

# ***Top-Down Data Integration by Visualization***

***Stephan Heymann***

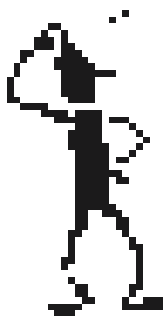
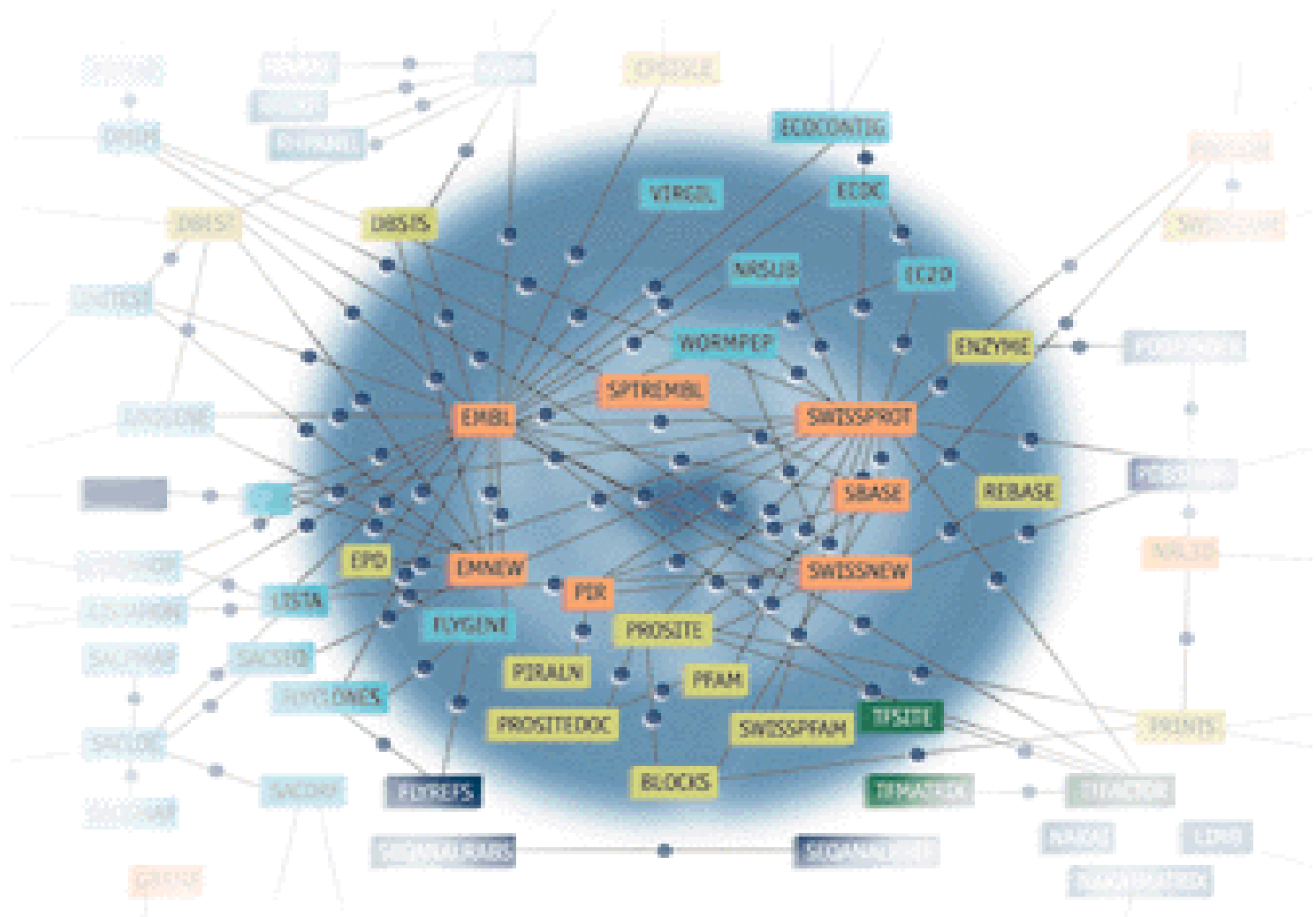
***Workshop on Data Bases  
and Data Integration  
in Genome Research***

