

# **Tones and Morphological Markers**

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# Research question

Is there a trade-off between morphological marking and usage of tones? Such that languages that extensively use tonal marking tend to have less morphological markers?

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- Structure
- Definitions
- Data Sampling
- Results
- Discussion
- References

# Structure

- Definition of tones
- Data sampling
- Results
- Discussion
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# Definition of tones

# Tone vs. Intonation

- all languages use variations in musical pitch of voice
- different functions
- intonation = describe sentence types, highlight information
- tone = pitch patterns to make lexical or grammatical distinctions
  - simplest case: each syllable has its own characteristic tonal pattern (e.g. flat pitch)
  - contour tone: rising or falling pitch over duration of syllable

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# Example

- The four tones of Mandarin Chinese:

<https://www.youtube.com/watch?v=9MkRL33blc8>

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# Data Sampling

- WALS lists 220 tonal languages out of 527 languages in total (= 41,7%)
- PHOIBLE lists 595 tonal languages out of 2,160 languages in total (=27,5%)

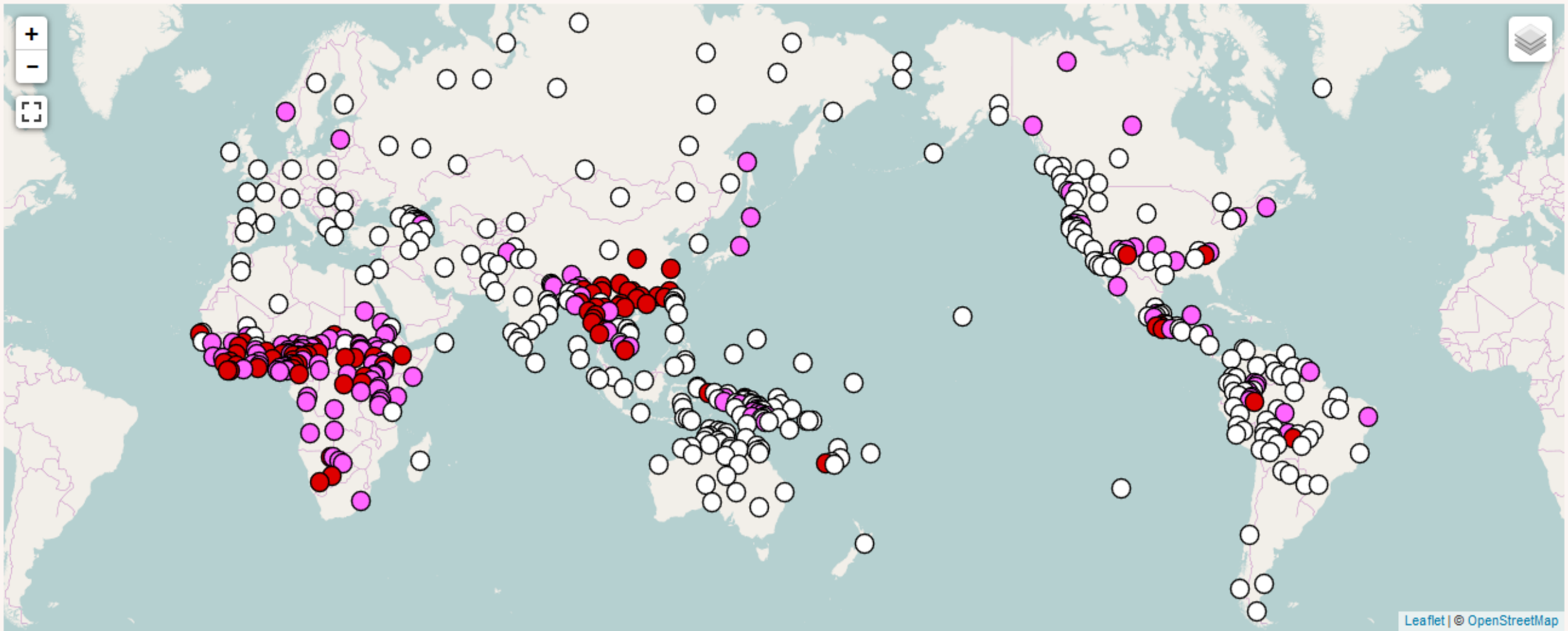
→ problem: distinction between tone and intonation in coding, therefore different number of tonal languages in data bases

