

A Citation-Based Reflection on Toulmin and Argument

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Intellectual history has always appealed to certain kinds of scholars. The prospect of being vindicated by future thinkers can compensate for the difficult struggle that many original thinkers experience when they take risks, attempt fundamental change, or simply have difficulty communicating their ideas to contemporaries. Especially in today's intellectual din, where the fast pace of technology and science and the rise of new disciplines can make it hard to hear traditional voices, where scholars are under pressure to produce short-term and conventionally valuable thoughts, there is merit in what the intellectual historian does.

The new tool in intellectual history is the citation count. Today, there are numerous ways to gauge the impact of a publication because there are numerous citation databases that are maintained, both by professional organizations and by companies in the business of providing high quality indexes. Online databases make comparative study possible across an entire discipline.

For Stephen Toulmin, intellectual history is a relevant question. Toulmin is known widely as a seminal author, is appreciated in many disparate intellectual communities, and continues to grow in stature. By all accounts, Stephen Edelston Toulmin has done things in an academic career that only few will do. He stands as an important twentieth century thinker, whether one thinks he is a logician, a philosopher of science, a rhetorician, a popular writer, or even an intellectual historian himself. His work reaches the most improbable corners of the academic landscape. I have been approached by many people wanting to discuss the Toulmin diagram, by scholars from every continent, for dozens of purposes, whether they use the diagram formally or informally, whether they are technologists or Luddites, whether they know a lot about Stephen Toulmin or nothing at all. Meanwhile, the depth of Toulmin's work has always been under suspicion, its technical importance questionable; and one can even quarrel whether there are precedents for his

views. Toulmin is one of the scholars most in need of objective standards for placement in intellectual history.

So how well is Toulmin cited? Which of Toulmin's works is the most cited? Which work has had the most impact? Of course the last two questions are not the same. "Wittgenstein's Vienna" by Allan Janik and Toulmin, which I have never personally seen cited, has had more impact on me personally than "Uses of Argument," which my research community cites regularly. Still, we can measure the citation counts, and the relation between impact and citation count is tangible. In "Origins of Genius," Dean Keith Simonton goes so far as to equate genius with achievement (a dubious move which I do not endorse) and to assert that citation is the best contemporary measure of the latter (a claim I find more agreeable).

776	USES OF ARGUMENT
668	HUMAN UNDERSTANDING
344	COSMOPOLIS
266	FORESIGHT AND UNDERSTANDING
182	INTRODUCTION TO REASONING
158	PHILOSOPHY OF SCIENCE
122	RETURN TO COSMOLOGY

Readers of this journal would probably be surprised if it were not the case that "Uses of Argument" were Toulmin's most cited work. In fact, it is. But the surprise is just how close is the count. The Institute for Scientific Information (ISI, <http://isiwebofknowledge.com/>) numbers, in Summer 2005, ignoring unusual citation forms such as foreign language variations of titles, are as above.

This means that of the millions of journal articles that have appeared in the past decade and a half, in the leading journals in humanities, social sciences, and science and technology, 776 distinct articles cited Toulmin's "Uses of Argument" in some form or another. The database begins in 1988, so one may calculate that nearly four dozen journal articles per year cited "Uses of Argument." This number needs to be given some meaning. But first, it is worth remarking on the distribution.

It is unusual today even for a philosopher to have lead publications that are all books. This is consistent with our understanding of Toulmin as that special kind of academic who can make a career on a few deeply considered and generously crafted publications. He is clearly an academic of a purer time, when writing was a valued part of authorship. In short, Toulmin wrote books, not articles, and there are few pure academics who can afford that luxury today. That pattern is only

observed today among very popular authors, for example, Daniel Dennett and Douglas Hofstadter. It is unusual for such authors to have ideas that are precise enough to be useful to technical authors in a discipline who are writing journal papers, and even more unusual for the pattern of citation to identify a particular idea. Toulmin’s argument diagrams are unusual in this respect.