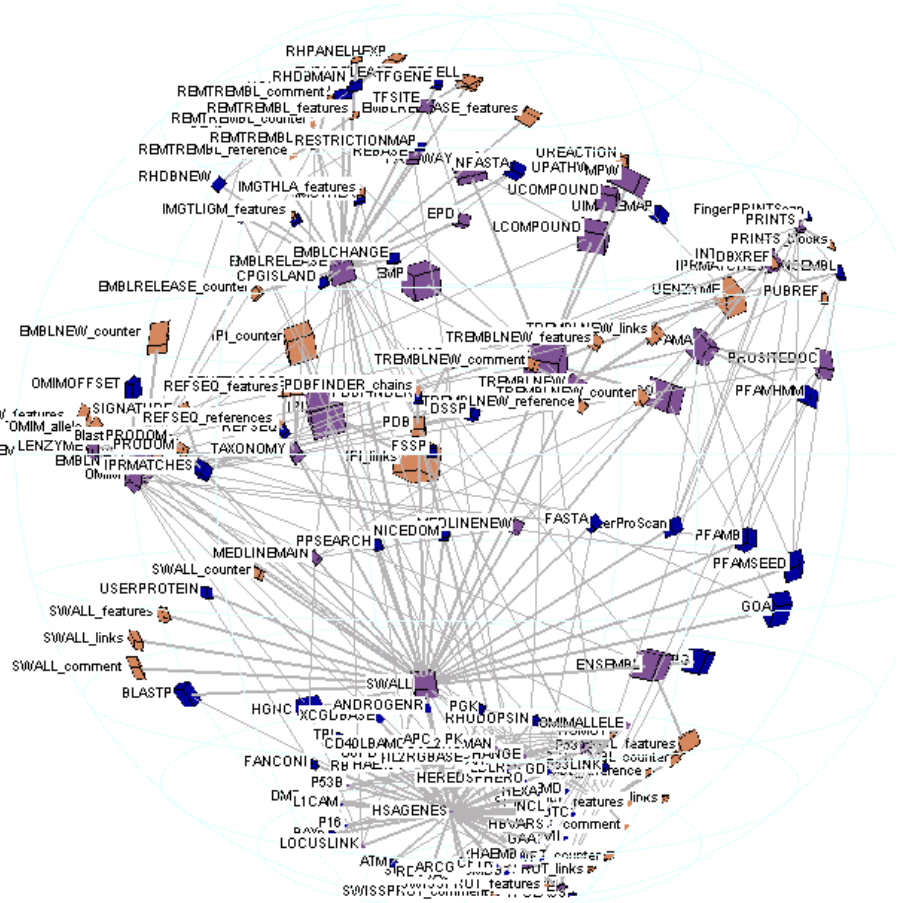
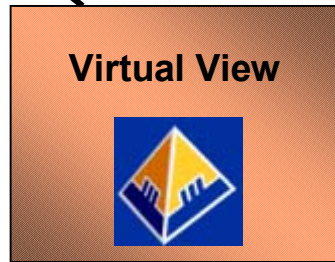
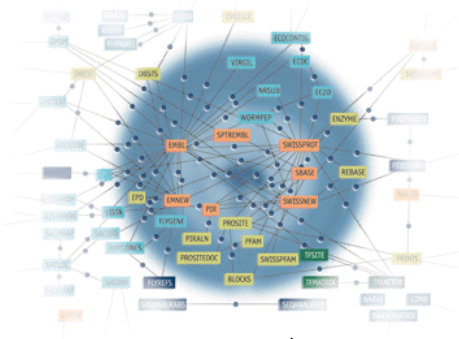
***Feb. 7 - 8, 2002, Berlin***

***Humboldt University,  
DBIS group***

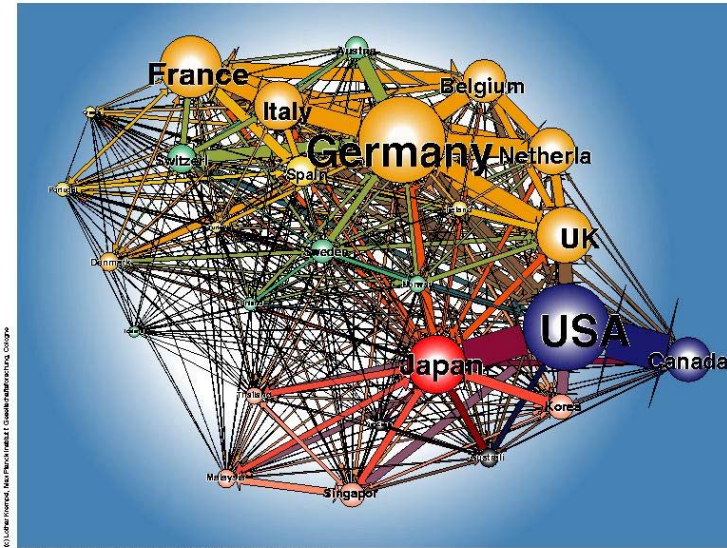
***Kelman GmbH***

**LION: “... several dozen servers world-wide ... over 300 databanks ...”**



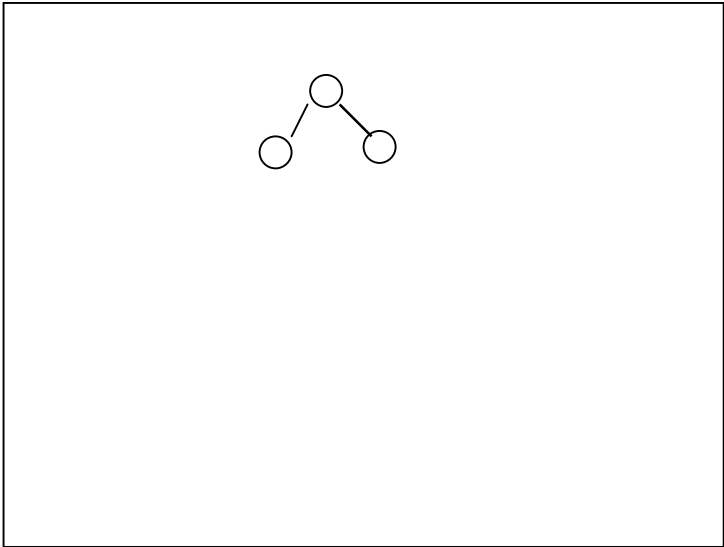
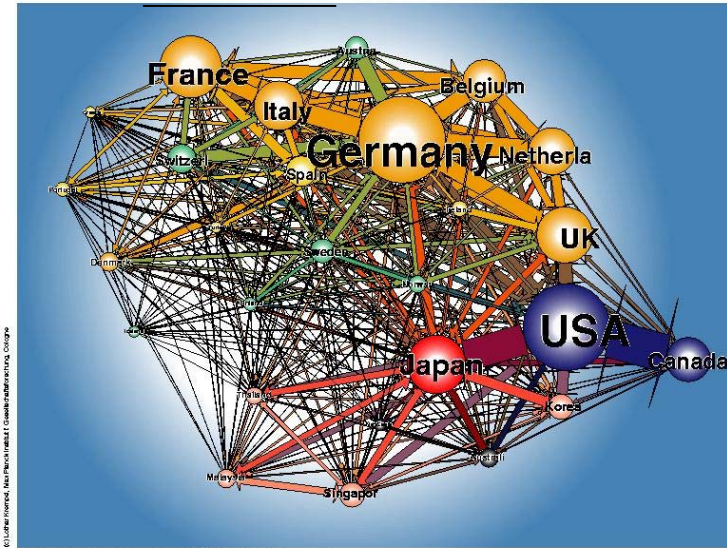


