

Subgrouping in a `dialect continuum': Exploring Mixtec language history

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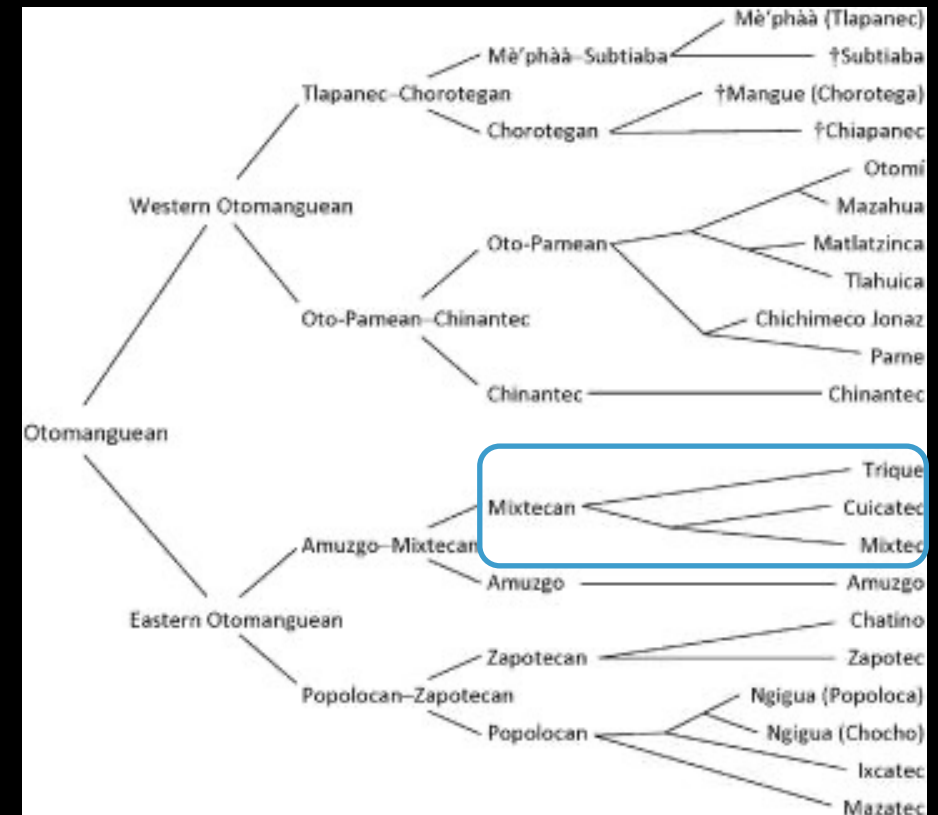
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ICHL 25 - University of Oxford

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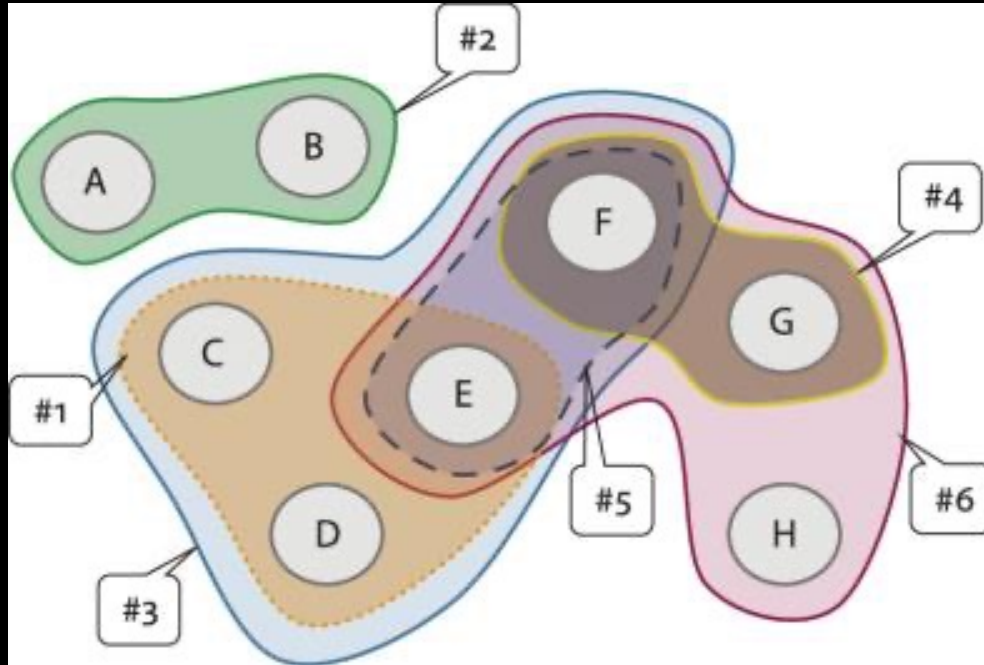
The Mixtecan language family in Mesoamerica



Source left: http://commons.wikimedia.org/wiki/File:Mapa_de_lenguas_de_M%C3%A9xico_%2B_100_000.png

Source right: Campbell 2017 based on Kaufman 1988

How many Mixtec languages are there?



Source: Kalyan et al. 2019. Problems with, and alternatives to, the tree model in historical linguistics. *Journal of Historical Linguistics* 9(1)

Resource	No.	Levels
Okura 2015	12/22	language/dialect
Suarez 1983	29	language/dialect (not counted)
Ethnologue	52	language/dialect (not counted)
Glottolog	53	language/dialect (not counted)
INALI	81	variety
Josserand 1983	120	variety (=village)

Subgrouping in a dialect continuum?

contact

comparative method

Bayesian phylogenetics

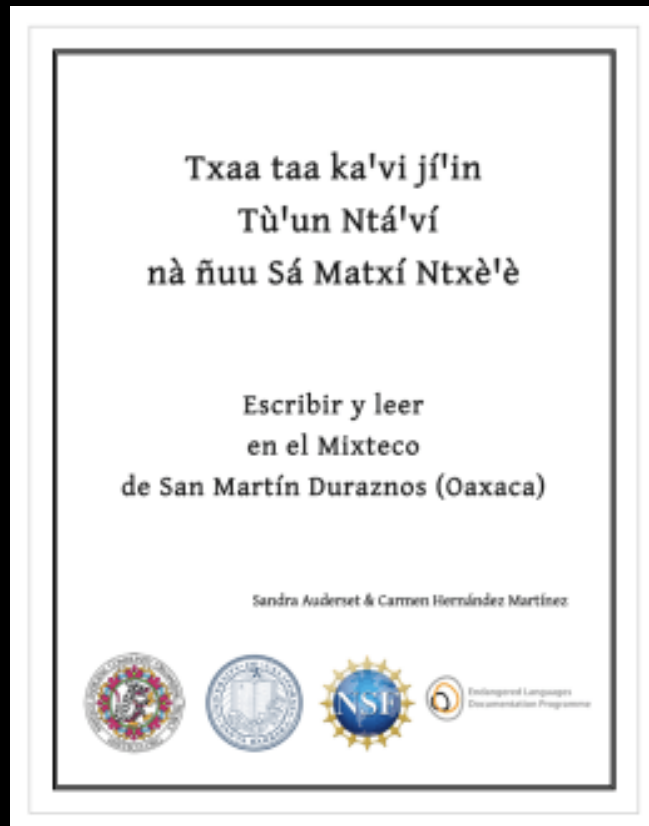


Subgrouping in a dialect continuum?

