What's new in CLDR 2.0

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Unicode: Global Foundation

- System of standards
- Encodes all modern languages
- Free flow and interchange of textual data

Photo: NASA Earth Observatory

Challenge: Local Needs

- Process, interchange, display all text using modern standards including Unicode
- Provide the user with a localized experience that matches their own cultural and linguistic expectations.

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Localization: A moving target

- Often difficult to determine the “best” translation.
- Increasingly sophisticated platforms
- Emerging markets
- Constantly changing user expectations, geopolitical and linguistic landscape

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The need for **Common** data

- Different operating systems and application software can have much variation in locale data.

- It is time consuming to keep this data up to date.

- It is difficult to get complete agreement on correctness.

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Unicode CLDR (Common Locale Data Repository)

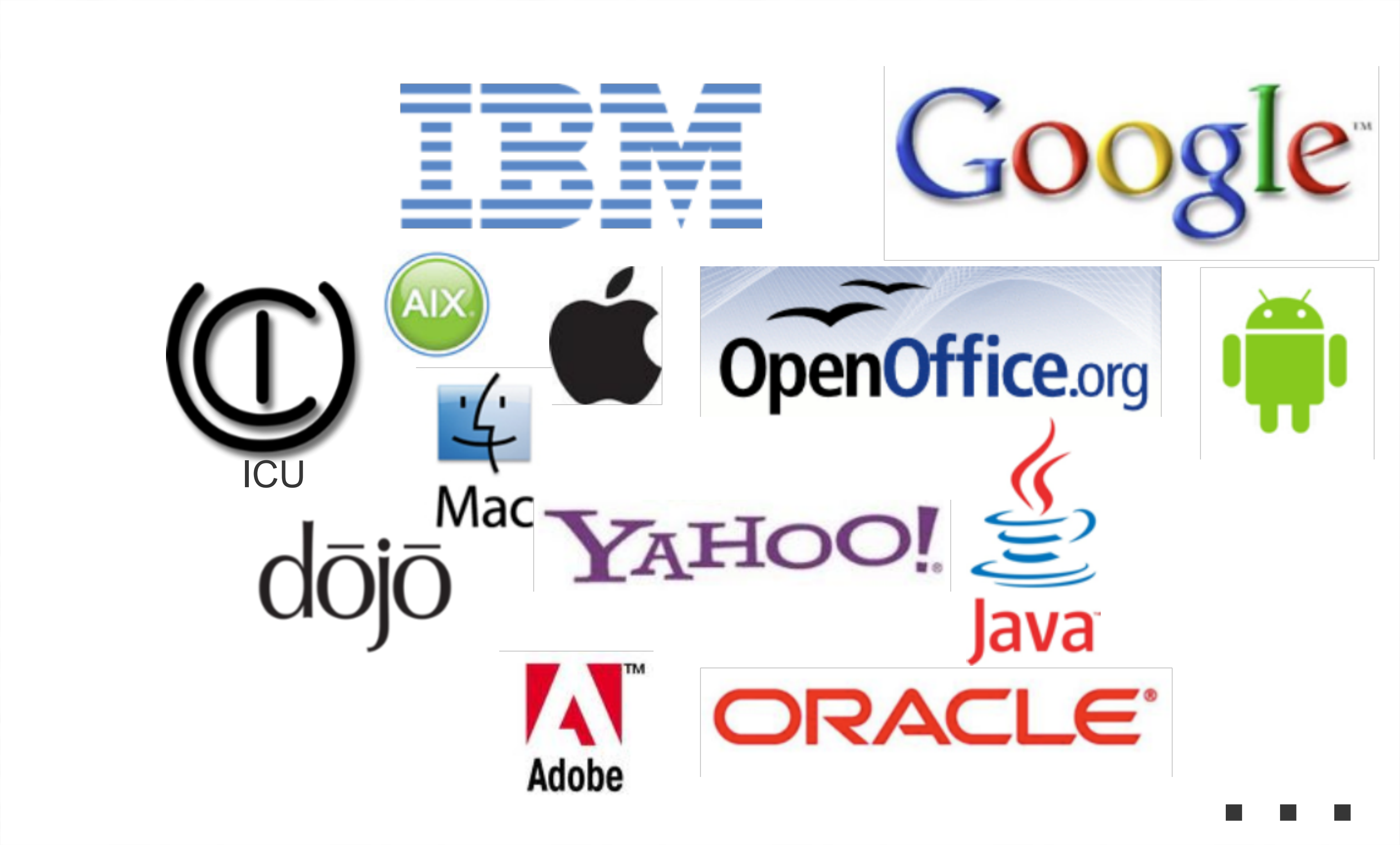
- Dates
  - *2010年10月*
- Numbers
  - *€12,35*
- Units & Relative
  - *3 hours*
  - *4 hours ago*
- Characters
  - *а б в г д …*

