

SHED: Shape Edit Distance for Fine-grained Shape Similarity

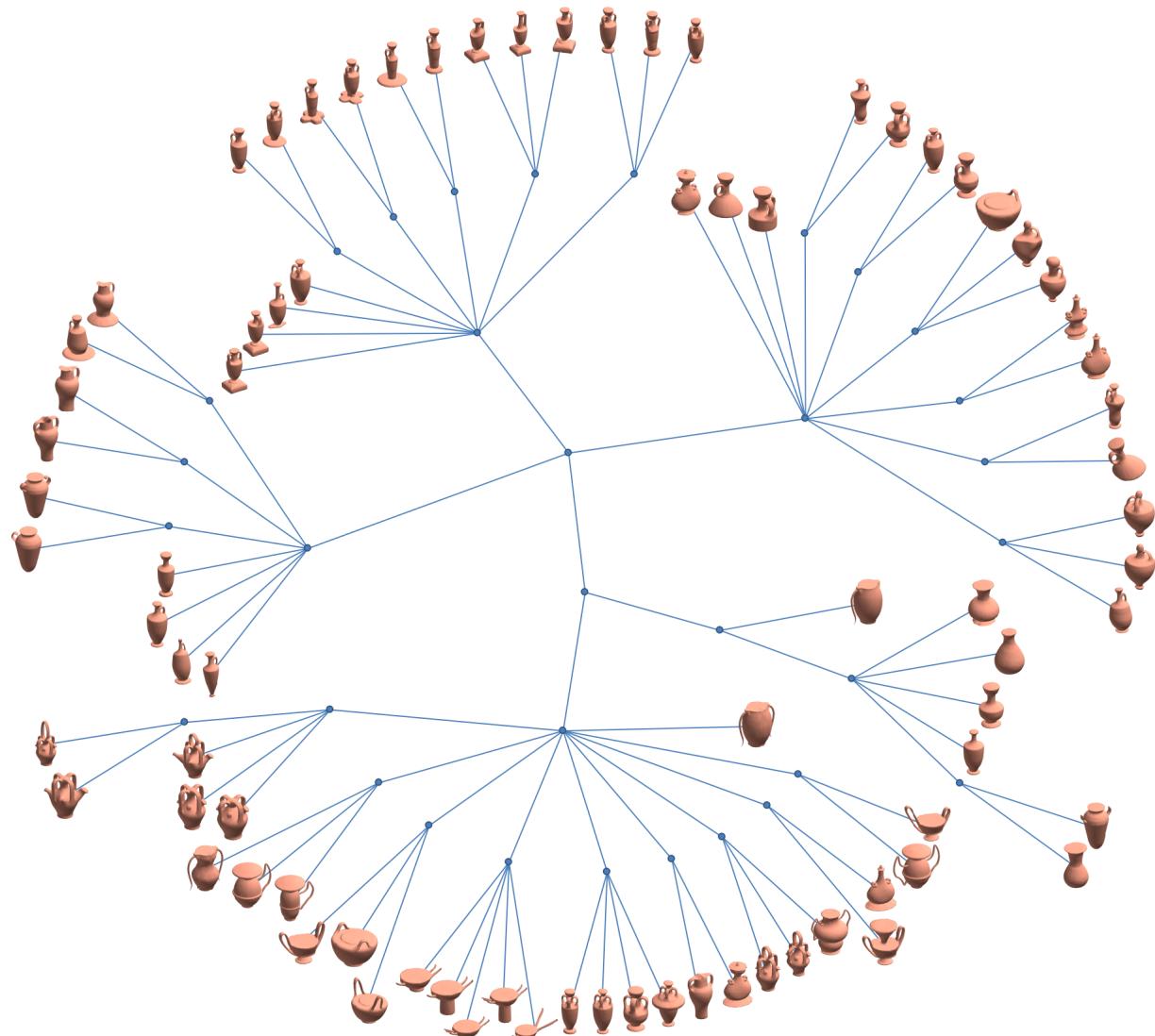
Supplementary material

1 Categorization trees

