INTRODUCTION

• This project is part of the construction of StressTyp2 (ST2), a new database of stress and accent patterns based on two existing databases: Jeffrey Heinz’s Stress Pattern Database (SPD) and Rob Goedemans and Harry van der Hulst’s StressTyp Database (ST1). The creation of ST2 is supported by grant no. 1123692 from the National Science Foundation.
• Each database had its own way of representing stress pattern generalizations found in the literature. Our work this summer was to compare the information in both databases and resolve conflicts in the data.

STRESS PATTERN DATABASE

• Created by Jeffrey Heinz
• Includes data on 422 languages and 109 distinct stress patterns
• Collected primarily from the typologies of Gordon (2002) and Bailey (1995)
• Created by Jeffrey Heinz
• Includes data on 510 languages (and counting)
• Created by Rob Goedemans and Harry van der Hulst
• Includes data on S10 languages (and counting)
• Collects from a variety of sources
• Represents generalizations with:
  - Quotes from source material (including examples from source)
  - StressTyp Codes
  - Lists of parameters based in metrical theory

SPCs

• Marks syllables with priority in primary stress assignment
• Creates by Bailey for his 1995 dissertation
• Syllables are numbered 1-9
• Weight classes are separated by slash “/”
• Direction indicated by L or R at end of code
• Heinz (2007) extended SPC notation to include secondary stress
• Computational formalism which accepts or rejects strings
• A string is processed one symbol at a time, with each symbol triggering a transition from the current state to another state (or the same state)
• If there is no transition for a symbol at the current state or if the string ends and the current state is not a final state, the FSA rejects the string
• In SPD FSAs, weight and stress are represented numerically

FSAs

• Creates by van der Hulst and Goedemans for ST1
• Alphabet: abbreviations for where stress is: Initial, S for second, U for ultimate, etc.
• Weight classes are separated by slash “/”
• How does Hopi stress look in each representation?
• List of parameters based in metrical theory
• Includes parameters for both stress and rhythm
• Adds detail to StressTyp code

Hopi Parameters:
- Stress: Domain: L
- Em: R
- Em Unit: syllable
- Weight: Y
- Rhythm: Y
- Ternary rhythm: N

Hopi StressTyp Code: I/S

STRESSTYP CODES

Hopi FSA:

- Stress if both heavy: L
- Stress if both light: ia
- Heavy for stress: Long vowels; closed syllables

METRICAL PARAMETERS

ISSUES

• Our goal was to combine all the information in both databases, creating SPC and FSA representations for languages in ST1.
• There were a few problems with this.

SPD-ST1 DISCREPANCIES

195 languages shared by the databases, 92 of their descriptions differed between SPD and ST1.
Examples:
- Usan: Described as lexical (unpredictable) in ST1, regular penultimate stress in SPD
- Pomo: Described as regular penultimate stress in ST1, initial stress in SPD
- Ngakiburn: Either initial or penultimate in ST1, initial in SPD. Conflicting quotes:
  - “Main stress falls on the initial syllable…” (Hayes 1993:175)
  - “Primary stress is penultimate.” (Sandefur & Jenihan 1977)

Some patterns were not fully describable with either SPCs or StressTyp Codes.
Languages for which sources claim multiple primary stresses:
- Ninge: “Stress falls on the initial syllable and on alternate syllables thereafter. All stresses are equally prominent.” (Manning & Jaggers 1977: 65)
- Aukana: “In two syllable words of both light syllables, the first is stressed. If the first has a low tone and the second a high tone, both are prominent. If there is a heavy syllable in the word it carries the stress. Words with two heavy syllables have two equal stresses.” (Huttar & Huttar 1994:565)

Patterns where stress placement depends on information about unstressed syllables:
- Central Bikolano: “Only if both syllables in the word are closed the stress predictably falls on the final syllable (Mintz & Brittain).”
- Kikuyu: “A secondary stress occurs on the second syllable to the left of the main stressed syllable.” New SPC created for this: 2@L

NO FSA ISSUES

For patterns completely not describable with SPCs, we created FSA representations, which were sufficiently expressive to describe any stress pattern we encountered.

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REFERENCES

Gordon, Matthew. 2002, A factorial typology of quantity insensitive stress