Developing LGR for the Root Zone

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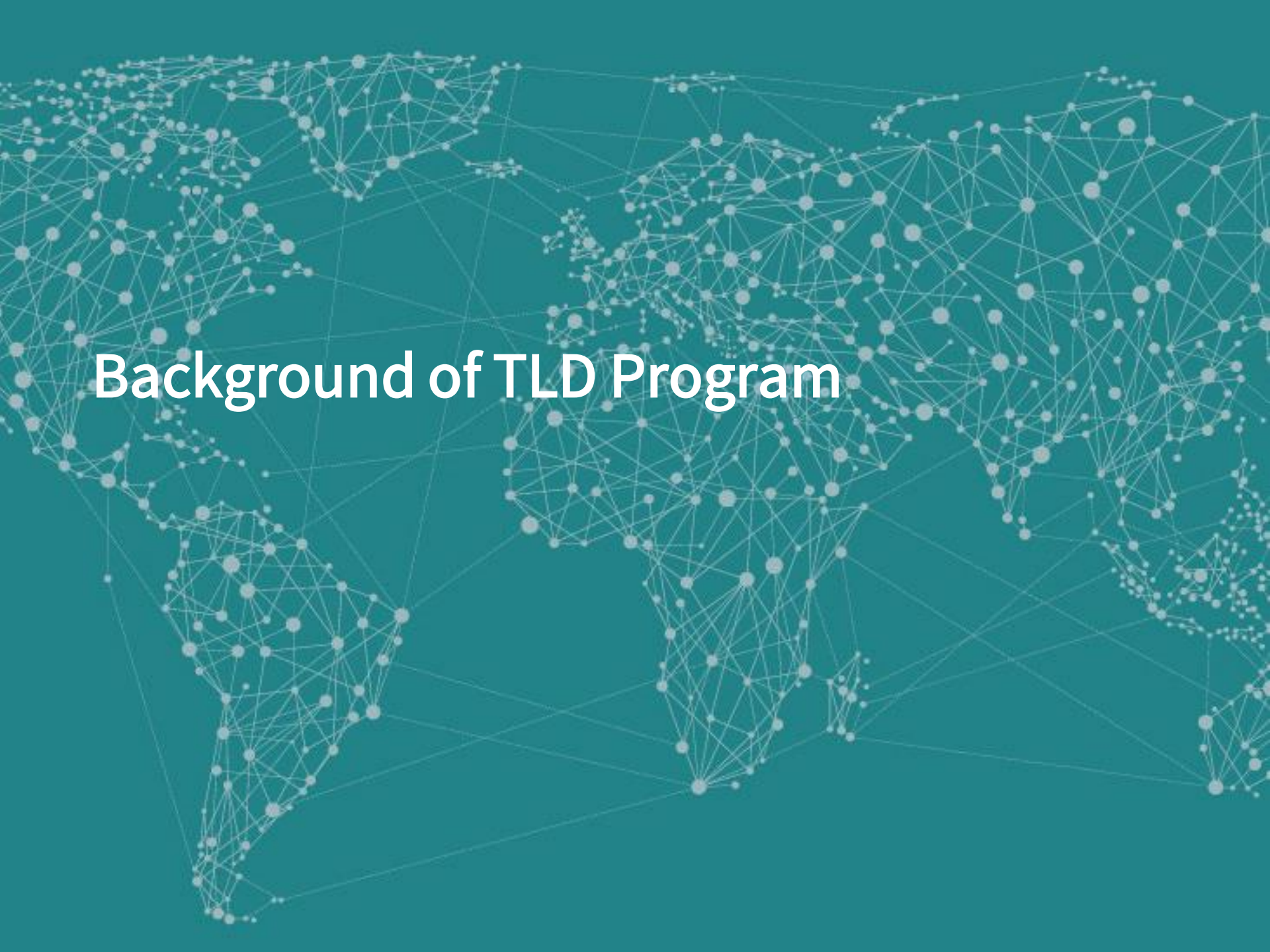
Agenda

1. Background of TLD Program
2. Repertoire
3. Variants
4. WLE Rules
5. XML Formulation and LGR Tool
6. Conclusions and Next Steps



Background of TLD Program

ASCII Domain Name Label

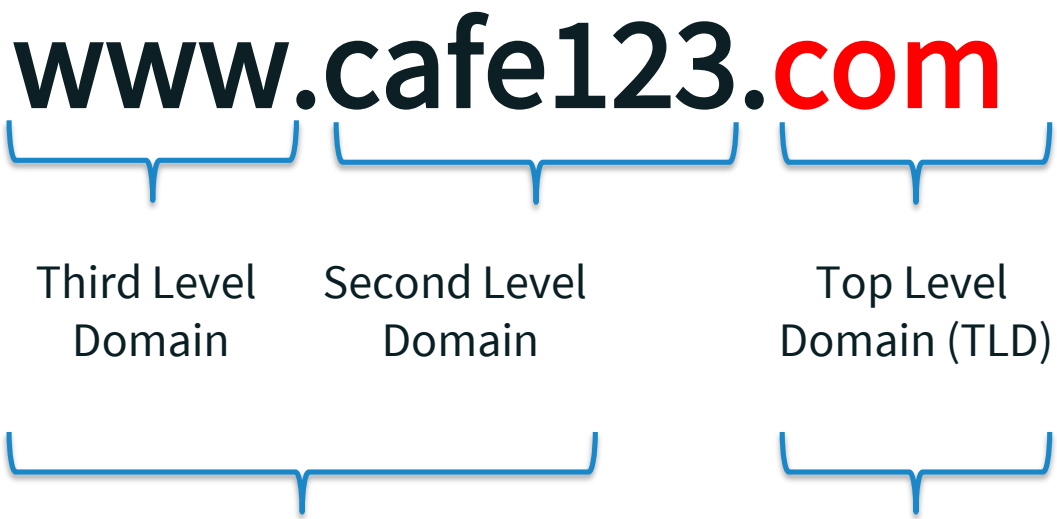
Top Level Domains (TLDs)

- Country Code TLDs (ccTLDs)
  - .sg, .cn, .kh, .la, .mm, .th, .ca, …
  - Two letter [a..z] codes, reserved for countries and territories by ISO 3166 standard
- Generic TLDs (gTLDs)
  - .com, .org, .net, .edu, … - organizations
  - New gTLDs – 1930 applications in 2012

Domain Stakeholders

- ICANN
- Registry
- Registrar
- Reseller
- Registrant
- End-User

ASCII Domain Name Label



Forming ASCII Labels

Use LDH

- **L**etters [a-z]
- **D**igits [0-9]
- **H**yphen (LDH)

Label length = 63

Other constraints (e.g. on hyphen)

Forming ASCII Labels

Use only Letters

- Letters [a-z]

