**1. Definition of polynomial relation and some proofs on polynomial relations**

Definition (Variation p4)

I am going to talk about:

Certificate (C)

Decision Tree (D)

Degree (deg)

Block Sensitivity (bs)

Proof

Proofs for bs and C is easy.

Proof for D and C is a little bit more involved but not so difficult. Have to introduce an algorithm.

Proof for deg and bs is not hard, but it relies on a nontrivial result from approximation theory (Markov Brother’s Inequality).

The options are

1) bs and C + D and C

or

2) bs and C + bs and deg (I personally prefer this) The bs and deg proof is interesting by the way.

- reference for proof (Variation p4)

Nisan, Nisan Szegedy

**2. Sensitivity conjecture and the stronger version about quadratic bound**

Quadratic - Nisan Szegedy