Association between status of a language and its number of basic colour terms

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Structure

Basic Colour Terms

What are Basic Colour Terms?

- monolexemic (no "lemon-colored" or "blue-green")
- no subsets of other terms ("crimson" $\Rightarrow$ "red")
- not restricted to narrow class of objects ("blonde")
- psychologically salient (most people won't come up with "scarlet" when shown a color)

Framework of Berlin and Kay's Study

- comparison of color term vocabulary in 98 languages by showing colored chips to participants
- participants were asked to name the colors of their language, and to select the best fits on a chart of 320 colors
- they were then asked to classify the same 320 color chips isolatedly, resulting in a map of color categories

Results

- the number of basic colour terms is between 2 and 12
- if there are 11 (like in most major languages), they correspond exactly to the English ones
- 11 basic color terms in English: red, orange, yellow, green, blue, purple, pink, brown, grey, black and white
- 12 colors: Russian (2 blues), Hungarian (2 reds)
- clear restrictions if there are fewer than 11 colors:
  - (1): **BLACK**and **WHITE** always exist.
  - (2): If there is a third one, it is **RED**.
  - (3): The fourth color term is either **GREEN** or **YELLOW** .

Evolution of Colour Vocabularies

- Fixed Sequence of evolutionary stages
- languages all started with two color terms
- new color terms are added later
- basic color terms are not lost in language change
- 11 or 12 color terms is the maximum

Evolution of Basic Colour Terms

- A 7-Stage system
- **STAGE I: BLACK AND WHITE**
- **STAGE II: RED**
- **STAGE III: GREEN OR YELLOW**
- **STAGE IV: GREEN OR YELLOW**
- **STAGE V: BLUE**
- **STAGE VI: BROWN**
- **STAGE VII: PURPLE, PINK, ORANGE AND GREY**

- when colour lexicon expands beyond seven terms $\rightarrow$ rapid expansion to full roster of eleven basic colour categories

Results in the following 7 Universals

1. *All languages contain terms for white and black.*
2. *If a language contains three terms, then it contains a term of red.*
3. *If a language contains four terms then it contains a term for either green or yellow (but not both).*
4. *If a language contains five terms, then it contains terms for both green and yellow.*
5. *If a language contains six terms, then it contains a term for blue.*
6. *If a language contains seven term, then it contains a term for brown.*
7. *If a language contains eight or more terms, then it contains a term for purple, pink, orange and grey, or some combination of these.*

The Data - Analysis, Results and further Research questions

Databases

- Data from two databases
- Ethnologue and WALS
- Ethnologue provided Status of Language
- WALS has four chapters on Colour Terms
  - Number of Non-Derived Basic Colour Categories
  - Number of Basic Colour Categories
  - Green and Blue
  - Red and Yellow

Ethnologue

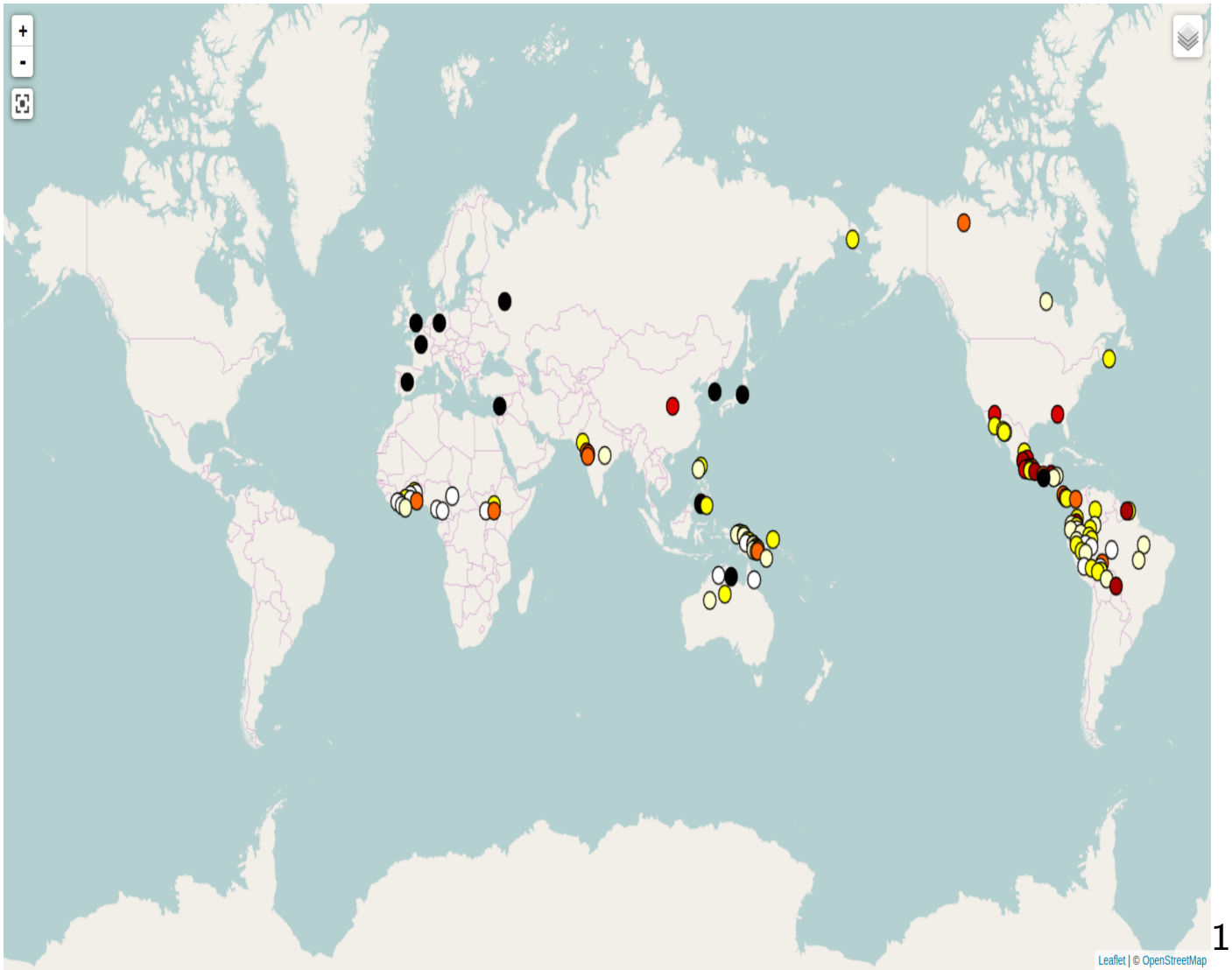
Ethnologue uses the following distinctive grading scale for the status of a language:

