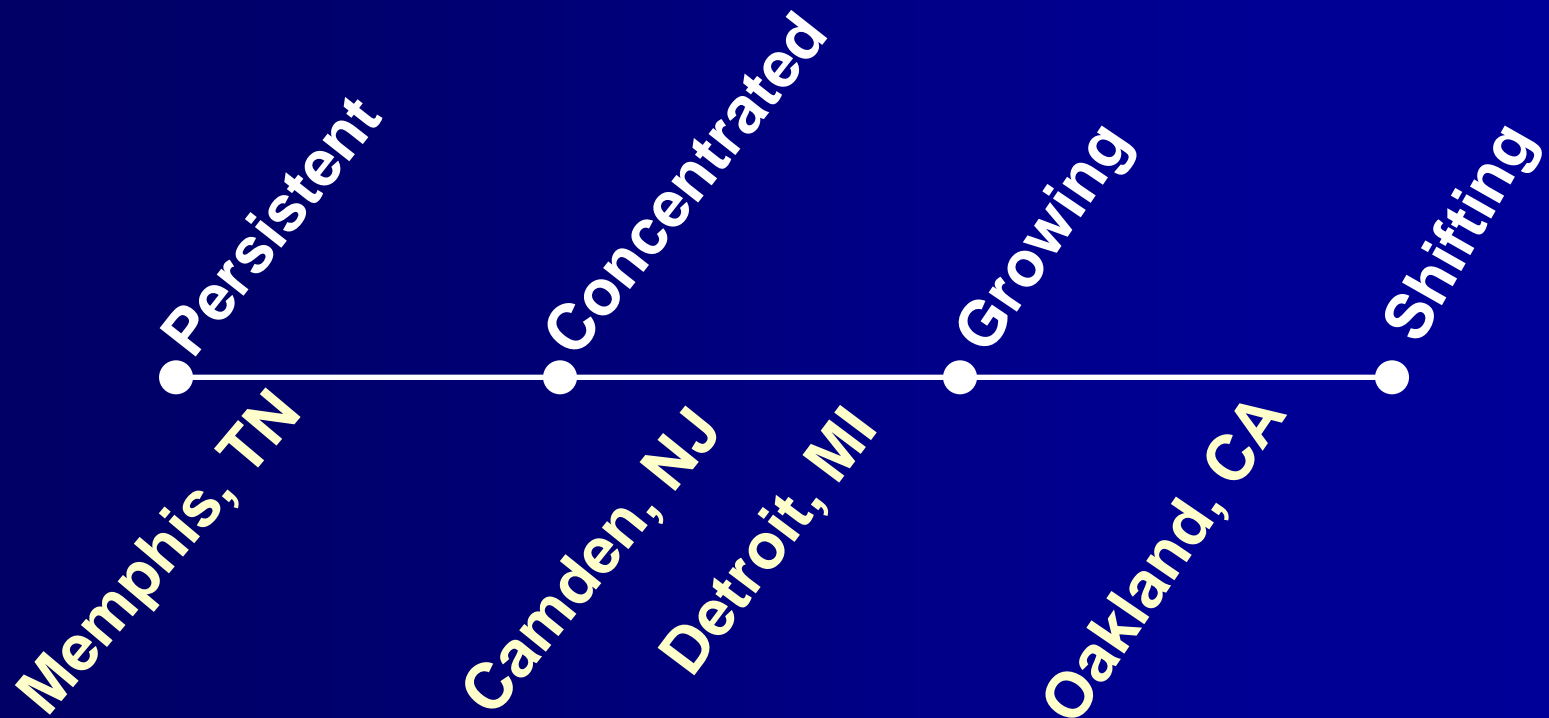


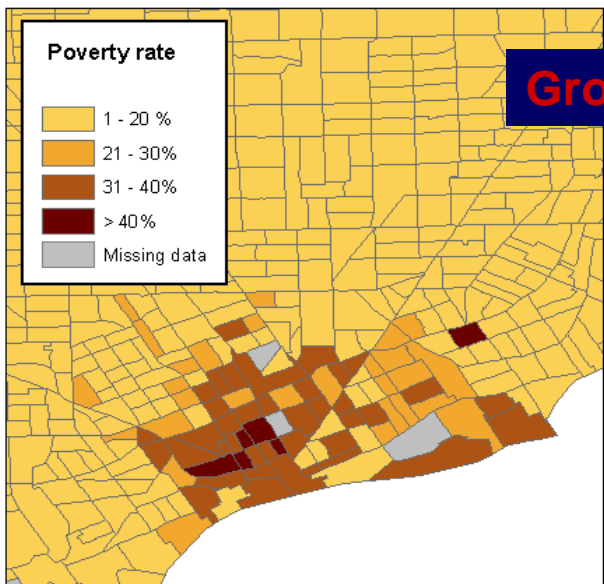
Space-Time Poverty Hotspot Typology

- Federal Anti-Poverty Programs have had little success in eradicating pockets of persistent poverty
- Can spatial-temporal patterns of poverty hotspots provide clues to the causes of poverty and lead to improved location-specific anti-poverty policy ?

