Rethinking the Role of the Cartographer in the Age of Democratized Cartography:

Education of Mapping Principles through the Map Brewer

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Overview:

i) larger context **Democratization of Cartography**
ii) the problem **The Misuse of Mapping Tools**
iii) the proposed solution **The Brewer**
iv) the specific problem **Isarithmic Mapping**
v) the specific solution **IsolineEngine**

I. Larger Context: Democratization of Cartography:

***Definition:** the transition of the practice of mapmaking and the availability of mapping tools from the trained professional to the general public

***Disabling Professionalism:** the critique on professionalism that it is a mechanism for exclusion (Illich et al. 1977)

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Mapping — *mental organization of the landscape (**"thinking spatially"**)*

Mapmaking — *production of maps for communication and record keeping*

Protocartography — *early institutionalization of mapmaking*

Cartography — *mapmaking as an objective science (**"Cography"**)*

Mapping as an innate human trait practiced by all

Mapping as an institution of the state practiced by 'professionals'

*Wood's historical development of maps (The Power of Maps 1992)

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KML files

Satellite Imagery

Google Maps API

MapQuest

GoogleEarth

MSN Virtual Earth

Mash-Ups

NASA Whirlwind

GeoCollaboration

SDSS

Yahoo! Maps Web Services

Public Participatory GIS

ColorBrewer

PGIS

MapServer

SHP files

ArcView

Idrisi

ESRI ArcGIS

MapInfo

Open Source GIS

ArcExplorer

Surfer

GRASS

ArcIMS

II. The Problem: The Misuse of Mapping Tools

The Problem:** most tools are designed by **Experts** for **Experts

***Harrower:** "like handing over the keys to an F16 fighter jet"*

- most of the previously listed software packages or web services offer thousands of options, with little advice on using them

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*is this what democratized cartography looks like?

Powerful Tools + Little Guidance = Potential Trouble

*This is not a **Straw Man Argument** against the current available mapping tools

Powerful Tools + Little Guidance = Potential Trouble

*The responsibility of the software or web service developer

*The responsibility of the academic cartographer

*The end product is a reflection upon both

*****Because of such, we need to now rethink the role of the cartographer, especially the academic cartographer

"What would be helpful would be to offer professional **assistance***…"*
(Wood 2003)

*****Software in other domains has already provided several models of offering assistance:

- **Tutorials:** step-by-step procedural instructions on how to use a feature of the software or web service

- **FAQs:** responses by the developers to the most common difficulties that users have reported about the application

- **Wizards:** a series of screens/windows to help the user complete a task (i.e. a tutorial that completes the task as you learn about it)

- **Expert Systems:** a series of screens/windows, that incorporate domain knowledge, to help direct the user to a single solution

III. The Solution: The Brewer

***Definition:**

"Named for researcher and cartographer Cynthia Brewer, the map brewer is a new kind of mapping support system, focused on helping map makers with one particular aspect of the map design process . . . Brewers are different from other forms of online help such as wizards, tutorials, forums, agents, and documentation because **they do not steer the user to a single solution, nor do they try to do the work for the user**."

Roth, Harrower, and Burt 2006

*Key Characteristics:

*Focus on a specific cartographic design challenge (i.e., not a general lesson)
*Organize design choices around a set of established mapping principles
*Offer only suitable choices (i.e., nothing too extreme or irrelevant)
*Encourage learning about design choices
*Not be software-specific
*Only require basic skills with mapping software
*Offer tips on the suitability of choices
*Encourage users to be critical of their choices through an interactive, graphical display

