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**Using IPR to expand the research common for Science:
New moves in 'legal jujitsu'**

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In many current discussions of the social benefits and costs of allowing (if not encouraging) publicly funded researchers and their research institutions to obtain IPR in the discoveries and inventions made by their faculties, students and employees, the tensions between the institutionalized regimes of proprietary research and open science are presented in a highly stylized way. It is found convenient for purposes of exposition to draw upon the established economic rationale for the awarding of (intellectual) property rights in discoveries, inventions and other original creative works, which suggests that protection of IPR involves a beneficial "trade-off" between creating incentives for invention and creating impediments to the society's use of the inventions that will be forthcoming. Intellectual property rights thus are seen to be a Janus-like social contrivance – one that presents two contrasting faces. The smiling face is the provision of additional incentives for socially useful inquiries through the facilitation of private appropriation of the commercial benefits that may ensue from access to new additions to the stock of socially useful knowledge. The frowning face is that the granting of monopoly rights to the economic exploitation of research findings, as a rule, will insert a wedge of royalty or licensing payments between the cost of access to the new information and the price the property holder can extract from the licensee, thereby imposing a deadweight loss on society. Further, by reinforcing private incentives of researchers to gain those monopoly rights (as well as to claim priority of discovery), the IPR regime can contribute to inefficiently duplicative allocation of research resources – even though its consequences are likely to be less inefficient than those produced by exclusive reliance upon secrecy as a means of appropriation of the private benefits of new knowledge.

This highly stylized conceptual scheme has its uses, and it has been elaborated upon in many ways to explore what is presented as a fundamental conflict between an institutional regime based upon private property rights and an alternative, "open science" mode of research organization -- in which information disclosing both the results and the means of producing them are left in the public domain. Within this framework much has been made of the benefits of commodification of rights to exploit research findings: the market thereby created enables rights to be sold by discoverers and creators, and so reallocated until they are held by agents that expect to be able to derive the greatest value from these private assets.

Less notice has been taken, however, of what may be called "the third face of IPR." This is the legal protection of private rights to arrange contracts for common-use, thereby creating "club goods" that permit the participants to share access to the information and its utilization under conditions that *emulate* those of the public domain, but which may be enforced by invoking the rights of the original intellectual property owners. The contractually constructed, IPR-based "information

commons”, thus, is a natural device for the socially efficient pooling of research results, particularly those that take the form of tools for exploratory science. It is, like the application of certain forms of copyright licensing – such as the GNU GPL in the case of open source software, a form of ‘legal jujitsu’, Yoachi Benkler’s marvelously acute characterization of the strategy of deploying the law intellectual property rights to achieve a purpose quite opposite to the one for which is usually is intended.

The main aim in this paper, therefore, is to clarify the meaning and practical significance of the idea of legally creating an “information common” for scientific and technical research communities. In doing so, we show the conditions under which it is misleadingly facile to associate the concept of “the common” with the public domain, and therefore to juxtapose the common to the domain of legally protected private rights in intellectual property. Instead, the spheres of common-use rights in scientific and technical information (and in cultural creative works, too) may be contractually constructed on the basis of private ownership rights. It will be seen, further, that a “common” of this kind hardly can become subject to “the tragedy” of over-exploitation made famous by Garrett Hardin (1968) – at the expense of correctly appreciating the historical experience of collectively managed common-use resources. Instead, the information commons can provide research communities with remedies for the impediments to scientific progress research that arise from inefficient over-privatization of complementary research assets.

Applied to scientific research tools, and particularly to generic enabling “inventions and discoveries for invention and discovery” the information commons offers a second-best solution that may provide important remedies for some of the potentially most adverse consequences for the advancement of science that arise from the recent enthusiasm for all forms of intellectual property protection. Moreover, the conditions under which the social inefficiencies arising from the distribution of private property rights in research results are likely to be most serious, turn out also to be those in which common pooling access rights can yield greater private benefits to the individual cooperating parties.

The several analytically distinct aspects of the “anti-commons” problem, and the relevance of the available empirical evidence that has been adduced to gauge whether this is a problem that required a solution, are examined in. Focusing upon the question of the potential impact upon the balance between exploratory and applications-oriented R&D of “patent thickets”, “copyright royalty stacking”, and analogous IPR obstacles to database federation, it would seem unwarranted to draw sanguine conclusions from the reported results of recent interviews with U.S. academic researchers in the biomedical field. The absence of institutionalized solutions modeled on copyright collection societies as palliative for patent ticket problems, is shown not to point to the absence of such problems, but to the inadequacies of the collection society mechanism to deal with the core source of the inefficiency arising from widely distributed exclusion rights to complementary research assets that are protected by patents, or by technical means such as encryption in digital rights managements system. Both theoretical and empirical considerations that go beyond consideration of the impediments to research arising purely from the costs of searching for and purchasing licenses caution us against dismissing the “anti-commons” as chimeras, or at worst rarities comparable to “white tigers.”

With this motivation it is appropriate to give serious consideration to a number of related proposals for the contractual construction of “common-use research pools”, discussing specific institutional arrangements for the administration of such pools (CRP’s) created by IP right-holders. These proposals are elaborated to address a variety of specific issues, including (a) the appropriate limitations upon the scope of material eligible for inclusion, (b) principles for the management of intellectual property rights contributed to, and arising from the utilization of pooled research assets, (c) relationships among independent CRPs and between CRPs and public sector research institutions that presently maintain technology licensing/transfer offices, and (d) the implications of competition policy safe-guards against the creation of inefficient pools, and the abuse of patent cartel power.