

# Where are the Trees?

## The Treatment of Conflicting Signals in the History of Language Classification

Johann-Mattis List

Heinrich Heine University Düsseldorf

2010/07/03

# Structure of the Talk

## Introduction

## Pre-19th Century View on Language Relationship

- Catastrophism

- Derivational View on Language Relations

- “Catastrophic” Kinship Conception

## August Schleicher and the Discovery of Treeness

- Regularity of Language Change

- Sound Laws as Litmus Test for Vertical Relations

- Language Evolution as a Tree-like Process

## Back to Dendrophobia: Waves and Networks

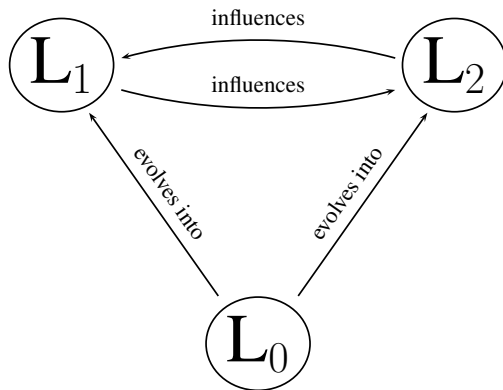
- Conflicting Data

- Language Evolution as a Non-Tree-Like Process

- The Quest for New Metaphors

## Conclusion

# Vertical and Horizontal Language Relations



## Inference Problems

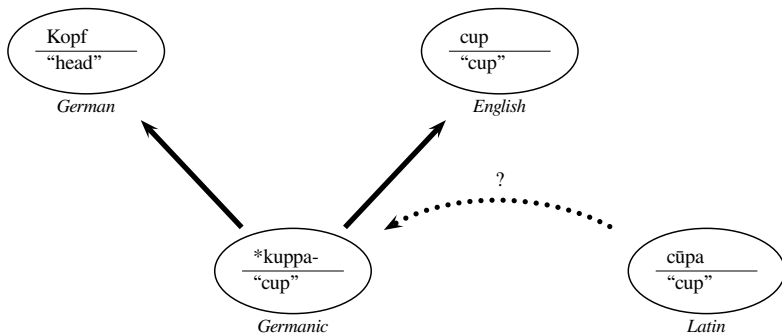
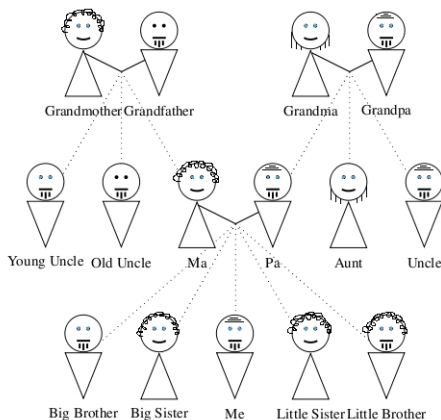


Figure: History of Germ. *Kopf* "head" and Engl. *cup* "cup"

# Traditional Conception of Kinship



# Traditional Conception of Kinship

- inheritance sporadic:** Children inherit certain traits from their parents, yet the process of inheritance seems to follow random patterns.
- change discrete:** Children are different from their parents, the difference being non-gradual but discrete.
- origin based on production:** Children are “produced” by their parents, the parent and the children generation can exist at the same time.

# Pre-19th Century View on Language Relationship

- ▶ Catastrophism
- ▶ Derivative View on Language Relations
- ▶ “Catastrophic” Kinship Conception

# Catastrophism

- ▶ The biblical myth of the *Confusion of Tongues* is the prevalent paradigm of language divergence.
- ▶ Hebrew or the mysterious *Adamic* language is assumed to be the ancestor of all other languages.
- ▶ This leads to a general assumption of *monophyly* and a catastrophic view on language change.



# Catastrophism

Hebrew	German	Meaning
ʔēm	Am	“mother”
māḥār	Morn	“morning”

**Table:** Catastrophic etymologies by Sebastian Münster

*[...] some Hebrew words have remained in our German language. (Münster 1523: 27f, my translation)*

# Derivational View on Language Relations

Reasons for the prominence of horizontal relations:

- ▶ Horizontal relations are rather *transparent*.
- ▶ Borrowing is a process which is easy to *observe*.
- ▶ Borrowing occurs *often* and in *nearly all* languages.

