



Biology today

NCBI

Tree of Life

Encyclopedia of Life

TreeBASE

Encyclopedia of life

58 FIELD MUSEUM OF NATURAL HISTORY—ZOOLOGY, VOL. XIII

Genus **PAROARIA** Bonaparte
Paroaria Bonaparte, *Gen. Anser.*, 82, p. 204, 1811; *idem*, *Sagitt. Diet. Nat. Anim. Yveroi.*, p. 181, 1811; (repeated) 1819, by orig. *index*, *Fringilla caerulea* Vieillot—*Loxia coronata* Miller.
Colaptes coronatus Cabanis, *Arch. Naturg.*, 13, (1), p. 328, 1847—new name for *Paroaria* Bonaparte.
Colaptes coronatus Cabanis, in Schoddeberg, *Bates Brit. Gallus*, 8, "1845," p. 678, *publ.* 1849—nomenclature.
Cyanospiza coronata A. N. S. P., *Proc. U.S. Geol. Surv.*, 1880—*typ.*, *hybrids*, *desig.* (CNS), *Can. Geol. Report*, 86a, p. 74, 1920; *Fringilla coronata* (Linnaeus).
***Paroaria coronata** (Miller), **CRESTED CARDINAL.**
Loxia coronata Miller, *Var. Soli*, *Nat. Hist.*, Part 1, pl. 2, 1778—no locality indicated.
Loxia coronata (not of Boddart, 1783) Latham, *Ind. Orn.*, 1, p. 278, 1790—based on *Loxia coronata* Miller; "Le Cardinal Domiciliaire habit, de la Louisiane", *Ornithologie*, Pl. Enl., pl. 103, and "The Crested Cardinal" Brown, *New Horz. Zool.*, pl. 21.
Loxia coronata var. *f.*, *Desmanthus* Blyth, in Miller and Shaw, *Cin. Fl.*, Pl. 4, pl. 23, 1796—"a native of South America, and particularly of Brazil."
Fringilla coronata Lichtenstein, *Voy. Double*, *Berlin Mus.*, p. 22, 1803—Munsterlin, *Ungary. Linnæus and O'Malley*, *Sp. Av.*, 1, in Mag. *Zool.*, 2, vol. 2, p. 10, 1817—Munsterlin, *Berlin, and Coromandel*, in *Proc. Mus. Munich*, *Monatsh.*, Hartlaub, *Sp. Ind. Asiae*, p. 8, 1847—*Paroaria* and south to Assam, No. 220.
Colaptes coronatus Cabanis, *Arch. Naturg.*, 13, (1), p. 328, 1847; *idem*, *Man. Holl.*, 1, p. 145, 1851—Brazil.
Fringilla coronata Bonaparte, *Congr. Orn. An.*, 1, (2), p. 471, 1800—Brazil and Paraguay; *Harmerston*, *Sp. Ulster*, *Th. Br.*, 3, p. 210, 1848—Munsterlin; *idem*, *Journ. Orn.*, 4, p. 274, 1860—*Paroaria*, *Banks Oriental.*, and *Turcoman*; *idem*, *Bateo La Plata*, *Pl.*, 2, p. 432, 1861—Munsterlin.

Tree of Life

Tree of Life was created

"Nine-primaried oscines"

John Harshman

236 T. Yari, D.P. Mindell / *Molecular Phylogenetics and Evolution* 23 (2002) 229–243

A

B

0.05 substitutions/nucleotide

Genbank taxonomy browser

The screenshot shows the NCBI Taxonomy browser interface. At the top, it displays the NCBI logo and the title "Taxonomy browser". Below this, there is a search bar and a list of results for "Parvoaria coronata". The results include the accession number AF447371.1 and the full name "Parvoaria coronata cytochrome b (cytb) gene, partial cds; mit". A table below the results lists various databases where the sequence is available, such as GenBank, EMBL, and DDBJ. The interface is clean and professional, with a clear layout for navigating through taxonomic data.

