

Circulant Matrix Based Redistribution (1A)

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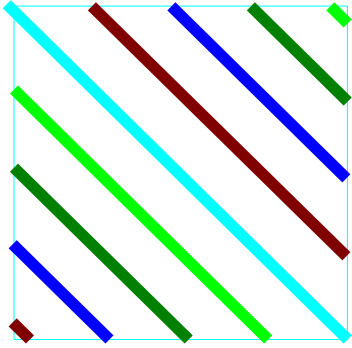
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Circulant Matrix



Cyclic(x) \rightarrow Cyclic(Kx) data redistribution problem

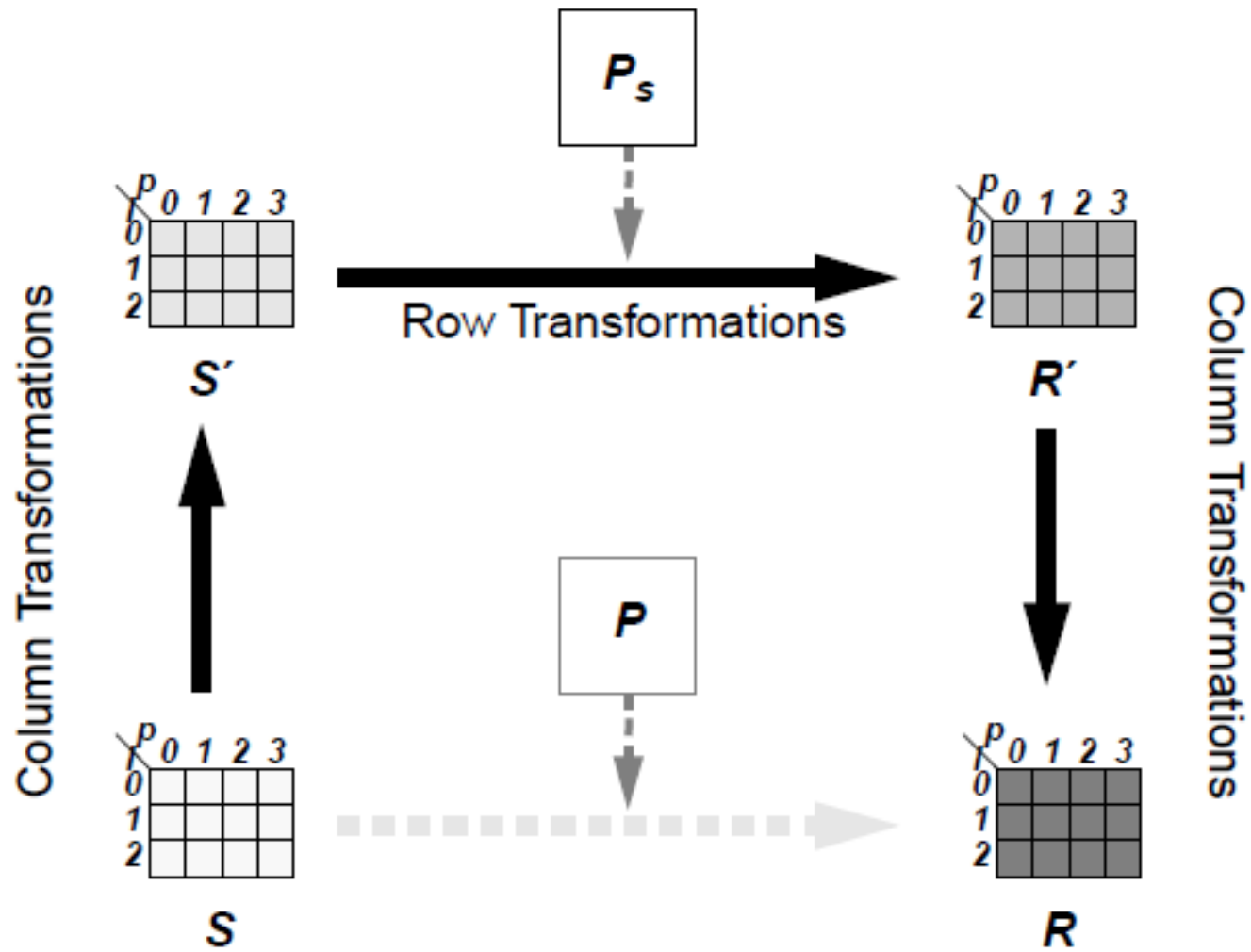
Destination Processor
Table

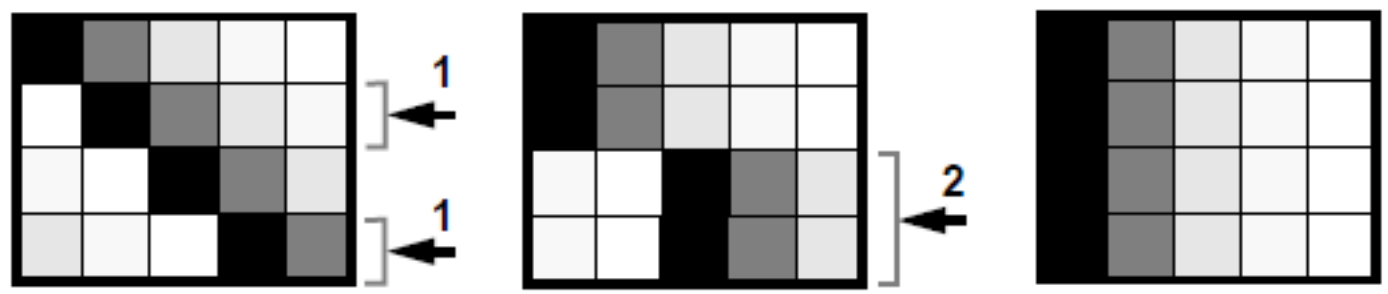
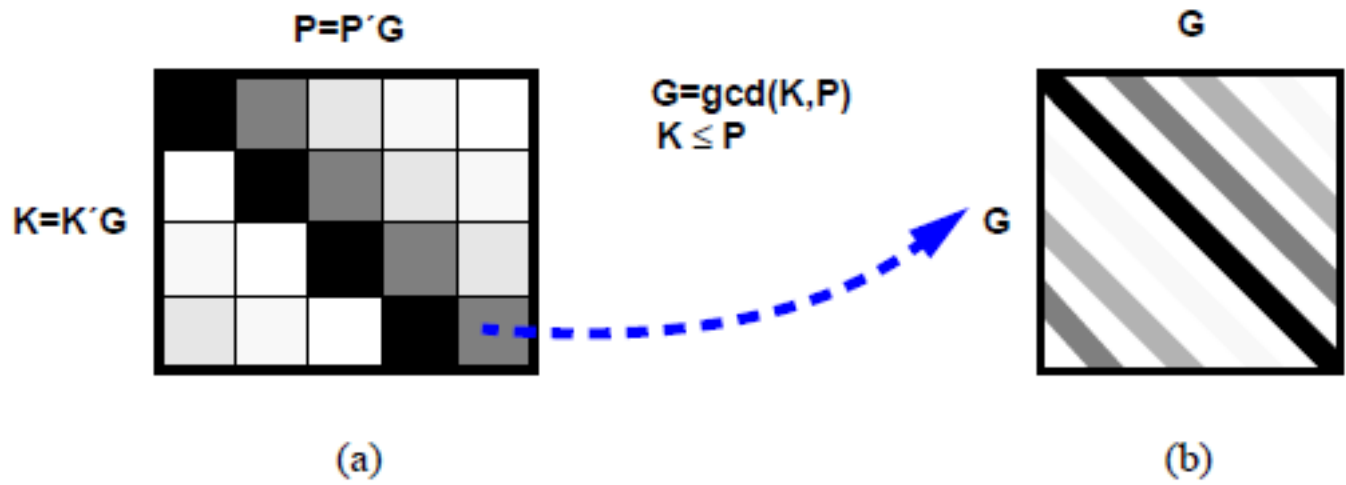
$$(i * j) \bmod N$$

Log N
steps

