A Citation Analysis of the ACSC 2006 – 2008 Proceedings, with Reference to the CORE Conference and Journal Rankings

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Abstract

This paper compares the CORE rankings of computing conferences and journals to the frequency of citation of those journals and conferences in the Australasian Computer Science Conference (ACSC) 2006, 2007 and 2008 proceedings. The assumption underlying this study is that there should be a positive relationship between citation rates and the CORE rankings. Our analysis shows that the CORE rankings broadly reflect the ACSC citations, but with some anomalies. While these anomalies might be minor in the larger scheme of things, anomalies need to be addressed, as the careers of individual academics may depend upon it. Rankings are probably here to stay, and this paper ends with some suggestions on how the rankings process should now evolve, so that it becomes more transparent.

Keywords: Citation Analysis, Excellence in Research for Australia (ERA), conference rankings, journal rankings.

1 Introduction

For several years, the Australian federal government has been developing a process for reviewing the quality and impact of publicly funded Australian research. The review was originally known as the Research Quality Framework, or simply RQF (DEST, 2007), but with a change of government some aspects of the review process changed, and the review process is now known as Excellence in Research for Australia, or simply ERA (ARC, 2008). As part of the RQF/ERA, the Computing Research and Education Association of Australasia (CORE) has developed a ranking scheme for computing-related conferences and journals (CORE, 2007).

Developing such a set of rankings is by no means straightforward. Most ranking systems include citations as a prominent factor. While there are indexes that record the number of citations for individual papers and for journals, only a small percentage of all computing papers are thus indexed. Since there was not an existing robust method for ranking conferences and journals, CORE formed committees that developed their own processes for ranking conferences and journals.

This paper evaluates the CORE rankings from the perspective of the Australasian computer science research community. Specifically, the paper poses the following research question: *do the conferences and journals cited most frequently in the three most recent ACSC proceedings figure prominently in the CORE rankings*? More specifically, if a conference or journal is:

1) Ranked high by CORE and receives a high number of citations in the three ACSC proceedings, then the ranking and the citation rate are consistent.
2) Ranked low by CORE and receives a low number of citations in the three ACSC proceedings, then the ranking and the citation rate are consistent.
3) Ranked high by CORE but receives a low number of citations in the three ACSC proceedings. There are several hundred conferences and journals that are ranked highly by CORE (i.e. tier A or higher), and we cannot expect all of them to feature prominently, or even feature at all, in the three most recent ACSC proceedings. Therefore, in this case, no inferences can be made about the ranking of the conference or journal.
4) Ranked low by CORE but receives a high number of citations in the three ACSC proceedings, then we regard the low ranking as being inconsistent with its ACSC citation rate. This is the scenario where the analysis performed in this paper is most useful—it is a way of identifying some (but no all) conferences and journals that may have been ranked too low.

Note that "inconsistent" does not imply "incorrect". There may be other factors that make the CORE ranking appropriate. Inconsistency merely indicates that further attention is warranted.

The ACSC 2006, 2007 and 2008 conferences contain 36, 24 and 16 papers respectively, for a total of 77 papers. To answer the above research question, all 1550 citations in those 77 papers were examined, to see what conferences and journals were most frequently cited. Of the 1550 citations, 416 (27%) were to journal papers and 648 (42%) were to conference papers. Table 1 shows a complete breakdown of the different types of citations. (All tables appear at the end of the paper.)

2 Conference Citations and CORE Rankings

2.1 The CORE Conference Ranking System

The CORE website describes the broad structure and chronology of the conference rankings process (CORE, 2007b; CORE, 2007d). It began in late 2005. In the first

few months, the Australian National University's Research Evaluation and Policy Project (REPP), using bibliometric analyses, created a master list of conferences. In March 2006, that master list was presented for discussion at a workshop of approximately 20 ICT researchers from a number of universities. After refinement of the list, it was released for consultation and feedback from the ICT community. In late 2006, a project reference group (of unspecified size and composition) produced the first draft of the conference ranking list. During 2007, consultation with the ICT community continued, and some changes were made to the list. At the time this paper was written, the most recent draft of the conference rankings was released in December 2007.

The CORE conference rankings are based upon four tiers, enumerated as A+, A, B, L and C (CORE, 2007c). There are two indications on the CORE website as to the significance of the various tiers. These two indicators are described in the following two subsections.