Genbank - cytochrome b sequence

This screenshot shows the NCBI Nucleotide sequence viewer. The top navigation bar includes "NCBI" and "Nucleotide". The search bar contains the accession number "AF447371.1" and the gene name "Parvoaria coronata cytochrome b (cytb) gene, partial cds; mit". The sequence is displayed in FASTA format, with the nucleotide sequence visible. The interface includes options for displaying the sequence in different formats (FASTA, Show) and for sending it to various services. The sequence itself is a long string of nucleotides, with some gaps indicated by dashes.

Linguistics today

The screenshot shows the homepage of the World Atlas of Language Structures Online (WALS). The main heading is "The World Atlas of Language Structures Online" followed by "Austronesian Basic Vocabulary Database". Below this, there are sections for "Welcome to SAHLS Online" and "Welcome to PHOIBLE Online". The SAHLS section describes it as a large database of grammatical properties of languages gathered from descriptive materials. The PHOIBLE section describes it as a repository of cross-linguistic phonological inventory data. The website features a navigation menu with links to "Home", "Languages", "Families", "L-Search", "References", "P-Search", and "About". There are also several maps and charts displayed on the page, illustrating linguistic data across different regions.

Think big – scaling up...

1. Big data
2. Big methods
3. Big questions
4. Big teams

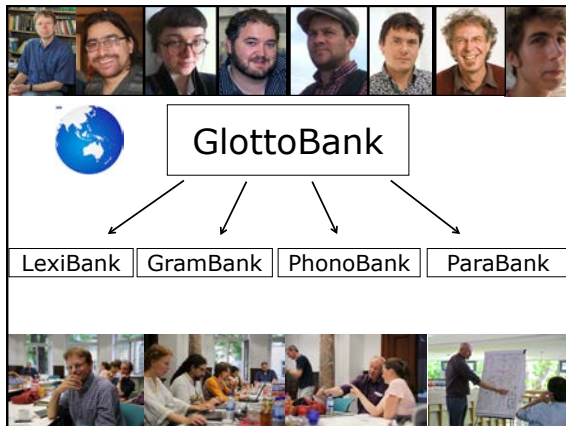
The diagram shows a stylized representation of the Eiffel Tower. Two vertical lines with arrows at the ends indicate the height of the tower. The first line is labeled "130mm (approx. 5")" and the second line is labeled "54mm (approx. 2.1)". This visual metaphor is used to illustrate the concept of scaling up, where a small-scale model or method is applied to a much larger-scale problem.

Max Planck Institute for the Science of Human History

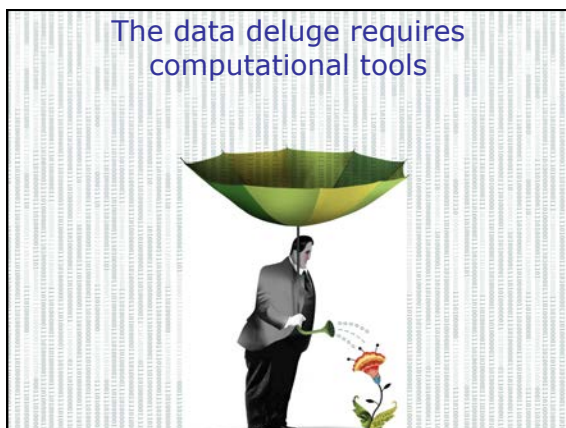
The image shows the exterior of the Max Planck Institute for the Science of Human History building at night. The building is a modern structure with large glass windows and a prominent wooden structure in the foreground. In the bottom right corner, there is a portrait of a man, likely a member of the institute's staff or a researcher. The overall scene is well-lit, highlighting the architectural details of the building.

Glottobank

The image is a group photograph of the Glottobank team. The team consists of approximately 15 people of various ages and ethnicities, standing outdoors on a set of stone steps. They are dressed in casual to semi-formal attire. The background shows some greenery and a building, suggesting an outdoor setting near the institute. The group is posed in a way that captures everyone, with some individuals standing in the front row and others behind them.



D-PLACE
 a global database of cultural variation
 linked to language trees and ecological
 data

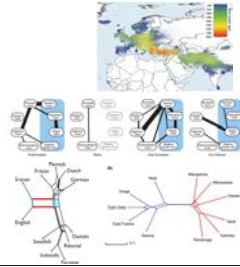


Think big – scaling up...