→ PHOIBLE more specific (lists number of tones for each language)

→ WALS groups data, therefore less specific; tonal languages underrepresented, but: cross referencing of data is possible

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**THE WORLD ATLAS  
OF LANGUAGE STRUCTURES  
ONLINE**

Value	Representation
○	No tones 307
●	Simple tone system 132
●	Complex tone system 88
<b>Total:</b> 527	

- WALs lists the following morphological features:

- ✉ **Fusion of Selected Inflectional Formatives**
- ✉ Exponence of Selected Inflectional Formatives
- ✉ Exponence of Tense-Aspect-Mood Inflection
- ✉ **Inflectional Synthesis of the Verb**
- ✉ Locus of Marking in the Clause
- ✉ Locus of Marking in Possessive Noun Phrases
- ✉ **Locus of Marking: Whole-language Typology**
- ✉ Zero Marking of A and P Arguments
- ✉ **Prefixing vs. Suffixing in Inflectional Morphology**
- ✉ Reduplication
- ✉ Case Syncretism
- ✉ **Syncretism in Verbal Person / Number Marking**

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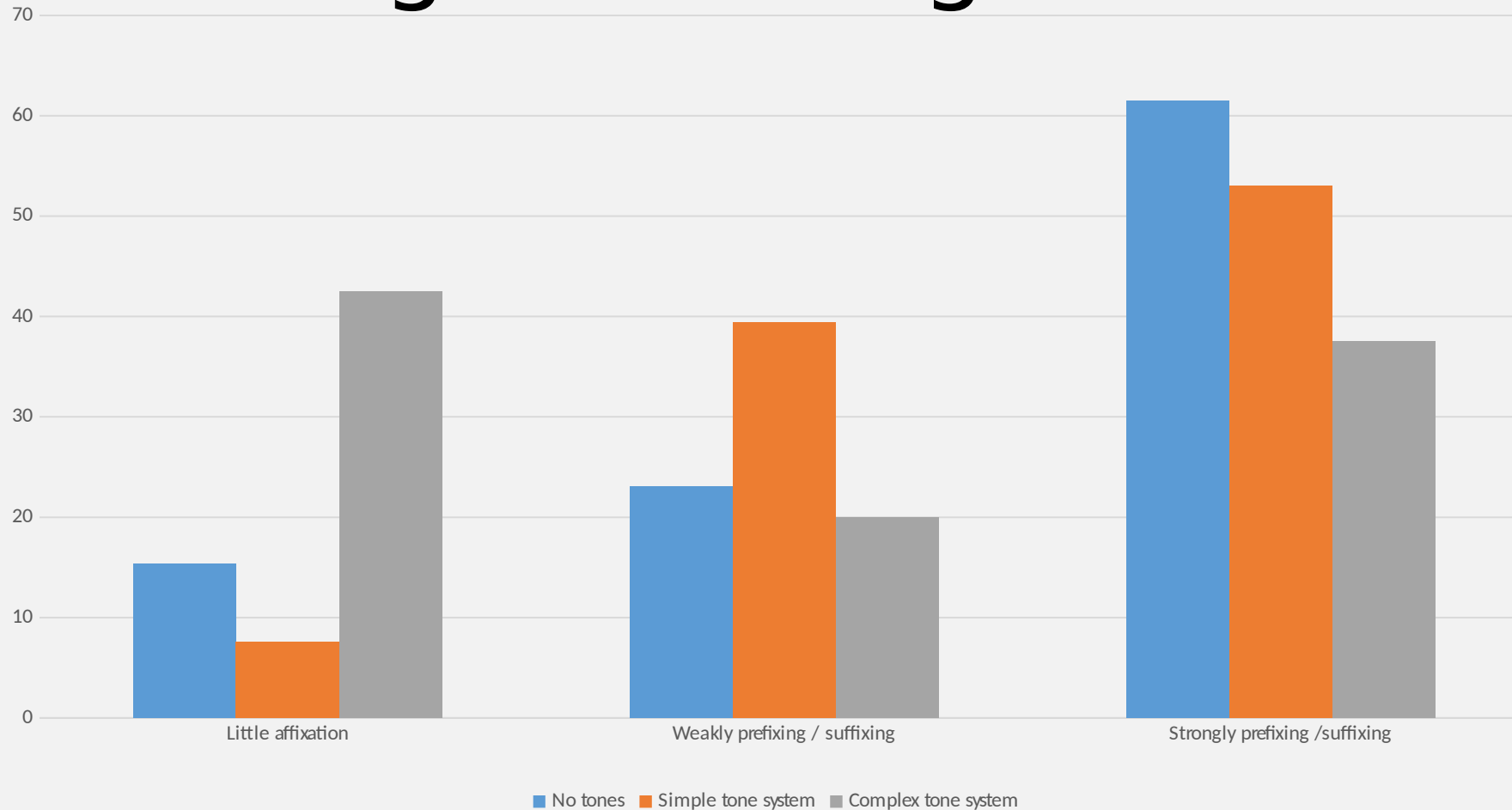
# What variables were tested and why?