…

- Names for: Languages, Regions, Scripts, Time zones, Currencies…
- Sorting, Searching, Matching
- Language matching

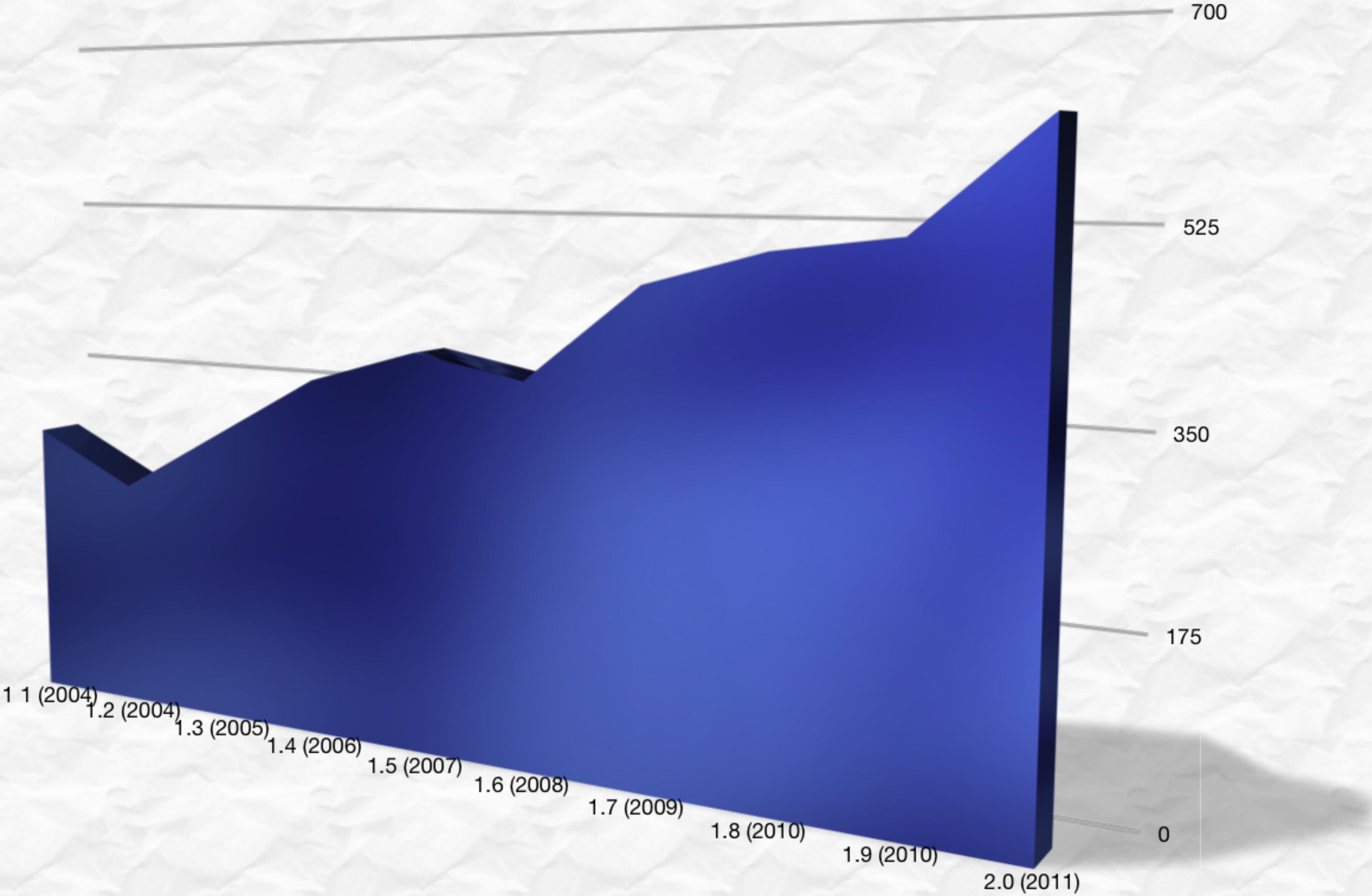
…

Who uses CLDR?



Many companies, organizations, and individuals contribute to CLDR data and structure