## Derivational View on Language Relations

- ▶ Plato on Barbarian words in Greek:

*I know that many Greeks, especially those who are subject to the barbarians, have adopted many foreign words.* (Cratylus: 409, translation by Fowler 1921)

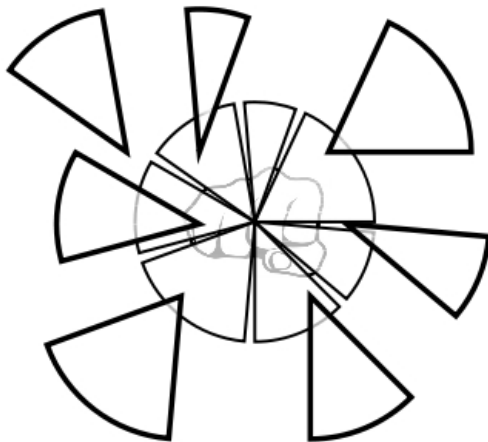
- ▶ Quintilian on Latin and Greek:

*[...] it is from [the Greek language] that the Roman language is, in a very great degree, derived [...].*  
(Institutio Oratoria: I.5.55-58, translation by Watson 2006)

## “Catastrophic” Kinship Conception

- inheritance sporadic:** No systematic patterns are expected to be found in different languages, while on the other hand all languages are assumed to be genetically related.
- change chaotic:** It is neither assumed that language change happens regularly nor necessarily.
- origin ad-hoc:** All languages were created at once when the *Confusion of Tongues* occurred.

## “Catastrophic” Kinship Conception



# August Schleicher and the Discovery of Treeness

- ▶ Regularity of Language Change
- ▶ Sound Laws as Litmus Test for Vertical Relations
- ▶ Language Evolution as a Tree-Like Process

# Regularity of Language Change

- ▶ Language change is a gradual process. (cf. Schleicher 1848: 25)
- ▶ Language change is a natural process which occurs in all languages. (cf. Schleicher 1848: 25)
- ▶ Language change is a law-like process. (cf. Schleicher 1848: 25)
- ▶ Language change is a universal process which occurs in all times. (cf. Schleicher 1863[1873]: 10f)

## Sound Laws as Litmus Test for Vertical Relations

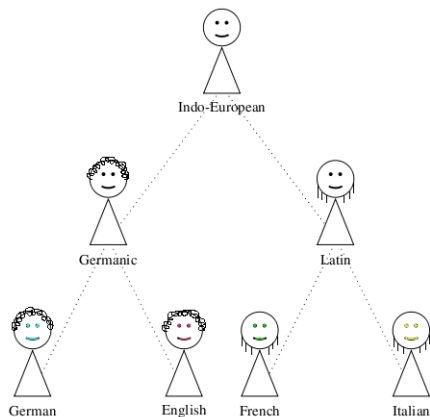
- ▶ Vertical and horizontal language relations can be distinguished clearly: While the former are reflected in regular sound correspondences between different languages, the latter show up as spurious surface resemblances which do not follow a general pattern. (cf. Schleicher 1848: 67)



# Language Evolution as a Tree-like Process

- inheritance systematic:** Genetically related languages show a large body of traits inherited from their ancestor language.
- change regular:** Language change is a regular process which occurs according to certain laws.
- origin abrupt:** New languages originate in a split-process by which a language splits into two languages due to the parting of its speakers.

# Language Evolution as a Tree-like Process



# Back to Dendrophobia: Waves and Networks

- ▶ Conflicting Data
- ▶ Language Evolution as a Non-Tree-Like Process
- ▶ The Quest for New Metaphors

## Conflicting Data

- ▶ Johannes Schmidt on conflicting data:

*Die europäischen, deutschen und arischen charakterzüge durchdringen einander so vollständig, dass eine ganze reihe von erscheinungen nur durch ir organisches zusammenwirken hervorgerufen ist, und dass es worte gibt, deren form weder ganz europäisch noch ganz arisch ist und nur als ergebniss diser beiden einander durchkreuzenden strömungen begreiflich wird. (Schmidt 1872: 16)*

## Conflicting Data

- ▶ G. Bonfante on the problem of isoglosses:

*Very rarely are we sure of isoglosses that we construct, [...] there always remains the possibility that the remaining languages have lost the sound, the form, or the word one is dealing with.*

(Bonfante 1931: 75f, my translation)

## Language Evolution as a Non-Tree-Like Process

- ▶ The distinction of horizontal and vertical traits is not clearcut, the data can easily betray the linguist.
- ▶ Languages do not simply split and then evolve independently, but diverge gradually.
- ▶ Language change is not a process which necessarily applies to a whole community of speakers of a certain language, but originates at some point and then spreads in wave-like manners over the area.

