Affiliation of the
Conference on Computational Complexity

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This document is intended to start a re-evaluation of the affiliation of the Conference on Computational Complexity with IEEE, and describes the following:

- the grievances of the community regarding the current sponsorship arrangement (sections 1-3),

- the actions of other comparable theory conferences (section 4),

- the pros and cons of various potential courses of action for CCC (section 5), and

- my preliminary assessment and a proposed plan for arriving at a decision (section 6).

1 Background

The Conference on Computational Complexity (CCC) started in 1986 (under the name "Structure in Complexity Theory Conference") as an independent conference, with start-up funds from an NSF grant. Liability and insurance were a major concern at the time. For the first meeting the founders obtained backup from Iowa State University. For the second meeting they approached IEEE. The IEEE Technical Committee on Mathematical Foundations of Computing (TCMF) became the official sponsor of the conference and the publisher of its proceedings, and continues to be so to date. The choice of IEEE (as opposed to ACM, for example) was largely because of the contacts the founders had.

In the beginning the working relation with IEEE was very good but there has been a fair amount of disgruntlement over the last 15 years. Several local organizers complained about the inflexibility and unresponsiveness of the IEEE bureaucracy, to the extent that they would not want to work with IEEE again. To a lesser degree some PC chairs were frustrated with the proceedings editors. Some people also feel that ACM would be a better home for the conference, and that ACM treats its Special Interest Group on Algorithms and Computation Theory (SIGACT) better than IEEE treats TCMF. Changing the affiliation with IEEE was suggested a number of times in the past but was never seriously considered.

In recent years financial and open access issues came to the forefront. We first present data and details about those aspects.

2 Finances

Table 1 on the last page contains a summary of the financial reports of the eight most recent CCCs. The *income* mainly derives from the registration fees, but some years the local organizers also manage to obtain substantial amounts of sponsoring. On the *expense* side, the table singles out the cost of producing the proceedings, and the service fee that IEEE charges the conference. The bulk of the expenses are due to operational costs. In FCRC years the total also includes overhead charged by the FCRC organization. The amount *Paid to IEEE* does not include the payment to IEEE for producing the proceedings; it is the sum of the service fee and the balance of the income and the expenses.

The line for 2012 in Table 1 looks rather alarming. The column *Paid to IEEE* suggests that the registration fees could have been reduced to half or less, had CCC been independent. Although some additional factors need to be taken into account (see below), the conclusion is accurate. That being said, 2012 was a rather exceptional year. For other recent years the figures are less dramatic.

Service fee. Until 2008 the IEEE service fee was calculated as 14% of the other expenses. In 2009 IEEE raised the fee to 20%, and imposed a lower bound of $5K. CCC gets the following in return:

○ *Insurance.* IEEE insures the conference organizers against liability for bodily injury and damage to property (up to $1M). According to the CoLT and Random organizers, most conference facilities nowadays have their own insurance for this, and these organizers do not buy additional insurance. Should CCC need to buy liability insurance, they told me a quote of $375 per year.

IEEE also provides insurance for business crime but the deductible is several times higher than the yearly budget of CCC. Cancellation insurance is not included in the service fee.

○ *Financial backing.* See "surplus" below.

○ *Funding.* TCMF (co)sponsors CCC, FOCS, and LICS, and receives from IEEE a total annual stipend of $5K (and recently possibly more; see further). The stipend is used to fund the CCC best student paper award (currently $750 per year).

○ *Help with negotiating hotel contracts.* CCC did not make use of this service in the last 15 years (and possibly never did).

○ *Advances for payments.* CCC did not make use of this service in the last 15 years (and possibly never did). The income from the early registrations suffices.

Surplus. IEEE does not allow TCMF or any of its constituent conferences to carry over money from year to year. Instead, IEEE absorbs the yearly balance, be it a surplus or a deficit. Via a 10% contingency requirement in the budget IEEE tries to ensure that conferences do not incur a deficit. In case there is a deficit in a given year, IEEE imposes a raise in the registration fees for the next year. In case of a surplus, it used to be the case that conferences or TCMF did not see anything of it back, but the situation somewhat changed in 2010. Since then the amount of the yearly TCMF stipend has become the maximum of $5K and 50% of the conference surpluses from the most recently closed TCMF conferences in good standing. In 2010 TCMF contributed $2.5K from this pot for the 25th anniversary celebration of CCC. Other than this and the yearly

funding for the best student paper award CCC has not received any other financial support from TCMF. FOCS has received partial TCMF support for student travel awards.

