Selection Criteria for Low Resource Language Programs

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Background

- Despite increased work on resource-poor languages, differences in
  - terminology
  - available information
  - goals

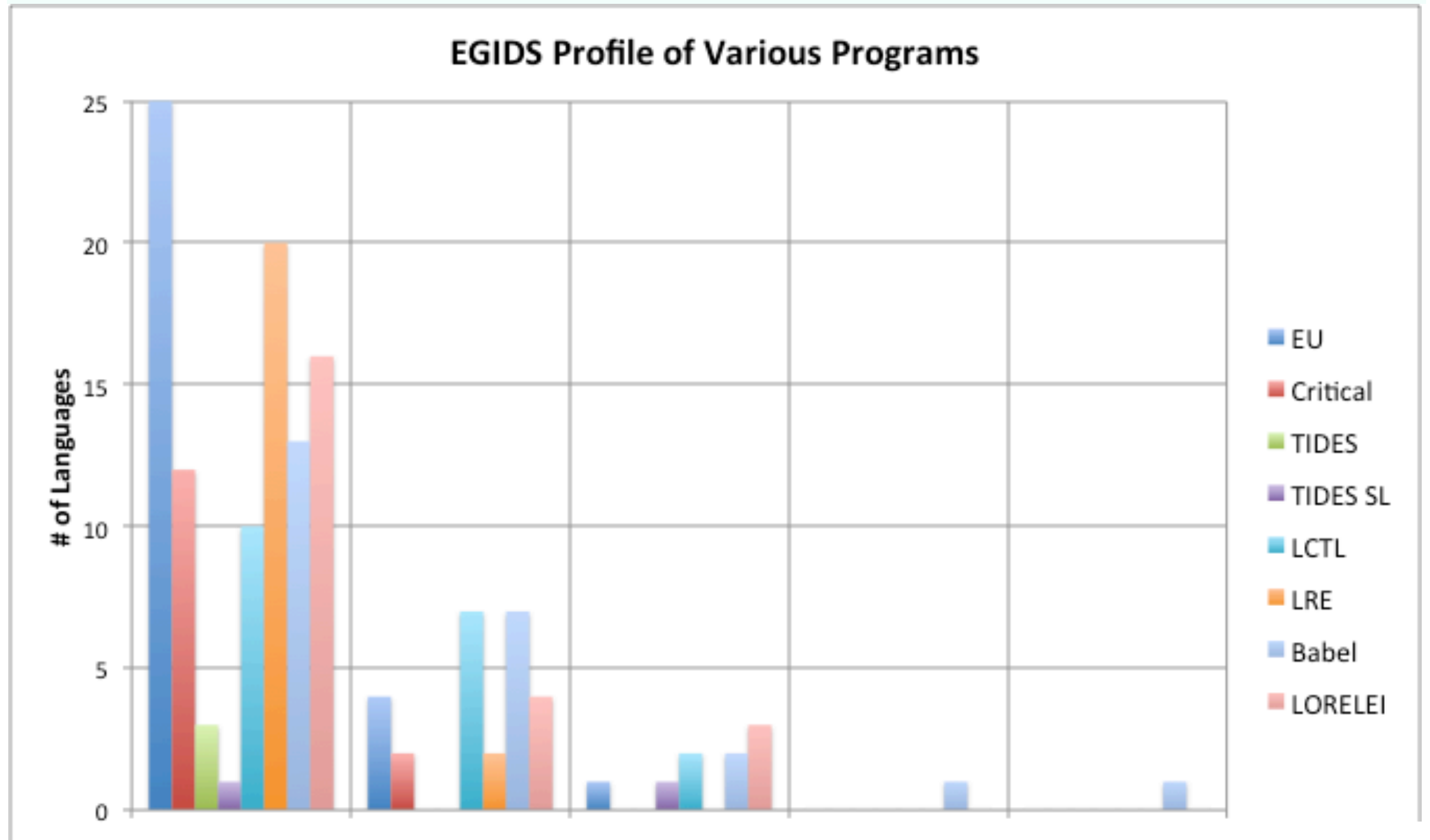
  yield obscurity in language selection criteria
- Program goals range from:
  - LORELEI: facilitate situational awareness in the event of a disaster
  - METANET: create missing technologies and transfer languages facing digital extinction
  - NSF DEL: "*document living endangered languages and their associated cultural and scientific information before they disappear*"
- Program Effects
  - time & funding commitments
  - create critical language resources
  - enable human language technologies
  - increase native speaker information access

