

effective divisor  $D$  both sides, we can make them effective.  $\Rightarrow \equiv$  is equivalence relation.  $\cup$   
Non sense!

The divisors algebraically equivalent to zero then form a subgroup " $\equiv$ " of  $\text{Div}(M)$ , and the quotient

$$\text{Div}(M) / \equiv = \text{NS}(M)$$

is called the Neron - Severi group.

$\Gamma$  Suppose  $D_1 \equiv D_2$  &  $D_2 \equiv D_3$ .  
 $\Rightarrow \exists L_1$  s.t.  $D_1 + L_1$  &  $D_2 + L_1$  effective and  
 $D_1 + L_1 \equiv D_2 + L_1 (\Leftrightarrow \exists T_1$  connected parameter variety  
and  $\tilde{L}_1$  s.t.  $\tilde{L}_1 \cdot (M \times T_1) = (\tilde{L}_1)_t$

$$(\tilde{L}_1)_{t_1} = D_1 + L_1 \quad (\tilde{L}_1)_{t_2} = D_2 + L_1$$

$\Rightarrow \exists L_2$  s.t.  $D_2 + L_2$  &  $D_3 + L_2$  effective and  
 $D_2 + L_2 \equiv D_3 + L_2 (\Leftrightarrow \exists T_2$  and  $\tilde{L}_2$  s.t.  
 $\tilde{L}_2 \cdot (M \times T_2) = (\tilde{L}_2)_t, \quad (\tilde{L}_2)_{t_3} = D_2 + L_2 \quad (\tilde{L}_2)_{t_4} = D_3 + L_2$

$\Rightarrow \tilde{L} = \tilde{L}_1 \cup \tilde{L}_2$ , and  $T = T_1 \cup T_2$

$$\Rightarrow \tilde{L} \cdot (M \times (T_1 \cup T_2)) = \tilde{L} \cdot (M \times T) = (\tilde{L})_t$$

$$\Rightarrow (\tilde{L})_{t_1} = \tilde{L} \cdot (M \times \{t_1\}) = (\tilde{L}_1 \cup \tilde{L}_2) \cdot (M \times \{t_1\}) \\ = \tilde{L}_1 \cdot M \times \{t_1\} = D_1$$

$$(\tilde{L})_{t_4} = \tilde{L} \cdot (M \times \{t_4\}) = (\tilde{L}_1 \cup \tilde{L}_2) \cdot (M \times \{t_4\}) \\ = \tilde{L}_2 \cdot (M \times \{t_4\}) = D_3$$

Here  $T = T_1 \cup T_2 = \begin{array}{c} T_1 \perp T_2 \\ t_2 \sim t_3 \end{array}$

$$\Rightarrow \tilde{L} = \tilde{L}_1 \cup \tilde{L}_2 = \begin{array}{c} \tilde{L}_1 \perp \tilde{L}_2 \\ (\tilde{L}_1)_{t_2} \sim (\tilde{L}_2)_{t_3} \end{array}$$