- **0** $\rightarrow$ INTERNATIONAL: The language is widely used between nations in trade, knowledge exchange, and international policy.
- **1**$\rightarrow$ NATIONAL: The language is used in education, work, mass media, and government at the national level.
- **2** $\rightarrow$ PROVINCIAL: The language is used in education, work, mass media, and government within major administrative subdivisions of a nation.
- **3** $\rightarrow$ WIDER COMMUNICATION: The language is used in work and mass media without official status to transcend language differences across a region.

- **4** $\rightarrow$ EDUCATIONAL: The language is in vigorous use, with standardization and literature being sustained through a widespread system of institutionally supported education.
- **5** $\rightarrow$ 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.
- **6a** $\rightarrow$ VIGOROUS: The language is used for face-to-face communication by all generations and the situation is sustainable.
- **6b** $\rightarrow$ 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.

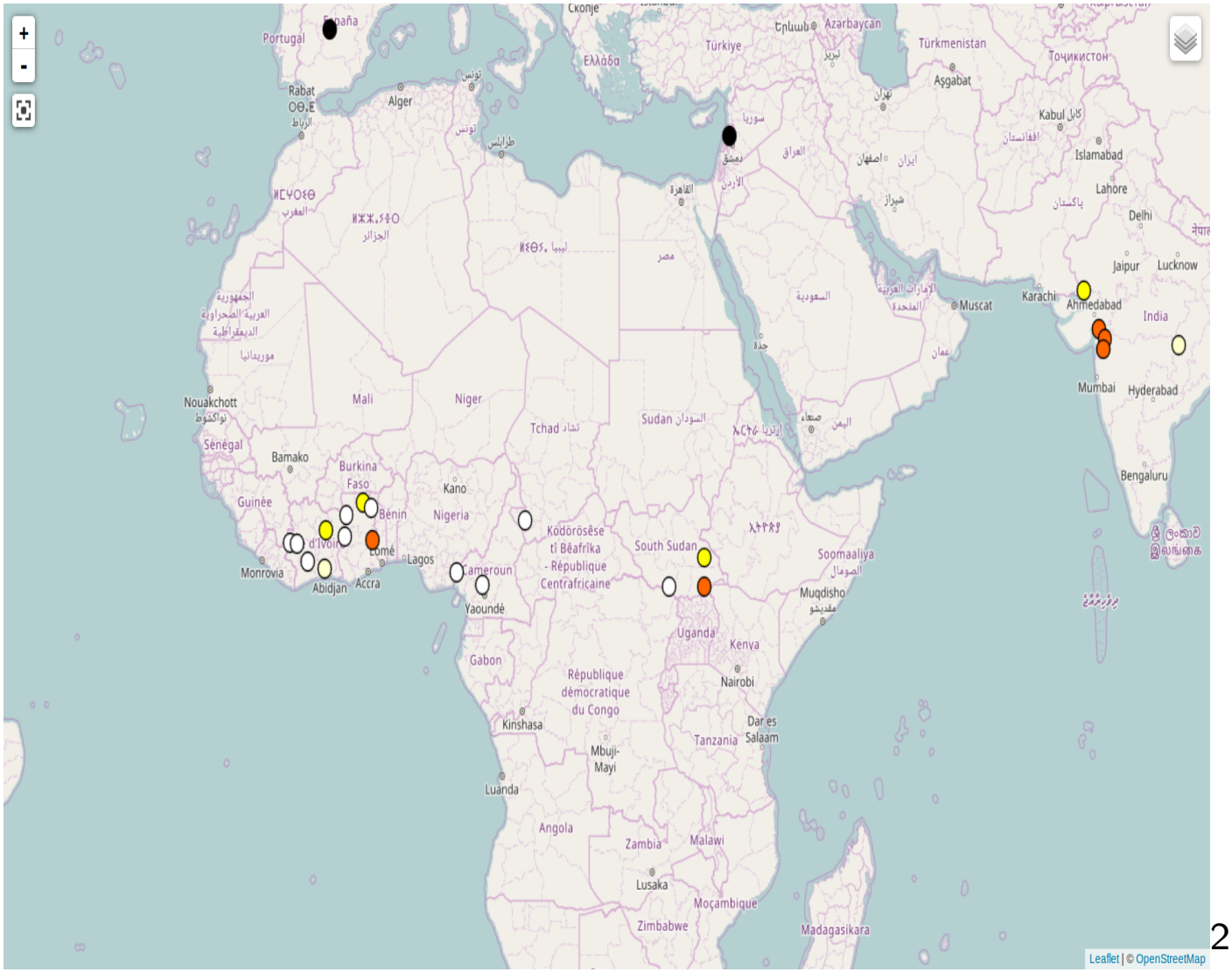
Data Points



[1]

