Chapter 1
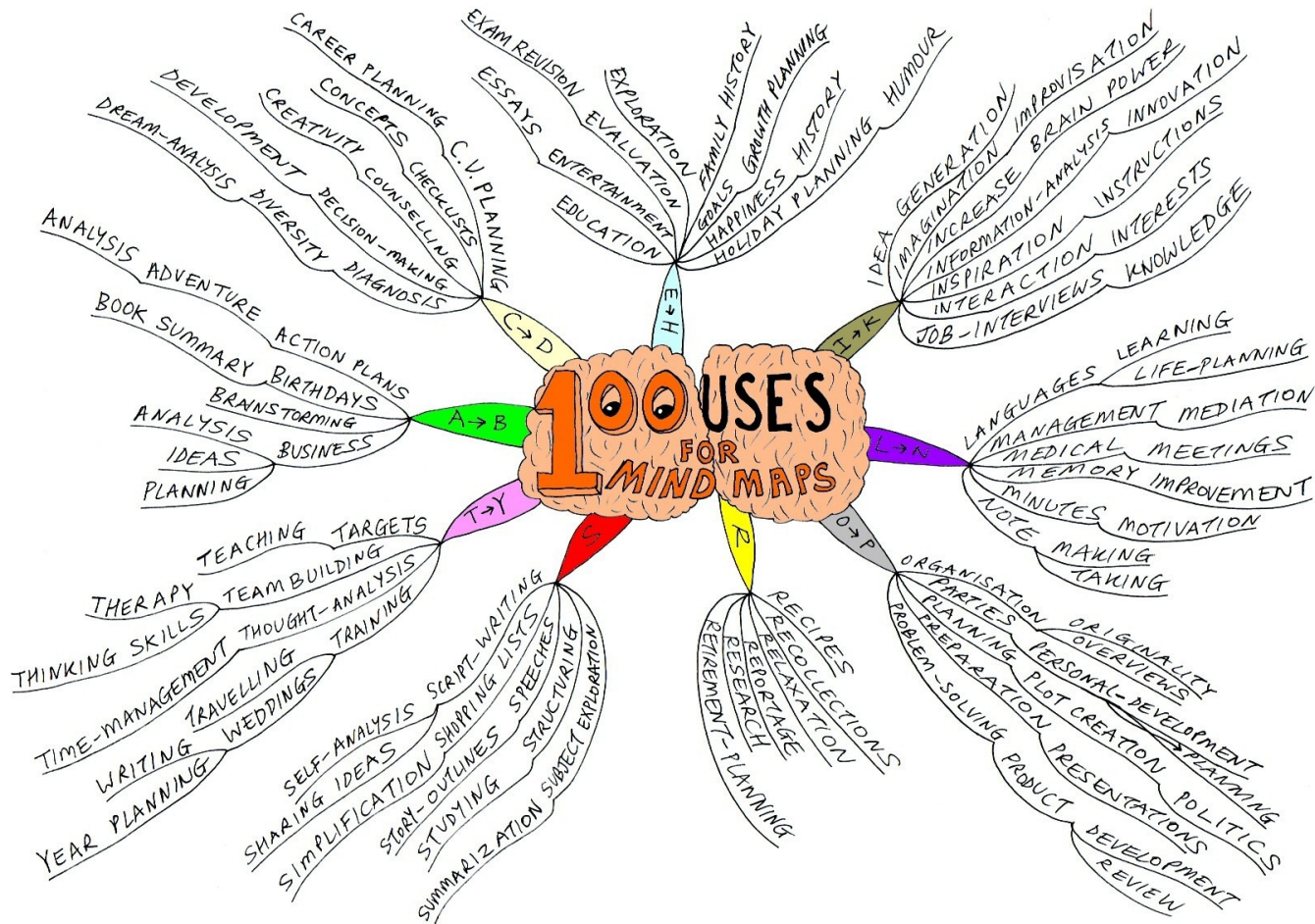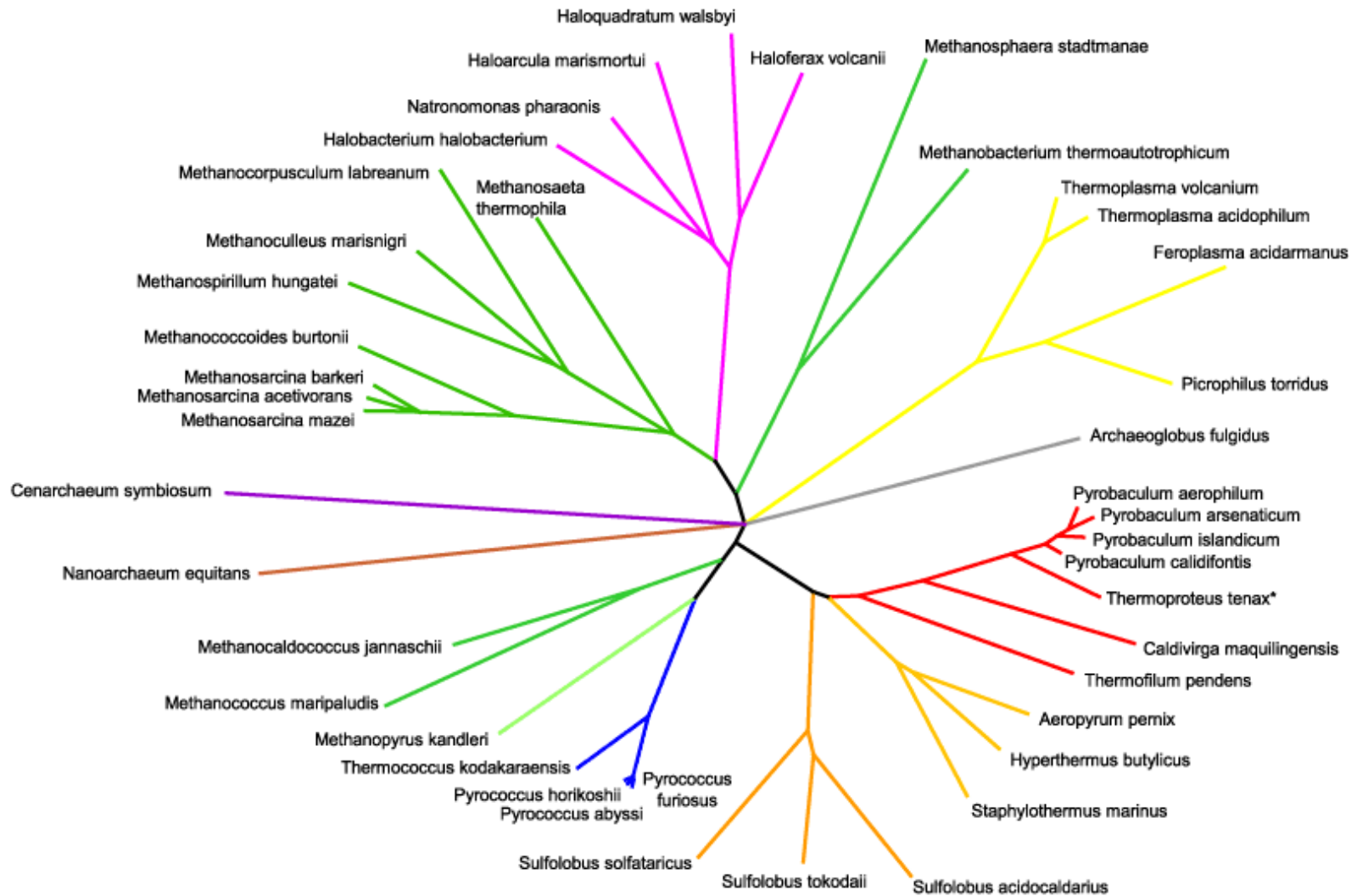
Tools and Techniques

