Association and Causality

imagining the linguistic causes and effects of nonlinguistic events

Associations of language and environment suggest that each may influence the other.

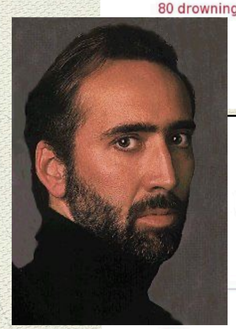
- Why are languages different? Why are languages similar?
- What **causes** languages to change?
- In order to answer these questions, an ecologist asks: How might the characteristics of a language be **associated with** its environment?
- It is common for linguists to look for statistical associations between linguistic factors and environmental factors.
- Sociolinguists have identified statistical associations which suggest: (1) listeners keep track of sociolinguistic variation and use this information to infer social facts about speakers; and (2) listeners use social information about speakers to make inferences about speech. Other types of statistical associations between languages and environments have also been found.

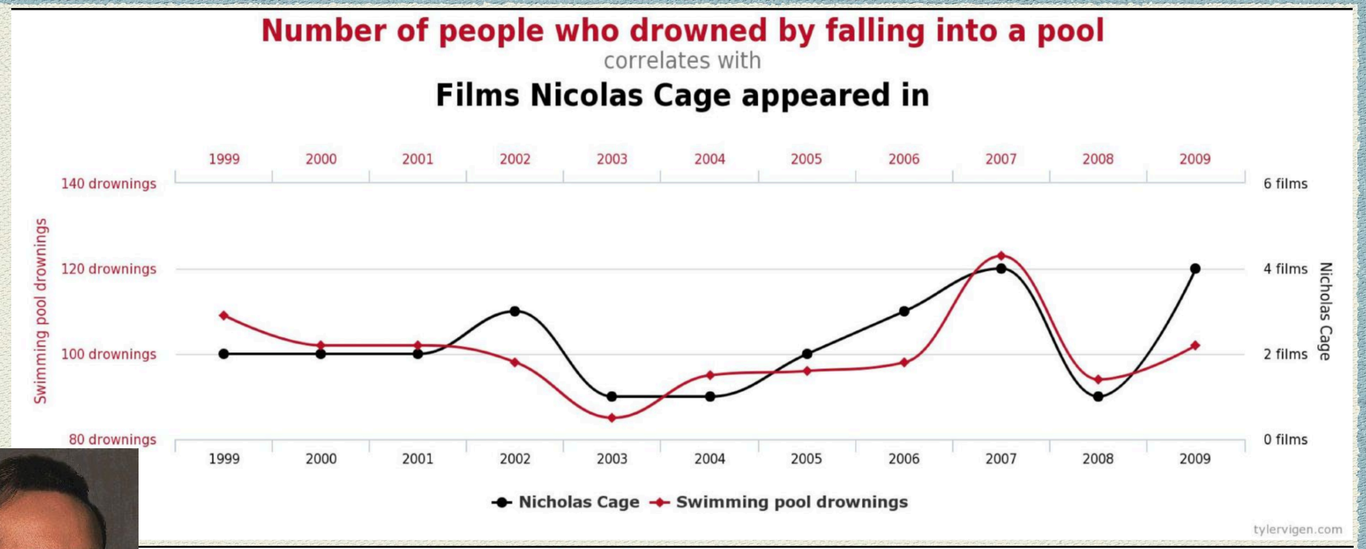
However, we must also wonder whether these associations are spurious or causal.

