

How many block
parameters are useful?

How complex the
parameter change is?

How many model dimension
parameters are useful?

$$H = m_p \circ ((\textcolor{blue}{W} + s \cdot \textcolor{red}{W}_B \cdot (\textcolor{violet}{m_r} \circ \textcolor{red}{W}_A))X + \textcolor{blue}{b}) \circ m_h$$

The diagram illustrates the decomposition of a neural network layer H into two components: **Frozen** (Pre-trained knowledge) and **Tuning** (Task-specific knowledge).

- Frozen (Pre-trained knowledge):** Represented by a blue bracket under the term $m_p \circ ((\textcolor{blue}{W} + s \cdot \textcolor{red}{W}_B \cdot (\textcolor{violet}{m_r} \circ \textcolor{red}{W}_A))X + \textcolor{blue}{b})$. A blue arrow points from the text "How many block parameters are useful?" to the $\textcolor{blue}{W}$ term.
- Tuning (Task-specific knowledge):** Represented by a red bracket under the term $\textcolor{violet}{m_r} \circ \textcolor{red}{W}_A$. A red arrow points from the text "How complex the parameter change is?" to the $\textcolor{violet}{m_r}$ term.
- Model Dimension Parameters:** Represented by a black bracket under the term m_h . A black arrow points from the text "How many model dimension parameters are useful?" to the m_h term.