Brewer 2003

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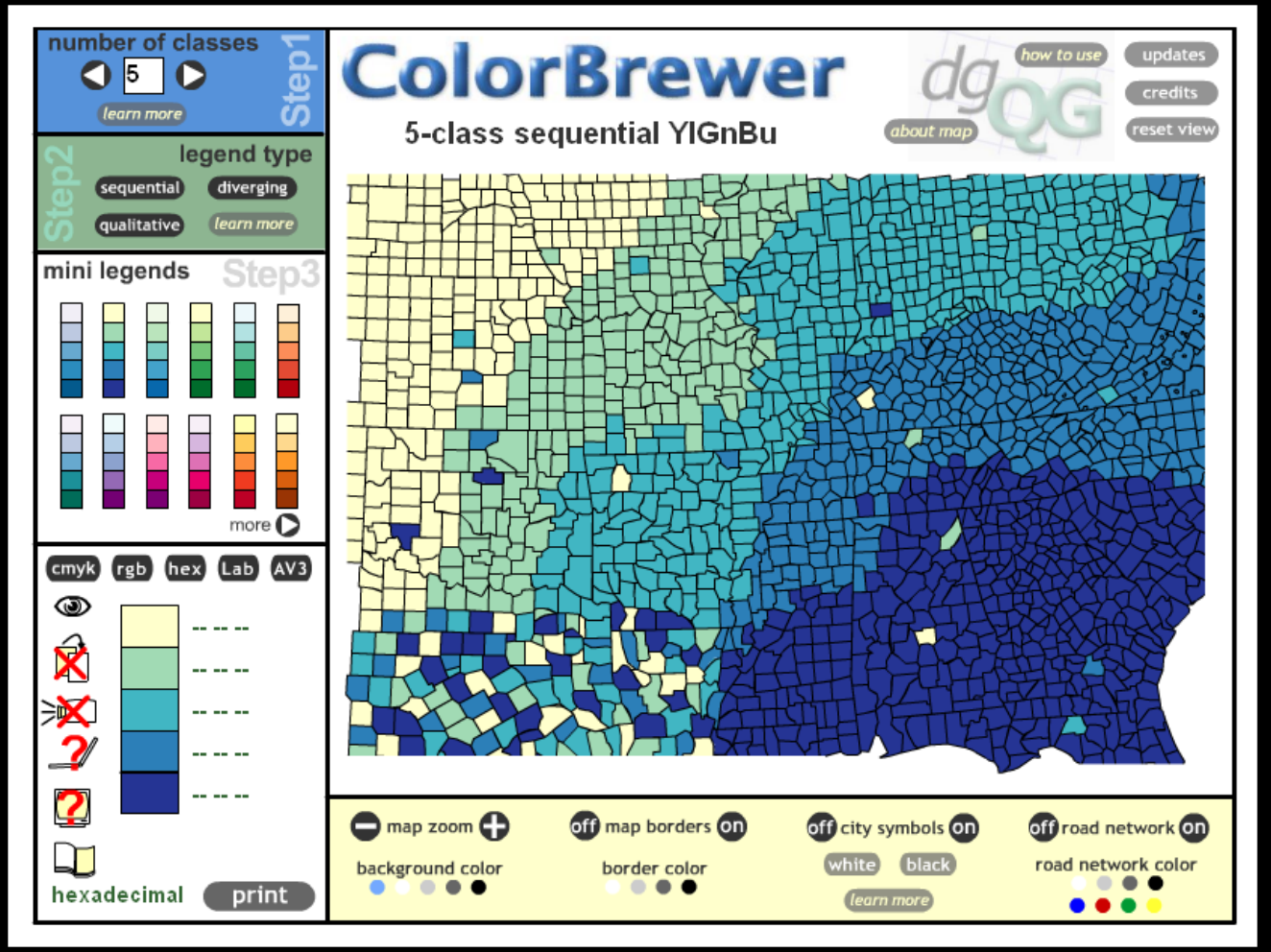
ColorBrewer

www.colorbrewer.org



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TypeBrewer
www.typebrewer.org