Dimensions of Tract Poverty in Four Metropolitan Areas 1970-1990

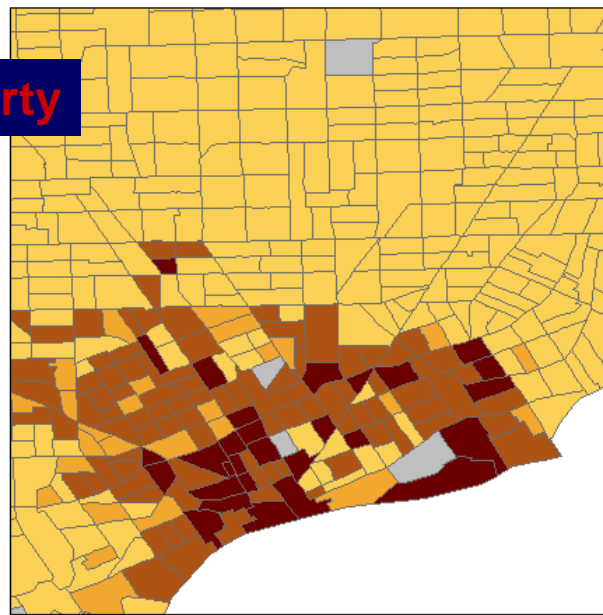


Detroit 1970 Poverty data

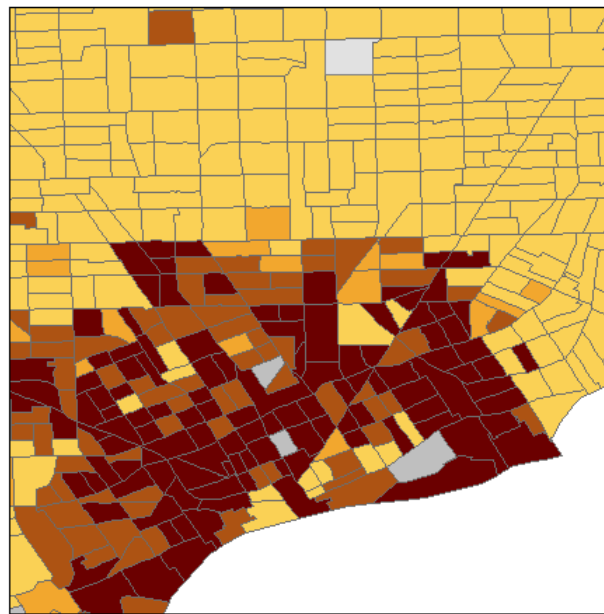


Growing poverty

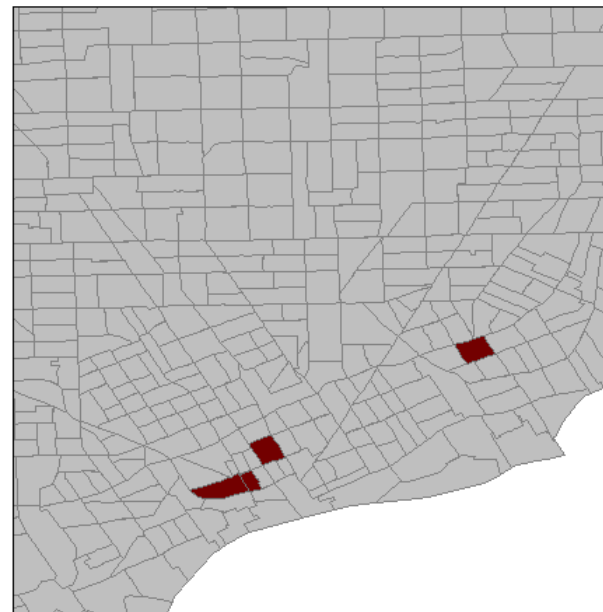
Detroit 1980 Poverty data



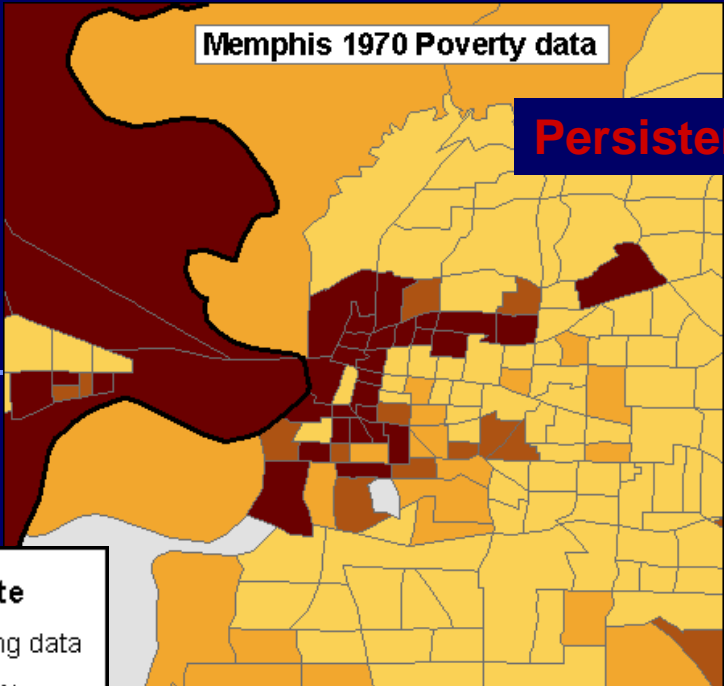
Detroit 1990 Poverty data



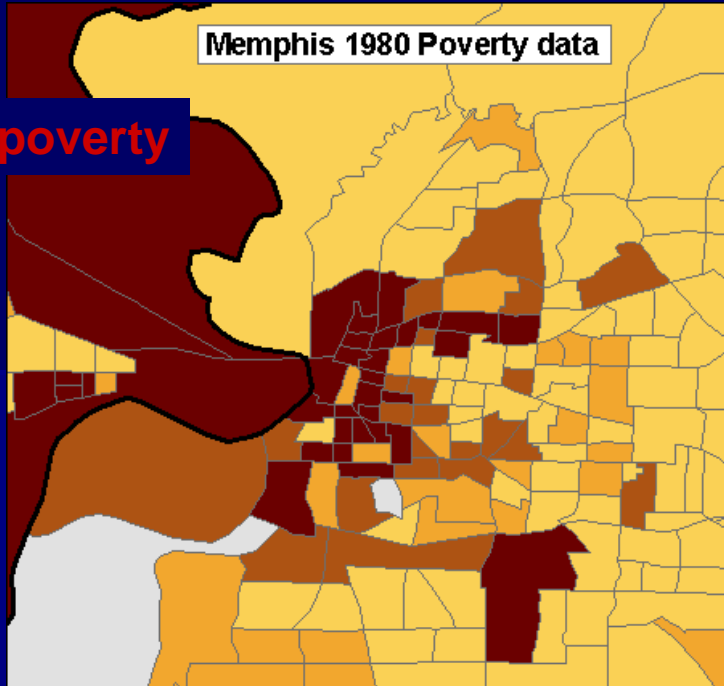
Detroit Persistently poor tracts



