

$$\text{【3】 } \hat{e}_3(\xi, 1, 3; f, Y, q) = \hat{e}_3(\xi, 1, 3; f, Y, 0)$$

$$- \sum_{j=1}^n q(j) \delta(\xi(3) - Y(\xi(\{4\}), \square, j))$$

$$\text{【4】 } \hat{e}_3(\xi, 2, 3; f, Y, q) = \hat{e}_3(\xi, 2, 3; f, Y, 0)$$

$$\hat{e}_5 \text{ の定義: } \forall n \in \mathbb{N}; \forall f \in F_{2, n}; \forall E \in F_3; \forall m \in \mathbb{R}(2 \times \{1, \dots, n\}); \\ \forall (t, i, k) \in N_{2, n};$$

$$\hat{e}_5(t, i, k; f, E, m) = m(1, k) \frac{\partial}{\partial t(4)} \left[\frac{\partial_4 f(t, i, k)}{\sqrt{1 - |\partial_4 f(t, \square, k)|^2}} \right] \\ - m(2, k) \lambda(t, i; f(\square, \square, k), E)$$

$$e_1 \text{ の定義: } \forall f \in F_1; \forall m \in \mathbb{R}(2); \forall n \in \mathbb{N}; \forall Z \in F_{4, n}; \\ \forall M \in \mathbb{R}(\{1, \dots, n\});$$

$$e_1(f, Z, M, m) \Leftrightarrow [\forall (t, i) \in N_1; \hat{e}_1(t, i; f, Z, M, m) = 0]$$

$$e_2 \text{ の定義: } \forall n \in \mathbb{N}; \forall f \in F_{2, n}; \forall E \in F_3; \forall m \in \mathbb{R}(2 \times \{1, \dots, n\});$$

$$e_2(f, E, m) \Leftrightarrow [\forall (t, i, k) \in N_{2, n}; \hat{e}_2(t, i, k; f, E, m) = 0]$$

$$e_3 \text{ の定義: } \forall f \in F_3; \forall n \in \mathbb{N}; \forall Y \in F_{2, n}; \forall q \in \mathbb{R}(\{1, \dots, n\});$$

$$e_3(f, Y, q) \Leftrightarrow [\forall (\xi, i, k) \in N_{2, 4}; \hat{e}_3(\xi, i, k; f, Y, q) = 0]$$

$$e_4 \text{ の定義: } \forall n \in \mathbb{N}; \forall f \in F_{4, n}; \forall m \in \mathbb{R}(2 \times \{1, \dots, n\});$$

$$e_4(f, m) \Leftrightarrow [e_2(f(N_{2, n}), f(N_3), m) \text{ and } e_3(f(N_3), f(N_{2, n}), m(2, \square))]$$

$$e_5 \text{ の定義: } \forall n \in \mathbb{N}; \forall f \in F_{4, n}; \forall m \in \mathbb{R}(2 \times \{1, \dots, n\});$$

$$e_5(f, m) \Leftrightarrow [e_3(f(N_3), f(N_{2, n}), m(2, \square))$$

$$\text{and } \forall (t, i, k) \in N_{2, n}; \hat{e}_5(t, i, k; f(N_{2, n}), f(N_3), m) = 0]$$

$$e_{12} \text{ の定義: } \forall f \in F_{12}; \forall E \in F_3; e_{12}(f, E) \Leftrightarrow [\text{【1】 or 【2】}]$$

$$\text{【1】 } f = 0 \in \mathbb{R}$$

$$\text{【2】 } \exists n \in \mathbb{N}; f \in F_{12, n} \text{ and } e_2(f(\square, \square, \square), E, f(\square, \square))$$

$$e_{14} \text{ の定義: } \forall f \in F_{14}; e_{14}(f) \Leftrightarrow [\text{【1】 or 【2】}]$$

$$\text{【1】 } f \in F_3 \text{ and } e_3(f, Y, 0)$$

$$\text{【2】 } \exists n \in \mathbb{N}; f \in F_{14, n} \text{ and } e_4(f(\square, \square, \square), f(\square, \square))$$