2.1.1 CORE Description of the Tiers

The following description of the conference tiers is taken verbatim from the CORE web site:

Tier A+: Typically a Tier A+ conference would be one of the very best in its field or subfield in which to publish and would typically cover the entire field/subfield. These are conferences where most of the work is important (it will really shape the field), where researchers boast about being accepted, and where attendees would gain value from attending even if they didn't have a paper themselves. Acceptance rates would typically be low and the program committee would be dominated by field leaders, including many from top institutions. Tier A+ conferences would be highly represented in the CV of a junior academic (assistant professor) aiming for tenure at a top 10 US university. These are the conferences where people from overseas congratulate you on getting in and you shout drinks to the research group.

Tier A: Publishing in a Tier A conference would add to the author's respect, showing they have real engagement with the global research community and that they have something to say about problems of some significance. Attending a Tier A conference would be worth travelling to if a paper was accepted. Typical signs of a Tier A conference are lowish acceptance rates and a program committee and speaker list which includes a reasonable fraction of well known researchers from top institutions (as well as a substantial number from weaker institutions), and a real effort by the program committee to look at the significance of the work.

Tier B: Tier B covers conferences where one has some confidence that research was done, so publishing there is evidence of research-active status (that is, there is some research contribution claimed, and a program committee that takes its job seriously enough to remove anything ridiculous or ignorant of the state of art), but it's not particularly significant. This is where PhD students might be expected to send early work; it also includes places whose main function is the social cohesion of a community. Typical examples would be regional conferences or international conferences with high acceptance rates, and those with program committees that have very few leading researchers from top international institutions.

Tier L: These are local conferences which may be important for the social cohesion of the local community and for networking. Many were "one off" but are included for historical reasons.

Tier C: All the rest.

2.1.2 DEST Publication Rates

The second indication on the CORE web site as to the significance of the various tiers is data from the Australian Government's Department of Education, Employment and Workplace Relations (DEWR) indicating approximate publication rates of Australian authors in each of the CORE ranks:

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A+        6%
A        27%
B        31%
U (sic) 29% (meant to be C?)
C (sic)  6% (meant to be L?)
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The RQF/ERA processes have changed rapidly over the years of this project, and the information on the CORE web site has not always kept pace with those changes. While the CORE web site information above describes tiers "U" and "C", we suspect that those designations should be updated to "C" and "L" respectively.

2.2 ACSC Conference Citations - Results

In the 77 papers of the three ACSC proceedings surveyed, authors cited papers from 331 different conferences. The final row of Table 2 shows the DEST estimate of the publication rates of Australian authors in each of the conference ranks, which shows—as one would expect—that the rate at which ACSC authors cite A+ and A conferences (24% + 38% = 62%) far exceeds the frequency with which Australians publish in A and A+ conferences (6% + 27% = 33%).

A striking feature of Table 2 is that approaching one half (42%) of the conferences cited by ACSC authors are not listed by CORE. However, it would be unreasonable to expect CORE to rank all those conferences, for at least two reasons: (1) for the purposes of the RQF/ERA, CORE was only asked to rank conferences and journals in which Australian-based academics had reported having recently published, and (2) as shown in Table 3, of the 331 different conferences cited, 224 of those conferences (67.7%) were cited in only one ACSC 2006–08 paper.

Table 2a is a comparison of the data from Table 2 for ACSC with similar data from three other conferences that are part of the Australasian Computer Science Week. For details of the analysis of those other three conferences, see the analogous papers appearing in those respective conference proceedings (Lister & Box, 2008, 2009a, and 2009b).

Some conferences cited more than once were cited in only one paper. Also, the citation rate for a particular conference can be distorted by self-citation. Table 4 allows for these distortions, by (1) counting not the actual citations, but the number of different papers that cite a particular conference, and also by (2) excluding self-citations. Of the 273 conferences that received citations other than self-citations, three quarters of those

conferences (75.5%) were cited in only one paper and over 90% (92.7%) of conferences were cited in three or less papers (i.e. an average of one paper or less per year over the three years of ACSC proceedings examined)

Table 5 lists the top 20 conferences, which are all cited in three or more papers, excluding self-citations. The columns show the CORE tier (column "Tier"), total number of citations to the conference (column "Cites"), total number of citations to the conference, excluding self-citations (column "CitesXSelf"), total number of papers that cited that conference (column "Papers"), and total number of papers that cited that conference, excluding self-citations (column "PapersXSelf"). The list is ordered on the last column (descending), then tier, then conference name. Of the 20 conferences listed in Table 5, 75% are ranked as A+ by CORE, and 90% are ranked as either A+ or A.

Figure 1 is a log-log plot (to base e) of PapersXSelf versus the rank of the 20 conferences from Table 5 (i.e. ranked on PapersXSelf). This graph suggests that the distribution of the number of papers citing a particular conference is broadly consistent with the well known power law distribution for citations (Redner, 1998; Tsallis & de Albuquerque, 2000). Such power law distributions are often referred to as Zipf's Law. The slope of the line of best fit is -0.2. However, this plot is merely suggestive of a power law distribution, and not definitive, as the amount of data we have collected in this study is relatively low by the standards of citation analysis.

