**Theorem (Termination with Bland's rule)** If the simplex method uses Bland's rule, it terminates after a finite number of iterations.

Proof.

Assume, pr a contradiction, I basis matrices

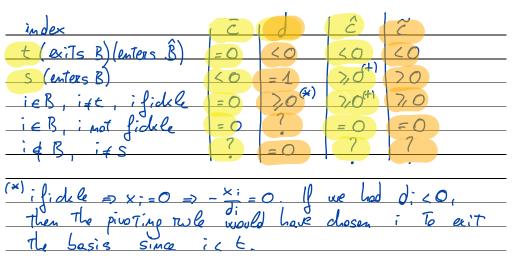
B., Bu B. that form a cule.

We say that an index i is fidely if it is a basic index in some, but not all, bases in the cule.

Since the solution & remains the same throughout the cucle is fidely in the cucle.

Let the the largest fidely index.

(a) 7 B in The cycle state B (meaning t is a basic index for B) and t exit the basis. Let she the index that enters the basis =) s is fickle => s<t. Denote by a the basic direction



(b) I B in the cycle s.t. t & B and t enters

The next besis

Let a denote the reduced costs corresponding to B

