# Uto-Aztecan

**Jason D. Haugen**
*Oberlin College*
*jhaugen@oberlin.edu*

# Outline of this talk/chapter

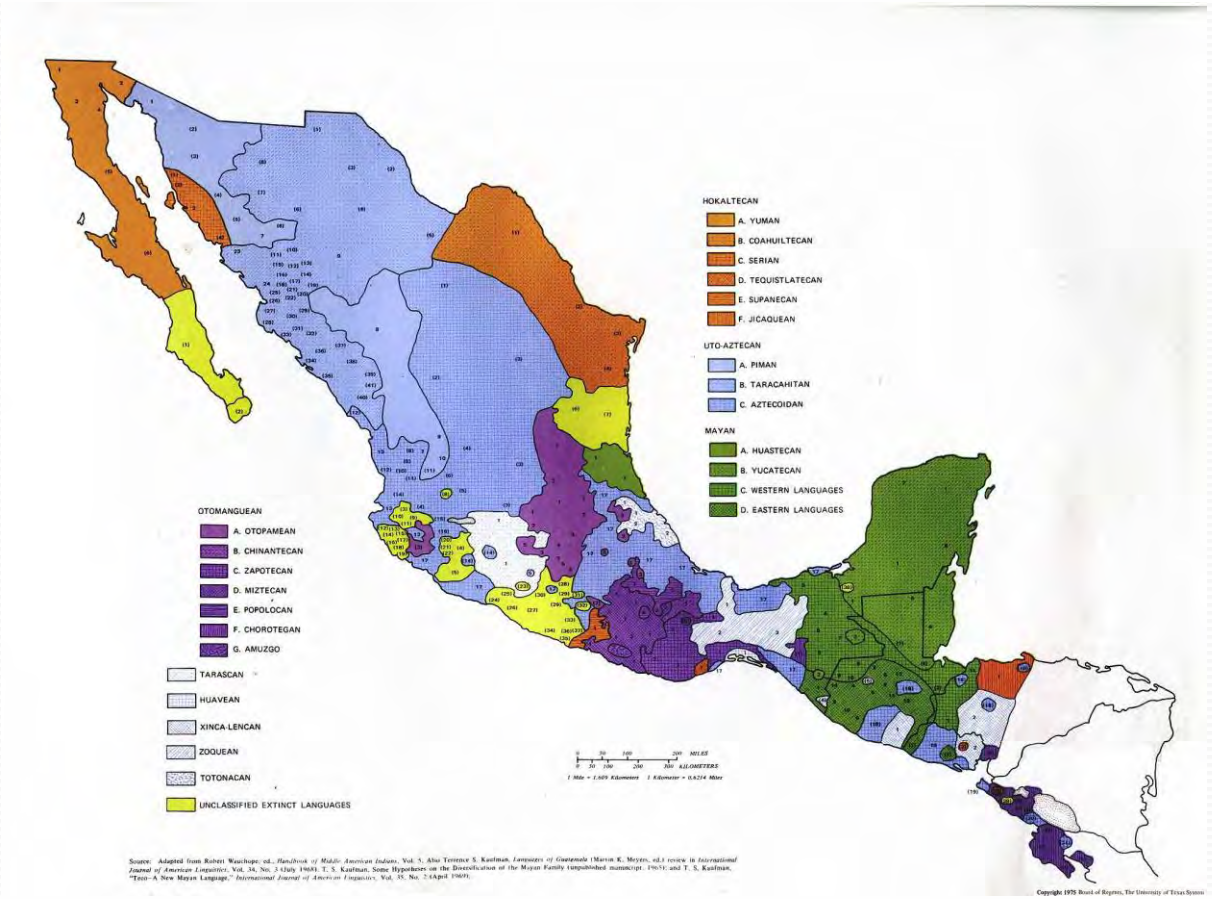
- 1. Survey of UA Languages
- 2. Phonology
- 3. Syntax
- 4. Morphology
- 5. Family-Internal Subgrouping

# Outline of this talk

- **1. Survey of UA Languages**
- 2. Phonology
- 3. Syntax
- 4. Morphology
- 5. Family-Internal Subgrouping

# The Uto-Aztecan Language Family

- Mexico and Central America




Map from:
*Handbook of Middle American Indians*
(McQuown 1967)

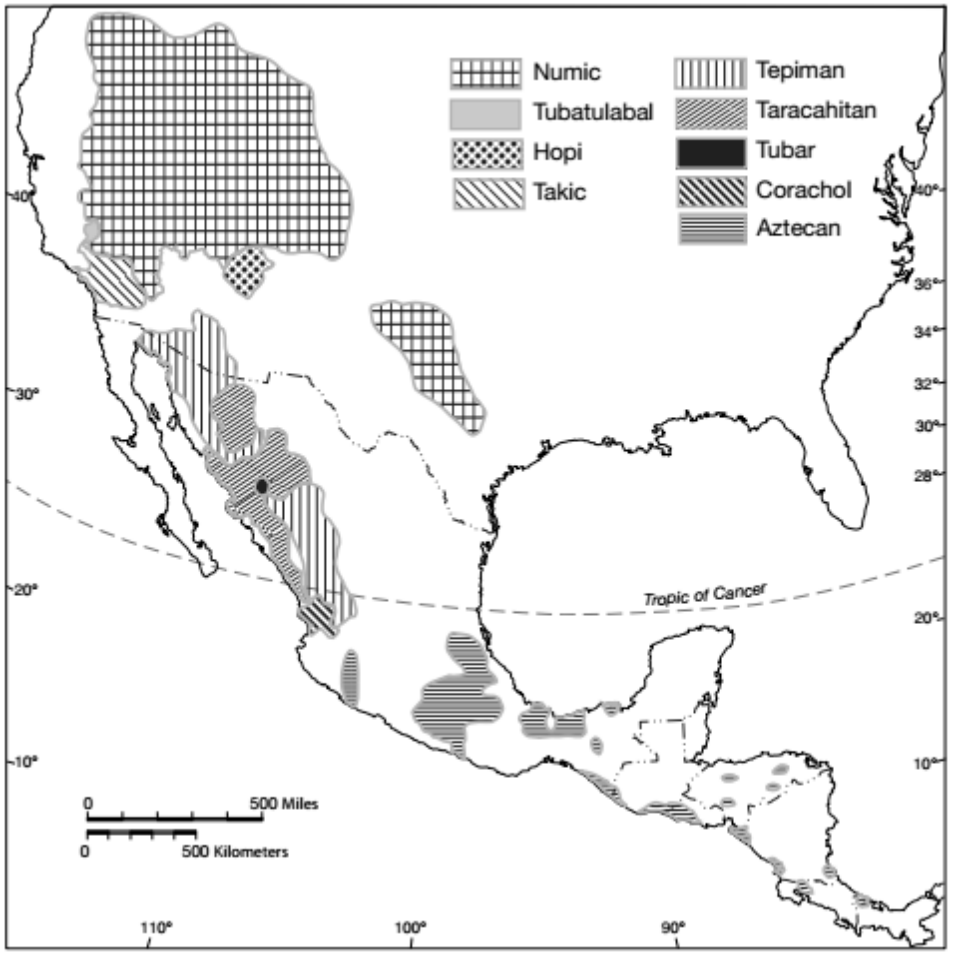
# The Uto-Aztecan Language Family

- North America

Map from:
*Handbook of North American Indians*
(Goddard 1996)

# The Uto-Aztecan Language Family

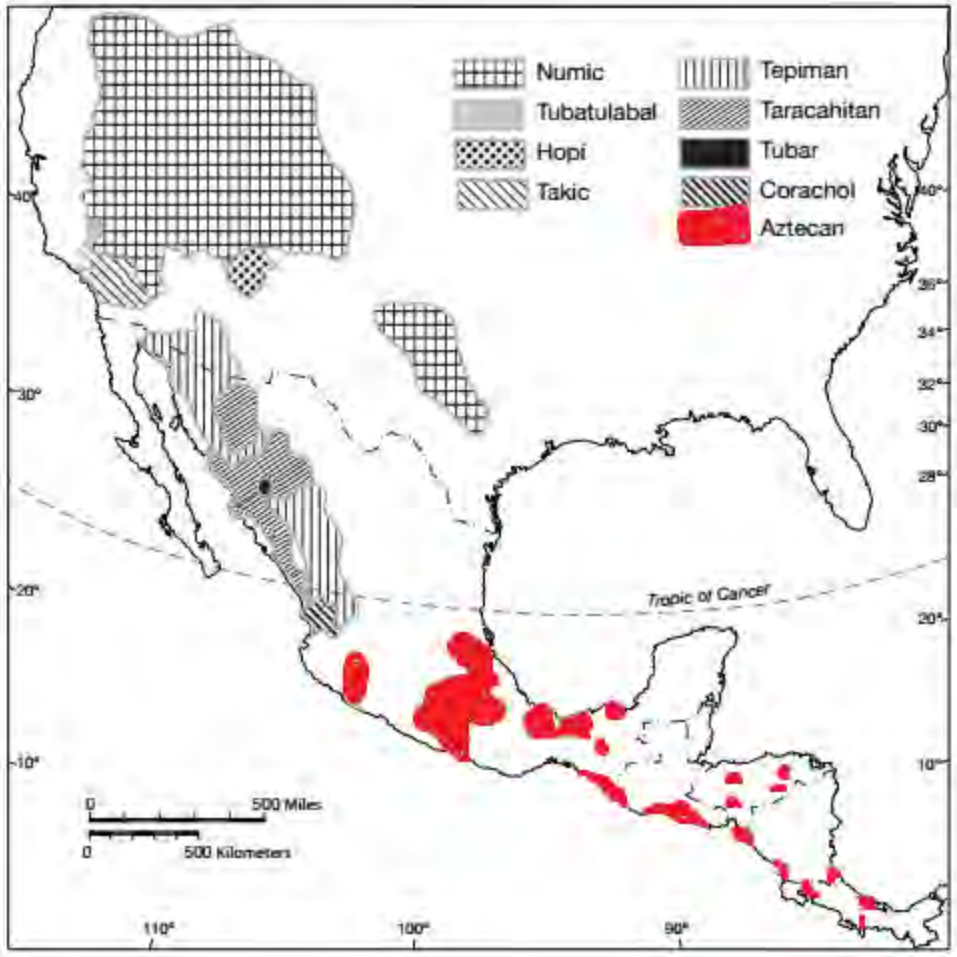
- **Uto-Aztecan**
  - Buschmann
    - (1856)
  - Kroeber
    - (1907)
  - **Sapir**
    - **(1913, 1915)**
  - **Happy Centennial!**




Map from:
(*Merrill 2013*)

# Uto-Aztecan Sub-Groups

- **Aztecan**



# Aztecan

- By far the largest UA sub-group, in terms of:
  - Number of speakers
  - Number of distinct varieties attested

- Current *Ethnologue* (Lewis et al. 2013) lists more than 25 distinct varieties of Nahuatl, each with their own unique ISO 639-3 identifier.

