Appendix: Language types

1 Type 1 — base-10 languages with morphemes for 1-10

- 10 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10

1.1 Type 1A — prototype (63 languages)

- 11-19 morphologically, 10+1/2/3...
- 20, 30,... morphologically 2/3... × 10
- 21 morphologically 2 × 10 + 1

Languages: aco, aeg, alb, arc, arm, aym, bag, bas, bma, bri, brm, cha, cmn, cuu, dam, eve, ewe, fij, fin, ger, goa, hau, heb, hup, igb, irq, jaq, jpn, kab, kha, kho, knr, kor, kse, lak, lan, lat, lav, leg, lkt, mal, mao, map,mnd, nav, ndy, nez, niv, nko, ond, orh, poh, prs, qim, rap, sou, spa, swa, tel, tha, tug, vie, zul

1.2 Type 1B (8 languages)

- Like Type 1A, except that 10 is morphologically 1 × 10 in the range 10-20

Languages: abu, bkr, krb, pai, sah, san, tab, tuk

1.3 Type 1C (3 languages)

- Like Type 1A, except that 10 is morphologically 1 × 10 but just for 10

Languages: ind, sap, tag

1.4 Type 1-Hindi (1 language)

Like Type 1A, except that 19, 29, 39, 49, 59, 69, 79 = 2/3/4/5/6/7/8 × 10 - 1.
Languages: hin

2 Type 2 - base-10 languages with morphemes for 1-10 and some extras

2.1 Type 2A: morpheme for 20 (8 languages)

- 11 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10, 20
- 11-19 morphologically, 10+1/2/3...
- 21-29 morphologically, 20+1/2/3...
- 30,... morphologically 3 × 10...
- 31 morphologically 3 × 10 + 1

Languages: bam, baw, grk, hmo, hun, hzb, kfe, nbd

2.2 Type 2-Garo (1 language): morpheme for 20, but 20 = 20×1 and 30 = 20+10

Like 2A except:

- 21-29 morphologically, 1×20+1,...,
- 30,31... morphologically 10+20, 10+20+1...

Languages: gar

2.3 Type 2-Yakut (1 language): morphemes for 20,30

Like Type 2A except:

- 12 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10, 20, 30
- 31-39 morphologically, 30+1...

Languages: ykt

2.4 Type 2-English (1 language): morpheme for 11

- 11 morphemes
  - digits: 1,2,3,4,5,6,7,8,9,11
  - mutliplicatives: 10
- 12-19 morphologically, 10+2/3/4...
- 20,... morphologically 2 × 10
- 21 morphologically 2 × 10 + 1

Languages: eng

2.5 Type 2-Russian (1 language): morpheme for 40

- 11 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10, 40
- 11-19 morphologically, 10+1/2/3...
- 20,... morphologically 2 × 10
- 21 morphologically 2 × 10 + 1
- 41 morphologically 40 + 1

Languages: rus

2.6 Type 2B (2 languages): morphemes for 20,30,40,50

Like Type 2A except:

- 14 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10, 20, 30, 40, 50
- 31-39, 41-49, 51-59 morphologically 30/40/50+1/2/3...

Languages: chv, tur

3 Type 3: base-10, not all numbers 1-9 have digits

3.1 Type 3A — prototype: morphemes for 1-5, 10, numerals for 6-9 constructed with addition (5 languages)

- 6 morphemes
  - digits: 1,2,3,4
  - mutliplicatives: 5,10
- 6:9 morphologically 5+ 1/2/3/4
- 11-15 morphologically, 10+1/2/3/4/5
- 16-19 morphologically, 10+5 + 1/2/3/4
- 20, 30,... morphologically 2/3... $\times$ 10
- 21 morphologically $2 \times 10 + 1$

Languages: cah, fum, gua, noo, yag

3.2 Type 3-Kunama (1 language)

Like Type 3A, except that 9 is morphologically 10-1 instead of 5+4 (in higher numerals too).

Languages: knm

3.3 Type 3-Kayahli (1 language)

Like Type 3A, except that $6 = 2 \times 3$, $7 = 2 \times 3 + 1$, $8 = 2 \times 4$, $9 = 2 \times 4 + 1$ (in higher numerals too).

Languages: kyl

3.4 Type 3-Quileute (1 language)

Like Type 3A, except that 8 = 10-2, 9 = 10-1 (in higher numerals too).