3 Discussion of Conference Rankings

From the above results, we conclude that the citations to various conferences in the ACSC 2006–08 proceedings are consistent with the CORE conference rankings.

Of the 20 conferences in Table 5, only two conferences—ACSC and ACISP—are not ranked as A+ or A. Both of those conferences are ranked as B, and both are Australasian conferences that one would reasonably expect to see frequently cited in ACSC (particularly ACSC itself).

Over a third (39%, see Table 2) of citations to papers in CORE ranked conferences are to papers in conferences ranked B, L or C. That statistic challenges the premise of RQF/ERA conference rankings process—that the rank of a conference is a reliable proxy for the quality of all papers in that conference. Our citations data shows that ACSC authors read widely, and choose to cite a paper on its own merits, not just on the reputation of the conference in which the paper appears.

Table 2a shows that the ACSC distribution of citations among tiers A to C is broadly consistent (given the sample sizes) with the same distribution in the Australasian Database Conference (ADC) and the Australasian User Interface Conference (AUIC), but not the Australasian Computing Education Conference (ACE). The percentage of unranked conferences cited in ACSC (42%) is higher than the same figure for ADC (30%), but lower than the percentage of unranked conferences cited in AUIC and ACE. This high percentage of unlisted conferences for AUIC and ACE may be due to both conferences being more human-centred than ACSC and ADC, which might lead to AUIC and ACE authors citing more papers from social science conferences, and those conferences are ranked by committees from other disciplines.

4 Journal Citations and CORE Rankings

4.1 The CORE Journal Ranking System

There are four tiers in the ERA journal ranking system – A*, A, B and C. The Australian Federal Government's Australian Research Council (ARC, 2008) has indicated that, within each research discipline, the proportion of journals within each tier should be approximately:

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A* – top 5%
A  – next 15%
B  – next 30%
C  – bottom 50%
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Of the 834 journals ranked by CORE, as at June 2008, the percentages in each of the tiers is:

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A* –  6% ( 47 journals)
A  – 18% (147 journals)
B  – 28% (233 journals)
C  – 49% (407 journals)
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The CORE web site contains a "journal update template" which gives an indication of the type of information used by CORE to determine the ranking of a journal:

- The number of referees for each paper submitted to the journal.
- Whether the review process is blind, double blind, open, or performed by the editor.
- The acceptance rate.
- The composition of the editorial committee (e.g. the proportion that are leading researchers in the field, and whether they are from the premier institutions for the field).
- The quality of the papers presented (e.g. whether the work presented shapes the field, and whether the quality of papers is uniform or 'patchy').
- Whether the top researchers in the field publish in that journal.
- The citation rate for papers in that journal.

4.2 ACSC Journal Citations—Results

In the three ACSC proceedings surveyed, authors cited papers from 215 different journals. Table 6 shows the number of citations to journals within the four CORE tiers, and also to journals not listed by CORE. The final row of Table 6 shows the distribution across the tiers of all 834 journals ranked by CORE, which shows—as one would expect—that there is a bias among ACSC authors toward citing the more highly ranked journals.

As with the analogous data for conferences, an immediately striking feature of Table 6 is that 58% of the journals cited in recent ACSC papers are not ranked by CORE. However, as was the case with conferences, it would be unreasonable to expect CORE to rank all those journals, for at least two reasons: (1) for the purposes of the RQF/ERA, CORE was only asked to rank journals in which Australian-based academics had reported having

recently published; and (2) and as shown in Table 7, over half (61%) of journals cited in the three ACSC proceedings were cited only once. Also, among the journals cited in ACSC papers are some that—while the citation may be germane to the paper in which the citation is made—one would not realistically expect the journal to be ranked by the CORE committee (e.g. *Investigative Radiology*, and *British Journal of Haematology*).

Some journals cited more than once were cited in only one paper. Also, the citation rate for a particular journal can be distorted by self-citation. Table 8 allows for these distortions, by (1) counting not the actual citations, but the number of different papers that cite a particular journal, and also by (2) excluding self-citations. Almost three quarters (71%) of journals cited were cited in only one paper (excluding self citations) and over 93% of the journals were cited in three or fewer papers (i.e. 93% of journals were cited, on average, in one or fewer papers per year over the three years of ACSC analysed).