1. Data
2. Methods

What value can computational methods add?

- Dating language divergences
- Phylogeography
- Functional dependencies
- Networks



"linguists don't do dates"

April & Robert McMahon (2006)



Cognacy



Bob Blust John Lynch Jeff Marck Malcolm Ross Laurent Sagart

Cognate coding

Language	"father"	cognacy	binary
Paiwan	tjama	1	10
Itbayaten	qamaq	1	10
Mangarrai	ema	1	10
Motu	tama-na	1	10
Fijian (Bau)	tama-na	1	10
Tongan	tama i	1	10
Rarotongan	metua	2	01
Maori	matua	2	01

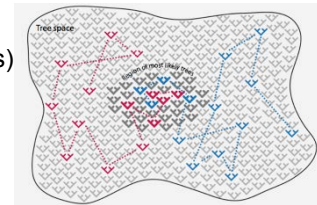
Data

- 400 well-attested languages
 - No creoles, obvious borrowing removed
- Outgroup
 - Old Chinese (controversial)
 - Buyang (less controversial)
- Binary Coding
 - presence/absence of cognates
 - 34,440 cognate sets
 - Covarion model

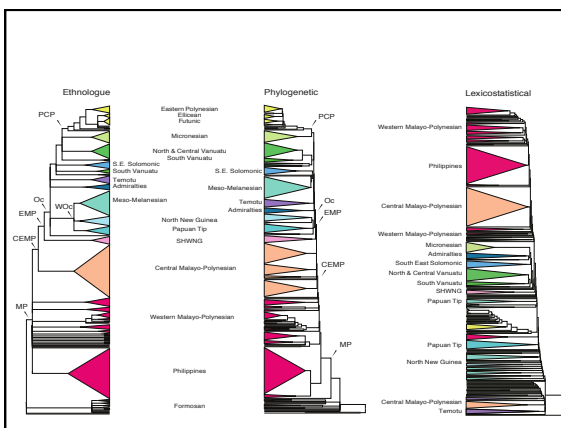
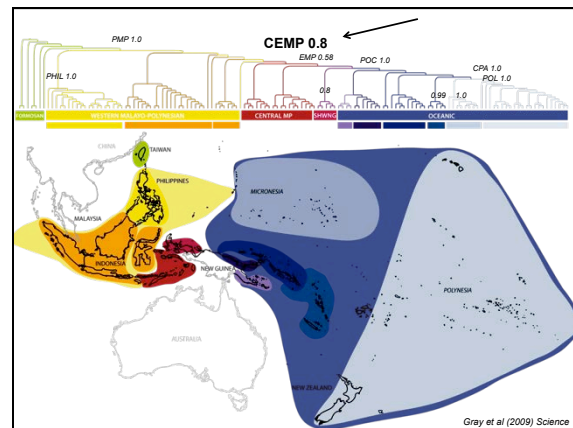
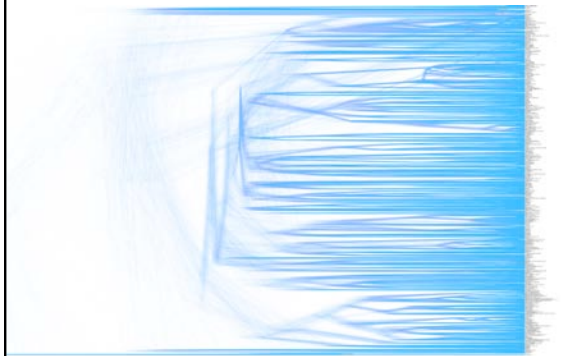


Bayesian Phylogenetic Inference

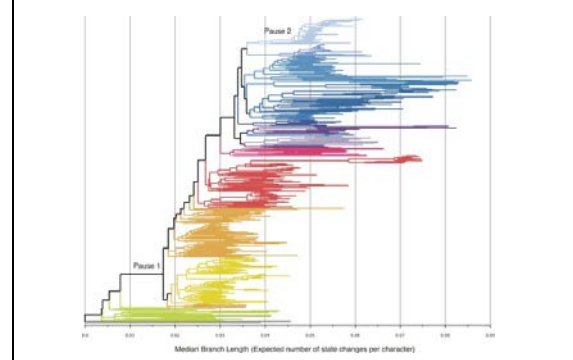
1. Data
2. Model (and priors)
3. Tree search
4. Dating (without a strict clock)

