Actively Acknowledging 30 Years of, and Continued Promises for, **Parallel-Coordinate-Plots**
(How PCP's Can Be Addictive Yet Good For Your Spatial Data)

J. Kevin Byrne, proposer; for Mini-Workshop

The plan is tendered in four parts:

1. Now that we are at PCP's 30th anniversary, an enthusiastic but brief summary of its history is offered.

"It was in 1977 while giving a Linear Algebra course that I was challenged by my students to "show" them some multi-dimensional spaces. This was the catalyst leading to the subsequent development of the methodology: *How do multi-dimensional lines, planes, curves, surfaces, etc. look in (two) coordinates?"*

Alfred Inselberg, inventor of the Parallel Coordinate Plot
http://www.math.tau.ac.il/~aiisreal/

(5 minutes)

2. *Geoda* software presented in a short overview.

From Wikipedia: *Geoda is a free software package…developed by the Spatial Analysis Laboratory of the University of Illinois at Urbana-Champaign...[It] has powerful capabilities to perform spatial analysis, multivariate exploratory data analysis, and global and local spatial autocorrelation.*

http://en.wikipedia.org/wiki/GeoDA

(5 minutes)

3. A couple of the following multivariate analyses, having been done using the PCP menu selection in GeoDa, are presented as mini-case studies:

- gun ownership, crime, and geography
- ecofootprints, ethnicity, and geography
- recycling participation, house price, square footage, and geography

(8-10 minutes) *see appendix for portfolio of samples*

4. Concluded with at least one iteration of "democratized data display": as a group we identify variables within a geodemographic theme selected by the audience, then gather appropriate data-files via a web browser*, next launch and demo tasks in ArcGIS and GeoDa** and lastly explore 3-4 variables with PCP profiles in a "hands-on" fashion; end with debriefing/Q+As.
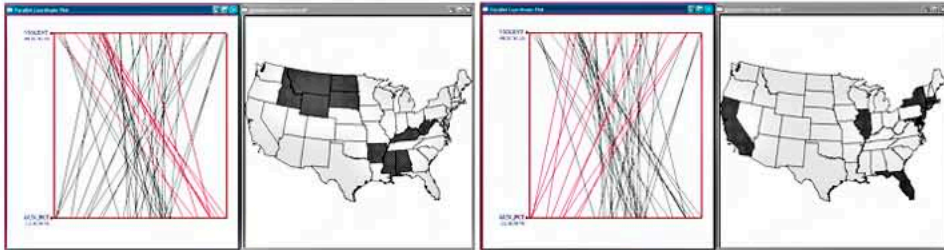
(15-17 minutes)

Total: 45 minutes

*If Internet feed can be assured to be available for web data gathering. **ArcGIS (ArcView license level OK) and GeoDa need to be available on laptop.

J. Kevin Byrne, TUgis 2008 Proposal
Portfolio of PCP Mini-Case Studies
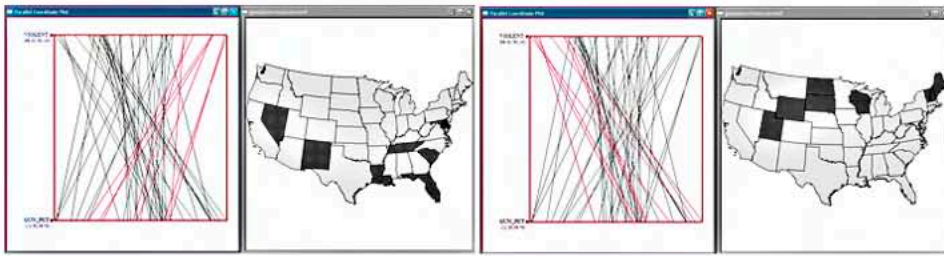
high-crime_med-guns.PNG