**Next Pages:  
Design Principles and  
Functionality of the  
Graphical Networking Tool  
Family "Viator"**



## **Requirement 1**

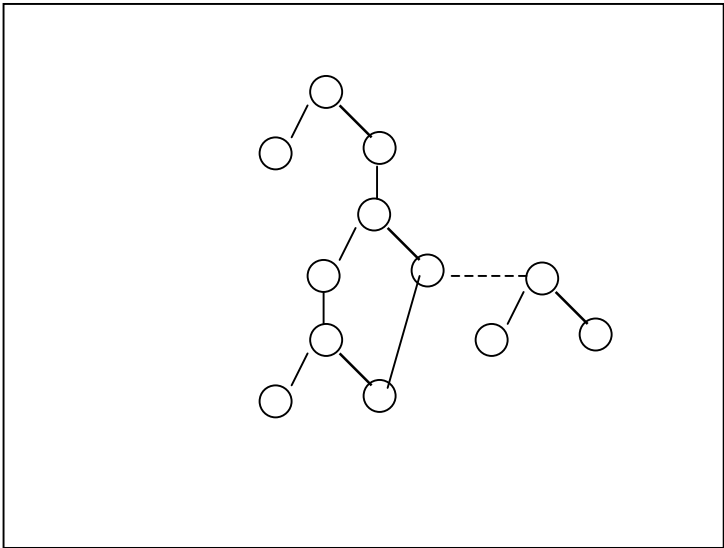
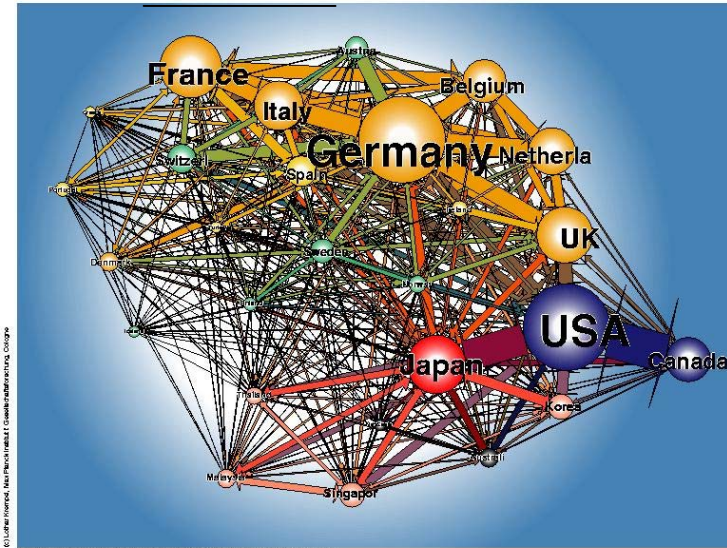
<b>No. of Nodes</b>	<b><math>\gg 10^3</math></b>	
<b>No. of Arcs</b>	<b><math>10^3</math></b>	<b><math>\gg</math></b>
<b>Tree Depths</b>	<b>unlimited</b>	
<b>Mightiness of Nodes and Arcs</b>	<b>unlimited</b>	



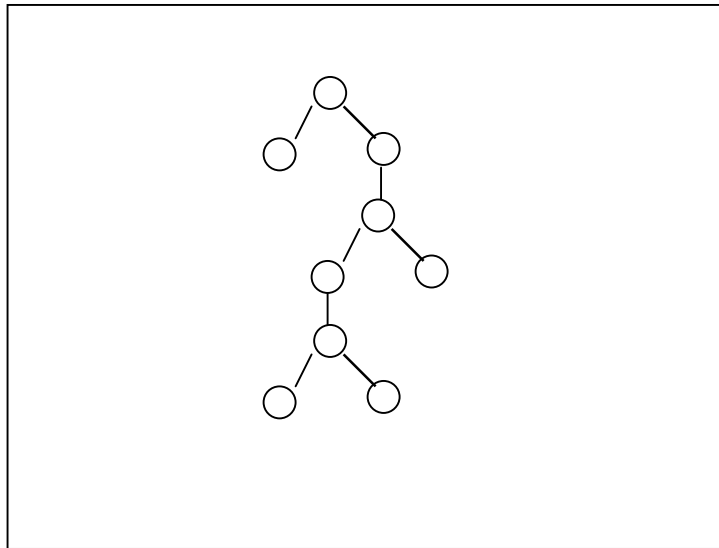
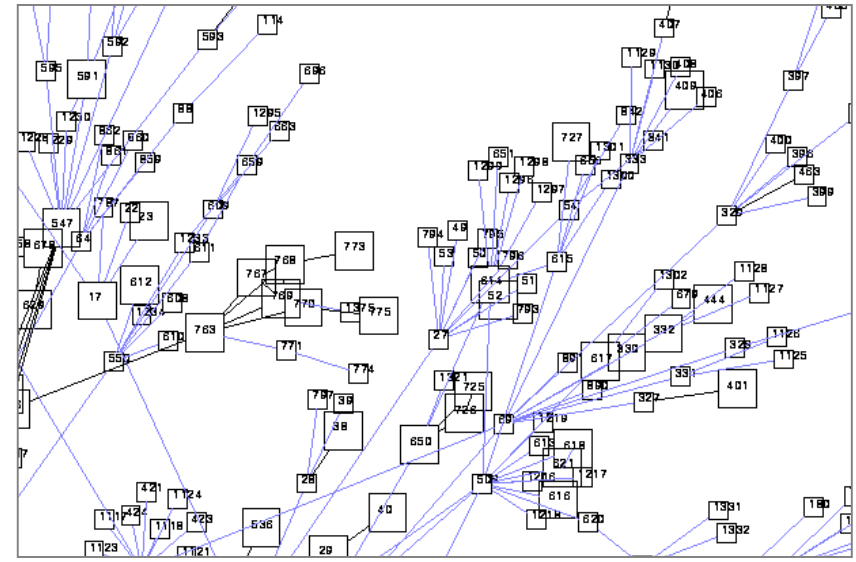
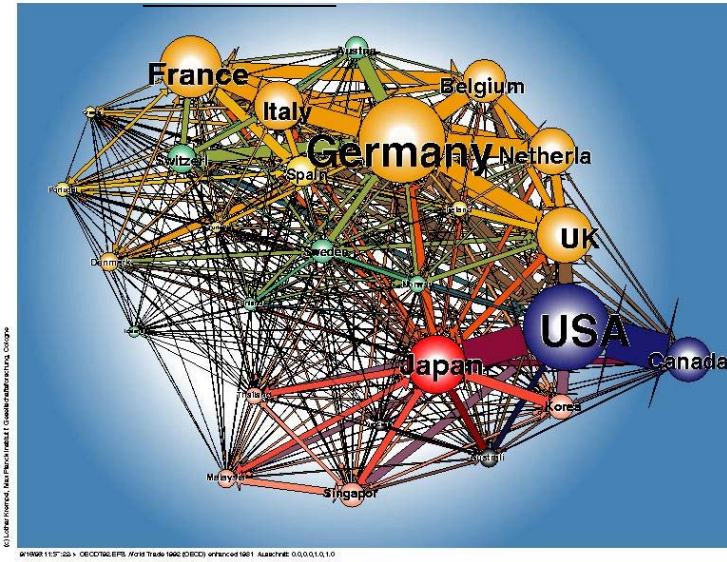
## ***Requirement 2***