History of CLDR Locales



Locale Data Markup Language

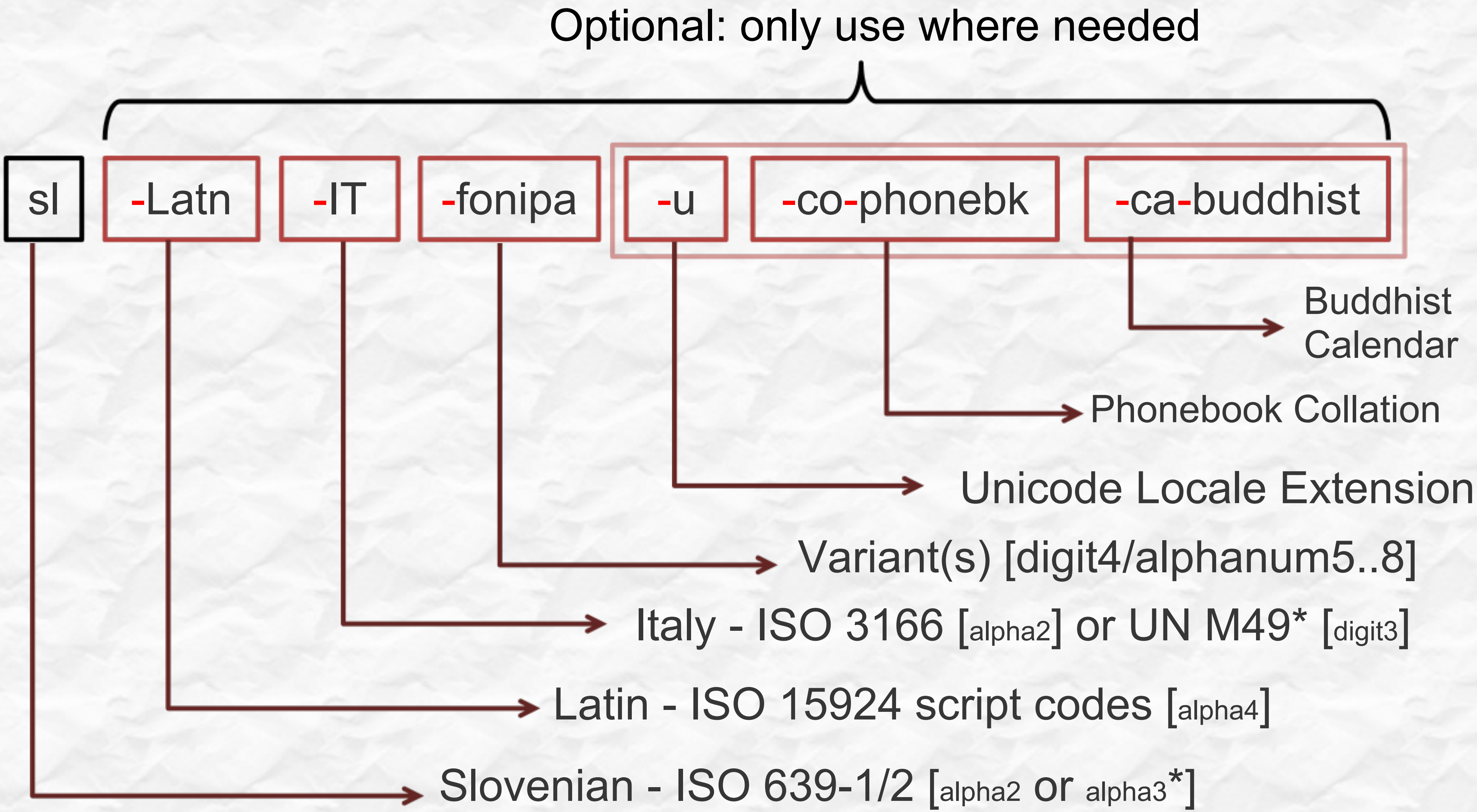
XML Interchange Format

```
<dayWidth type="wide">
  <day type="sun">Sonntag</day>
  <day type="mon">Montag</day>
  <day type="tue">Dienstag</day>
  <day type="wed">Mittwoch</day>…
```