Label length = 63

Internationalized Domain Name (IDN) Labels

Syntax of IDN Labels

Valid U-Label: Unicode code points as constrained by IDNA 2008

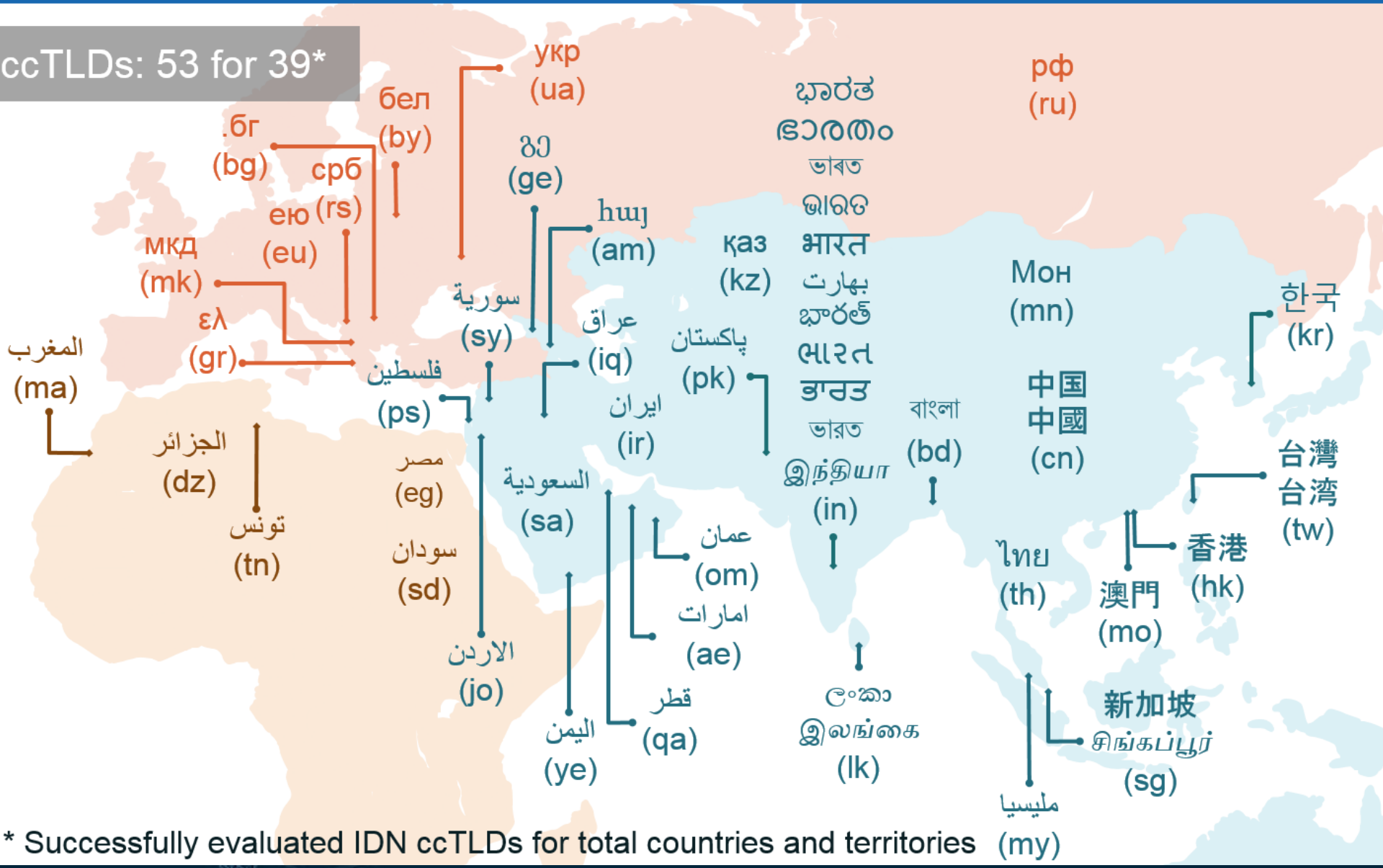
Valid A-Label - "xn--" followed by punycode of U-Label of length 59

Syntax of IDN Labels

Valid U-Label, further constrained by the "letter" principle for TLDs

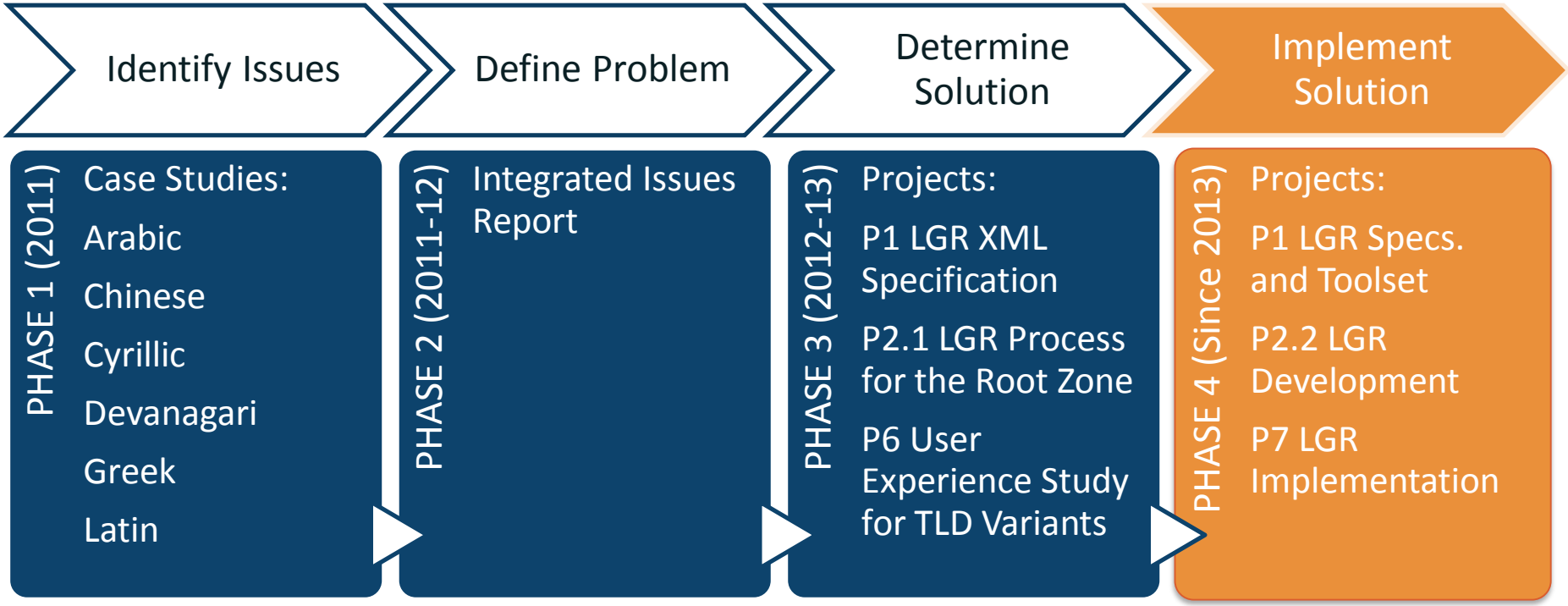
Valid A-Label

IDN Country Code Top-Level Domains



* Successfully evaluated IDN ccTLDs for total countries and territories

IDN TLD Program



Community agreed to define a Label Generation Rules (LGR)

Reports and documentation of all completed projects available at:
https://www.icann.org/resources/pages/reports-2013-04-03-en

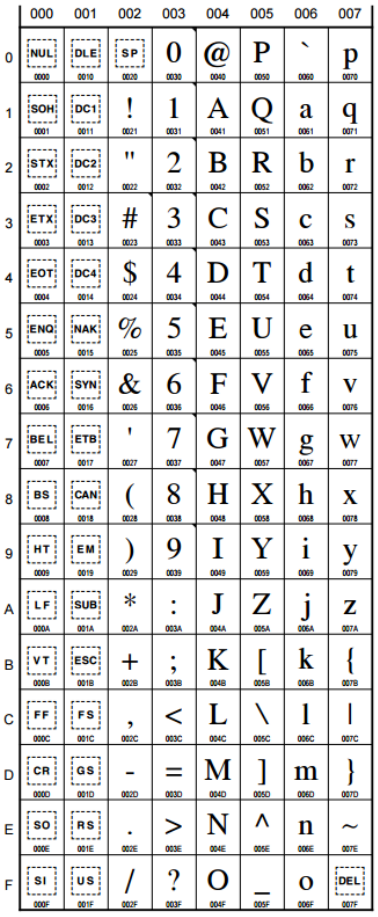
Label Generation Rules for the Root Zone

- For the Root Zone, single “table” containing data for all scripts
  - As it is a shared resource, must be conservative
  - Must be stable and secure
  - Must be based on inclusion based analysis

- For each script or writing system:
  - Which code points are valid for use?
  - Are any of these code points variants of each other?
  - Are the any additional constraints on the labels?

LGR for the Root Zone

Unicode



	000	001	002	003	004	005	006	007
0	NUL 0000	DLE 0010	SP 0020	0 0030	@ 0040	P 0050	` 0060	p 0070
1	SOH 0001	DC1 0011	! 0021	1 0031	A 0041	Q 0051	a 0061	q 0071
2	STX 0002	DC2 0012	" 0022	2 0032	B 0042	R 0052	b 0062	r 0072
3	ETX 0003	DC3 0013	# 0023	3 0033	C 0043	S 0053	c 0063	s 0073
4	EOT 0004	DC4 0014	$ 0024	4 0034	D 0044	T 0054	d 0064	t 0074
5	ENQ 0005	NAK 0015	% 0025	5 0035	E 0045	U 0055	e 0065	u 0075
6	ACK 0006	SYN 0016	& 0026	6 0036	F 0046	V 0056	f 0066	v 0076
7	BEL 0007	ETB 0017	' 0027	7 0037	G 0047	W 0057	g 0067	w 0077
8	BS 0008	CAN 0018	(0028	8 0038	H 0048	X 0058	h 0068	x 0078
9	HT 0009	EM 0019	) 0029	9 0039	I 0049	Y 0059	i 0069	y 0079
A	LF 000A	SUB 001A	* 002A	: 003A	J 004A	Z 005A	j 006A	z 007A
B	VT 000B	ESC 001B	+ 002B	; 003B	K 004B	[005B	k 006B	{ 007B
C	FF 000C	FS 001C	, 002C	< 003C	L 004C	\ 005C	l 006C	| 007C
D	CR 000D	GS 001D	- 002D	= 003D	M 004D	] 005D	m 006D	} 007D
E	SO 000E	RS 001E	. 002E	> 003E	N 004E	^ 005E	n 006E	~ 007E
F	SI 000F	US 001F	/ 002F	? 003F	O 004F	_ 005F	o 006F	DEL 007F

