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Name: T Cameron Waller  
Number: 1

Project: Profondeur

## Query Interface

- Queries determine the scope of nodes and links of interest (interest set)
- Use path ranking by attributes (flux rate, exp data) or by path length or something.

## The idea

1) Query the network to define interest set of nodes and links.

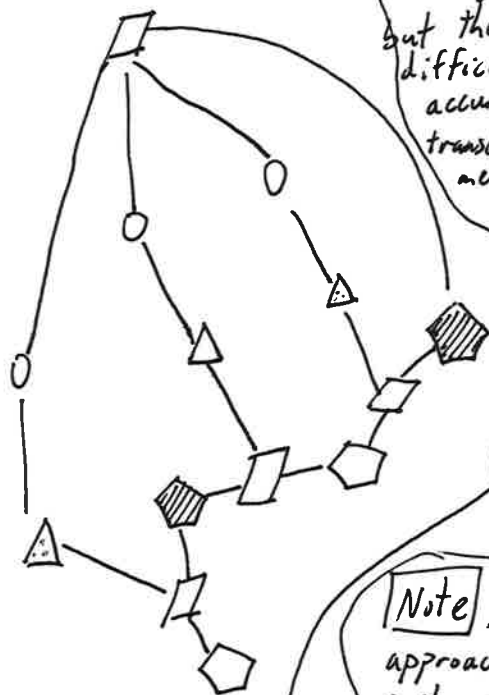
Query returns multiple ranked sets and user selects (like PathFinder). Also support experimental data-dependent auto-query recommendations.

2) User selects nodes, and links, and relations from interest set to show according to desired detail. Support variety of visual encodings according to priority.

Query supports Pathways by name but also non-arbitrary option.

## Main View

Maybe show the entire set initially? or start simple?



The genes are connected but the connection is difficult to represent accurately without transcripts, proteins, and metabolites. Really genes could relate in multiple ways that would be ambiguous without the other node types to clarify.

**Note** An alternative approach: use a strategy similar to Entourage. Use separate views for networks of different dimensions (types of nodes and links) with links/portals between these sub-network views.

I think the understandability of this strategy would be limited. Think about it. Some connections go through others as above.

For example which relations should be links and which should be regions (containment)?

## Notes

Study literature for examples of visualization of multi-dimensional networks (such as PathFinder). How to handle the dimensionality?

## Network Builder

Node Selector  
Link Selector

## Network Dimensions

The set of nodes and links is dependent on the query. Query defines nodes and links in interest set. Then select more specifically from that set.

## Node Selector

(select to include)/turn on/off

- ☐ Genes
- ☐ Transcripts
- ☐ Proteins
- ☐ Metabolites

Maybe also allow drag-and-drop ranking to prioritize

★ Consider how to maintain point-of-reference as the network & representation changes.

Let user specify reference node to highlight or anchor as network changes. Also to give automatic recommendation from query, or node attributes.

## Link Selector

En Code  
Expression  
Regulation  
Transport  
Catalysis  
Reaction

## Data Mapper

select which data to show and how.