[1] http://wals.info/feature/133A#2/-26.1/130.4

Data Points



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[2] http://wals.info/feature/133A#2/-26.1/130.4

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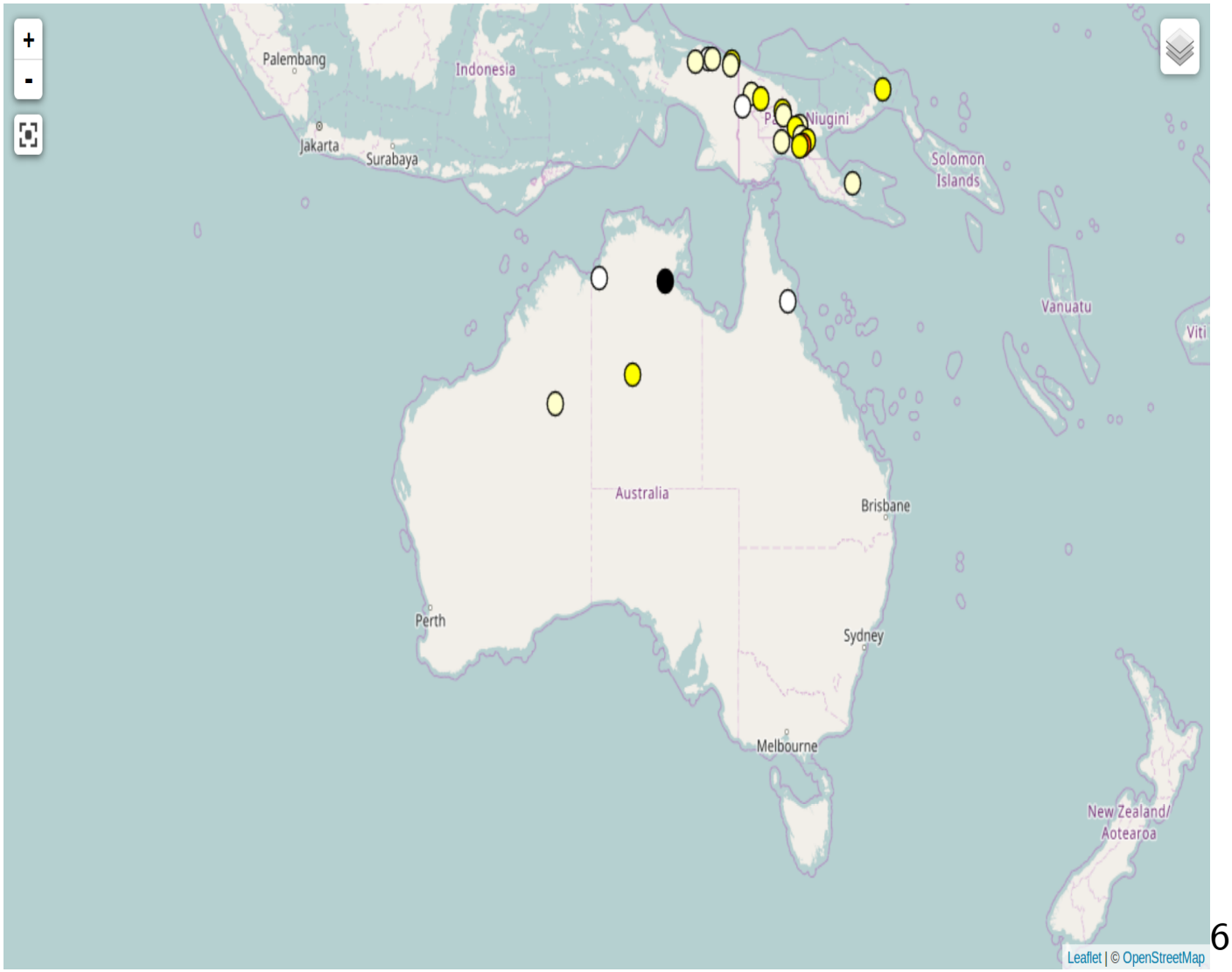


[6]