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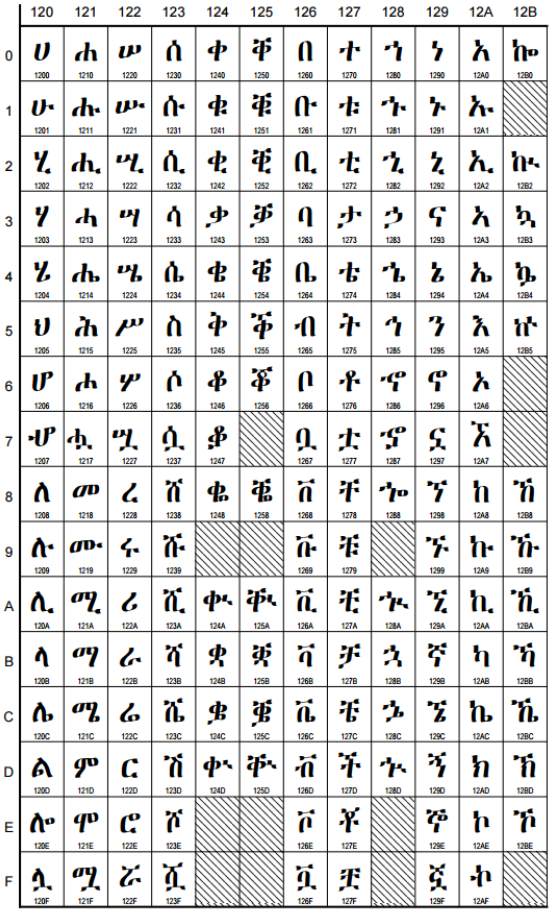

	120	121	122	123	124	125	126	127	128	129	12A	12B
0	ሀ 1200	ሐ 1210	ሠ 1220	ሰ 1230	ቀ 1240	ቐ 1250	በ 1260	ተ 1270	ኀ 1280	ነ 1290	አ 12A0	ኰ 12B0
1	ሁ 1201	ሑ 1211	ሡ 1221	ሱ 1231	ቁ 1241	ቑ 1251	ቡ 1261	ቱ 1271	ኁ 1281	ኑ 1291	ኡ 12A1	
2	ሂ 1202	ሒ 1212	ሢ 1222	ሲ 1232	ቂ 1242	ቒ 1252	ቢ 1262	ቲ 1272	ኂ 1282	ኒ 1292	ኢ 12A2	ኲ 12B2
3	ሃ 1203	ሓ 1213	ሣ 1223	ሳ 1233	ቃ 1243	ቓ 1253	ባ 1263	ታ 1273	ኃ 1283	ና 1293	ኣ 12A3	ኳ 12B3
4	ሄ 1204	ሔ 1214	ሤ 1224	ሴ 1234	ቄ 1244	ቔ 1254	ቤ 1264	ቴ 1274	ኄ 1284	ኔ 1294	ኤ 12A4	ኴ 12B4
5	ህ 1205	ሕ 1215	ሥ 1225	ስ 1235	ቅ 1245	ቕ 1255	ብ 1265	ት 1275	ኅ 1285	ን 1295	እ 12A5	ኵ 12B5
6	ሆ 1206	ሖ 1216	ሦ 1226	ሶ 1236	ቆ 1246	ቖ 1256	ቦ 1266	ቶ 1276	ኆ 1286	ኖ 1296	ኦ 12A6	
7	ሇ 1207	ሗ 1217	ሧ 1227	ሷ 1237	ቇ 1247		ቧ 1267	ቷ 1277	ኇ 1287	ኗ 1297	ኧ 12A7	
8	ለ 1208	መ 1218	ረ 1228	ሸ 1238	ቈ 1248	ቘ 1258	ቨ 1268	ቸ 1278	ኈ 1288	ኘ 1298	ከ 12A8	ኸ 12B8
9	ሉ 1209	ሙ 1219	ሩ 1229	ሹ 1239			ቩ 1269	ቹ 1279		ኙ 1299	ኩ 12A9	ኹ 12B9
A	ሊ 120A	ሚ 121A	ሪ 122A	ሺ 123A	ቊ 124A	ቚ 125A	ቪ 126A	ቺ 127A	ኊ 128A	ኚ 129A	ኪ 12AA	ኺ 12BA
B	ላ 120B	ማ 121B	ራ 122B	ሻ 123B	ቋ 124B	ቛ 125B	ቫ 126B	ቻ 127B	ኋ 128B	ኛ 129B	ካ 12AB	ኻ 12BB
C	ሌ 120C	ሜ 121C	ሬ 122C	ሼ 123C	ቌ 124C	ቜ 125C	ቬ 126C	ቼ 127C	ኌ 128C	ኜ 129C	ኬ 12AC	ኼ 12BC
D	ል 120D	ም 121D	ር 122D	ሽ 123D	ቍ 124D	ቝ 125D	ቭ 126D	ች 127D	ኍ 128D	ኝ 129D	ክ 12AD	ኽ 12BD
E	ሎ 120E	ሞ 121E	ሮ 122E	ሾ 123E			ቮ 126E	ቾ 127E		ኞ 129E	ኮ 12AE	ኾ 12BE
F	ሏ 120F	ሟ 121F	ሯ 122F	ሿ 123F			ቯ 126F	ቿ 127F		ኟ 129F	ኯ 12AF	

