Today we look at how humans think of their surrounding space, whether it be the concept of “territory” or the combination of space and time (the “space-time prism”). Today’s presentation ends by looking at how flows of information have changed with the adoption of new technology.
Most mammals have a concept of “territory”, a space typically used for food gathering. Humans and most of our fellow mammals will fight to defend our territory from outsiders. In humans, the attachment to territory carries with it strong emotions. Think about how strongly we feel about the flag of our country (a symbol for our national territory).

**Territory and Space**

- Humans have a strong **emotional attachment** to spaces (Ex: your home is your castle)
- Groups of humans (and animals) collectively **attach** to spaces **(territory)**
- Humans send **signals** to indicate territory

NONE SHALL PASS
The three factors that determine the size or extent of our personal space are circumstances, our culture and our relationship with the person in our space.

- Each person claims a **territory**, a space that separates us from other people
- Based on **circumstance** (Ex: crowded beach versus library)
- Based on **culture** (Ex: East versus West)
- Based on **relationship**
The picture here is from a queue in India. South Asians have different cultural expectations regarding the size of their personal space.
Americans at a bus stop have very different cultural requirements for personal space compared to other cultures.
Activity space is affected by age and mobility. Mobility is often a function of income – scooters (pictured) aren’t cheap. Income also impacts education, which in turn controls the size of our awareness space. Long story short, money (income) impacts almost everything.
The Space-Time Prism

- The **volume of space** and the **length of time** in which all your activities are confined is your **space-time prism**
- **Technology** can change the prism **shape** (broader means more options)
- Ex: in a **car** I can increase distance and multi-task (not possible on foot)

The space-time prism (or time-space prism) is a three-dimensional representation of the space you move through and the time you spend doing it. Technology like smart phones allows for multi-tasking (while driving, for example) so that your prism expands as more things are possible for you in the same amount of time.
Culture also changes the shape of the prism. In America, even today, women are expected to perform more of the housework.
Notice how both the total amount of housework has decreased (due to labor-saving technologies) and the gender gap has also tightened (due to changing cultural expectations).
Distance Decay: Critical Distance

- Spatial interactions don’t decay at all over short distances (the frictionless distance)
- At the point where that changes and more distance means less interaction – we call that the critical distance
- Ex: Commuting times

Human interactions don’t decay continuously from the origin point like physical phenomena do (heat and light, for example). Over an initial distance, NO decay is observed. This space is “frictionless”. At the point where frictionless transitions to distance decay, we call that the “critical distance”. If I moved to Chapel Hill, I might considered finding a different school, one closer to my home (distance decay at work). But if I move across the street, I don’t see any real difference in my commute time. The move across the street is frictionless. The distance at which I start to re-think my commute is the critical distance.
Old way of looking at information flows is that they are either individual (two-way) or mass (one-way). But in the 21st Century, most mass communication is now interactive (forums, comment pages etc.). Information flows are now frictionless, in that the time and money needed to communicate has dropped to almost zero. Compare that to the early 20th Century, where making a coast-to-coast phone call might take 15 minutes and cost a significant amount of money.
“Gossip” is considered to be a way in which we identify free riders (people who don’t work or contribute but still take resources from the group) or people who are not good at cooperating. In that gossip is a cultural universal, identifying those who are bad at cooperating (and thus, improving our ability to effectively work together) must also be a cultural universal.
As the cost of transmitting information is moving towards zero, the hierarchies that edited, monitored and controlled those mass information flows are also disappearing. This means information is transmitted without proper oversight or vetting (resulting in “fake news”).

Mass Information Flows

- One-way – but now mass flows are also interactive
- Old days: mass flows were edited and curated for accuracy
- Old days: hierarchies
- Today: some sources contain systemic bias (fake news)