We want to show that IS $\leq_p$ LARGE IS, i.e. we want to come up with a reduction from inputs $\langle G, B\rangle$ to IS, to inputs $\langle G', B'\rangle$ to LARGE IS such that

$$\langle G, B\rangle \in \text{IS iff } \langle G', B'\rangle \in \text{LARGE IS}$$

where $G = (V, E)$ and $G' = (V', E')$. So given $\langle G, B\rangle$ we are going to construct $\langle G', B'\rangle$ in stages:

$$V_1 = \begin{cases} V & \text{if } |V| \text{ is even} \\ V \cup \{v_0\} & \text{otherwise} \end{cases}$$

where v_0 is a *new* node (no edges have been added). If $B = \frac{1}{2}|V_1|$, then let $G' = (V_1, E)$ and $B' = B$, and we are done. Otherwise, there are two possible cases: $B < \frac{1}{2}|V_1|$ or $B > \frac{1}{2}|V_1|$. We deal with them as follows:

$$\text{Let} \quad V' = V_1 \cup \{w_1, w_2, \ldots, w_m\}$$

where $m = ||V_1| - 2B|$, and the w_i's are *new* nodes, and

$$E' = \begin{cases} E & \text{if } B < \frac{1}{2}|V_1| \\ E + \begin{array}{l}\text{edges connecting the } m \text{ new} \\ \text{nodes to every other node}\end{array} & \text{if } B > \frac{1}{2}|V_1| \end{cases}$$

Now let $G' = (V', E')$, and let $B' = \frac{1}{2}|V'|$.