Given this structure, local organizers are encouraged to strive for a positive but small balance. It is very difficult to estimate the income, though, as the attendance varies a lot from year to year. On the expense side, local organizers can play with the catering during the conference, and some have been very successful in achieving a small positive balance. Nevertheless, spending extra money on catering in order to avoid a return to IEEE is not ideal.

Conclusion. Taking everything into account, in recent years the net cost of the affiliation with IEEE has been between 20% and 25% of the registration fees. As an exceptional case, in 2012 the registration fees could have been reduced by more than 50% had CCC been independent. These are substantial potential savings, but they are moderated by the travel and accommodation costs for attending the conference. See Table 1 for the registration fees of the last eight years.

As a side remark, looking over the financial reports, I am convinced that substantial reductions in the registration fees are also possible by creating some institutional memory to help the local organizers with issues like banking, on-line registration, sponsoring, etc.

Apart from the cost associated with being an IEEE conference, the fact that IEEE conferences cannot carry over money impedes any type of long-term planning, e.g., to provide travel support for students from non-US universities. (In the last two years we could support students from US-universities through a grant from NSF.)

3 Proceedings

All but the first proceedings have been produced and distributed by IEEE. Since a while all those proceedings are available through IEEE's digital libraries (IEEExplore and CSDL). As of 2011 CCC no longer has paper proceedings.

Production. When CCC switched to on-line only proceedings, the IEEE charge for producing the proceedings dropped substantially (see Table 1) but remains nontrivial (about 10% of the budget). There are considerably cheaper alternatives, and IEEE allows us to use them. We do need to provide IEEE with electronic copies in the format required for their digital libraries.

Distribution. IEEE demands every conference to include its proceedings in IEEExplore and CSDL, and to transfer copyright to IEEE. Only libraries and individuals who pay the subscription or download fees have access to the publication. Although not an official policy, according to Paul Beame (former TCMF Chair and current SIGACT Chair) IEEE is OK with conferences having their own web site that happens to contain all the conference papers linked in, provided the conference does not make a big deal about it. The FOCS web site has links that are available via a user name and password.

Alternatives. There are reliable alternatives for producing and distributing proceedings such that authors maintain their copyright, and access is open and free. Two options that I looked into are the following.

- ○ *Leibniz International Proceedings in Informatics* (LIPIcs). This is a service offered by Dagstuhl, with long-term guarantees by the German government. STACS publishes their proceedings with LIPIcs. The charge is between 500 and 800 Euro per year.

- *Electronic Proceedings in Theoretical Computer Science* (EPTCS). This is an overlay of the Computing Research Repository (CoRR), the CS part of the arXiv, which is run by the Cornell library. So far only smaller workshops and conferences have published their proceedings with EPTCS. There is no charge.

Both options provide ISBN numbers.

Conclusion. While IEEE was instrumental in producing and distributing the CCC proceedings in the past, in the on-line era we no longer need IEEE for that. Appearing in the IEEE digital libraries is still a plus for CCC, but it is offset by the access restrictions. There are good open access alternatives, but it is unclear whether IEEE will allow them for their conferences in the foreseeable future.

4 Other Conferences

Here are a number of theory conferences that have changed their affiliation or are considering doing so in the near future. They are all somewhat larger than CCC in terms of attendance and budget, but still comparable. There are also non-theory conferences contemplating similar changes. One example is the much larger Conference on Computer Vision and Pattern Recognition (CVPR), which is considering leaving IEEE and becoming independent.

4.1 LICS

The Symposium on Logic in Computer Science (LICS) started in the same year as CCC, and was an IEEE-only sponsored conference until 2011. Since 2012 it is a joint ACM/IEEE conference. In 2012 ACM's sponsorship was 25%, and this year it is 50%. The main motivation LICS people mention for the change is their desire to form a SIG for logic in computer science. They see the move as a first step towards that goal. Some members of the LICS community feel that their historic affiliation with IEEE was a mistake, but they cannot become a mere ACM conference. This is because ACM and IEEE have an agreement not to take over each other's conferences. As a disadvantage of their move, the LICS organizers mention that the administrative overhead doubled due to having to deal with two organizations rather than one. LICS seems to care less about the financial and open access issues.

4.2 CoLT

The Conference on Learning Theory (CoLT) started in 1988 as a workshop, became an ACM conference (under the name "Conference on Computational Learning Theory") in 1991, and decided to leave ACM and become an independent conference in 2000. They were unhappy about their interaction with ACM and felt that the service fee was unjustified.

They created a non-profit incorporation, the Association for Computational Learning (ACL), whose purpose is to facilitate the organization of CoLT. The ACL board plays a similar role as our steering committee, but ACL owns a permanent bank account and has a treasurer. I am still awaiting some more details, but ACL started with some donations and accumulated surpluses from CoLT registration fees over time. They keep about 1 to 1.5 times the yearly CoLT budget in their account. They do not buy any type of insurance.

