If only the existence of a representation is required, rather than an explicit construction, then, as is the case in other contexts, the use of continued fractions may be replaced by the use of Dirichlet's pigeonhole principle or results in the geometry of numbers which follow from it (cf. Brauer and Reynolds [2], Davenport [3]). Indeed the existence of a solution of $\alpha\xi \equiv \eta \pmod{m}$ with $0 < N(\xi) + N(\eta) < 4m$ is a consequence of Minkowski's theorem on linear forms, while the existence of a solution with $0 < N(\xi) + N(\eta) < 2m$ follows from Minkowski's theorem on convex bodies.

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