Pensieve header: Defining "Define".

```
SetAttributes[Define, HoldAll];
Define[def_, defs__] := (Define[def]; Define[defs];);
Define[op_is__ = ℰ_] :=
 Module[{ii, jj, kk, isp, nis, nisp, sis}, Block[{i, j, k, l, m, n, t1, t2, t3, h1, h2, h3},
   ReleaseHold@Echo[Hold[
       op_nisp,$k_ := Block[{i, j, k, l, m, n, t1, t2, t3, h1, h2, h3}, op_isp,$k = ℰ;
         op_nis,$k];
       op_isp := op_{is},$k;
       op_sis__ := op_{sis};
      ] /. {
       isp → {is} /. {i → i_, j → j_, k → k_},
       nis → {is} /. {i → ii, j → jj, k → kk},
       nisp → {is} /. {i → ii_, j → jj_, k → kk_}
      }]
  ]]
```

In[•]:=
```
Define[1 + 1, 2 + 2, 3 + 3]
```

In[•]:=
```
{1, 2, 3} /. 2 → Sequence[5, 6]
```

Out[•]=
```
{1, 5, 6, 3}
```

In[•]:=
```
Define[am_{i,j→k} = 𝔼[(α_i + α_j) a_k, (ℯ^(-γ α_j) ξ_i + ξ_j) x_k, 1]_$k]
```

"

```
Hold[am_{ii$2824_,jj$2824_→kk$2824_},$k$_ := Block[
    {i, j, k, l, m, n, t1, t2, t3, h1, h2, h3}, am_{i_,j_→k_},$k$ = 𝔼[(α_i + α_j) a_k, (ℯ^(-γ α_j) ξ_i + ξ_j) x_k, 1]_$k;
    am_{ii$2824,jj$2824→kk$2824},$k$];
 am_{i_,j_→k_} := am_{i,j→k},$k;
 am_{sis$__} := am_{sis$};]
```

In[•]:=
```
?? Subscript
```

Subscript[x, y] is an object that formats as x_y.
Subscript[$x, y_1, y_2, \ldots$] formats as $x_{y_1,y_2,\ldots}$. ≫

```
Attributes[Subscript] = {NHoldRest}

Subscript[am, {ii$2824_, jj$2824_ → kk$2824_}, $k$_] :=
 Block[{i, j, k, l, m, n, t1, t2, t3, h1, h2, h3}, Subscript[am, {i_, j_ → k_}, $k$] =
   Subscript[𝔼[(Subscript[α, i] + Subscript[α, j]) Subscript[a, k],
     (ℯ^(-γ Subscript[α,j]) Subscript[ξ, i] + Subscript[ξ, j]) Subscript[x, k], 1], $k];
  Subscript[am, {ii$2824, jj$2824 → kk$2824}, $k$]]

Subscript[am, {i_, j_ → k_}] := Subscript[am, {i, j → k}, $k]

Subscript[am, sis$__] := Subscript[am, {sis$}]
```

In[•]:=
```
$k = 1;
am_{1,2→3}
```

Out[•]=
```
𝔼[a_3 (α_1 + α_2), x_3 (ℯ^(-γ α_2) ξ_1 + ξ_2), 1]_1
```

In[•]:=
```
am{1,2→3},1
```
Out[•]=
$$\mathbb{E}\left[a_3\ (\alpha_1+\alpha_2)\,,\ x_3\ \left(e^{-\gamma\,\alpha_2}\ \xi_1+\xi_2\right),\ 1\right]_1$$

In[•]:=
```
aSequence[1,2,3]
```
Out[•]=
$$a_{1,2,3}$$

In[•]:=
```
?? Subscript
```

Subscript[x, y] is an object that formats as x_y.
Subscript[x, y_1, y_2, …] formats as $x_{y_1,y_2,\ldots}$. ≫

```
Attributes[Subscript] = {NHoldRest}

Subscript[am, {i_, j_ → k_}, 1] = Subscript[𝔼[Subscript[a, k] (Subscript[α, i] + Subscript[α, j]),
    Subscript[x, k] (e^(-γ Subscript[α,j]) Subscript[ξ, i] + Subscript[ξ, j]), 1], 1]

Subscript[am, {ii$2824_, jj$2824_ → kk$2824_}, $k$_] :=
 Block[{i, j, k, l, m, n, t1, t2, t3, h1, h2, h3}, Subscript[am, {i_, j_ → k_}, $k$] =
   Subscript[𝔼[(Subscript[α, i] + Subscript[α, j]) Subscript[a, k],
     (e^(-γ Subscript[α,j]) Subscript[ξ, i] + Subscript[ξ, j]) Subscript[x, k], 1], $k];
  Subscript[am, {ii$2824, jj$2824 → kk$2824}, $k$]]

Subscript[am, {i_, j_ → k_}] := Subscript[am, {i, j → k}, $k]

Subscript[am, sis$__] := Subscript[am, {sis$}]
```

In[•]:=
```
𝔼[(αi + αj) ak, (e^(-γ αj) ξi + ξj) xk, 1]
```
Out[•]=
$$\mathbb{E}\left[a_k\ (\alpha_i+\alpha_j)\,,\ x_k\ \left(e^{-\gamma\,\alpha_j}\ \xi_i+\xi_j\right),\ 1\right]$$