Mind-Mapping & Outlining
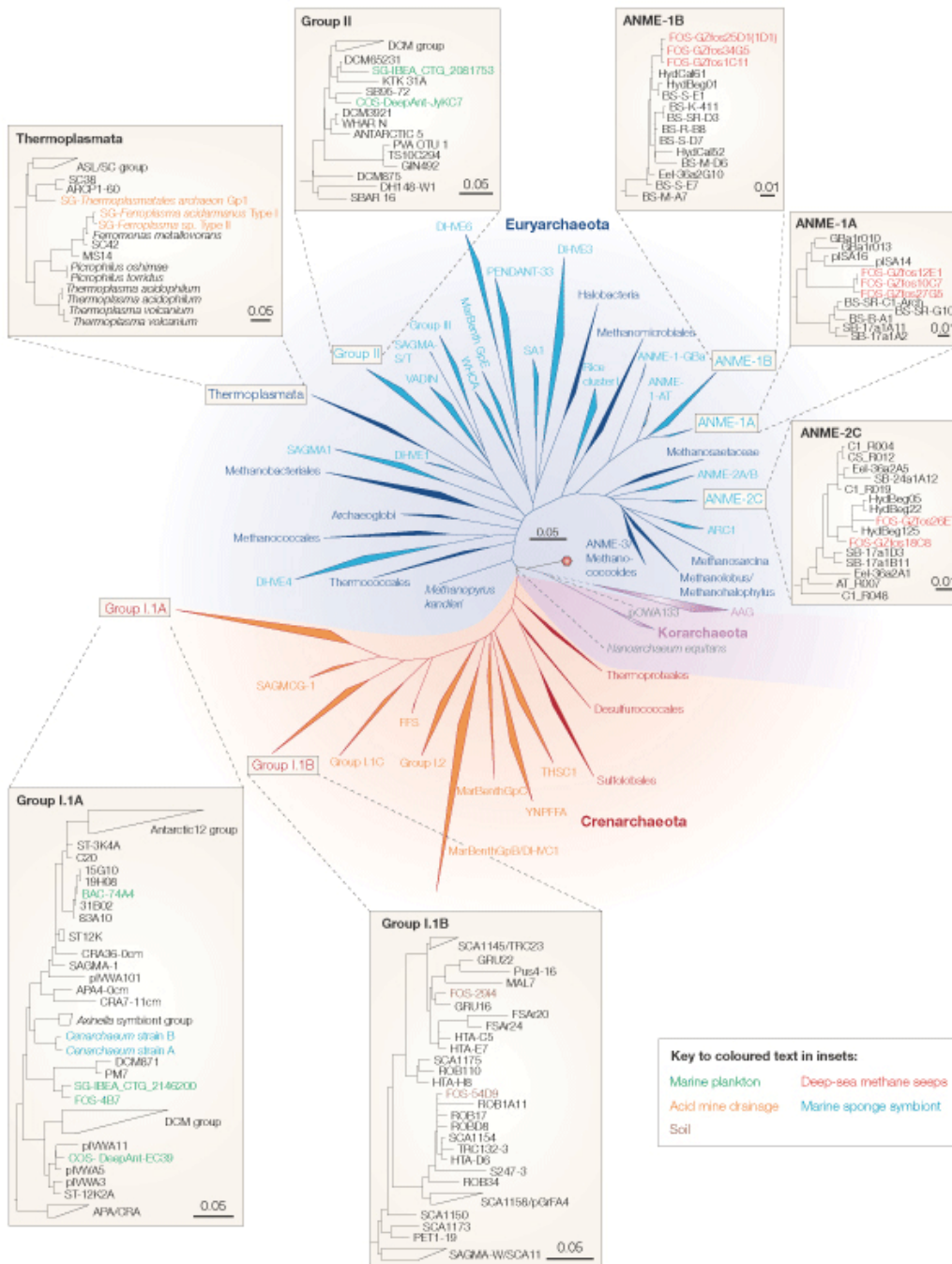
Outlining: Mind Mapping I

Outlining: Mind Mapping II

Outlining: Mind Mapping III

Outlining: Mind Mapping IVa

A Methylaspartate Cycle in Haloarchaea

Maria Khomyakova,* Özlem Bükmez, Lorenz K. Thomas, Tobias J. Erb,† Ivan A. Berg‡
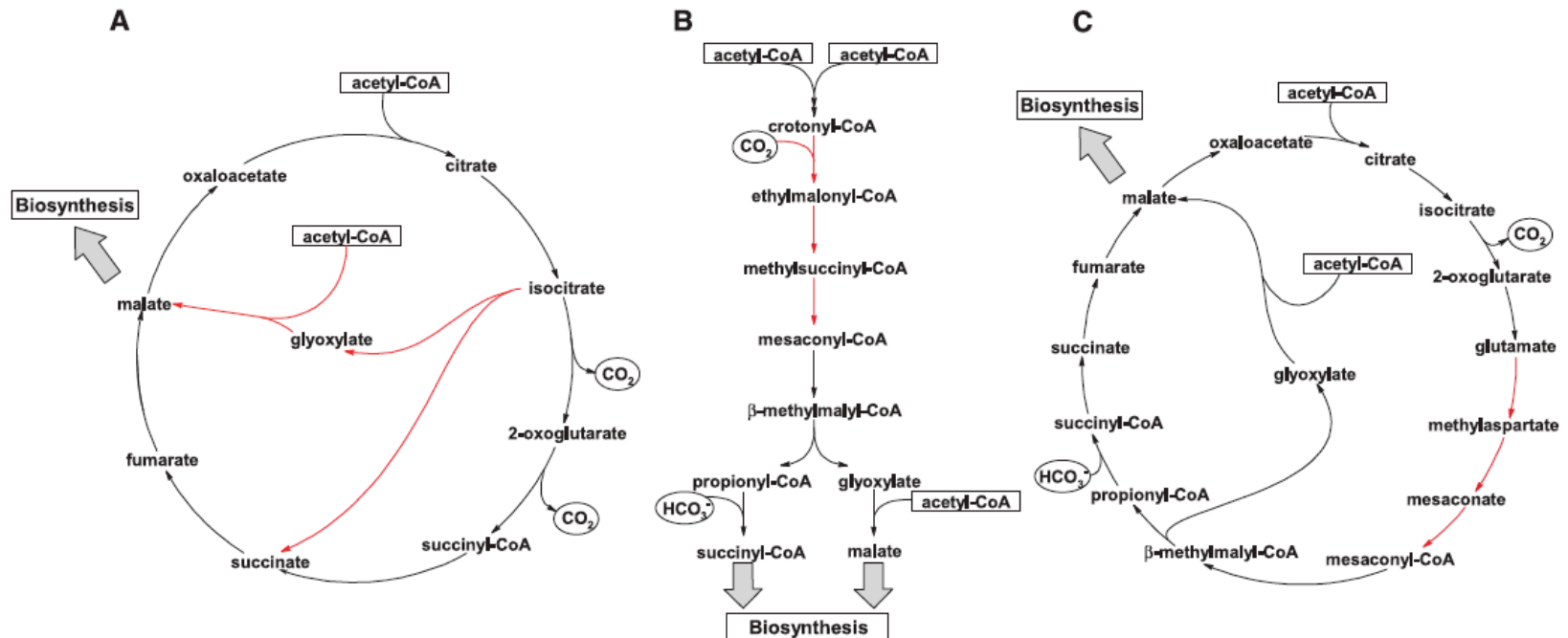
Fig. 1. Anaplerotic pathways of acetyl-CoA assimilation. (**A**) The glyoxylate cycle and the citric acid cycle, (**B**) the ethylmalonyl-CoA pathway, and (**C**) the proposed methylaspartate cycle. The key reactions of the anaplerotic pathways are shown in red. A pathway similar to the methylaspartate cycle has already been suggested for *Protaminobacter rubrum* (now *Methylobacterium extorquens*) (*28*). However, *Methylobacterium* does not have glutamate mutase and methylaspartate ammonia-lyase genes (*29*) and uses the ethylmalonyl-CoA pathway for acetyl-CoA assimilation (*10, 11, 30*).

