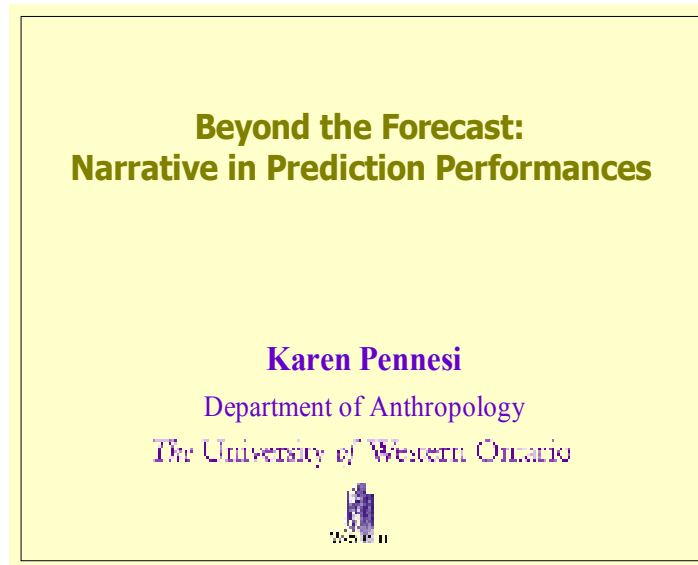


Slide 1



My work examines climate predictions within narrative structures and processes to provide evidence of how "science" and "tradition" emerge as distinct categories in Ceará, Northeast Brazil.

### **Beyond the Forecast: Introduction**

Social theory says:

- Science is local knowledge
- Traditional knowledge can be scientific
- Truth claims are culturally dependent

Social reality:

- Science and tradition are distinct

I start with the idea that we cannot assume an epistemological distinction between science and traditional knowledge.

For example, some scholars have argued that science is locally produced and influenced by cultural perspectives, as is indigenous knowledge. Others have shown that traditional practices can be systematic, experimental and progressive, just like science.

In both knowledge systems, truth claims are supported by the employment of recognized measures of authority, but anthropologists have pointed out that what counts as legitimate authority is culturally dependent.

But while theorists may debate about the validity of placing science and traditional knowledge in distinct categories, a social reality exists in which science is everywhere separated from traditional or indigenous knowledge. And the distinction between science and tradition has political consequences because it is based on hierarchies of power in which values are assigned to differences in the creation, acquisition and application of knowledge.

## **Beyond the Forecast: Introduction**

- Speakers claim authority within 'science' or 'tradition'
- Different narrative strategies perpetuate the distinction between 'science' and 'tradition'

My interest as a linguistic anthropologist is in explaining how knowledge-generating systems are categorically divided into "science" and "tradition" within the cultural context of Ceará, Brazil.

I argue that forecasters claim authority within the domains of either science or tradition, and that they create this distinction linguistically, especially through narrative strategies.

By analyzing patterns in language use, I expose the links between knowledge, power and identity that give rise to and perpetuate the division between science and tradition.

In Ceará, climate forecasters are usually divided into two groups: rain prophets and meteorologists, representing tradition and science respectively.



For generations, 'rain prophets' or (profetas da chuva) have been making predictions based on what is locally called the 'tradition' (tradição) of observing 'signs'. They are typically older farmers who synthesize their continual observations of insects, animals, birds, plants, stars, clouds, the sun, the moon, and the ecosystem in general to predict rain or drought. Many farmers have similar breadth and depth of ecological knowledge, but the rain prophets are distinguished by:

- a drive to share their predictions with others
- public recognition of accuracy and reliability of their predictions
- an effective performance style (which I'll describe more later)

The traditional knowledge of rain prophets is described as contrasting with the scientific knowledge of meteorologists.

**'Science'**  
**FUNCEME**

Ceará Agency for Meteorology and Water Resources



Since the 1970s, meteorologists at FUNCEME (Ceará's Agency for Meteorology and Water Resources) have been generating climate forecasts.

