Exercises from conversions of representations of discrete fuzzy sets.

**Exercise 1.1** Personal preferences of (all 4) candidates participating in elections are:

\[
\begin{align*}
\mu_C(A.B.) &= 0.4, \\
\mu_C(C.D.) &= 0.6, \\
\mu_C(E.F.) &= 0.8, \\
\mu_C(G.H.) &= 0.2.
\end{align*}
\]

Find the horizontal representation of this fuzzy set.

**Exercise 1.2** ("satisfaction with the grades"; old scale) Fuzzy set \(A\) is given by its collection of cuts:

\[
\mathcal{R}_A(\alpha) = \begin{cases} 
\{1, 2, 3, 4\}, & \alpha = 0, \\
\{1, 2, 3\}, & \alpha \in (0, 0.3], \\
\{1, 2\}, & \alpha \in (0.3, 0.6], \\
\{1\}, & \alpha \in (0.6, 1].
\end{cases}
\]

Find its vertical representation.

**Exercise 1.3** ("satisfaction with the grades"; new scale) Fuzzy set \(B\) is given by its collection of cuts:

\[
\mathcal{R}_B(\alpha) = \begin{cases} 
\{A, B, C, D, E, F\}, & \alpha = 0, \\
\{A, B, C, D, E\}, & \alpha \in (0, 0.2), \\
\{A, B, C\}, & \alpha \in [0.2, 0.4), \\
\{A, B, C, D\}, & \alpha \in [0.4, 0.6), \\
\{A, B\}, & \alpha \in [0.6, 0.8), \\
\{A\}, & \alpha \in [0.8, 1].
\end{cases}
\]

Find its vertical representation.