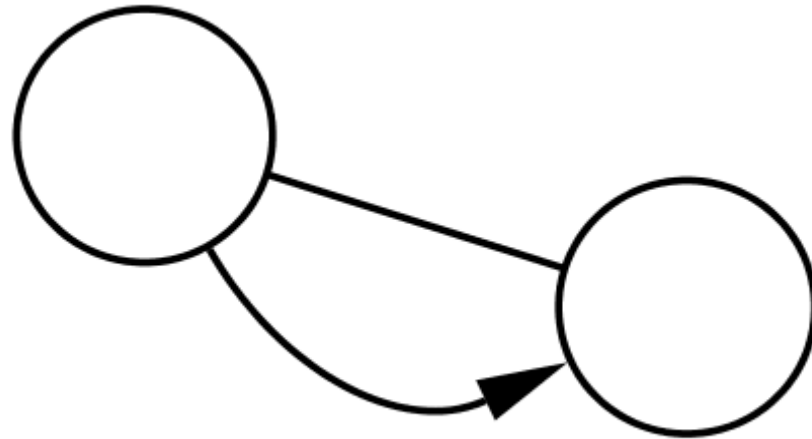


# Undirected edges support in Cytoscape 3.0



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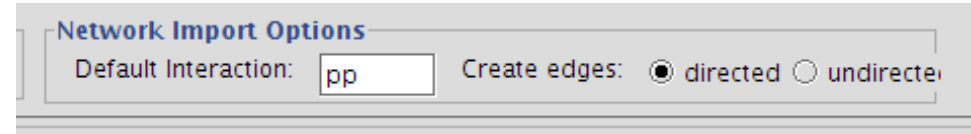
<http://cytoscape.org/cgi-bin/moin.cgi/DanielAbel/EdgeDirectionality>

- currently all edges directed
  - even if API claims otherwise
  - UI inconsistent
  - need for workarounds
- libraries support undirected edges
- Cytoscape 3.0 breaks many other things

# UI Changes:

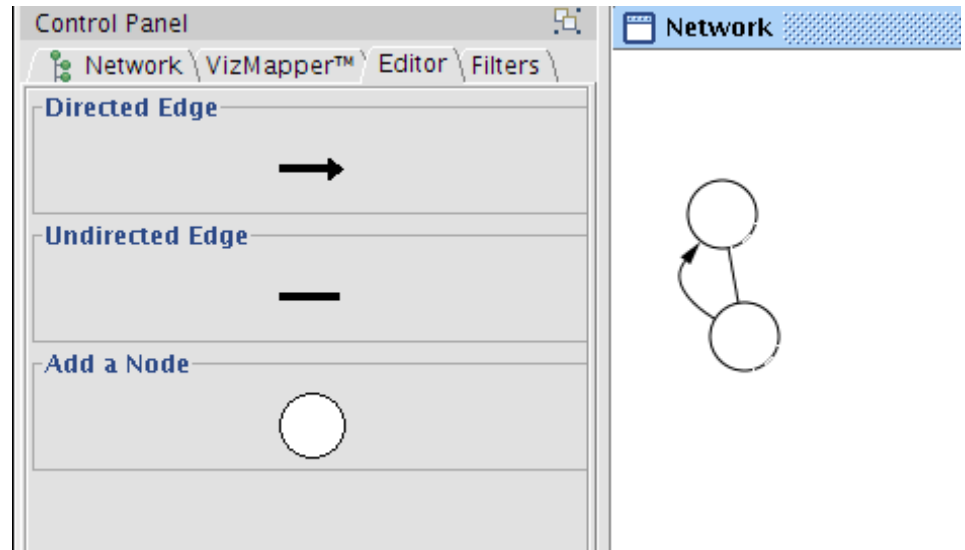
## I/O:

- not all file formats supported
- Table Import
- XGMML, GML (caveats)



## Other:

- is directed attribute
- Vizmapper (hack)
- Default Editor
- Filters



## Note:

- directionality is part of identity, not extra attribute
- interaction should mean same directionality

# XGMML

- store all data (native data format)
- compatibility with pre-3.0 Cytoscape
- compatibility with “upstream” standard (if possible):
  - <http://www.cs.rpi.edu/~puninj/XGMML/>

## Incompatibilities:

- need mixed networks
- defaults
  - in XGMML: undirected edges
  - in Cytoscape: directed edges

GML semantically same

possibility for data loss

but this is not new, and nobody complained

# XGMMML standard

```
<graph label="my network" ... directed="1" >
  <node label="n1" id="-4">
    ...
  </node>
  <edge label="n1 (e) n0" source="-4" target="-3">
    ...
  </edge>
</graph>
```

# XGMMML, extended

```
<graph label="my network" ... directed="1" >  
  <node label="n1" id="-4">  
    ...  
  </node>  
  <edge label="n1 (e) n0" source="-4" target="-3" cy:directed='0'>  
    ...  
  </edge>  
</graph>
```

# API changes

- `getCyEdge(Node source, Node target, String attribute, Object attribute_value, boolean create, boolean directed)`
  - default: directed
  - `addEdge(source, target, directed)` in cytoscape3 API proposal
- Editor: `directed` flag in `ShapePalette.addShape()`
  - directionality of given interaction

## Semantic changes:

directionality is part of identity

but with SUID, this will be natural

Questions?

Objections?

<http://cytoscape.org/cgi-bin/moin.cgi/DanielAbel/EdgeDirectionality>