Memphis 1970 Poverty data

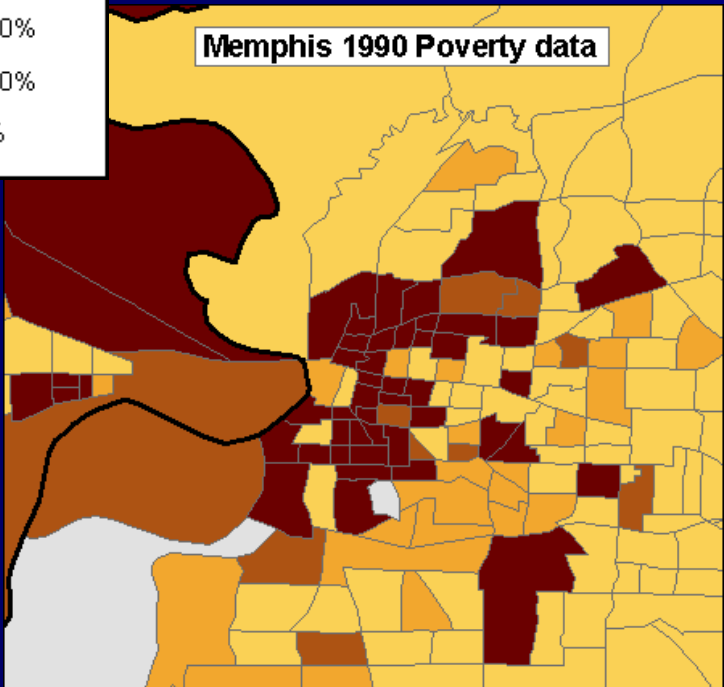


Memphis 1980 Poverty data

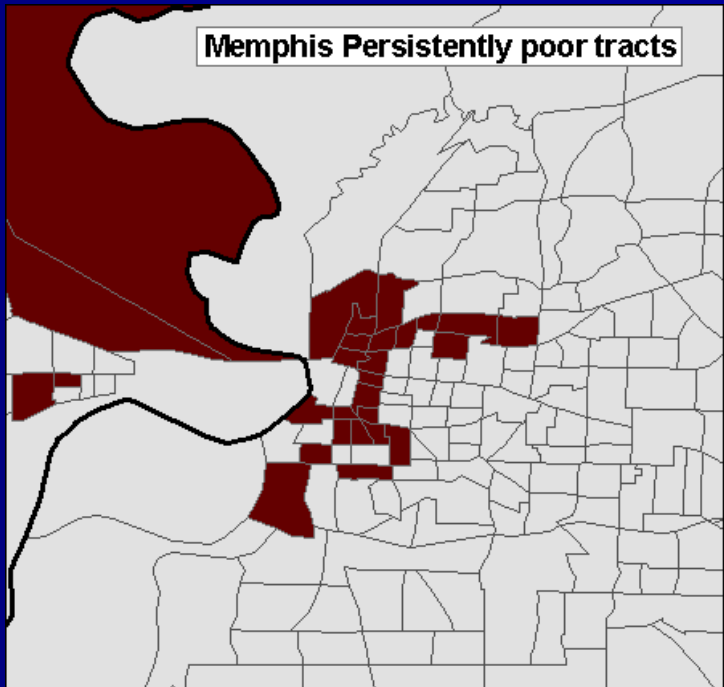


Persistent poverty

Memphis 1990 Poverty data



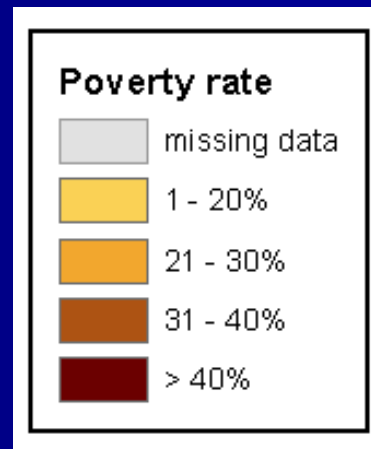
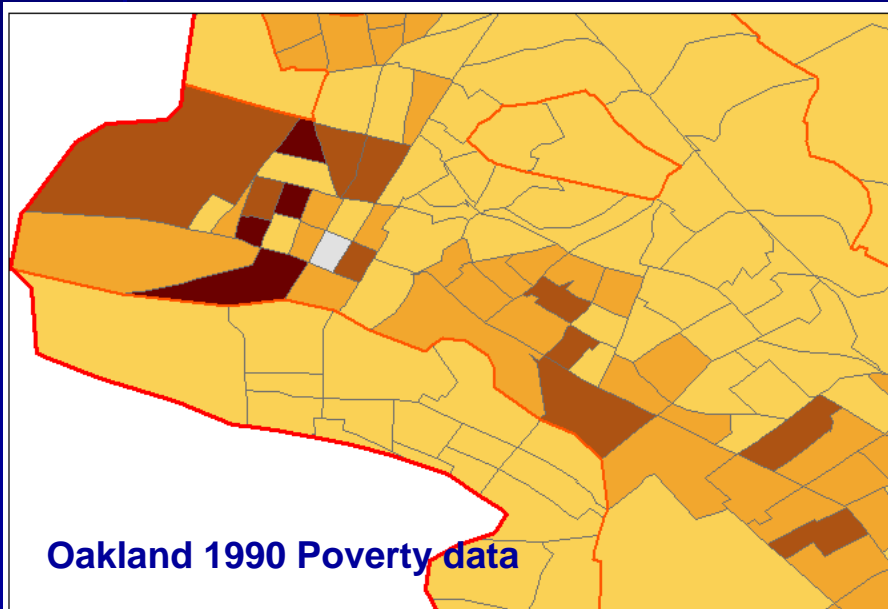
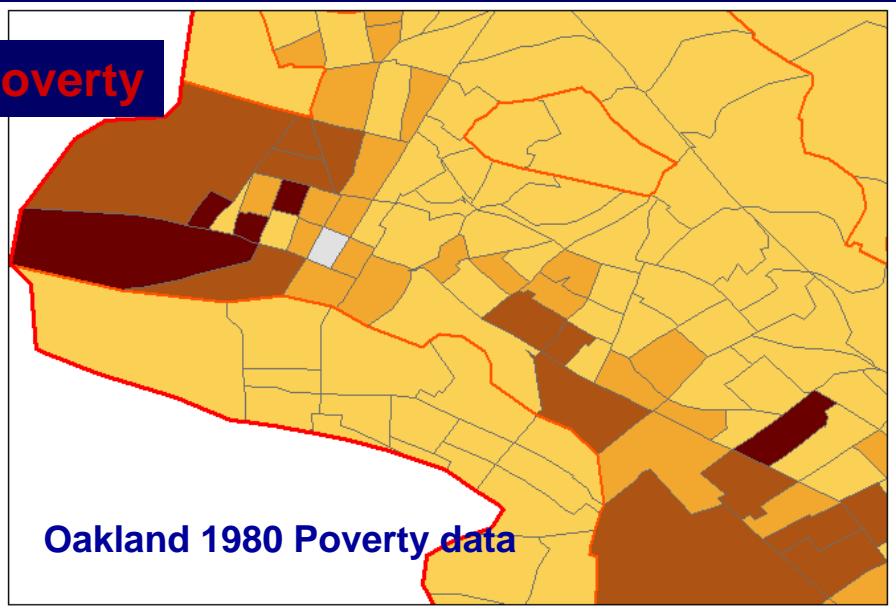
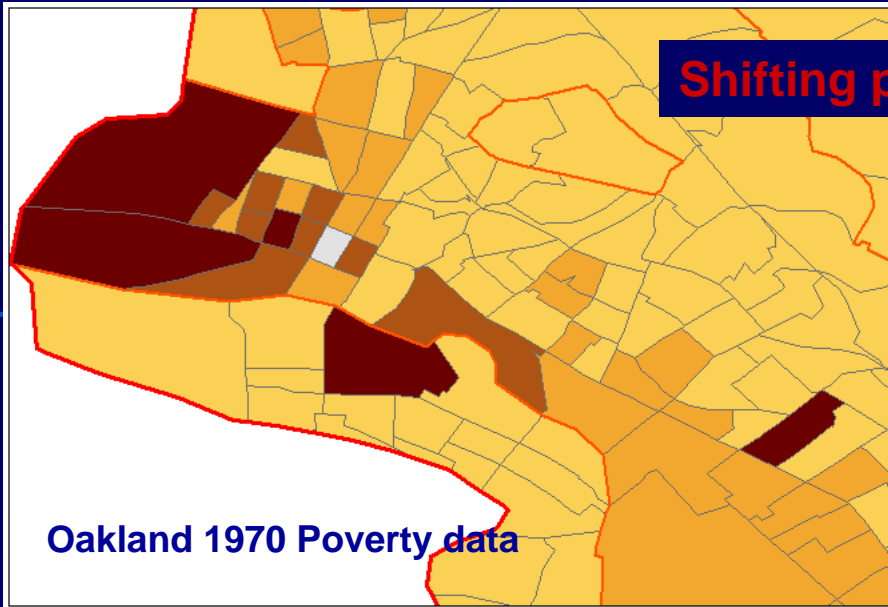
Memphis Persistently poor tracts

