

Definition MunkTop.14.1: If R is a strict simple order on X and $a, b \in X$ then $(a, b) = \{x \in X : aRxRb\}$.

Definition MunkTop.14.1.A: If R is a strict simple order on X and $U \subseteq X$ then U is an *open interval* in X under the order R if and only if there exist $a, b \in X$ such that $U = (a, b)$.

Definition MunkTop.14.2: If R is a strict simple order on X and $a, b \in X$ then $[a, b]$ is the set of $x \in X$ such that $aRxRb$ or $x = b$.

Definition MunkTop.14.2.A: If R is a strict simple order on X and $W \subseteq X$ then W is an *open-closed interval* in X under the order R if and only if there exist $a, b \in X$ such that $W = (a, b]$.

Definition MunkTop.14.3: If R is a strict simple order on X and $a, b \in X$ then $[a, b)$ is the set of $x \in X$ such that $aRxRb$ or $x = a$.

Definition MunkTop.14.3.A: If R is a strict simple order on X and $W \subseteq X$ then W is a *closed-open interval* in X under the order R if and only if there exist $a, b \in X$ such that $W = [a, b)$.

Definition MunkTop.14.4: If R is a strict simple order on X and $a, b \in X$ then $[a, b]$ is the set of $x \in X$ such that $aRxRb$ or $x = a$ or $x = b$.

Definition MunkTop.14.4.A: If R is a strict simple order on X and $F \subseteq X$ then F is a *closed interval* in X under the order R if and only if there exist $a, b \in X$ such that $F = [a, b]$.

Definition MunkTop.14.5: If R is a strict simple order on X then *the basis for the order topology on (X, R)* is the set of U such that there exist $a, b \in X$ such that $U = (a, b)$ or a is a first element in X , under R and $U = [a, b)$ or b is a last element in X , under R and $U = (a, b]$.

Definition MunkTop.14.6: If R is a strict simple order on X then *the order topology on (X, R)* is the topology on X generated by the basis for the order topology on (X, R) .

Definition MunkTop.14.7: If R is a strict simple order on X and $a \in X$ then $(a, +\infty) = \{x \in X : aRx\}$.

Definition MunkTop.14.8: If R is a strict simple order on X and $a \in X$ then $(-\infty, a) = \{x \in X : xRa\}$.

Definition MunkTop.14.9: If R is a strict simple order on X and $a \in X$ then $[a, +\infty)$ is the set of $x \in X$ such that aRx or $x = a$.

Definition MunkTop.14.10: If R is a strict simple order on X and $a \in X$ then $(-\infty, a]$ is the set of $x \in X$ such that xRa or $x = a$.