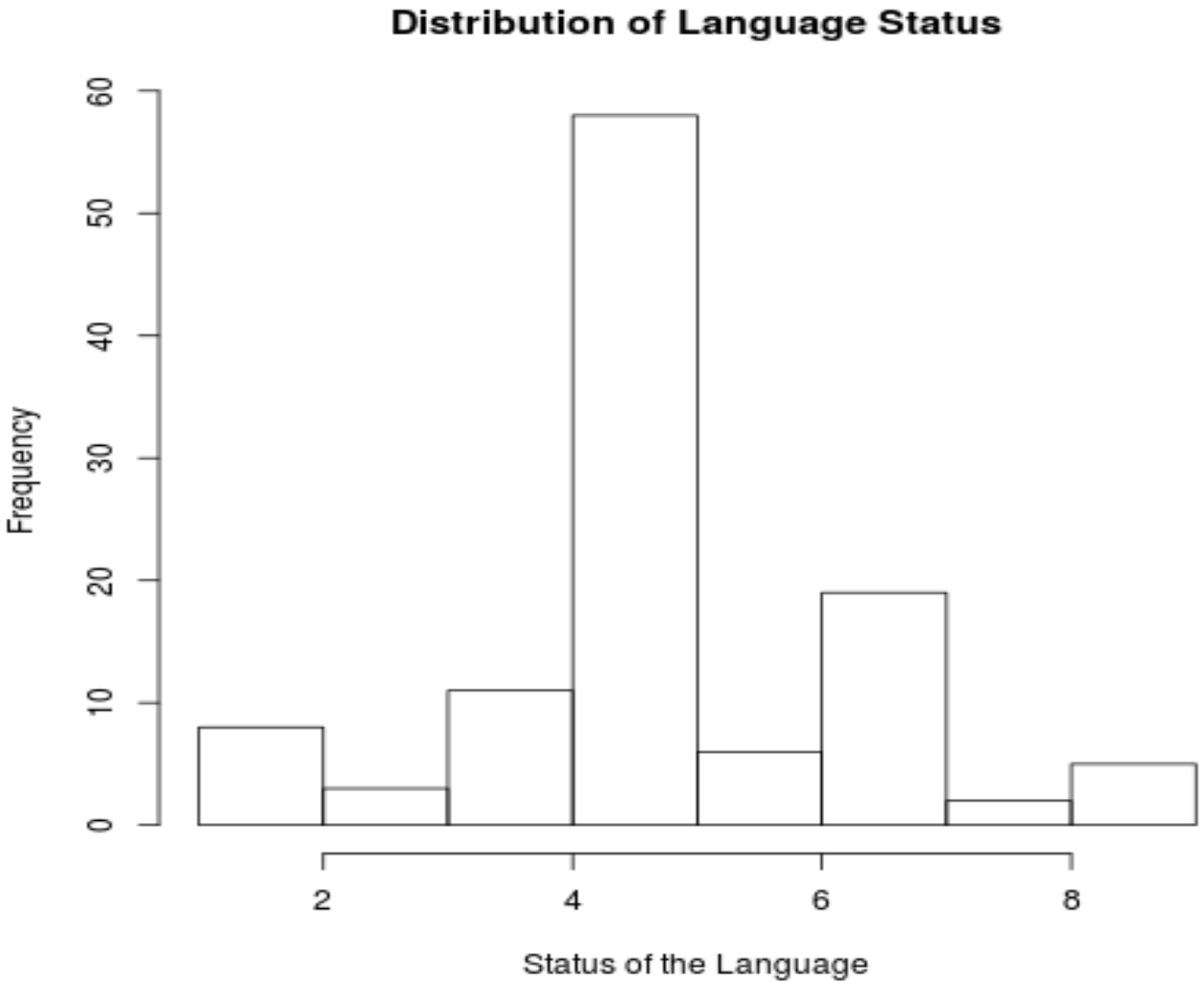
[6] http://wals.info/feature/133A#2/-26.1/130.4

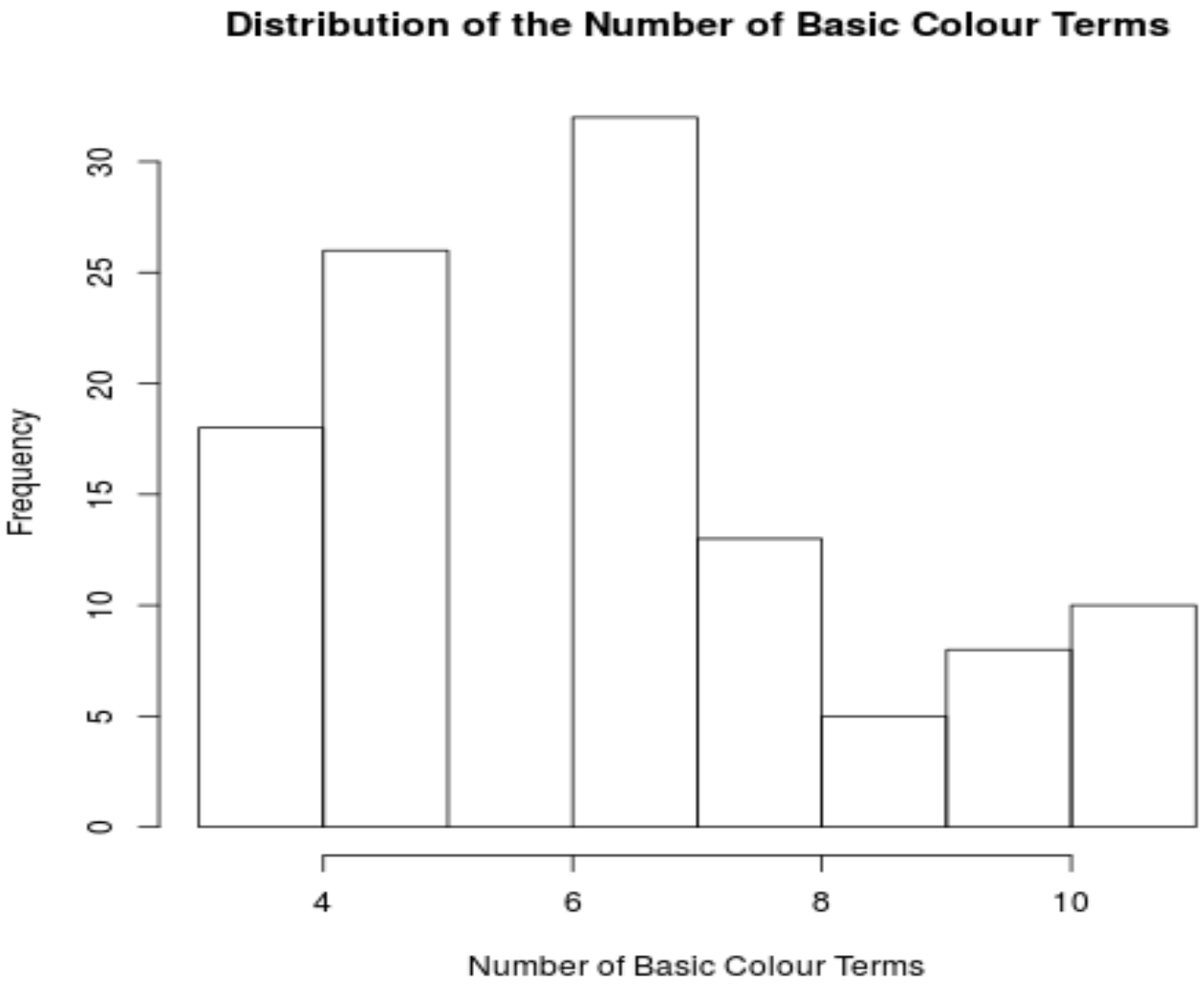
Data-Correction, Manipulation and Controversies