- Extracted all languages in WALS with regards to ,tone‘ feature (total of 527 languages)
- Not all morphological features are useful
  - ✉ left out the features that don‘t indicate to what extend a marker occurs in language
  - ✉ left out the features that are included in another variable (to avoid getting the same information twice)
- Morphological features as dependent variable
- Cross referenced them with tone-variable

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# Results

# Tones and Prefixing / Suffixing



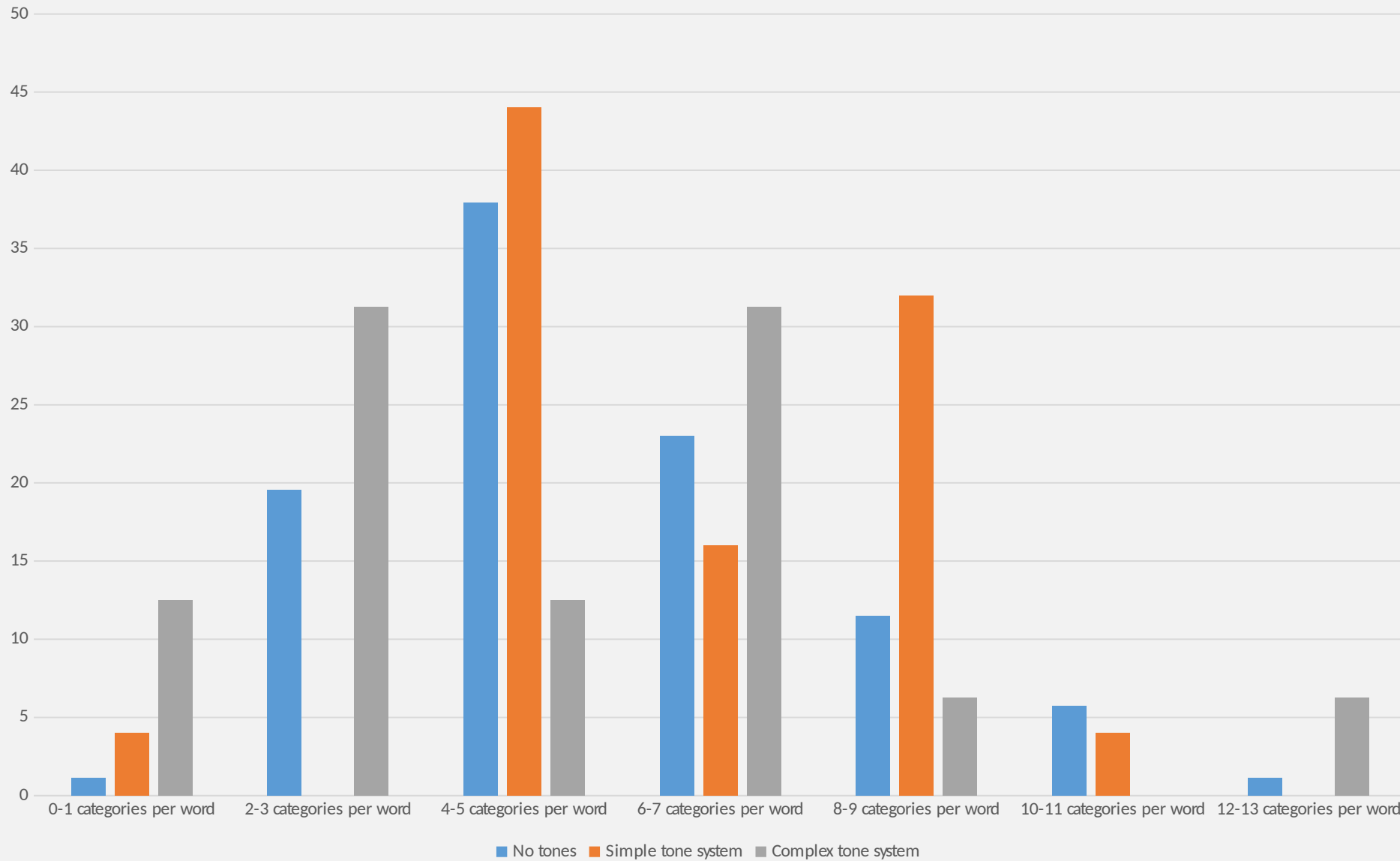
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p value = 0,000105

