

**Dutta, P. N.; Choudhury, Binayak S.**

**A generalisation of contraction principle in metric spaces.** (English) Zbl 1177.54024  
Fixed Point Theory Appl. 2008, Article ID 406368, 8 p. (2008).

In this paper, the main result states that a self-mapping  $T : X \rightarrow X$  defined on a complete metric space  $(X, d)$  has a unique fixed point if it satisfies the following inequality

$$\psi(d(Tx, Ty)) \leq \psi(d(x, y)) - \phi(d(x, y)),$$

where  $\psi, \phi : [0, \infty) \rightarrow [0, \infty)$  are two monotone nondecreasing continuous functions with  $\psi(t) = 0 = \phi(t)$  if and only if  $t = 0$ . When  $\psi$  is the identity function on  $[0, \infty)$ , this reduces to a result of *B. E. Rhoades* [Nonlinear Anal., Theory Methods Appl. 47, No. 4, 2683–2693 (2001; Zbl 1042.47521)]. Moreover, the main result is illustrated by an example.

Reviewer: [In-Sook Kim \(Suwon\)](#)

**MSC:**

[54H25](#) Fixed-point and coincidence theorems (topological aspects)  
[47H10](#) Fixed-point theorems  
[47H09](#) Contraction-type mappings, nonexpansive mappings,  $A$ -proper mappings, etc.

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**Keywords:**

[fixed point](#)

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