- There are currently more than 1 million speakers of Nahuatl

# Aztecan

- Various extant Nahuatl "dialects" range in terms of population:
  - From several hundred thousand
    - Eastern Huasteca Nahuatl (nhe) – 410,000 (1991 census)
    - Western Huasteca Nahuatl (nhw) – 400,000 (1991 census)
    - Central Huasteca Nahuatl (nch) – 200,000 (2000 census)
  - To a few hundred or even fewer
    - Ometepec Nahuatl (nht) – 430 (1990 census)
    - Eastern Durango Nahuatl (azd) – 400 (2011 census)
    - Temascaltepec Nahuatl (nhv) – 310 (1990 census)
    - Tabasco Nahuatl (nhc) – "*No known L1 speakers*"

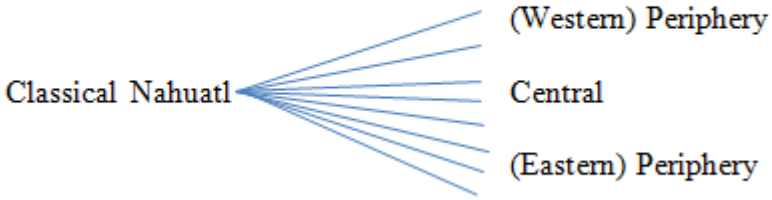
# Aztecan

- Aztecan is also the longest-known UA variety, with written documents in “Classical Nahuatl” attested from the mid 16th Century:
  - First grammatical description: Olmos 1547
  - First dictionary: Molina 1555

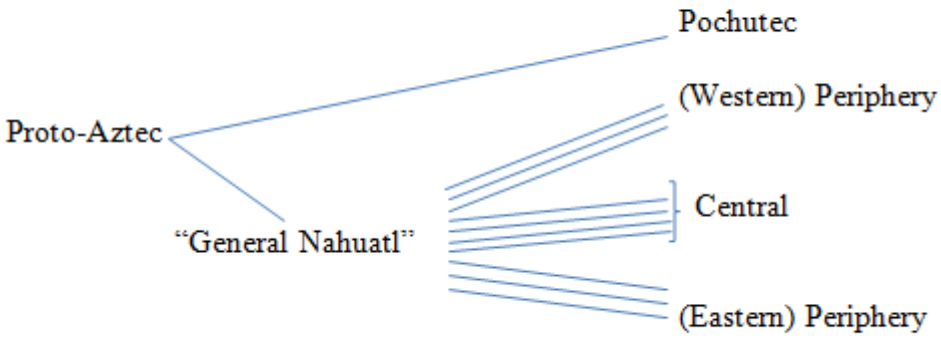
- It’s important to keep in mind that there was already great dialect diversity in Central Mexico at that time.

# Aztecan

The Wrong View of Nahuatl Diversification




Canger (1988)'s view of modern Nahuatl dialect diversity:

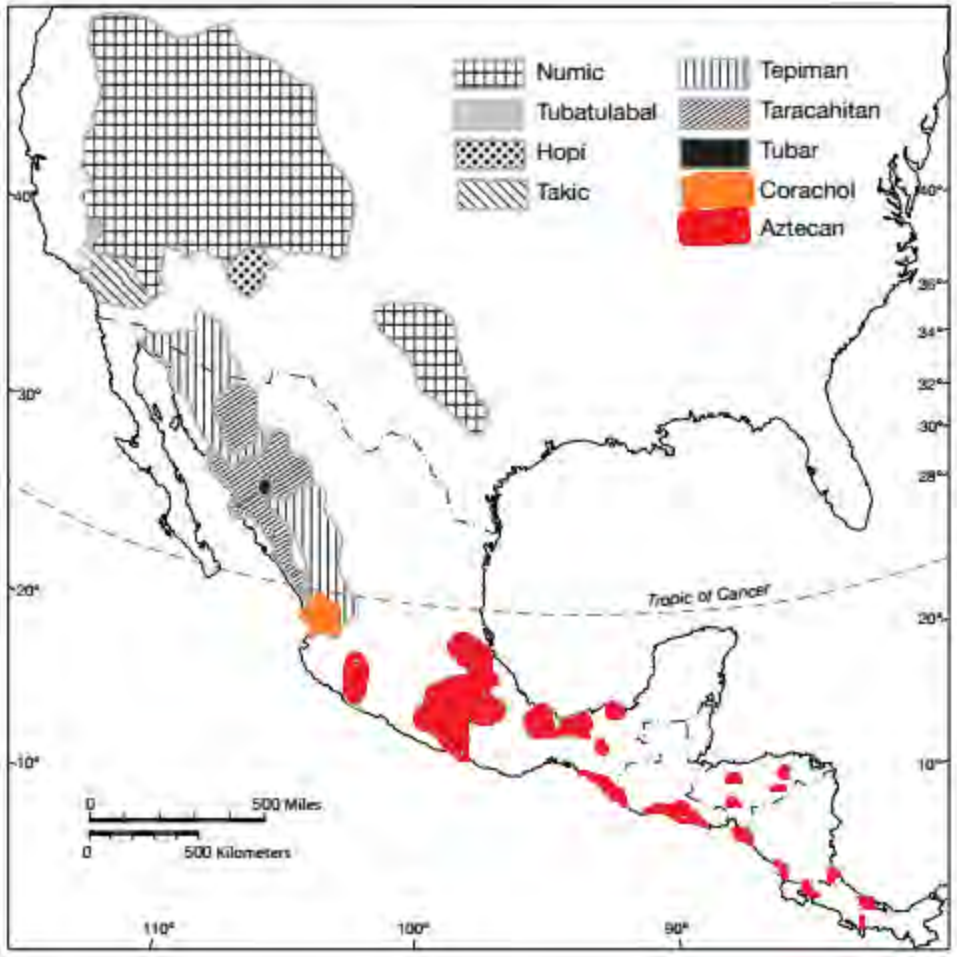


# Aztecan

- A map of Nahuatl dialects

# Uto-Aztecan Sub-Groups

- **Corachol**
  - Cora
  - Huichol



# Corachol

- Cora
  - Spoken in the state of Nayarit
  - Two main dialect groups (Casad 2001)
    - Jesús María and Mesa del Nayar dialects (ISO 639-3: crn)
      - 9,480 speakers (2000 INALI)
    - Santa Teresa and Dolores dialects (ISO 639-3: cok)
      - 3,880 speakers (2000 INALI)

- Huichol (ISO 639-3: hch)
  - Spoken in northeastern Nayarit and northwestern Jalisco
    - 17,800 speakers (2000 INALI)

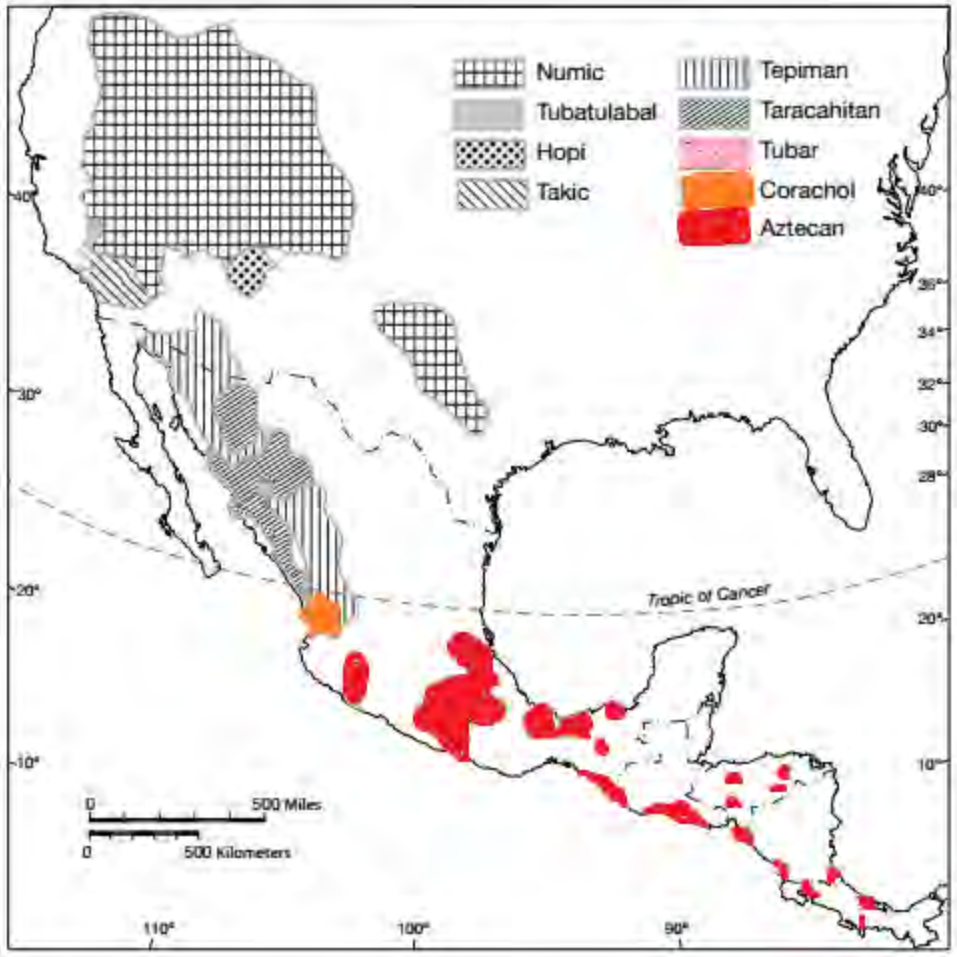
# Uto-Aztecan Sub-Groups

- **Tubar**
  - Tubar (tbu)

- **“<u>Singleton</u>”**

  vs.