In products, use optimized format.

ICU, POSIX, OpenOffice, dojo, others…

Anatomy of a Unicode Locale ID



Optional: only use where needed

sl -Latn -IT -fonipa -u -co-phonebk -ca-buddhist

Buddhist Calendar

Phonebook Collation

Unicode Locale Extension

Variant(s) [digit4/alphanum5..8]

Italy - ISO 3166 [alpha2] or UN M49* [digit3]

Latin - ISO 15924 script codes [alpha4]

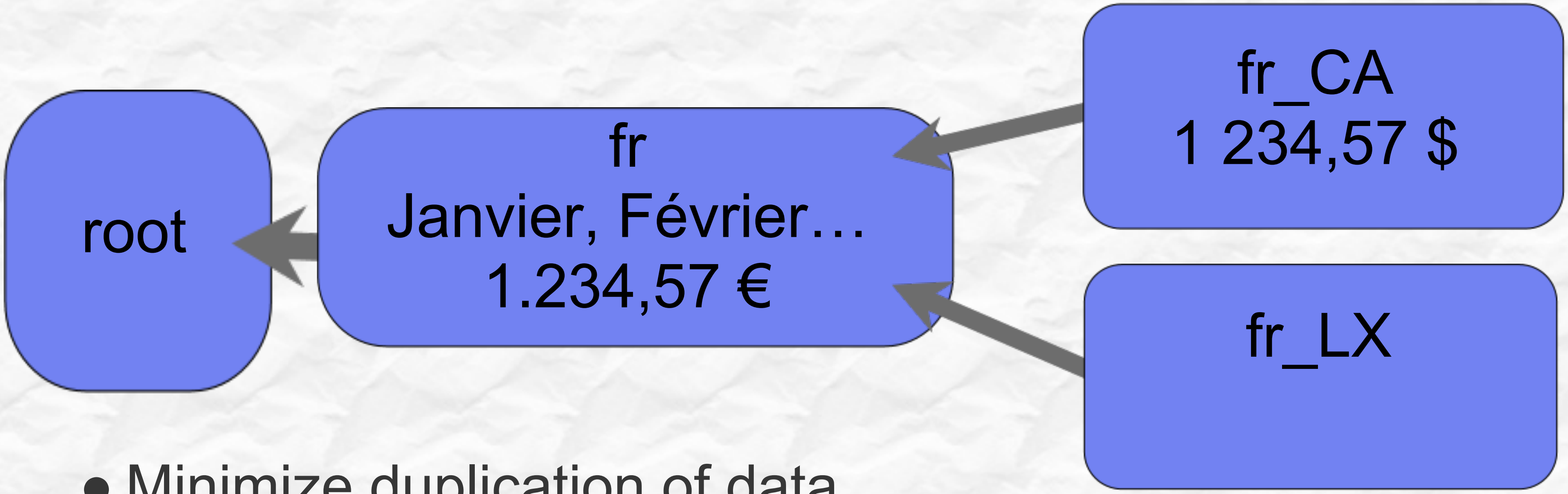
Slovenian - ISO 639-1/2 [alpha2 or alpha3*]

