$$\mathrm{Hom}(E_p(L), M) \otimes \mathrm{Hom}(E_q(M), N) \longrightarrow \mathrm{Hom}(E_{p+q}(L), N)$$
$$(\sigma_p, \quad \tau_q) \longmapsto \sigma_p \cup \tau_q$$

$\Rightarrow$ $\sigma \cup \tau(x)$ is defined as follows: $x \in E_{p+q}(L)$

$$\begin{tikzcd}
 & E_{p+q}(L) \ni x \arrow[r, "\partial"] \arrow[d, "\sigma_{p+q}"] & \cdots \arrow[r] & E_{p+1}(L) \arrow[r, "\partial"] \arrow[d, "\sigma_{p+1}"] & E_p(L) \arrow[r, "\partial"] \arrow[d, "\sigma_p"] & E_{p-1}(L) \\
E_q(M) \arrow[r, "\partial"] \arrow[d, "\tau"] & E_{q-1}(M) \ni \sigma_{p+q}(x) \arrow[r, "\partial"] & \cdots & E_0(M) \arrow[r] & M \arrow[r] & 0 \\
N & & & & &
\end{tikzcd}$$

$\Rightarrow \exists\ y \in E_q(M)$ s.t $\partial(y) = \sigma_{p+q}(x)$ $\Rightarrow$ $\sigma \cup \tau(x) = \tau(y)$.

To check well-definedness, first, if another $y' \in E_q(M)$ s.t $\partial(y') = \sigma_{p+q}(x)$. $\Rightarrow$ By exactness, $\exists\ \delta$ s.t $y - y' = \partial\delta$.
$\Rightarrow$ $\tau(y) = \tau(y' + \partial\delta) = \tau(y') + \tau(\partial\delta) = (\partial\tau)(\delta) + \tau(y')$ $= \tau(y')$. since $\tau \in \mathrm{Ext}^q(M, N)$, and so $\partial\tau = 0$.

Second, we need to show the independence of choice of σ_{p+q}. Problem!. Since $\sigma_p \circ \partial = \partial^* \sigma_p = 0$, we may take $\sigma_{p+1} = 0$, which is meaningless.

There is another interpretation on $\mathrm{Ext}^n_\Lambda(M, M')$.
See P35 ~ P37. Representations and cohomology by D. Benson.

Def: If M and N' are left Λ-modules, an n-fold extension of M by M' is an exact sequence
$$0 \to M' \to M_{n-1} \to M_{n-2} \to \cdots \to M_0 \to M \to 0$$
beginning with M' and ending with M, and with n intermediate terms.