Algorithm 3.1.59 Solve the deferred acceptance/stable marriage problem. M_x is a preference list such that M_{x_1} is a man, and the elements M_{x_2}, M_{x_3}, ..., M_{x_y} are ranked preference women. The output match list is the most stable system.

1: **procedure** DEFERRED ACCEPTANCE(M_1, M_2, ..., M_n: a list of preference lists; W_1, W_2, ..., W_n: a list of preference lists)
2: $match\ list \leftarrow$ empty list
3: $P \leftarrow \emptyset$
4: $\circledcirc \leftarrow 0$
5: **while** $\circledcirc \neq n$ **do**
6: **for** $\triangle = 1$ to n **do**
7: $man \leftarrow M_{\triangle_1}$
8: **if** $man \notin \{m | \langle m, w \rangle \in match\ list\}$ **then**
9: $lady \leftarrow M_{\triangle_2}$
10: **if** $lady \in P$ **then** ▷ $lady$ already paired.
11: $\forall \phi([(0 < \phi \leq \circledcirc) \in \mathbb{N} \wedge (match\ list_{\phi_2} = lady)] \implies preference \leftarrow match\ list_{\phi})$
12: $\forall \lambda([(0 < \lambda \leq n) \in \mathbb{N} \wedge (W_\lambda = lady)] \implies \delta \leftarrow \lambda)$
13: $\forall \lambda([(1 < \lambda \leq n) \in \mathbb{N} \wedge \{(W_{\delta_\lambda} = preference) \vee (W_{\delta_\lambda} = man)\}] \implies preference \leftarrow W_{\delta_\lambda})$
14: $match\ list_{\phi} \leftarrow \langle preference, lady \rangle$
15: **else**
16: $\circledcirc$ += 1
17: $match\ list_{\circledcirc} \leftarrow \langle man, lady \rangle$
18: $P \leftarrow P \cup \{lady\}$
19: $M_\triangle \leftarrow M_{\triangle_1}, M_{\triangle_3}, M_{\triangle_4}, \ldots, M_{\triangle_{(|M_\triangle|-1)}}$
20: **end if**
21: **end if**
22: **end for**
23: **end while**
24: **return** $match\ list$
25: **end procedure**