

C3. $\mathcal{CW} = \{c \in \mathcal{Cand} : \forall d \in \mathcal{Cand} : c \succeq^+ d\}$

1. $\mathcal{CW} \subseteq \{c \in \mathcal{Cand} : \forall d \in \mathcal{Cand} : c \succeq^+ d\}$

PROOF: This follows from property C2 by the argument in the preceding paragraph.

2. $\{c \in \mathcal{Cand} : \forall d \in \mathcal{Cand} : c \succeq^+ d\} \subseteq \mathcal{CW}$

2.1. It suffices to assume $c \in \mathcal{Cand}$ and $\forall d \in \mathcal{Cand} : c \succeq^+ d$, and to prove $c \in \mathcal{CW}$.

PROOF: Obvious

2.2. Let d be an element of \mathcal{CW} .

PROOF: By definition, \mathcal{CW} is nonempty.

2.3. $c \succeq^+ d$

PROOF: By 2.2 and the assumption of 2.1.

2.4. Q.E.D.

PROOF: By 2.2 and 2.3, since as we observed above, a simple induction argument shows that $d \in \mathcal{CW}$ and $c \succeq^+ d$ implies $c \in \mathcal{CW}$.

3. Q.E.D.

PROOF: By steps 1 and 2.