# Tones and Inflectional Synthesis of the Verb

- tense, voice, agreement (and other grammatical categories) either expressed by
  - a) individual words (**analytic**) ✉ syntactic or
  - b) affixes (**synthetic**) ✉ morphological

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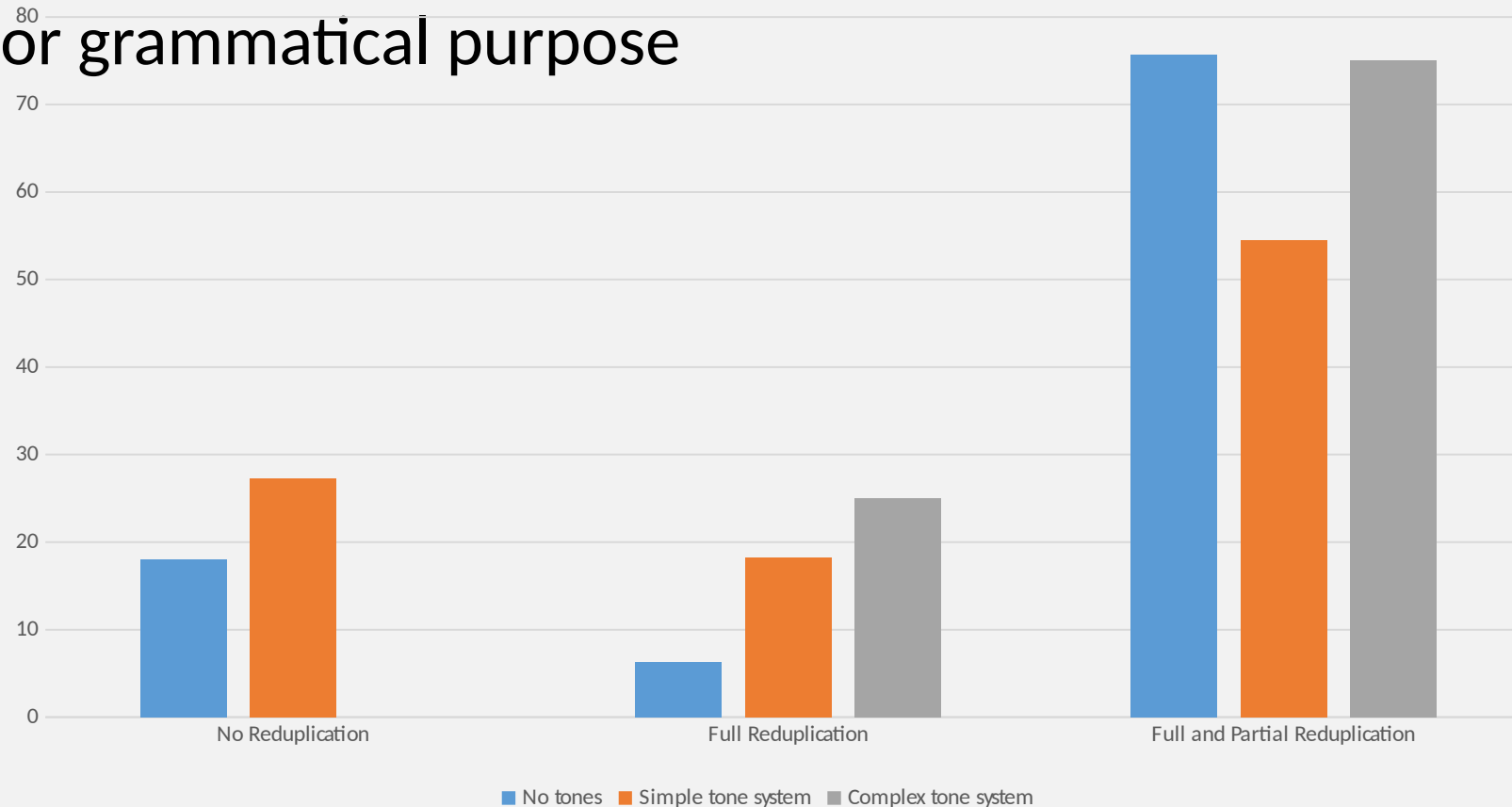