Outlining: Mind Mapping IVb
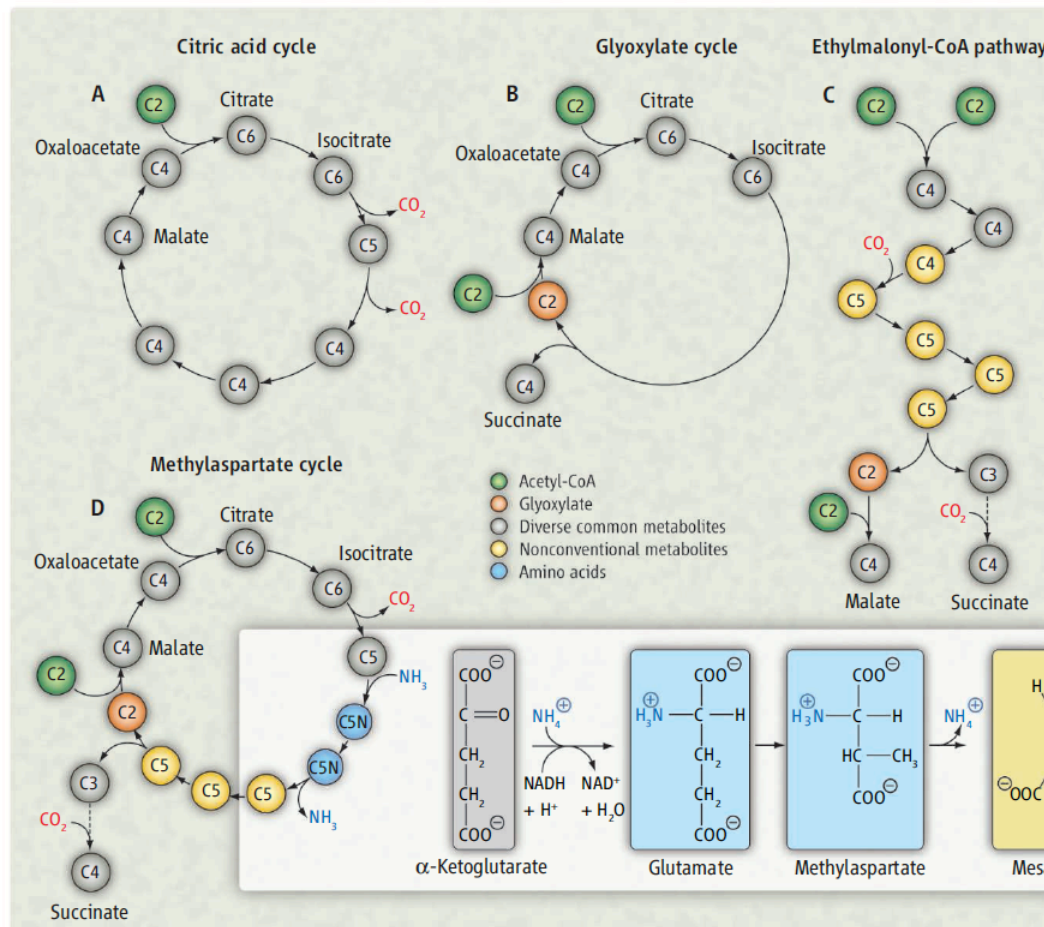
Acetate assimilation pathways. (A to D) Steps likely to involve more than one enzyme and intermediate are shown with dashed arrows. The expanded region of (D) shows the reactions involving nitrogenous compounds. Common metabolites formed in the cyclic pathways are at the same absolute positions for comparative purposes.

as a carbon and energy storage compound (*8*). Thus, high intracellular levels of glutamate could be used as a signal to activate the methylasparate pathway when growing on acetate or other compounds whose metabolism forms acetate as an intermediate.

Another noteworthy feature of this pathway is the versatility of the enzymes it uses: Each of the enzymes is found in other characterized metabolic pathways (*6*). The authors note that the methylaspartate cycle can be thought of as a "metabolic patchwork" of existing enzymes, which have been assembled to accomplish a new and necessary sequence of metabolic transformations for acetate assimilation in an environment rich in salt and nitrogen.

The origin of the enzymes recruited for this pathway is also of interest. Analysis of gene sequences reveals that the key enzymes are genetically related to enzymes from the bacterial domain of life rather than the archaeal domain to which *H. marismortui* belongs. This suggests that the enzymes were