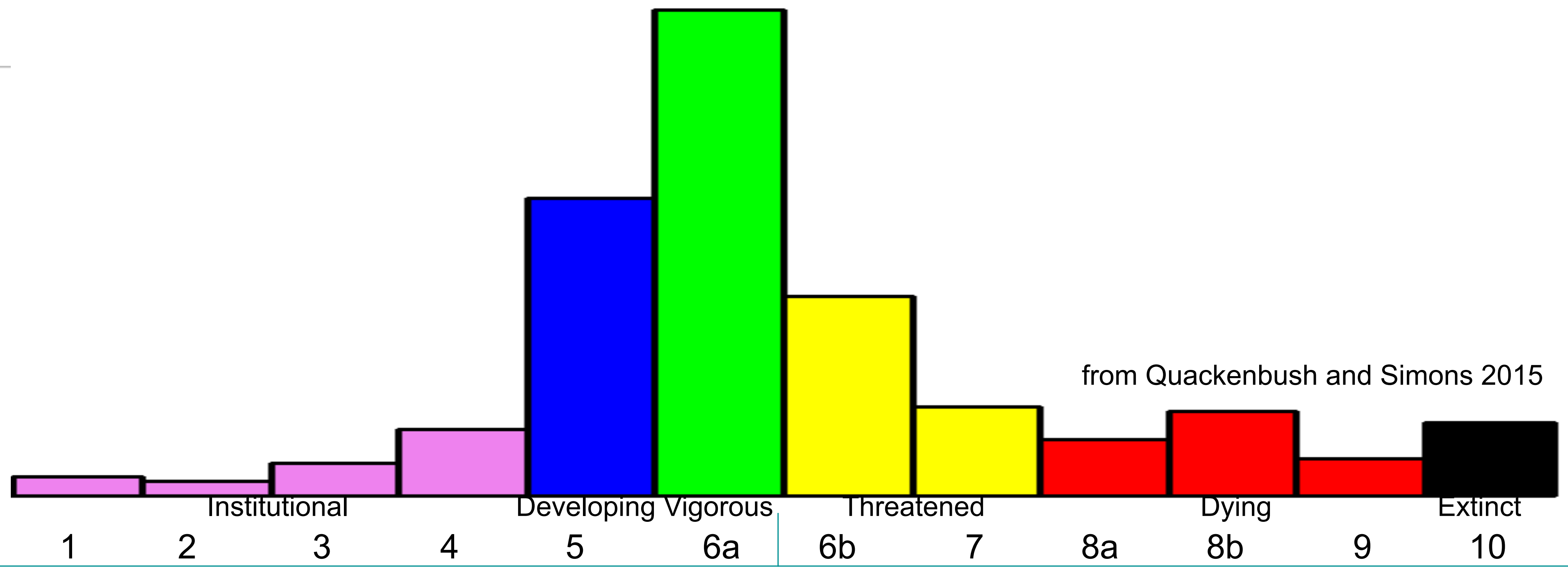
The potential impact – on research and daily life – of resource development efforts make language selection criteria a worthy topic.

Goal: begin dialog on how community decides which languages to study, survey selection criteria used by low resource language research and available

Programs

- DARPA TIDES: translingual IR/IE & summarization in 3 languages + 1 surprise
- REFLEX LCTL: translingual technologies, language packs in 20 languages
- NIST LRE: 1996-present evaluation campaign, language variety, confusability, not specifically low resource
- IARPA Babel: escape English bias in speech recognition
- DARPA LORELEI: information awareness for disaster events in low resource languages