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p value = 0,01004

# Tones and Reduplication

- the reduplication of phonetical material for semantic or grammatical purpose



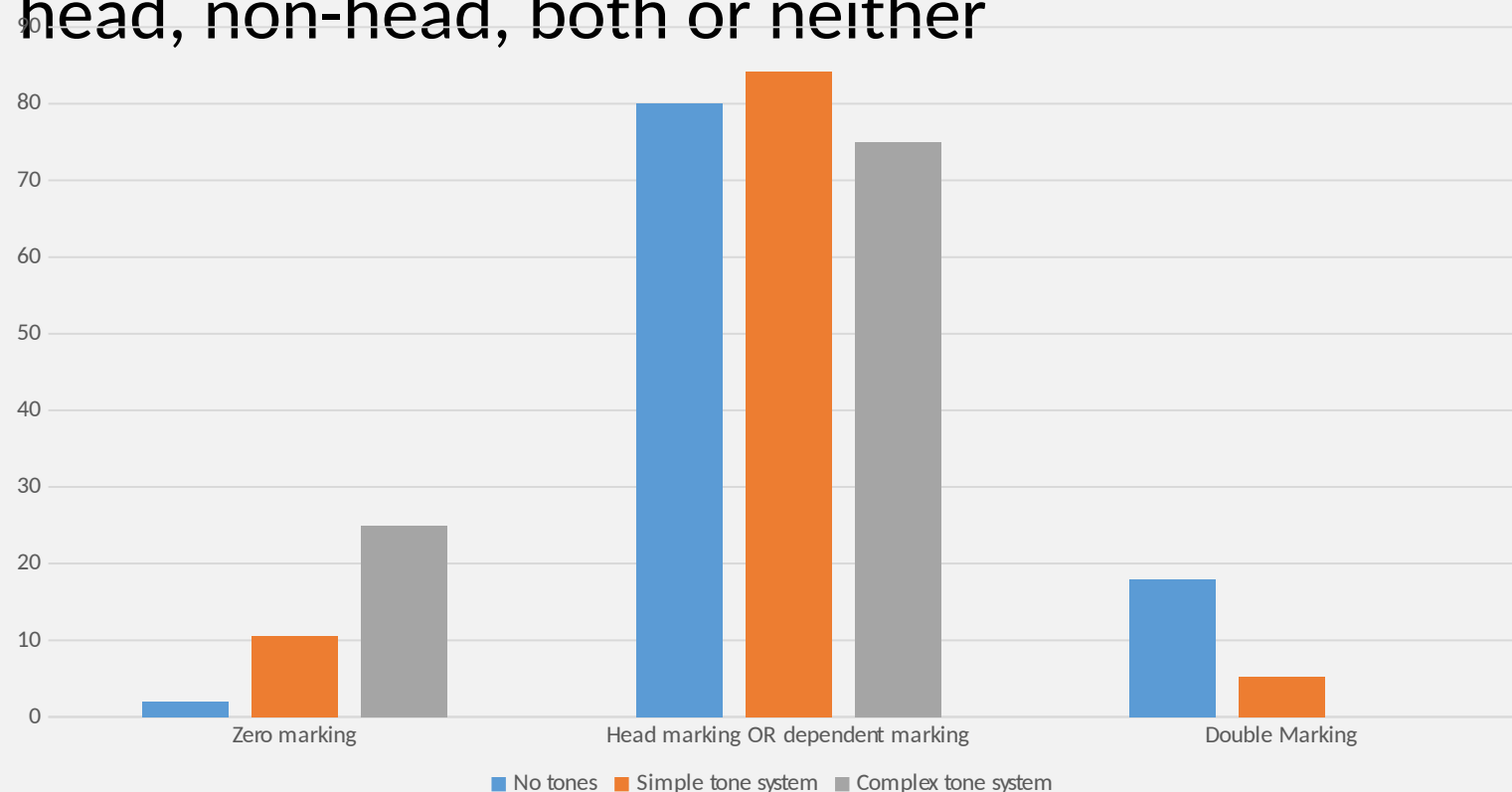
P value = 0,013842

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# Tones and Locus of Marking

- marking of syntactic relations within a phrase either at head, non-head, both or neither