Languages: qui

3.5 Type 3B: morphemes 1-7, 10, $8 = 2 \times 4$, 9 = 10-1 (2 languages)

- 8 morphemes
  - digits: 1,2,3,4,5,6,7
  - mutliplicatives: 10

- 8 morphologically 2 × 4
- 9 morphologically 10-1
- 11-19 morphologically, 10+1/2/3/4/5/6/7/2 × 4/10-1
- 20, 30,... morphologically 2/3... × 10
- 21 morphologically 2 × 10 + 1

Languages: ntu, twe

3.6 Type 3-Kannada (1 language): morphemes for 1-8, 10, 9 = 10-1

- 9 morphemes
  - digits: 1,2,3,4,5,6,7,8
  - mutliplicatives: 10
- 9 morphologically 10-1
- 11-19 morphologically, 10+1/2/3/4/5/6/7/8/10-1
- 20, 30,... morphologically 2/3... × 10
- 21 morphologically 2 × 10 + 1

Languages: knd

3.7 Type 3-Khanty (1 language): morphemes for 1-8, 10, 20 9 = the closest 10 - 1

- 10 morphemes
  - digits: 1,2,3,4,5,6,7,8
  - mutliplicatives: 10, 20
- 9 morphologically 10-1, 19 = 20-1, 29 = 3×10-1 up until 89 = 8 × 10 + (10-1)
- 11-18, 21-28 morphologically, 10/20+1/1/2/3/4/5/6/7/8
- 30,40... morphologically 3/4... × 10
- 90 morphologically (10-1) × 10

Languages: kty

4 Type 4: base-20

4.1 Type 4A: morphemes for 1,2,3,4,5,6,7,8,9,20, 10s only with multiplication by 20 and addition (6 languages)

- 11 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10, 20
- 11-19, 21-29 morphologically, 10/20+1/2/3...
- 40, 60, 80 morphologically 2/3/4 × 20
- 30, 50, 70, 90 morphologically (2/3/4 ×)20 + 10...
- 31 morphologically 20 + 10 + 1

Languages: bsq, bur, cle, geo, iri, tsz

4.2 Type 4-Ingush (1 language)

Like Type 4A, except that 19 = 20-1 (across the board, e.g. 39 = 20+20-1).
Languages: ing

4.3 Type 4-Abkhaz (1 language)

Like Type 4A, except that 20 is morphologically 2 × 10 across the board (in higher numerals too). So 10 instead of 11 morphemes.
Languages: abk

4.4 Type 4-Huave (1 language)

Like Type 4A, except that 20-39 = 1 × 20 + 1/2/3.../10+9.
Languages: hve

4.5 Type 4-Lezgian (1 language)

Like Type 4A, except that 40 is a single morpheme, so 12 instead of 11 morphemes, 40-59 = 40+1/2/3.../10+9.
Languages: lez

4.6 Type 4-Yucatec (1 language)

Like Type 4 except that 11 is monomorphemic, so 12 instead of 11 morphemes, and in 10-19, 10 = 1 × 10, in 20-39, 20 = 1 × 20. 31 = 1 × 20 + 11 etc.
Languages: yct

4.7 Type 4-MixtecA (1 language)

- 12 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10, 15, 20
- 11-14 morphologically, 10+1/2/3/4
- 16-19 morphologically, 15 + 1/2/3/4
- 21-29 morphologically, 20+1/2/3...
- 40, 60, 80 morphologically 2/3/4 × 20
- 30, 50, 70, 90 morphologically (2/3/4 ×)20 + 10...
- 35-39, 55-59, 75-79, 95-99 morphologically (2/3/4 ×)20 + 15 + 1/2/3/4
- 31 morphologically 20 + 10 + 1

Languages: mxa

4.8 Type 4-MixtecC (1 language)

Like Type 4-MixtecA except that in 60-69, 60 = 2 × 20 + 20 (but 70 = 3 × 20 + 10) **Languages:** mxc

4.9 Type 4-French (1 language)

- 11 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - mutliplicatives: 10, 20
- 11-19, 21-29 morphologically, 10/20+1/2/3...
- 30,40,50,60 morphologically 3/4/5/6 × 10
- 70 morphologically 6 ×10 + 10
- 80 morphologically 4 ×20
- 90 morphologically 4 ×20 + 10
- 31-39, ..., 91-99 morphologically 30...90 as above + 1/2/3...

Languages: fre

5 Type 5: base 20, not all numbers 1-9 have digits

5.1 Type 5A-prototype (1 language)

- 7 morphemes
  - digits: 1,2,3,4,5
  - muliplicatives: 10, 20
- 6-9 morphologically 5+ 1/2/3/4
- 11-19 morphologically, 10+1/2/3/4/5/5+1/5+2/5+3/5+4
- 20,40,60,80 morphologically 1/2/3/4 × 20
- 21-25, 41-45, 61-65, 81-85 morphologically 1/2/3/4 × 20 + 1/2/3/4/5
- 30,50, 70, 90 morphologically 1/2/3/4 × 20 + 10

Languages: otm

5.2 Type 5-Gola (1 language)

Like Type 5A, except that 21-39 = 20+1... 20+10+5+4 (instead of 1 × 20).
Languages: gol

5.3 Type 5-Arawak (1 language)

Like Type 5A, except that 10 = 2 × 5 across the board, so 6 morphemes instead of 7. Also, 5 = 1 × 5.
Languages: ara