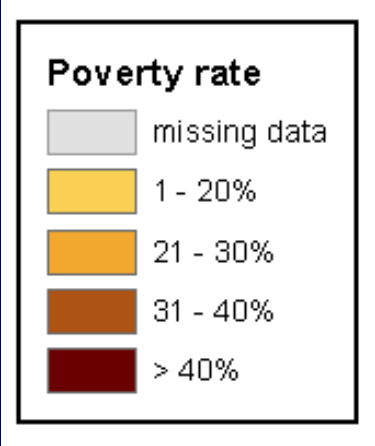
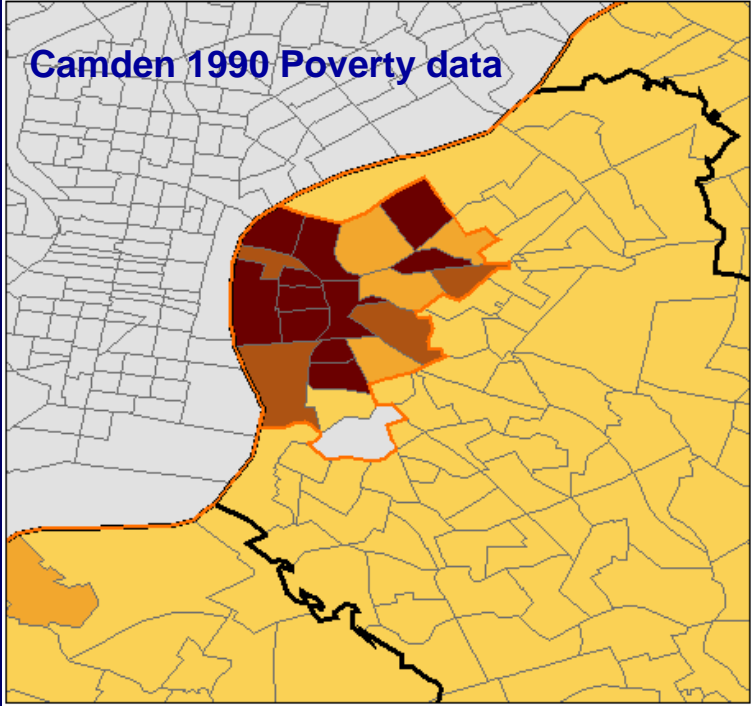
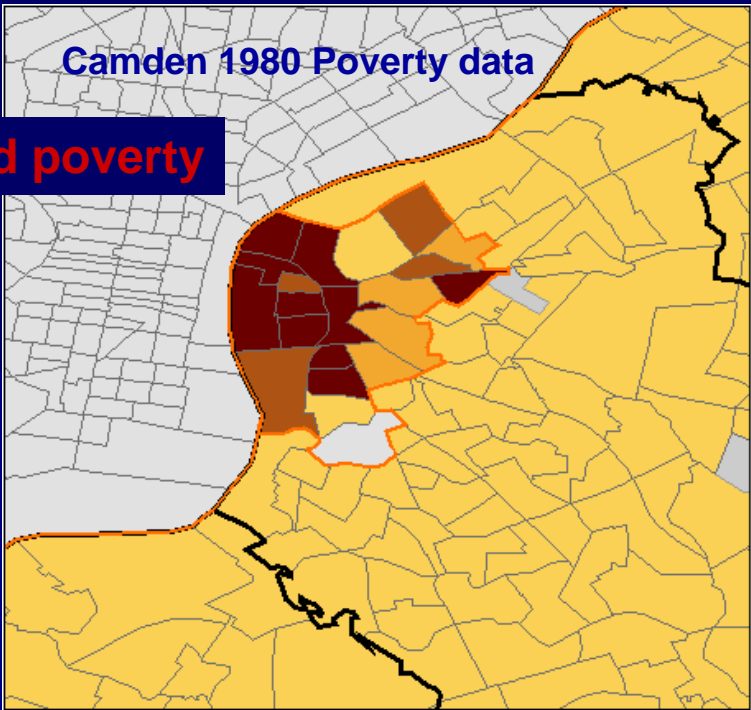
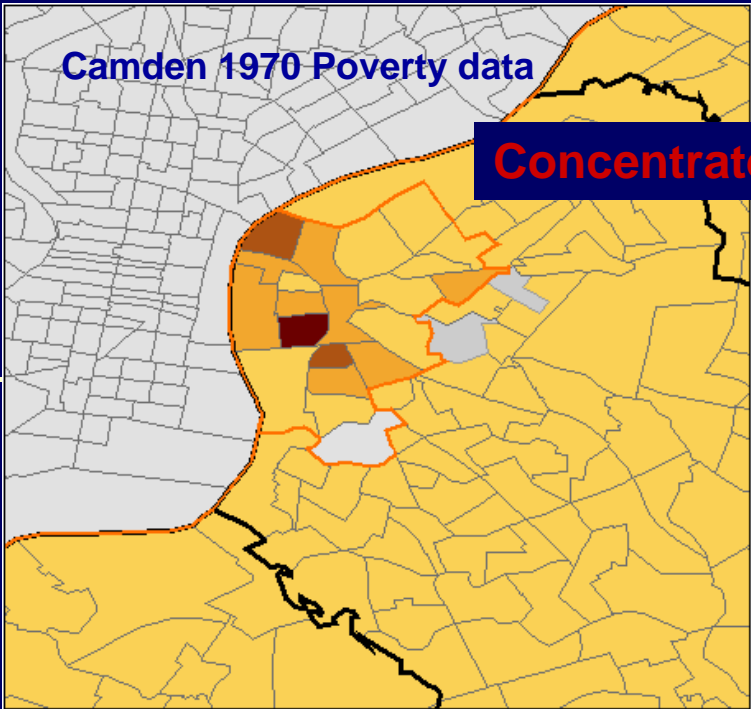