  **“Isolate”**

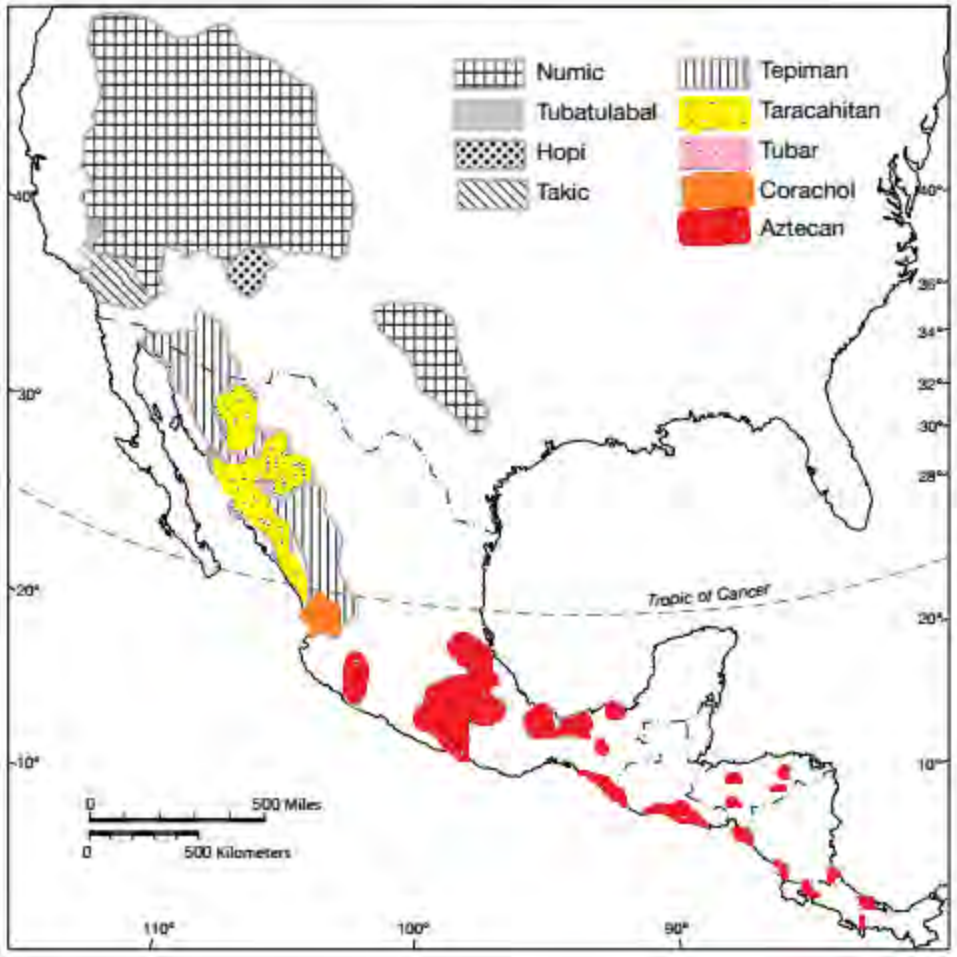


# Tubar

- Documented by Carl Hartman and Carl Lumholtz – 1893
  - Rio Fuerte, near border of Sinaloa and Chihuahua
  - < 50 speakers at that time
- Language data not analyzed and published until Lionnet (1978)
- Stubbs (2000) – A comparative phonological study of Tubar and other UA languages
- It was spoken in a region surrounded by other UA groups (Taracahitan, Tepiman), sharing "curious affinities" with both, and also NUA
- A "curious blend" (Stubbs 2000: 357), making its place within larger Uto-Aztecan mysterious and problematic
- Default interpretation:
  - **"Singleton"** vs. **"Isolate"**

# Uto-Aztecan Sub-Groups

- **Taracahitan**
  - Tarahumara (Rarámuri)-Guarijío
  - "Cahitan"
    - Yaqui and Mayo
    - *Tehueco
  - *Ópata



# Taracahitan

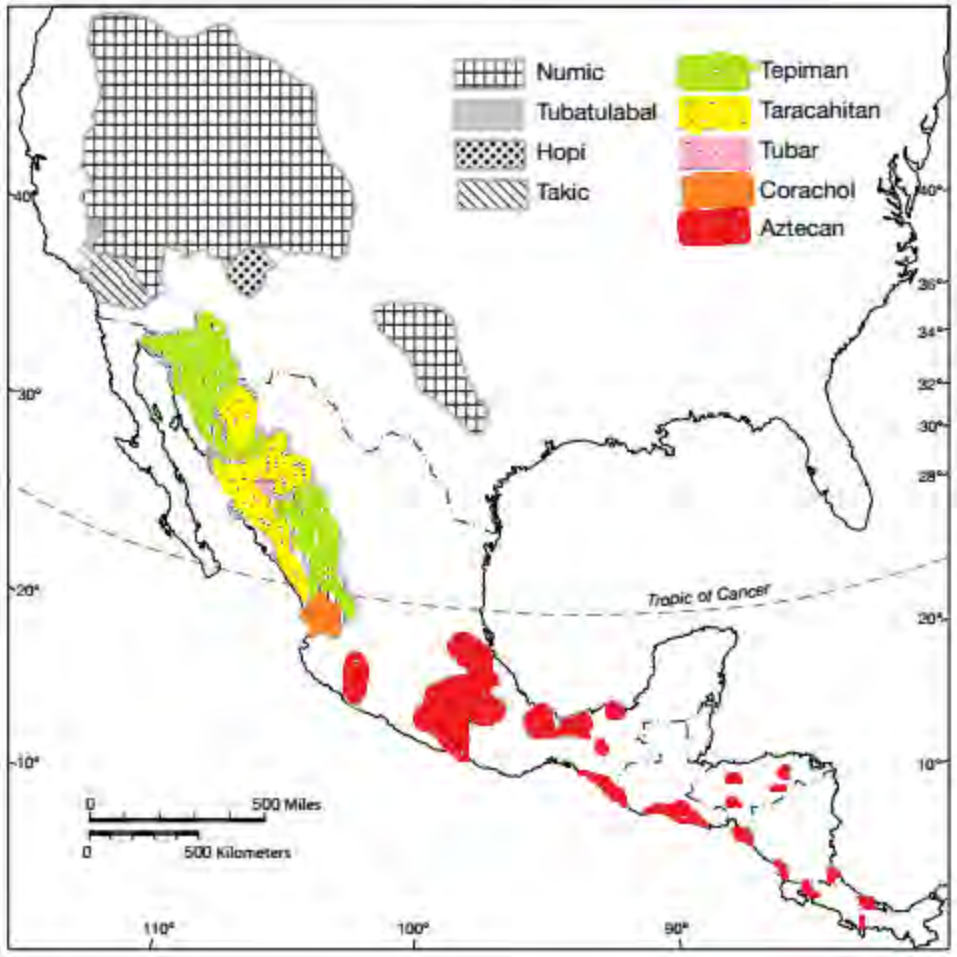
- Tarahumara-Guarijío
  - Rarámuri (Tarahumara)
    - Central (tar) — SW Chihuahua — 30,000 speakers (2000 INALI)
    - Northern (thh) — Chihuahua — 1 speaker ( 1998 SIL)
    - Southeastern (tcu) — Chihuahua, Chinatú — 5,410 speakers (2000 INALI)
    - Southwestern (twr) — Chihuahua, Tubare — 100 speakers (1983 SIL)
    - Western (tac) — Chihuahua, Guazapares, Urique, Uruachi — 10,000 speakers (2000 INALI)
  - Guarijío (var) — Chihuahua, Sonora — 2,840 speakers (2005 SIL)
- Cahitan
  - Yaqui (Hiaki, Yoeme) (yaq) — Sonora, Arizona — 12,230 speakers
  - Mayo (mfy) — Sonora, Sinaloa — 32,900 speakers (2000 INALI)
  - *Tehueco — *No known speakers*
- *Ópata (opt) — Sonora — None known (but '90 census lists 12) (Adelaar 2007)

# Taracahitan

- Big Open Question:
  - Are there any unique identifying innovations shared by these languages? (Dakin 2000, Hill 2011)

# Uto-Aztecan Sub-Groups

- **Tepiman**
  - Upper and Lower Piman
    - Tohono O'odham (Papago)
    - (Pima Bajo), Eudeve
  - Tepehuan
    - N Tepehuan
    - SW Tepehuan
    - SE Tepehuan



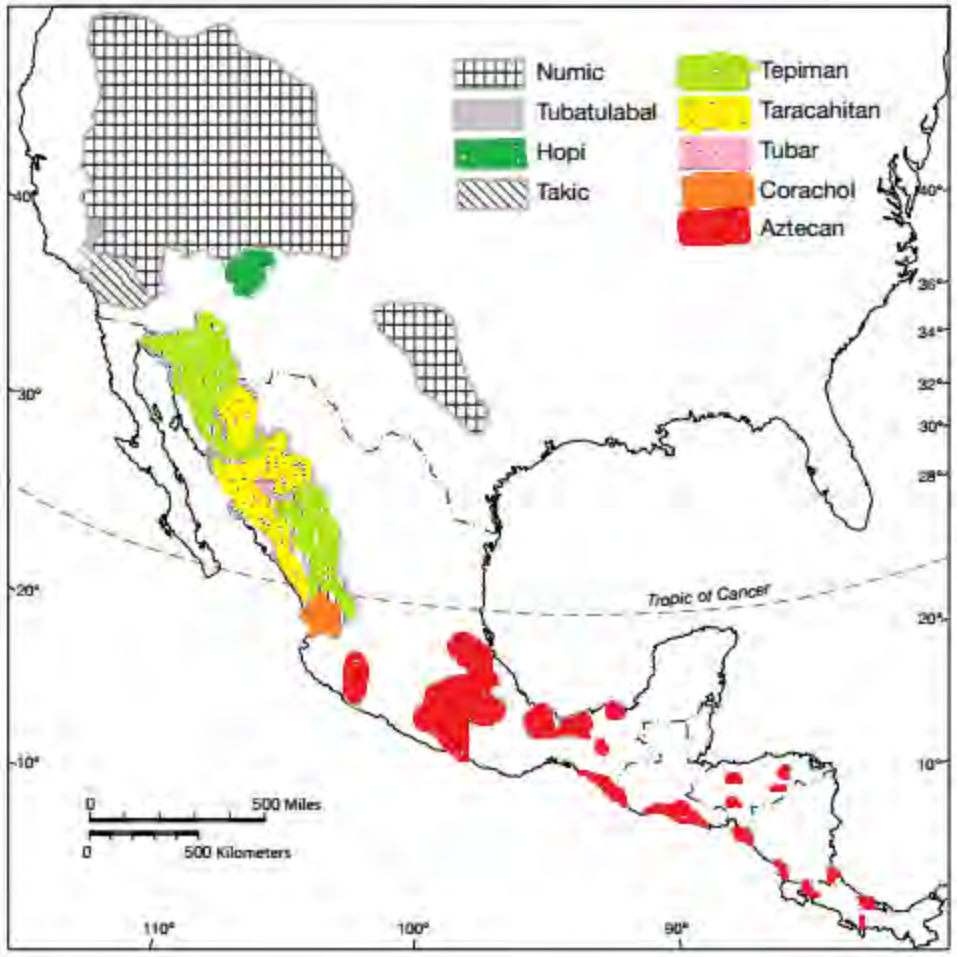
# Tepiman

- "Upper Piman"
  - Tohono O'odham/Pima (ood) South central Arizona
    - 14,000 speakers in the U.S. (Golla 2007)
- "Lower Piman"
  - Pima Bajo / Nevome (pia) Central Sonora-Chihuahua border
    - 650 speakers (2000 INALI)