“El problema es la aparente violación o infracción de las expectativas ideales del método comparativo en la lingüística histórica (...). Pero este modelo presupone una efectiva separación de los grupos, después de un cambio que los divide. En contraste, en la Mixteca (...) vemos una situación más dinámica en el desarrollo de las familias lingüísticas.” Bradley & Josserand 1982:303

English: The problem is the apparent violation or infringement of the expectations and ideals of the comparative method in historical linguistics (...). But this model assumes an actual separation of the groups, once a change has divided them. In contrast, in the Mixteca, we see a more dynamic situation concerning the development of the language families.

Why do we need an updated classification?



- ❖ community resources
- ❖ history
- ❖ archaeology
- ❖ anthropology



Picture sources:

<https://www.khanacademy.org/humanities/art-americas/early-cultures/mixtec/a/mixtec-codex-zouche-nuttall>

https://commons.wikimedia.org/wiki/File:Mixtec_Carved_Stone.jpg

Collaborators

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S. Sebastian del Monte Mixtec

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Chichahuaxtla Triqui

Rey Castillo Garcia & Jonathan Amith
Yoloxochitl Mixtec

Jeremías Salazar
Yucunani Mixtec

Inî G. Mendoza & Simon L. Peters
Piedra Azul Mixtec

JN Martín
El Jicaral Mixtec

Data collection and analysis



'basic' vocabulary list of 209 items tailored to the Mesoamerican cultural area, excluding verbs



from published (dictionaries, grammars, grammar sketches) and unpublished sources (ongoing documentation efforts)



110 varieties with lists filled in to different degrees (> 18,000 entries total)