### ***Self-Growing Graphs***

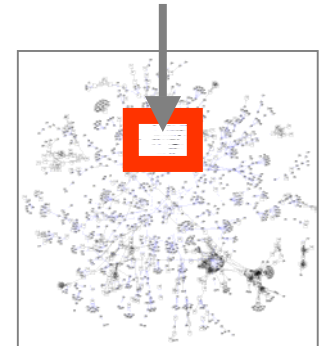
### ***Joint and Disjoint Partitions***



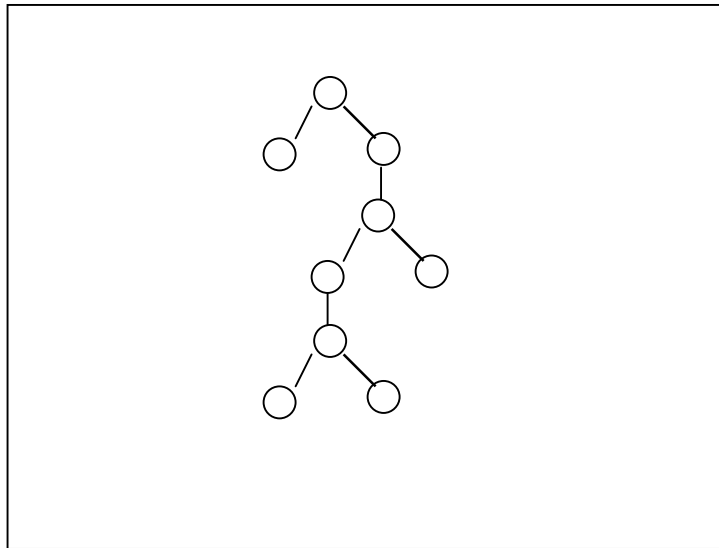
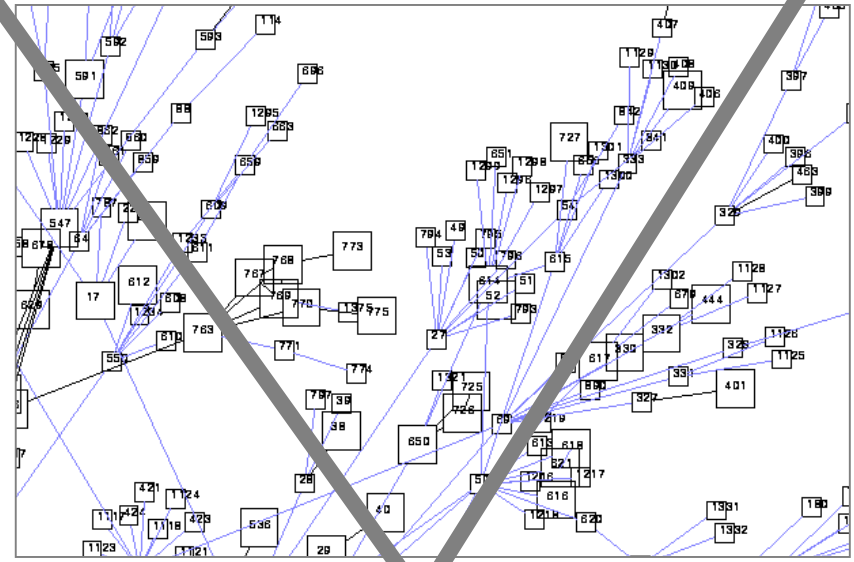
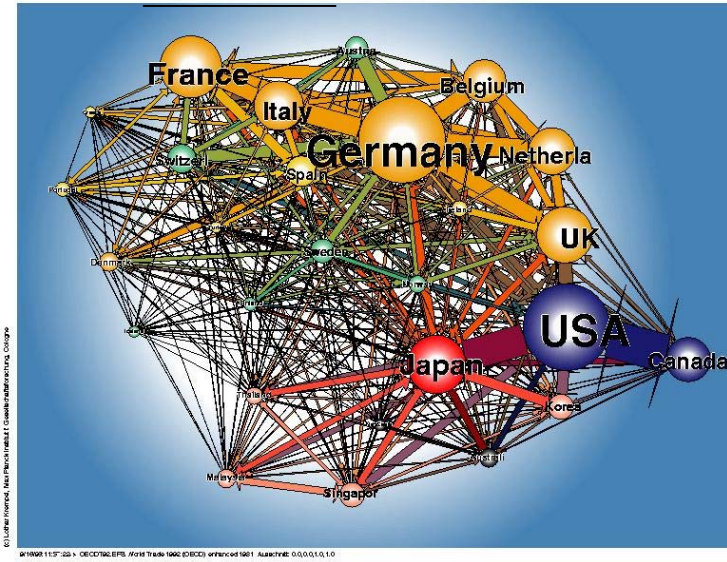
**Requirement 2**  
**Self-Growing Graphs**  
**Joint and Disjoint Partitions**