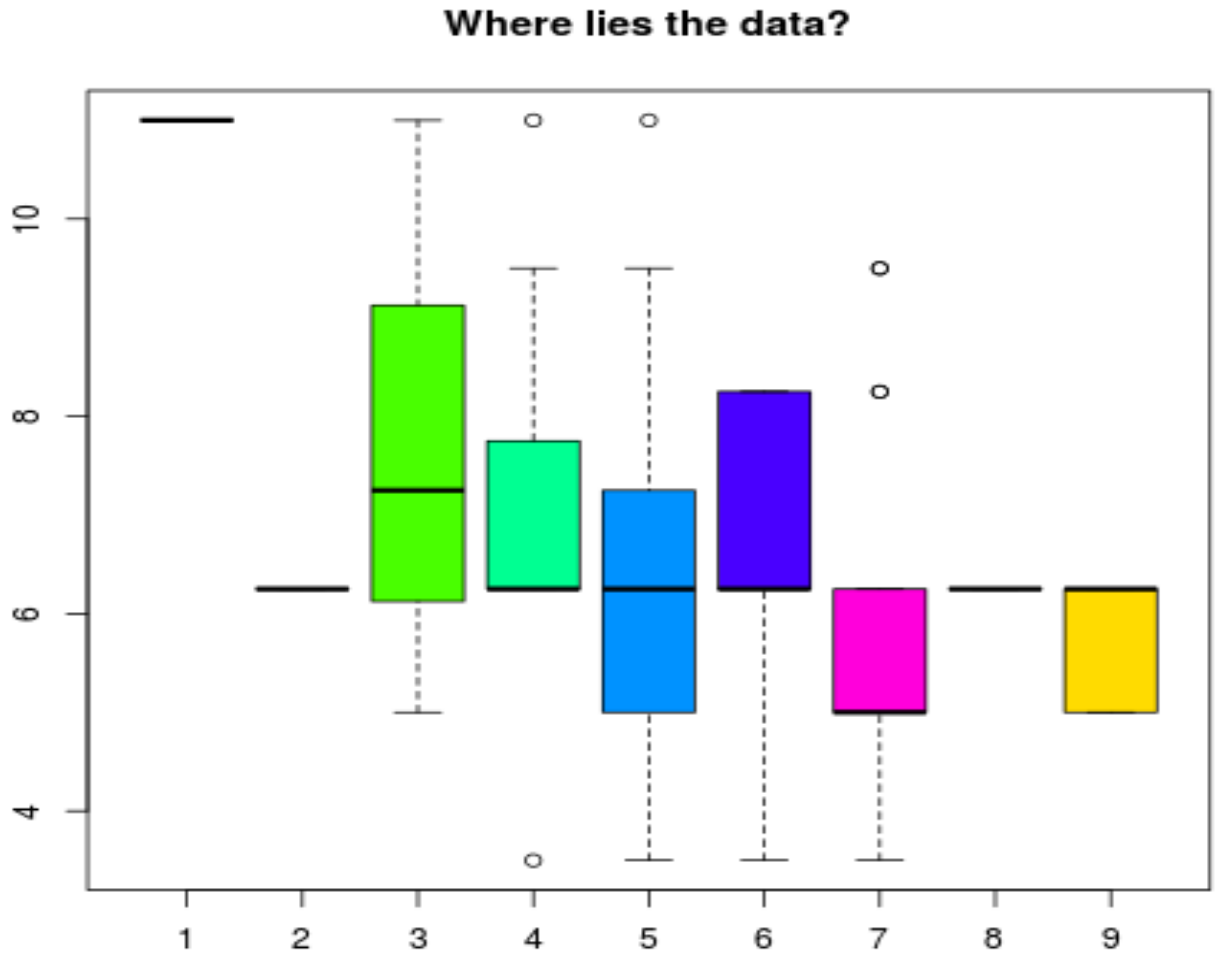
- Reassigned new values to the Ethnologue Scale
- Took the mean value for the number of basic colour terms
- Exclusion of the following data-points:
  1. Cakchiquel
  2. Campa (Axininca)
  3. Cofán
  4. Slave
  5. Aguacatec
  6. Tlapanec

- Russian is annotated with having 11 basic colour terms but it actually has 12 (two terms for blue)
- Hungarian, which is not in the sample, also has 12 (two terms for red)
- In that case it is not clear whether the both terms for red are basic colour terms