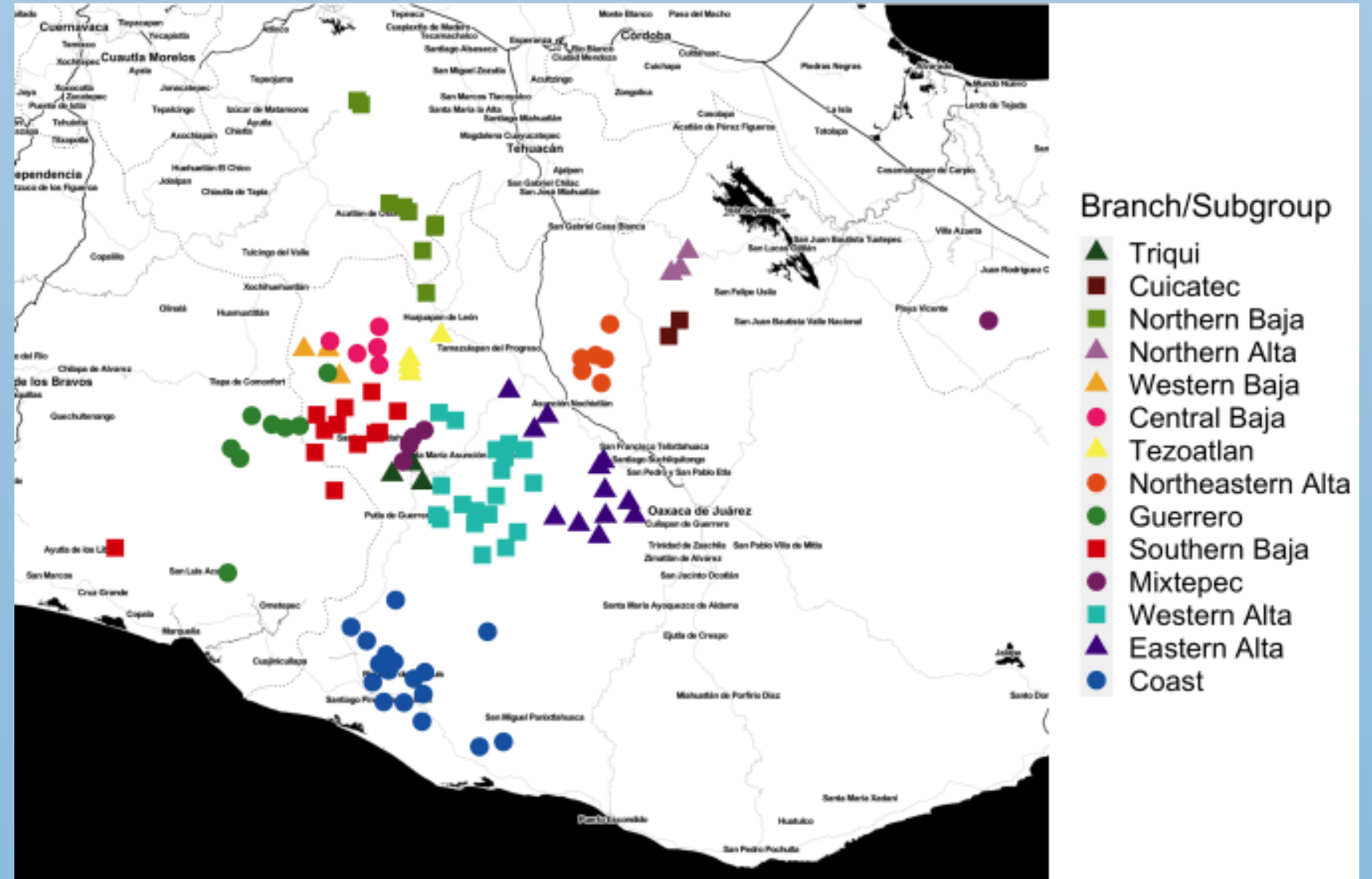


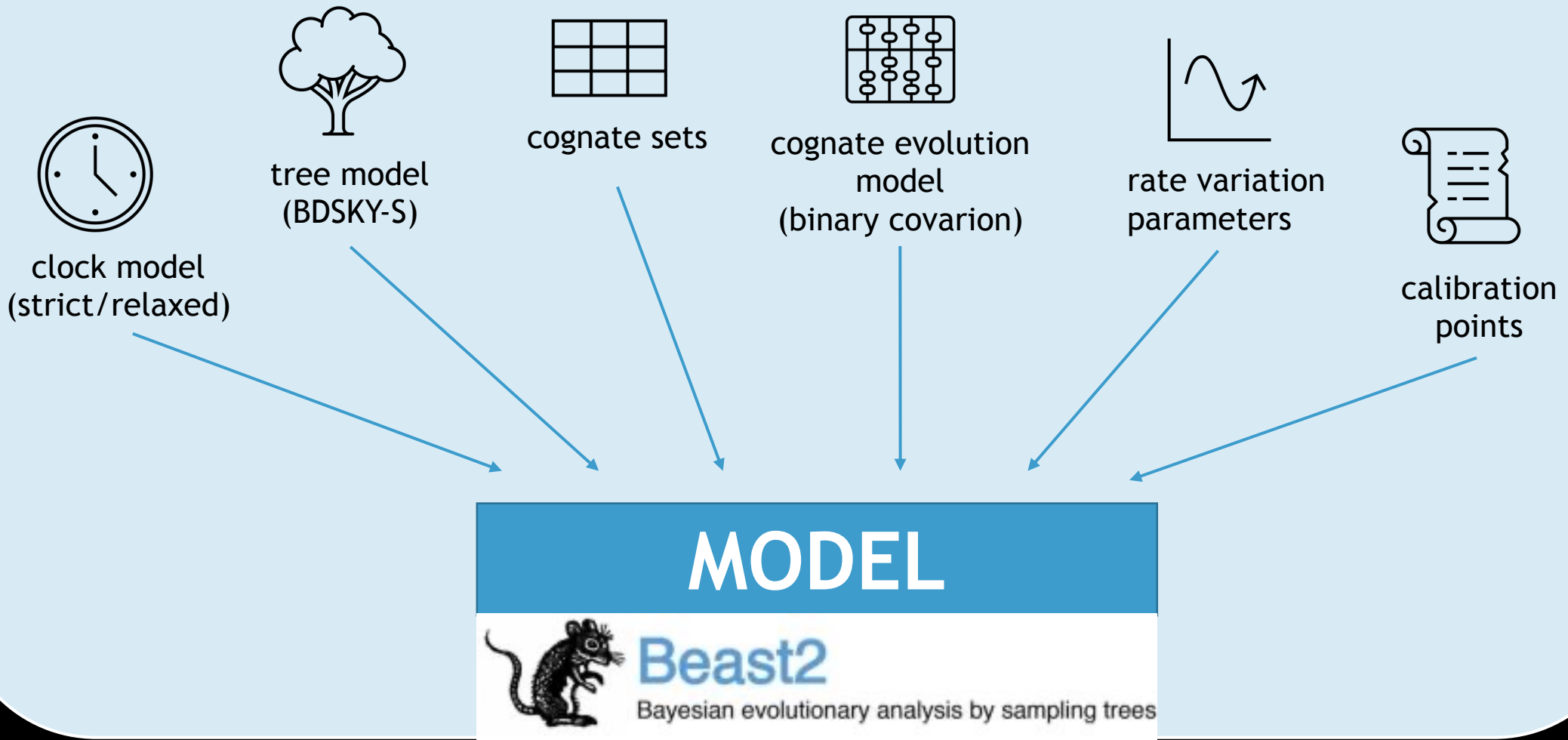
annotated for partial cognates, taking into account tone



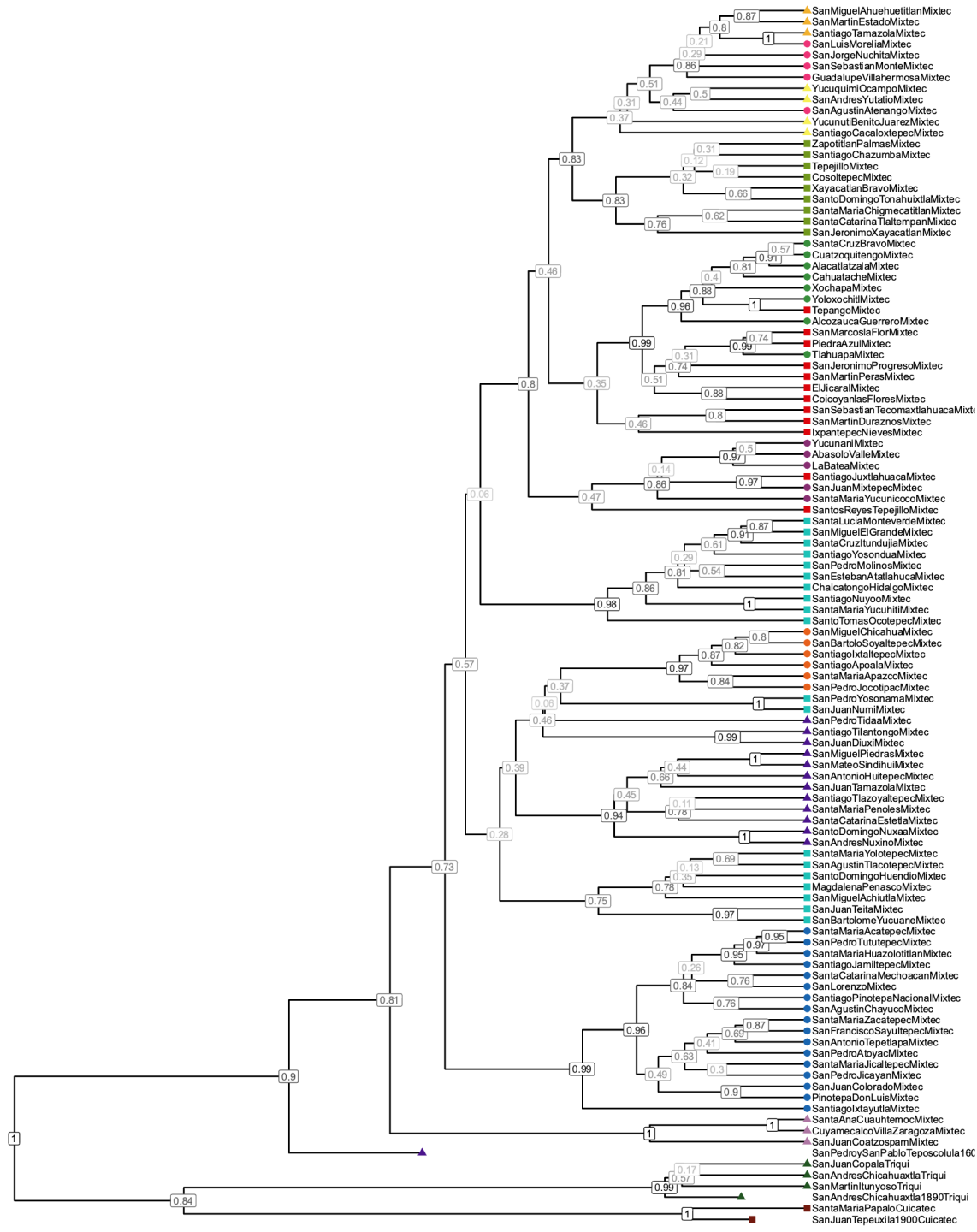
manually coding cognates based on comparative methods