- They make forecasts based on statistical models run on computers, using data such as the temperature of oceans, atmospheric pressure and humidity.
- Important to note that they collaborate with international scientists to reach a consensus that becomes the official forecast.
- FUNCEME announces the forecast at a press conference and it is then disseminated to the public via local print and broadcast media.

### Prediction Performances: Structural Elements

<b>Rain Prophet</b>	<b>Meteorologist</b>
Greeting	Greeting
Establish authority*	Establish authority*
Narratives	Last year's forecast
Forecast	Didactic explanation
Signs/observations	Current year's forecast
Exhortation/reassurance	Disclaimer
Closing	Closing

When making predictions, there is a lot of individual variation in performative styles, especially among rain prophets.

But there is still a discernable structure to prediction speeches made in public settings for an audience.

Outlined on slide but can't go into detail for all structural elements.

Here I can only highlight a few things:

- Establishing authority
  - Marked \* because it is ongoing throughout performance, not just set up at the beginning
- Narratives
- "Forecast" is the explicit reference to the future climatic conditions, embedded within the larger prediction performance.
  - I'm showing how the distinction between tradition and science emerges during the process through which rain prophets and meteorologists frame their forecasts within narrative

## **Markers of Authority in Prediction: Linguistic Content**

- Rain prophets: Personal Authority
  - Gift from God
  - Learned from previous generations
  - Experience in local environment
  - Confidence of peers and media
- Meteorologists: Institutional Authority
  - Scientific method
  - Use of latest technology
  - International consensus of scientists

These are the explicit references speakers make as part of the content of their prediction in order to index their expertise and justify their right to speak.

Not all rain prophets make their predictions the same way.

- Prediction is an individual effort (but they do get information from others)
  - Therefore authority is claimed primarily for the individual speaker based on the following criteria [read list]
- Some rain prophets claim a connection to God through the masterful interpretation of his signs in nature that allow them to make correct predictions.
  - learned from elders
  - experience
  - confidence of others

In contrast, meteorologists claim authority for their institution based on science

- personal authority is rarely emphasized

### **Markers of Authority in Prediction: Linguistic Form**

- Rain prophets
  - Words and expressions of rural Ceará
  - More non-standard grammar
- Meteorologists
  - Scientific and educated vocabulary
  - More standard grammar

Certain aspects of the form or way of speaking reflect educational background, which is an indirect marker of authority.

- Ex. Formal schooling indexes one kind of authority while learning through life experience working in agriculture indexes another.

Key to this analysis is that differences in speech patterns are easily recognizable to listeners and speakers, reinforcing the classification of rain prophets and meteorologists into different groups.

- must mention that science is the more privileged form of knowledge
- scientific prediction has official status and real power to influence policy that affects people's lives
- Claiming authority as scientist is also a claim to power
  - (sociologist Gary Fine: scientist is an "honorific title")
- Claiming authority based on traditional knowledge is assumed to be in resistance or opposition to the power of science

Now I'll move on to narrative processes in prediction performances.

### **Narrative Strategies: Rain Prophets**

- Connect to audience
- Remind people how to live right
- Evoke positive emotional response
- Encourage autonomy

The performance of the prediction is an ongoing process of interaction with the audience: those with whom the forecasters have interacted previously, the present audience, as well as the wider audience who may see or hear it later via media. Stories and references are chosen and incorporated into the prediction to make a specific point for that audience.

Rain prophets tell stories and talk about topics that may seem to be unrelated to the forecast, but I argue that these narratives are a strategic part of the prediction that contextualize it and give meaning to the forecast beyond the performance

“Each speaker structures his narrative in a way meant to convey themes of identity by linking social institutions, land, and social history.” (like Yukon elders described by Cruikshank)

- Ex. Appeal to public authorities to make tractors available refers to previous narratives about opportunities missed while waiting
- Interweave information, moral content and philosoph. guidance (Benjamin)
  - Noah was the first prophet and no one believed him but he was right, received knowledge from God > flood, punishment, recognize God’s power and need for obedience
  - Stories about how he had faith, planted and was successful in contrast to people these days who don’t want to work any more and just get handouts from the government; predict good rain, create optimism, motivate people to work and live right