IV. Specific Problem: Isarithmic Mapping

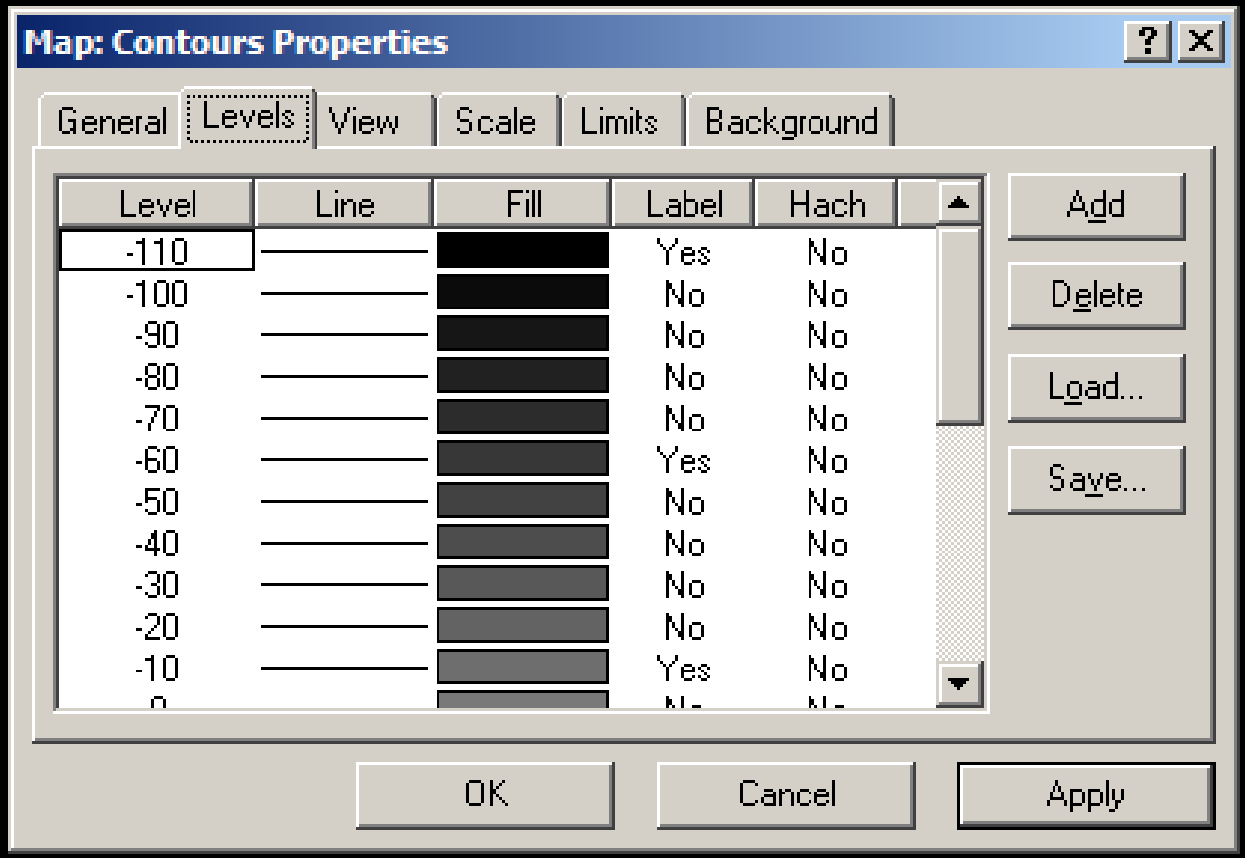
*****there are literally hundreds of packages for **Isarithmic Mapping**