Sample

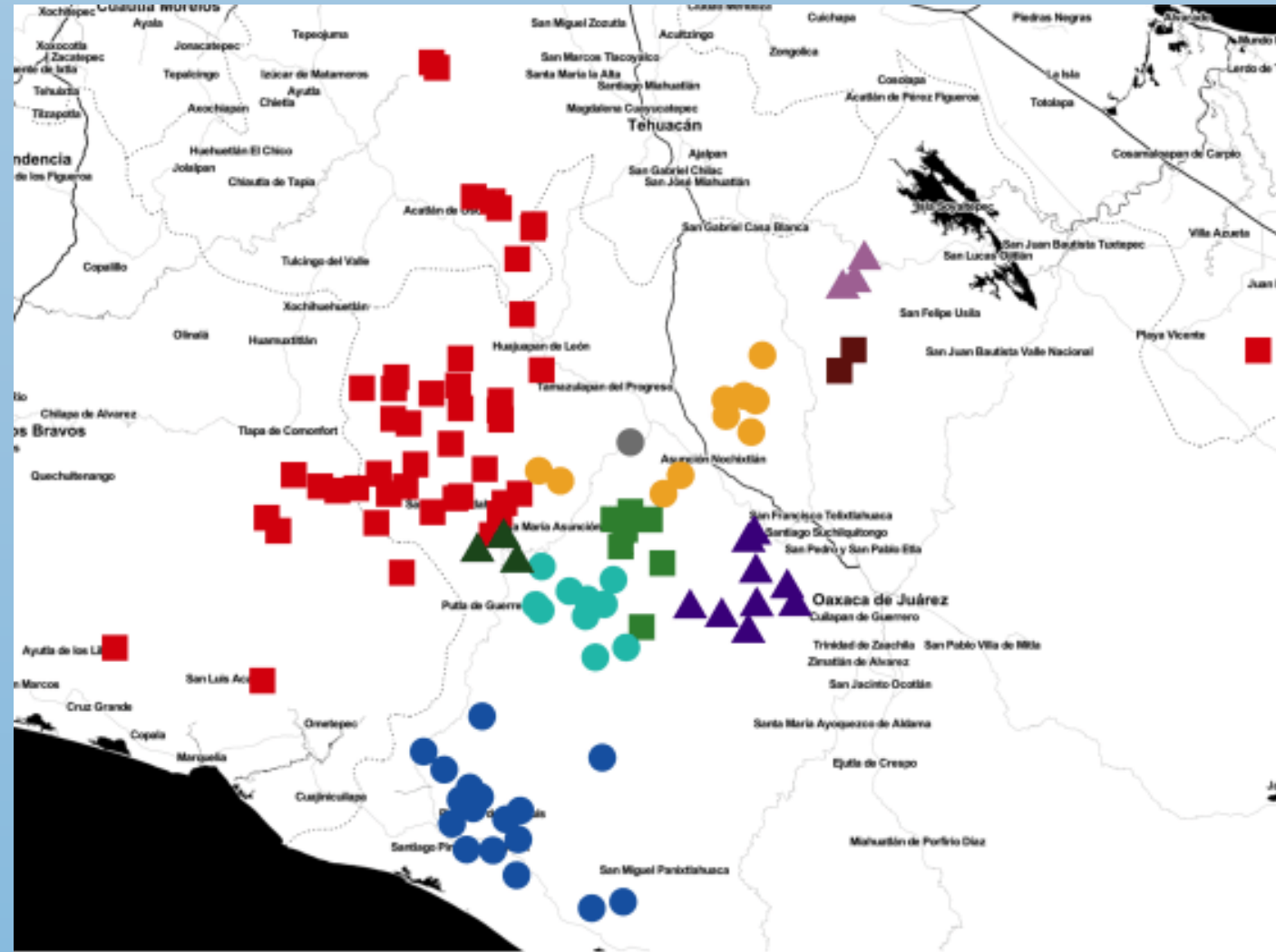
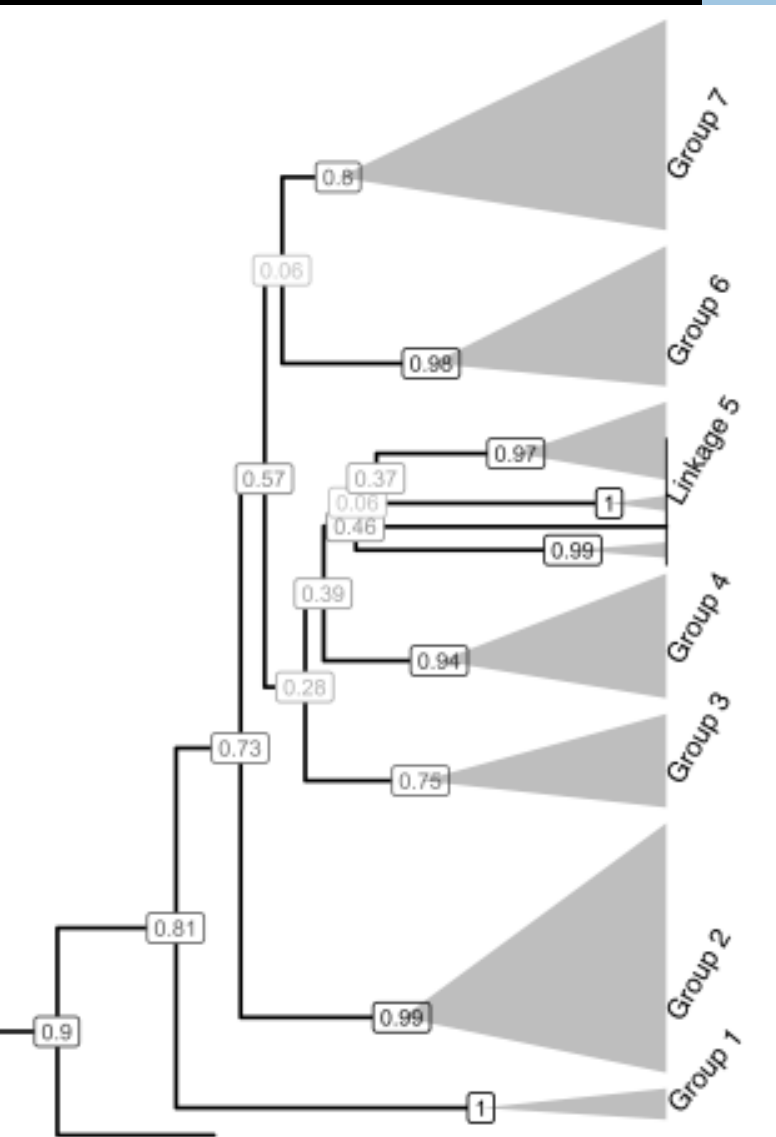




