(a) $f = g$ *and* $\tau = 0$ *iff* f *has some fixed point, i.e., iff* $Fix(f) \neq \emptyset$.

(b) If f *has no fixed points, i.e.,* $Fix(f) = \emptyset$, *then* $\dim(\mathrm{Ker}\,(\overrightarrow{f} - \mathrm{id})) \geq 1$.

The remarks made in the Euclidean case also apply to the Hermitian case. In particular, the fact that E has finite dimension is only used to prove (b).

A version of the Cartan–Dieudonné also holds for affine isometries, but it may not be possible to get rid of Hermitian reflections entirely.

Theorem 28.14. *Let* E *be an affine Hermitian space of dimension* $n \geq 1$. *Every affine isometry in* $\mathbf{Is}(n, \mathbb{C})$ *can be written as the composition of at most* $2n - 1$ *affine isometries if it has a fixed point, or else as the composition of at most* $2n + 1$ *affine isometries, where all these isometries are affine hyperplane reflections except for possibly one affine Hermitian reflection. When* $n \geq 2$, *the identity is the composition of any reflection with itself.*

Proof. The proof is very similar to the proof of Theorem 27.11, except that it uses Theorem 28.5 instead of Theorem 27.1. The details are left as an exercise. □

When $n \geq 3$, as in the Euclidean case, we can characterize the affine isometries in $\mathbf{SE}(n, \mathbb{C})$ in terms of flips, and we can even bound the number of flips by $2n - 2$.

Theorem 28.15. *Let* E *be a Hermitian affine space of dimension* $n \geq 3$. *Every rigid motion* $f \in \mathbf{SE}(E, \mathbb{C})$ *is the composition of an even number of affine flips* $f = f_{2k} \circ \cdots \circ f_1$, *where* $k \leq n - 1$.

Proof. It is very similar to the proof of theorem 27.12, but it uses Proposition 28.6 instead of Proposition 27.5. The details are left as an exercise. □

A more detailed study of the rigid motions of Hermitian spaces of dimension 2 and 3 would seem worthwhile, but we are not aware of any reference on this subject.