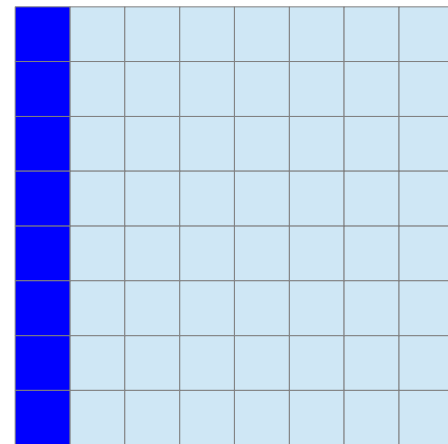
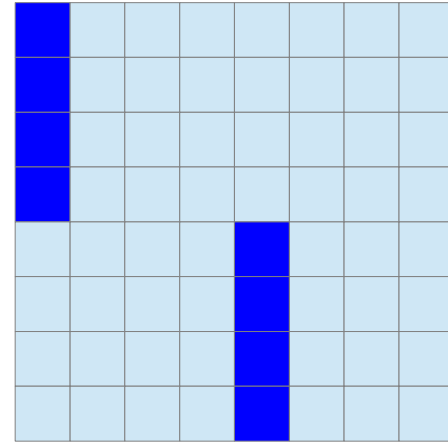
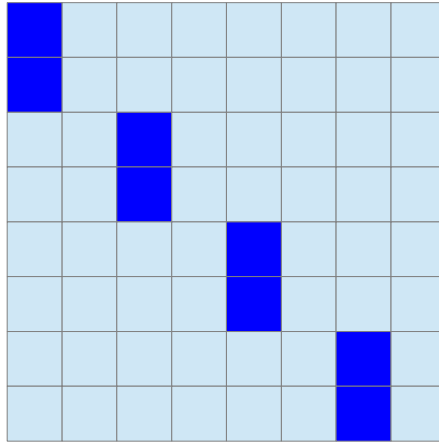
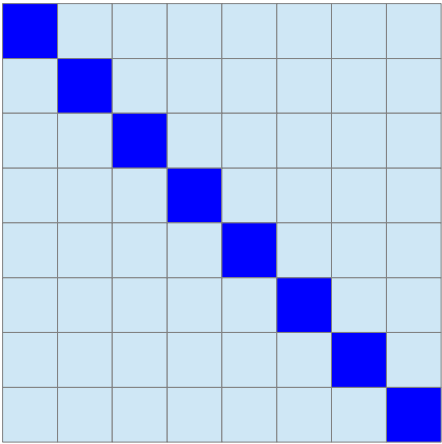
Data Redistribution Algorithm

Explore possible Log steps
in various cases of data redistributions
using Prolog Logic Programming -





Prolog Rules for converting a matrix



References

- [1] <http://en.wikipedia.org/>
- [2] Y. W. Lim, "Efficient algorithms for block-cyclic redistribution of arrays", *Algorithmica*, 1999