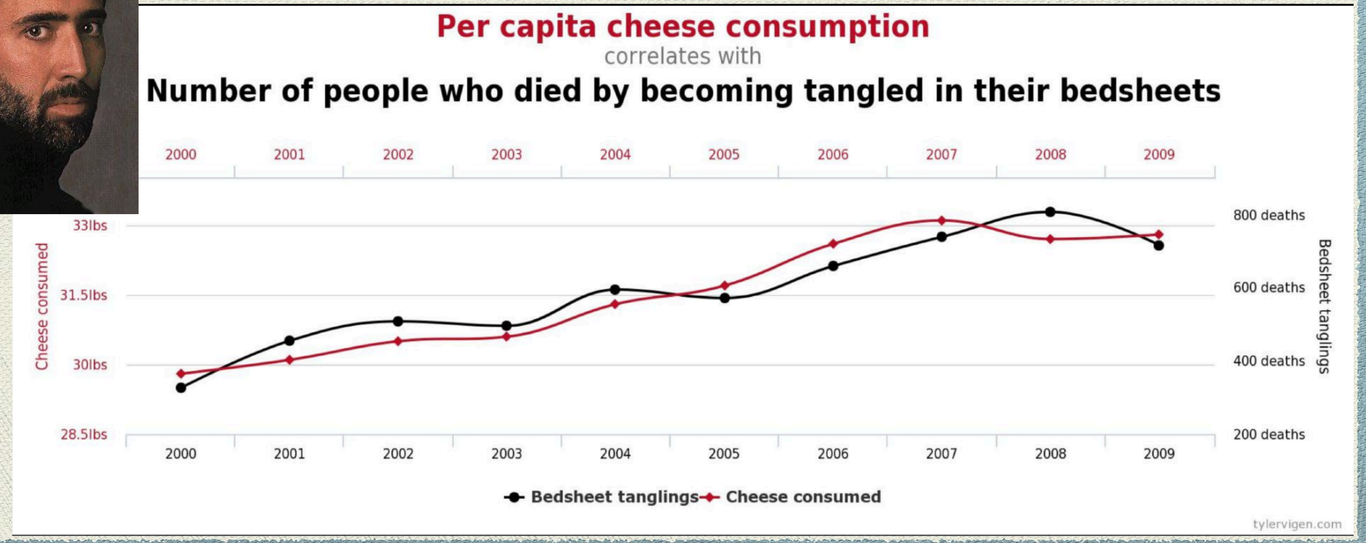
- Some statistical associations between X and Y are the result of a **(direct) causal** relationship between X and Y. For example, X causes Y, or Y causes X.
- Some statistical associations between X and Y are the result of an **indirect causal** relationship between X and Y. For example, there is a Z which causes both X and Y.
- Some statistical associations between X and Y are **spurious**. There is neither a direct nor indirect causal relationship between X and Y.

spurious statistical associations

- One of the most famous cases of a spurious statistical association is that, from 1999 to 2009, the number of people who drowned by falling into a swimming pool was statistically associated with the number of films that Nicolas Cage appeared in.
- Another interesting association is the correlation between per capita cheese consumption and the number of deaths from bedsheet entanglement.
- We must not believe that any statistical association reflects a causal relationship.







the search for linguistic cause and effect

- Over the years, philosophers and linguists have thought about the kinds of factors associated with language differences.
- Linguists are most interested in considering those linguistic and nonlinguistic factors which may be related in causal ways. What causes language change? What effects does language have?
- Which environmental causes have a linguistic effect? Which linguistic causes have an environmental effect?
- This search for causal connections has led language philosophers to consider a progression of different types of linguistic environments.

How (and Why) Languages Change

- **External change**
  - Types of changes that occur because of language contact and language borrowing
  - More rapid
  - Example: English borrowing word 'syrup' from Arabic
- **Internal change**
  - Types of changes that occur because of the way speakers gradually modify their language over time
  - Slower
  - Example: change in the meaning of 'bad' from bad to good (slang)

- The world is changing and the causes of language change are many. The following may be some of the main causes of language change.

