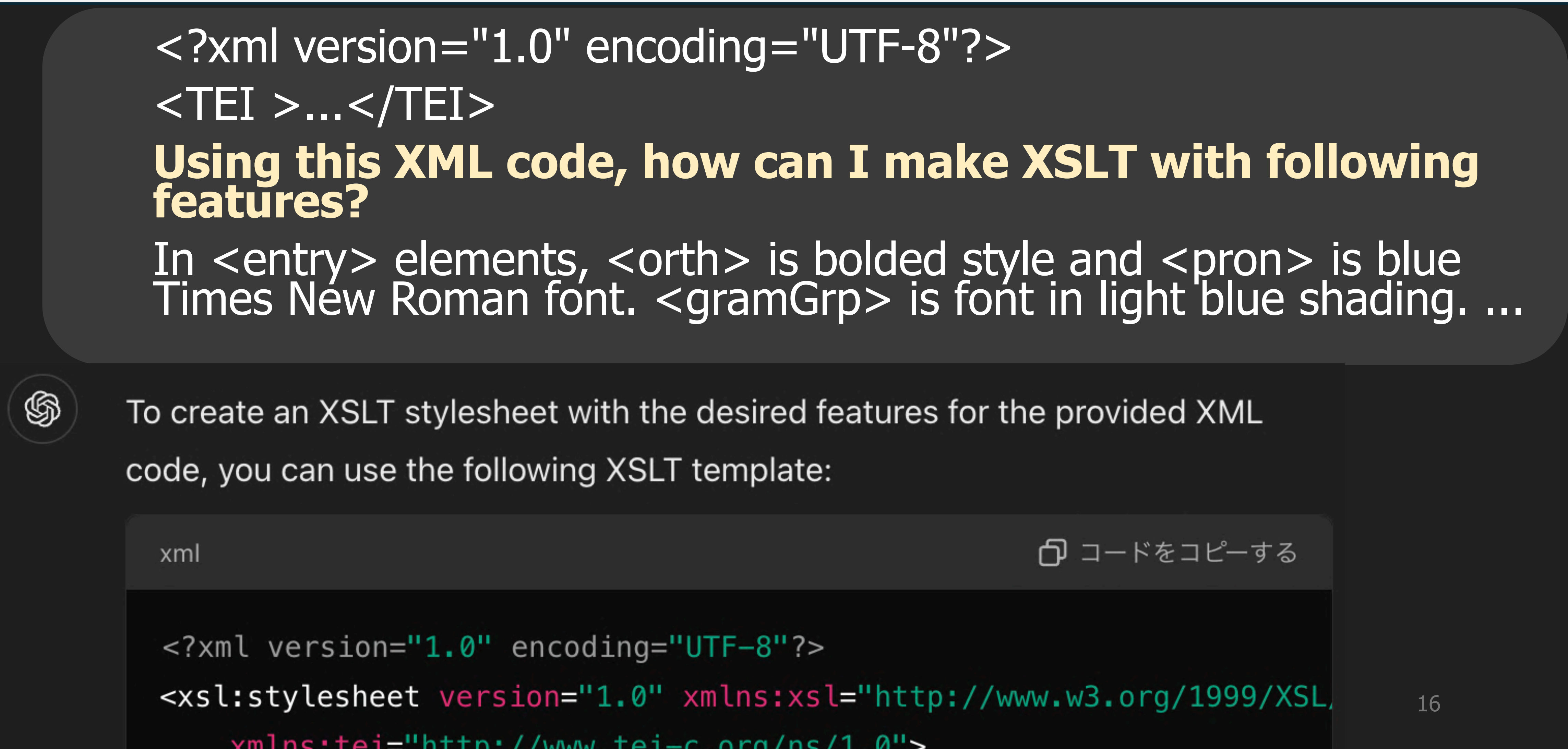
- **The process of getting the output in different formats**

  XSLT(ChatGPT) → XML to HTML (Oxygen)

  → search function in JavaScript (ChatGPT)

Creating XSLT with ChatGPT

ChatGPT recommended XSLT over CSS.