- Northern Tepehuan (ntp) South Chihuahua
  - 6,200 speakers (2005 Census)
- Southern Tepehuan
  - Southeastern Tepehuan (stp) Southeast Durango
    - 10,600 speakers (2005 Census)
  - Southwestern Tepehuan (tla) Southwest Durango
    - 8,700 speakers (2005 Census)

# Uto-Aztecan Sub-Groups

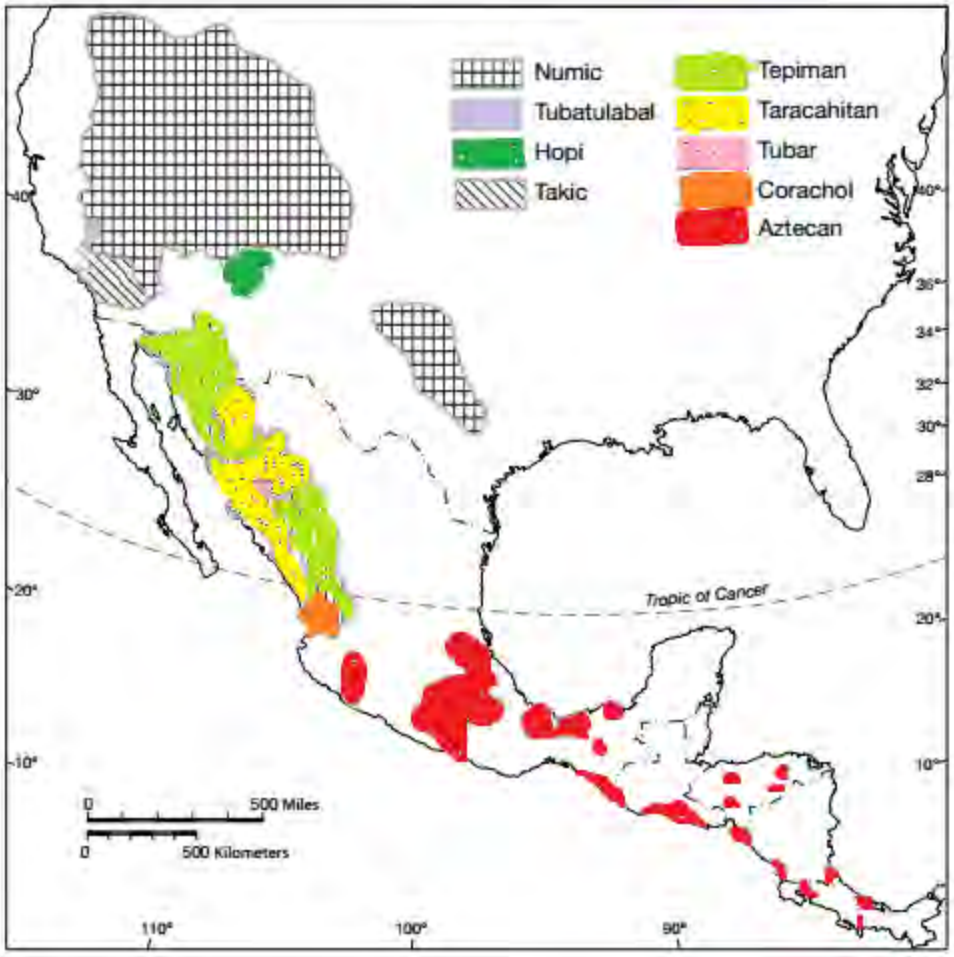
- **Hopi**
  - Hopi (hop)
- Another singleton
- NE Arizona
- 3-4 dialects
- 6,780 speakers
  - (2010 census)



# Uto-Aztecan Sub-Groups

- **Tübatulabal**
- Tübatulabal (tub)
  - Central Calif.
  - Another singleton
  - Extremely moribund to the point of near-extinction.

(5 speakers according to Golla 2007)

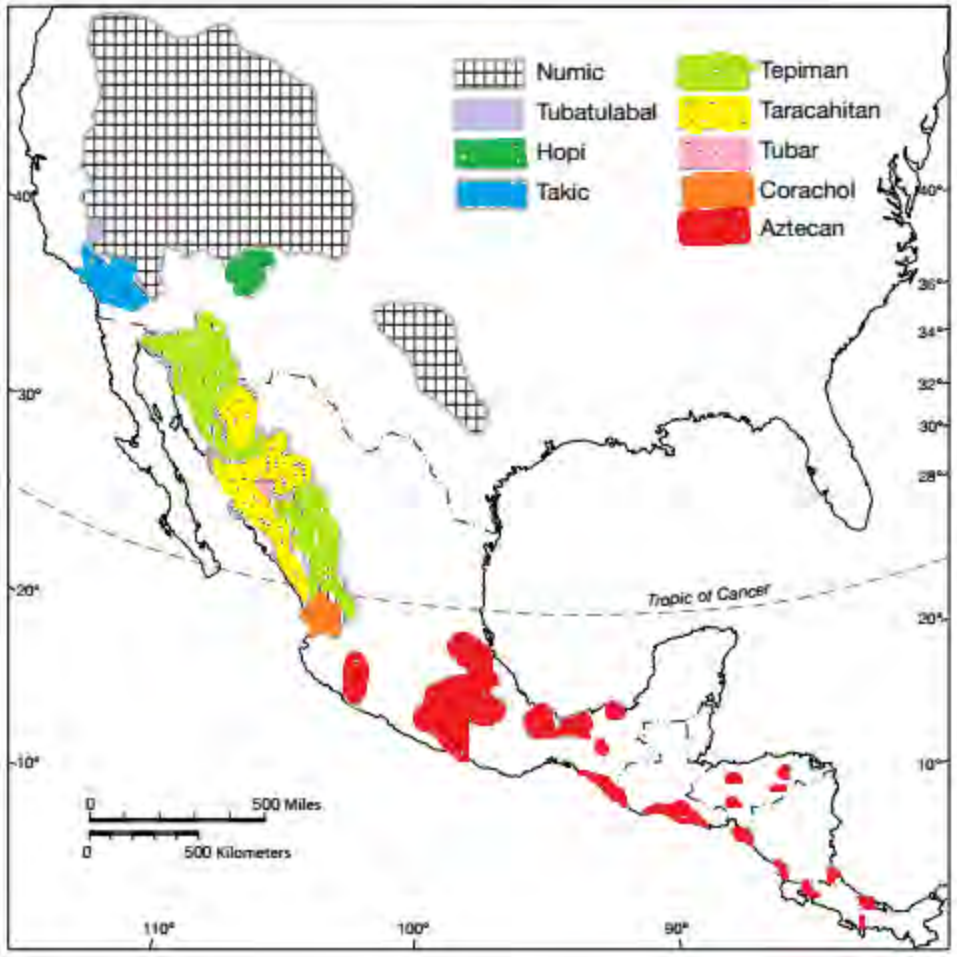


# Tübatulabal

- Another singleton
- Traditionally spoken in central California
- Extremely moribund to the point of near extinction
  - 5 speakers (Lewis et al. 2013) citing (Golla 2007)
- Best known from the work of C.F. Voegelin
  - Grammar (Voegelin 1935a)
  - Text collection (Voegelin 1935b)
  - “Working Dictionary” (Voegelin 1958)
- Another dictionary is currently in preparation
  - Ken Hill (2011)

# Uto-Aztecan Sub-Groups

- **Takic**
- Serrano-Gabrielino
  - Serranan
    - *Serrano
    - *Kitanemuk
  - Gabrielino
    - *Gabrielino
    - *Fernandino
- Cupan
  - Cupan 1
    - *Cupeño
    - Cahuilla
  - Cupan 2
    - Luiseño



