

# CHAPTER 4



## Intermediate SQL

General SQL references were provided in Chapter 3. As noted earlier, many systems implement features in a non-standard manner, and, for that reason, a reference specific to the database system you are using is an essential guide. Most vendors also provide extensive support on the web.

### Bibliographical Notes

The rules used by SQL to determine the updatability of a view, and how updates are reflected on the underlying database relations appeared in SQL:1999 and are summarized in [Melton and Simon (2001)].

The original SQL proposals for assertions date back to [Astrahan et al. (1976)], [Chamberlin et al. (1976)], and [Chamberlin et al. (1981)].

[Rizvi et al. (2004)] describe issues with the authorization model used in Oracle VPD, and discuss alternative theoretical models. [Kabra et al. (2006)] describe issues in information leakage with the VPD authorization model, and techniques to avoid such leakage; similar techniques are implemented in PostgreSQL. [Chaudhuri et al. (2007)] describes an alternative to VPD, based on associating predicates with authorizations.

### Bibliography

[Astrahan et al. (1976)] M. M. Astrahan, M. W. Blasgen, D. D. Chamberlin, K. P. Eswaran, J. N. Gray, P. P. Griffiths, W. F. King, R. A. Lorie, P. R. McJones, J. W. Mehl, G. R. Putzolu, I. L. Traiger, B. W. Wade, and V. Watson, “System R, A Relational Approach to Data Base Management”, *ACM Transactions on Database Systems*, Volume 1, Number 2 (1976), pages 97-137.

[Chamberlin et al. (1976)] D. D. Chamberlin, M. M. Astrahan, K. P. Eswaran, P. P. Griffiths, R. A. Lorie, J. W. Mehl, P. Reisner, and B. W. Wade, “SEQUEL 2: A Unified Approach to Data Definition, Manipulation, and Control”, *IBM Journal of Research and Development*, Volume 20, Number 6 (1976), pages 560-575.

- [Chamberlin et al. (1981)]** D. D. Chamberlin, M. M. Astrahan, M. W. Blasgen, J. N. Gray, W. F. King, B. G. Lindsay, R. A. Lorie, J. W. Mehl, T. G. Price, P. G. Selinger, M. Schkolnick, D. R. Slutz, I. L. Traiger, B. W. Wade, and R. A. Yost, “A History and Evaluation of System R”, *Communications of the ACM*, Volume 24, Number 10 (1981), pages 632–646.
- [Chaudhuri et al. (2007)]** S. Chaudhuri, T. Dutta, and S. Sudarshan, “Fine Grained Authorization Through Predicated Grants”, In *Proc. of the International Conf. on Data Engineering* (2007), pages 1174–1183.
- [Kabra et al. (2006)]** G. Kabra, R. Ramamurthy, and S. Sudarshan, “Redundancy and information leakage in fine-grained access control”, In *Proc. of the ACM SIGMOD Conf. on Management of Data* (2006), pages 133–144.
- [Melton and Simon (2001)]** J. Melton and A. R. Simon, *SQL:1999, Understanding Relational Language Components*, Morgan Kaufmann (2001).
- [Rizvi et al. (2004)]** S. Rizvi, A. O. Mendelzon, S. Sudarshan, and P. Roy, “Extending Query Rewriting Techniques for Fine-Grained Access Control”, In *Proc. of the ACM SIGMOD Conf. on Management of Data* (2004), pages 551–562.