*only if no alpha2

Unicode Locale/Language ID

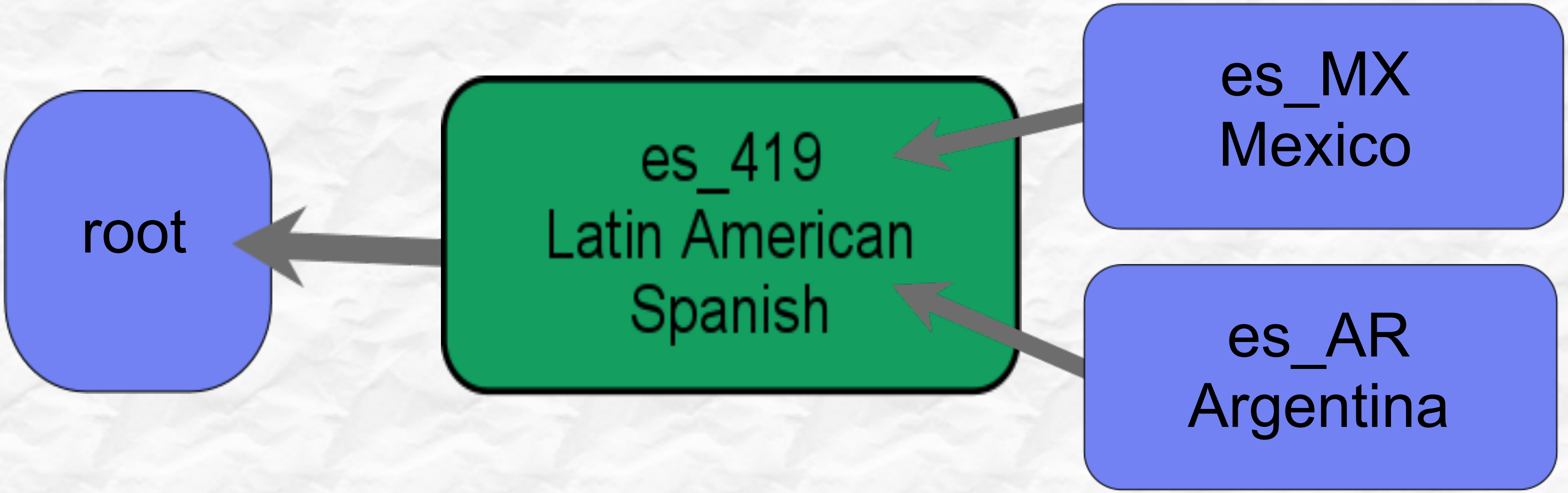
- UTS #35 *Unicode Locale Data Markup Language* (LDML)
- Based on BCP 47 + RFC 6067 + language-subtag-registry
- Some restrictions & extensions
  - Both '_' and '-' as separators
  - No extlang, no irregular (grandfathered) tags
    - Uses “zh” for compatibility, not “cmn”, etc.
  - Private use codes defined
    - “ZZ” for Unknown Region

Locale Inheritance



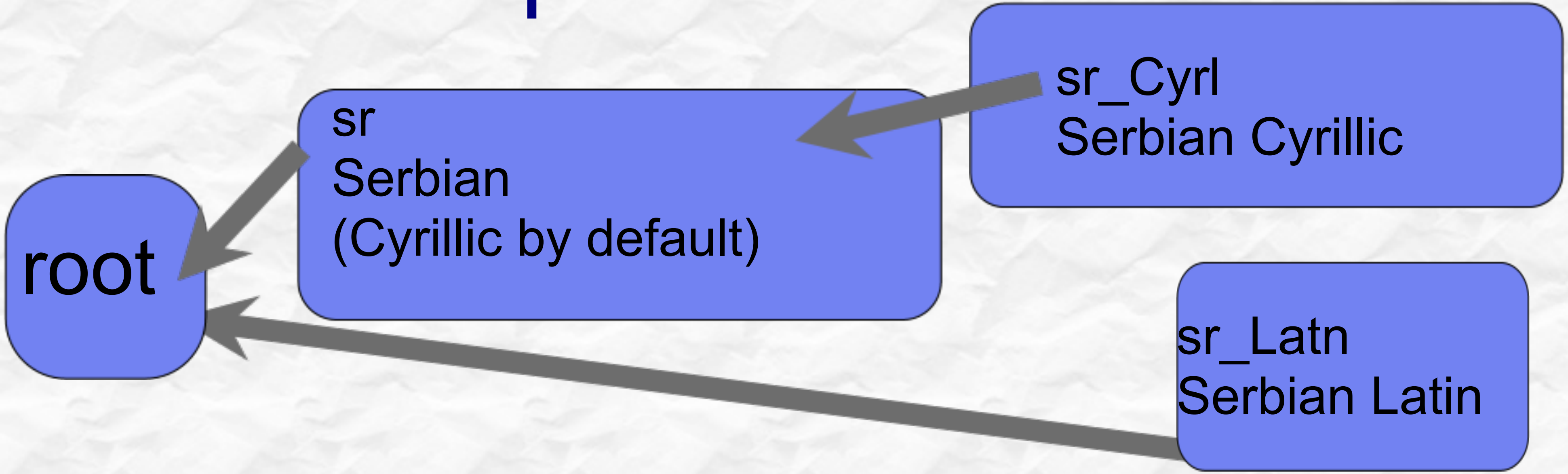
- Minimize duplication of data
- Decrease maintenance cost
- Final fallback: “root” locale

