



UCL Department of Computer Science  
CS M038/GZ06: Mobile and Cloud Computing  
Spring 2013  
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One-pager: SPORC (Feldman *et al.*, 2010)

Due: Start of lecture, 13th March 2013

Instructions: *in your own words*, answer the following questions as *succinctly* as possible (in 200–500 words total, but shorter answers within this range are encouraged). Quoting figures or text from the assigned reading or from any other source is specifically prohibited.

SPORC uses operational transformation (OT) to resolve conflicts between concurrent operations by multiple clients. Consider the simple transformation function  $T(op_1, op_2)$  for single-character text deletions defined in Section 2.2 of the paper. When a SPORC client resolves any conflicts between a committed delete operation that it receives from the server and its own committed history and pending queue, can conflict resolution ever cause a delete operation in the pending queue to be transformed into a no-op? If so, give an example where this result may occur. If not, explain why it can never occur.