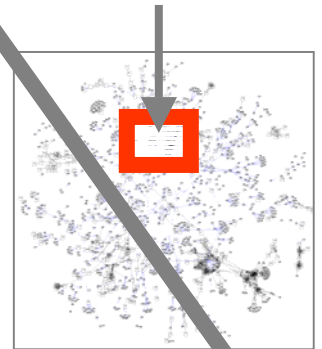
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**Requirement 3**  
**No Planar Depiction**

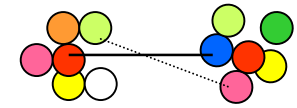
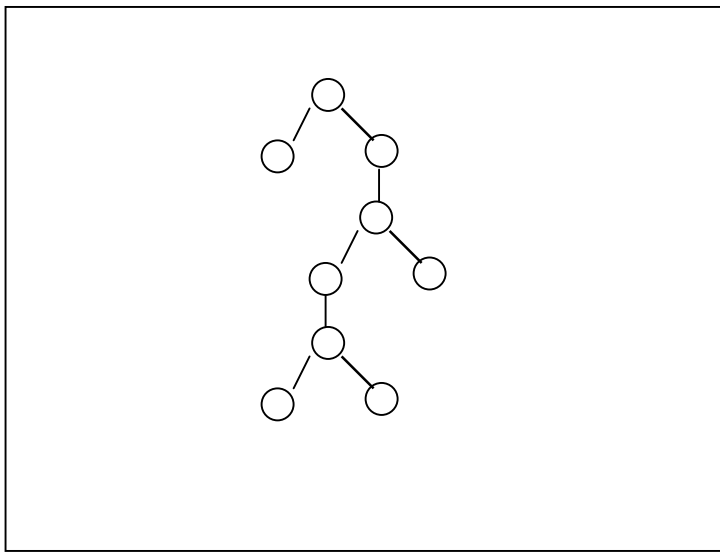
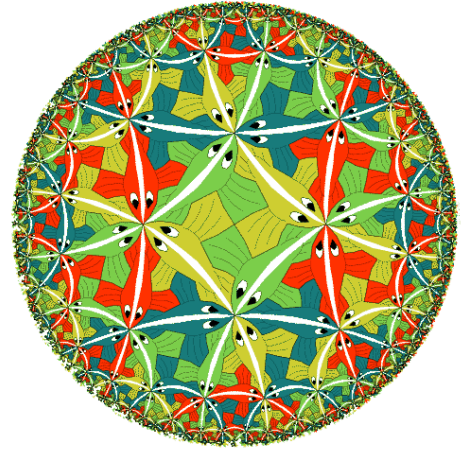
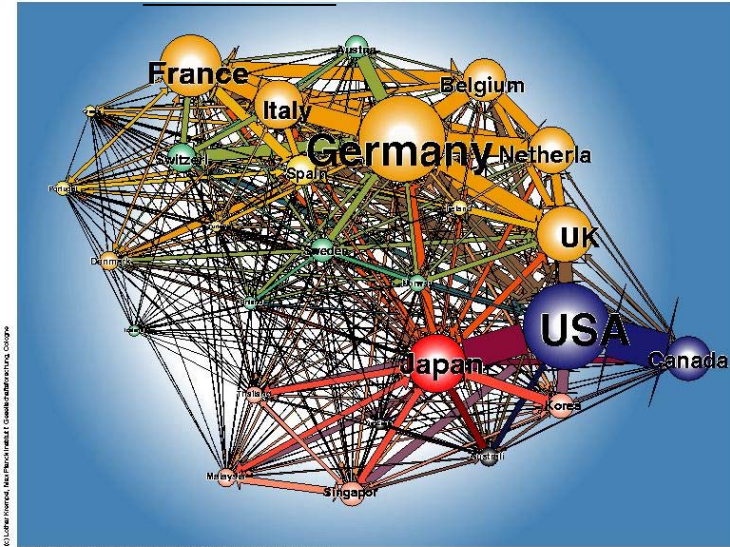


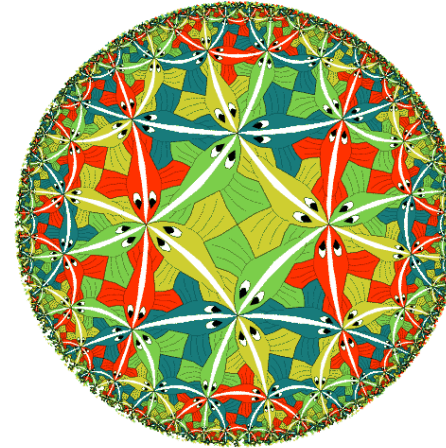
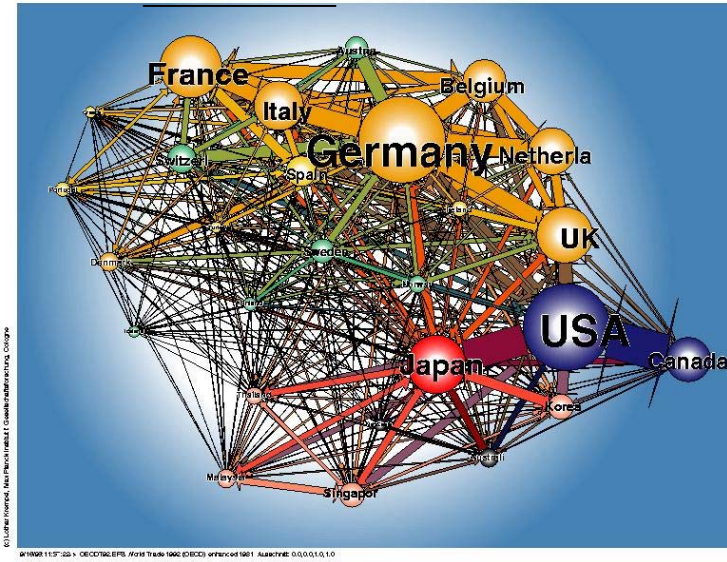
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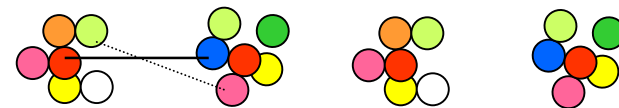


