Hilbert #10: Does there exist a universal algorithm for solving Diophantine equations?

We examine **linear Diophantine equations** of the form ax + by = c, rewritten in Meth8 scripts below.

LET rp + sq = t:

((r&p)+(s&q)) < t	; not validated; false;	not < t
((r&p)+(s&q)) > t	**; validated;**	**> t**
((r&p)+(s&q)) = t	; not validated;	not = t

LET rp + sq = 1:

((r&p)+(s&q)) < (t\t)	; not validated;	not < 1
((r&p)+(s&q)) > (t\t)	; not validated;	not > 1
((r&p)+(s&q)) = (t\t)	; not validated;	not = 1

LET rp + sq = 0:

((r&p)+(s&q)) < ((t\t)-(t\t))	; not validated; false ;	not < 0
((r&p)+(s&q)) > ((t\t)-(t\t))	**; validated;**	**> 0**
((r&p)+(s&q)) = ((t\t)-(t\t))	; not validated;	not = 0

LET rp + sq = -1:

((r&p)+(s&q)) < (((t\t)-(t\t))-(t\t))	; not validated;	not < -1
((r&p)+(s&q)) > (((t\t)-(t\t))-(t\t))	; not validated;	not > -1
((r&p)+(s&q)) = (((t\t)-(t\t))-(t\t))	; not validated;	not = -1

LET rp + sq = 1/2: [not Diophantine]

((r&p)+(s&q)) < ((t\t)\((t\t)+(t\t)))	; not validated; false;	not < 1/2
((r&p)+(s&q)) > ((t\t)\((t\t)+(t\t)))	**; validated;**	**> 1/2**
((r&p)+(s&q)) = ((t\t)\((t\t)+(t\t)))	; not validated;	not = 1/2

Results are validated only for ax + by = t as t > 0, but not for t = 0, t < 1, t = 1, or t > 1.

The proof is that there exist no integers greater than zero and less than 1 as integer solutions to linear Diophantine equations. Consequently, no universal solution exists for *all* Diophantine equations.