2p (11)

$$|\hat{x}_{n+1} - x_{n+1}| = |\hat{g}(\hat{x}_n) - g(x_n)|$$

$$\le \underbrace{|\hat{g}(\hat{x}_n) - g(\hat{x}_n)|}_{\le \varepsilon} + \underbrace{|g(\hat{x}_n) - g(x_n)|}_{\le q|\hat{x}_n - x_n|}$$

$$\le \varepsilon + q|\hat{x}_n - x_n| \le \varepsilon + q(\varepsilon + q|\hat{x}_{n-1} - x_{n-1}|)$$

$$\dots \le \varepsilon + \varepsilon q + \dots + \varepsilon q^n + q^{n+1}(\underbrace{\hat{x}_0 - x_0}_{0})$$

$$\le \frac{\varepsilon}{1-q}$$

Tedy platí

$$|\hat{x}_{n+1} - x_{n+1}| \le \frac{\varepsilon}{1-q}$$

(viz věta o modifikovaném operátoru.

Dále

$$|\xi - \hat{\xi}| \le \frac{\varepsilon}{1-q} .$$