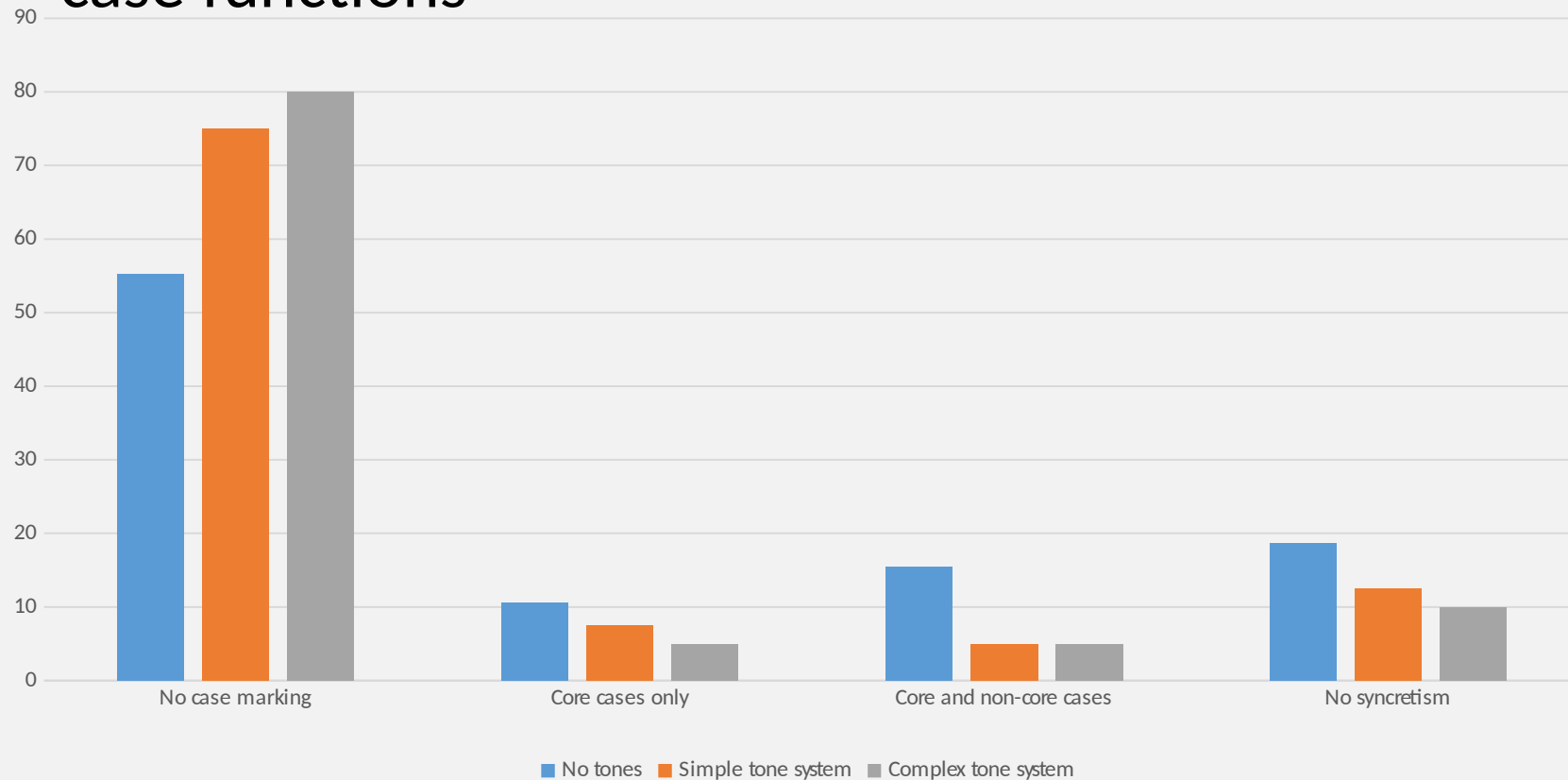


p value= 0,056442

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# Tones and Case syncretism

