CS 786G *Cognitive Modeling*
Week 9 Discussion Paper
Socially Distributed Cognition : Epistemic Appraisal of Results

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Thagard (1994) characterizes researcher collaboration according to the background and roles of the participants. Specifically, four different types of collabortations are identified as typical and explained. These categories are not meant to be rigid and all-inclusive, butrather present a starting point for discussing the different types of collaborations that exist, and later, evaluating why people are interested in participating in these collaborations. The focus of the discussion of collaboration is limited to the academic world of research production and publication, and the definition of the four types occurs in this framework. The four types of collaboration are:

- Employer/employee, in which a simple delegation of work occurs from employer to employee. In these situations, the employee typically received little credit in the form of co- authorship for the work performed. This type of interaction is actually just barely characterizable as a collaboration in the sense discussed, and this fact raises some interesting questions about the process of production and control in power relationships and the acknowledgement of these by a particular community, in this case academia. Unfortunately, these issues are beyond the scope of this brief summary.
- Teacher/apprentice, which differs from employer/employee in that the apprentice, while potentially being assigned specific tasks similar to an employee, is expected to learn as a consequence of performing these tasks the expertise of the teacher in research production. As Thagard acknowledges, this asymmetric power relationship is very similar to employer/employee, and in many cases in recent memory this asymmetric relationship has led to difficulties in assignment of authorship and hence credit for work performed. Certainly in this type of relation it is quite likely that each collaborator views the collaboration in vastly different ways and enters into the arrangement with different goals

and expectations about the result, and the performance and role of the co-collaborator. An apprentice (at least insofar as a grad student is actually an apprentice), would be typically seen as capable of contributing originally to the work in progress, although perhaps not the same extent as the teacher. This characterization I believe constitutes in an idyll not necessarily evidenced in practice, and rather many collaborations one might wish to call teacher/apprentice fall either into employer/employee[1], or the following category, equal/similar.

- Equal/similar, in which researchers of similar interests and knowledge collaborate. Essentially people of similar training backgrounds, typically from the same field.

- Equal/different, in which researchers possess similar goals but differeing skills and knowledge to bring to the collaboration. Typically persons from different disciplines.

Thagard is interested in getting at *why* researchers are interested in collaboration. If we view researchers (for the moment) as intelligent agents, presumably there must be some impetus for them to seek out and lend their efforts to these relationships; what is in it for them - personally, and perhaps, socially ? Based on Goldman's standards of appraisal for evaluating social practices (Goldman 1992), Thagard constructs measures for research practices in terms of the absolutist social goal of *results*, which are said to be the end-product of scientific research, and include both empirical and theoretical findings. These standards include *reliability*, a ratio of results and errors, *power*, a measure of relative effectiveness, *fecundity*, a measure of ability to lead to many results for many researchers, *speed*, and *efficiency*, a ratio measure of cost to results.

Each of the collaborative types is evaluated in terms of its relative contribution to these results-measures, essentially based on the simplifying assumption that research collaborations are undertaken in order to increase some combined measure of **quality** of research results. While each type suggests some positives and some negatives in this structuring of quality, it is easy to construct a shared belief set in which both collaborators can envisage the net gain in quality from their cooperation, not to mention other, more personal, potential gains susceptible to other measures. For instance, employer-employee relations can significantly enhance the production of quality results through Thagard's measures through increases in efficiency, power and speed which offset potential cost increases, and reliability losses caused through delegation, presumably including communication failures and lack of employee expertise. Similarly, in teacher/apprentice situations, which are described as much more complicated due to other overlapping concerns such as instruction, similar efficiency, power, and speed improvements can be envisaged.

In these collaborations there are certainly two obvious characterizations of power relations: equal-collaborators (equal/similar and equal/different), and superior-inferior (em-

[1]Teacher apprentice as employer/employee is a mapping certainly supported through many funding options for graduate studets such as research assistantships, which are nearly typical employer/employee relationships.

ployer/employee and teacher/apprentice). It seems understandable in the equal-collaborator relations to presume a common enough ground among collaborators so as to ascribe the relative improvements in research result quality as a primary motivator for collaboration. However, for the superior-inferior relationships this basis seems to erode somewhat. Certainly the superior (such as a professor) is highly motivated by research quality as it directly affects other, less academic concerns such as position and reputation. However, the inferior (such as a grad student) has much less *directly* riding on quality production, and relies much more heavily on indirect results such as continued support from a researcher/professor, or perhaps, the important but much smaller recognition attributed from a secondary role in a paper production project. I am simply observing that the conception of relative utility in the different power relationships seems to be signifantly different, and that the inferior partner would appear to be less directly motivated by measure of work quality since there is a significantly less direct relation between quality of research produced and benefit received (or, in the reverse case, lack of quality and reputation damange).

This entire issue of justifying collaborative arrangements in terms of increased utility of research production seems perhaps to be only a starting point to a broader evaluation of the motivations of researchers and others to collaborate, and future elaboration of these conceptions will have to include a greater degree of focus on societal power relations and other non-result-specific relations such as group expectations, artifical societal requirements such as interaction for funding, and other result-indepepent forces in order to better understand the motivation for people to collaborate.

References

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