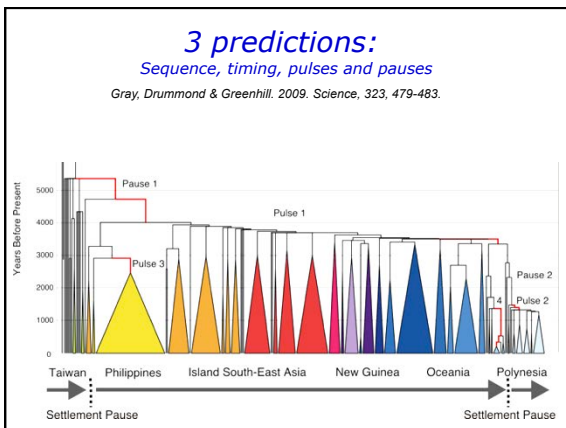
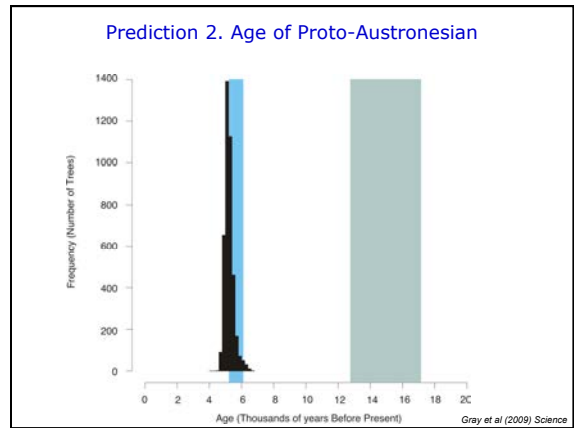
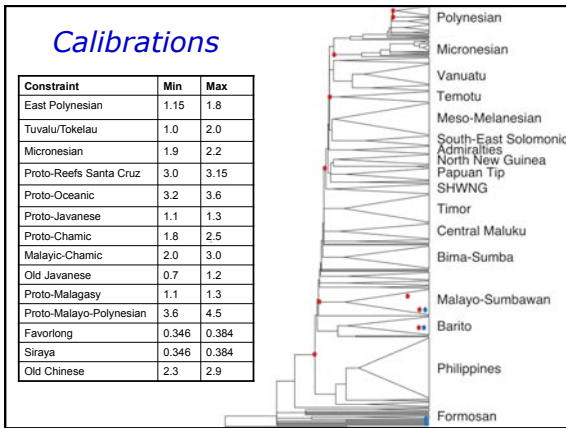


Uncertainty in tree estimation



Austronesian phylogram





nature

ANCESTRY-CONSTRAINED PHYLOGENETIC ANALYSIS SUPPORTS THE INDO-EUROPEAN STEPPES HYPOTHESIS

Massive migration from the steppe was a source for Indo-European languages in Europe

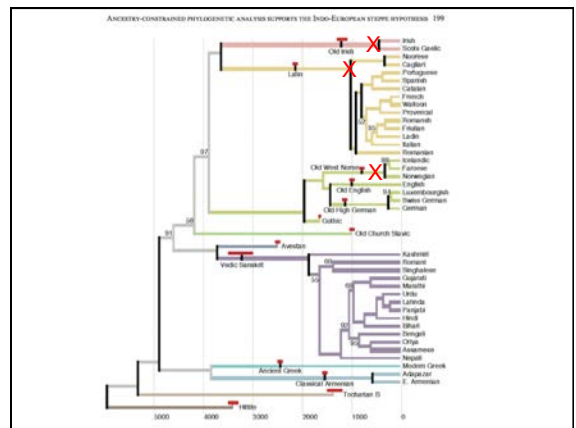
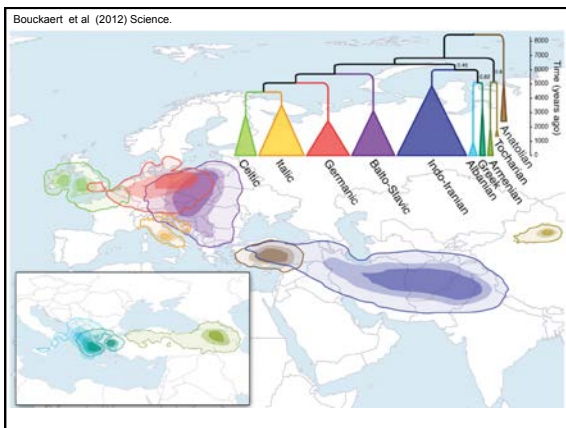
WILL CHANG
University of California, Berkeley

