if $\dim(\ker(f^2)) = 5$, this means ~~our~~ the dimension of the 0-~~e~~eigenspace is 5.
$\rightarrow$ there are 5 0-Jordan blocks.
ie ~~the zer~~ $[f]_B$ is the zero matrix.

if ~~any~~ a matrix M ~~with~~ $\overset{has}{}$ a 1 in its diagonal ~~will~~ then M^2 will also have a 1 in its diagonal.
(using Lemma 2.5).

~~the~~ a matrix M^2 cannot have $\dim(\ker(M^2)) = 5$ if it has a one in its diagonal.
Therefore only the matricies from the case where $\lambda = 0$ only apply.

$\therefore$ $J(0,1) \oplus J(0,1) \oplus J(0,3)$ and
$J(0,1) \oplus J(0,2) \oplus J(0,2)$
(up to reordering ...).