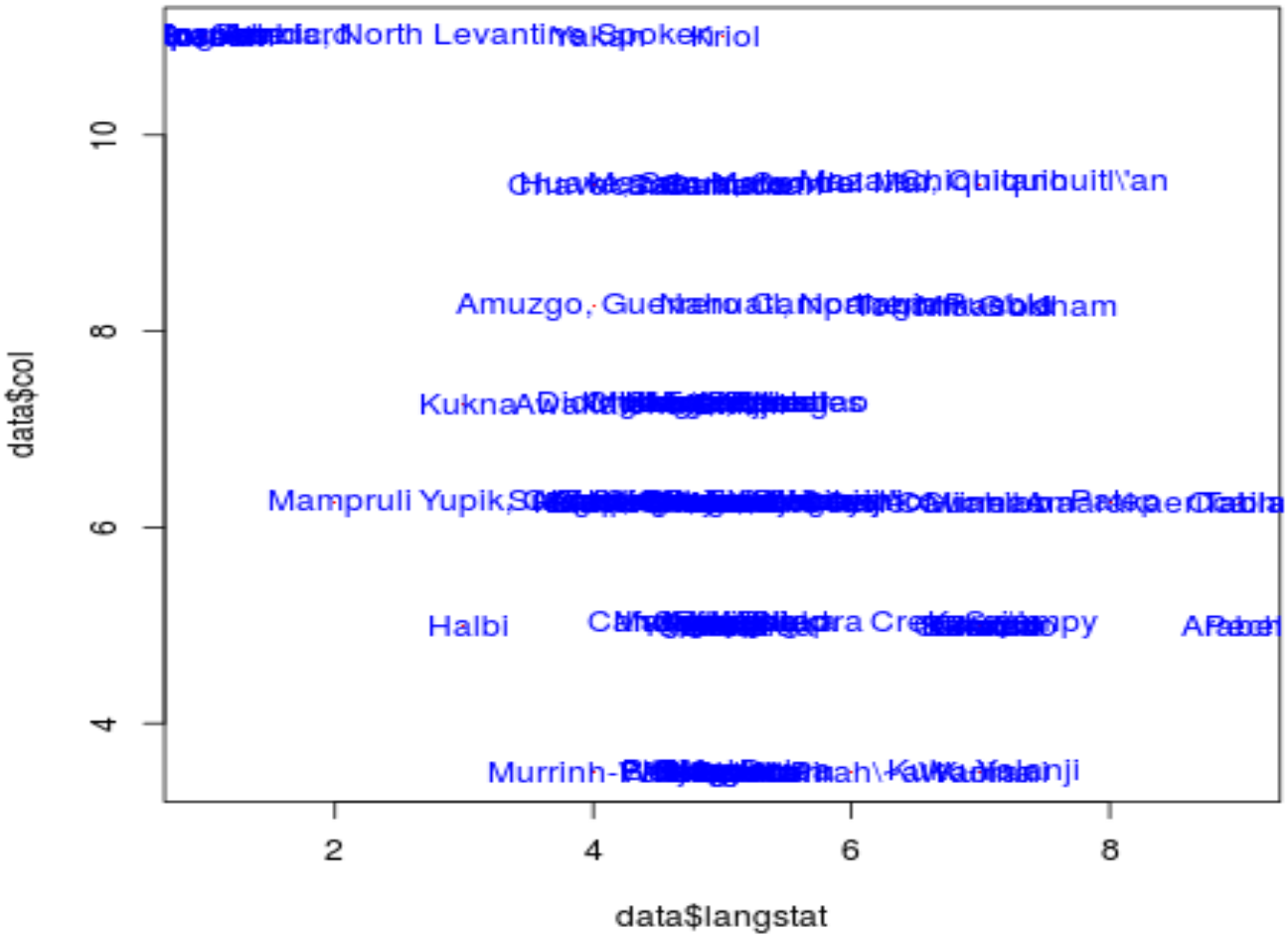
Distribution of Raw Data







Data Distribution and Correlation



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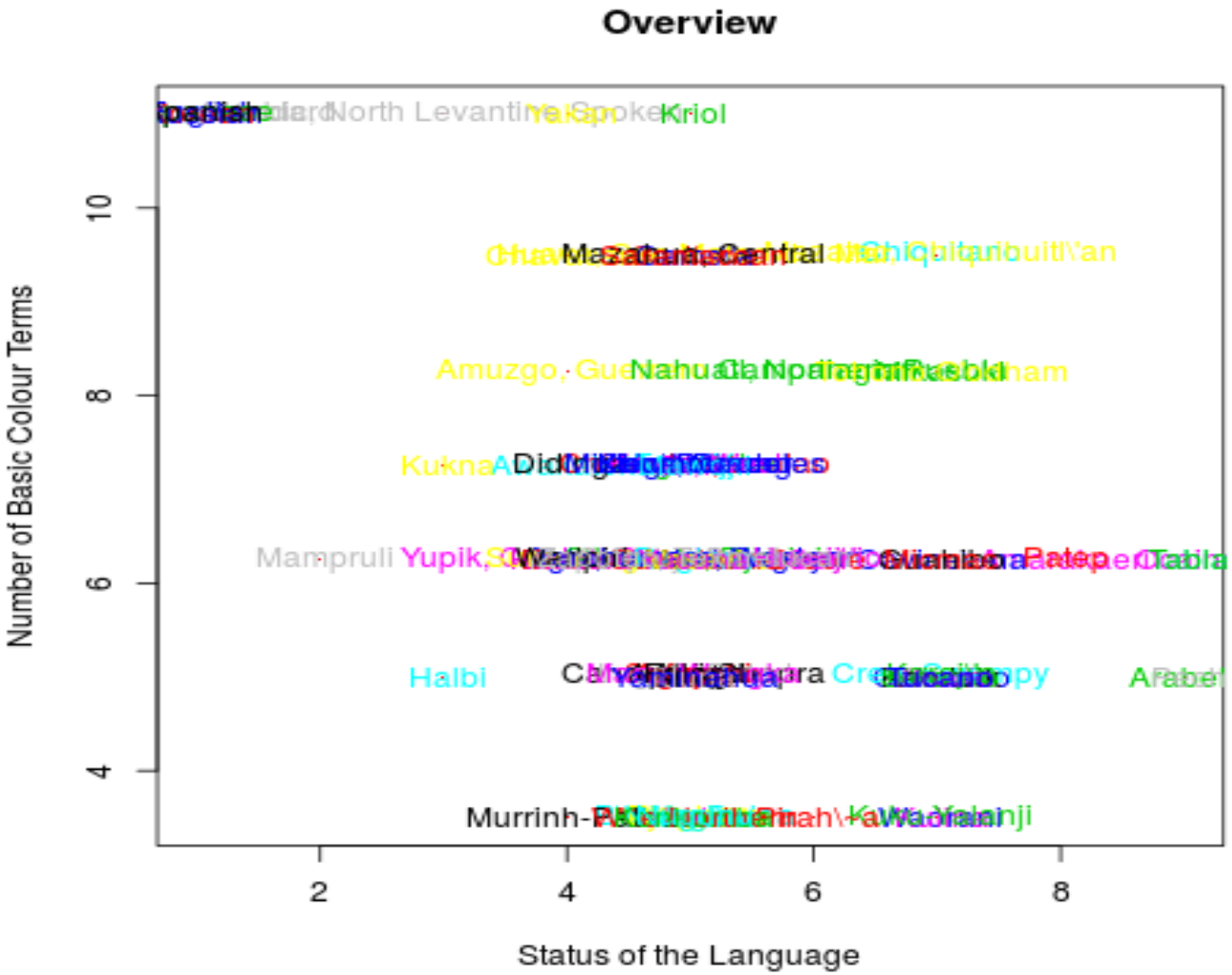