MCC Tree - full



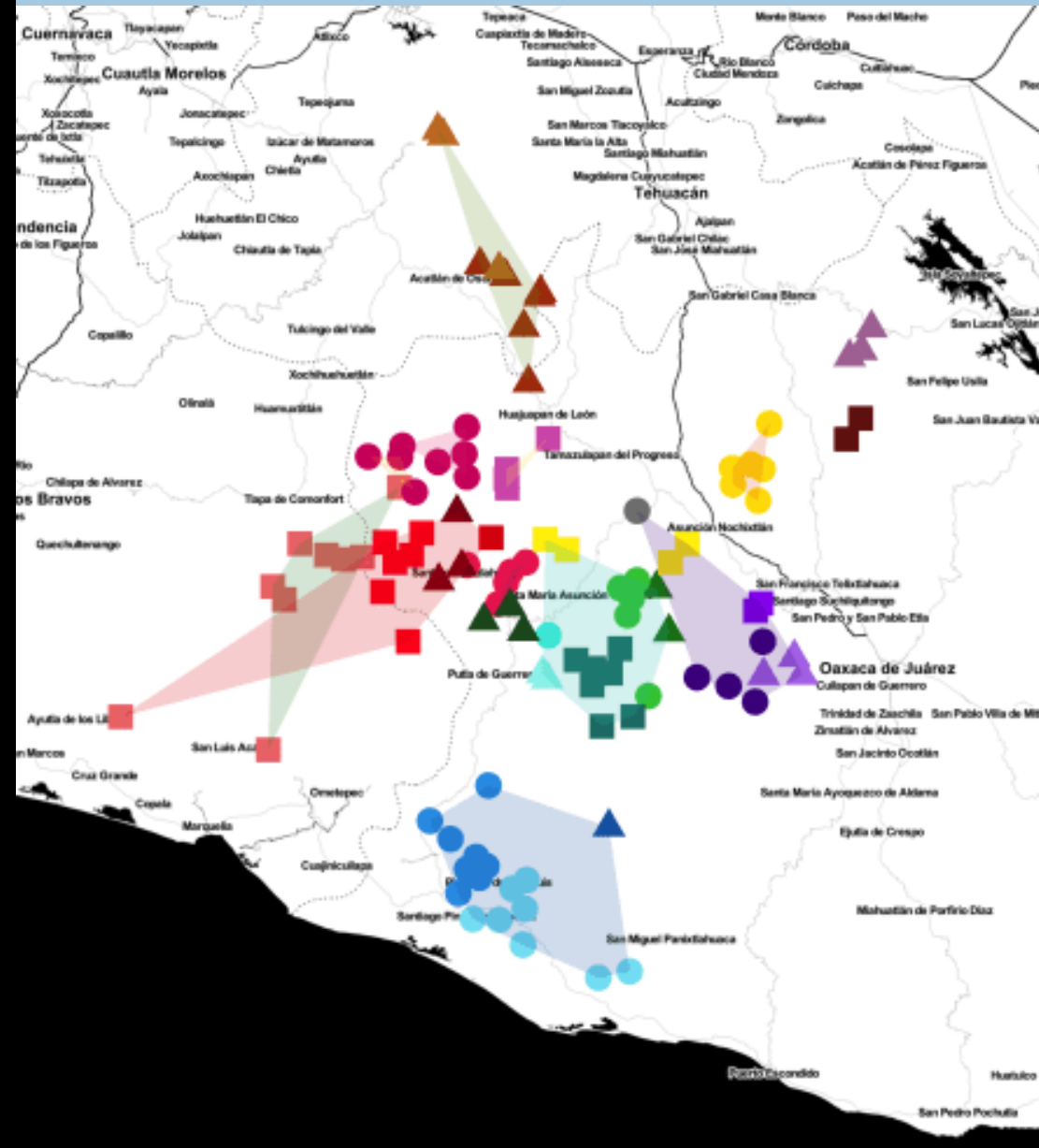
New high-level groups



Branch/Subgroup

- ▲ Group 1
- Group 2
- Group 3
- ▲ Group 4
- Group 6
- Group 7
- Linkage 5
- Cuicatec
- ▲ Triqui
- Unclear