Specialized Inheritance



- Further reduce cost/effort
- Coordinate translations in related sublocales
- Identify places to save translation costs for applications

No Cross Script Inheritance



- sr_Latn does NOT inherit from sr !
- Avoid “ransom note effect” if some are/aren't translated.
- Similarly, zh_Hant (Traditional Chinese) doesn't inherit from zh (Simplified Chinese)

Locale Display Names

code	English	German	…
de	German	Deutsch	…
fr	French	Französisch	…
nl_BE	Flemish	Flämisch	…
…	…	…	…

- Translated display names and formatting patterns
- languages, territories, scripts, variants, keywords, keyword types, measurement systems, ...

Exemplar Characters

Main: Letters used in the language

aä b-oö p-s ß t uü v-z

Auxiliary: Foreign and technical letters

áàăâåā æ ç éèĕêëē … œ úùŭû ū ÿ

Index: "Head" letters

A Ä B C Č D Ď E F G … X Y Z Ž

Punctuation

- ‐ – — , ; : ! ? . … ‘ ’ ’ ′ ″ “ ″ ” ( ) [ ] / @ &
…

Delimiters

English	“quotation”	‘alternate’
German	„quotation“	‚alternate‘
Japanese	「quotation」	『alternate』

Fixed/Flexible Date Formats

Fixed

Full	Thursday, October 14, 2010
Long	October 14, 2010
Medium	Oct 14, 2010
Short	10/14/10

Flexible

	English	**Japanese**
Year + Abbr-Month	Oct 2010	2010年10月
Abbr-Month + Day + Weekday	Fri, Oct 15	10月15日(金)

Time Zone Formatting

Generic NL - Short	**HEC**
Generic NL - Long	Heure de l’Europe centrale
Specific NL - Short	**HAEC**
Specific NL - Long	Heure avancée d’Europe centrale
RFC 822	+0200
Localized GMT	UTC+02:00
Generic Location	France

Unit Formatting

English	Czech
1 hour	1 hodina
1 hr	1 hod.
2 hours	2 hodiny
2 hrs	2 hod.
5 hours	5 hodin
5 hrs	5 hod.

- Year, Month, Week, Day, Hour, Minute, Second
- With plural support

Relative times

English
Yesterday
Tomorrow
3 days ago*
In 3 days*
…

* New in CLDR 2.0, with plural support

Rule Based Number Formatting

#	**12,345**
English	twelve thousand three hundred forty-five
German	zwölftausenddreihundertfünfundvierzig
Italian	dodicimilatrecentoquarantacinque

- Many improvements to the data

Currencies

	English	Serbian
USD	US dollar / US dollars $35.72 1 US dollar 2 US dollars 5 US dollars	амерички долар / долара 35.72 US$ 1 амерички долар 2 америчка долара 5 америчких долара
EUR	euro / euros €35.72 1 euro 2 euros 5 euros	евро / евра 35.72 € 1 евро 2 евра 5 евра

