Source:

1 | source source

1.1 | axler5.14

2 | $T\big|_U$ and T/U def

Suppose $T \in \mathcal{L}(V)$ and U is a subspace of V invariant under T.

- The *restriction operator* $T\big|_U \in \mathcal{L}(U)$ is defined by
$$T\big|_U(u) = Tu$$
for $u \in U$.
- The *quotient operator* $T/U \in \mathcal{L}(V/U)$ is defined by
$$(T/U)(v + U) = Tv + U$$
for $v \in V$.

2.1 | motivation

By using these two operators, we can study a map T on a big space V by looking at what it does to vectors in U and not in U, with $T\big|_U$ and T/U respectively.
However, Axler gives an example of how this is not always enough info (see Axler5.15).

$$a << b//c$$