<?xml version="1.0" encoding="UTF-8"?>
<TEI >...</TEI>

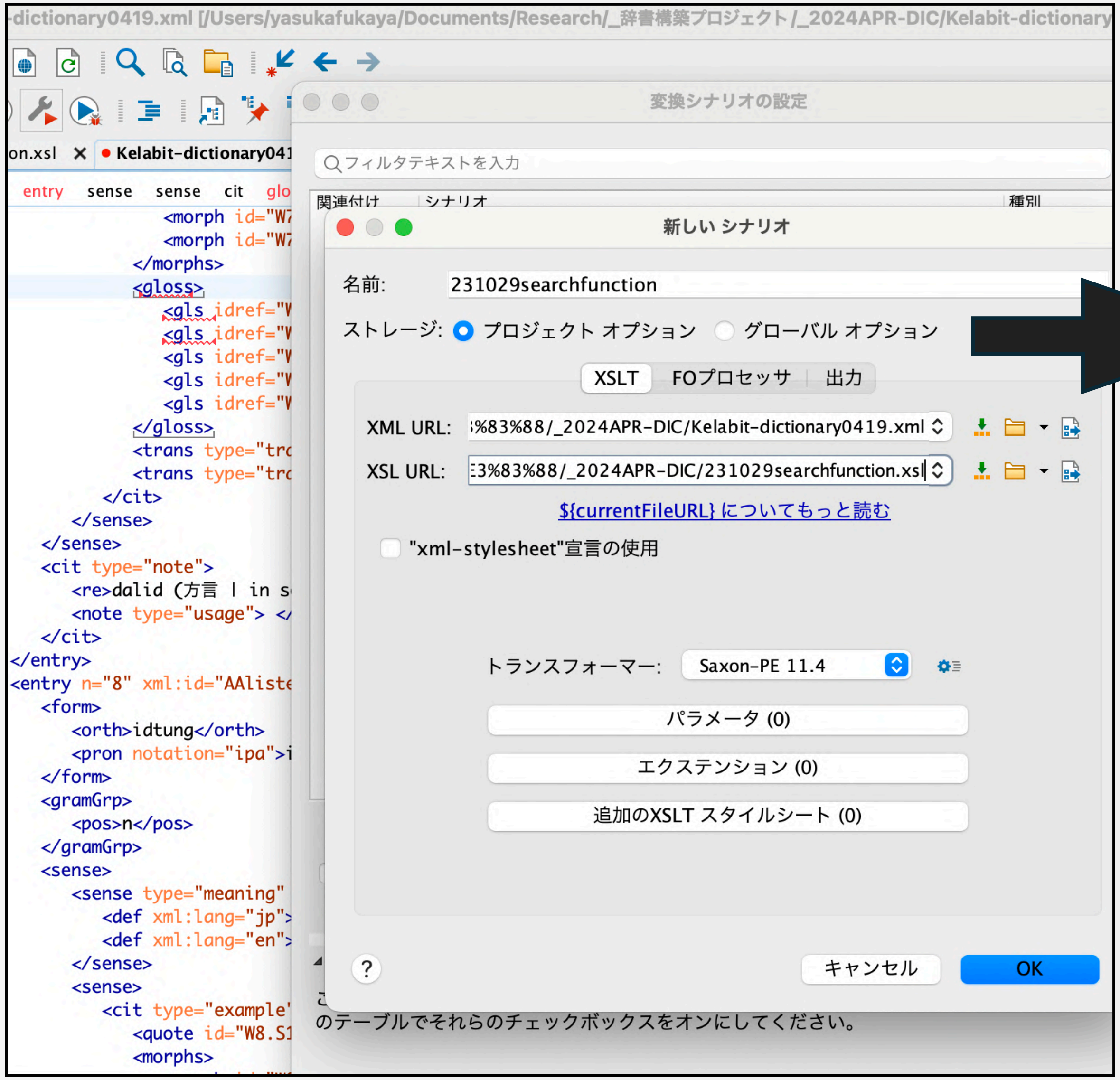
Using this XML code, how can I make XSLT with following features?