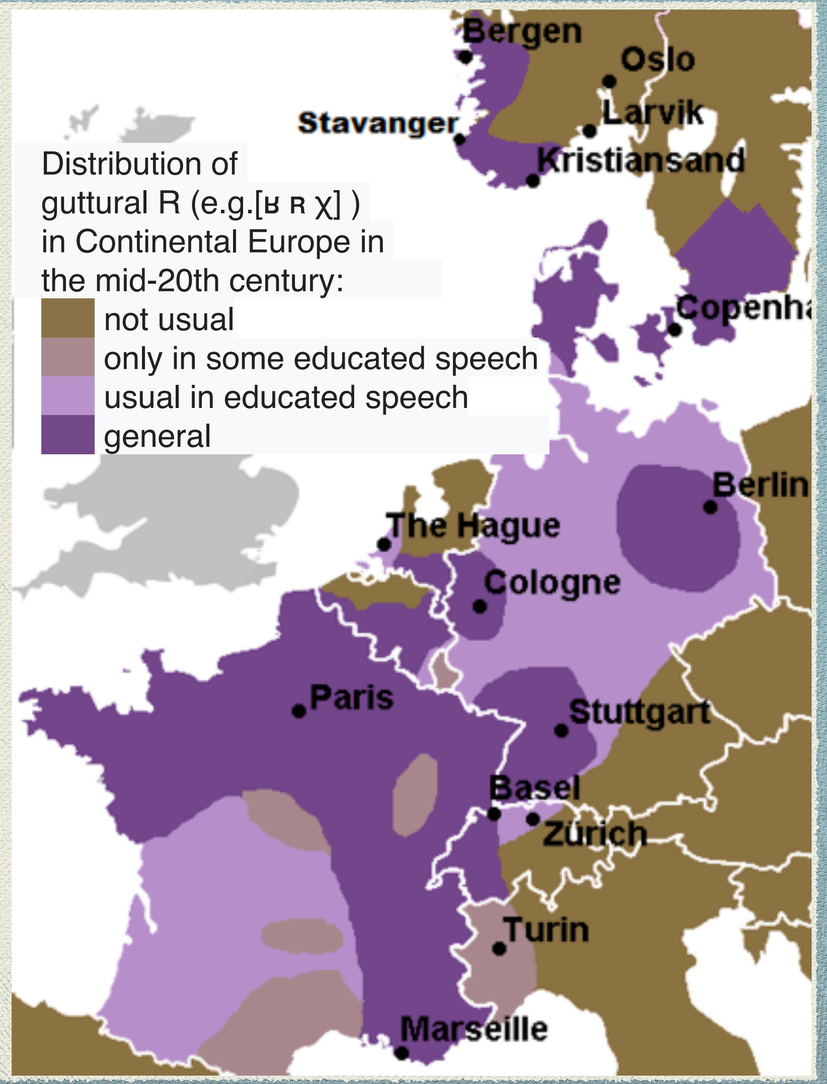
- ● historical cause
- ● social cause
- ● pragmatic and psychological cause
- ● scientific and technological development
- ● the increase of international contact

the evolution of linguistic "environment"

- The Ancient Greeks and Medieval Scholastics were primarily concerned with the **academic** environment of language.
- Comparative Linguists focused on the **historical** environment of language.
- Voegelin & Voegelin noted the **geographic** environment of language.
- Haugen famously emphasized the **sociological** and **psychological** environment of language.
- Halliday more recently challenged us to also consider the **biological** and **physical** environment of language.

Consider: the distribution of uvular R

- In Europe, the R sound was historically an apical trill sound [r] in Latin, and it continues to be an apical trill or flap in Italian, as well as in most European languages.
- In Paris, in 1670, R was still pronounced as an apical trill; however, during the 18th Century, it changed to an uvular sound: [ʀ], [ʁ], or [χ].
- There is some evidence of uvular R in some dialects of Middle High German, and there is evidence of uvular R in some Dutch dialects in 1635.
- The map represents the modern pronunciation of R.



What caused changes in R pronunciation?