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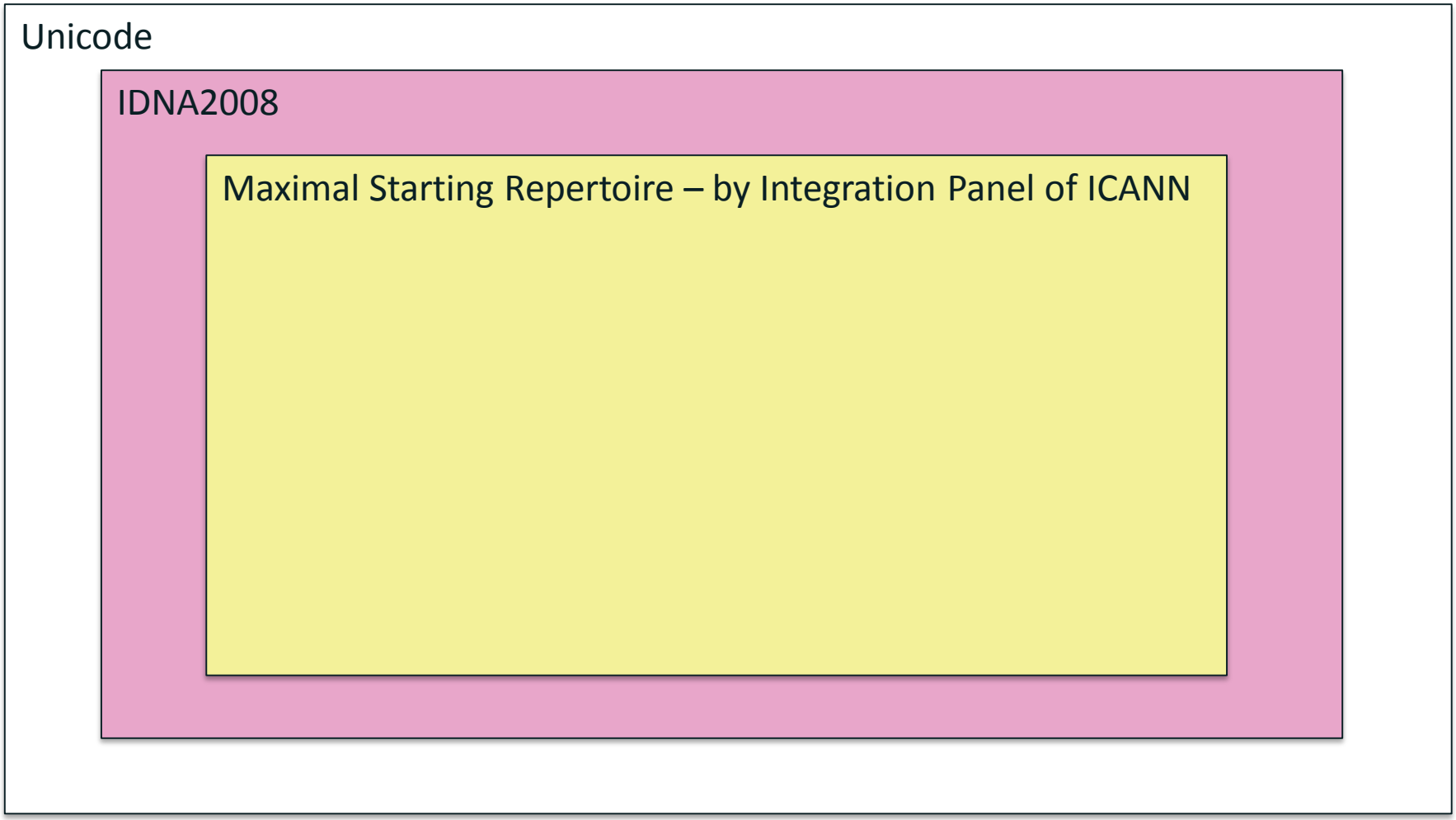
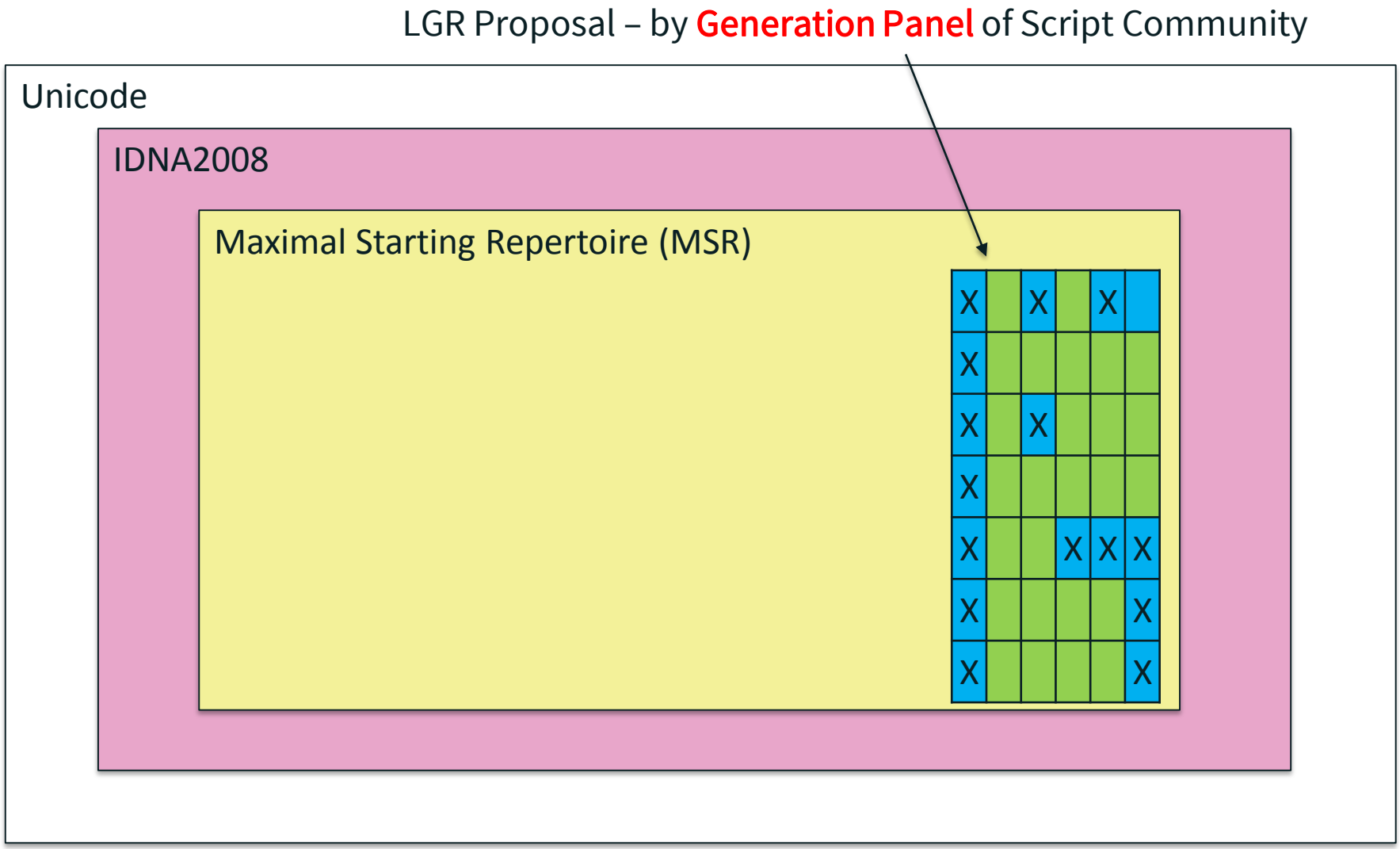
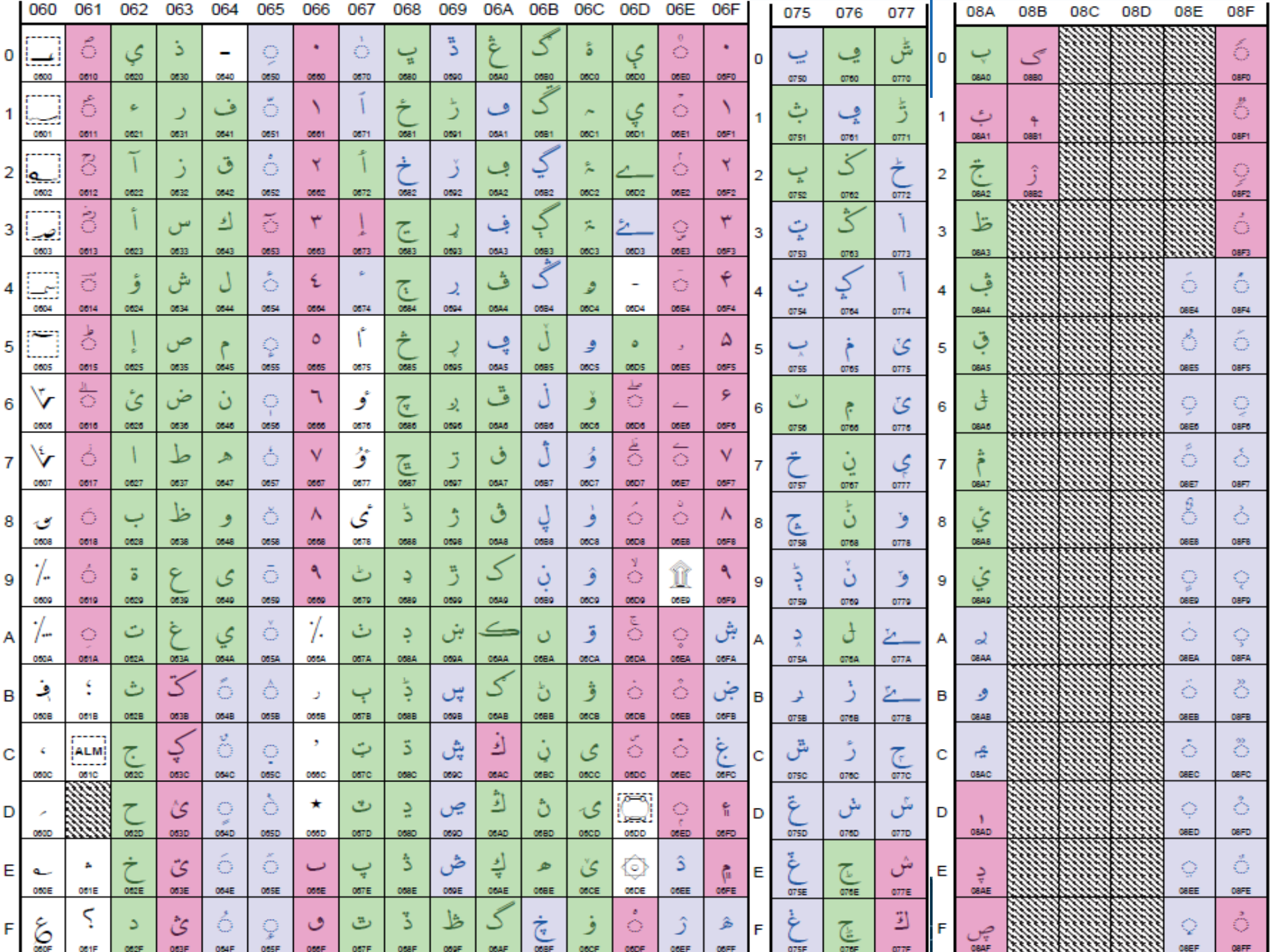
LGR for the Root Zone