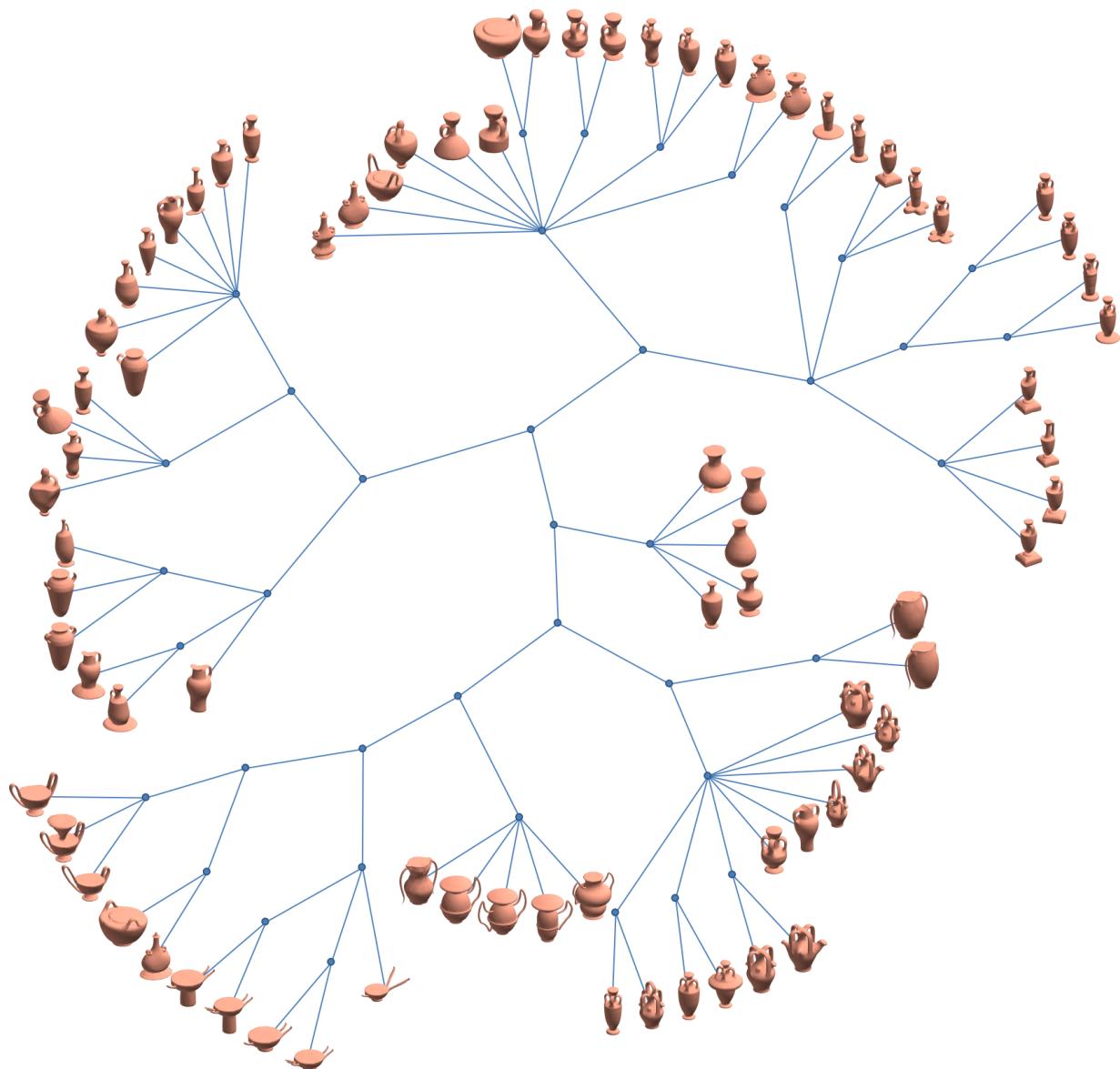
For each set, we show first the trees built according to SHED, LFD and SPH. Next, we show the ground-truth trees created by the users.