Second, the rate at which “Uses of Argument” is being cited is growing. If one looks at the citations by year, with a two-year sum to smooth the year-to-year variations, it seems clear that Toulmin’s book

Toulmin’s Uses of Argument

	Year	2-year
2004	47	100
2003	53	92
2002	39	73
2001	34	63
2000	29	55
1999	26	53
1998	27	61
1997	34	69
1996	35	67
1995	32	70
1994	38	72
1993	34	55
1992	21	52
1991	31	50
1990	19	35
1989	16	38
1988	21	

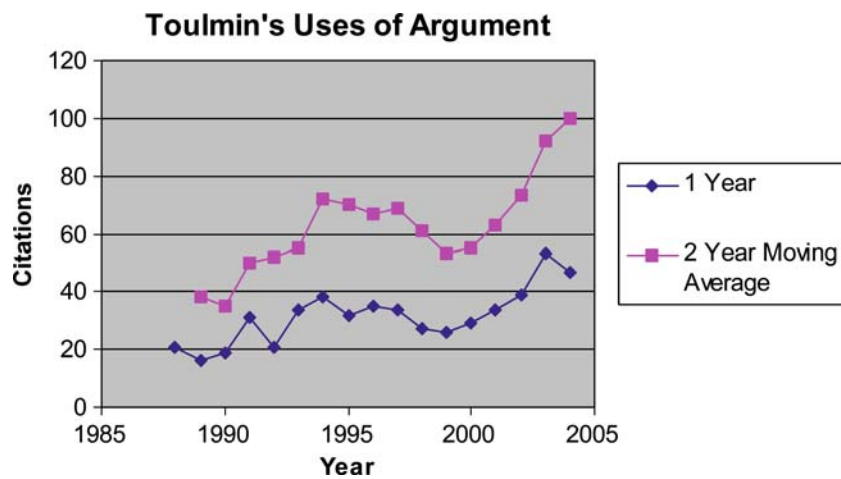


Figure 1. Toulmin’s Uses of Argument.

is becoming more popular. In fact, at the time of this writing, the half-year citation count for 2005 is 30, which is on pace to be the best year for the book (60 cites projected for 2005) (Figure 1).

It is true that the number of journal articles indexed each year is growing, so one may expect growth in citations for a publication

Perelman's New Rhetoric

	Year	2-year
2004	25	52
2003	17	38
2002	21	44
2001	23	50
2000	27	45
1999	18	46
1998	28	49
1997	21	54
1996	33	71
1995	38	58
1994	20	45
1993	25	50
1992	25	50
1991	25	47
1990	22	66
1989	44	78
1988	34	

which is actually remaining constant in its impact. But compare, for example, Chaim Perelman's "New Rhetoric," which seems to be falling in yearly citations, at least among English language authors (Figure 2).

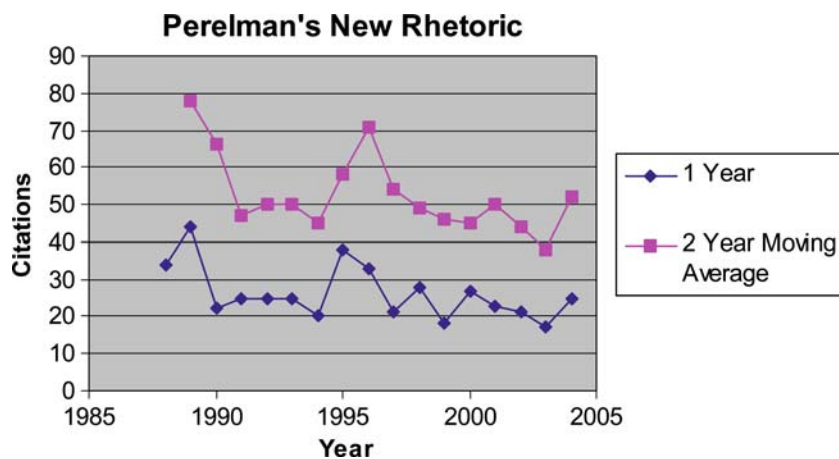


Figure 2. Perelman's New Rhetoric.