Poverty rate

- missing data
- 1 - 20%
- 21 - 30%
- 31 - 40%
- > 40%

Shifting poverty

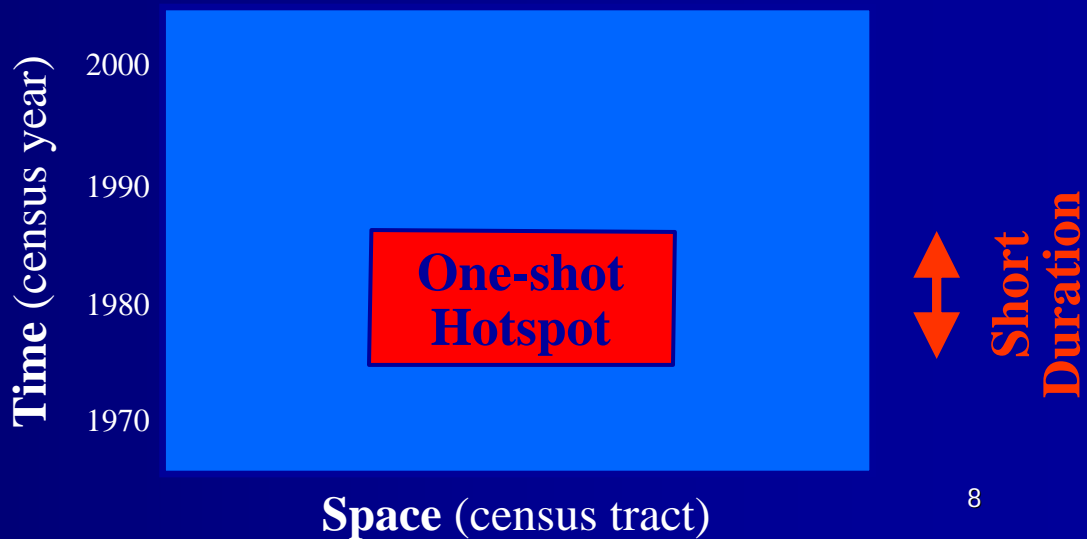
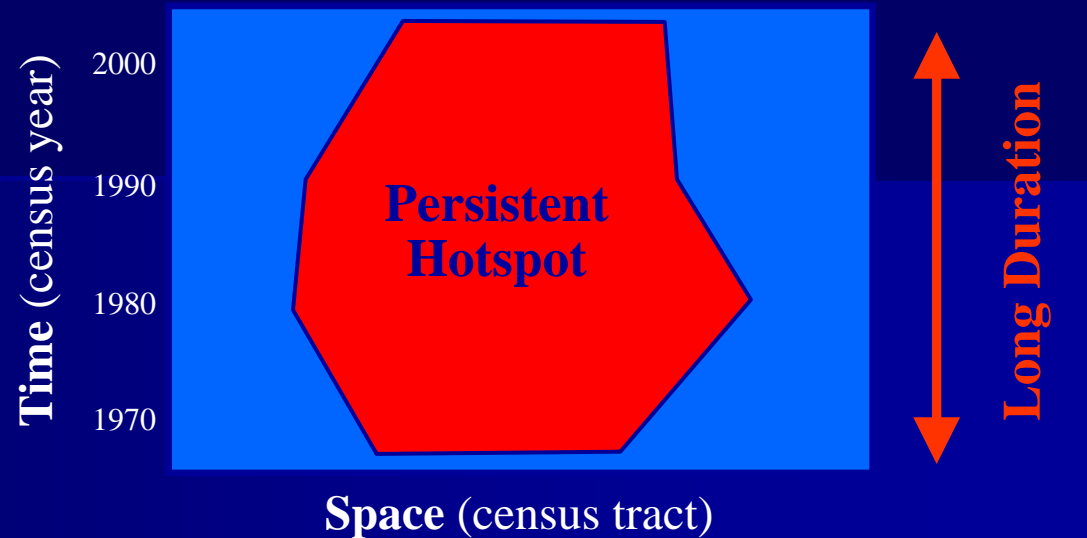