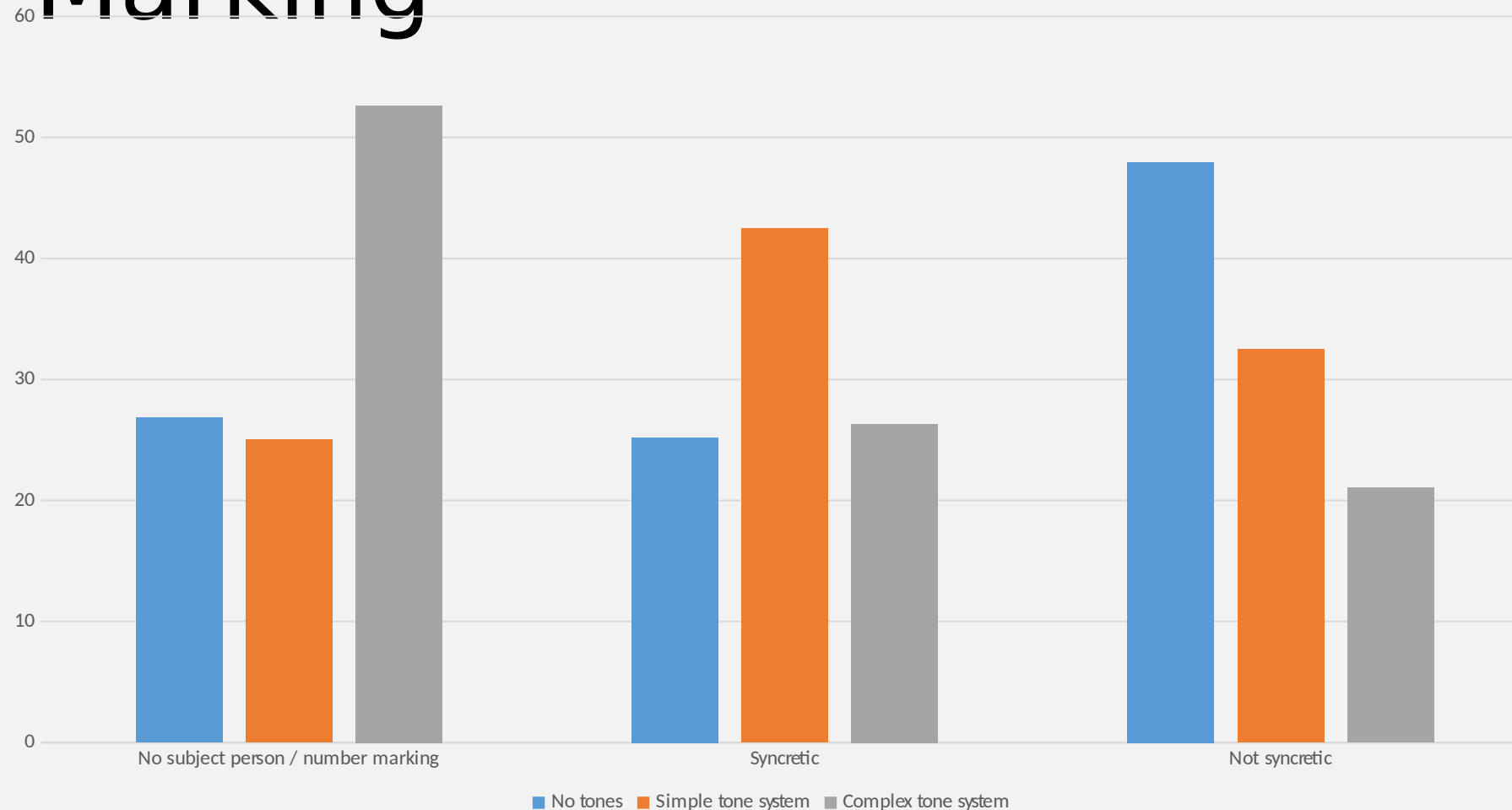
- a single inflected form corresponds to two or more case functions