Table 9 lists the 25 journals cited by three or more papers, excluding self-citations. The columns show the CORE tier (column "Tier"), total number of citations to the journal (column "Cites"), total number of citations to the journal, excluding self-citations (column "CitesXSelf"), total number of papers that cited that journal (column "Papers"), and total number of papers that cited that journal, excluding self-citations (column "PapersXSelf"). The list is ordered on the last column (descending), then by tier, then by journal name. Of the 25 journals listed in Table 9, over half (56%) are ranked as A* and over two thirds (68%) are ranked as either A* or A.

Figure 2 is a log-log plot (to base e) of PapersXSelf versus the rank of the 25 journals from Table 9 (i.e. ranked on PapersXSelf). This graph suggests that the distribution of the number of papers citing a particular journal is broadly consistent with a power law distribution, as was also the case for conferences. The slope of the line of best fit is -0.5. However, this plot is merely suggestive of a power law distribution, and not definitive, as the amount of data we have collected in this study is low by the standards of citation analysis.

5 Discussion of Journal Rankings

Given the above results, we conclude that – in general, with caveats to follow – the journal citations in the ACSC 2006–08 proceedings are broadly consistent with the CORE journal rankings.

The *Communications of the ACM* (CACM) appears at the top of Table 9, which seems inconsistent with CORE's ranking of it as a "B" journal. The ranking of CACM generated much discussion within CORE, and in early drafts of the rankings CACM was deliberately not ranked at all, since many within CORE argued that CACM is a magazine, not a research journal (personal communication with CORE). In the citation analysis of three other ACSW conferences—AUIC, ADC and ACE—CACM ranked first, second and third respectively (Lister & Box, 2008, 2009a, and 2009b). Polites and Watson (2008) used a more elaborate citation analysis technique than the simple approach we have used in this paper, and they found CACM to be a highly influential publication within Information Systems research—even more influential than MIS Quarterly. On this citation data in isolation, CACM's "B" ranking is hard to justify.

Authors of papers in the *IEEE Journal on Selected Areas in Communications* also *Computer Communications*, and even *Information Processing and Management* (ranked B, B and C respectively), might wonder how those rankings were determined. Journal rankings are not based solely on citation data, and other factors may have reasonably led to these rankings. However, an author of a paper in any journal should at least be able to find out CORE's reasons for the ranking of that journal, but currently CORE does not publish its reasons for any specific journal ranking.

The ranking of *SIGMOD Record* as a "C" journal is consistent with CORE's policy of ranking all ACM Special Interest Group (SIG) newsletters as "C". However, the nature of the content of these newsletters is variable across SIGs, with some publishing papers that have been refereed or at least formally reviewed (ACM, 2007). A uniform policy applied to all SIG newsletters is unfair to some of these newsletters.

The non-ranking of *Computational Linguistics* would appear to be an oversight by CORE.

The non-ranking of the *IEEE Communications Magazine* is consistent with CORE's policy of not ranking magazines. However, the CORE journal rankings do include *AI Magazine* (ranked C) and *d-Lib Magazine* (ranked B). It is therefore unclear why *IEEE Communications Magazine* is not ranked.

CORE correctly left the ranking of *Psychological Review* to the committee of another discipline.

Almost one third of citations to all journals ranked by CORE (31%, see Table 6) are to journals ranked B or C. As was also the case with the analogous conference statistic, this 31% statistic challenges the premise of RQF/ERA rankings process—that the rank of a journal is a reliable proxy for the quality of all papers in that journal. Our citations data shows that ACSC authors read widely, and choose to cite a paper on its own merits, not just on the reputation of the journal in which it appears.

Table 6a is a comparison of the data from Table 6 for ACSC with similar data from three other conferences that are part of the Australasian Computer Science Week (Lister & Box, 2008; 2009a; 2009b). Table 6a shows that the 29% percentage of ACSC citations in Tiers A* and A is lower than the 38% of ADC but considerably higher than the equivalent percentages for both AUIC and ACE. The percentage of unranked journals cited in ACSC (58%) is considerably higher than the percentage for ADC (33%), similar to the percentage for AUIC, but markedly lower than the 85% for ACE.

6 Age of Citations

The ERA specifies an audit period of six years. An examination of the age of citations in the ACSC 2006–2008 proceedings shows that 69% of ACSC conference citations are to conferences held in the year 2000 or more recently, and 50% of ACSC journal citations are to papers that appeared in the year 2000 or more recently. The analogous percentages for ADC are similar (70% and 55% respectively), but the analogous percentages for AUIC are much lower (25% and 25% respectively).

7 Discussion: Scholarship and Discourse

The schedule for developing the CORE rankings has been driven largely by the federal government's timetable for the RQF/ERA, which was faster than many in academia would have liked. Under such unfavourable circumstances, it was unavoidable that the ranking would be a relatively opaque committee/executive process.