LGR for the Root Zone



LGR for the Root Zone





Label Generation Rules (LGR)

- Valid code points
- Variants code points

کابل

كابل

- Label constraints
  - Cannot mix ک and ك in a label

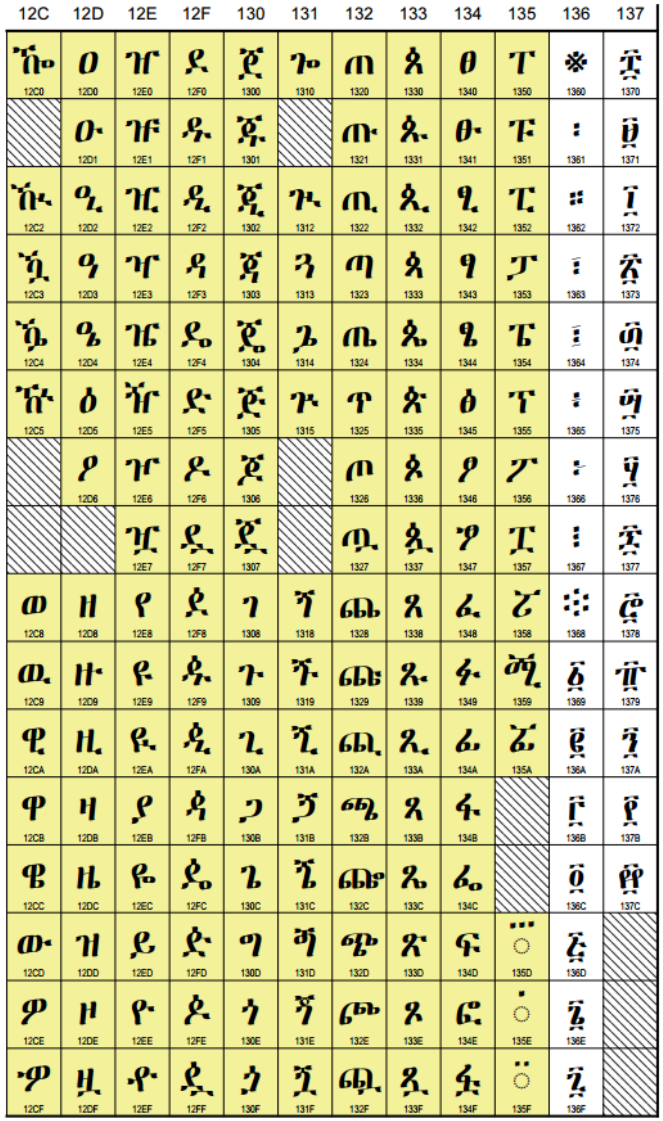
✓ کلکته

✓ كلكته

x کلكته

x كلکته

MSR and LGR



Which code points must be included in the Root Zone

- Are exclusions from MSR (pink) correct?
- What must be included in LGR?
  - *"everyday, general purpose [use ...] in a stable and widespread manner"*

Are there any variant code points

- Two code points when replaced produce labels considered confusingly similar by an end-user

Are there any label-level constraints

- Well-formedness of a cluster?
- Constraints on initial or final position in a label?
- Other?

Root Zone LGR Procedure

Generation Panels

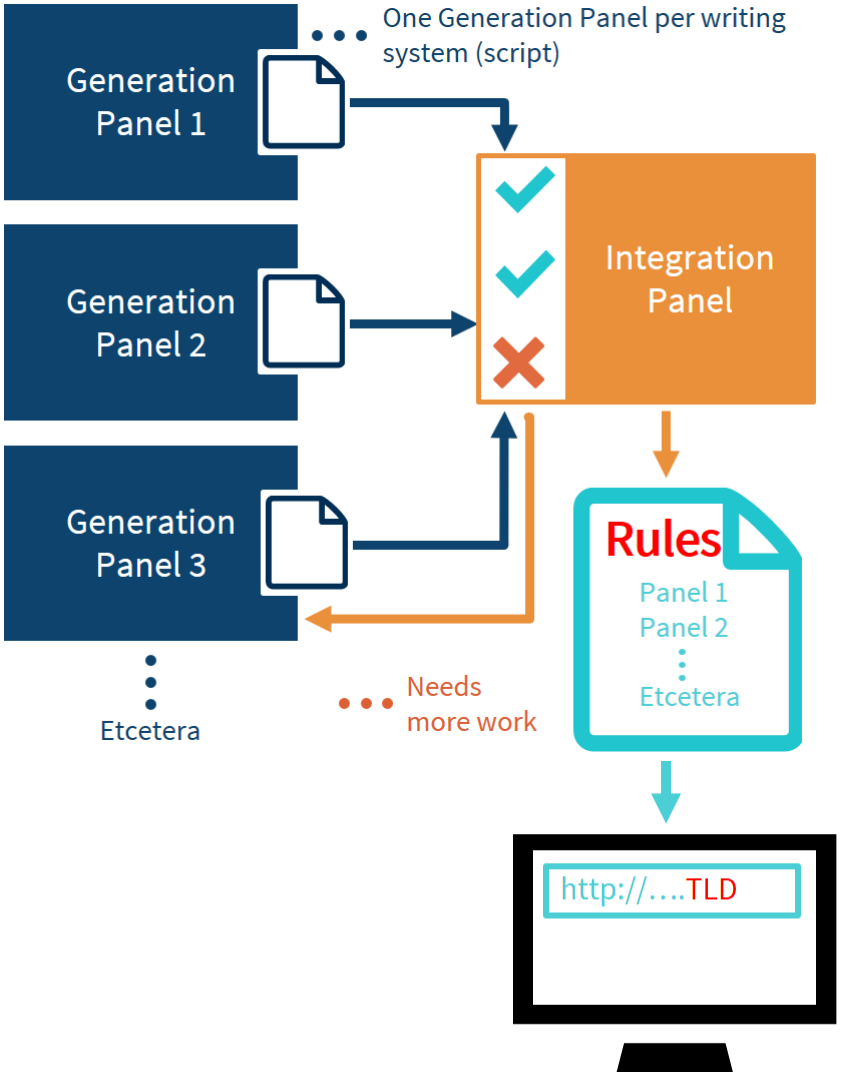
- Generate proposals for script specific LGRs, based on community expertise and requirements

Integration Panel

- Integrates them into common Root Zone LGR while minimizing the risk
  to Root Zone as shared resource

Label Generation Rules (LGR)

- Which labels are permissible
- Which variant labels exist
- Which variant labels may be allocated



LGR Specification

- Label Generation Rulesets (LGRs) used to generate domain name labels, per RFC 7940
- Example: excerpt from MSR-2 XML file

