

# The NLL Axiom and Integrability Theory

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## Abstract

This study presents a new axiom of revealed preference theory, which is named the NLL axiom, and shows that for a surjective and smooth demand function  $f$ , the following three statements are equivalent: 1)  $f$  corresponds with a continuous preference, 2)  $f$  satisfies the strong axiom and the NLL axiom, 3)  $f$  satisfies the NLL axiom and the Slutsky matrix of  $f$  is negative semi-definite and symmetric.

**Keywords:** demand function, NLL axiom, integrability theory, revealed preference.

**JEL Classification Numbers:** D11

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