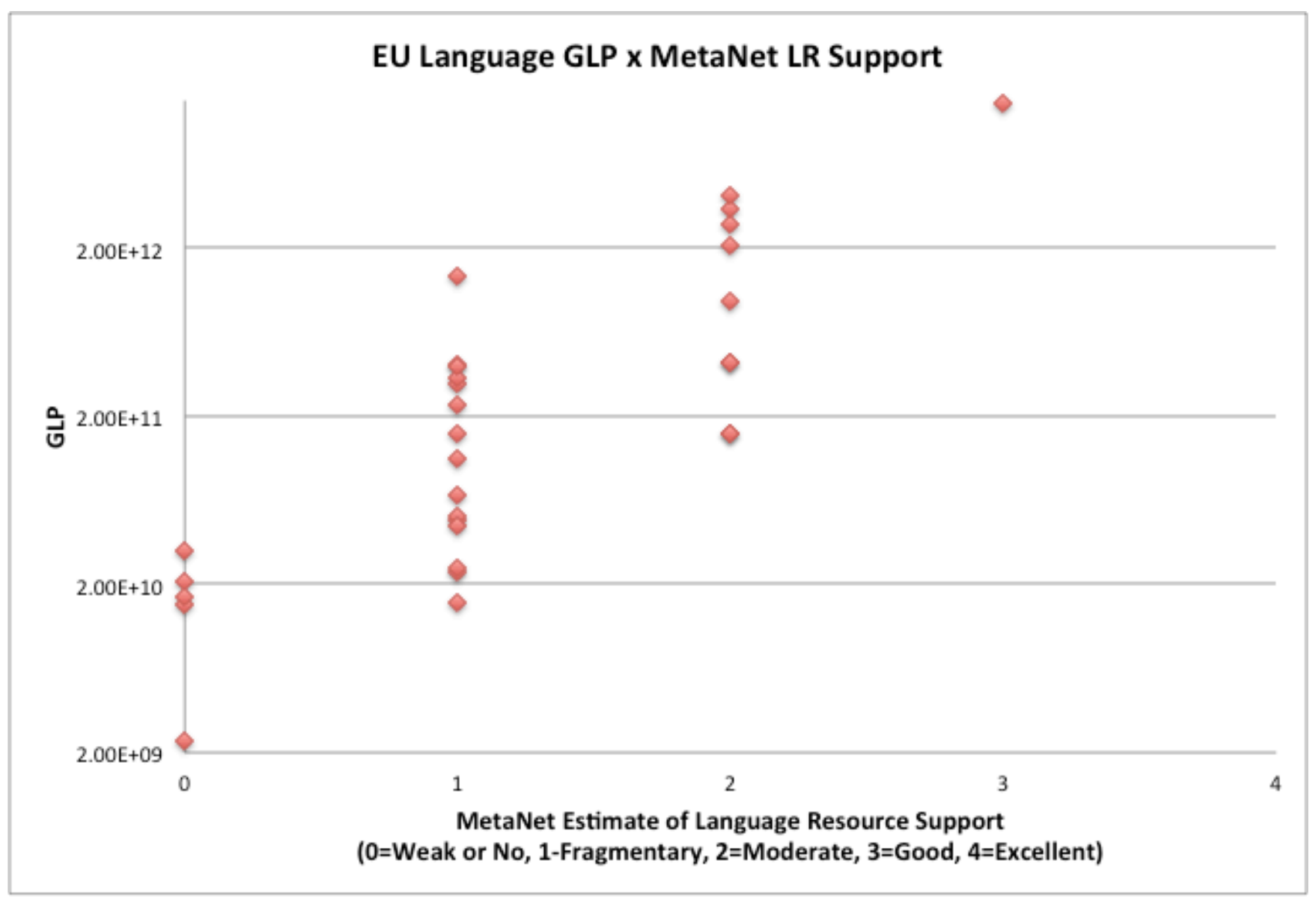




from Quackenbush and Simons 2015

Terms

- endangered: risk of losing native speakers
- critical: undesirable supply/demand ratio
- low density: few online resources (under-resourced, low resource)
- less commonly taught: e.g. specific market
- surprise: within common task program
- low-affluence: defined via GLP



Selection Criteria: Demographic

- importance, influence
  - population:
    - but see English vs Spanish, Mandarin
  - GLP= per capita GDP * native speakers per country
    - does not predict LR presence in EU
- # speakers of more 'important' language
  - e.g Italian versus 6 other languages of Italy among 60 most affluent
- total # speakers 1st or 2nd language
  - e.g. Swahili
- speakers involved in high profile event
  - e.g. Haitian Creole during earthquake

