1^{st} I goofed!

Online class notes imply an accumulation pt of S must be in S — not true! (The followup examples all get this correct.) For the record, neither boundary or accumulation pts of S need be in S - in fact, if $\underbrace{\text{bd } S}_{\text{bdy pts}} \subseteq S$ or $\underbrace{S'}_{\text{acc. pts}} \subseteq S$,

then S is closed. (So an open set never includes all of its bdy or acc pts, unless it's clopen!)

<u>Reminder</u> Let $S \subseteq \mathbb{R}$. Then $x \in \mathbb{R}$ is

- <u>bdy pt</u> of S if every nbhd of x includes at least one pt <u>in</u> and one pt <u>not in</u> S:

$$N \cap S \neq \emptyset \text{ and } N \cap (\mathbb{R} \setminus S) \neq \emptyset.$$

- <u>acc pt</u> if every <u>deleted</u> nbhd of x includes at least one point in S.

<u>Ex</u> $S = (0,1)$; $\text{bd } S = \{0,1\}$, $S' = [0,1]$.