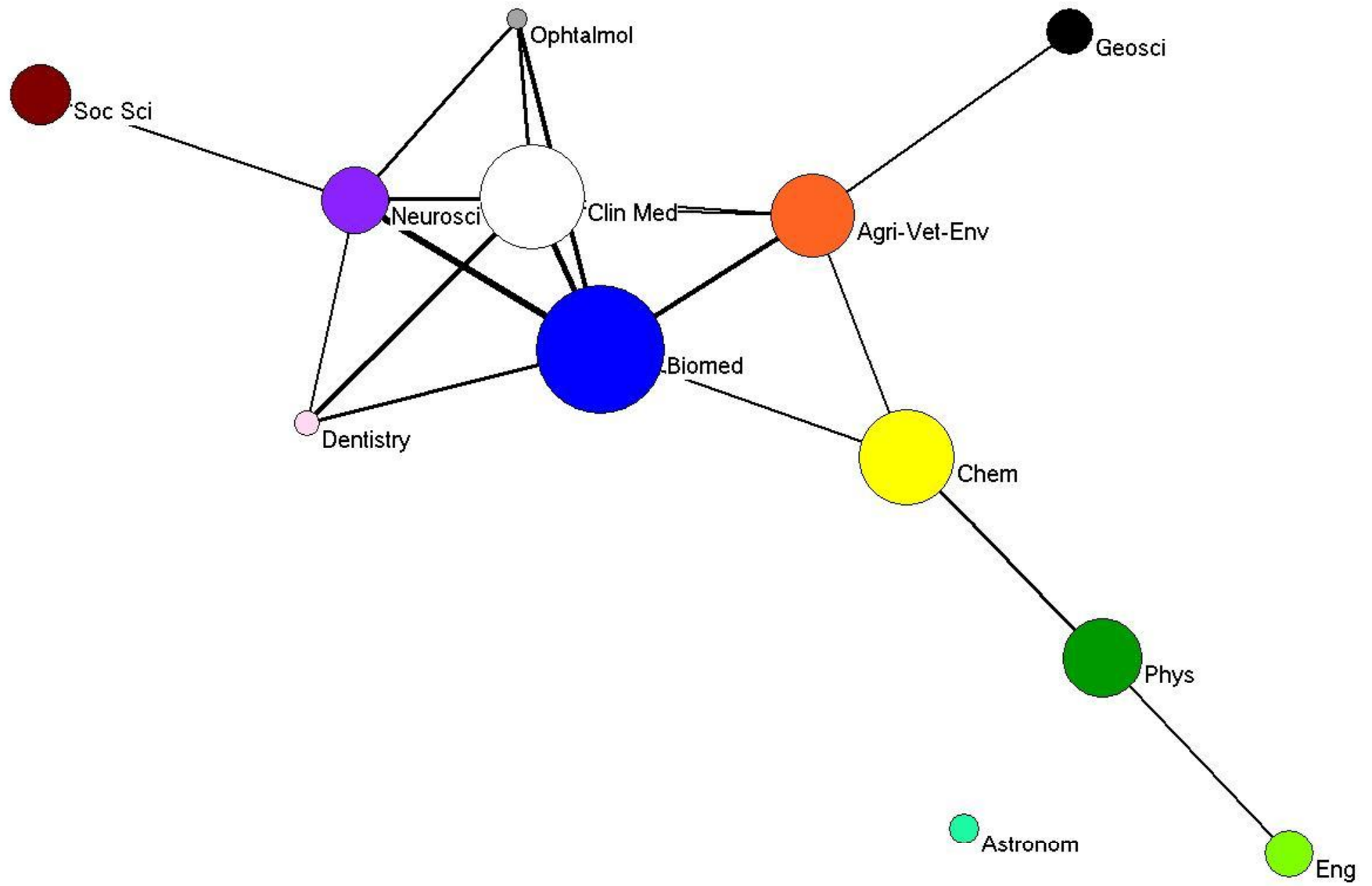


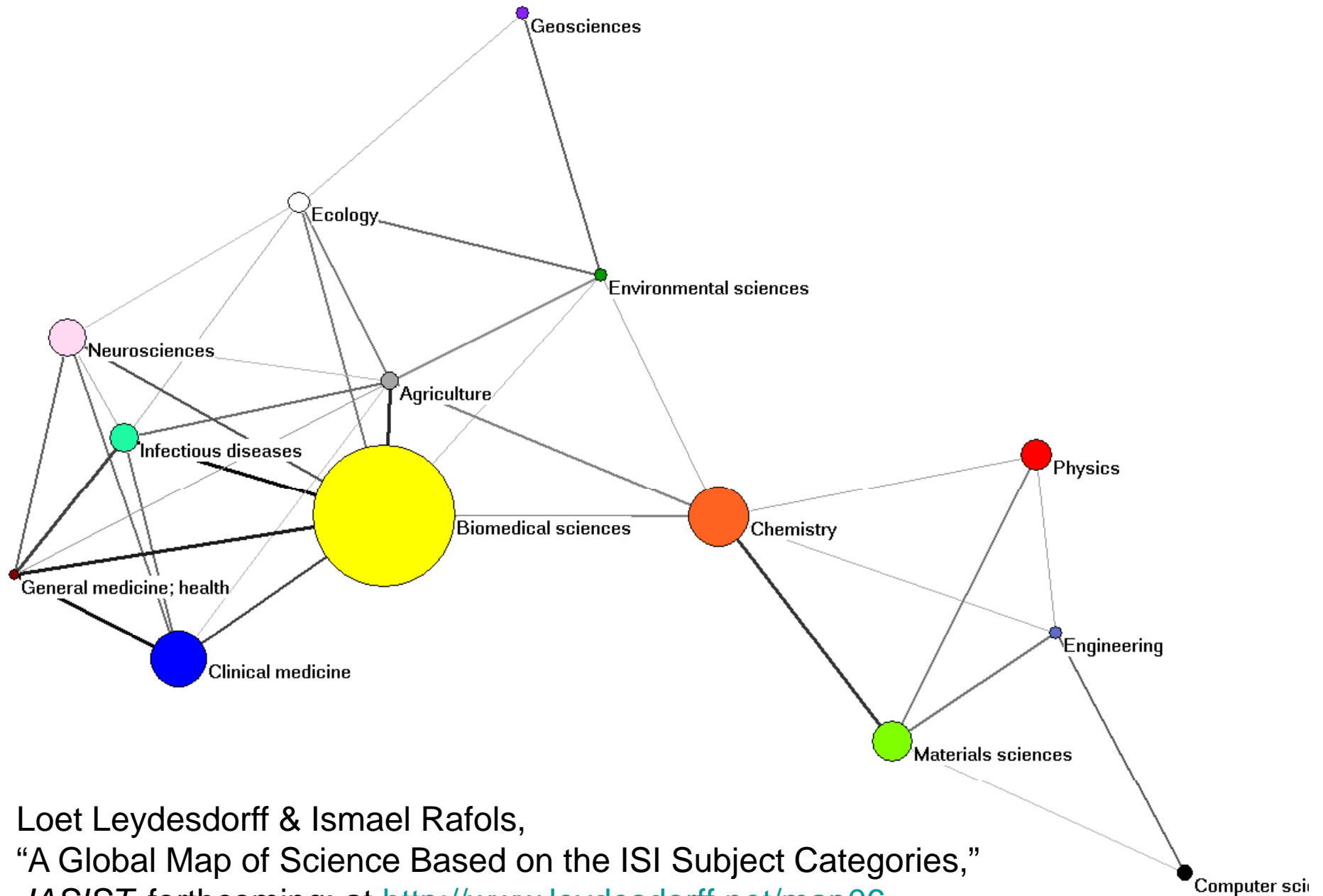
^a Rosvall, M., & Bergstrom, C. T. (2008). Maps of random walks on complex networks reveal community structure. *Proceedings of the National Academy of Sciences*, 105(4), 1118-1123.

^b Blondel, V. D., Guillaume, J. L., Lambiotte, R., & Lefebvre, E. (2008). Fast unfolding of community hierarchies in large networks. *Arxiv preprint arXiv:0803.0476*.

<i>% predicted</i>	ISI Subject Classification	Random Walk ^a	Fast Unfolding ^b
ISI	--	66.2	60.1
Random Walk	28.1	--	71.3
Unfolding	31.1	85.7	--



Cosine < 0.1



Loet Leydesdorff & Ismael Rafols,
“A Global Map of Science Based on the ISI Subject Categories,”
JASIST, forthcoming; at <http://www.leydesdorff.net/map06>