Statistical Test II

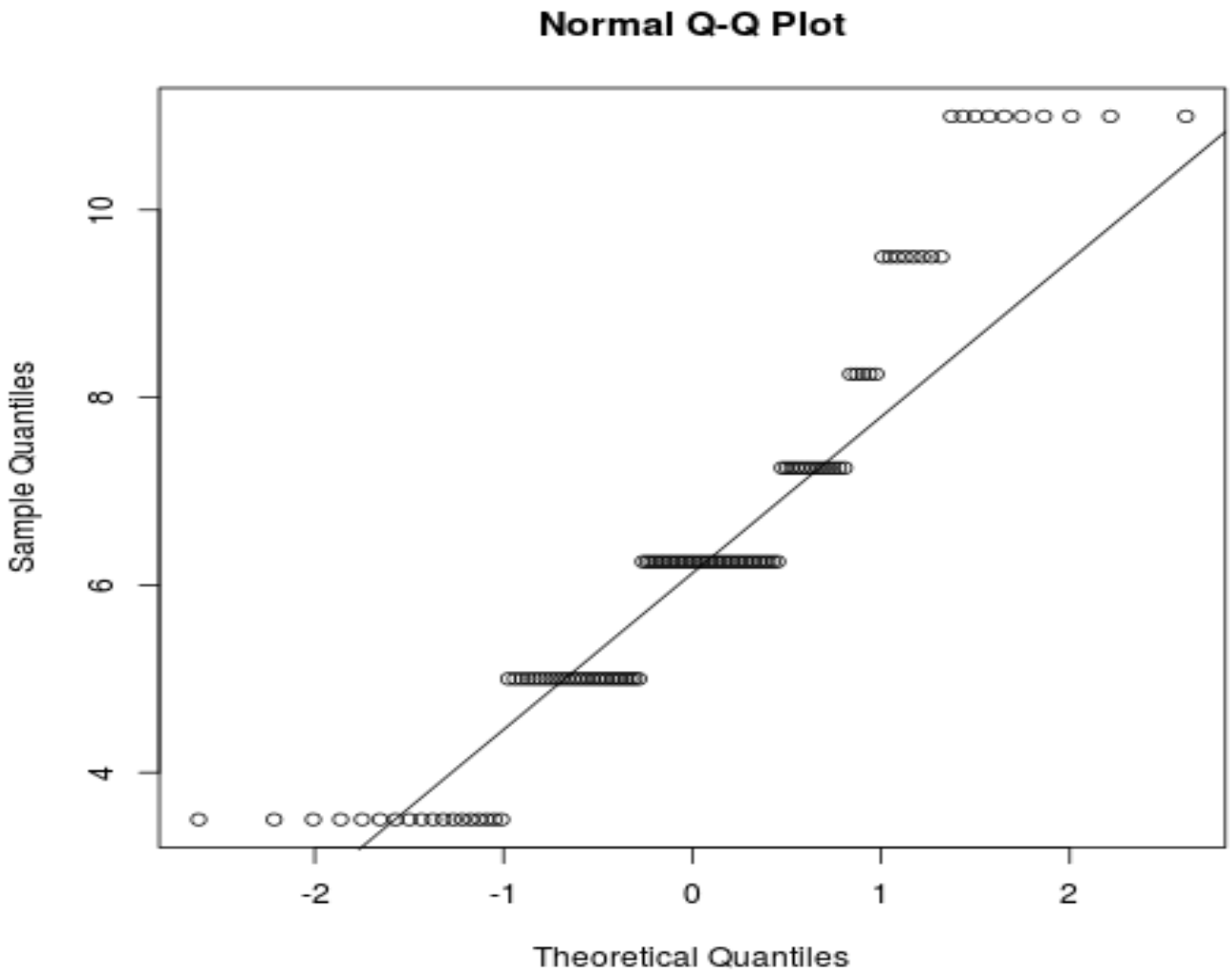
- Spearman's rank correlation rho
- performed on the two colums data$langstat and data$col with the following results:

