$$f_0(x) \geqq g(x), \qquad a \leqq x \leqq b. \tag{43}$$

Since (43) contradicts (42), the assumption that (40) does not hold has led to a contradiction.

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NOTE ON A CERTAIN CONTINUED FRACTION

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The continued fraction

$$\cfrac{1}{1 + \cfrac{az}{1 + \cfrac{bz}{1 + \cfrac{(a+1)z}{1 + \cfrac{(b+1)z}{1 + \cfrac{(a+2)z}{1 + \cdot_{\cdot_{\cdot}}}}}}}} \tag{1}$$

is a limiting case of the continued fraction of Gauss, and is the formal expansion of the quotient $\Omega(a, b; z)/\Omega(a, b-1; z)$, where

$$\Omega(a, b; z) = 1 - ab\frac{z}{1!} + a(a+1)b(b+1)\frac{z^2}{2!} + \cdots . \tag{2}$$

If a and b are real and positive, then it follows from the work of Stieltjes that (1) converges in the domain Z exterior to the negative

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