$\Rightarrow$ $f(0,0) = [1,1]$. $\Rightarrow$ If $y=0$ & $x \to 0$, $f(0,0) = [1,0]$. $\Rightarrow$ Contradiction. ⌟

Another way to represent a rational map $f: M \to \mathbb{P}^n$ is by an $(n+1)$-tuple of holomorphic functions: if f is given by meromorphic functions $f_1 \cdots f_n$, write each of the functions locally as

$$f_i = g_i / h_i$$

with h_i, g_i holomorphic and relatively prime; let h_0 be the least common multiple of the functions h_i. Then f may be given locally by

$$f: z \longmapsto [1, f_1(z), \cdots f_n(z)] = [h_0(z), f_1(z) h_0(z), \cdots f_n(z) h_0(z)];$$

of course the functions $\tilde{f}_0 = h_0$ and $\tilde{f}_i = h_0 f_i$ are holomorphic, and f will be well-defined away from their common zero locus $\cap (\tilde{f}_i)$.

Note that the functions $\tilde{f}_i$ have no common factors: if k is any irreducible function dividing h_0 exactly m times, then k^m divides h_i for some i.

⌜ If there exists no such h_i, then h_0 is not divisible by k^m. ⌟

Since k can not then divide g_i, it follows that k can not divide $f_i \cdot h_0 = g_i \cdot h_0 / h_i$.

⌜ Let $h_0 = l_1 k^m$ & $h_i = l_2 k^m$, where l_1 & l_2 are not divi-