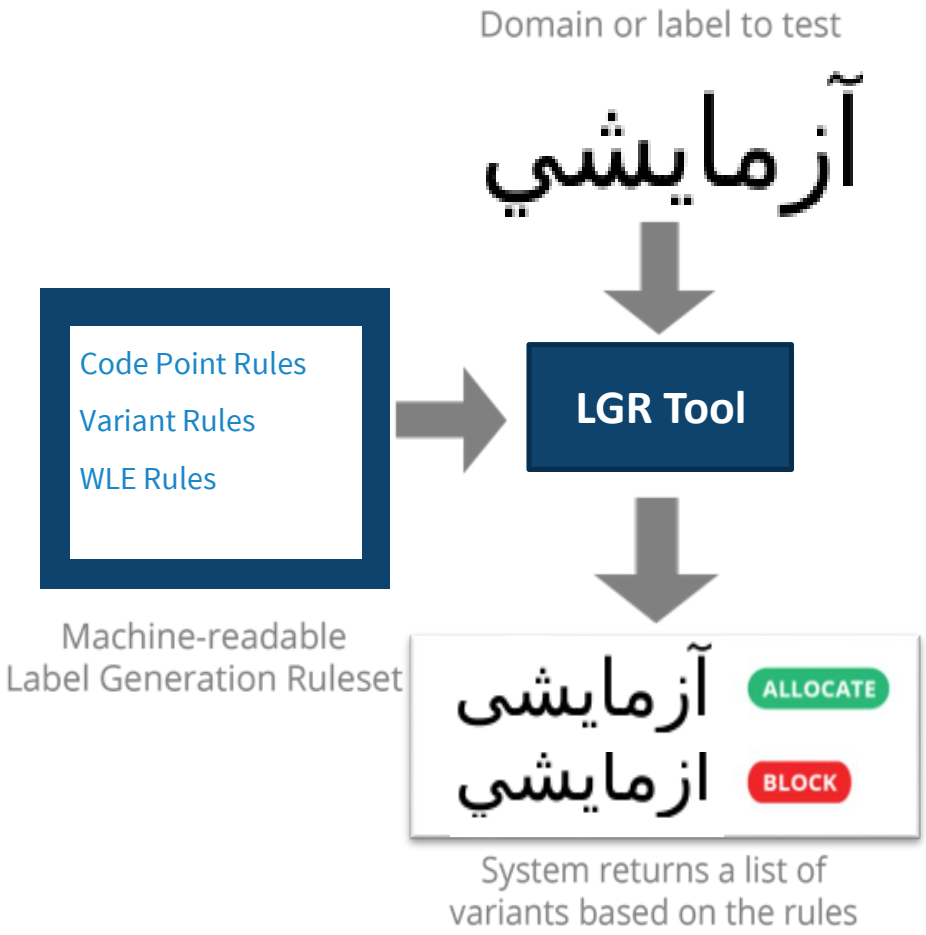
...

```
<range first-cp="0780" last-cp="07B0" tag="sc:Thaa" ref="3"/>
<char cp="07B1" tag="sc:Thaa" ref="5"/>
<char cp="08A0" tag="sc:Arab" ref="12"/>
<range first-cp="08A2" last-cp="08AC" tag="sc:Arab" ref="12"/>
<range first-cp="08E4" last-cp="08EF" tag="sc:Arab" ref="12"/>
<range first-cp="08F4" last-cp="08FE" tag="sc:Arab" ref="12"/>
<range first-cp="0901" last-cp="0903" tag="sc:Deva" ref="0"/>
<char cp="0904" tag="sc:Deva" ref="6"/>
<range first-cp="0905" last-cp="0939" tag="sc:Deva" ref="0"/>
<range first-cp="093A" last-cp="093B" tag="sc:Deva" ref="11"/>
<char cp="093C" tag="sc:Deva" ref="0"/>
<range first-cp="093E" last-cp="094D" tag="sc:Deva" ref="0"/>
<char cp="094F" tag="sc:Deva" ref="11"/>
<range first-cp="0956" last-cp="0957" tag="sc:Deva" ref="11"/>
<char cp="0972" tag="sc:Deva" ref="9"/>
<range first-cp="0973" last-cp="0977" tag="sc:Deva" ref="11"/>
<range first-cp="0979" last-cp="097A" tag="sc:Deva" ref="10"/>
<range first-cp="097B" last-cp="097C" tag="sc:Deva" ref="8"/>
<range first-cp="097E" last-cp="097F" tag="sc:Deva" ref="8"/>
<range first-cp="0981" last-cp="0983" tag="sc:Beng" ref="0"/>
```

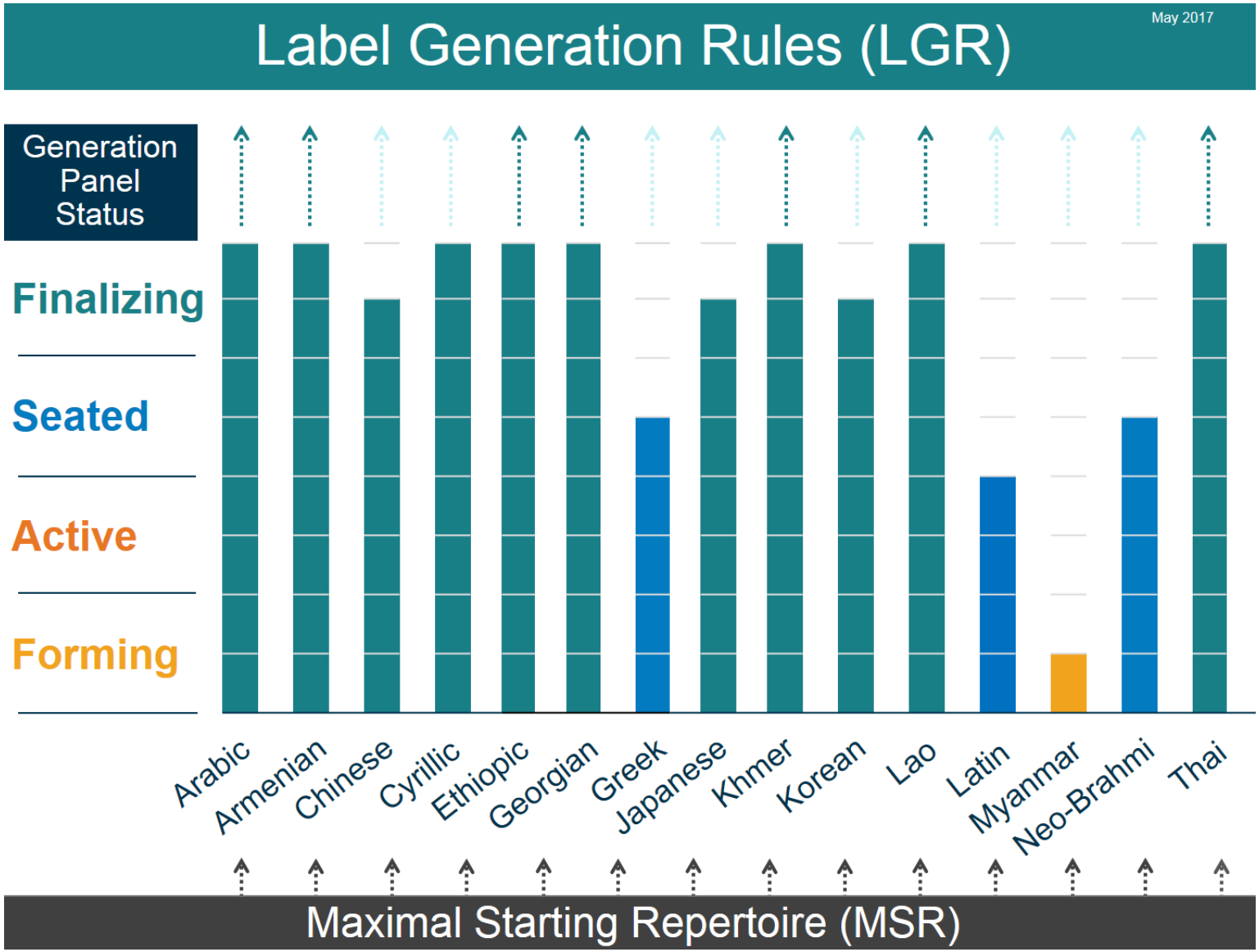
...

LGR Toolset (beta)

- LGR Toolset allows for the following:
  - Create a LGR
  - Use a LGR to validate label and variants
  - Manage LGRs
- Online beta deployment
  - Visit https://lgrtool.icann.org/
- Open source package(s) release
  - Released at github: lgr-core, lgr-django, munidata
- User guide available for further details



Root Zone LGR Development Status



28+ Scripts
19+ GPs

Other:

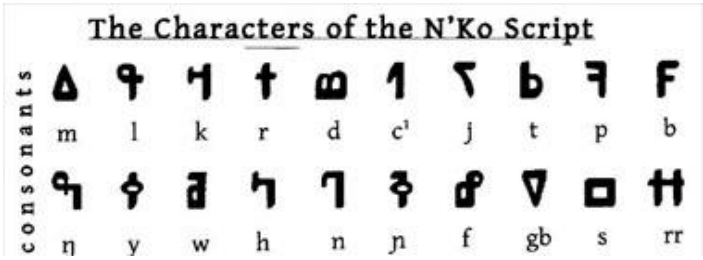
- Hebrew
- Sinhala
- Thaana

Linguistic Diversity in Africa

- More than 3000 languages in Africa
- Writing systems include:
  - Ge'ez (Ethiopic)
  - N’ko
  - Tifinagh
  - Vai
  - …
  - Arabic (introduced)
  - Latin (introduced)

የሰው ፡ ልጅ ፡ ሁሉ ፡ ሲወለድ ፡ ነጻና ፡ በክብርና ፡ በመብትም ፡ እኩልነት ፡ ያለው ፡ ነው ፡ የተፈጥሮ ፡ የማስተዋልና ፡ ሕሊናው ፡ ስላለው ፡ አንዱ ፡ ሌላውን ፡ በወንድማማችነት ፡ መንፍስ ፡ መመልከት ፡ የገባዋል ።

ⵓⵜⵉⵏ ⵜⵎⴰ ⵡ ⵅ ⴻⵎⴰ ⵢⵔⵣ ⵜⵎⴰ ⵡ ⵎⵉ ⵓⵡⵙ ⵖⵓⵣ ⵜⵙⵉⵖ ⵔ, ⵓⵖ ⵀⵔⵙⵙ ⵓⵛⵣ ⵑⵣⵙⵙ ⵎⵉ ⵀⵔ ⵓⵡⵙ ⵣⵉⵎ. ⵓⵛ ⵣⵉ ⵛⵓⵢⵙ ⵑ ⵍ ⵒ ⵓⵖ ⵓⵡ ⵖⵎ ⵀⵔ. ⵣⵉⵖ ⵓⵡⵥ ⵣⵉ ⵡ ⵟⵜⵔⵖ ⵏⵉⵣ ⵎⵔ ⵟⵖ ⵚⵥ ⵥⵖⵀ ⵎⵔ ⵙⵎⴰ ⵎⵜⵎ ⵓⵡ ⵛⵓ.