*****many domain specific in such fields as **Geology, Hydrology, Meteorology,** etc.

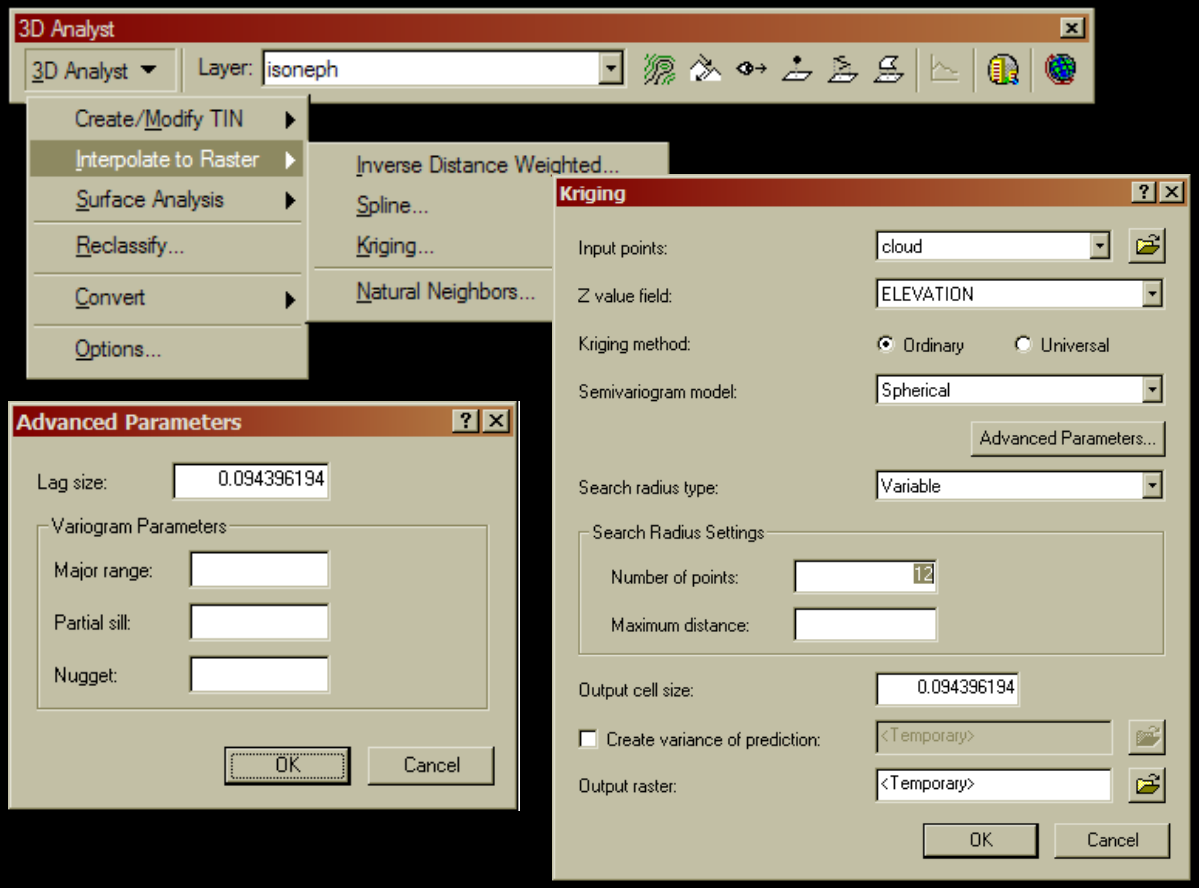
*****several commonly used GIS softwares with isarithmic capability such as **ArcGIS** and **Surfer**