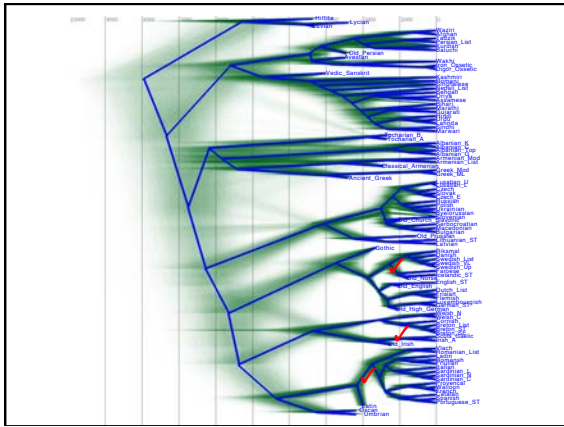
CHUNDRA CATHCART
University of California, Berkeley

DAVID HALL
University of California, Berkeley

ANDREW GARRETT
University of California, Berkeley

March 2011 • 4618-4623 • www.nature.com





Think big – scaling up...

1. Data
2. Methods
3. Questions

What are the Hilbert problems in linguistics?



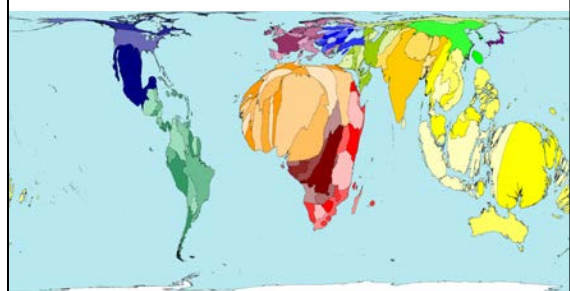
David Hilbert



Martin Hilpert

<https://www.youtube.com/watch?v=X4OaNS9eNAI&feature=youtu.be>

Explain this!