While the rankings themselves may change, the concept of conference and journal rankings is here to stay. Furthermore, this ranking scheme will be used for purposes beyond the federal government's ERA exercise. For example, the rankings will become a routine part of applications for promotion in Australian universities.

It is now appropriate to consider the long-term strategy for the rankings. It is not in the best long-term interests of scholarship that the ranking remains an opaque committee/executive process. Scholarship would be better served by a more transparent process that allows for the ranking process itself to be improved, via open scholarly debate. As a first move toward developing such a scholarly process for routinely revising the rankings, we suggest a three-step process, described below.

7.1 All Policy and Data Should be Public

CORE has not yet documented its criteria for the journal rankings. Also, while there is a description of the conference rankings process on the CORE web site, it is not detailed. CORE should further document the criteria for journal and conference rankings.

The data for each conference and each journal (e.g. acceptance rates) should be made public, so that the computing community can check that the data is correct. Currently, given the high number of conferences and journals that have been ranked, and the short time in which the rankings were done, it is likely that a small number of journals and conferences have been ranked inappropriately because of bad data.

By using Web 2 technologies, CORE could make its ranking data public, and also push much of the effort for data acquisition and data cleaning onto the computing academic community.

7.2 Formal Models

A formal model—perhaps a points system—should be adopted for assigning preliminary rankings to conferences and journals. Such a model would make the ranking process far more transparent.

A formal model would offer a mechanism for providing a preliminary ranking for new conferences and journals. Currently, the conferences and journals that have been ranked are conferences and journals in which Australian-based academics have published in recent years. In the absence of a formal model, and irrespective of what the federal government and CORE may have intended, it is likely that unranked conferences and journals will be regarded as inferior; or at best dubious. The first Australian academic to publish in an unranked journal will have difficulty in establishing the quality of that journal to a promotions board, and the first Australian academic who has a paper accepted by an unranked conference will have difficulty in making a case to his/her department head for travel funding. The absence of a formal model will stifle Australian academics working in emerging research areas of computing.

7.3 A Documented Manual Review

Formal models will not capture the complexities of ranking. It is therefore appropriate that CORE continue to appoint committees that review the outputs of a formal model. When such a committee elects to manually alter the ranking from that assigned by the formal model, the reasons for doing so should be made public.

8 Conclusion

From our analysis of the CORE conference rankings, we conclude that the existing rankings are broadly consistent with the frequency of citation to conferences and journals in the three most recent ACSC conferences. Our analysis shows that CORE conference and journal rankings broadly reflect the ACSC citations, but we have noted some anomalies. It is important that anomalies be resolved, as the careers of individual academics may depend upon it.

Apart from the traditional intellectual skills associated with each academic discipline, all successful academics have found it necessary to acquire other skills—project management, and grant writing, to name just two of those skills. The RQF/ERA government initiatives have added a new required skill for the successful Australian academic—the ability to understand issues in bibliometrics well enough to participate in the discourse on conference/journal rankings, particularly with regard to the ranking of their preferred conferences and journals. If we do not master bibliometrics to that degree, then bibliometrics will master us.

The process of ranking conferences and journals is as complex as it is vexing. The aim of this paper is merely to begin a scholarly discourse within the ACSC community on the CORE rankings. This paper is certainly not intended as the final word. Meanwhile, careers will rise and fall on the decisions made by the CORE ranking committees. It is therefore vital that the CORE ranking processes be open to informed discussion and peer review—why should we settle for a ranking process that is less rigorous in its scholarship than what we demand from the research published in a highly ranked conference or journal?

9 References

ACM (2007) *Policy on Pre-Publication Evaluation*. http://www.acm.org/pubs/prepub_eval.html / [Accessed October 2007].

ARC (2008) *Excellence in Research for Australia Initiative, Consultation Paper*. http://www.arc.gov.au/pdf/ERA_ConsultationPaper.pdf [4th September 2008].

CORE (2007a). *Final 2007 Australian ranking of ICT conferences.* [Internet]. Computing Research and Education. Available from: http://www.core.edu.au/rankings/Conference%20Ranking%20Main.html [4th September 2008].

CORE (2007b). *The initial process for an Australian ranking of ICT conferences.* [Internet]. Computing Research and Education. Available from:

http://www.core.edu.au/rankings/ranking-process.pdf [4th September 2008].

CORE (2007c). *Tiers for the Australian ranking of ICT conferences*. [Internet]. Computing Research and Education. Available from: http://www.core.edu.au/rankings/conf-tiers.pdf [4th September 2008].

CORE (2007d). *The updating process for the Australian ranking of ICT conferences.* [Internet]. Computing Research and Education. Available from: http://www.core.edu.au/rankings/update-process.pdf [4th September 2008].