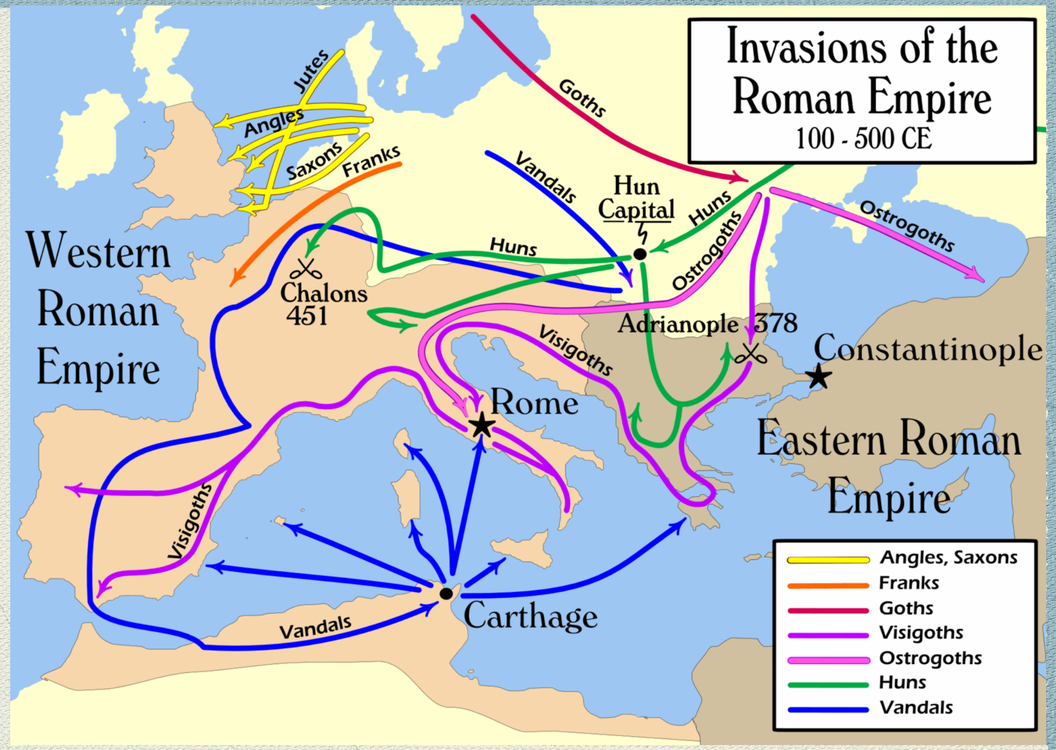
- What caused some Paris speakers to start using an uvular pronunciation of R? Why did the uvular pronunciation of R become standard in Paris over the next two centuries?
- Why did an uvular pronunciation of R become popular among German speakers? Why do some Dutch and Scandinavians also use an uvular pronunciation of R?
- Some linguists have speculated that uvular R spread from France to other parts of Europe. Other linguists have pointed out that uvular R in Germany is older that the uvular R of Paris.
- Whichever is older, French or German, **why did this uvular pronunciation begin** at all? What caused these French and German speakers to change their pronunciation? Why did others in France and Germany not change?

- Bisiada, Mario (2009), "[R] in Germanic Dialects — Tradition or Innovation?", *Vernacular*, **1**: 84–99
- Ewert, A. (1963), The French Language, London: Faber
- Martinet, A. (1969), Le Français sans fard, Paris: Presses Universitaires
- Moulton, W.G. (1952), "Jacob Böhme's uvular r", Journal of English and Germanic Philology, 51: 83–89

some possible hypotheses of uvular spread

- Orators who use an uvular pronunciation are more effective.

- Ancient Germanic dialects had uvulars (from a non-Indo-European substrate?) which spread during the post-Roman migrations.
- Parisian prestige spread the uvular pronunciation to other big cities in Europe.
- Cold climates favor uvular over apical articulation.
- Whispering disfavored the apical trill.



Evolution	unmarked variant	marked variant
initial stage	[rʏ]/[rʁ]	
1. untrilling	[ɹʏ]/[ɹʁ]	[rʏ]/[rʁ]
2. loss of primary articulation	[ɣ]/[ʁ]	[rʏ]/[rʁ]
3. adaptation of the marked variant	[ɣ]/[ʁ]	[ʀ]

not yet possible to decide

- Depending on their beliefs about linguistic causality, different linguists will imagine that different environmental factors can be **causes** of the R sound change.
- Some linguists may imagine that French school teachers could have spread the uvular sounds. Some linguists may imagine that ancient migrating peoples first spread the new uvular sounds. Some linguists may imagine that cold weather first caused some people to use uvular sounds.
- It is difficult to decide the actual cause of most sound changes; however, by checking the statistical associations of linguistic and nonlinguistic data, we can make **reasonable guesses** about what may have happened.
- Unfortunately, our data is not yet rich enough for linguists to reach a **consensus** about what factors may have caused the current distribution of uvular R in standard French and German.

Consider: the nasalization of vowels

- Modern French has **phonemically distinct nasal vowels**, unlike its mother language Latin and its sister language Italian. In French, the vowels before syllable-final nasal consonants became nasalized, after which the nasal consonants disappeared, thus creating phonemic nasal vowels.
- Progressive nasalization of vowels before /n/ or /m/ occurred over several hundred years, beginning with the low vowels, **possibly as early as c. 900**, and finished with the high vowels, **possibly as late as c. 1300**. Other changes occurred afterwards or are ongoing today.
- What kinds of nonlinguistic environmental factors can you imagine which may have started the nasalization of French vowels? What factors can you imagine which may have caused this innovation to spread to other French speakers? In order to test your hypotheses, **what data would you collect** and **what statistical associations would you test**?