In the forward analysis algorithm, the zones that are reached remember the order of resch along the path leading to the zone. So the zone -3 < j-x < 4 cannot be reached because it contains some valuations where x < y and some others where y < z. More formally. A zone is totally ordered if for every pair of clocks N.Y. either $v(x) \leq v(y)$ or $v(y) \leq v(x)$ for every V & Z. Following operations preserve total order: 1) Time elapse: 2 is totally ordered => Z is totally undered 2) guard intersection: Z is totally ordered => Zng is totally ordered. Z is totally ordered => ERJZ is totally ordered. 2) Reset: No. 5. Z1 - Z2 is a disconnected set. Whereas a zone is always a convex set. Zone: conjunction of x - y ~ c n~c

Why is a zone convex?

$$\overline{V}, \overline{u} \in \mathbb{Z}$$

 $\lambda \overline{v} + (i-\lambda)\overline{u}$
 (x_i, y_i) $(x_i - y_i)$