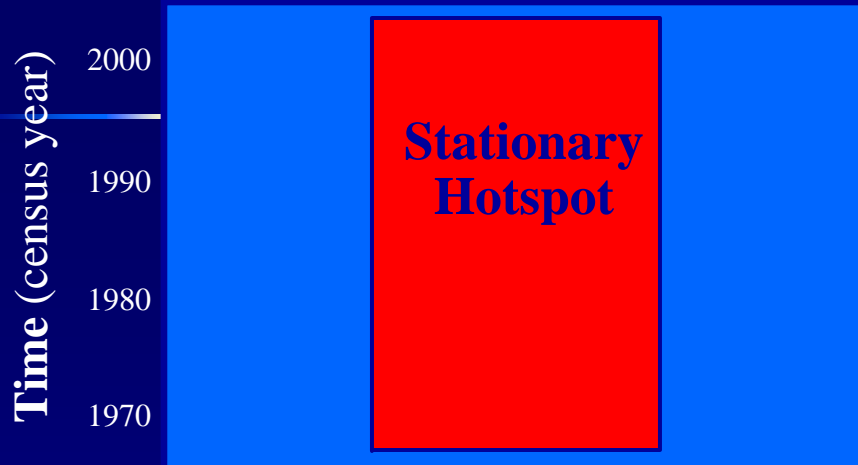
Hotspot Persistence

Persistence is a property of space-time hotspots

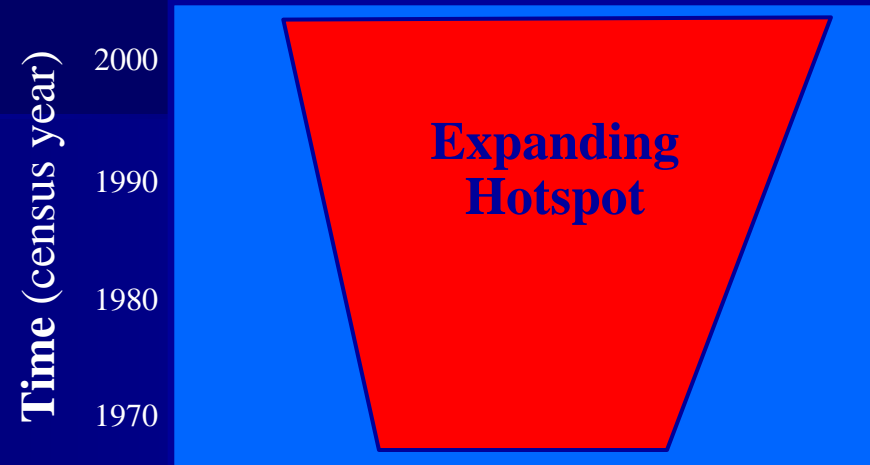
Persistence can be assessed by the projection of the space-time hotspot onto the time axis



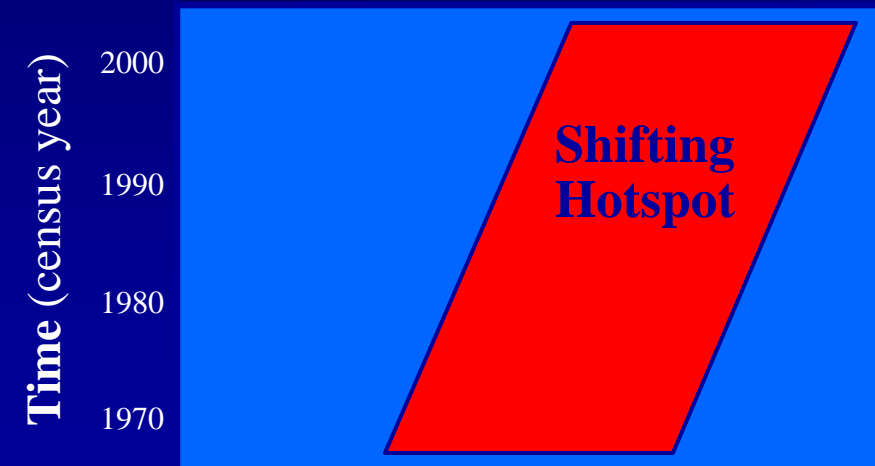
Typology of Persistent Space-Time Hotspots-1



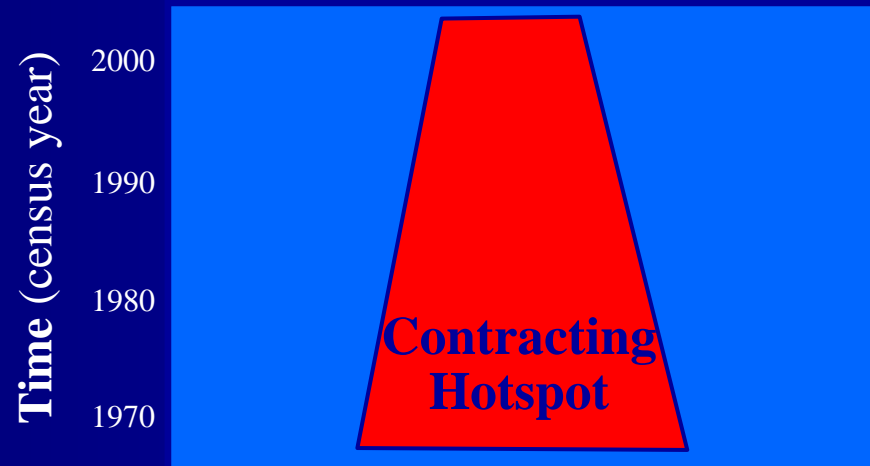
Space (census tract)



Space (census tract)



Space (census tract)