New lower-level groups

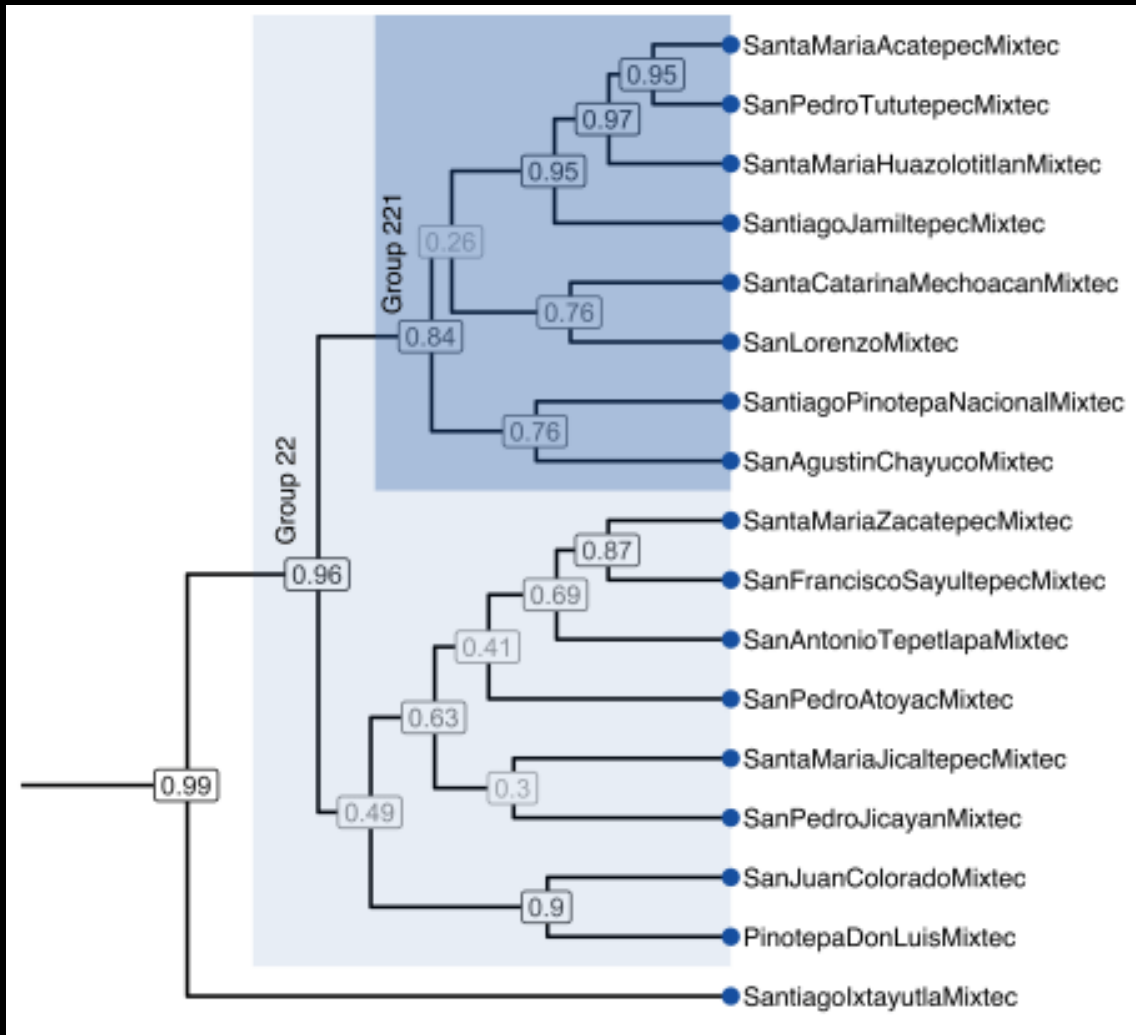


Branch/Subgroup

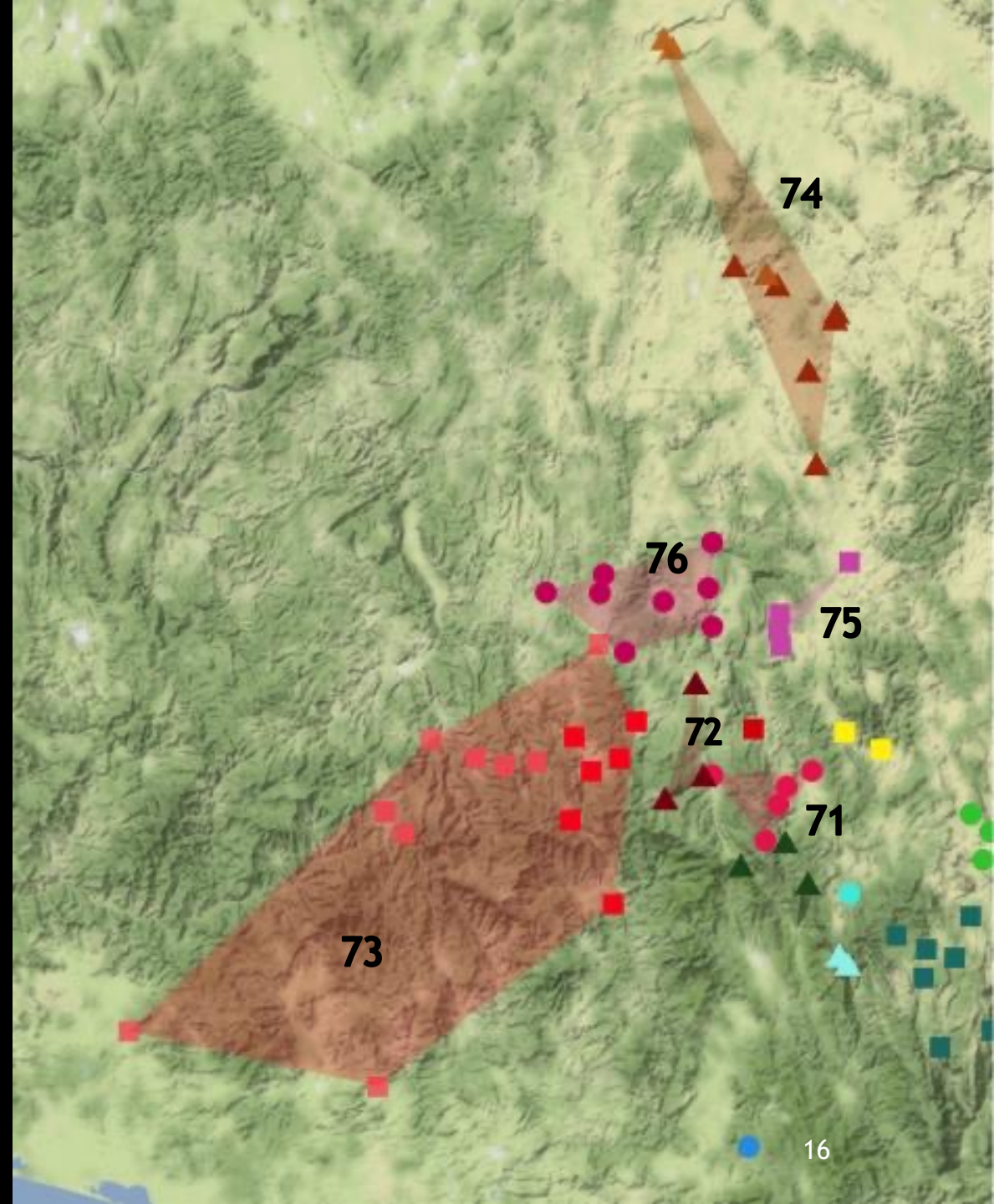
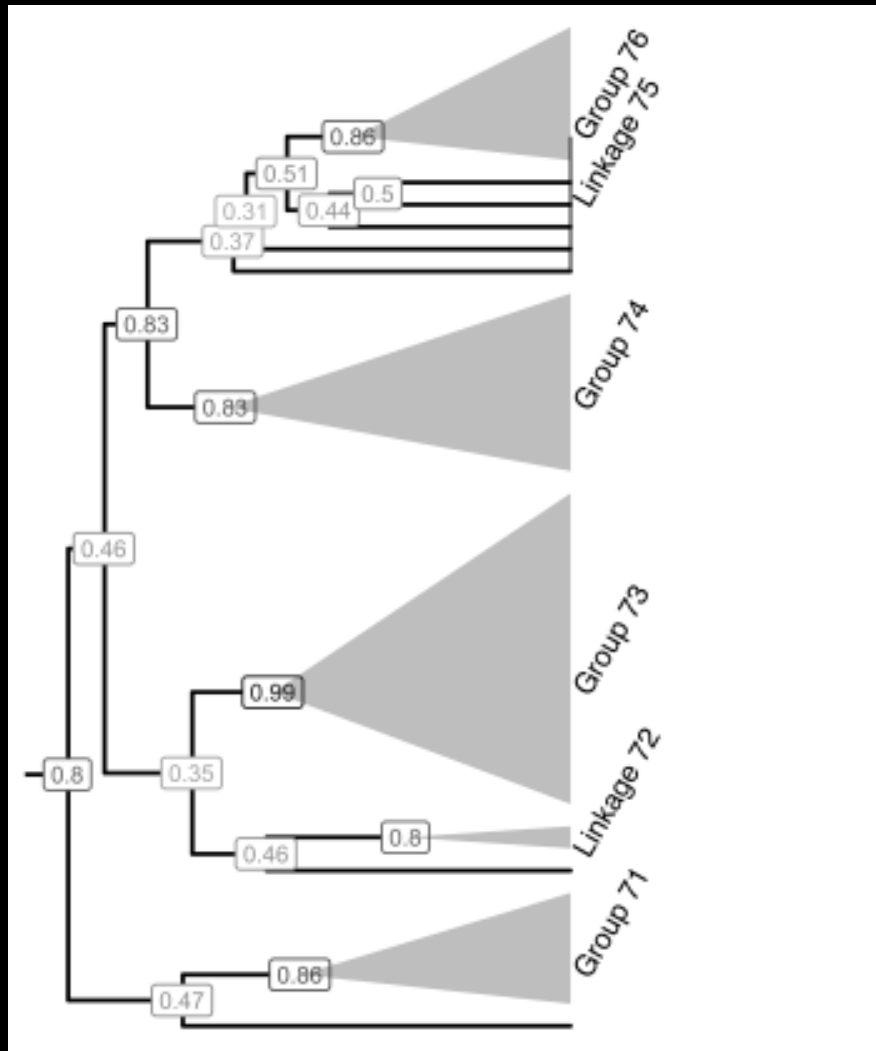
Group 1	Group 72
Group 21	Group 73
Group 22	Group 731
Group 221	Group 74
Group 31	Group 741
Group 32	Group 76
Group 41	Linkage 75
Group 42	Group 7
Group 4	Group 51
Group 61	Linkage 5
Group 621	Cuicatec
Group 622	Triqui
Group 71	Unclear