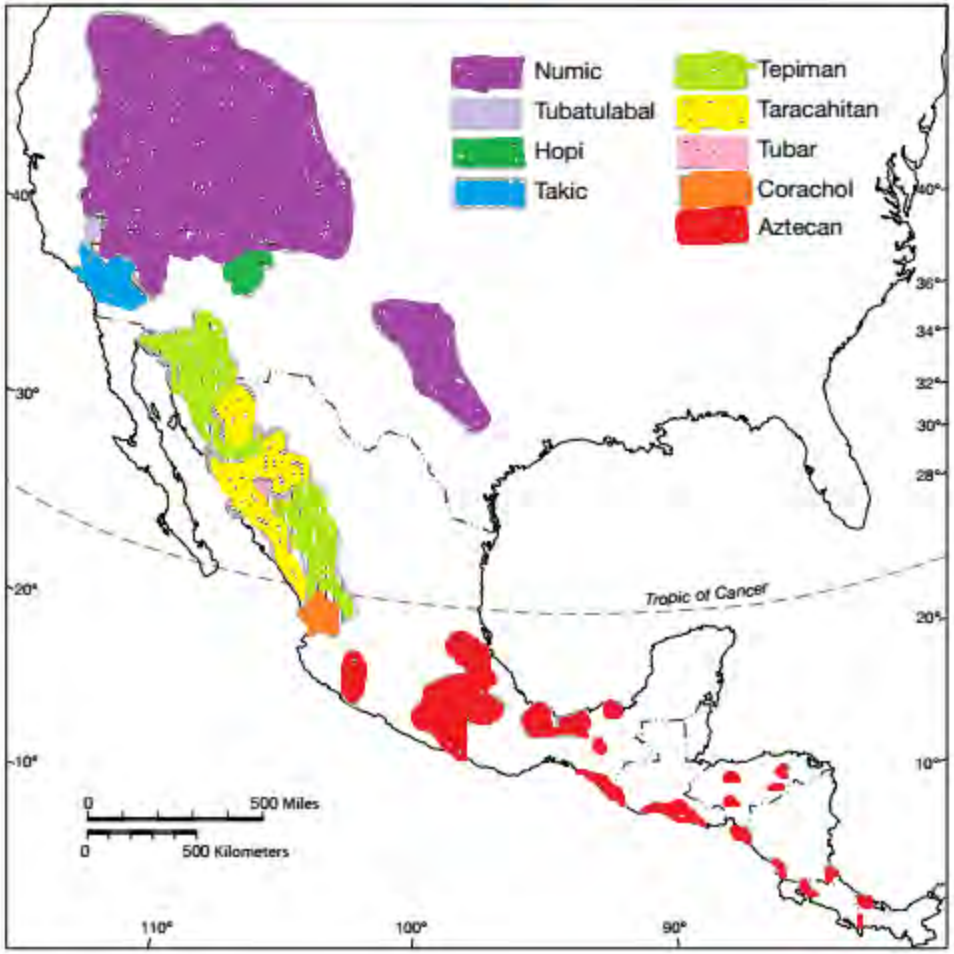
# Takic

- Serrano-Gabrielino
  - *Serrano (ser) S. California No speakers known
  - *Kitanemuk ( … ) S. California No speakers known
  - *Tongva (xgf) S. California No speakers known

- Cupan
  - *Cupeño (cup) S. California No speakers known as of ’87 (Golla 2007)
  - Cahuilla (chl) S. California 35 speakers (SIL 2009)
  - Luiseño (lui) S. California 5 speakers (Golla 2007)

# Uto-Aztecan Sub-Groups

- **Numic**
- Western Numic
  - Mono
  - N. Paiute
- Central Numic
  - Timbisha (Panamint)
  - Shoshoni
  - Comanche
- Southern Numic
  - Kawaiisu
  - “Colorado River” (Ute, S. Paiute, Chemehuevi)



# Numic

- Western Numic
  - Mono (mnr) — East Central California — 37 speakers (L. Hinton 1994)
  - N. Paiute (pao) — N. NV, OR, CA, ID — 700 speakers (Golla 2007)
- Central Numic
  - Timbisha (par) — SE Calif, Western NV — 20 speakers (Golla 2007)
  - Shoshone (shh) — C.-NE. NV, ID, WY, UT — 1,000 speakers (Golla 2007)
  - Comanche (com) — W. Oklahoma — 100 speakers (Golla 2007)
- Southern Numic
  - Kawaiisu (xaw) — California — 5 speakers (J. Turner 2005)
  - "Colorado River" (ute) — CO, UT, AZ, NV, NM, CA — 920 speakers (Golla 2007)

  (Ute, S. Paiute, Chemehuevi)

# Outline of this talk

- ✓ 1. Survey of UA Languages
- **2. Phonology**
- 3. Syntax
- 4. Morphology
- 5. Family-Internal Subgrouping

# UA Phonology

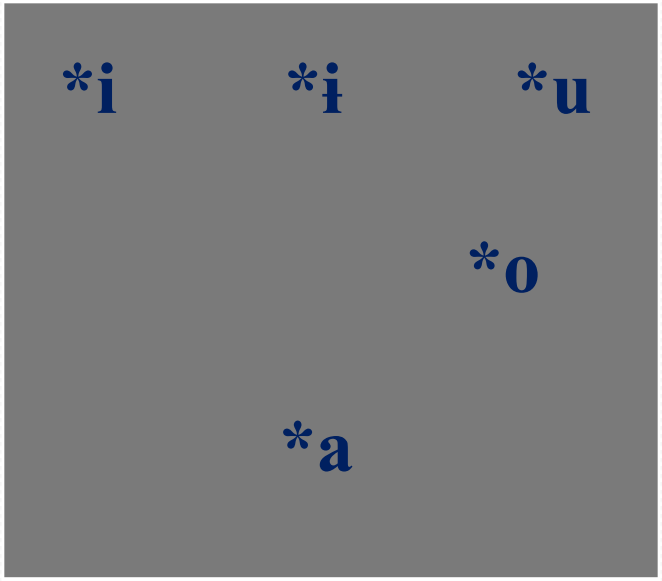
- Uto-Aztecan phonology has been regarded as relatively "simple" compared to other Mesoamerican languages.

- E.g., Suárez (1983:31-33) regards the Uto-Aztecan languages as having among the "simplest" consonant systems of Mesoamerica
  - Number of consonantal phonemes in a given language
  - Number of distinctive features needed to distinguish consonants in a given language

- For vowels, 5 vowels are typical, and we do not usually find the complex tones common in some other Mesoamerican languages.

# UA Phonology

- PUA Vowel Inventory (5)
  - Langacker (1970)



# UA Phonology

- PUA Consonant Inventory (14)

| | | | | | |
|---|---|---|---|---|---|
| Stops: | *p | *t | *k | *$k^w$ | *ʔ |
| Affricate: | | *c | | | |
| Fricatives: | | *s | | | *h |
| Nasals: | *m | *n | ***ŋ** | | |
| Liquid: | | ***-L-** | | | |
| Glides: | *w | *y | | | |

# UA Phonology

- A “Large” UA Consonant Inventory

**Jesús María (El Nayar) Cora** (18) – (Casad 1984: 157)

| | | | | | | |
|---|---|---|---|---|---|---|
| Stops: | p | t | | **tʸ** | k | ʔ |
| Affricates: | | | **c** **č** | **čʸ** | | |
| Fricatives: | | s | **š** | | | h |
| Nasals: | m | n | | **nʸ** | | |
| Liquids: | | **l , r** | | | | |
| Glides: | w | | | y | | |

Cora Vowels: i(:) ɨ(:) u(:) e(:) a(:)

# UA Phonology

- Another “Large” UA Consonant Inventory

**Northern Tepehuan (Tepiman)** (18) – (Bascom 1982: 271)

| | | | | |
|---|---|---|---|---|
| Stops[-vce]: | p | t | **tʸ** | k |
| Stops[+vce]: | **b** | **d** | **dʸ** | **g** |
| Affricate: | | | č | |
| Fricatives: | **v** | s | **š** | **x** |
| Nasals: | m | n | **nʸ** | |
| Liquids: | | **l , r** | | |

- Loss of: *ʔ, h, kʷ, w, y*

# UA Phonology

- Another “Large” UA Consonant Inventory

**Cupeno (Takic)** (22) – (J. Hill 2005: 12)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Stops: | p | t | | k | $k^w$ | q | ʔ |
| Affricate: | | | č | | | | |
| Fricatives[-vce]: | | s | ś | x | $x^w$ | | h |
| Fricatives[+vce]: | β | | | | | ɣ | |
| Nasals: | m | n | ɲ | ŋ | | | |
| Liquids: | | l | $l^y$ | | | | |
| Glides: | w | | y | | | | |

- *Ignoring sounds only found in Spanish loanwords:* f, ð, ɾ

# UA Phonology

- A "Small" UA Vowel Inventory: (4)

**Classical Nahuatl**

i(:)
e(:) o(:)
a(:)

**CN Consonants** (15) – Launey (2011: 4)

| | | | | | | |
|---|---|---|---|---|---|---|
| Stops: | p | t | | k | $k^w$ | ʔ |
| Affricates: | | **c(ts)** | **č(tʃ)** | **tɬ** | | |
| Fricatives: | | s | **š** | | | |
| Nasals: | m | n | | | | |
| Liquids: | | l | | | | |
| Glides: | w | | y | | | |

# Phonological Processes

- Probably the most famous phonological phenomenon in Uto-Aztecan:
  - "Final Features"
    - Especially in Numic
    - Less so in other NUA languages
    - Not a "thing" in SUA languages

- Certain stems can cause different realizations of suffixes at the stem+suffix juncture (see Miller et al. 2005)
  - Spirantization (s) — All of Numic
  - Gemination (g) — All of Numic
  - Nasalization (n) — All of Numic
  - Preaspriation (h) — *Central Numic only*

# Numic Final Features

**Southern Paiute** (Sapir 1930: 63)

Suffix: *-ka* ‘stative’

| | | | | | |
|---|---|---|---|---|---|
| *aŋka*$^{(s)}$ | ‘be red’ | + | -ka | ⇨ | *aŋka-ɣa* |
| *kučča*$^{g}$ | ‘be gray’ | + | -ka | ⇨ | *kučča-kka* |
| *paɨ*$^{n}$ | ‘be smooth’ | + | -ka | ⇨ | *paɨ-ŋka* |

This pattern is definitely reconstructable to Proto-Numic, but probably not to PUA itself (Manaster Ramer 1993b)

# Uto-Aztecan Prosody

- Are these “final features” correlated with PUA prosody?
- Alexis Manaster Ramer’s (1993a,b) theory of PUA Stress
  - PUA had initial stress, unless the second syllable was closed with a C(onsonant)
  - There were, thus, two classes of stem:
    - Stress on 1st σ (CV́.CV)
    - Stress on 2nd σ (CV. CV́C)

# AMR's theory of stress

- Reflexes of Stems with 1st σ stress (Manaster Ramer 1993: 203-4):

  (CV́.CV)

| Northern-UA | Mayo | Guarijío | Nahuatl |
|---|---|---|---|
| **No final feature effects* | CVVCV (Long 1st V) | CVCV (Short 1st V) | CVVC(V) (Long 1st V) |

- PUA *mɨca 'moon' [mE-01]
  - Sh *mɯa*
  - My *meecha*
  - Gu *mecá*
  - CN *mētz-tli*

# AMR's theory of stress

- Reflexes of Stems with 2nd σ stress (Manaster Ramer 1993: 202-3):

  (CV. CV́C)

| Northern-UA | Mayo | Guarijío | Nahuatl |
|---|---|---|---|
| *Final feature effects* | $CVC_gC_gV$ (gemination) | CVhCV (preaspiration) | CVC(V) (Short 1st V) |

- PUA *mataR 'metate' [ma-21]
  - Ch *mata*
  - My *matta*
  - Gu *mahta*
  - CN *metla-tl*

# AMR's theory of stress

- Reflexes of Stems with 2nd σ stress (Manaster Ramer 1993: 202-3):

  (CV. CV́C)

| Northern-UA | Mayo | Guarijío | Nahuatl |
|---|---|---|---|
| *Final feature effects* | $CVC_gC_gV$ (gemination) | CVhCV (preaspiration) | CVC(V) (Short 1st V) |

- PUA *taman 'tooth' [ta-14]
  - Sh *taman*
  - My *tammi*
  - Gu *tamé*
  - CN *tlan-tli*

# Prosody in Uto-Aztecan

- Much variation exists in the prosodic systems of UA languages
  - An interesting puzzle for reconstructing PUA stress
  - AMR focuses on Root/Stem stress, but morphology can usually alter the patterns of stress in UA languages….

