

Program Analysis for System Security and Reliability Summary

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Contents

1	Programmable Networks	2
1.1	Mathematical Background	2
1.1.1	Partially ordered sets (posets)	2
2	Blockchain Security	2
3	Attacks and Defenses of Deep Learning	2
4	Probabilistic Security	2

1 Programmable Networks

Network Configuration is hard and misconfigurations are common, local configuration changes have global effects on how traffic is routed.

1.1 Mathematical Background

1.1.1 Partially ordered sets (posets)

A **partial order** is a binary relation $\sqsubseteq \subseteq L \times L$ with these properties:

Reflexive $\forall p \in L. p \sqsubseteq p$

Transitive $\forall p, q, r \in L. (p \sqsubseteq q \wedge q \sqsubseteq r) \Rightarrow p \sqsubseteq r$

Antisymmetric $\forall p, q \in L. (p \sqsubseteq q \wedge q \sqsubseteq p) \Rightarrow p = q$

A **poset** (L, \sqsubseteq) is a set L equipped with a partial ordering \sqsubseteq .

2 Blockchain Security

3 Attacks and Defenses of Deep Learning

4 Probabilistic Security