Algebraic Optimization of Recursive Database Queries

Queries are expressed by relational algebra expressions including a fixpoint operation. A condition is presented under which a natural join commutes with a fixpoint operation. This condition is a simple check of attribute sets of sub-expressions of the query. The work may be considered a generalization of Aho and Ullman, (1979). The result is interpreted in function free logic database terms as a transformation of the recursively defined predicate involving: (a) elimination of an argument, and (b) propagation of selections (instantiations) to the extensionally defined predicates. A collection of examples shows that this transformation abstracts some optimizations which otherwise are done by more complex graph algorithms (e.g. Bancilhon et al., (1986); Chang, (1985); Gardarin and DeMaindreville, (1986); Henschen and Naqvi, (1984); Kifer and Lozinskii, (1986)). Thus, this optimization is expressed in a form which is not biased towards any evaluation method.

General information
State: Published
Organisations: Computer Science and Engineering, Department of Informatics and Mathematical Modeling
Contributors: Hansen, M. R.
Pages: 286-298
Publication date: 1988
Peer-reviewed: Yes

Publication information
Journal: INFO Journal
Volume: 26
Issue number: 4
ISSN (Print): 0315-5986
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 0.39 SJR 0.293 SNIP 0.391
Web of Science (2017): Impact factor 0.257
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 0.21 SJR 0.161 SNIP 0.177
Web of Science (2016): Impact factor 0.189
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.28 SJR 0.28 SNIP 0.324
Web of Science (2015): Impact factor 0.095
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 0.67 SJR 0.631 SNIP 0.32
Web of Science (2014): Impact factor 0.171
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 0.53 SJR 0.397 SNIP 0.242
Web of Science (2013): Impact factor 0.41
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 0.55 SJR 0.476 SNIP 0.507
Web of Science (2012): Impact factor 0.395
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 0.47 SJR 0.285 SNIP 0.613
Web of Science (2011): Impact factor 0.295
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.472 SNIP 0.421
Web of Science (2010): Impact factor 0.318
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.473 SNIP 0.777
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.582 SNIP 0.776
Scopus rating (2007): SJR 0.238 SNIP 0.346
Scopus rating (2006): SJR 0.166 SNIP 0.468
Scopus rating (2005): SJR 0.304 SNIP 0.334
Scopus rating (2004): SJR 0.374 SNIP 0.592
Scopus rating (2003): SJR 0.238 SNIP 0.342
Scopus rating (2002): SJR 0.591 SNIP 0.852
Scopus rating (2001): SJR 0.57 SNIP 1.085
Scopus rating (2000): SJR 0.195 SNIP 0.309
Scopus rating (1999): SJR 0.213 SNIP 0.456
Original language: English
URLs:
http://www2.imm.dtu.dk/pubdb/p.php?1897
Source: orbit
Source-ID: 199620
Research output: Research - peer-review › Journal article – Annual report year: 1988