Perhaps it is not new to point out that S. E. Toulmin has been a special intellectual whose recognition is growing. How big has he been, and how big is he now?

If we compare Toulmin to other philosophical logicians and philosophers of science, Toulmin's numbers shine. Counting any journal article published in 2004 that cites some work of an author, Toulmin fares well on the above list of related and celebrated authors.

Celebrated Philosophers of Science & Philosophical Logicians Year 2004 Journal Citations for All Works

1.	870 l zadeh
2.	543 t kuhn
3.	271 w quine
4.	262 h putnam
5.	224 j austin
6.	182 s kripke
7.	139 a tarski
8.	130 s toulmin
9.	123 a whitehead
10.	113 j girard
11.	112 j barwise
12.	112 i lakatos
13.	111 m bunge
14.	107 r carnap
15.	99 c hempel
16.	95 h reichenbach
17.	94 n rescher
18.	88 p gardenfors
19.	87 r stalnaker
20.	80 j hintikka
21.	79 p feyerabend
22.	79 n cartwright
23.	77 p suppes
24.	72 a ayer
25.	61 g vonwright
26.	58 m fitting
27.	56 s kleene
28.	50 a church
29.	47 p geach
30.	47 i levi

One can argue about who ought to be on such a list. It is hard to decide which works of Popper, Russell, or Chomsky to include, for example, and which to exclude. Similarly, should Foucault or Polanyi be included? Turing or Wittgenstein? The list of excluded names that would challenge for the top of the list is probably quite small.

In any case, it should be satisfying to those who admire Toulmin's work to see Toulmin so high on such a list. Toulmin appears solidly ahead of many of the great names in philosophy of logic and philosophy of science.

If we rank each author by the total number of citations (1988–2004), for the most popular work of the author (counting only the most common citation forms seen in 2004), then Toulmin does just as well.

Total journal citations best cited work, ISI abbreviated title

1.	12364 t kuhn, structure science
2.	6085 l zadeh, inform contr
3.	2197 i lakatos, criticism growth kno
4.	1975 j austin, how do things words
5.	1853 w quine, word object
6.	863 h putnam, reason truth hist
7.	854 c hempel, aspects of sci expl
8.	851 p feyerabend, against method
9.	669 s toulmin, uses of argument
10.	640 s kleene, intro metamath
11.	636 j girard, theoretical computer
12.	540 a whitehead, sci modern world
13.	477 j barwise, situations attitudes
14.	463 s kripke, naming necessity
15.	432 a tarski, pac j math
16.	407 j hintikka, knowledge belief
17.	404 h reichenbach, elements symbolic lo
18.	390 p gardenfors, knowledge flux
19.	366 g vonwright, explanation understa
20.	362 m bunge, treatise basic phil
21.	300 n cartwright, how laws physics lie
22.	287 p martinlof, inform control
23.	276 c alchourron, j symbolic logic
24.	251 p suppes, probabilistic theory
25.	248 i levi, enterprise knowledge
26.	244 n rescher, many valued logic
27.	236 a church, j symbolic logic
28.	231 r carnap, meaning necessity
29.	215 a ayer, language truth logic
30.	198 b chellas, modal logic intro

Perhaps few would anticipate that Toulmin has been larger than Carnap, Church, Tarski, and Whitehead, in the past decade and a half. In fact, after a handful of colossal ideas: paradigm shifts and methods, fuzzy logic, illocutionary force, the analytic–synthetic distinction, supervenience and deductive-nomological explanation; Toulmin diagrams must be mentioned next. This has to be impressive and surprising to any intellectual historian.