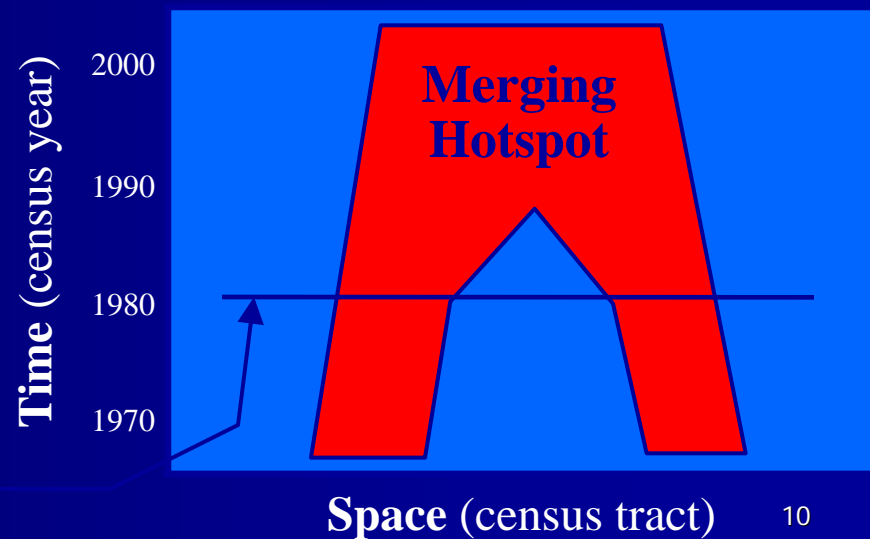
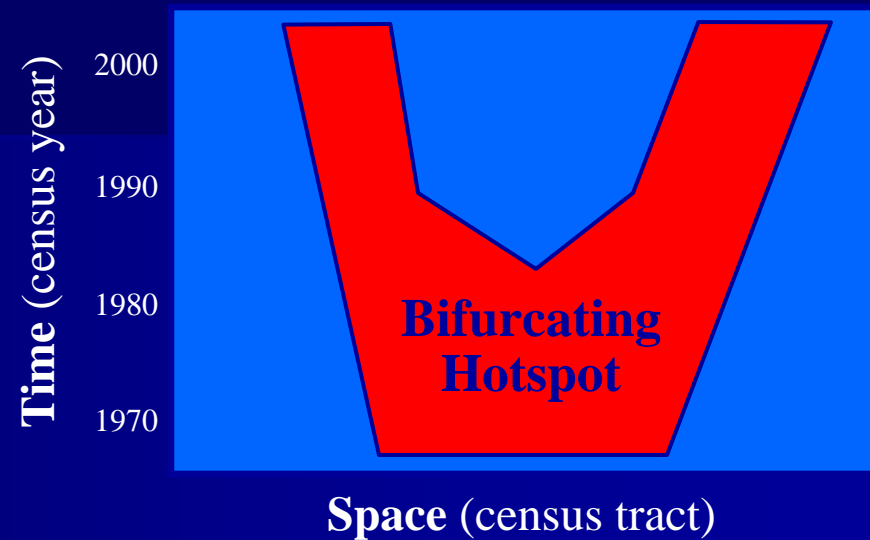
Space (census tract)

Typology of Persistent Space-Time Hotspots-2

These hotspots are connected in space-time

However, certain time slices of the hotspot are disconnected in space

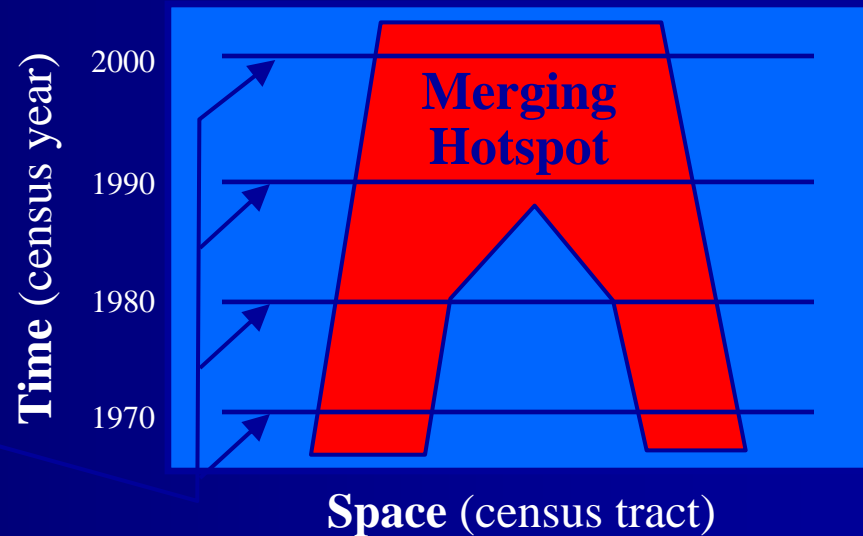
Spatially disconnected time slice



Trajectory of a Persistent Space-Time Hotspot

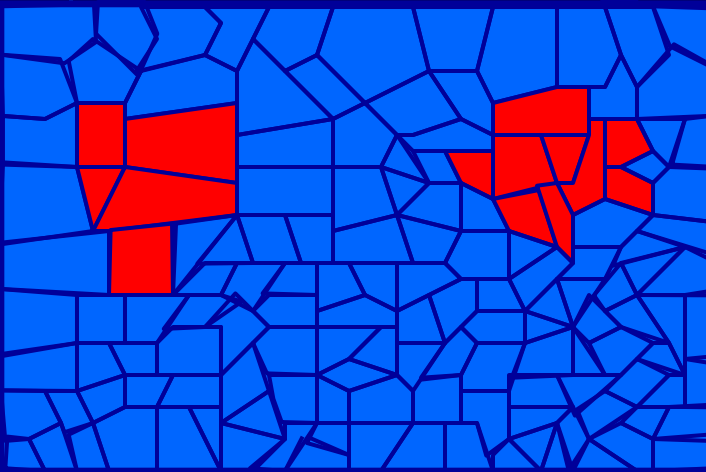
A space-time hotspot is a three-dimensional object
Visualization can be done by displaying the sequence of time slices---called the trajectory of the hotspot