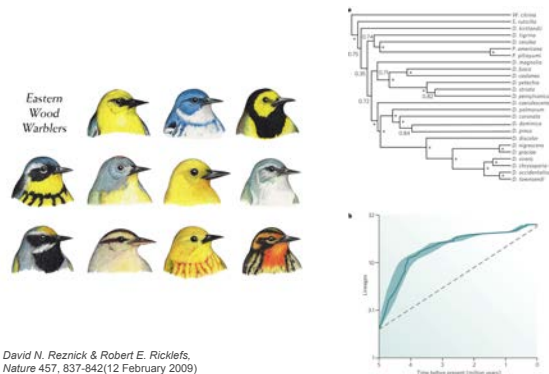


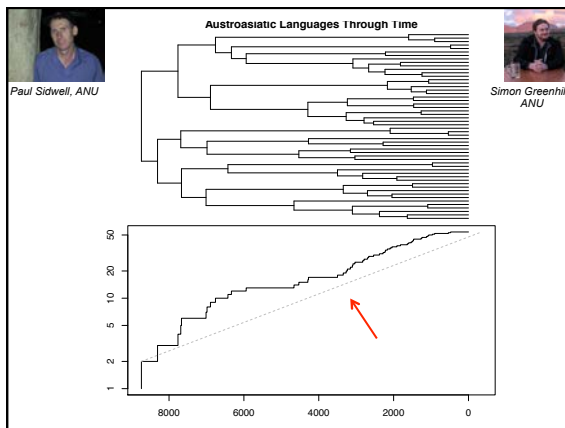
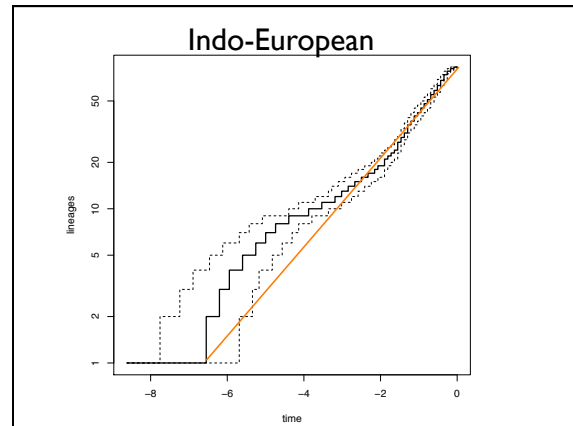
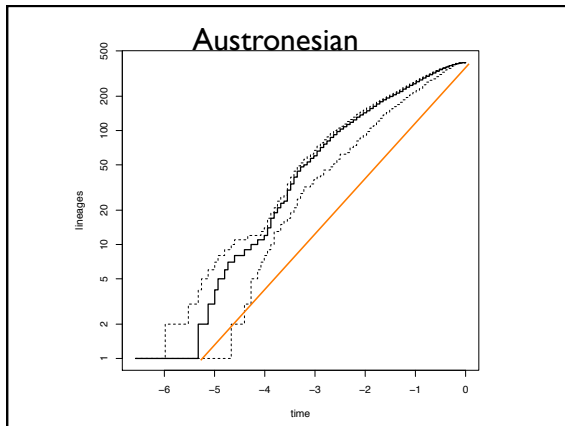
http://www.worldmapper.org/display_languages.php?selected=583

Some suggestions...

1. Why are there approximately 7000 languages?
2. Why is language diversity distributed so patchily?
3. What drives the evolution of linguistic disparity?
4. When did spoken language evolve?
5. How far back can we push the time barrier for detecting language relationships?

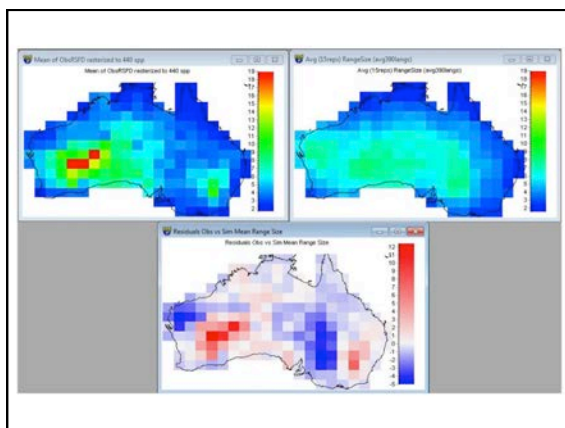
Lineage through time plots





Do rainfall and group size drive the diversity and distribution of Australian languages?

Step 5



Think big – scaling up...

1. Data
2. Methods
3. Questions
4. Teams

nature International weekly journal of science

Massive migration from the steppe was a source for Indo-European languages in Europe

Wolfgang Haak, Iosif Lazaridis, Nick Patterson, Nadin Rohland, Swapan Mallick, Bastien Llamas, Guido Brandt, Susanne Nordenfelt, Eadaoin Harney, Kristin Stewardson, Qiaomei Fu, Alissa Mittnik, Eszter Bánffy, Christos Economou, Michael Francken, Susanne Friederich, Rafael Garrido Pena, Fredrik Hallgren, Valery Khartanovich, Aleksandr Khokhlov, Michael Kunst, Pavel Kuznetsov, Harald Meller, Oleg Mochalov, Vayacheslav Moiseyev
* *et al.*

Nature (2015) | doi:10.1038/nature14317
Received 29 December 2014 | Accepted 12 February 2015 | Published online 02 March 2015



Integrating inferences about our past
New findings and current issues in the peopling of the Pacific and South East Asia


