

$$H^n(M, \Omega^n(\Lambda^n E^*)) = H^n(M, \mathcal{O}(\Lambda^n E^*)) = H^n(M, \Lambda^n \mathcal{E}^*)$$

In terms of a local holomorphic frame  $e_1, e_2, \dots, e_n$  for  $E$  and local holomorphic coordinates  $z_1, z_2, \dots, z_n$  on  $M$ , a section

$$\psi \in H^0(M, \mathcal{O}(K \otimes \det E))$$

is

$$\psi = h(z) (dz_1 \wedge \dots \wedge dz_n) \otimes (e_1 \wedge \dots \wedge e_n).$$

Writing

$$s = s_1(z) e_1 + \dots + s_n(z) e_n,$$

we consider the form

$$\frac{\psi}{s} = \frac{h(z) dz_1 \wedge \dots \wedge dz_n}{s_1(z) \dots s_n(z)}.$$

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$E$   
 $\downarrow$   
 $M$

$\nearrow s$  local section.

$\frac{\psi}{s}$  is a formal notation for  $\frac{h(z) dz_1 \wedge \dots \wedge dz_n}{s_1(z) \dots s_n(z)}$ .

Of course the right-hand side is not well-defined, but by the transformation formula the residue at a point  $p \in Z$

$$(**) \quad \text{Res}_p \left( \frac{\psi}{s} \right) = \text{Res}_p \left\{ \frac{h(z) dz_1 \wedge \dots \wedge dz_n}{s_1(z) \dots s_n(z)} \right\}$$

is independent of choices.