In <entry> elements, <orth> is bolded style and <pron> is blue Times New Roman font. <gramGrp> is font in light blue shading. ...

To create an XSLT stylesheet with the desired features for the provided XML code, you can use the following XSLT template:

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/
    xmlns:tei="http://www.tei-c.org/ns/1.0">
```

XML to HTML



-dictionary0419.xml [/Users/yasukafukaya/Documents/Research/_辞書構築プロジェクト/_2024APR-DIC/Kelabit-dictionary

```
            <morph id="W7
            <morph id="W7
         </morphs>
         <gloss>
            <gls idref="V
            <gls idref="V
            <gls idref="V
            <gls idref="V
            <gls idref="V
         </gloss>
         <trans type="tro
         <trans type="tro
      </cit>
    </sense>
  </sense>
  <cit type="note">
    <re>dalid (方言 | in s
    <note type="usage"> </
  </cit>
</entry>
<entry n="8" xml:id="AAliste
  <form>
    <orth>idtung</orth>
    <pron notation="ipa">i
  </form>
  <gramGrp>
    <pos>n</pos>
  </gramGrp>
  <sense>
    <sense type="meaning"
      <def xml:lang="jp">
      <def xml:lang="en">
    </sense>
    <sense>
      <cit type="example"
        <quote id="W8.S1
        <morphs>
```

変換シナリオの設定

フィルタテキストを入力

新しい シナリオ

名前: 231029searchfunction

ストレージ: ● プロジェクト オプション ○ グローバル オプション

XML URL: %83%88/_2024APR-DIC/Kelabit-dictionary0419.xml

