

Language Internal Factors Explain Syllable Structure Complexity (feat. Ecological Adaptation): Stress, tone and consonant clusters

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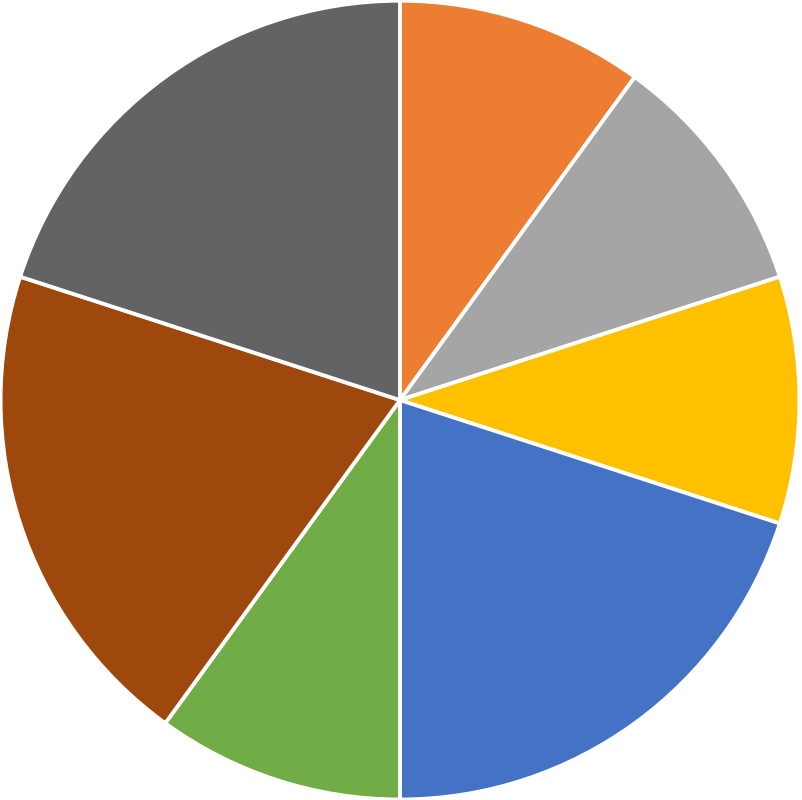
Close up of table

| | | | | | | | | | | | | | | |
|-------------------------------------|---------|-----------|----------|----|-----|--|--------|--------|--|------|---------|---------|---|------|
| IE | Eurasia | Italian | Romance | IE | S | | Rich | S = 3 | | | | | | |
| | | Icelandic | Germanic | IE | S | | Rich | S = 3 | | | | | | |
| | | Welsh | Celtic | IE | S | | Rich | S = 3 | | | | | | |
| | | Greek | Greek | IE | S | | Rich | S = 3 | | | | | | |
| | | Russian | Slavic | IE | S | | Rich | S = 3 | | IE | Eurasia | S | | 3 |
| U | | Finnish | Finnic | U | S | | Medium | S = 2 | | 2 | | | | |
| | | Hungarian | Ugric | U | S | | Rich | S = 3 | | 3 | | | | |
| Salminen 1997 | | Nenets | Nenets | U | S | | Medium | S = 2 | | 2 | | | | |
| | | Selkup | Selkup | U | S | | Medium | S = 2 | | 2 | | | | |
| | | | | | | | | Stress | | 2,25 | U | Eurasia | S | 2,25 |
| Bonfante and Bonfante 2002 | | Etruscan | Isolate | | 1 S | | Rich | S = 3 | | | Etrs | Eurasia | S | 3 |