CORE (2008). *Journal rankings*. [Internet]. Computing Research and Education. Available from: http://www.core.edu.au/ [4th September 2008].

DEST (2007) Research Quality Framework: Assessing the quality and impact of research in Australia. http://www.dest.gov.au/sectors/research_sector/policies_issues_reviews/key_issues/research_quality_framework/#RQF_Implementation_2007 [Accessed Oct. 2007]

Lister, R. and Box, I. (2008). *A citation analysis of the ACE2005 -2007 proceedings, with reference to the June 2007 CORE conference and journal rankings.* In Proc. Tenth Australasian Computing Education Conference (ACE 2008), Wollongong, NSW, Australia. CRPIT, 78. Simon and Hamilton, M., Eds., ACS. 63-68. http://crpit.com/Vol78.html

Lister, R. and Box, I. (2009a). *A citation analysis of the ADC 2006–2008 proceedings, with reference to the CORE conference and journal rankings.* In Proc. 20th Australasian Database Conference (ADC 2009), Wellington, New Zealand, January 2009. CRPIT, 92. Lin, X. and Bouguettaya, A., Eds., ACS.

Lister, R. and Box, I. (2009b). *A citation analysis of the AUIC 2006–2008 proceedings, with reference to the CORE conference and journal rankings.* In Proc. 10th Australasian Computer Science Conference (AUIC 2009), Wellington, New Zealand, January 2009. CRPIT, 93. Paul Calder & Gerald Weber (Eds.), ACS.

Polites, G. L. and Watson, R. T. 2008. The centrality and prestige of CACM. *Commun. ACM* 51, 1 (Jan. 2008), 95-100. http://doi.acm.org/10.1145/1327452.1327454 [Accessed September 2008]

Redner S. (1998) How popular is your paper? An empirical study of the citation distribution, *Eur. J. Phys. B*, 4, 131-134. http://xxx.lanl.gov/abs/cond-mat/9804163

Tsallis C., de Albuquerque M. P. (2000) Are citations of scientific papers a case of nonextensivity ?, *Eur. Phys. J. B*, 13, 777-780, http://tsallis.cat.cbpf.br/biblio.htm

Types of Citation	ACSC2006		ACSC2007		ACSC2008		Total	
	No. Citations	%age Citations	No. Citations	%age Citations	No. Citations	%age Citations	No. Citations	%age Citations
Journal	174	24%	165	31%	80	26%	416	27%
Conference	318	45%	191	36%	140	46%	648	42%
Book or Chapter	94	13%	92	17%	36	12%	222	14%
Web Page	60	8%	31	6%	21	7%	112	7%
Unpublished Report	43	6%	39	7%	17	6%	99	6%
Unpublished Thesis	23	3%	10	2%	7	2%	40	3%
Other	3	1%			1	<1%	4	<1%
Total	715		528		307		1550	

Table 1: Number of different types of citation in the ACSC2006, ACSC2007 and ACSC2008 proceedings.

	Tier					
	A+	**A**	**B**	**L(ocal)**	**C**	**Not Listed**
Number of conferences cited in ACSC	45	72	46	1	27	140
Percentage of conferences cited in ACSC	14%	22%	14%	<1%	8%	42%
Percentage of listed conferences cited in ACSC	24%	38%	24%	1%	14%	–
DEST publication rates of Australian authors in each of the CORE ranks	6%	27%	31%	6%	29%	

Table 2: Number of citations in the ACSC proceedings to conferences in each CORE tier, and to conferences not listed by CORE.

	Tier					
	A+	**A**	**A+ & A**	**B**	**C**	**Not Listed**
Percentage of conferences cited in ACSC (as in Table 2)	14%	22%	36%	14%	8%	42%
Percentage of conferences cited in ADC	15%	26%	41%	19%	9%	30%
Percentage of conferences cited in AUIC	12%	19%	31%	14%	4%	50%
Percentage of conferences cited in ACE	5%	11%	16%	21%	9%	55%

Table 2a: A comparison of citations to conferences in each CORE tier in the ACSC proceedings with three other ACSW conferences.

	Number of Citations													
	1	2	3	4	5	6	7	9	11	12	13	20	23	**Total**
Number of Conferences	224	47	22	13	7	5	2	1	3	1	1	1	1	331
Cumulative Percentage	67.7	81.9	88.5	92.4	94.6	96.1	97.6	97.9	98.5	99.1	99.4	99.7	100%	

Table 3: Number of conferences receiving various numbers of citations from the ACSC2006–2008 proceedings.

