Thus to prove the claim, we have only to prove

$\{z ; |z^\alpha| = |z^\beta| = |z^r| = \epsilon\}$ is diffeomorphic to S^5.

Suppose z^α and z^β have a common factor, say z_1.
$\Rightarrow \{z^\alpha = z^\beta = 0 = z^r\} \supset \{z_1 = z^r = 0\}$.
$\Rightarrow$ This contradicts to the fact that $\operatorname{codim}\{z^r = z^\alpha = z^\alpha = 0\} = \operatorname{codim}\{f_1 = f_2 = f_3 = 0\} = 0$ since $\operatorname{codim}\{z_1 = z^r = 0\} \geq 1$. $\Rightarrow \{z^\alpha = z_1^\alpha \quad z^\beta = z_2^\beta \quad z^r = z_3^r\}$ is the only possible case up to permutation. $\Rightarrow$ We get the desired immediately. Using the argument above, we can make the proof simpler. What I mean is that, first derive $f_1 = z_1^\alpha g_1$, $f_2 = z_2^\beta g_2$, $f_3 = z_3^r g_3$ and second, prove $(z_1, z_2, z_3) \longmapsto (z_1 |g_1|^{\frac{1}{\alpha}}, z_2 |g_2|^{\frac{1}{\beta}}, z_3 |g_3|^{\frac{1}{r}})$

is diffeomorphic. ⌟

Continued from P633.

Of course, we must prove that right-hand side is independent of the choice of global syzygy. Moreover, we would like global Ext to have functorial properties analogous to those enjoyed by Ext for local rings and the sheaf Ext.

As was the case for the sheaf Ext, these matters will fall into place if we have at hand some global analogue of the four properties of projective resolutions given in the section on holomological algebra. To achieve this, we recall the notation $\mathcal{F}(k) = \mathcal{F} \otimes_{\mathcal{O}} \mathcal{L}^k$ and note that