$$c \in K^{\times}$$

$$c = 0$$

$$f = 0,$$

$$\alpha = \beta = 0,$$

$$u = 0$$

$$Case I:$$

$$\alpha + \beta =$$

$$f \partial_t + \frac{1}{\lambda} f \partial_t = 0$$

$$\text{and } u = 0$$

$$f \in K[t] \setminus K$$

$$\lambda = -1,$$

$$\beta = -\alpha \neq 0,$$

$$u = 0$$

$$case 1.2.2.$$

$$c \in K^{\times}$$

$$c = 0$$

$$case 1.2.2.$$

$$c \in K^{\times}$$

$$case 1.2.2.$$

$$c \in K^{\times}$$

$$c = 0$$

$$case 1.2.2.$$

$$c \in K^{\times}$$

 $f \in K[t] \backslash K$ 

 $f \in K^\times$