5.4 Type 5-Kana (1 language)

Like Type 5A, except that 6 is monomorphemic across the board, so 8 morphemes instead of 7. Also, 20-39 = 20... 20+10+5+4 (instead of 1 × 20).
Languages: kan

5.5 Type 5-Nahuatl (1 language)

Like Type 5A, except that 15 is monomorphemic across the board, so 8 instead of 7 morphemes, and e.g. 16 = 15+1, 35 = 1 × 20 + 15.
Languages: nsz

5.6 Type 5-Diola (1 language)

Like Type 5-Nahuatl, except that 20 across the board 20 instead of 1× 20.
Languages: dio

5.7 Type 5-Supyire (1 language)

Like Type 5A, except that 80 is monomorphemic across the board, so 8 instead of 7 morphemes, and 20 across the board 20 instead of 1× 20.

Languages: sup

5.8 Type 5-Drehu (1 language)

- 8 morphemes
  - digits: 1,2,3,4,5
  - muliplicatives: 10, 15, 20
- 6-9 morphologically 5+ (1/2/3/4)
- 5,10,15 morphologically 1/2/3 × 5
- 15 monomorphemic in 16-19 (15+ (1/2/3/4))
- 10 monomorphemic in 11-14 (10+ (1/2/3/4))
- 20,40,60,80 morphologically 1/2/3/4 × 20
- 21-25, 41-45, 61-65, 81-85 morphologically 1/2/3/4 × 20 + 1/2/3/4/5
- 30,50, 70, 90 morphologically 1/2/3/4 × 20 + 2×5
- 31-34,51-54, 71-74, 91-94 morphologically 1/2/3/4 × 20 + 10 + 1/2/3/4
- 36-39,56-59, 76-79, 96-99 morphologically 1/2/3/4 × 20 + 15 + 1/2/3/4

Languages: dre

5.9 Type 5-Mangab-Mbula (1 language)

Like Type 5-Drehu, except without morphemes for 10 and 15, so 10 and 15 morphologically complex across the board, and thus 6 instead of 8 morphemes. In addition, 15 = (2+1) × 5 instead of 3× 5, and 25,45,65,85 = 1/2/3/4 × 20 + 1 × 5.

Languages: mmb

6 Type 6: Other bases and rare systems

6.1 Type 6-Haida (mix of base 10 and 20) (1 language)

- 10 morphemes
  - digits: 1,2,3,4,5,7,8
  - muliplicatives: 10, 20

- 9 is morphologically 10-1
- 20,40,60,80 morphologically 1/2/3/4 × 20
- 21-29, 41-49, 61-69, 81-89 morphologically 1/2/3/4 × 20 + 1/2/3/4/5/6/7/8/10-1
- 30,50, 70, 90 morphologically 3/5/7/(10-1) × 10
- 31-39,51-59, 71-79, 91-99 morphologically 3/5/7/(10-1) × 10 + 1/2/3/4/5/6/7/8/10-1

Languages: hai

6.2 Type 6-Kilivila (1 language)

- 6 morphemes
  - digits: 1,2,3,4,5
  - muliplicatives: 10
- 6,7,8,9 morphoologically 5 + 1/2/3/4
- 10,20,30,40,50 morphologically 1/2/3/4/5 × 10
- 11-19, 21-29, 31-39, 41-49, 51-59 morphologically 1/2/3/4/5 × 10 + 1/2/3/4/5/5+1/5+2/5+3/5+4
- 60, 70, 80 90 morphologically 5 × 10 + 1/2/3/4 × 10
- 61-69, 71-79, 81-89, 91-99 morphologically 5 × 10 + 1/2/3/4 × 10 + 1/2/3/4/5/5+1/5+2/5+3/5+4

Languages: klv

6.3 Type 6-Tommo So (1 language)

- 11 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - muliplicatives: 10,80
- 11-19 morphologically 10 + 1/2/3/4/5/6/7/8/9
- 81-89 morphologically 80 + 1/2/3/4/5/6/7/8/9
- 20,30,40,50,60,70 morphologically 2/3/4/5/6/7 × 10
- 21-29, 31-39, 41-49, 51-59, 61-69, 71-79 morphologically 2/3/4/5/6/7 × 10 + 1/2/3/4/5/6/7/8/9
- 90-99 morphologically 80 + 10 (+1/2/3/4/5/6/7/8/9)

Languages: tms

6.4 Type 6-Khalaj (1 language)

- 14 morphemes
  - digits: 1,2,3,4,5,6,7,8,9
  - muliplicatives: 10,20,30,40,50
- 11-19, 21-29,31-39,41-49, 51-59 morphologically 10/20/30/40/50 + 1/2/3/4/5/6/7/8/9
- 60-99 morphologically 50 + 10/20/30/40 (+ 1/2/3/4/5/6/7/8/9)

Languages: khl