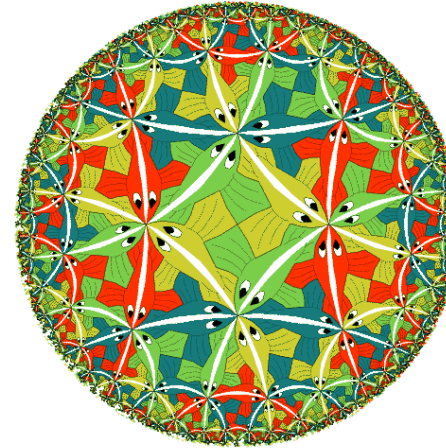
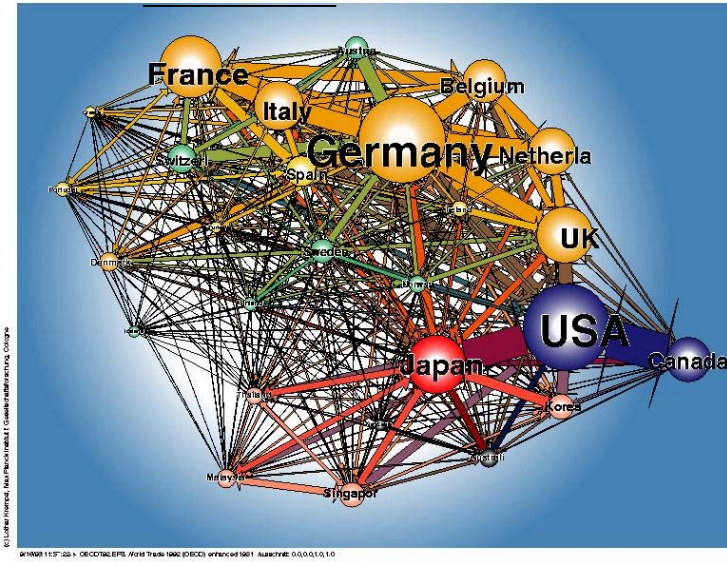






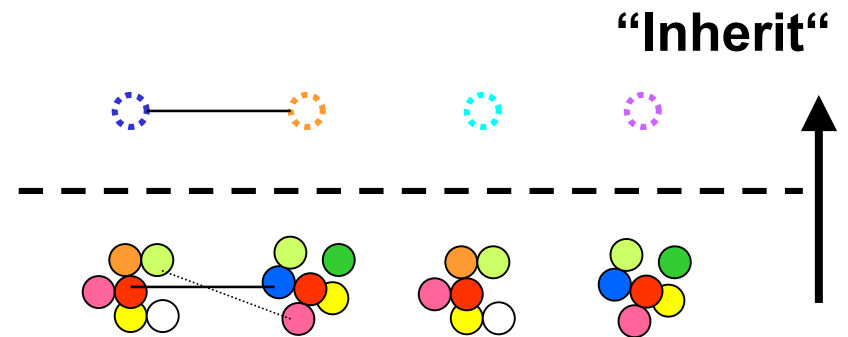
**Requirement 4**  
 “Inheritance” Top-Down  
 “Inheritance” Bottom-Up  
 over  $n$  hierarchical levels

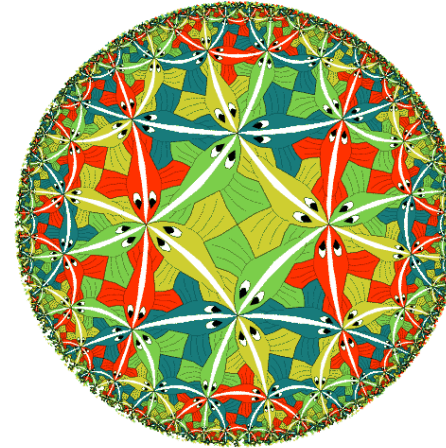
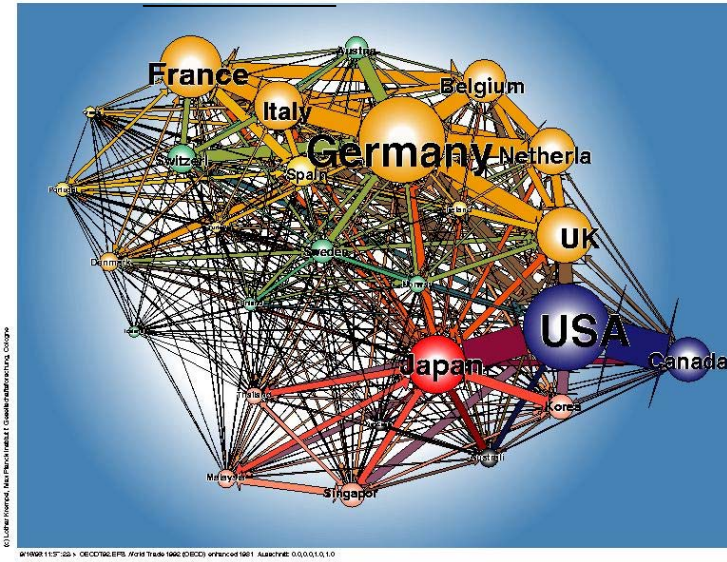