ⵋⵆⴷⵚⵏ÷ⵏ, ⵙⵅⵅ÷ⵏ ⵆⵙ ⵀⵀⵙⵏ ⵜⵜⵀⵙⵀ÷ⵏ ⴷ ⵋⵀ÷ⵀⵀⵋⵌ÷ⵏ ⵆⵝⵙⵏⵙ ⴷⵋⵙ ⵀⵌⵞⵓⵆ ÷ⵙⵝⵙ ⵝ ⵌⵋⵣ÷ⵙⵙⵙ-ⵢ:ⵙ ⵝ÷ⵏ ⵜⵙⵆⵝⵙⵅⵞⵓⵜ ⴷ ⵀⵙⵡ:÷ⵀ ⵄ ⵌ÷ⵝⵝ÷ⵣⵅ ⵙⴷ-ⵜⵋⵀⵋ ⵜ÷ⵠⵆⵙⵜⵜ ⵠⵙⵝ ⵙⵝ÷ⵏ.

Alphabet Nationale du Tchad (ANT)

A - LETTRES MINUSCULES

a	’	b	ɓ	c	ch	d	ɗ	dh	e
ɛ	ə	f	g	gb	h	ɦ	i	ɨ	j
k	kh	kp	l	m	mb	mv	n	ɲ̃	nd
ng	nj	ŋ	o	ɔ	p	q	r	rh	s
sl	t	th	u	v	vb	w	y	y̓	z	zl


Repertoire

What is the Goal?

- Goal is to create a mnemonic system for use in the Domain Name System (DNS)
  - A mechanism to remember IP address
  - Must remain secure and stable in use – if DNS is confusing to users, then the motivation is not met
  - Not required to completely cover a language or a script
  - May not form labels which are words in a language
    - Not restricted to “correct” spellings
    - May not carry a meaning in the “lexical” sense

Starting Point – RFC 6912

Principles

1. Longevity – stable across Unicode versions
2. Least Astonishment– take into account the population using a code point
3. Contextual Safety – sensitive to ways in which code point may be used in malicious ways
4. Conservatism – any code point inclusion decision is as conservative as practicable

Starting Point – RFC 6912

Principles

5. Inclusion – default is excluded, then add code point which is safe based on usability and confusability
6. Simplicity – rules determining use should be simple to understand
7. Predictability – rules determining whether a code point is included are predictable for others to reach the same conclusion
8. Stability – if permitted, taking it out very hard

Starting Point – RFC 6912

Principles

9. Letter – Code point “will be alphabetic” in RFC 1123. Same principle so exclude code points not normally used ot write words or used for purposes other than writing words

Questions to Ask

1. Is it contained in the Maximal Starting Repertoire?
2. Is it used with the script defined in the scope of the GP
3. Is it suitable in identifiers?
    a. Is it in widespread modern use?
    b. Is it not technical / religious / limited use only?
    c. Is it not really a punctuation / symbol?
    d. Is it really necessary for representing identifiers?
4. Is the Unicode encoding of the code point stable?
    a. Are there any rendering issues?

Questions to Ask

5. What are the DNS security & stability concerns? rendering issue, homoglyph of non-PVALID code points?

6. How accessible would a TLD containing that code point be?

    a. Are there input/keyboard concerns?

7. What are the risks if the code point is not included?

8. What are the risks if it is?

9. Is it in tension with any of the Principles in any way?

10. Does it always appear in a fixed sequence?

“everyday, general purpose [use …]”

Level	Label	Description
0	International	The language is widely used between nations in trade, knowledge exchange, and international policy.
1	National	The language is used in education, work, mass media, and government at the national level.
2	Provincial	The language is used in education, work, mass media, and government within major administrative subdivisions of a nation.
3	Wider Communication	The language is used in work and mass media without official status to transcend language differences across a region.
4	Educational	The language is in vigorous use, with standardization and literature being sustained through a widespread system of institutionally supported education.
5	Developing	The language is in vigorous use, with literature in a standardized form being used by some though this is not yet widespread or sustainable.

https://www.ethnologue.com/about/language-status

“everyday, general purpose [use ...]”

6a	Vigorous	The language is used for face-to-face communication by all generations and the situation is sustainable.
6b	Threatened	The language is used for face-to-face communication within all generations, but it is losing users.
7	Shifting	The child-bearing generation can use the language among themselves, but it is not being transmitted to children.
8a	Moribund	The only remaining active users of the language are members of the grandparent generation and older.
8b	Nearly Extinct	The only remaining users of the language are members of the grandparent generation or older who have little opportunity to use the language.
9	Dormant	The language serves as a reminder of heritage identity for an ethnic community, but no one has more than symbolic proficiency.
10	Extinct	The language is no longer used and no one retains a sense of ethnic identity associated with the language.

https://www.ethnologue.com/about/language-status

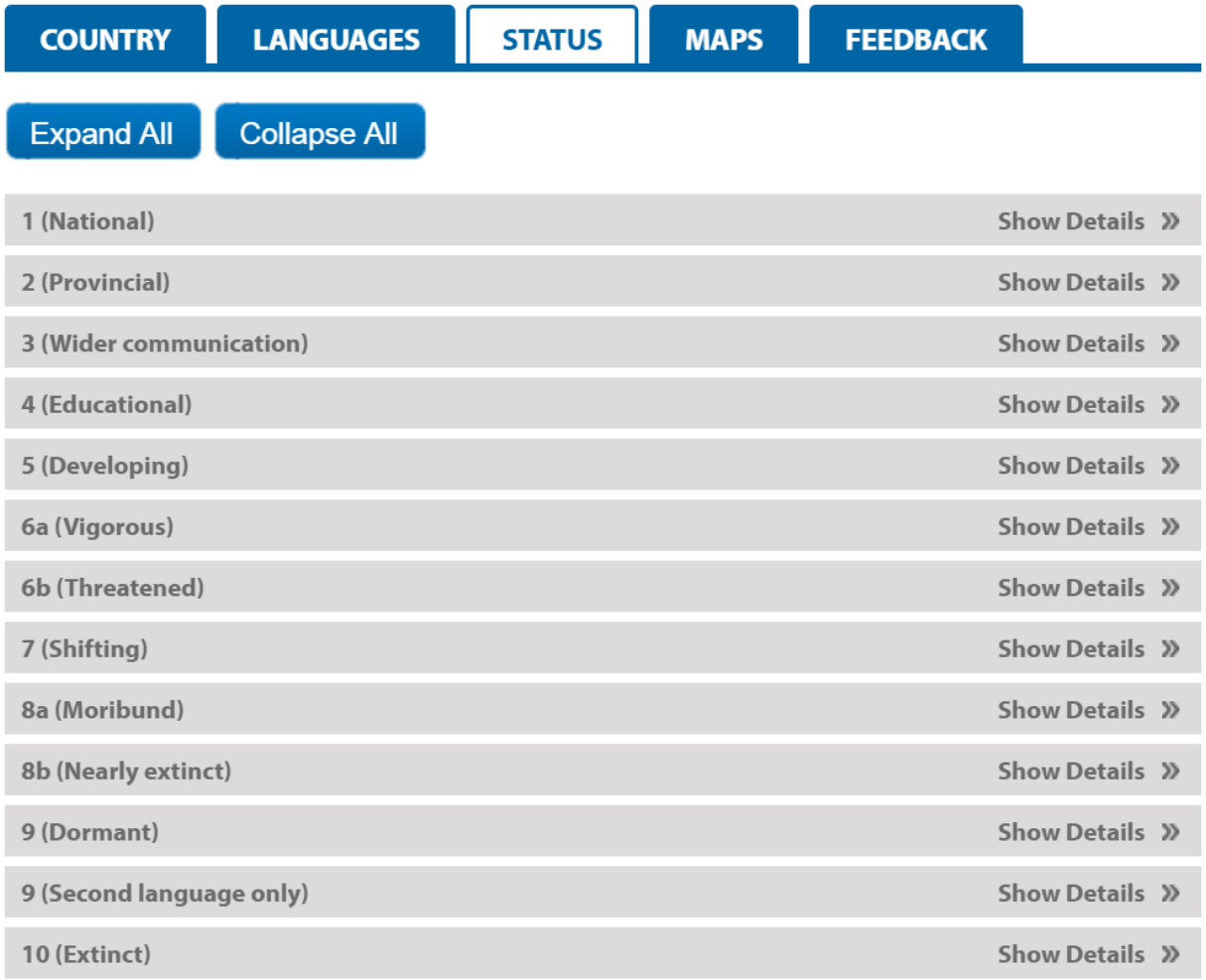
How to Document the Repertoire

- Document general *but relevant* information
  a) History of script
  b) Script characteristics
  c) Languages using the script – standard name, ISO 639 code, name in local script, places language is spoken, other relevant information (e.g. EGIDS no.)
  d) Criteria of language included in analysis (and excluded from analysis)
  e) Types of code points – which types are included and which code points are excluded
  f) Table of code points – with evidence/reference of use for each code point and any additional relevant information

Sources of Information - Languages

- National governmental sources
- www.ethnologue.com website
- www.omniglot.com website
- Published research and books
- Field research
- Others?