low-crime_med-high-guns.PNG

low-med-crime_high-guns.PNG

med-high-crime_low-guns.PNG

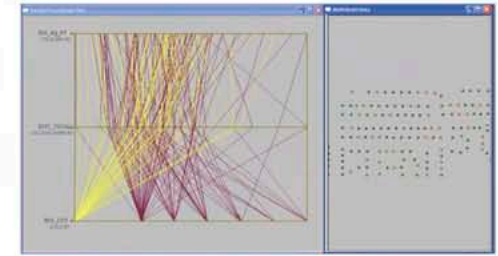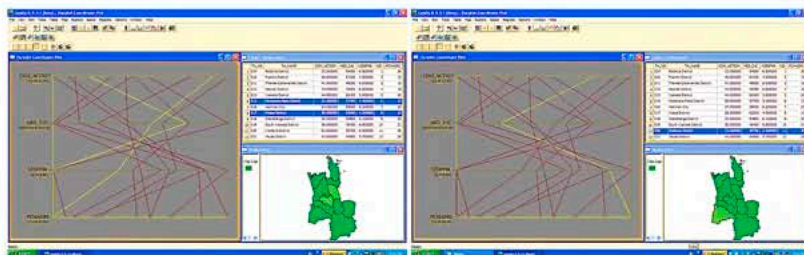|	
More Guns, Less Crime, *PCP + Maps* (Data Courtesy CSISS)	**Recycling Participation, Demography** *PCP + Maps*
Recycling , Ethnicity, and Income *PCP + Maps*	**Ecofootprints, Ethnicity, and Social Deprivation** *PCP + Maps*
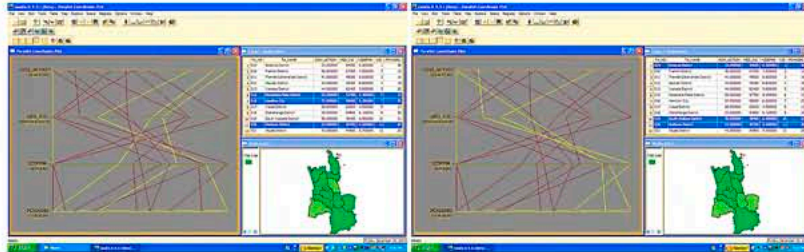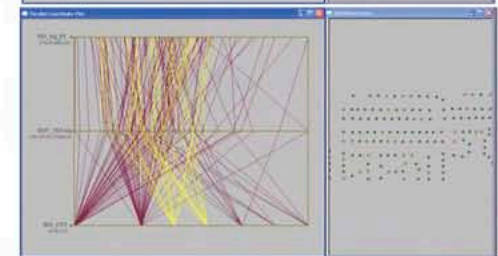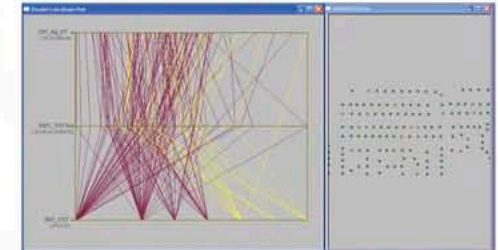
wx4attpcpHighComAct.bmp

wx4attpcpHighMaoriSp#25C104.bmp

wx4attpcpLowMaoriSpl#25C105.bmp

wx4attpcpMaorWaitomo#25C106.bmp

	REGC_NO	REGC_NAME	DEP	MAORI	EF_PC
1	01	Northland Regi...	9.0...	31.6...	3.330
2	02	Auckland Regio...	6.0...	11.8...	2.000
3	03	Waikato Regio...	8.0...	21.1...	2.870
4	12	West Coast Re...	7.0...	8.70...	3.700
5	04	Bay of Plenty ...	9.0...	27.9...	2.590
6	13	Canterbury ...	6.0...	6.80...	3.570
7	05	Gisborne Regio...	9.0...	46.2...	3.030
8	14	Otago Region ...	5.0...	6.00...	5.410
9	15	Southland Regi...	6.0...	11.3...	3.920
10	06	Hawke's Bay R...	8.0...	23.3...	2.630
11	16	Tasman Region...	7.0...	7.00...	2.000
12	17	Taranaki Re...	7.0...	14.7...	
13	08	Manawatu-Wa...	8.0...	18.5...	3.800
14	17	Nelson Region ...	6.0...	8.00...	1.800
15	09	Wellington Reg...	7.0...	12.5...	2.400
16	18	Marlborough R...	5.0...	10.2...	4.130

Parallel Coordinate Plot

DEP (5.00,9.00)

MAORI (6.00,46.20)

EF_PCAP (1.86,5.41)