**Hypercyclicity of basic elementary operator**

Let H be a separable infinite dimensional complex Hilbert space and B(H) be the set of all bounded linear operators on H . Now, B(H) is a C\* algebra . K.T Chan [2] showed that the C\* algebra B(H) is Strong Operator separable for if {is an orthonormal basis of H. is the orthonormal projection onto span {} and is the identity operator, then for any vector and for any operator we have;

and this goes to zero as . Therefore in the Strong Operator Topology. Endowed with the above idea, we can show that the basic elementary operator is hypercyclic on B(H) with respect to the Strong Operator Topology.

Now let be a bounded linear operator. Then we may consider operator as vector. In this way , then X is said to be a hypercyclic vector for T. If the orbit , is dense in B(H) with respect to the SOT. Note that If is a hypercyclic vector of T , then T is hypercyclic.

**Theorem**

Let B(H) be SOT separable. C\* algebra for a complex separable Hilbert space H. Let be the basic elementary operator for some fixed with in B(H) as . Then is hypercyclic in the SOT.

**Proof**

We need to show that there exists a vector which is hypercyclic for , that is , we must show that the orbit of X is dense in B(H) on the SOT.

Now, the orbit of with respect to the operator is the set

The orbit of X is dense in B(H) if every sequenceof the n { converges to some element of B(H).

Now consider the sequence for an operator . We claim that as .

Indeed , for any vector we have;

=

Then, since both and as , then the limit of the right hand side is zero. Thus

or as . This completes the proof.