CoLT has used a variety of venues for their proceedings. Since 2011 CoLT uses the Journal of Machine Learning Research, which is a free on-line journal hosted by MIT that allows authors to retain their copyright.

4.3 SoCG

The Symposium on Computational Geometry (SocG) started in 1985 and has always been sponsored by ACM, except for two years when it was organized independently but in cooperation with ACM. The first time this happened was in 2007, when the conference was held in South-Korea and the ACM requirements for sponsorship turned out to be incompatible with South-Korean law. The second time was in 2009, when the conference was held in Denmark and the organizers wanted to avoid the bureaucracy involved in ACM sponsorship. In 2011 the conference was held in France and the organizers wanted to have the same "in cooperation" arrangement, but ACM refused and insisted on the usual sponsorship arrangement. This was the reason for SoCG to consider terminating its affiliation with ACM.

Since then there has been a lot of discussion within the SoCG community, and negotiations with ACM are ongoing. The considerations of the SoCG community are very similar to ours. In particular, they care about open access. In addition, for the reasons mentioned above, they have issues with the ACM sponsorship arrangement when the conference is organized outside of North-America, which is every other year. Interestingly, they tried to negotiate an arrangement where the involvement of ACM is restricted to publishing the proceedings, but ACM declined. Another difference with CCC is that SoCG has a tradition of obtaining substantial gifts from local industry and other entities.

5 Options

At this point in time I see three possible courses of action.

5.1 Remaining an IEEE-Only Conference

This obviously is the easiest option and has the drawbacks mentioned above. There is hope for improvement on some fronts.

○ Both the return on surpluses and open access are agenda items for the upcoming IEEE TC Board meeting on June 11, 2013. We'll have to await the outcome.

○ According to a source that wanted to remain anonymous, an unnamed IEEE conference managed to negotiate a secret arrangement in which a permanent account is held in trust of their community. We could try the same.

○ In the context of the 2010 funding rule, we could ask TCMF to treat CCC similar to FOCS with respect to student travel awards.

5.2 Becoming a Joint ACM/IEEE Conference

Apart from arguably being a more natural home for CCC, there are a few differences in the way ACM and IEEE handle their conferences.

○ *Funding.* The ACM Special Interest Groups (SIGs) such as SIGACT get to keep money permanently but ACM takes a cut of all the money that SIGs spend during the year, including for their sponsored conferences. SIGACT passes the fee on to its conferences as an overhead charge of roughly 15%, which is comparable to the overhead that IEEE charges. Unlike IEEE, where this is a fee that is seen as supporting the central services

provided to conferences, the two are not linked at ACM, and the yearly balance is absorbed by SIGACT rather than by the organization.

Another difference is that ACM requires a contingency of 15% instead of 10%. More importantly, SIGACT shares in the proceeds of the digital library, whereas TCMF does not. Partly as a result, SIGACT currently has a large amount of money in its account (more than $800K).

○ *Proceedings.* Whereas IEEE may be willing to close an eye for conference web sites with proceedings papers (as long as these papers are also part of IEEE's digital libraries), ACM seems less willing. ACM has made some short-term concessions (see the current ACM policy for the details), but has been quite reluctant to allow long-term access other than through the digital library.

○ *Administration.* ACM provides reduced fees for on-line registration, handles all the money, and pays the bills. This arrangement works out very well for conferences organized in North-America, but for conferences organized elsewhere the IEEE arrangement works better.

As a current IEEE conference, CCC cannot become an ACM-only conference. However, CCC can become a joint ACM/IEEE conference, like LICS did. Possibly after some transition period, each organization would presumably provide 50% of the sponsorship. Based on the experience of LICS, it seems like it would be relatively easy for CCC to make the change. Compared to the current situation, the advantages would be that CCC gets access to some of the SIGACT services and resources, and that the proceedings also appear in ACM's digital library. The disadvantage is that the administrative overhead due to sponsorship would essentially double, and that ACM may disallow certain open access initiatives that IEEE would allow. The overhead issue would remain about the same.

5.3 Going Solo

Just like CoLT did with ACM, CCC could decide to end its affiliation with IEEE completely and become an independent conference. This would avoid the frustration of local organizers and PC chairs dealing with a large organization, eliminate the overhead on expenses, make it possible to transfer money from one year to the next, and enable free access to the proceedings for everyone. It may also stimulate local organizers to get the best deals, as the proceeds would remain within our community. Downsides are the following:

○ *Start-up funds.* We would need to collect enough funds to cover advance payments and potential deficits. Eventually our account balance should reach $40K to $50K, but we could start smaller and build up over a number of years, using donations and registration fees.

