Definition MunkTop.19.1: If f is a function and the domain of f equals J then x is a *tuple* relative to f if and only if x is a function and the domain of x equals J and for every $\alpha \in J$, $x(\alpha) \in f(\alpha)$.

Definition MunkTop.19.2: If f is a function and the domain of f equals J then $\prod_{\alpha \in J} f(\alpha)$ is the set of x such that x is a tuple relative to f.

Definition MunkTop.19.2.5: $A^B = \prod_{\alpha \in J} f(\alpha)$.

Definition MunkTop.19.3: If X is a function and the domain of X equals J and T is a function and the domain of T equals J and for every $\alpha \in J$, $(X(\alpha), T(\alpha))$ is a topological space then *the standard basis for the box topology on* $\prod_{\alpha \in J} X(\alpha)$ is the set of $\prod_{\alpha \in J} f(\alpha)$ such that U is a function and the domain of U equals J and for every $\alpha \in J$, $U(\alpha) \in T(\alpha)$.

Definition MunkTop.19.4: If X is a function and the domain of X equals J and T is a function and the domain of T equals J and for every $\alpha \in J$, $(X(\alpha), T(\alpha))$ is a topological space then *the box topology on* $\prod_{\alpha \in J} X(\alpha)$ is $(\prod_{\alpha \in J} f(\alpha)$,the topology on $\prod_{\alpha \in J} f(\alpha)$ generated by the standard basis for the box topology on $\prod_{\alpha \in J} X(\alpha))$.

Definition MunkTop.19.5: If f is a function and the domain of f equals J and $\beta \in J$ then $f(\beta) = (\lambda x \in \prod_{\alpha \in J} f(\alpha))x(\beta)$.

Definition MunkTop.19.6: If X is a function and the domain of X equals J and T is a function and the domain of T equals J and for every $\alpha \in J$, $(X(\alpha), T(\alpha))$ is a topological space then *the standard subbasis for the product topology on* $\prod_{\alpha \in J} X(\alpha)$ is the set of the range of the converse relation to $X(\beta)$ when restricted to U such that $\beta \in J$ and $U \in T(\beta)$.

Definition MunkTop.19.7: If X is a function and the domain of X equals J and T is a function and the domain of T equals J and for every $\alpha \in J$, $(X(\alpha), T(\alpha))$ is a topological space then *the product space on* $\prod_{\alpha \in J} X(\alpha)$ is $(\prod_{\alpha \in J} f(\alpha)$,the topology on $\prod_{\alpha \in J} f(\alpha)$ generated by the subbasis the standard subbasis for the product topology on $\prod_{\alpha \in J} X(\alpha))$.