June 22nd - June 23rd, 2015 | Jena, Germany

Organizers: Russell Gray, Lisa Matisoo-Smith, and Simon Greenhill

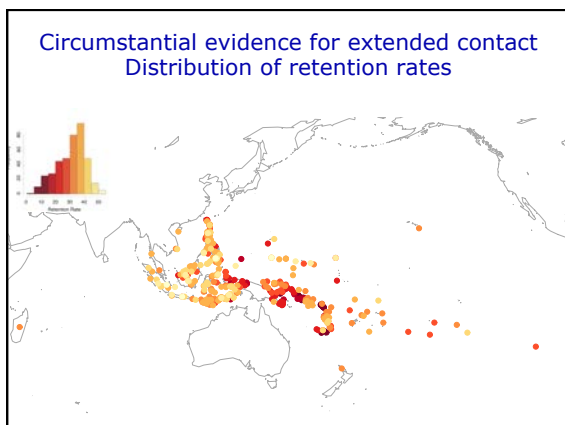
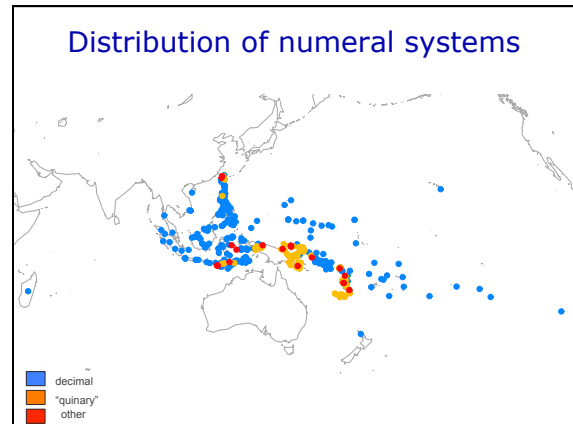
Conference poster [PDF]

Vanuatu – the Galapagos of language evolution

Why do “Remote Melanesians” not look like Polynesians?

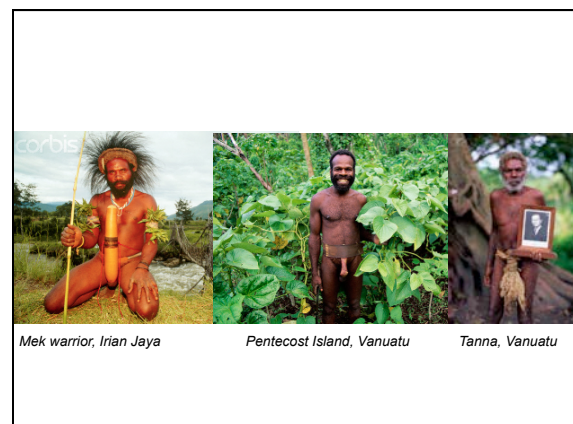
Blust (2005, 2008) 

1. Phenotypic differences in “Remote Melanesia”
2. Cultural similarities
3. Language typology - serial verb constructions
4. Loss of decimal system - switch to various quinary systems
5. Large amount of sound change



Variation in rates of sound change

Number	<i>Paiwan</i>	<i>Cebuano</i>	<i>Maori</i>	<i>Nengone</i>
1	ita	usa	tahi	sa
2	dusa	duhá	rua	rewè
3	tjelu	tulo	toru	tini
4	sepatj	upát	whaa	ece
5	rimáʔ	lima	rima	sɛduŋ





Vanuatu – the Galapagos of language evolution

The image contains a phylogenetic tree with a Y-axis labeled 'Time' from 0 to 5000. The tree branches into several groups: Tamil, Philippines, Island South East Asia, New Guinea, Oceania, and Polynesian. Below the tree, arrows indicate 'Settlement Pause' at two points. To the right, a hand holds a white smartphone displaying an app with various icons. Below the tree and phone are two photographs: one of a market stall with colorful flowers and another of a traditional outrigger canoe on the water with several people.

Max Planck Institute for the Science of Human History
Leipzig linguistics library
Jena prize for historical linguistics

The image shows a photograph of the Max Planck Institute for the Science of Human History building at night, illuminated by streetlights. Two inset portraits are included: one of a young man with glasses and another of an older man with grey hair.