List Patterns

English	Japanese
John and Mary	鈴木、田中
John, Mary, and Ted	鈴木、田中、渡辺

Text Segments

<table>
<tr><td>User Character</td><td>|I| |l|i|k|e| |a|p|p|l|e|s|.| |(|D|o| |y|o|u|?|)|</td></tr>
<tr><td>Word</td><td>|I| |like| |apples|.| |(|Do| |you?|)|</td></tr>
<tr><td>Line</td><td>I |like |apples. |(Do |you?)</td></tr>
<tr><td>Sentence</td><td>|I like apples. |(Do you?)|</td></tr>
</table>

Transforms

キャンパス	**kyanpasu**
Αλφαβητικός Κατάλογος	**Alphabētikós Katálogos**
биологическом	**biologichyeskom**

Collation Example

German	Swedish
01: Åkersberga	02: Alingsås
02: Alingsås	04: Oskarshamn
03: Äppelbo	07: Utting
04: Oskarshamn	06: Üttfeld
05: Östersund	08: Zwickau
06: Üttfeld	**01: Åkersberga**
07: Utting	**03: Äppelbo**
08: Zwickau	**05: Östersund**

Collation (Sorting/Matching)

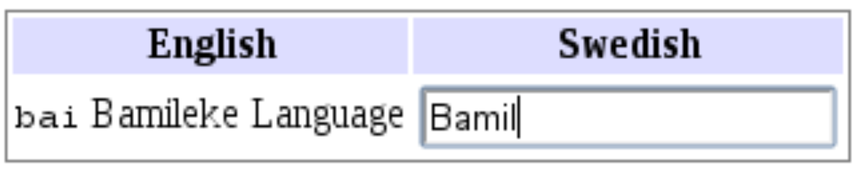
- Unicode Collation Algorithm (UTS #10)
- Tailoring (Customizing) for languages
- Root tailoring
  - Rearrange groups:
    - Spaces, Punctuation, Symbols, Currencies, Numbers, Latin, Cyrillic, Greek, ... CJK
  - U+FFFE lowest weight, U+FFFF highest.

Collation New Features

- Search Collator
  - Korean, Arabic, Hebrew (but located in Root)
  - Assigns primary weights to make searching easier (i.e. consider several different ALEF as equivalent)
- “Import”
  - Simplify maintenance
  - Example: Many European Languages will import “European Ordering Rules”

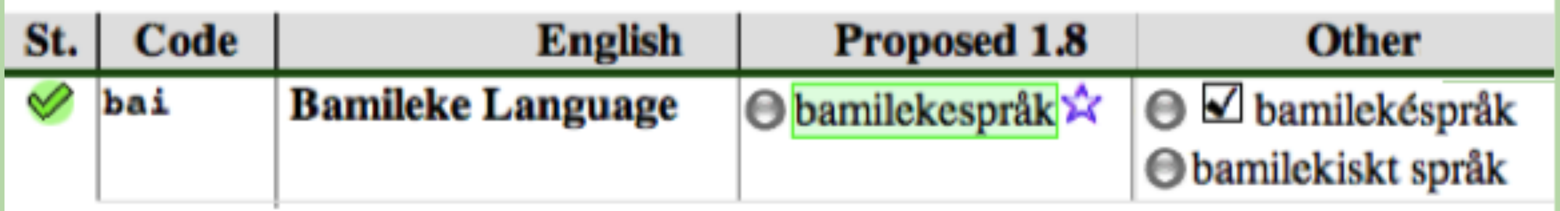
CLDR Process

Data Submission



English	Swedish
bai Bamileke Language	Bamil

Vetting



St.	Code	English	Proposed 1.8	Other
✓	bai	Bamileke Language	○ bamilekespråk ☆	○ ☑ bamilekéspråk ○ bamilekiskt språk

Resolution / Verification (Technical Committee)

Final Testing / Release

CLDR.zip

What's Ahead?

- CLDR v21* – December, 2011
- CLDR v22* – June, 2012
- Structural changes to support new types of data (while keeping compatibility for existing users)
- Continual improvements to the voting process and policies
- Speed and reliability improvements to the Survey Tool

(*Note: CLDR 21 follows CLDR 2.0 - change in version numbering scheme.)

Questions?

CLDR	http://unicode.org/cldr
LDML	http://unicode.org/reports/tr35
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Thanks	Mark Davis and others on the CLDR-TC for comments and content.