	Number of Different Papers that Cite a Particular Conference								
	1	2	3	4	5	6	7	8	**Total**
Total No. Conferences	206	33	14	6	9	2	2	1	273
Cumulative Percentage	75.5%	87.5%	92.7%	94.9%	98.2%	98.9%	99.6%	100%	
No. Tier A+	11	9	7	4	6	ICSE INFOCOM	SIGIR SIGMOD	VLDB	
No. Tier A	43	12	4	CIKM	3				
No. Tier B	26	1	1	ACSC					
No. Tier C	15	2	2						
No. Unlisted	111	9							

Table 4: Number of conferences receiving citations, excluding self-citations, from various numbers of papers in the ACSC2006–2008 proceedings. For an explanation of the conference acronyms, see Table 5.

Conference	Tier	Cites	CitesXSelf	Papers	PapersXSelf
VLDB: International Conference on Very Large Databases	A+	11	11	8	8
SIGIR: ACM Int. Conf. on R&D in Information Retrieval	A+	23	23	7	7
SIGMOD: ACM SIG on Management of Data Conference	A+	11	10	8	7
ICSE: International Conference on Software Engineering	A+	6	6	6	6
INFOCOM: Joint Conference of the IEEE Computer and Communications Societies	A+	7	7	6	6
AAAI: National Conf. of the American Association for AI	A+	5	5	5	5
ACL: Assoc. of Computational Linguistics, Annual Meeting of	A+	12	12	5	5
CHI: Int. Conf. on Human Factors in Computing Systems	A+	7	7	5	5
OOPSLA: ACM Conference on Object Oriented Programming Systems Languages and Applications	A+	7	7	5	5
SIGKDD: ACM Int. Conf. on Knowledge Discovery and Data Mining	A+	5	5	5	5
WWW: International World Wide Web Conference (ACM)	A+	12	11	6	5
S&P: IEEE Symposium on Security and Privacy	A	7	7	5	5
TREC: Text Retrieval Conference	A	9	9	5	5
ACISP: Australasian Conf. on Information Security & Privacy	B	6	5	6	5
MOBICOM: ACM Int. Conf. on Mobile Computing and Networking	A+	6	6	4	4
PLDI: ACM-SIGPLAN Conference on Programming Language Design & Implementation	A+	6	6	4	4
POPL: ACM-SIGACT Symp. on Principles of Prog Langs	A+	5	4	5	4
SOSP: ACM SIGOPS Symp. on Operating Systems Principles	A+	4	4	4	4
CIKM: ACM Int. Conf. on Information and Knowledge Management	A	5	5	4	4
ACSC: Australasian Computer Science Conference	B	20	4	18	4

Table 5: All conference proceedings cited by three or more papers (excluding self-citations) in the ACSC2006, 2007 and 2008 proceedings. The columns show the CORE tier ("Tier"), total number of citations to the conference ("Cites"), total number of citations to the conference, excluding self-citations ("CitesXSelf"), total number of papers that cited that conference ("Papers"), and total number of papers that cited that conference, excluding self-citations ("PapersXSelf"). The list is ordered (descending) on the last column, then by tier.

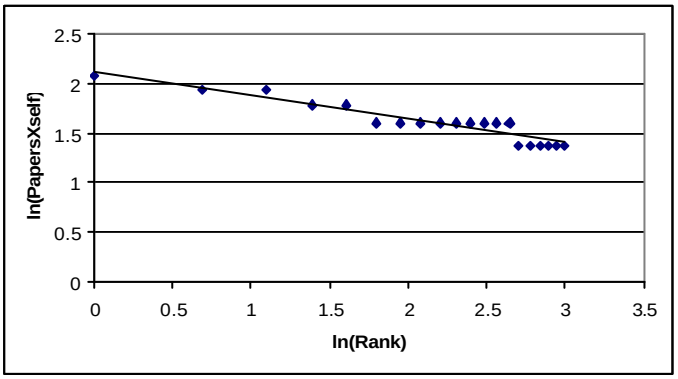

Figure 1: A plot of the natural logarithm of PapersXSelf versus the natural logarithm of the rank of the 20 conferences from Table 5, based on PapersXSelf.

	Tier				
	A*	**A**	**B**	**C**	**Not Listed**
Number of journals cited in ACSC	27	35	20	8	125
Percentage of journals citedin ACSC	13%	16%	9%	4%	58%
Percentage of ranked journals cited in ACSC	30%	39%	22%	9%	—
CORE Overall Percentages (n=834)	6%	18%	28%	49%	—

Table 6: Number of journals cited in each CORE tier, and to journals cited that are not listed by CORE.

