My dear Lady Lovelace

I have added a note or two to your papers.

As to the subject of continuity, it must be as much as possible your object now to remember while proving the things which are true of continuity to remember that they are not false of [‘conti’ crossed out?] dis continuous [sic] functions, because true of continuous ones. Thus, you will afterwards see that

\[ \varphi(a + h) = \varphi a + \varphi'(a + \theta h).h \]

is only an algebraical translation of the following geometrical theorem

“Every continuous and ordinary arc of a curve has somewhere a tangent parallel to its chord”

But this is not always false of discontinuous curves

Neither is the algebraical theorem false of them.

The best way at present, is to mark that discontinuous functions are now excluded only because we have no language to express them in. This will come intime [sic] : you will have enough of them when you come to apply mathcs to the theory of heat.

My wife has duly received your letter & is much obliged to you & Miss King.

Yours truly

A De Morgan

69 G.S.
Feb* 11/41 [?]