# Prosody in Uto-Aztecan

- **LEXICAL STRESS/ACCENT**
  - Pitch accent or stress is assigned to the first or second mora or syllable of the word, depending on the root.

- **NONLEXICAL STRESS/ACCENT**
  - Pitch accent or stress is assigned to the prosodic word regardless of “root class” or other morphological structure.

# Prosody in Uto-Aztecan

- **Lexical Stress/Accent**

- **Yaqui** (Escalante 1985, Demers et al. 1999)

  Accent is lexically assigned to 1st or 2nd **mora** of the word

  | | | | | |
  |---|---|---|---|---|
  | *bwí.chi.a* | 'worm' | vs. | *bwi.chí.a* | 'smoke' |
  | *káate* | 'build a house' | vs. | *kaáte* | 'walk (pl.)' |

- **Choguita Rarámuri** (Caballero 2008: 191)

  Lexical stress usually falls on the 2nd or 3rd **syllable** of the root + an initial "stress window" (3 syllables)

  | Bare verb | | Compound form | |
  |---|---|---|---|
  | *bo.tá* | 'come.out' | *ka.wa.bó.ta* | 'egg+come.out' |

# Prosody in Uto-Aztecan

- **Regular (nonlexical) Stress Assignment**

  **Tohono O'odham** (Fitzgerald 1997)

  - Regular 1st syllable stress

    *mú.si.go* 'musician' (< Sp. *músico*)

    *múm.si.gò* 'musicians' (= PL-musician)

  **Classical Nahuatl** (Launey 2011)

  - Regular stress on penultimate syllable

    *-mí.qui* 's/he dies'

    *-mic.tí.a* 's/he kills X' ( = die-CAUS) ~ 'cause X to die'

    *-mic.ti.lí.a* 's/he kills X for Y' (= die-CAUS-APPL) ~ 'cause X to die for Y'

  - Exception: The Vocative suffix (*-é*) attracts stress to the final syllable

    *no.ci.huā.hué!* 'My wife!'

  **Tübatulabal**

  - Regular syllable stress on Final syllable

    *wí.taʔ.há.ta.lá:.ba.cú* 'away from the Tejon Indians'

# Prosody in Uto-Aztecan

- **Future work in comparative UA phonology:**
  - Assess AMR's theory empirically
    - Esp. in regards to stems with final features (NUA)
    - Guarijío/Mayo *hC* clusters and geminates

    →New data! K.Hill (2014)'s updated Uto-Aztecan cognate sets

    →1400+ cognate sets

    →386 with Guarijío examples
  - AMR was primarily focused on lexical stems (simplex forms)
  - We need to work out developments from 1st and 2nd syllable accent to the attested variety of patterns
    - **Esp. stress shift in multimorphemic forms**

# Outline of this talk

- ✓ 1. Survey of UA Languages
- ✓ 2. Phonology
- **3. Syntax**
- 4. Morphology
- 5. Family-Internal Subgrouping

# UA Syntax

- Unmarked Word Order: **SOV**
  - Uto-Aztecan languages typically show most of the hallmarks of an SOV language and that is what is standardly and uncontroversially reconstructed for PUA.
  - Less consistent V-finality as you get closer to the Mesoamerican language area
    - Of course, V-non-finality is one of the hallmarks of that Sprachbund (Campbell et al. 1986)
    - V-Nonfinality in most SUA languages is therefore probably due to contact
- **Nom-Acc case-marking is typical for the SOV languages**

# UA Syntax

- **Cross-UA Variation in Unmarked Sentential Word Order**
  - Relatively Rigid SOV
    - Hopi (NUA singleton) (Hill and Black 1998)
    - Northern Paiute (Numic) (Thornes 2003)
    - Cahuilla (Takic) (Seiler 1977)
    - Yaqui (Taracahitan) (Escalante 1990)
  - V-initial
    - Northern Tepehuan (Tepiman) (Bascom 1982)
    - Southeastern Tepehuan (Tepiman) (Willett 1991)
    - **Classical Nahuatl** (Aztecan) **(Launey 2011)**
  - Nonconfigurational/Scrambling/Free Word Order
    - Tohono O'odham (Tepiman) (Miyashita et al. 2003)
    - ~~Classical Nahuatl???~~

# Word Order in Classical Nahuatl

- Neutral word order in CN is described as VSO (Launey 2011)
- In colonial times CN may have been in transition to VSO from SVO (Steele 1976)
- Polysynthesis in Nahuatl
  - Subject and Object arguments are marked on the verb with prefixes
- Implications for clausal syntax?
  - Jelinek (1984, 2003) – Pronominal Argument Hypothesis
  - Baker (1996) – Polysynthesis Parameter
    - ⇨*Polysynthetic languages should be nonconfigurational*
      - ⇨Subject and Object NPs are adjuncts and do not originate from fixed positions within the sentence

# Word Order in Classical Nahuatl

- Nonconfigurationality should entail that Verbs and Objects do not form a constituent (VP) to the exclusion of Subjects.
- However, CN seems to display characteristics of *Pseudo-Noun-Incorporation* (PNI) much like what has been described for Niuean (Massam 2001).
- If so, then CN *was* configurational after all.
  - Underlying word order: SVO (Haugen 2015)

# Word Order in Classical Nahuatl

- Neutral VSO order

| *V* | *S* | | *O* | |
|---|---|---|---|---|
| *quitta* | *in* | *cihuatl* | *in* | *calli* |
| 3sg.subj-3.sg.obj.-see | DET | woman | DET | house |

'the woman sees the house' (Launey 2011: 30)

- VOS order via PNI

| *V* | *O* | *S* | |
|---|---|---|---|
| *quicua* | *nacatl* | *in* | *cihuatl* |
| 3sg.subj-3.sg.obj.-eat | meat | DET | woman |

'the woman eats meat' (Launey 2011: 30)

- Analysis: Object NPs "incorporate" and front with the V.

# Word Order in Classical Nahuatl

- SVO order via Subject Topicalization

| *S* | | *V* | *O* | |
|---|---|---|---|---|
| *in* | *cihuatl* | *quitta* | *in* | *calli* |
| DET | woman | 3sg.subj-3.sg.obj.-see | DET | house |

‘(as for) the woman, (she) sees the house’ (Launey 2011: 30)

- OVS order via Object Topicalization

| *O* | | *V* | *S* | |
|---|---|---|---|---|
| *in* | *calli* | *quitta* | *in* | *cihuatl* |
| DET | house | 3sg.subj-3.sg.obj.-see | DET | woman |

‘as for the house, the woman sees it’ (Launey 2011: 30)

# Word Order in Classical Nahuatl

- "Double topicalization": SOV order is ok, but OSV order is not

a. S O V

| *in* | *cihuatl* | *in* | *calli* | *quitta* |
|---|---|---|---|---|
| DET | woman | DET | house | 3sg.subj-3.sg.obj.-see |

'as for the woman and the house, she sees it' (Launey 2011: 30)

b. * O S V

| * *in* | *calli* | *in* | *cihuatl* | *quitta* |
|---|---|---|---|---|

*'as for the house and the woman, she sees it' (Launey 2011: 30)

- Presumably this restriction has something to do with locality/hierarchical structure (vis-a-vis S and O) in the underlying syntax, i.e., ***configurationality***.

# Outline of this talk

- ✓ 1. Survey of UA Languages
- ✓ 2. Phonology
- ✓ 3. Syntax
- **4. Morphology**
- 5. Family-Internal Subgrouping

# UA Morphology

- Most UA languages have extensive derivational and inflectional devices for nouns and verbs
- We'll focus here on just a few areas of comparative UA verb morphology:
  - 1. Complex verb derivation via suffixation
  - 2. Person-marking inflectional prefixes on verbs
  - 3. Non-concatenative morphology
    - Prosodic morphology
      - Reduplication
      - Mora Affixation
    - Suppletion

# UA Morphology

- **1. Complex verb derivation**

- Most UA languages have a rich variety of suffixes which can be used to derive some quite complex verb structures.

- We've already seen an example from Classical Nahuatl:

*-miq-ti-lia*
die-CAUS-APPL
'kill for somebody' ( = 'cause X to die for Y')

*ni-mitz-tē-tla-itqui-ti-lia-ø-ø* (Andrews 1988: 424)
pers-obj-obj-obj-Root-CAUS-APPL-tense-number
1st-you-s.o.-s.th.-carry-cause-involve-pres.-sg.
'I cause someone to carry something for you'

# Complex verb derivation

- Recursive APPL in Classical Nahuatl

  *ni-c-tē-tē-celi-li-lia-ø-ø* (Andrews 1988: 436)

  1sg.-it-s.o-s.o.-receive-APPL-APPL-pres-sg.

  'I receive it from someone for someone'

- Is there recursive use of CAUS in Nahuatl?

- Sischo (1981) – Examples of "double causative" from Michoacán Nahuatl, but all involve co-use of the APPL

  *neč-noɬa-lti-'lwi-li-k* (Sischo 1981: 220)

  1.sg.obj.-call-CAUS-CAUS-APPL-PERF

  'W had X make Y call Z for me'

# Complex verb derivation

- Q: Is APPL-CAUS order possible in Nahuatl?
- If so, I would expect the relevant semantic scope effects to emerge (cf. Baker 1985, Rice 2000).
- We do find this possibility in Hiaki (Yaqui):

CAUS-APPL = for Y [CAUS X 'to do something']

*Nee usi-ta avion-ta ni'i-tua-ria-k*

1.sg child-Acc plane-Acc fly-CAUS-APPL-PERF

'I made the (model) airplane fly for the child.'