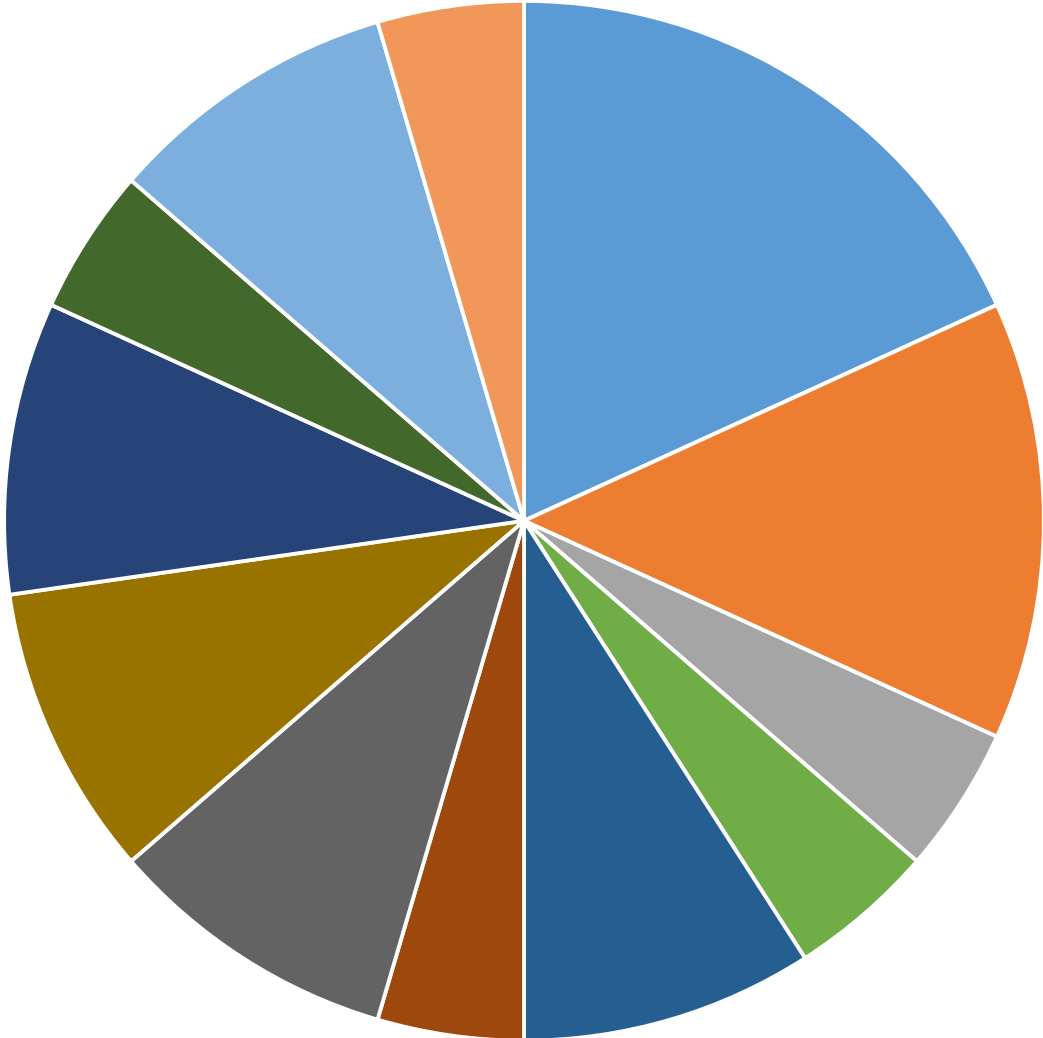
Stress: 22 families

Tone: 15 (10) families

TONE

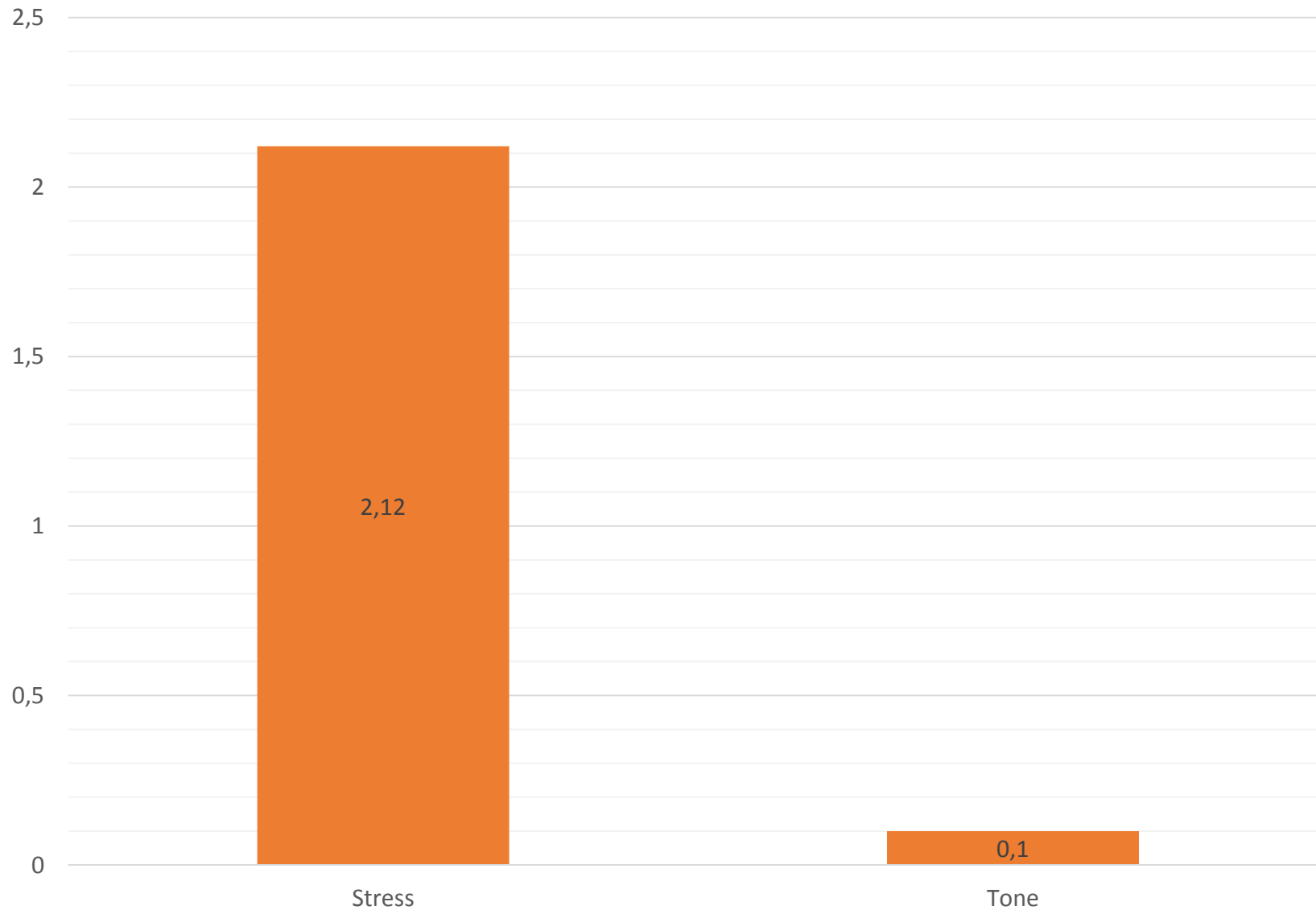


STRESS



- Eurasia
- Asia central
- Asia east
- Asia south east
- Africa east
- Africa west
- Pacific
- Papua
- Amazon
- India
- Arctic
- Australia
- Asia west
- North America

Syllable Structure Complexity: Stress languages vs. Tone languages



| Stress compl | Tone comple |
|--------------|-------------|
| | |
| 3 | 0 |
| 2,25 | 0 |
| 3 | 0 |
| 3 | 0 |
| 3 | 0 |
| 2,5 | 0 |
| 2 | 0 |
| 2 | 1 |
| 1,5 | 0 |
| 3 | 0 |
| 3 | |
| 2 | |
| 2 | |
| 2,3 | |
| 2 | |
| 1 | |
| 0 | |
| 0 | |
| 3 | |
| 2 | |
| 2 | |
| | |
| 2,12142857 | 0,1 |

| Tone comple |
|-------------|
| 0 |
| |
| 0 |
| |
| 0 |
| |
| 0 |
| |
| 0 |
| |
| 0 |
| |
| 0 |
| |
| 0 |
| |
| 1 |
| |
| 0 |
| |
| 1 |
| |
| 2 |
| |
| 2 |
| |
| 2 |
| |
| 2 |
| |
| |
| 0,66666667 |

Consonant cluster complexity = 1 or more

| | Complex | Total in Sample |
|------------------|---------|-----------------|
| Stress languages | 20 | 22 |
| Tone languages | 1 | 10 |

Z test –

The Z-Score is 4.4666. The p-value is 0.

The result is significant at $p < 0.01$.

Wilcoxon rank sum test with continuity correction

```
# Wilcoxon rank sum test  
with continuity correction  
#  
# data: stress and tone  
# W = 198.5,
```

p-value = 4.723e-05