Selection Criteria: Linguistic

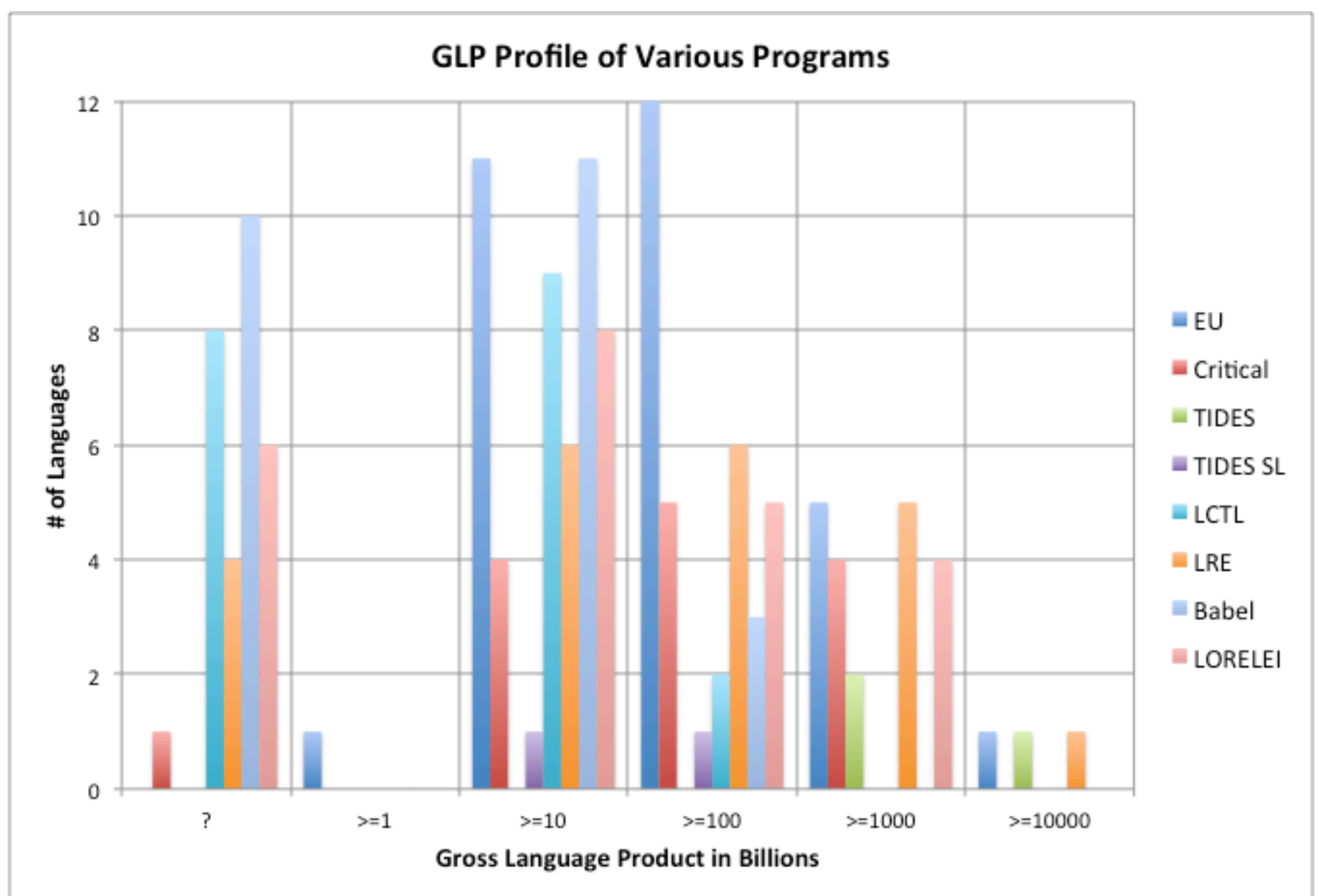
- similarity as measured via family tree
  - numerous resource porting experiments (Elmahdy et al. 2014, Vergyri 2005 et al., Beyerlein et al. 1999)
  - REFLEX LCT: Bengali, Punjabi, Urdu
  - LRE confusable clusters sometimes family tree related – but French-Haitian Creole
- written by native speakers
- orthography standardized
- words & sentences delimited in writing
- ease of letter to sound mapping
- nature of morphology
  - analytic or synthetic, number of morphological classes, degree of irregularity, syncretism
- typological diversity across program

Selection Criteria: Resource

- # resources
  - too few mires technology development
  - too many not representative
- specific resource types
  - monolingual & parallel text, speech
  - dictionaries, gazetteers, grammars
- human resources
  - previously, local speaker population
  - in-country partners
  - in-country infrastructure
- elaborated
  - standard digital encoding, news & parallel text, translation dictionaries, tokenizers, segmenters, taggers, morph analyzers
- different weightings of the above

Implementation Challenges

- different notions of 'language'
- different language names
- difficulty collecting data on
  - demographics
  - linguistic features
  - available resources
- demographics change over time
  - # Syrian Arabic speakers in Europe
- resource availability, change over time
  - Quechuan in the LCTL era versus today
- language attitudes
  - suppression, language death



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