p value = 0,191607

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# Tones and Syncretism in Verbal Person/Number Marking



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# Testing the Hypothesis

Do languages that extensively use tonal marking tend to have less morphological markers?

Yes and Maybe

→ tendency towards less morphological markers in languages with a more complex tonal system

→ but: accuracy of variables and significance of data questionable

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# Discussion

# Research question and definitions

- Research question: rather vague
    - what is , a lot of‘ or ,more‘ morphology‘?
    - what features in the data sample are an accurate indicator for ,more‘ morphology?
    - what features cluster two or more variables?
  - definitions: difficulty in differentiating between tone and intonation in coding results in a different number of tonal languages in data bases
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# Data

- p value: chi2 test (ordinal values, but few categories)
  - ✉ not applicable when grand total <5
  - ✉ values significant when chi2 <0.05

only 50% of the results are significant

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- quality of sample
  - ✉ tonal languages underrepresented in WALS because sample not proportional to density of languages in different areas
  - ✉ variables: is a more or less complex tonal system in the data base equivalent to the more or less ‚extensive use‘ that is asked for in the research question?
  - ✉ does WALS include all dimensions of ‚morphology‘?
  - ✉ some categories might be more important than others, but they were treated equally in the analysis
- PHOIBLE would offer more accurate information on number of tones, but no cross referencing with other variables possible
- Could an index be useful to cluster all morphological features?
  - ✉ nominal, ordinal and metric values in morphological variables
  - ✉ advantage: less values, easy and clear overview
  - ✉ disadvantage: lost of information, one extreme value in a variable can easily distort the overall tendency, variables would need to be assigned a ‚factor of relevance‘ which is hard to determine

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Ian Maddieson. 2013. Tone. In: Dryer, Matthew S. & Haspelmath, Martin (eds.) The World Atlas of Language Structures Online. Leipzig: Max Planck Institute for Evolutionary Anthropology. (Available online at <http://wals.info/chapter/13>, Accessed on 2017-06-07.)



# References

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Moran, Steven & McCloy, Daniel & Wright, Richard (eds.) 2014. PHOIBLE Online. Leipzig: Max Planck Institute for Evolutionary Anthropology. (Available online at <http://phoible.org>, Accessed on 2017-06-05.)

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