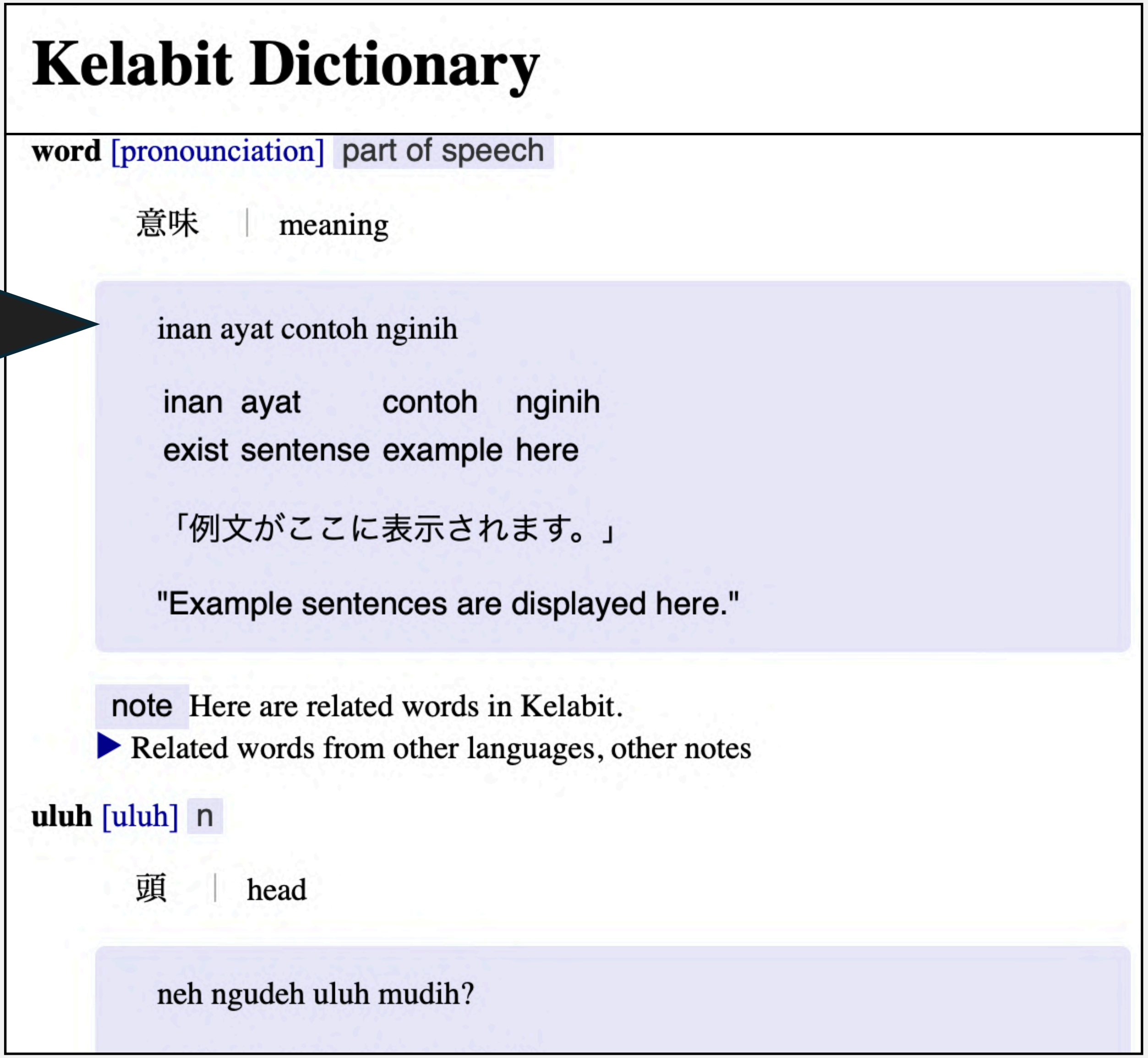
XSL URL: 3%83%88/_2024APR-DIC/231029searchfunction.xsl

${currentFileURL} についてもっと読む

□ "xml-stylesheet"宣言の使用

トランスフォーマー: Saxon-PE 11.4

のテーブルでそれらのチェックボックスをオンにしてください。



Kelabit Dictionary

word [pronounciation] part of speech

意味 | meaning

inan ayat contoh nginih

inan	ayat	contoh	nginih
exist	sentense	example	here

「例文がここに表示されます。」

"Example sentences are displayed here."

note Here are related words in Kelabit.

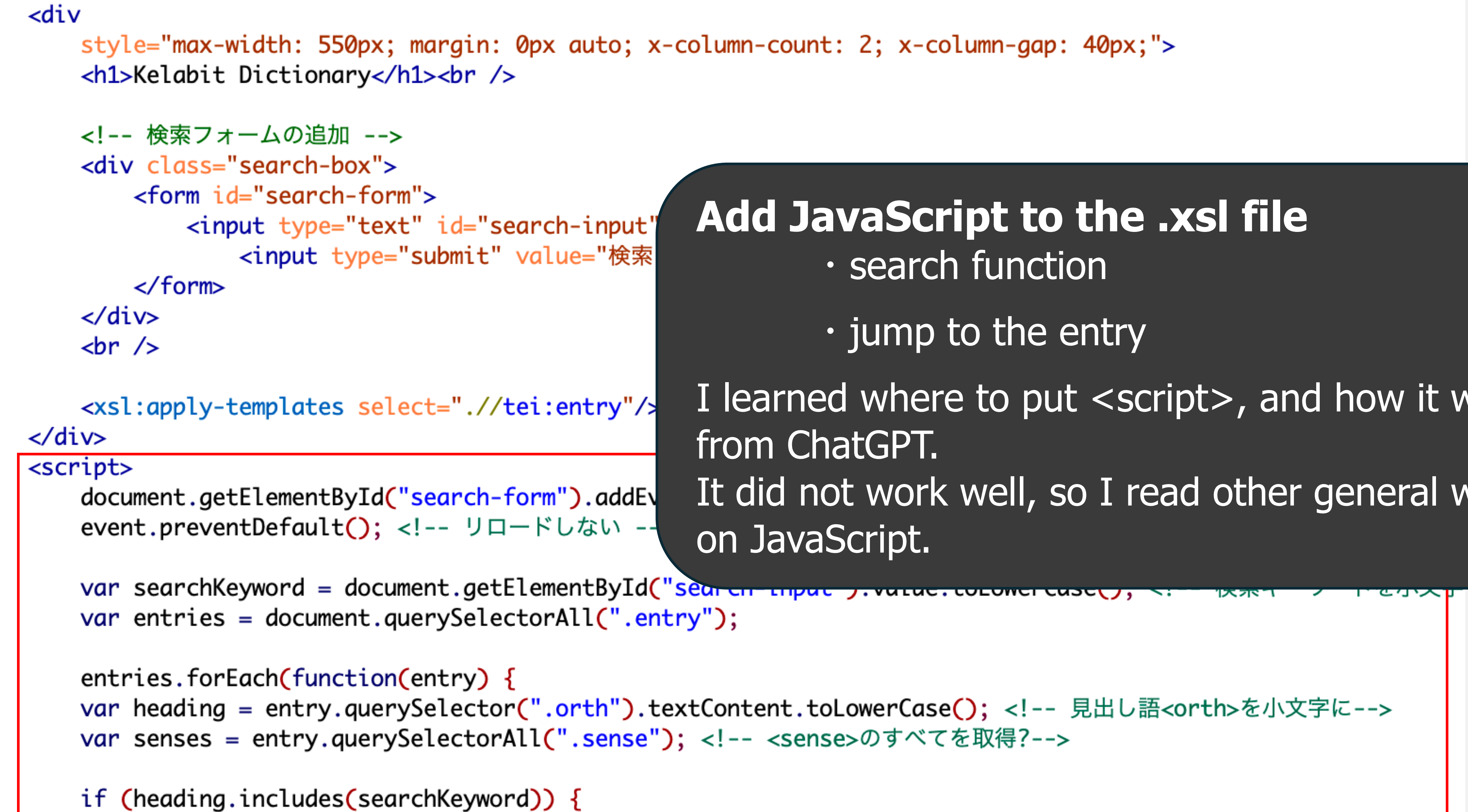
▶ Related words from other languages, other notes

uluh [uluh] n

頭 | head

neh ngudeh uluh mudih?

Add a search function made by ChatGPT

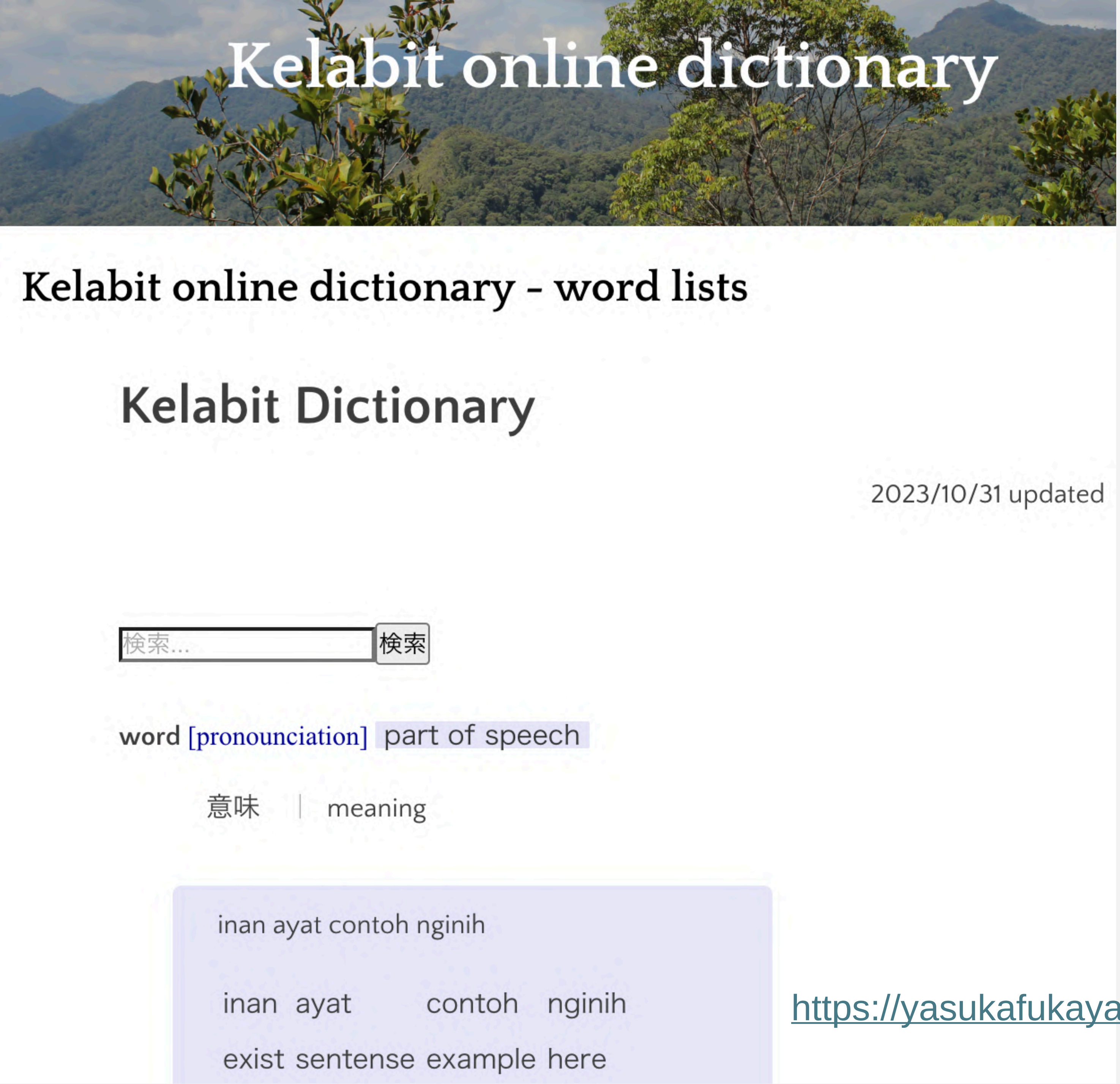