The picture of Toulmin's work is a bit different in my mind, even with the evidence of these citation counts. To me, Toulmin's "Uses of Argument" is no more courageous than H.L.A. Hart's introduction of the term "defeasible" to philosophical logic and analytic philosophy (see also Loui, 1995). Although Hart does not use the word "argument" much, it has always seemed to me that Toulmin's position is highly derivative from Hart's. To me, Toulmin does not give sufficient attribution to Hart's related thought. Toulmin's exact and only textual reference is:

These distinctions [analytic versus substantial arguments], will not be particularly novel to those who have studied explicitly the logic of special types of practical argument: the topic of exceptions or conditions of rebuttal, for instance which were labeled (R) in our pattern of analysis has been discussed by Professor H.L.A. Hart under the title of 'defeasibility,' and he has shown its relevance not only to the jurisprudential study of contract but also to philosophical theories about free-will and responsibility. (It is probably no accident that he reached these results while working in the borderland between jurisprudence and philosophy.) (Toulmin, 1958, p. 142; see also p. 260)

Toulmin moves immediately to Sir David Ross's *prima facie* qualification of moral rules and never returns to Hart. Once one has conceived of the defeasible connective, it is not much of a leap to consider connections among defeasible rules and tree-shaped derivations as arguments.

But Toulmin's (1958) work is essential in the history of argumentation.

First, Hart appeared to abandon the position, or in any case, refused to defend it. Dialectical logical form resided in one place only: in the hands of Toulmin, for nearly two decades, as deductive logicians spread their dogma. This is of tremendous intellectual historical importance. I think of nascent mammalian life hiding in caves while pre-Cambrian life dominated the surface of the earth. Toulmin provided a lone outpost of resistance, a single place where the fire burned during a long winter, where dialectical travelers of the logical landscape could stop for a rest. Some would re-discover the defeasible conditional as a contortion of deductive conditionals, but there has been a long and respectable development of argumentative form and its ramifications, awaiting the return of mathematical logicians.

Second, Toulmin's penchant for reaching non-specialists in his broad writing, the "informal logicians," and the teachers of good writing style, was essential to the growth of the study of argumentation. There are no competing sources of argument in rhetoric. Not the elegance of Chaim Perelman's French, nor the accessibility of Ronald Munson's texts, nor the prolixity of Doug Walton's meditations can compare to the common, democratic, plain-faced, singularly cogent

appeal of Toulmin. I believe that Rescher, with his brevity and scholarship, eclipses Toulmin in his "Dialectics," which is almost a poetic work. But the 1977 timing of Rescher's monograph was not good, and the little Rescher book had little impact. Meanwhile, everyone associated with scholarship in rhetoric, dialectic, or informal logic seems to have read Toulmin's "Uses of Argument."

Finally, Toulmin's suggestion of a method of diagramming argument was fortuitous indeed! It is a method which we can all find slightly comical in its simplicity. I remember thinking how naive it seemed in the hands of University of Colorado-Boulder Computer-Supported Collaborative Work (CSCW) technologists in the late eighties. But it is a diagram that has survived all competitors, and which delivers its underlying philosophy unmistakably. One cannot draw a Toulmin diagram without understanding that an argument is not a proof, and this understanding immediately elevates the discussion above deductive logical misunderstandings. One can even argue philosophical and logical fine points in the deployment of these modest box and arrow primitives. In retrospect, Toulmin's diagrams make Peirce's Venn-like diagrams and Frege's skewed branching trees seem vulgar and confining.

In time, argumentation should overcome even fuzzy predication and fuzzy connectives as the most important non-deductive development in the history of logic. I don't know how long it will take for citation counts to show this as a fact. Probably it will take a long time for scholars to come to this position, and citation counts may soon lose their meaning, as publication and citation habits change. Nevertheless, the student of argument must take heart in the citation evidence that is already available for comparative impact. I had approached this article by preparing all kinds of apologies for the seminal philosophical logician, relative to the mathematical logician or technically non-standard logician. I had expected mathematical uses of logic to be more numerous than references to logical styles of reasoning. I had expected that AGM belief revision or modal deontic logic, as two examples, would be bigger than Toulmin's argument in the citation databases. I am happy to report that I was unduly pessimistic. We can claim that Toulmin's "Uses of Argument," and Stephen Toulmin's work in general, have been essential contributions to twentieth century thought, and the citation counts are clearly there as grounds for the claim.

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