shaded polygons =
Jossierand's dialect areas

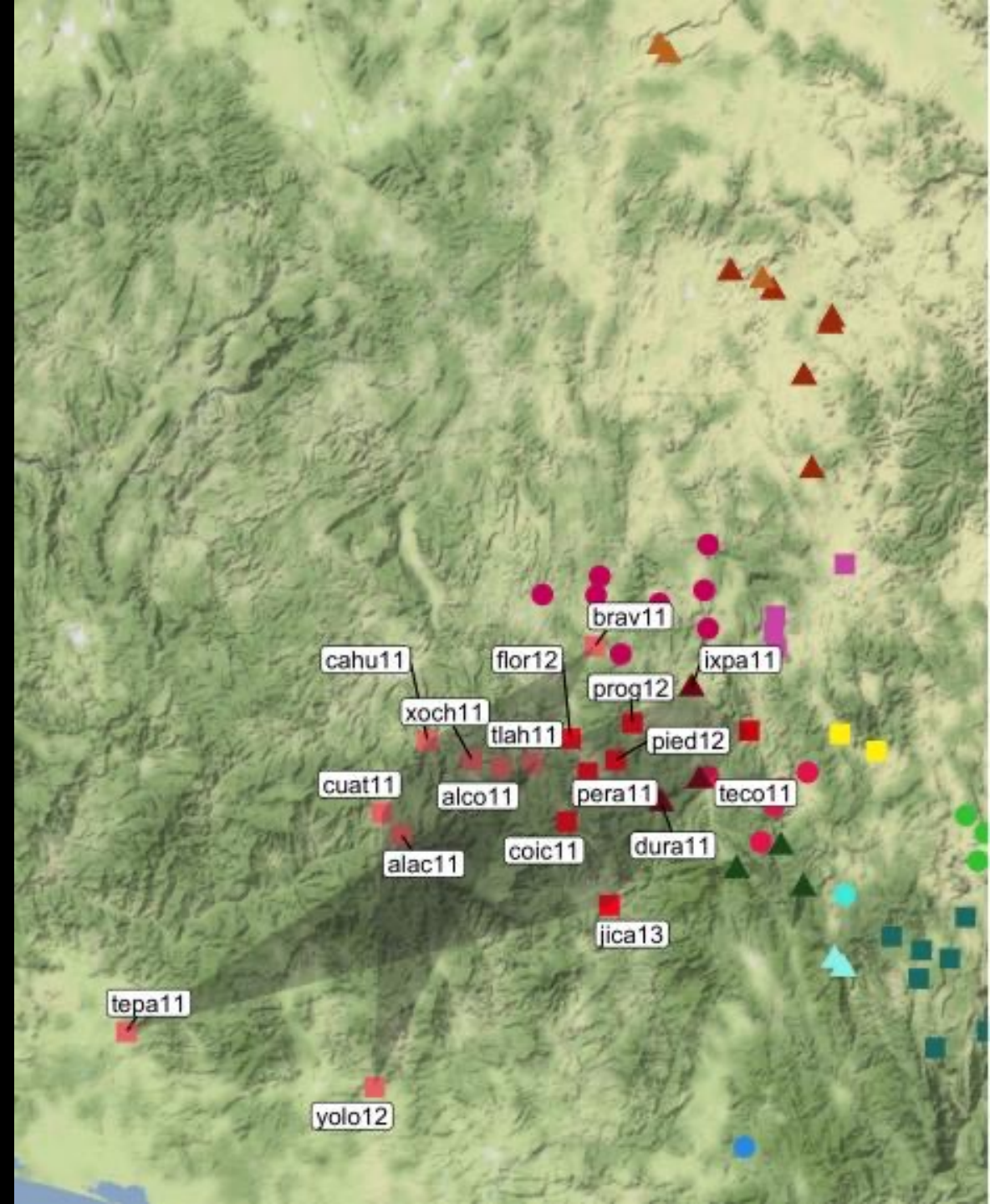
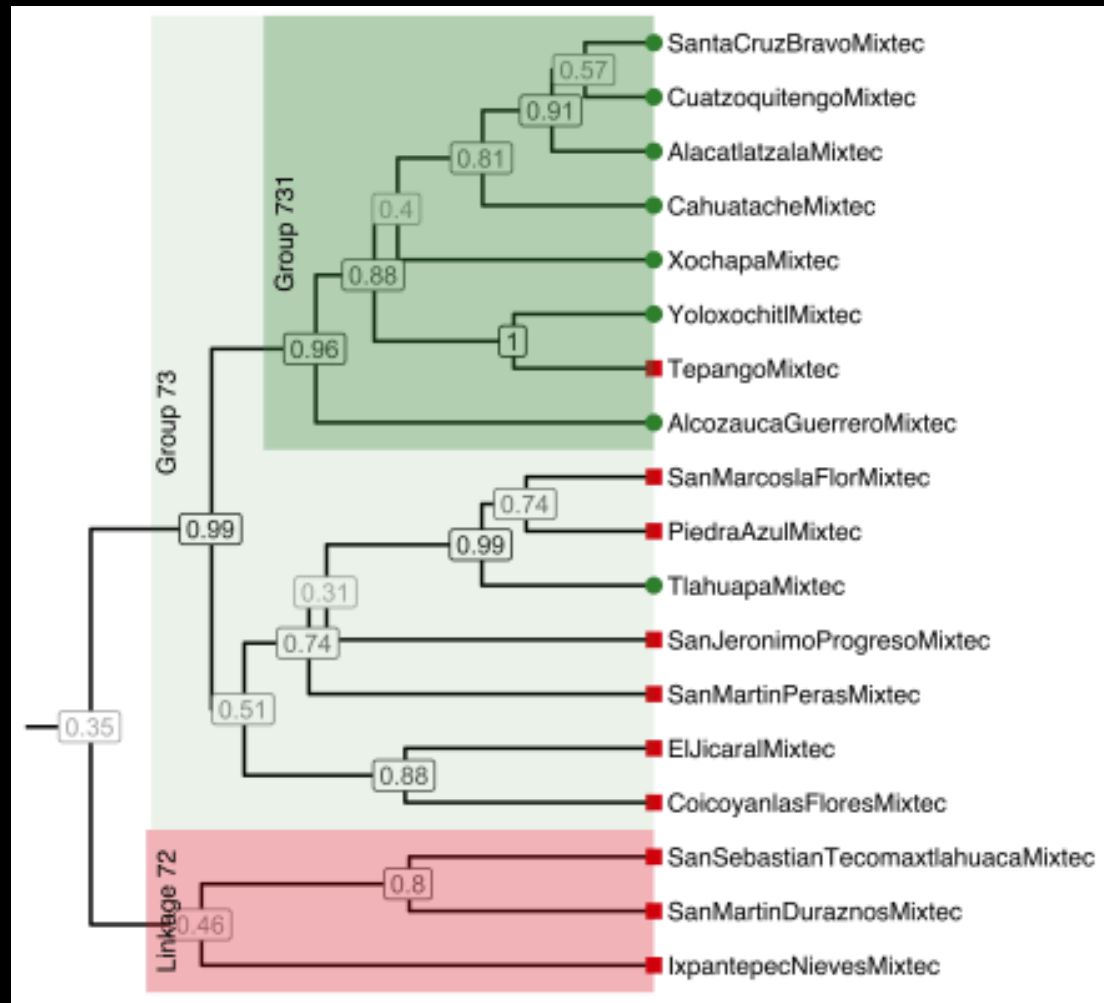
Group 2