Outlining: Mind Mapping V

Proteomic Analysis of Sulfur Mustard Toxicity
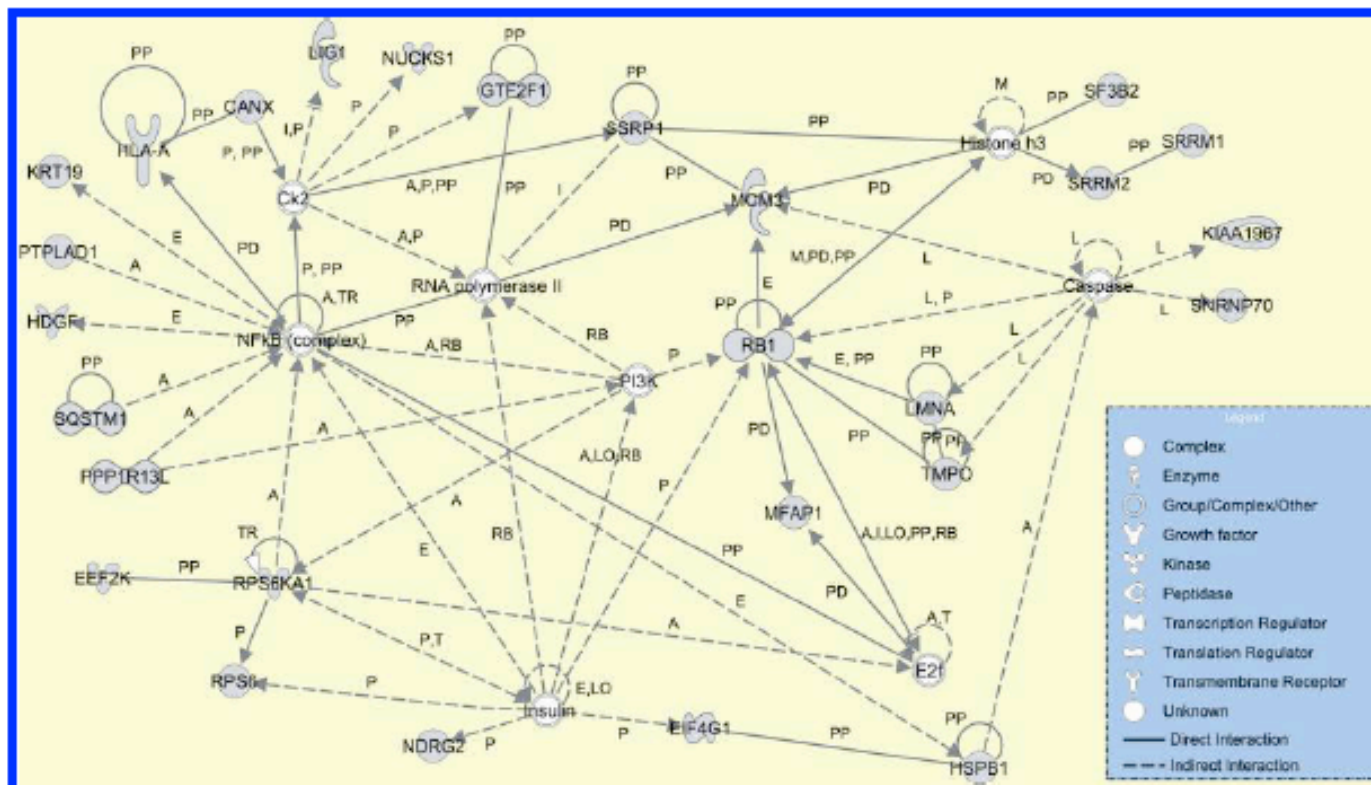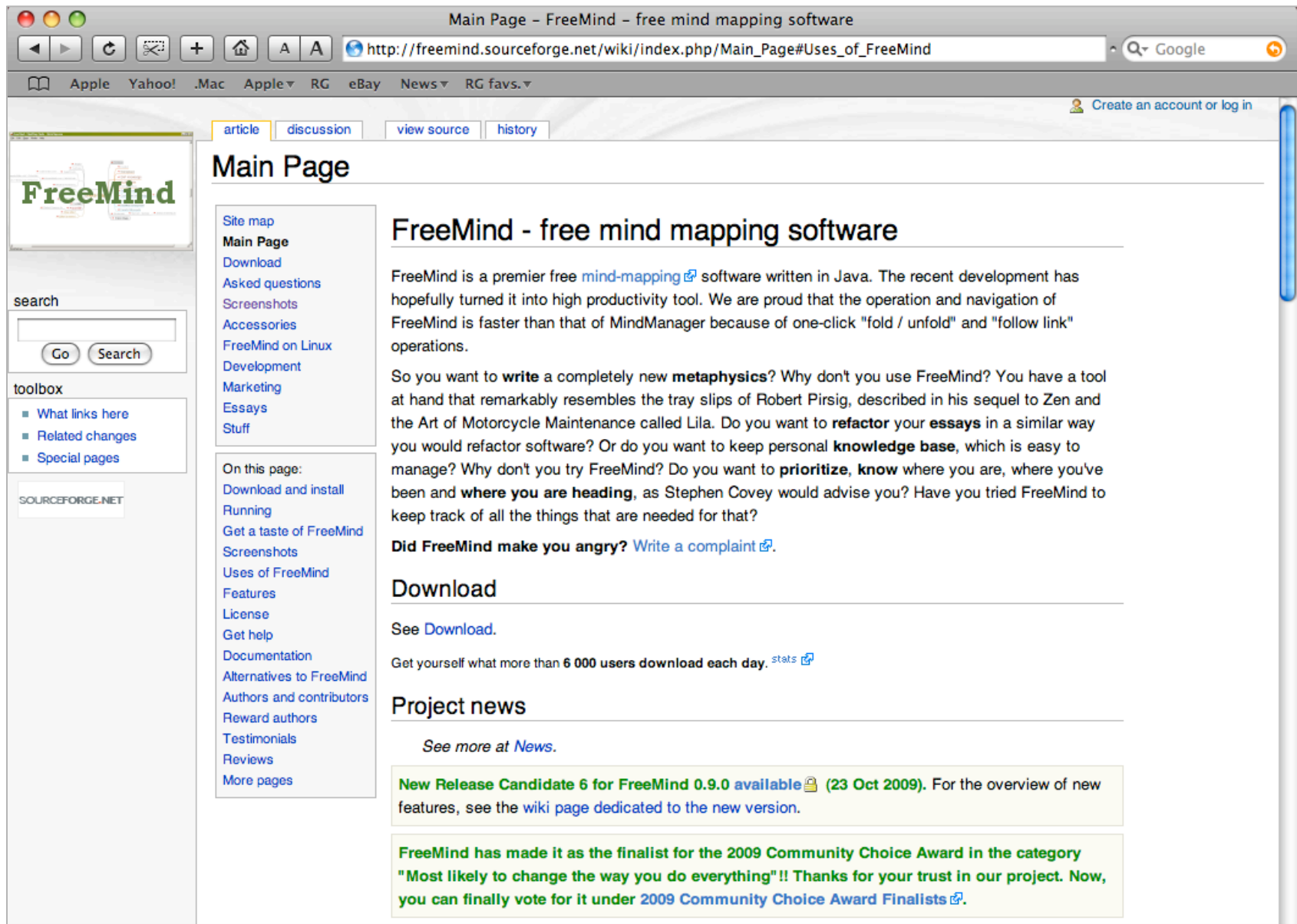
Chem. Res. Toxicol., Vol. 23, No. 1, 2010   23

Figure 3. De novo interaction network analysis of proteins exhibiting altered phosphorylation levels in response to SM. Phosphoproteins from Table 4 of the Supporting Information were analyzed using IPA software to construct de novo interaction pathways as determined from published literature. Phosphoproteins colored gray were altered by at least 2-fold in response to SM, whereas proteins colored white were not detected in our study as exhibiting any quantitative phosphorylation change. A high confidence score of 62 was determined for this interaction map by IPA. See Table 4 of the Supporting Information for IPI numbers corresponding to each protein. Interactions shown: acts on (closed arrowhead), translocates to (open arrowhead), inhibits (T-junction), inhibits and acts on (closed arrowhead and T-junction), and binding only (simple line). "Acts on" and "inhibits" edges may also include a binding event. Abbreviations used for interactions as determined by IPA: A, activation; E, expression; I, inhibition; LO, localization; M, modification; P, phosphorylation; PD, protein–DNA interaction; PP, protein–protein interaction; L, proteolysis; RB, regulation of binding; T, transcription; and TR, translocation.