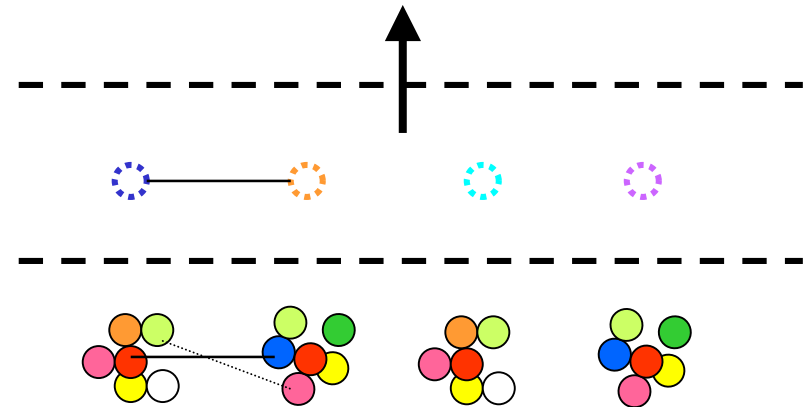
## Requirement 4

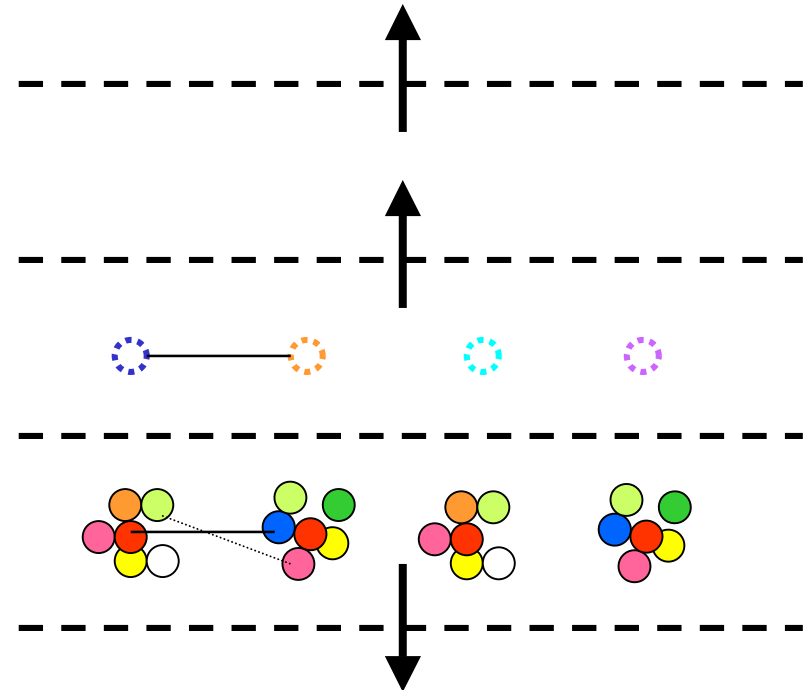
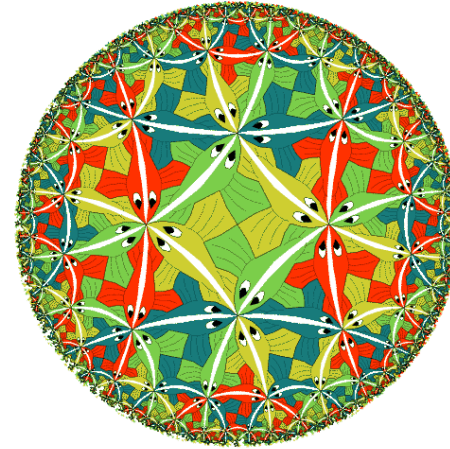
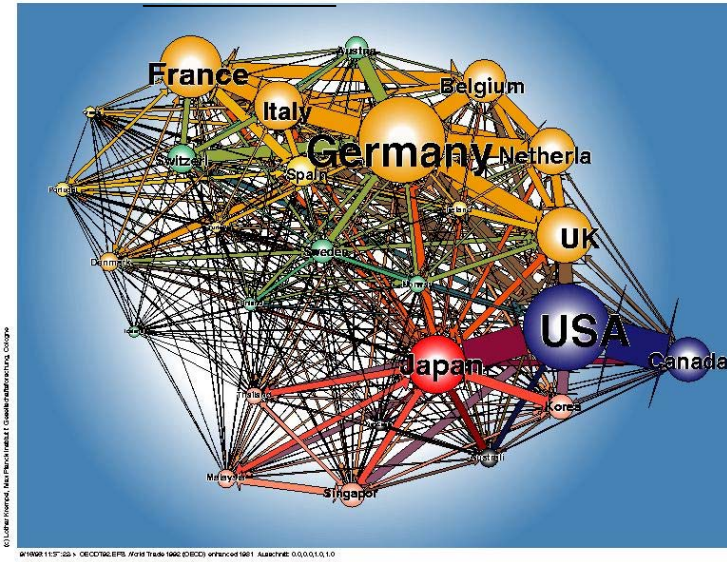
“Inheritance” Top-Down  
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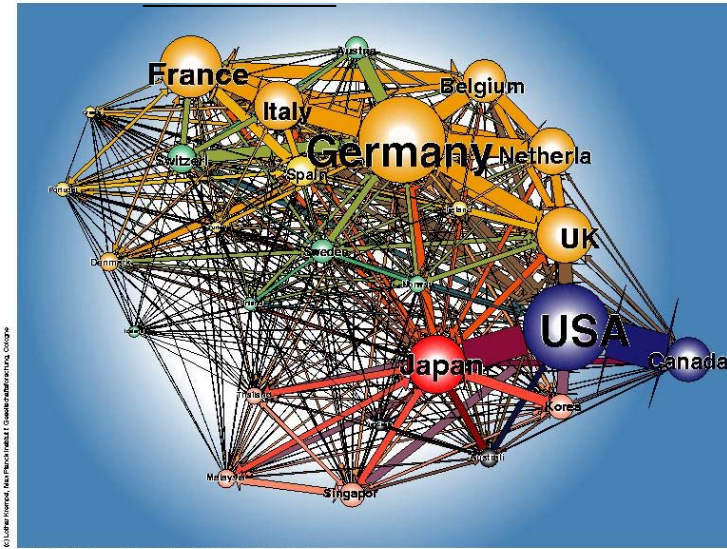