Group 7



7.2 and 7.3



Where to go from here

Mixtec

- integrate verbs
- tone reconstruction/tone change
- language survey
- tailored community materials

historical linguistics & phylogenetics

- go beyond large, well-established, well researched language families
- more diversity = better models & interpretation
- critically depends on good documentation

collaboration with archaeology & anthropology

- population movements
- trade networks
- subsistence patterns/diets
- kinship/family relation
- community organization
- not everything in Mesoamerica is Aztec or Mayan

Extra slides for Q&A

Calibration points

- ❖ documents by Jesuits from the colonial period
 - ❖ Antonio de los Reyes: Arte en lengua mixteca (1593)
 - ❖ Francisco de Alvarado: Vocabulario en lengua misteca (1593)
- ❖ documents from around the 19th century
 - ❖ Francisco Belmar: Ensayo sobre la lengua trike (1897)
 - ❖ Francisco Belmar: El cuicateco (1902)



Cognate Coding

- ❖ broad vs. fine-grained
- ❖ binarized cognate matrix

Variety	5	125	644	878
A	1	1	0	?
B	1	1	1	0
C	0	?	0	1
D	1	1	1	0

BIRD

VARIETY	FORM	BROAD	FINE
AbasoloValleMixtec	s a ³ a ³	49	49
AlacatlalzalaMixtec	s a ³ a ³	49	49
ChalcatongoHidalgoMixtec	s a ³ a ¹	49	49
ElJicaralMixtec	s a ³ a ³	49	49
GuadalupeVillahermosaMixtec	l a a	49	49L
IxpantepecNievesMixtec	l a a	49	49L
SanMartinDuraznosMixtec	l a ³ a ³	49	49L
SantiagoApoalaMixtec	t i + ð a a	9 49	9 49
SantiagoCacaloxtepecMixtec	t i ¹ + l a ³ a ¹	9 49	9 49L
SanMiguelElGrandeMixtec	t i ³ + s a ³ a ¹	9 49	9 49

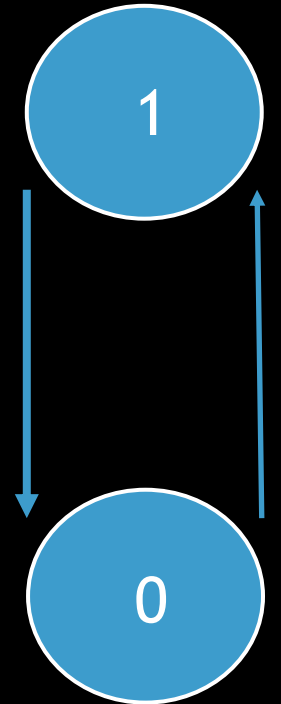
PUS

VARIETY	FORM	BROAD	FINE
CoicoyanlasFloresMixtec	ⁿ d a ³ k ^w a ¹	574	574
ElJicaralMixtec	ⁿ d a ³ k ^w a ⁵	574	574
MagdalenaPenascoMixtec	ⁿ d a ³ k ^w a ³	574	574
PiedraAzulMixtec	ⁿ d a ³ h k ^w a ¹	574	574
AlcozaucaGuerreroMixtec	l a k ^w a	574	574L
SanMiguelElGrandeMixtec	l a ³ k ^w a ³	574	574L
SanCristobalJamiltepecMixtec	l a k ^w a	574	574L
SanMartinDuraznosMixtec	l a ³ k ^w ã ¹	574	574L

Model of cognate evolution

Binary Covarion:

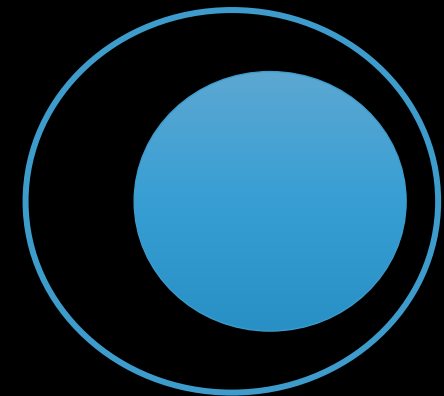
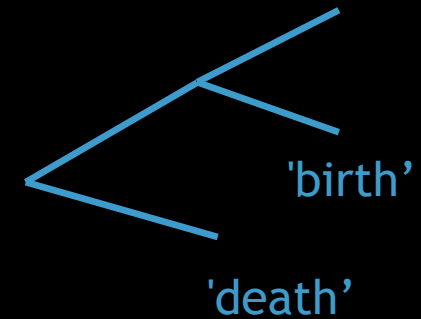
- ❖ controls the rate of transition between 0 and 1
- ❖ 'fast' vs. 'slow' state
- ❖ estimates two parameters:
 - switching factor = frequency of switching between 'fast' and 'slow'
 - α = difference in speed between 'fast' and 'slow' state



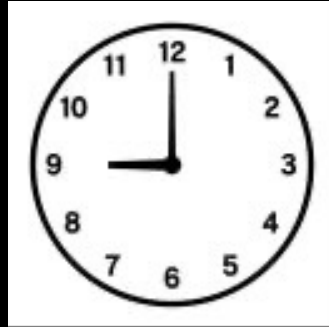
Tree model

Birth-death Skyline with Serial Sample (BDSKY-S)

- ❖ birth rate: rate at which languages become distinct
- ❖ death rate: rate at which languages fall out of use
- ❖ sampling rate: how many languages of the family were included in the sample



Clock models



strict clock

- ❖ single evolutionary rate
- ❖ every branch of the tree evolves with the same rate



relaxed clock

- ❖ rates can vary across branches
- ❖ rates are drawn from a distribution (with parameters estimated from the data)