Outlining: Mind Mapping VI

Outlining: Mind Mapping VII

From Mind-Maps to Lists

Describe the Network Attractors (Hubs)
Initially Focus on Main Connecting Paths (Major Routes)
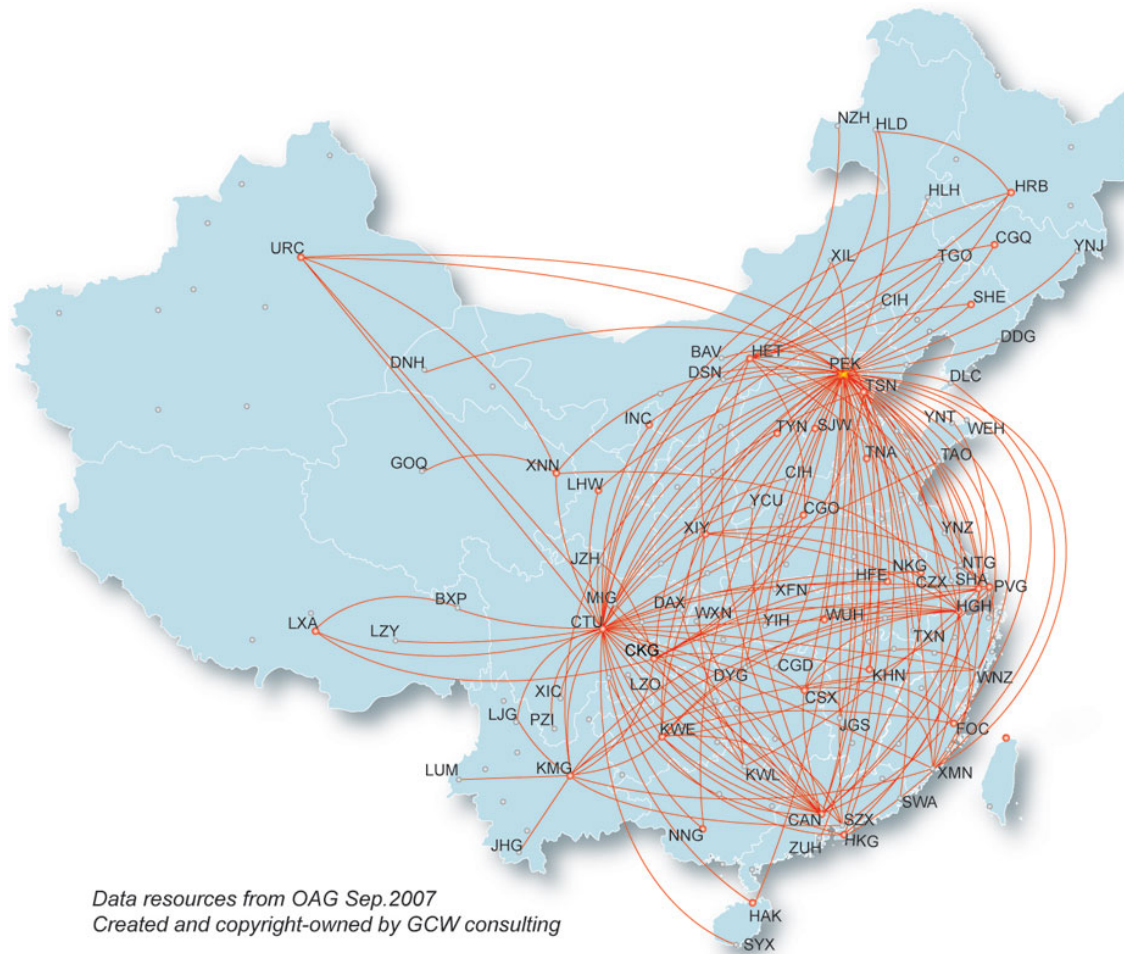
PEK = Beijing

CTU = Chengdu

CAN = Guangzhou

SHA = Shanghai

Data resources from OAG Sep.2007
Created and copyright-owned by GCW consulting

From Mind-Maps to Lists
Disconnect Cycles to Linear Sequences

Open a cycle at a "natural breaking point".

If there are several possible options, select the one that best serves your needs.

If you select a non-obvious breaking point, then say so and justify your choice.

Citric acid cycle

A C2 Citrate C6 Isocitrate C6 CO_2 C5 CO_2 C4 C4 C4 Malate C4 Oxaloacetate C4
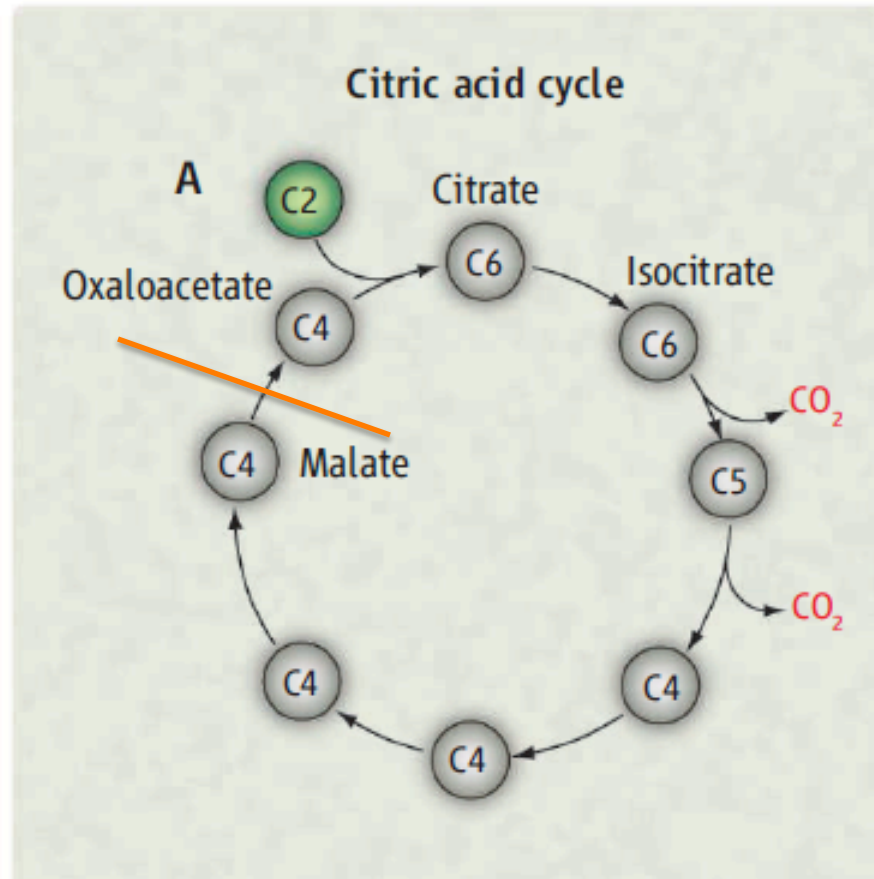
From Mind-Maps to Lists
Sequence and Connection