Time slices of space-time hotspot

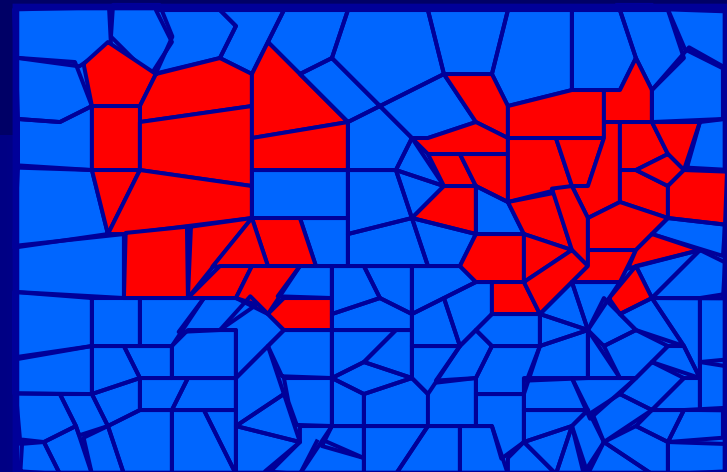


Trajectory of a Merging Hotspot

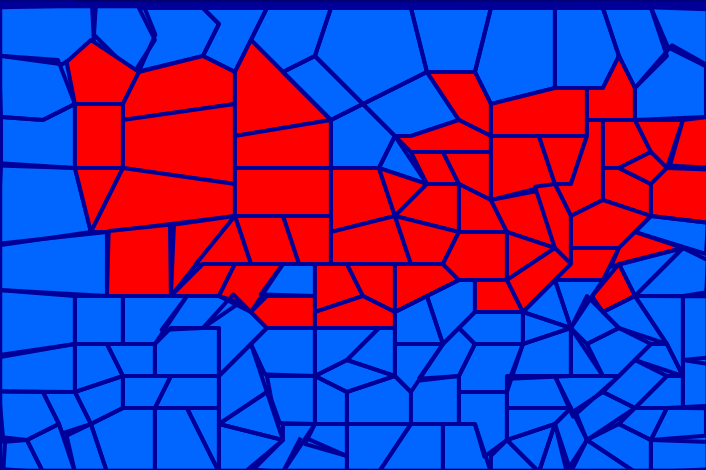
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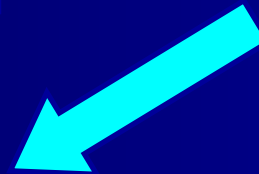
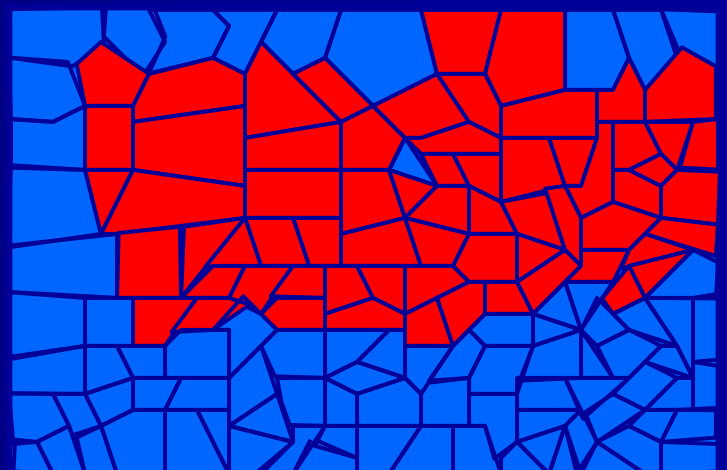
1980



1990

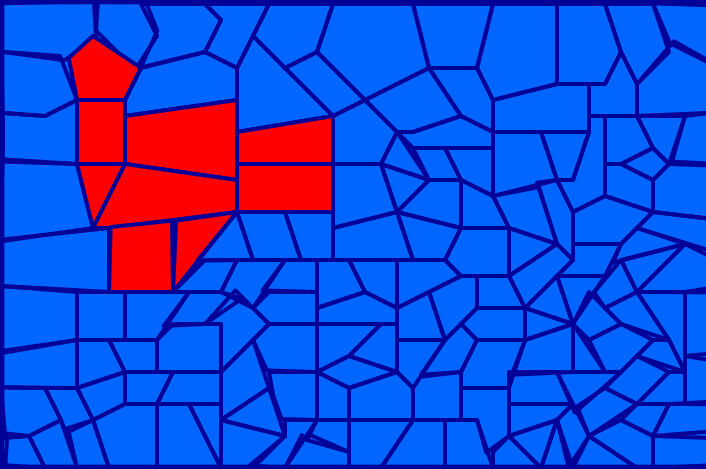


2000

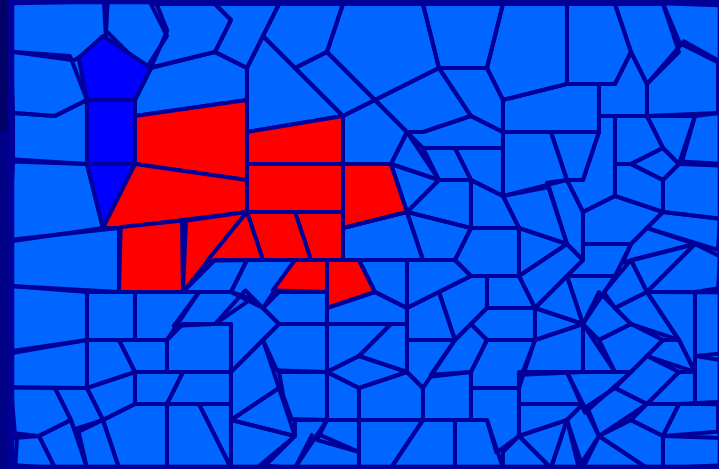


Trajectory of a Shifting Hotspot

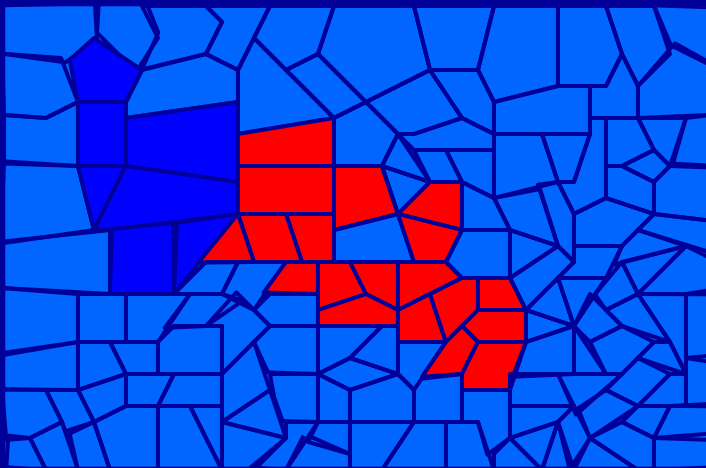
1970



1980



1990



2000