**Requirement 4**  
*“Inheritance” Top-Down*  
*“Inheritance” Bottom-Up*  
 over  $n$  hierarchical levels

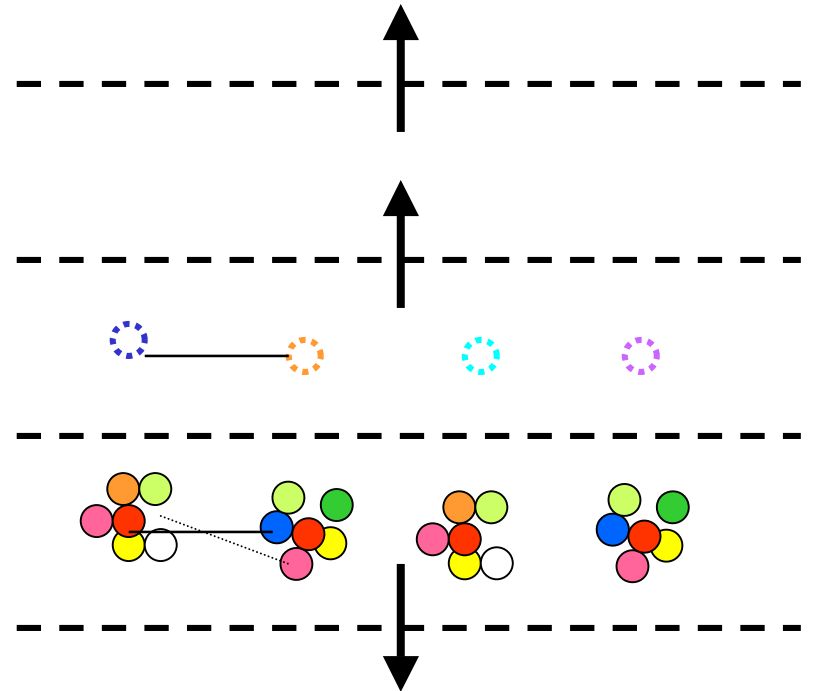
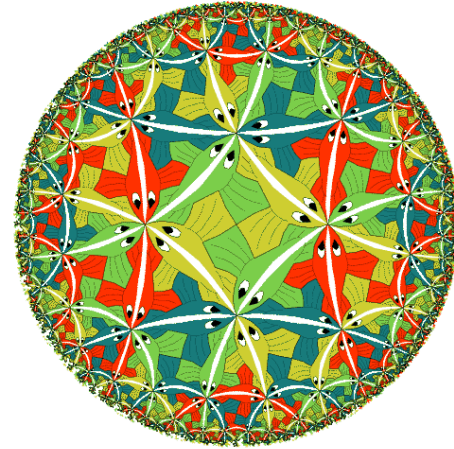




**Requirement 4**  
*“Inheritance“ Top-Down*  
*“Inheritance“ Bottom-Up*  
*over  $n$  hierarchical levels*



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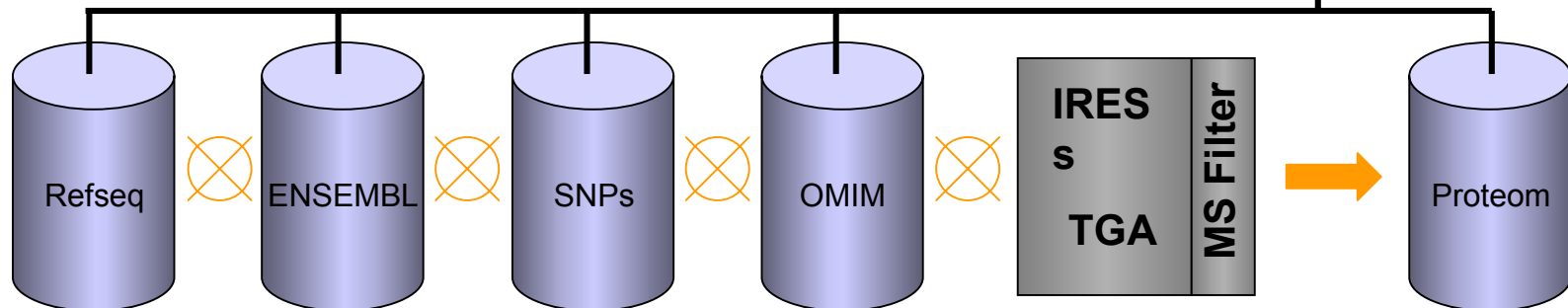


## Specific View:

Create the Entire Multitude of Molecular Versions the Product of Gene XYZ (MEFV) may be met, incl.

- Splice Forms
- SNPs
- Disease Causing Mutations

Essentially that means:



### Virtual View

The Virtual View section displays a network diagram with nodes and edges, representing molecular interactions. Below the diagram are two software windows: a 'Filter' window showing a list of variants for MEFV\_HUMAN (e.g., T681I, H692del, T267I) and a 'Node list' window showing a list of nodes (e.g., MEFV\_HUMAN, MDM4\_HUMAN, NAC2\_HUMAN) with a red arrow pointing to 'BPI\_HUMAN'. A logo is also visible in the bottom right of this section.



## ***Conclusion and Outlook***

- ***Generic Toy for Graphical Networking***
- ***Independent of Nature of Arcs & Nodes***
- ***Display DB Content & Query Output Graphs***
- ***Model & Materialize Views***

## ***Invitation***

- ***Paste any graph into a Template***
- ***Get the acc. Viator back and Tell Us  
How It for Your Particular Purpose***

***Thank You***