Outlining: Lists I

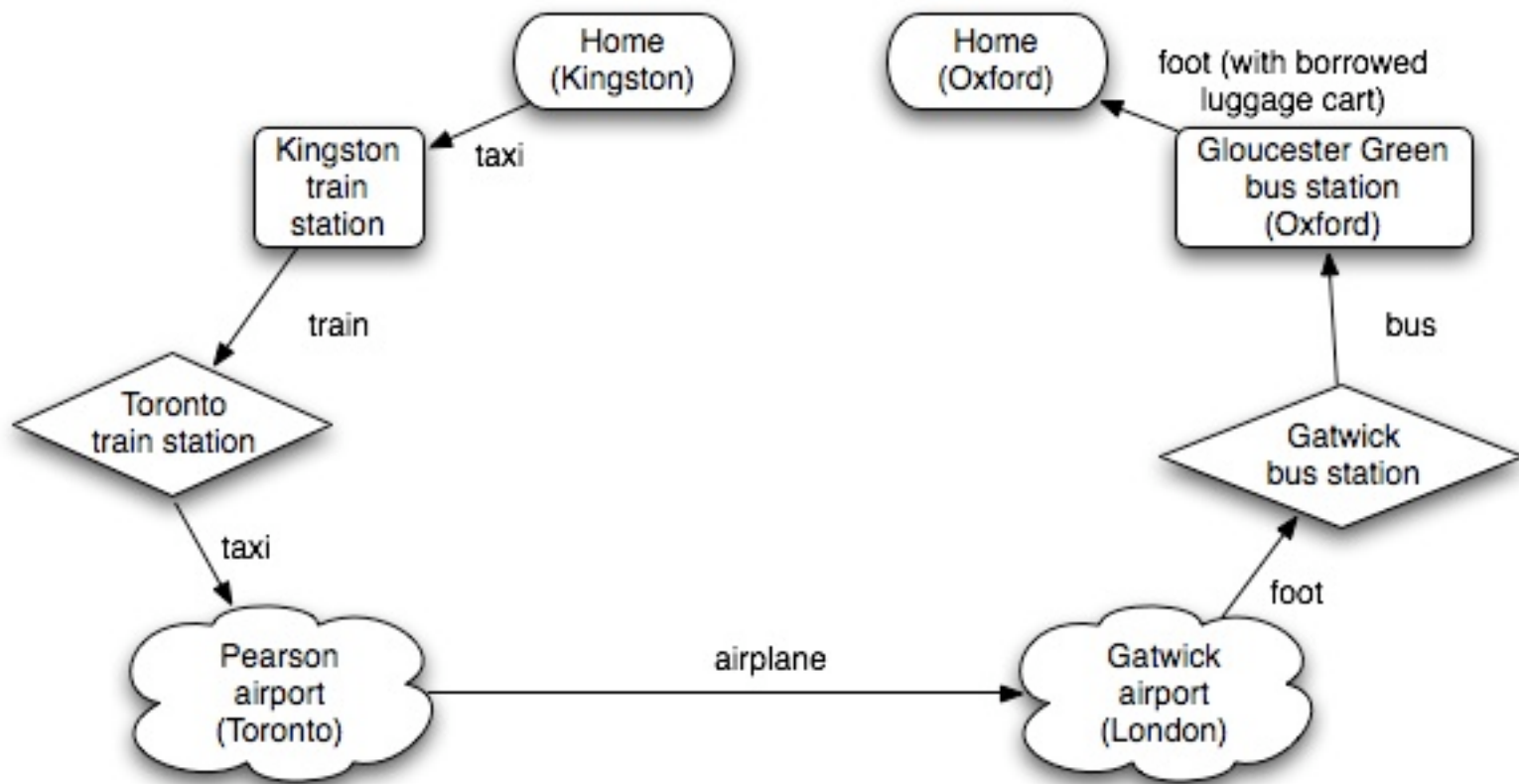| HTML-CODE	EXPLANATION / EXAMPLE

`<ol>`
`<li>text</li>`
`<li>text</li>`
`<li>text</li>`
`</ol>`
	Makes a numbered list using the default number type:
	
	  1. text
	  2. text
	  3. text

`<ol start="5">`	Starts a numbered list, first # being 5.
	
	  5. This is one line
	  6. This is another line
	  7. And this is the final line

`<ol type="A">`	Starts a numbered list, using capital letters.
	
	  A. This is one line
	  B. This is another line
	  C. And this is the final line

`<ol type="a">`	Starts a numbered list, using small letters.
	
	  a. This is one line
	  b. This is another line
	  c. And this is the final line

`<ol type="I">`	Starts a numbered list, using capital roman numbers.
	
	  I. This is one line
	  II. This is another line
	  III. And this is the final line

`<ol type="i">`	Starts a numbered list, using small roman numbers.
	
	  i. This is one line
	  ii. This is another line
	  iii. And this is the final line

`<ol type="1">`	Starts a numbered list, using normal numbers.
	
	  1. This is one line
	  2. This is another line
	  3. And this is the final line

`<ol type="I"`
`start="7">`
	An example of how type and start can be combined.
	
	  VII. This is one line
	  VIII. This is another line
	  IX. And this is the final line

Forums | **D-Zine Articles** | **Tutorials** | **Online Tools** | **Free Resources** | **Refere**

HTML Lists :

NUMBERED LISTS

This page shows how to make different kinds of numbered lists.
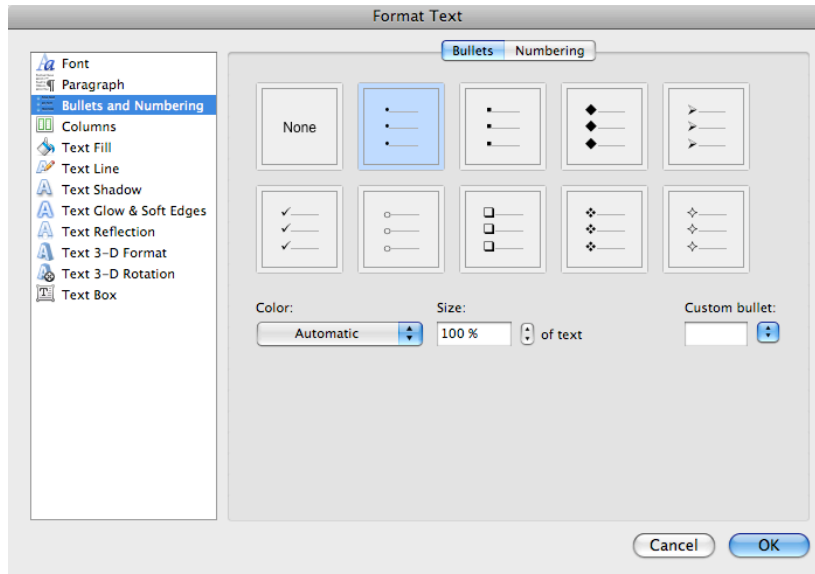
You have the following number options:

- **Plain numbers**
- **Capital Letters**
- **Small Letters**
- **Capital Roman Numbers**
- **Small Roman Numbers**

In addition to these options you can specify at which number the list sh
The default start value for numbered lists is at number one (or the lette

Outlining: Lists II

♡ Numbered Lists
♡ Bulleted Lists
♡ Alphabetic Lists

http://livedocs.adobe.com/en_US/InDesign/5.0/images/op_42.png
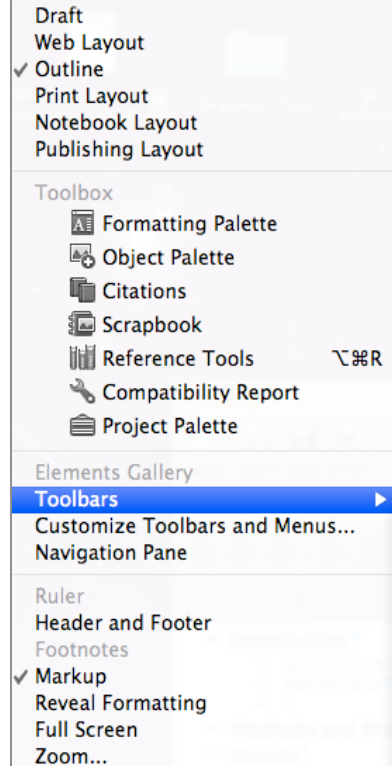
Outlining: Lists III

In Word

Draft
Web Layout
✓ Outline
Print Layout
Notebook Layout
Publishing Layout

Toolbox
    🅰 Formatting Palette
    🖼 Object Palette
    📚 Citations
    📓 Scrapbook
    📖 Reference Tools   ⌥⌘R
    🔧 Compatibility Report
    📁 Project Palette

Elements Gallery
Toolbars   ▶
Customize Toolbars and Menus...
Navigation Pane

Ruler
Header and Footer
Footnotes
✓ Markup
Reveal Formatting
Full Screen
Zoom...

✓ Standard
✓ Formatting
Contact
✓ Outlining
Reviewing
✓ Tables and Borders

AutoText
Background
Database
Drawing
Forms
Movie
Speech

1. Create a <u>new document</u>.

2. Make sure Outline view has been selected. The Outline toolbar should appear on your screen (pre-Word 2007) or the Outlining tab of the ribbon should be selected (Word 2007).

3. Start typing your document. The paragraphs you enter will be a first-level head (formatted with the Heading 1 style).

4. Adjust the heading levels of your paragraphs by clicking the left and right arrow keys on the Outline toolbar or on the Outlining tab of the ribbon.
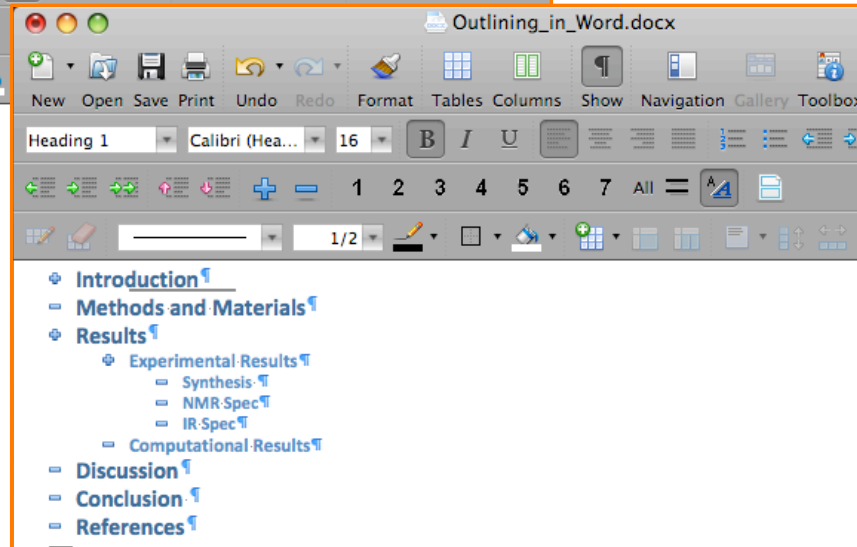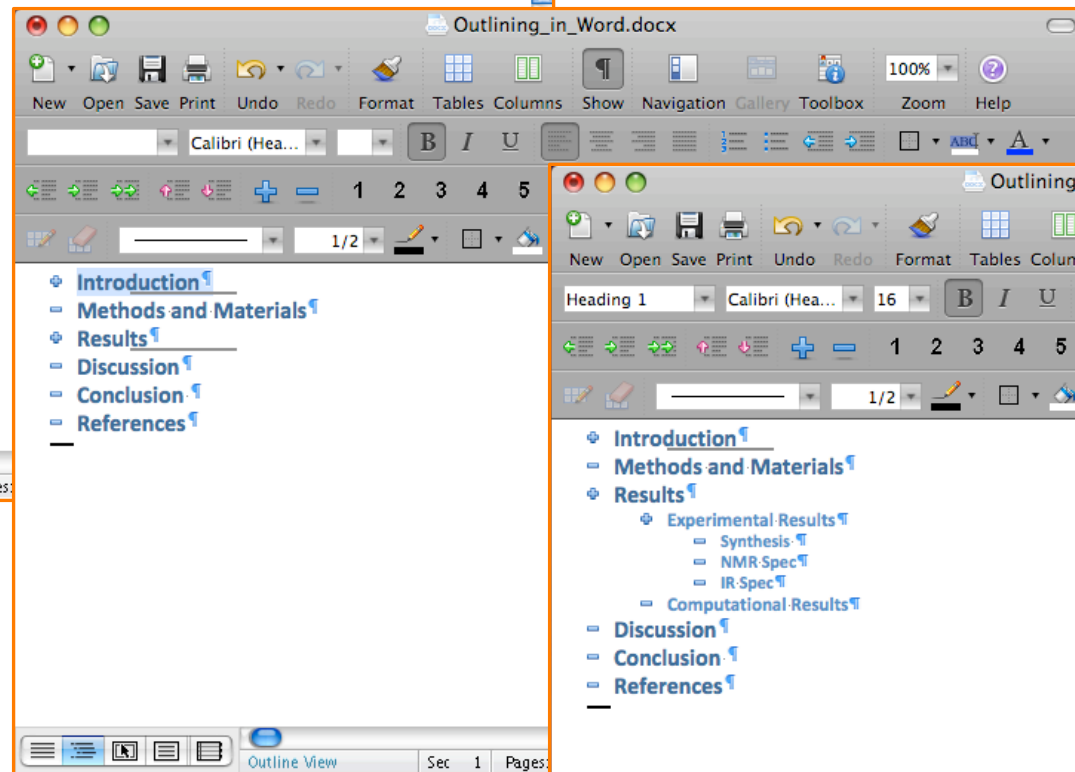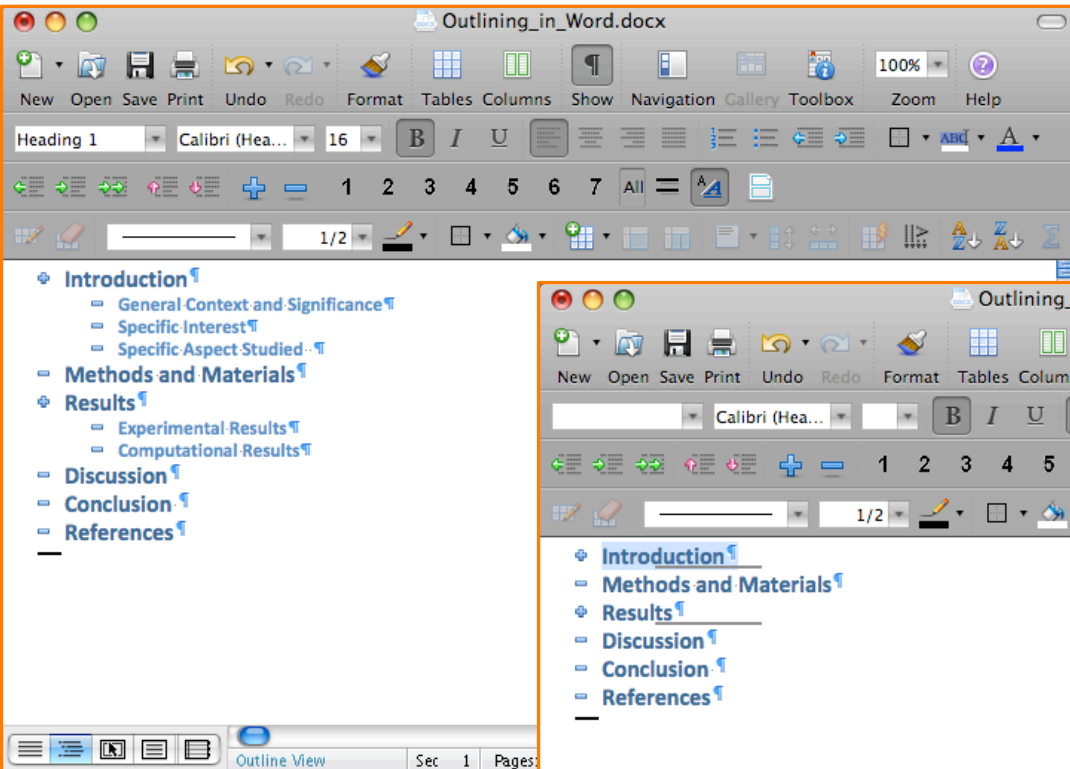
Outlining: Lists IV