# The Quest for New Metaphors

- Chain** “Generally, one depicts the Indo-European languages in the form of a chain, every ring of which is connected with only two other rings, one to the right and one to the left.” (Bonfante 1931: 174f, my translation)
- Wave** “Ich möchte an seine stelle das bild der welle setzen, welche sich in concentrischen mit der entfernung vom mittelpunkte immer schwächer werdenden ringen ausbreitet.” (Schmidt 1872: 27)

## The Quest for New Metaphors

**Network** “Wir verbinden die Äste und Zweige des Stammbaums durch zahllose horizontale Linien, und er hört auf ein Stammbaum zu sein.”  
(Schuchard 1870[1900]: 11f)

**Animated Pictures** “Dieses Weiss verdunkle sich, nehme verschiedene matte Töne an, welche stärker und immer stärker hervortreten, bis endlich die Farben des Regenbogens unmerklich ineinander überfliessend vor unsern Augen stehen.”  
(Schuchard 1870[1900]: 26)



## The Quest for New Metaphors

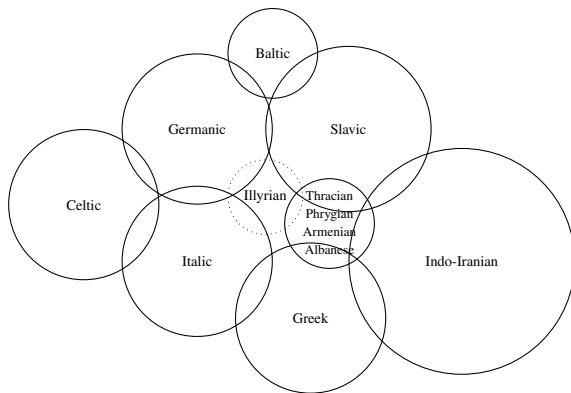


Figure: The *Wave Model* as overlapping circles (Hirt 1905)

## The Quest for New Metaphors

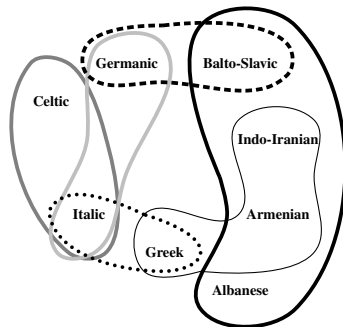


Figure: Waves of isoglosses (Bloomfield 1933)

## The Quest for New Metaphors

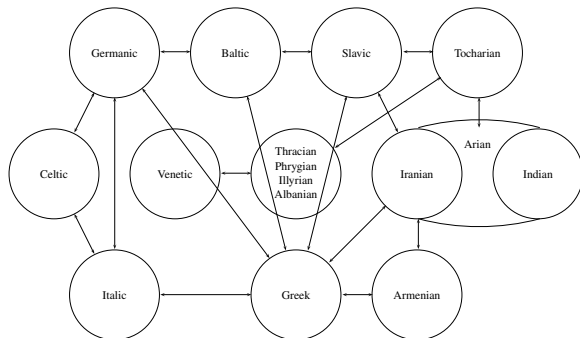


Figure: Network of the Indo-European Languages (Bonfante 1931)

# The Tree Metaphor as a Tiresome Lover

- ▶ Horizontal relations are the most ordinary view on language relations throughout the history of linguistics.
- ▶ Only for a short duration of time, the family tree was the leading model to describe language evolution.
- ▶ Soon after the tree model was introduced into linguistics, linguists would criticize the concept, proposing various other ways to model language evolution, yet none of these attempts has gained general acceptance.

# Networks as a Possibility to Depict Vertical and Horizontal Processes

In our research project funded by the Federal Ministry of Education (BMBF) we work together with biologists on new models of language phylogenies which depict vertical as well as horizontal aspects of language evolution in networks.

The End

Thanks for Your Attention!