	Tier					
	A*	**A**	**A* & A**	**B**	**C**	**Not Listed**
Percentage of journals cited in ACSC (as in Table 6)	13%	16%	29%	9%	4%	58%
Percentage of journals cited in ADC	14%	24%	38%	21%	9%	33%
Percentage of journals cited in AUIC	7%	7%	14%	16%	8%	61%
Percentage of journals cited in ACE	5%	4%	9%	5%	1%	85%

Table 6a: A comparison of citations to journals in each CORE tier in the ACSC proceedings with three other ACSW conferences.

	Number of Citations											
	1	2	3	4	5	6	7	8	10	14	17	**Total**
Number of Journals	132	42	17	8	5	4	2	2	1	1	1	215
Cumulative Percentage	61%	81%	89%	93%	95%	97%	98%	99%	99%	100%	100%	

Table 7: Number of journals receiving various numbers of citations from the ACSC2006, ACSC2007 and ACSC2008 proceedings.

	Number of Different Papers that Cite a Particular Journal								
	1	2	3	4	5	6	9	15	Total
Total No. of Journals	140	31	11	9	2	1	1	1	196
Cumulative Percentage	71%	87%	93%	97%	98%	99%	99%	100%	
No. Tier A*	10	1	4	6	TODS TSE	TOPLAS	CSUR		
No. Tier A	20	8	1	2					
No. Tier B	8	6	1	1				CACM	
No. Tier C	6	16	2						
No. Unlisted	96		3						

Table 8: Number of journals receiving citations, excluding self-citations, from various numbers of papers in ACSC2006–2008. For an explanation of the acronyms of the more cited journals, see Table 9.

Journal	Tier	Cites	CitesXSelf	Papers	PapersXSelf
CACM: Communications of the ACM	B	17	16	16	15
CSUR: ACM Computing Surveys	A*	10	9	10	9
TOPLAS: ACM Trans. on Prog. Langs & Systems	A*	8	7	7	6
TODS: ACM Transactions on Database Systems	A*	14	14	5	5
TSE: IEEE Transactions on Software Engineering	A*	8	8	5	5
ACM Transactions on Computer-Human Interaction	A*	5	5	4	4
ACM Transactions on Information Systems	A*	4	4	4	4
ACM Trans. on Software Eng. & Methodology	A*	4	4	4	4
IEEE Transactions on Information Theory	A*	6	6	4	4
J. Am. Soc. for Information Science & Technology	A*	7	7	4	4
SIAM Journal on Computing	A*	6	6	4	4
IEEE Trans. on Knowledge and Data Engineering	A	7	5	6	4
International Journal of Human-Computer Studies	A	4	4	4	4
IEEE Journal on Selected Areas in Communications	B	4	4	4	4
ACM Transactions on Computer Systems	A*	5	4	3	3
IEEE Transactions on Computers	A*	3	3	3	3
IEEE Trans on Parallel and Distributed Systems	A*	3	3	3	3
Journal of the Association for Computing Machinery	A*	6	6	3	3
Software Practice and Experience	A	3	3	3	3
Computer Communications	B	3	3	3	3
Information Processing and Management	C	5	5	3	3
SIGMOD Record	C	4	4	3	3
Computational Linguistics	?	3	3	3	3
IEEE Communications Magazine	?	3	3	3	3
Psychological Review	?	3	3	3	3

Table 9: All journals cited by 3+ papers (excluding self-citations) in ACSC2006–2008. The columns show the number of citations to the journal ("Cites"), number of citations to the journal, excluding self-citations ("CitesXSelf"), number of papers that cited that journal ("Papers"), and number of papers that cited that journal, excluding self-citations ("PapersXSelf"). The list is ordered (descending) on PapersXSelf.

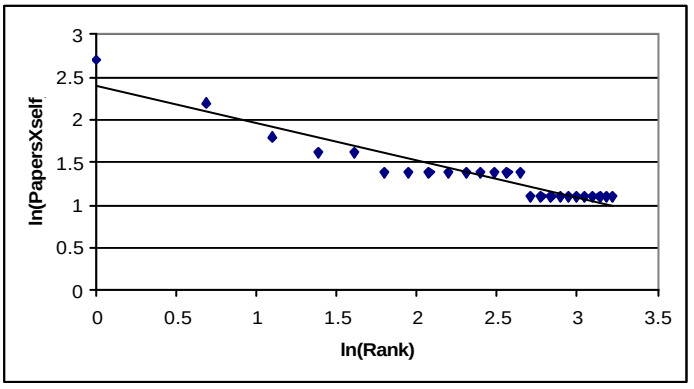

Figure 2: A plot of the logarithm of PapersXSelf vs. the logarithm of the rank of the 25 journals from Table 9.