Rain prophets connect to the audience through narrative based on the assumption that certain knowledge and experience is shared. Stories and references are chosen to evoke a positive emotional response

- sometimes they entertain with humour, poems, which leaves people feeling good no matter what the forecast
- sometimes stories of surviving hard times to build solidarity
- distancing from science and promoting tradition (however individual it is) is important in creation of identity of farmers as autonomous: independent survivors, intelligent, God-fearing, honest

- This connection with audience and co-construction of a positive emotional response is an important factor in the audience's positive evaluation of the rain prophets' predictions. (as several scholars, including me, have noted)
- This interaction reflects that rain prophets are part of rural society and their social power comes from the people in the form of their attention.

**Narrative Strategies:  
Meteorologists**

- Topical focus on forecasts
- Teach people to interpret meteorology
- Justify past performance to build credibility
- Inform decision-making

On the other hand, power of scientists not granted by rural society but by external forces like governments, universities, etc.

- meteorologists link identity to global institutions (not local culture) because authority and successful career depend on that, so there is an imperative to distinguish science from tradition

- Want audience to look externally for links of knowledge to power  
narrative strategies to separate science from everyday knowledge and build credibility of institution

- Limit narrative devices to narrow discussion of forecasts, past and present > designed to direct interpretation of the forecast

- Don't usually link to other topics like religion, agriculture, personal stories that would be considered outside the domain of science and therefore not relevant

- take position of teacher: explaining the conditions in the atmosphere and ocean that produce rain in the region

- Describe methods, technology

- Recount and justify past successes to build credibility

- Contrast: rain prophets show what they know, don't teach audience how to predict but rather how to live

- This reflects the power difference: scientists are recognized as legitimate educators of the public; they have the power to assume superiority of knowledge

- To inform decision-making: appeal to logic and rational thought, avoid emotional responses that are overly optimistic or pessimistic

## Conclusion

### **Rain prophets**

- Enlarge prediction performance
- Connect the forecast to agriculture, morality and political processes

### **Meteorologists**

- Embody voice of science and institution
- Narrow focus in prediction performance

Political view of climate requires study of power, authority and conflict. The conflict in the case of Ceará is about whose predictions are accurate and effective. Determining this is fundamentally a struggle for control of meaning (through performance, narrative) as science-based meteorologists and tradition-based rain prophets construct authoritative narratives.

What is at stake in the competition for authority/credibility within the realm of climate is both institutional and personal power.

Linguistic analysis demonstrates how the science--tradition distinction is produced. Rain prophets use narrative to perform their own expertise, not just on climate but on life in the sertão. The 'tradition' label allows them to link predictions to other ways of living and knowing. Their narratives enlarge the prediction performance and connect the forecast to agriculture, to morality and to political processes.

Meteorologists perform their predictions as representatives of an institution. Because the prediction performance is an embodiment of the voice of the collective and the expert knowledge of 'science', not the individual, their narratives must focus exclusively on forecasts.

Thus, predictions from any source are meaningful beyond the forecast information they contain that may aid decision-making. Prediction performances reinforce social divisions and invite people to contemplate their experiences as members of a particular group.

## **Acknowledgements**

- Wenner-Gren Foundation for Anthropological Research
- Social Sciences and Humanities Research Council of Canada
- The University of Arizona
- The Tinker Foundation
- Janet Upjohn Stearns Foundation
- FUNCEME photos provided by Renzo Taddei

## **Selected References**

Benjamin, Walter

1969 "The Storyteller". In *Illuminations*. Hannah Arendt, ed. Pp. 83-109. New York: Schocken.

Cruikshank, Julie

2000 *The Social Life of Stories: Narrative and Knowledge in the Yukon Territory*. Lincoln: University of Nebraska Press.

Fine, Gary Alan

2007 *Authors of the Storm: Meteorologists and the Culture of Prediction*. Chicago: University of Chicago Press.