In Word
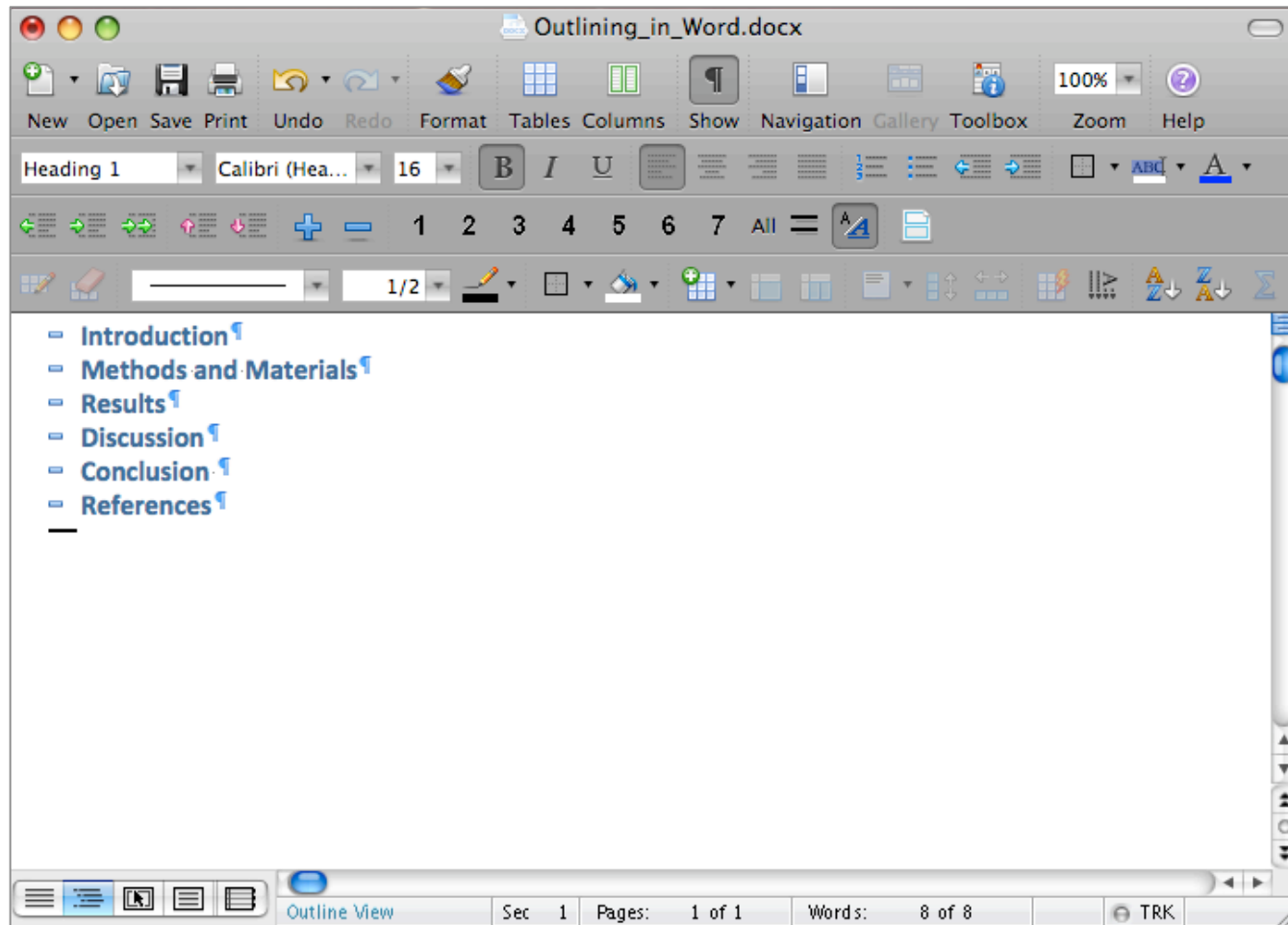
Outlining: Lists V

In Word

Stereotyped Format

Here, that's a good thing!

- Title
- Abstract
- Introduction
- Materials & Methods
- Results
- Discussion
- Conclusion
- References

5. Be thoughtful.

6. Last item.

-- As you progress.

1. Start here!

2. What done? How?

3. Explain, examine.

4. Think hard!

-- As you progress.