Sources of Information - Languages



- Ethnologue - http://www.ethnologue.com/country/ET/status

Sources of Information - Languages

2 (Provincial)	Hide Details
Afar	[aar] 2 (Provincial). Statutory provincial working language in Afar Region (1994, Constitution, Art 47). 1,280,000 in Ethiopia (2010 UNSD). L2 users: 22,800 in Ethiopia. 906,000 monolinguals (1994 census). Total users in all countries: 1,828,800 (as L1: 1,806,000; as L2: 22,800).
Oromo, West Central	[gaz] 2 (Provincial). Statutory provincial working language in Oromia Region (1994, Constitution, Article 47(3)). West Central Oromo [gaz] is lingua franca of the area. 8,920,000 (1994 census). 25,500,000 all Oromo speakers in Ethiopia (2007 census). Ethnic population: 30,000,000.
Somali	[som] 2 (Provincial). Statutory provincial working language in Somali Region (1994, Constitution, Article 47(3)). 4,610,000 in Ethiopia (2010 UNSD). L2 users: 95,600 in Ethiopia. 2,880,000 monolinguals.
Tigrigna	[tir] 2 (Provincial). Statutory provincial working language in Tigray Region (1994, Constitution, Article 47(3)). 4,320,000 in Ethiopia (2010 UNSD). L2 users: 147,000 in Ethiopia. 2,820,000 monolinguals. Total users in all countries: 7,899,400 (as L1: 7,747,400; as L2: 152,000).

Sources of Information - Languages

Tigrigna

Print

LANGUAGE | FEEDBACK

A language of Ethiopia

ISO 639-3	tir
Alternate Names	Beta Israel, Tigray, Tigrinya
Population	4,320,000 in Ethiopia (2010 UNSD). L2 users: 147,000 in Ethiopia. 2,820,000 monolinguals. Total users in all countries: 7,899,400 (as L1: 7,747,400; as L2: 152,000).
Location	Tigray region border areas; Amhara and Afar regions.
Language Maps	Djibouti, Eritrea and Ethiopia
Language Status	2 (Provincial). Statutory provincial working language in Tigray Region (1994, Constitution, Article 47(3)).
Classification	Afro-Asiatic, Semitic, South, Ethiopian, North
Typology	SOV; noun head final; gender (masculine/feminine); definite article; verb affixes mark person, number, gender of subject; passives; aspect; 33 consonant and 14 vowel phonemes.
Language Use	Also use Amharic [amh]. Used as L2 by Amharic [amh], Kunama [kun], Xamtanga [xan].
Language Development	Literacy rate in L2: 27%. Taught in primary schools. Fully developed. Bible: 1956.
Language Resources	OLAC resources in and about Tigrigna
Writing	Ethiopic script [Ethi], used since 13th or 14th century.
Other Comments	Christian.

Sources of Information - Repertoire

- References which could be used to demonstrate “everyday, general purpose [use ...]”
  a) National standard published by the government
  b) Books published by Ministry of Education, e.g. for primary school
  c) Common publications, e.g. newspapers
  d) Other?

Strategies for Documenting the Repertoire

- Strategy 1: Code Point Analysis
  - For each code point in MSR
    - Determine if it is used by one or more languages included – one example is sufficient
    - Determine if the code point is required for the language(s)
    - Document reference and reason for inclusion
- Strategy 2: Language Analysis
  - For each included language short-listed by GP
    - Determine the required code points
    - Document reference and reason for inclusion
    - Review code points which are not analyzed

Example

Item #	Unicode Code Point	Glyph	Name and GC	Some languages using the character	Language, with EGIDS value	Reference
1	0621	ء	ARABIC LETTER HAMZA;Lo	Arabic, Urdu, Punjabi, Sindhi	1 Arabic	[RFC 5564]
			…			
3	0623	أ	ARABIC LETTER ALEF WITH HAMZA ABOVE;Lo	Arabic, Malay, Torwali	1 Arabic	[RFC 5564]
		…	…			
81	06AE	ڮ	ARABIC LETTER KAF WITH THREE DOTS BELOW;Lo	L'Alphabet National du Tchad (ANT)	1 ANT	[ANT]

Exercise

Item #	Unicode Code Point	Glyph	Name and GC	Some languages using the character	Language, with EGIDS value	Reference
1						
2						
3						
4						
5						

Variants

What is the Goal?

- Successfully defining variant rules for an LGR is not trivial
- Code point or code point sequences causing two (or more) labels functionally “the same” in a script
- Make the mnemonic system to minimize user confusion
- Conservatism requires
  - maximizing “blocked” variants
  - minimize “allocatable” variants

Questions to Ask

1. Would a reasonable person with native knowledge of the script consider a pair of code points interchangeable?
2. Would such a person be unable to determine which of these interchangeable code points was used by appearance?
3. Is there an alternative representation?
4. What should the disposition of any defined variants be?
5. Should any of the variants of this code point be contingent on context?
6. Is each set of code point variant mappings symmetric?

Questions to Ask

7. Is each set of code point variant mappings transitive?
8. Are any variants contemplated that are in tension with any of the Principles?
9. Are the variants designed so that they lead to the minimal required number of allocatable variant labels?
10. Are the variants designed so that, in doubtful cases, they block potential variant labels?

Variant Relationships and Types

- Variants are symmetric
  - A = B ⇒ B = A
- Variants are transitive
  - A = B and B = C ⇒ A = C
- Variant code points can be of two types
  - Allocatable
  - Blocked
- The types are directional
- Label disposition calculated based on types of individual code points
  - A single blocked type causes the whole label to be blocked

Example

0641	ف	فب	بف	بفب	1 (06A7)
06A2	ب	ببـ	بب	ببب	5 (0641)
06A7	ف	فب	بف	بفب	5 (0642)
0642	ق	قب	بق	بقب	6 (06A7)

0641	06A2	a	Used interchangeably in Africa for languages using Western (African)orthography
0641	06A7	b	
0641	0642	b	
06A2	06A7	b	
06A2	0642	b	
06A7	0642	a	Used interchangeably in Africa for languages using Western (African)orthography

Whole Label Evaluation (WLE) Rules

Goal

- Goal is to reduce label space
  - Preventing labels which should not be possible for various reasons
    - Not licensed by the script (but not spelling rules)
    - Cause security issues
    - Cause usability constraints
    - Other?
  - Reducing allocatable label by making them blocked in certain cases
  - Put in contextual contexts for code points or their sequences

Examples

- Cannot mix Persian Kaf and Arabic Kaf
- Combining vowel mark must follow a consonant in Lao script
- Subjoining consonant must follow a consonant in Khmer script
- A label cannot start with a combining mark

LGR XML Specification

LGR XML Structure

- “lgr” element has three sub-elements:
  - “meta”: all meta-data associated with the LGR, such as its authorship, what it is used for, implementation notes and references.
  - "data“: the substantive code point data
  - "rules“ (optional): information on contextual and whole-label evaluation rules, if any
    - with any specific "action" elements providing the disposition of labels and their variants

LGR XML Structure

```
<?xml version="1.0"?>
    <lgr xmlns="urn:ietf:params:xml:ns:lgr-1.0">

        <meta>   ...   </meta>          //optional

        <data>   ...   </data>

        <rules>  ...   </rules>         //optional

    </lgr>
```

Demo of online LGR Tool

Engage with ICANN

Thank You and Questions

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