APPL-CAUS = CAUS [X 'to do something' for Y]

*Nee usi-ta mesa-ta mala-ta aa=tu'ute-ria-tua-k.*

1.sg child-Acc table-Acc mother-Acc 3.sg.obj=clean-APPL-CAUS-PERF

'I made the child clean the table for mother.'

# Complex verb derivation

- Hiaki does not seem to allow for productive recursion of CAUS or APPL
  - Even if the CAUS is a lexical causative! (Tubino Blanco 2011)
  - *vicha* 'see'
    - *vit-* is the bound form
  - *vit-tua*
    - = 'show' see-CAUS
    - = 'send to' *idiomatic*
  - **vit-tua-tua* 'make send to'
    - → *vit-tua* = 'send' or 'make send to'
    - *HAPLOLOGY?* (Tubino Blanco 2011:189-92)
      - →Haplology wouldn't be relevant in the Nahuatl case since there are multiple forms of the CAUS suffix which are used

# Complex verb derivation

- Not all UA verb derivation necessarily implicates semantic scope effects

- Choguita Rarámuri (Caballero 2010)
  - **APPL-CAUS** ⇨ **always compositional & expected scope holds**
  - CAUS-APPL ⇨ scope can go either way

  - **DESID-CAUS** ⇨ **always compositional & expected scope holds**
  - CAUS-DESID ⇨ scope can go either way

  - MOT-CAUS / CAUS-MOT ⇨ scope can go either way

  - MOT-DESID / DESID-MOT ⇨ scope can go either way

# UA Morphology

- **2. Person-marking Agreement Prefixes**
  - We've just observed, in passing, the curious case of Nahuatl polysynthesis:
    - Subj and Obj agreement prefixes are obligatorily marked on the transitive verb
    - But this is not the case in Hiaki! (nor in most other UA languages)
    - Polysynthesis is almost unique to Nahuatl within Uto-Aztecan!
  - *Question*: How did Nahuatl come to be that way?
  - *Answer*: Gradually! (Haugen 2012)

# UA Morphology

- Grammaticalization of bound agreement prefixes in the verb complex:

| | | |
|---|---|---|
| Classical Nahuatl | (Aztecan) | S-O-V |
| Cahuilla | (Takic) | O-S-V |
| Cupeño | (Takic) | (O)-S-V$_{\text{(past tense)}}$ |
| Tohono O'odham | (Tepiman) | O-V |
| Hopi | (*NUA singleton*) | O-V$_{\text{(small closed class of verbs)}}$ |
| Yaqui | (Taracahitan) | (O)-V |

- For purposes of reconstruction, PUA probably looked more like Yaqui than Nahuatl.

# UA Morphology

- **3. Non-Concatenative Morphology**
  - Prosodic Morphology
    - Reduplication
    - Mora Affixation
  - Verbal Suppletion

- These do not seem to be robust features of many Mesoamerican languages….
  - ….Or are they?

# Prosodic Morphology

- PUA would have had a pretty extensive system of ***Reduplication*** (Haugen 2005, 2008, 2009)
  - Different reduplication shapes indicating different semantic functions (***duplemes –*** Spaelti 1997)

- A Light Syllable
- +
- A Contrasting Heavy Syllable

- Tohono O'odham plurals + distributives (Fitzgerald 2003)

| | singular | plural | distributive | gloss |
|---|---|---|---|---|
| a. | nowiu | **no**nowiu | **non**nowiu | 'ox' |
| b. | nahagio | **na**nhagio | **nan**nhagio | 'earring' |
| c. | hódai | **hó**hodài | **hoh**hodai | 'rock, stone' |
| d. | ʔa:g | **ʔa**ʔag | **ʔa**ʔʔag | 'a pair of animal horns' |

# Prosodic Morphology

- A contrasting heavy syllable
  - Geminating = 'distributive'
- Tohono O'odham long-vowel plurals (Hill and Zepeda 1994)
  - singular plural
  - a. ban **ba:**ban 'coyote'
  - b. maḍ **ma:**maḍ 'woman's child, younger sister's child'
  - c. ñem **ñe:**ñem 'liver'
  - d. bahi **ba:**bhai 'tail'
  - e. şon **şo:**şon 'trunk of a plant'
- Full stem/root reduplication
- Yaqui full stem reduplication (Molina et al. 1999)
  - a. kupikte **kupi**.kupikte 'blink eyes'
  - b. chihakta **chiha**.chiakta 'splash it'
  - c. chitohte **chito**.chitohte 'slipping'
  - d. kinakte **kina**.kinakte 'squint, grimace'

# Prosodic Morphology

- **Mora Affixation**

Yaqui habitual mora affixation (Molina et al. 1999)

| | | | |
|---|---|---|---|
| a. | bʷa.ta.ni.a | ‘burn (food)’ | bʷa**t**.ta.ni.a |
| b. | e.ta.po | ‘open up’ | e**t**.ta.po |
| c. | ho.vo.a | ‘get full’ | ho**v**.vo.a |
| d. | ma.ve.ta | ‘receive’ | ma**v**.ve.ta |
| e. | yep.sa | ‘arrive’ | ye**e**p.sa |

# Suppletion

- UA languages typically show extensive verbal Ssuppletion
  - An ergative pattern: Number agreement
    - Subjects of intransitives
    - Objects of transitives

- Actual suppletive lexical items are difficult to reconstruct for PUA

  - Lexical replacement process endemic to strong suppletion
    - *Incursion* (Juge 2000)

  - Similar to English suppletive past tense *went* (past tense of *wend*) replacing the earlier suppletive past tense form *ēode*.

# Suppletion

- Haugen and Everdell (*forthcoming*)

Reconstructions for PUA:

| | SG | PL |
|---|---|---|
| 'Die' | ***muku** | ***ko(i)** |
| 'Kill' | ***mɬʔa** | *ko-ya<br>die-CAUS |

# Suppletion

- Possible PUA Glosses for Suppletive Verbs – High Likelihood (4+ sub-groups)
    a. ARRIVE
    b. BRING/CARRY
    c. DIE
    d. FALL
    e. GO
    f. KILL
    g. LIE/LIE DOWN
    h. PUT/PLACE
    I. RUN
    j. SIT
    k. STAND/STAND UP/STAND SOMETHING UP

# Suppletion

- Possible PUA Glosses for Suppletive Verbs – Medium Likelihood (3 sub-groups)

  a. DWELL

  b. ENTER

  c. GO OUT

  d. GO UP

  e. WALK AROUND

- This kind of suppletion was practically entirely eliminated from Nahuatl, which has only one suppletive verb:

  CN *yauh* *'go.sg'* *wi'* *'go.pl'*

# Outline of this talk

- ✓ 1. Survey of UA Languages
- ✓ 2. Phonology
- ✓ 3. Syntax
- ✓ 4. Morphology
- **5. Family-Internal Subgrouping**

# Uto-Aztecan Family-Internal Sub-Grouping

- There's been a very long history of debate on the sub-classification of Uto-Aztecan languages
  - 1. Traditional comparative method
  - 2. Quantitative approaches

# 1. Traditional Comparative Method

- Dakin (2000) gives a good overview of the history of Uto-Aztecan subclassification
- Hill (2011) revises the family tree based on the single criterion of *shared phonological innovations*.
- Merrill (2013) gives novel support for Southern-Uto-Aztecan
- Combining Hill (2011) and Merrill (2013) yields what I will call….

# The 2015 Uto-Aztecan Family Tree

- I. Northern Uto-Aztecan (Manaster Ramer 1992)
  - A. Numic
  - B. Californian
    - 1. Serran
    - 2. Gab-Cupan
    - 3. Tübatulabal
  - C. Hopi
- II. Southern Uto-Aztecan (Merrill 2013)
  - D. Tepiman
  - E. Cahitan
  - F. Opata-Eudeve
  - G. Tarahumara-Guarijío
  - H. Tubar
  - I. Corachol-Aztecan

# The 2015 Uto-Aztecan Family Tree

- No “Takic”
  - But “Californian” contains the two traditional Takic sub-groups + Tübatulabal
- No Taracahitan
- No “Sonoran”

- These are all based solely on *shared phonological innovations*
  - Future research should also seek to uncover ***shared morphological innovations*** which could possibly shed some more light on intermediate branchings.
  - Previous searches for shared “anomolous” irregular morphology (rdp, suppletion, etc.) has come up short—all go back to PUA.

# Quantitative Methods

- Lexicostatistical approaches
  - Miller (1984)
  - Cortina-Borja and Valiñas (1989)
- Phonostatistical approaches
  - ASJP – Holman et al. (2008)
  - Wheeler and Whitely (2014)
- Mixed lexico-/phono-statistical approaches
  - Cortina-Borja, Stuart-Smith and Valiñas (2002)

