

Substituting (**) in this exact sequence, we obtain

$$0 \rightarrow H^1(M, \mathbb{C}) \rightarrow H^1(\Omega(*)) \xrightarrow{R} H^0\left(\bigoplus_{\substack{D \in \text{Div } M \\ \text{irreducible}}} \mathbb{C}_D\right) \xrightarrow{i} H^2(M, \mathbb{C}) \rightarrow H^2(\Omega(*)) \rightarrow G.$$

$$\Gamma \quad 'E_2^{1,0} = H^1(M, H^0(\Omega(*))) = H^1(M, \mathbb{C}) \quad \text{since } H^0(\Omega(*)) \cong \mathbb{C}.$$

$$'E_2^{0,1} = H^0(M, H^1(\Omega(*))) = H^0\left(M, \bigoplus_{\substack{D \in \text{Div } M \\ \text{irreducible}}} \mathbb{C}_D\right) \quad \text{since } H^1(\Omega(*)) = \bigoplus_{\substack{D \in \text{Div } M \\ \text{irreducible}}} \mathbb{C}_D$$

by lemma on p 457. $H^0\left(\bigoplus_{\substack{D \in \text{Div } M \\ \text{irreducible}}} \mathbb{C}_D\right)$

$$'E_2^{2,0} = H^2(M, H^0(\Omega(*))) = H^2(M, \mathbb{C}). \quad \Rightarrow$$

The interpretations of the maps in this sequence are (we omit the proofs that diagrams commute):

1. Using the previously established isomorphism (***) $H^*(M, \mathbb{C}) \cong H^*(\Omega^*),$

the first map is the natural one

$$H^1(\Omega^*) \rightarrow H^1(\Omega(*))$$

induced from the inclusions $\Omega^p \rightarrow \Omega^p(*).$

$$\Gamma \quad 0 \rightarrow 'E_2^{1,0} \rightarrow H^1(\Omega(*))$$

$$\quad \quad \quad \parallel \quad \quad \quad \searrow$$

$$\quad \quad \quad H^1(M, H^0(\Omega(*))) \quad H^1(\Omega^*)$$

$$\quad \quad \quad \parallel$$

$$\quad \quad \quad H^1(M, \mathbb{C}) \cong H^1(\Omega^*)$$

Everything should be natural.

\Rightarrow