```
<div
    style="max-width: 550px; margin: 0px auto; x-column-count: 2; x-column-gap: 40px;">
    <h1>Kelabit Dictionary</h1><br />

    <!-- 検索フォームの追加 -->
    <div class="search-box">
        <form id="search-form">
            <input type="text" id="search-input"
                <input type="submit" value="検索
        </form>
    </div>
    <br />

    <xsl:apply-templates select=".//tei:entry"/>
</div>
<script>
    document.getElementById("search-form").addEv
    event.preventDefault(); <!-- リロードしない --

    var searchKeyword = document.getElementById("search-input").value.toLowerCase(); <!-- 検索キーワードを小文字
    var entries = document.querySelectorAll(".entry");

    entries.forEach(function(entry) {
    var heading = entry.querySelector(".orth").textContent.toLowerCase(); <!-- 見出し語<orth>を小文字に-->
    var senses = entry.querySelectorAll(".sense"); <!-- <sense>のすべてを取得?-->

    if (heading.includes(searchKeyword)) {
```

Add JavaScript to the .xsl file

- search function
- jump to the entry

I learned where to put <script>, and how it works from ChatGPT.
It did not work well, so I read other general websites on JavaScript.



Kelabit online dictionary

Kelabit online dictionary - word lists

Kelabit Dictionary

2023/10/31 updated

word [pronounciation] part of speech

意味 | meaning

inan ayat contoh nginih

inan ayat contoh nginih
exist sentense example here

Present version

limited words and function

Future goal

Better way (xml, xsl…)

Photos and sounds

https://yasukafukaya.weebly.com/kelabit-dictionary.html

I would like to express my special thanks of gratitude to my language consultants and Kelabit community who supports me.

Terima kasih mula'-mula'!