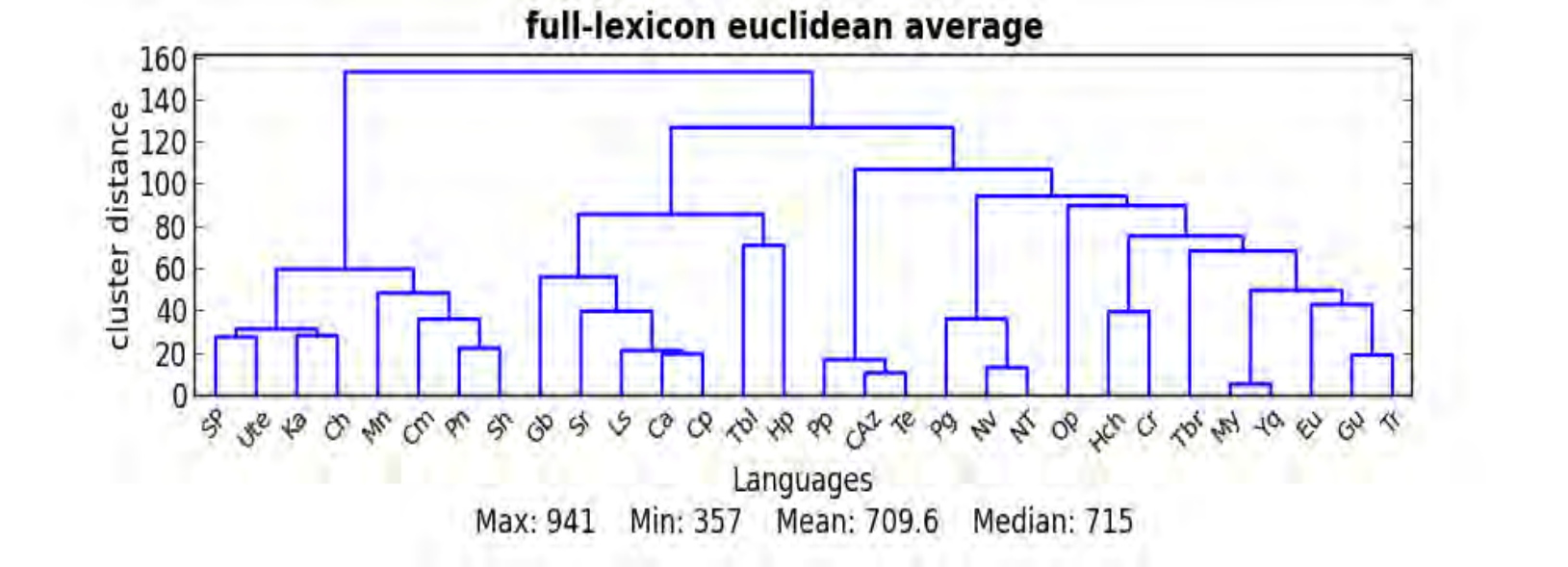
# Uto-Aztecan Lexicostatistics 2.0

- New project underway at Oberlin College
  - Haugen, Everdell (OC '13), Kuperman
- Qualitative lexicostatistics
  - ***Relative cognate density*** (cp. Miller 1984's *cognate density*)
    - (Percentage of shared cognate vocabulary)
- Exploring different:
  - Word lists
  - Clustering algorithms
- Some consistent results across methods:

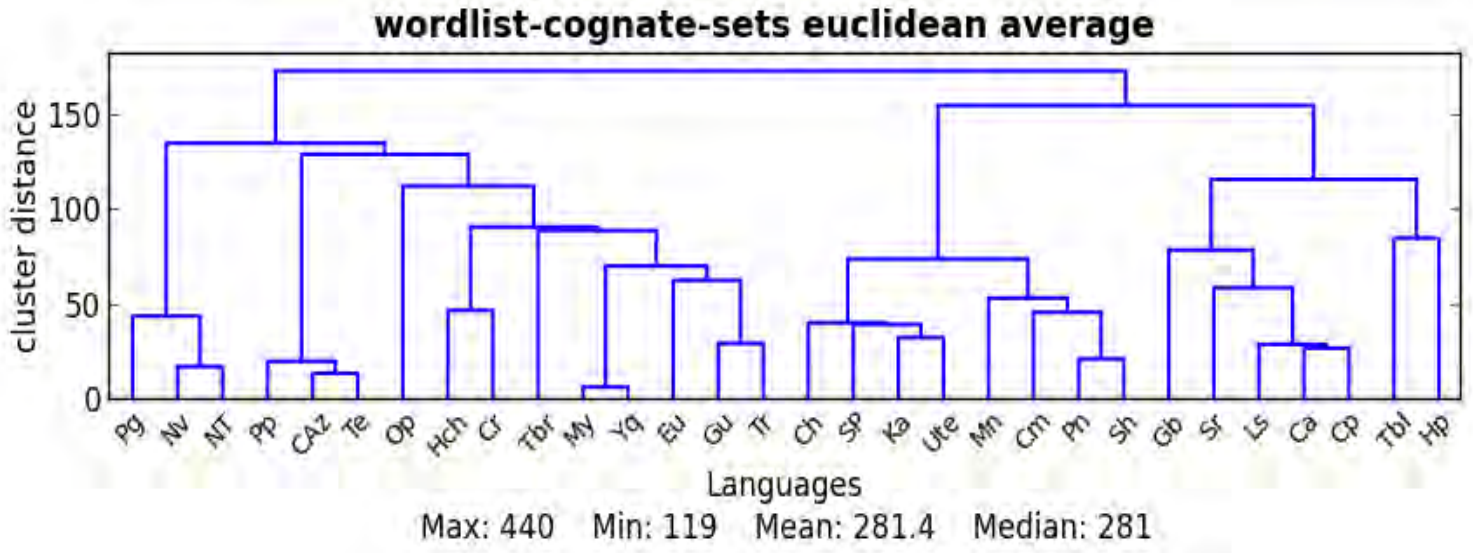
# Uto-Aztecan Lexicostatistics 2.0

- Results so far:
  - Lack of support for NUA
    - Numic typically branches off first, separating it from everything else.
  - Strong support for SUA
  - Little support for “Sonoran”

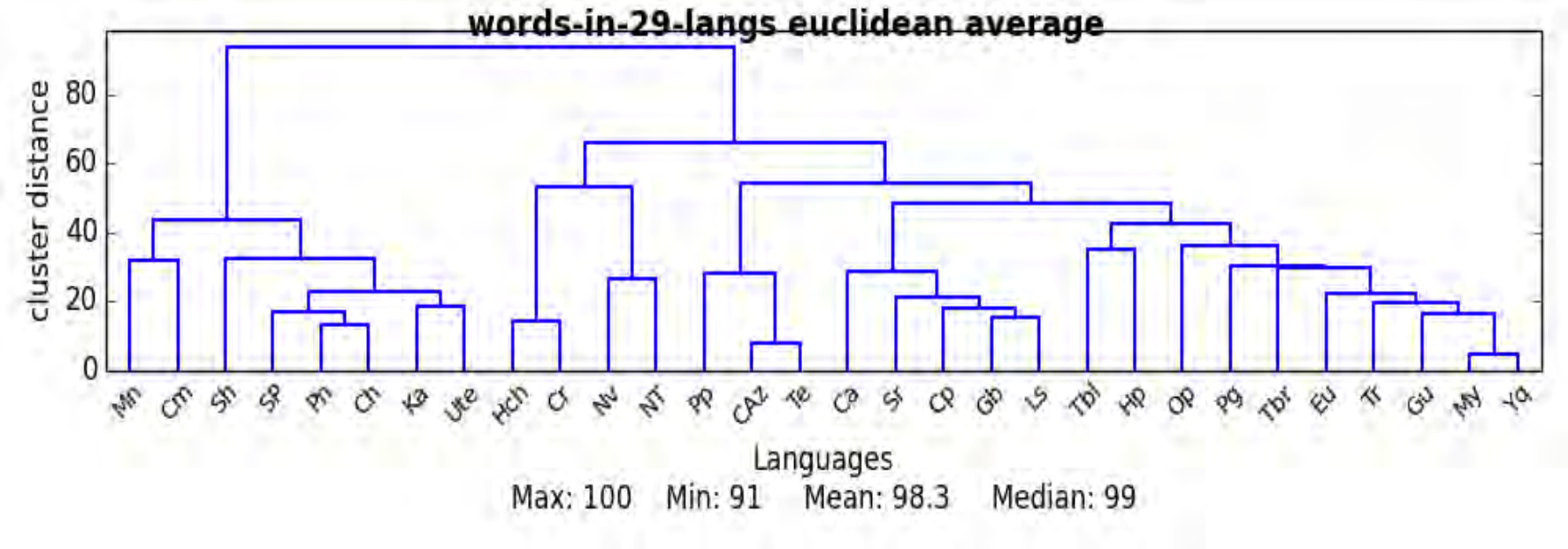
# All Words Comparison



# All Cognate Sets Comparison



# The Uto-Aztecan 100 Wordlist (29 lgs)



# Uto-Aztecan Lexicostatistics 2.0

- Of course, lexicostats (and other quantitative methods) should be used cautiously…
- …and should probably take a back seat to the traditional comparative method.
  - e.g., it is interesting that our results do not support NUA, which does get support from shared phonological innovation.
    - The question for us is: why not?

- **THANK YOU!!**

# References


**(Seleced) References**

Andrews, J. Richard. 1988. Remarks on causatives and applicatives in Classical Nahuatl. In J. Kathryn Josserand and Karen Dakin (eds.), *Smoke and Mist: Mesoamerican Studies in Memory of Thelma D. Sullivan*. BAR International Series 402(ii), pp. 423-447.

Caballero, Gabriela. 2010. Scope, phonology, and morphology in an agglutinating language: Coguita Rarámuri (Tarahumara) variable suffix ordering. *Morphology* 20.1: 165-204.

Canger, Una. 1988. Nahuatl dialectology: A survey and some suggestions. *International Journal of American Linguistics* 54.1: 28-72.

Dakin, Karen. 1981. The characteristics of a Nahuatl *Lingua Franca.* In Frances Karttunen (ed.), *Nahuatl Studies in Memory of Fernando Horcasitas* (Texas Linguistic Forum 18). Austin, TX: University of Texas Department of Linguistics, pp. 55-67.

Haugen, Jason D. 2015. Configurationality in Classical Nahuatl. Paper to be presented at the 20th Workshop on Structure and Constituency in the Languages of the Americas (WSCLA 20). To be held at the University of Arizona, January 2015.

Haugen, Jason D., and Michael Everdell. *forthcoming.* 'To kill' and 'to die' (and other suppletive verbs) in Uto-Aztecan. *Language Dynamics and Change*.

Hill, Jane H. 2011. Subgrouping in Uto-Aztecan. *Language Dynamics and Change* 1: 241-278.

Merrill, William L. 2013. The genetic unity of Southern Uto-Aztecan. *Language Dynamics and Change* 3: 68-104.

Sischo, William. 1981. The double causative in Michoacan Nahuatl. In Frances Karttunen (ed.), *Nahua Studies in Memory of Fernando Horcasitas* (Texas Linguistic Forum 18). Austin, TX: University of Texas Department of Linguistics, pp. 215-222.

Spaelti, Philp. 1997. Dimensions of Variation in Multi-Pattern Reduplication. PhD dissertation, University of California—Santa Cruz.

Tubino Blanco, Mercedes. 2011. *Causatives in Minimalism*. Amsterdam: John Benjamins Publishing Company (Linguistik Aktuell/Linguistics Today 179).