I have polled the NSF CCF program directors about such funding. I've been told that this is an unusual request, but I haven't heard the final word yet. In addition, we should obtain donations from other organizations and possibly also individuals.

○ *Set-up work.* In addition to obtaining start-up funds, it would take a substantial amount of work to set everything up: banking, insurance, registration, proceedings production. We would probably need to create a non-profit organization like CoLT did. Once the initial phase is over, there would be less administrative overhead than is currently the case, and future local organizers would benefit from things already being set up for them.

- ○ *Possible loss of prestige.* At some institutions being affiliated with a professional organization like IEEE or ACM is viewed as a quality mark for conferences, and the absence of such an affiliation disqualifies publications for consideration in tenure and promotion cases.

- ○ *Name change.* Since IEEE owns the name of the conference, we would need to change it. A not-so-creative alternate name may be "Conference on the Complexity of Computation". Perhaps even "Computational Complexity Conference" is already different enough.

6 Preliminary Assessment and Plan

The sponsorship of IEEE has been instrumental in starting up CCC and in developing it into the well-respected conference it currently is. IEEE provided credibility, financial backing, insurance, and a venue for the proceedings. Those came at the cost of financial and administrative overhead and inflexibility, but the balance was positive. However, over the years the costs grew – objectively as well as in the minds of the community. At the same time the benefits became less clear, especially once CCC switched to on-line only proceedings. In fact, the IEEE sponsorship currently seems more like a hindrance than a help in disseminating the results presented at the conference, as it prevents CCC from providing open and free access to the proceedings.

Becoming a *joint ACM/IEEE* conference would provide some more financial flexibility but substantially increase the administrative overhead. The financial costs would remain of the same order. The open access issue would persist and possibly even become worse as ACM has been more unyielding than IEEE in this respect.

In order to avoid the financial overhead and to provide open and free access to the proceedings, becoming *independent* currently seems to be the only option. It would require extra effort from the community in order to collect start-up funds and get organized. A critical question is whether we care enough about the above issues and whether there are enough people willing to step forward and help with the transition.

Plan. Hard copies of this document are distributed at the start of CCC 2013. The affiliation with IEEE is on the agenda of the CCC business meeting of June 7, 2013. At the end of the discussion there will be a straw poll in which the attendees can indicate their preference among the three options listed, so as to provide some direction for the steering committee. After incorporating the feedback from the business meeting, and after hearing the outcome of the IEEE TC Board meeting of June 11, 2013, a revised version of this document will be made publicly available on the CCC web site, and announced through the CCC mailing list. Both TCMF and SIGACT will be invited to formulate a response. If need be, there will be more revisions. When the time is ripe, there will be a vote conducted via the CCC mailing list. Ultimately, the CCC steering committee will make a decision, at the latest at the 2014 meeting. Any changes would likely go into effect at the 2015 meeting.

Acknowledgments

Year	Location	Finance Chair	Reg. fee	Income			Expenses			Balance	Paid to IEEE	
				Reg.	Gifts	Total	Proc.	Fee	Total			
2012	Porto	Antunes	275	16,759	4,235	20,994	2,652	5,000	15,617	+5,377	10,377	(49%)
2011	San Jose	(Miltersen)	490	44,175		44,175	2,292	8,066	48,394	-4,219	3,847	(9%)
2010	Boston	Vadhan	350	35,325	9,000	44,580	4,758	6,545	39,273	+5,307	11,852	(27%)
2009	Paris	Laplante	270	29,110	3,395	32,833	6,275	5,374	32,244	+589	5,963	(18%)
2008	College Park	Gasarch	400	27,345		27,877	5,852	2,199	25,226	+2,651	4,850	(17%)
2007	San Diego	(McKenzie)	425	30,525		30,975	5,854	1,594	35,056	-4,081	-2,487	(-8%)
2006	Prague	Pudlak	350	23,490		23,550	6,628	2,798	27,190	-3,640	-842	(-4%)
2005	San Jose	Kumar	300	19,400		19,600	4,822	1,310	18,363	+1,237	2,547	(13%)

Table 1: *Financial summary of recent CCC conferences.*
FCRC years have financial chairs between brackets. All figures in USD.
Registration fee: for non-student members.
Total income: registration, gifts, extra proceedings pages, extra banquet tickets.
Total expenses: proceedings, IEEE service fee, catering, rental fees, other operational and committee expenses.
Paid to IEEE: IEEE service fee and surplus. Percentage as a fraction of the total income.