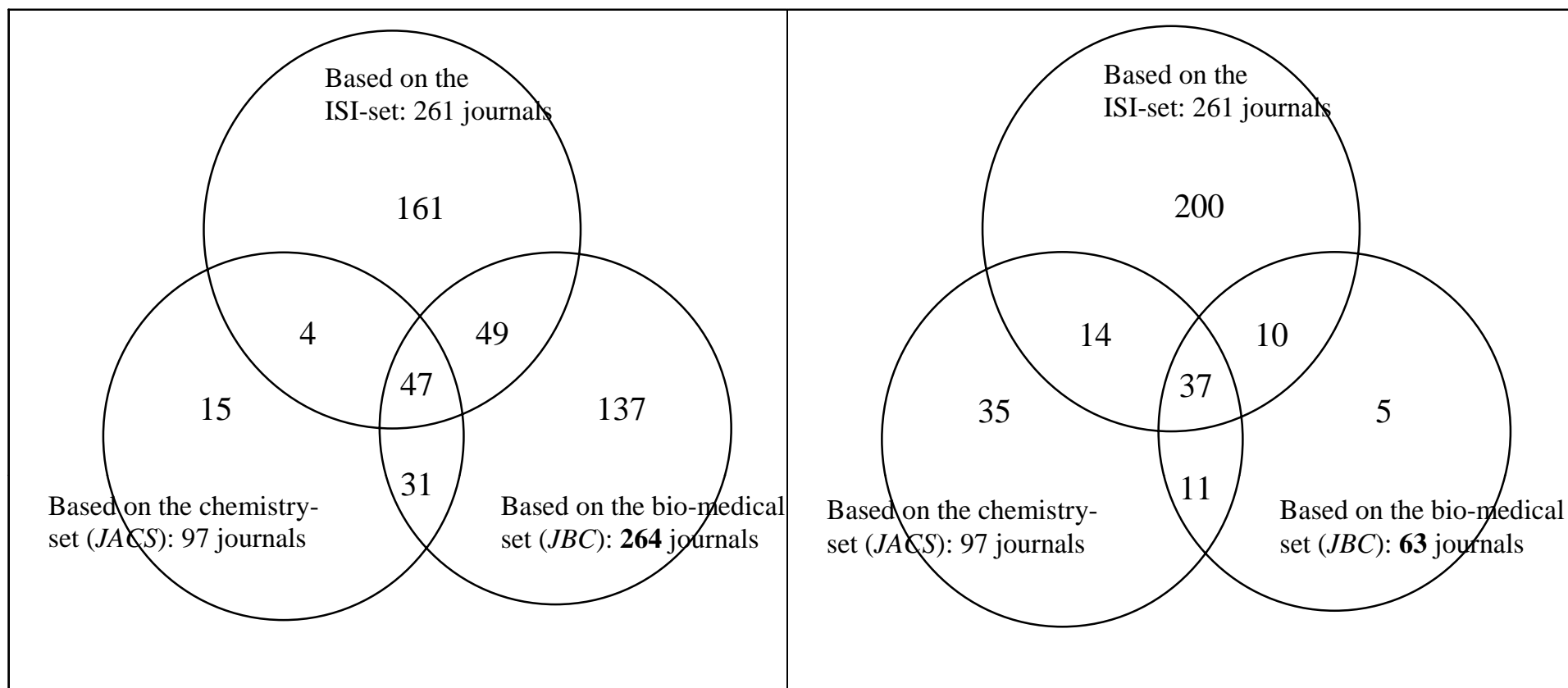


Figure 12. Intersections and differences among three perspectives on ‘biochemistry & molecular biology’ journals.

From: “Can Scientific Journals be Classified in terms of Aggregated Journal-Journal Citation Relations using the *Journal Citation Reports*?” *Journal of the American Society for Information Science and Technology*, 57(5) (2006) 601-613.

See also: Boyack, K. W., Klavans, R., & Börner, K. (2005). Mapping the Backbone of Science. *Scientometrics*, 64(3), 351-374 : 50% correctly classified.

From *Scientometrics* to *ISI-metrics*

- The structure is not necessarily in the data, but may be in the constructs;
- Improvement in the classification;
- Classification is making cuts in the data; reduction of multi-dimensional problem to a two-dimensional hierarchy/map;
- Improvement when compared with ranking (one-dimensional vector)

From *Scientometrics* to *Science Dynamics*

- The key question is the description of uncertainty in the fuzzy areas.
- The fuzzy areas are the prime sites of interdisciplinarity; most mapping programs will consider these margins as noisy.
- Visone: [Nanotechnology](#)

[\(via internet connection\)](#)

The four cycles in Figure 7 can be considered as four corners of a tetrahedron as depicted in Figure 8. However, a tetrahedron can be tumbled, and thus each of the corners can become the top from the perspective of the other three cycles. The hypercycle and the various cycles stand in heterarchical relation to one another.

In other words, the historical structuring in terms of relations and the functional organization in terms of positions—relative to the axes of the system—operate as different subdynamics in this complex system. A system can be considered as complex when it can be decomposed into more than two subdynamics. Two subdynamics can still be modeled by extending the Darwinian model into a co-evolution model.[5] Three subdynamics may ^{share} have a common zone and ~~then~~ be integrated in a hierarchical mode given a center of control, but they can also ~~be developed~~ into this heterarchical configuration. The hypercyclic model assumes one degree of freedom more than the configuration on which it rests. This additional degree of freedom can be used for knowledge-based anticipation in the network of relations.

The *differences* in structures are important for finding the relevant dynamics!