***but this software is difficult for novice users because:**

1) there is **an insane amount of parameters**

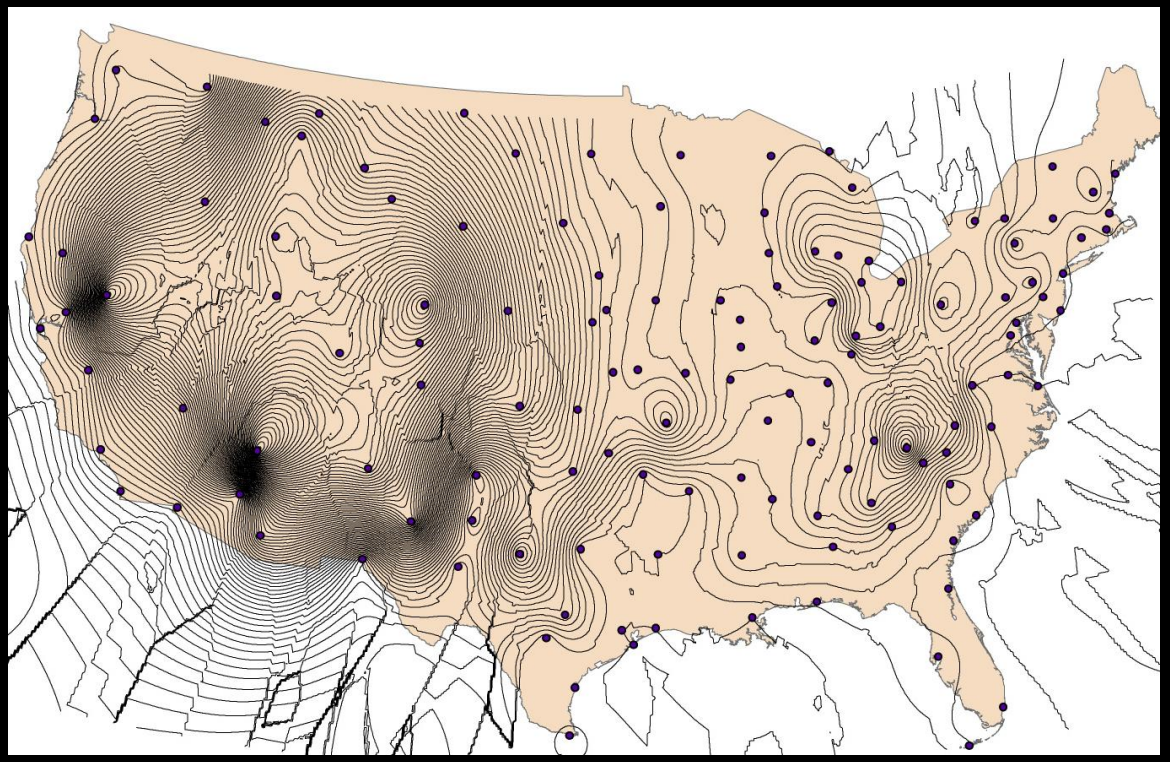


*but this software is difficult for novice users because:



2) the **deeply nested** structure of these parameters

***but this software is difficult for novice users because:



3) the lack of **immediate visual feedback** of parameter changes

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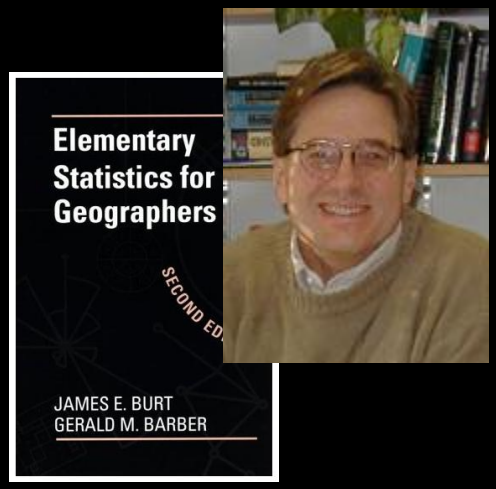
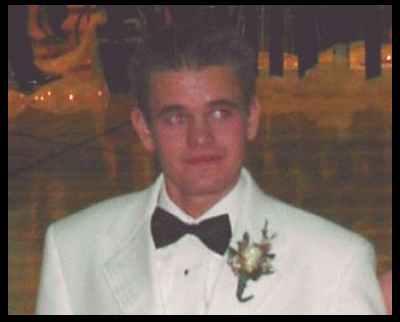
V. Specific Problem: Isoline Engine



Jim: statistical background for spatial interpolation

Mark: principles of representation and map design



Rob: slave labor and yes man

Feature Set:

lesson **Interpolation Parameter:**

- interpolation method, sample size and distribution, interval value

lesson **Display Settings:**

- line coloring, hypsometric tinting, labeling, index lines, smoothing

lesson **Data Focusing:**

- fulcrum value, maximum/minimum value

smart **Help System:**

- term definitions, warnings, data suggestions, links to in depth explanations

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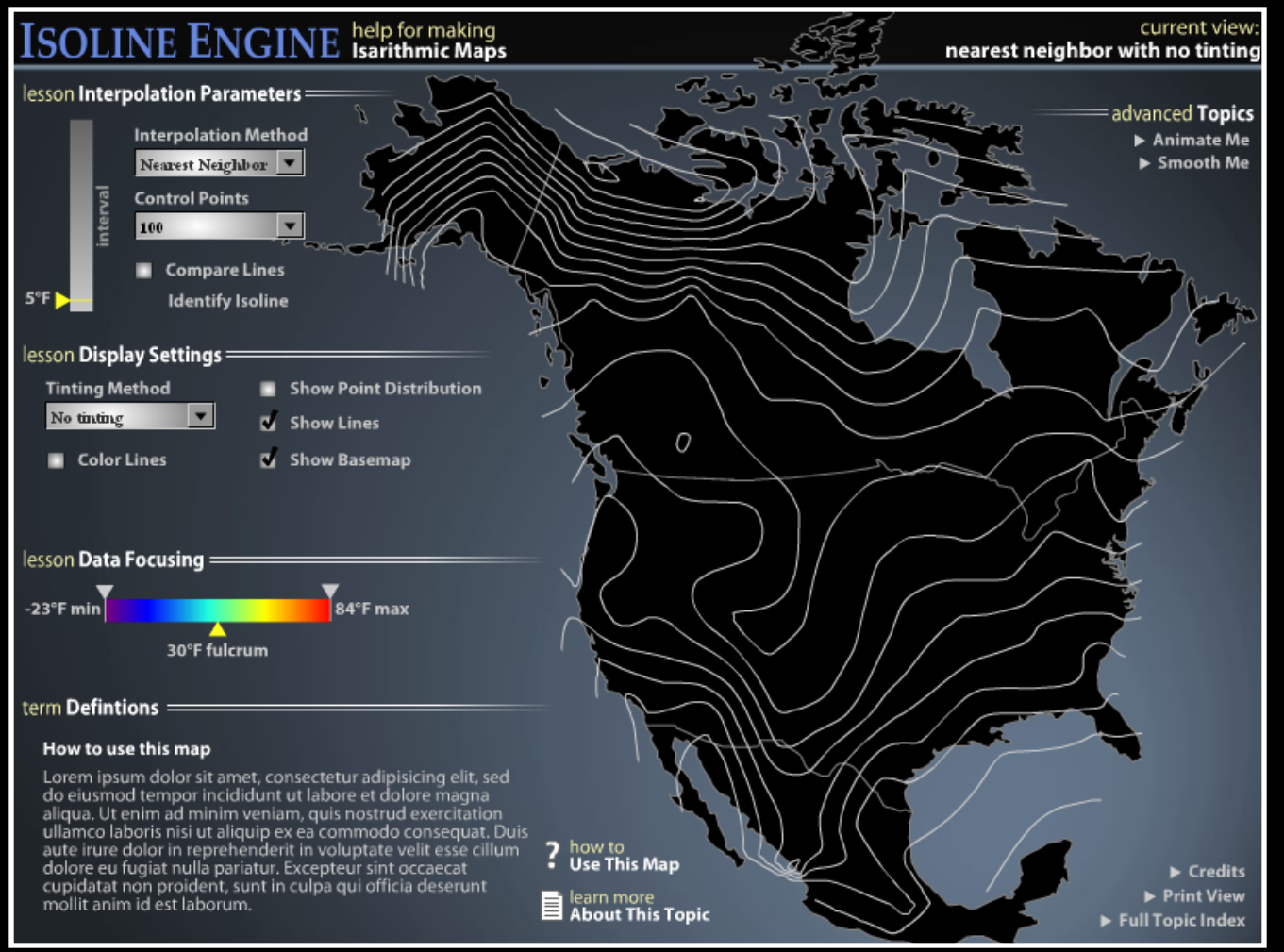
IsolineEngine



*discussion **Questions and Suggestions?**

Powerful [Isarithmic] Tools + [Isoline Engine's] Guidance = Success[1]

~thanks!
Rob

[1] Hopefully