35. $1+(-1)=0$ (A4) 36. $2+(-1)<0$ (Substitution of eq 35 in 34)
37. $2+(-1)=1$?? 38. $1<0$ (Substitution of eq 37 in 36)
39. $1>0$ (Thm 2.1.8(b)) 40. By Trichotomy prop, $1<0$ is a contradiction
41 $\therefore 1<\frac{1}{2}$ is F 42. Let, $1=\frac{1}{2}$ (hold) 43. $1\cdot 2=\frac{1}{2}\cdot 2$ (Substitution of eq 42)
44. $1\cdot 2=1$ (Transitivity of eq on 43, 6)
45. $2=1\cdot 2$ (Symmetry of eq 31) 46. $2=1$ (Transitivity of eq 45, 44)
47. $2+(-1)=1+(-1)$ (Substitution of eq 46) 48. $2+(-1)=0$ (Transitivity of eq 47, 35)
49. $1=2+(-1)$ (Symmetry of eq 37) 50. $1=0$ (Transitivity of eq 49, 48)
51. $1\neq 0$ (M3) 52. $\therefore 1=0$ is F, and $1=\frac{1}{2}$ is F
53. By the Trichotomy prop, $1>\frac{1}{2}$
54. $1\cdot a>\frac{1}{2}\cdot a$ (Thm 2.1.7(c)) 55. $1\cdot a=a$ (M3) 56. $a>\frac{1}{2}\cdot a$ (Substitute eq 55 on 54)

$$\boxed{\therefore a>\frac{1}{2}\cdot a>0}$$

$\therefore$ If it is claimed a is the smallest +ve real no, we can exhibit a smaller +ve no. $\frac{1}{2}a$.

- This observation leads to the next result, which will be used frequently as a method of proof. For instance, to prove that a number $a\geq 0$ is actually equal to zero, we see that it suffices to show that a is smaller than any arbitrary positive number.