  $S = 309583.6$, *p-value = 0.0005304*

  Correlation-rate: -0.3222381

Explanations and Assessment

- **How normally distributed is the data?**



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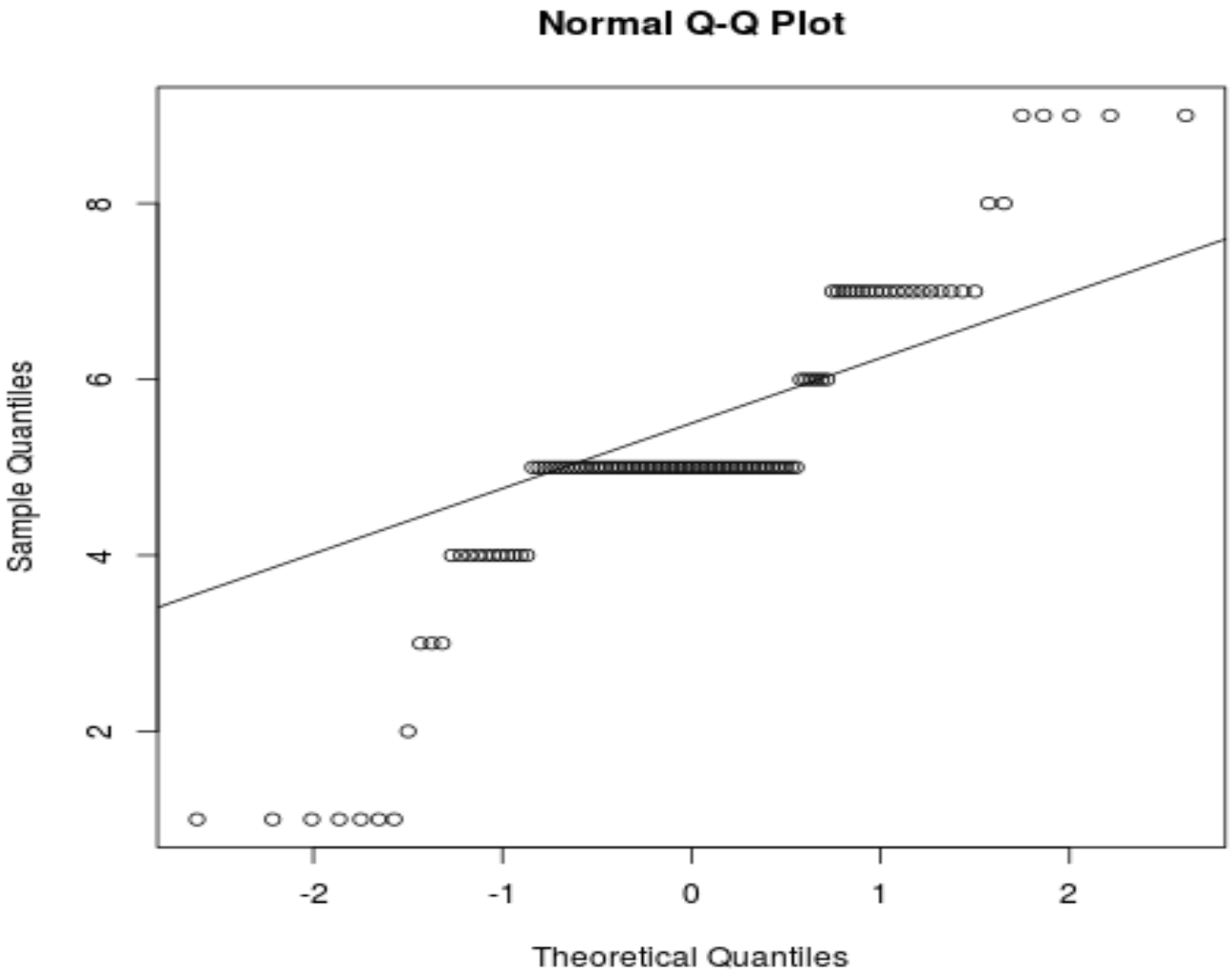

Explanation and Assessment

- Language depth as indicator for number of colour terms and different stages?
- Evolution of language does not contribute to loss of colour terms according to Berlin and Kay (1969) but maybe this has to be reassessed
- Analysis could go either way with more data as the result is not really strong
- Use more Data? Would that help?

Summary

- Negative Correlation between the two parameters
- Low p-value as indicator of significance value between the two parameters
- Results are not very strong but show a tendency - maybe a lack of data?
- Data is very biased towards minority languages - include more data

Open Research Questions

- Correlation between Status and Blue/Green distinction?
- Correlation between Status and Red/Yellow distinction?
- Correlation of Blue/Green distinction and Red/Yellow distinction?
- Correlation between the Population Size and the number of basic colour terms?
- Correlation between the Population Size and the status of the language?
- Look at specific Language Families? How do they behave? Would that even make sense?
- Any further ideas?

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