

We show that the notions of well conditioning and of separated angles are equivalent for any non-autonomous dynamics with discrete time defined by a sequence of matrices. Equivalently, for a sequence of matrices  $A_m$  the ratio between any axes of the ellipsoid

$$(\mathcal{A}_m^* \mathcal{A}_m)^{1/2} B$$

, where

$$\mathcal{A}_m = A_{m-1} \cdots A_1$$

and  $B$  is the unit ball centred at the origin, is bounded in  $m$  if and only if the angles

$$\angle(\mathcal{A}_m v_1, \mathcal{A}_m v_2)$$

are bounded from below and above in  $m$  for any non-collinear non-zero vectors  $v_1$  and  $v_2$ . As a non-trivial consequence, we show that any sequence of matrices with separated angles can be reduced by a bounded non-autonomous coordinate change to one whose matrices are multiples of the identity. Moreover, we consider the problem of whether two given sequences of matrices can be reduced one to another, both when they have separated angles and when they have not.