1.1 Vases

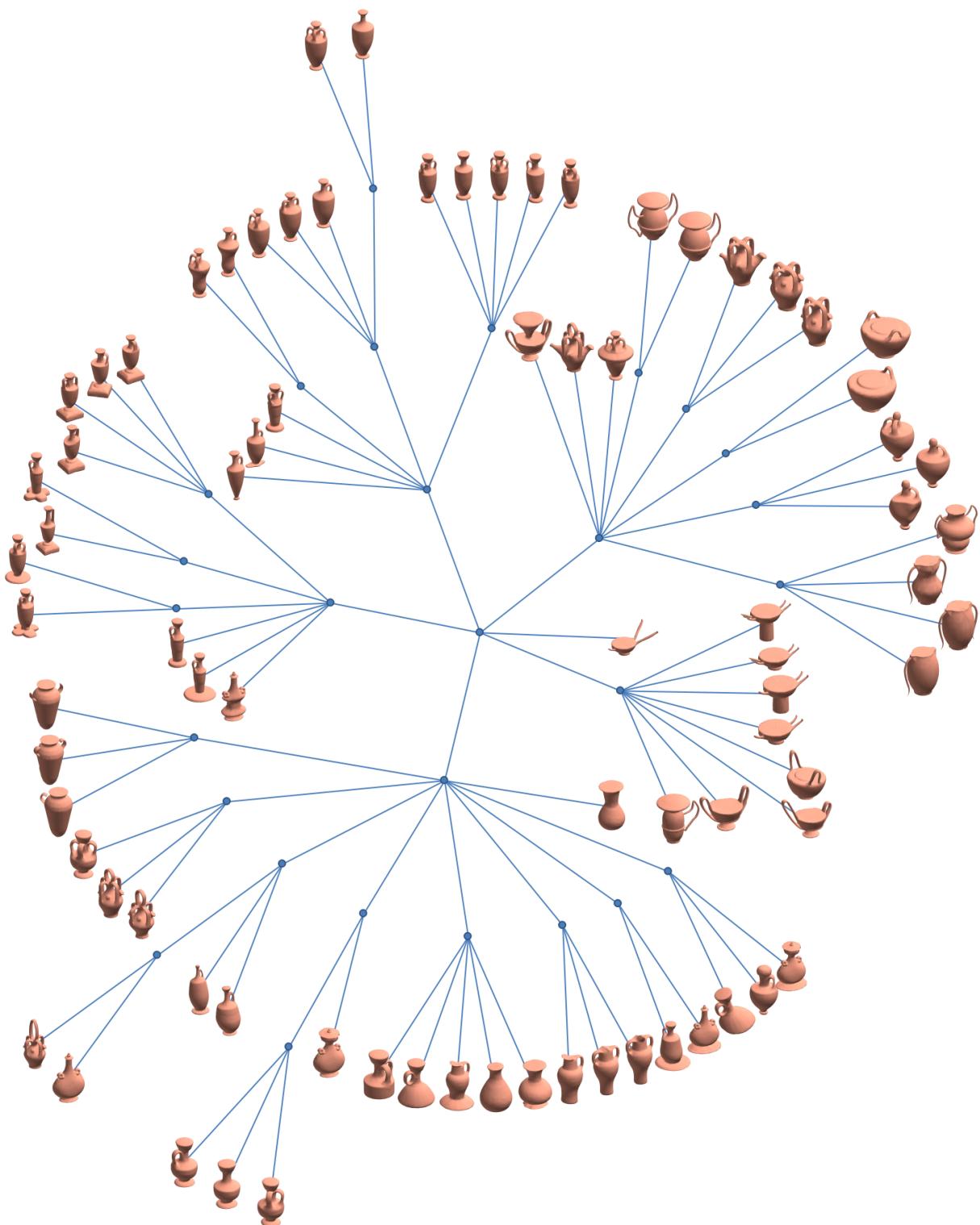
1.1.1 Tree for vases according to SHED with weights learned for the set



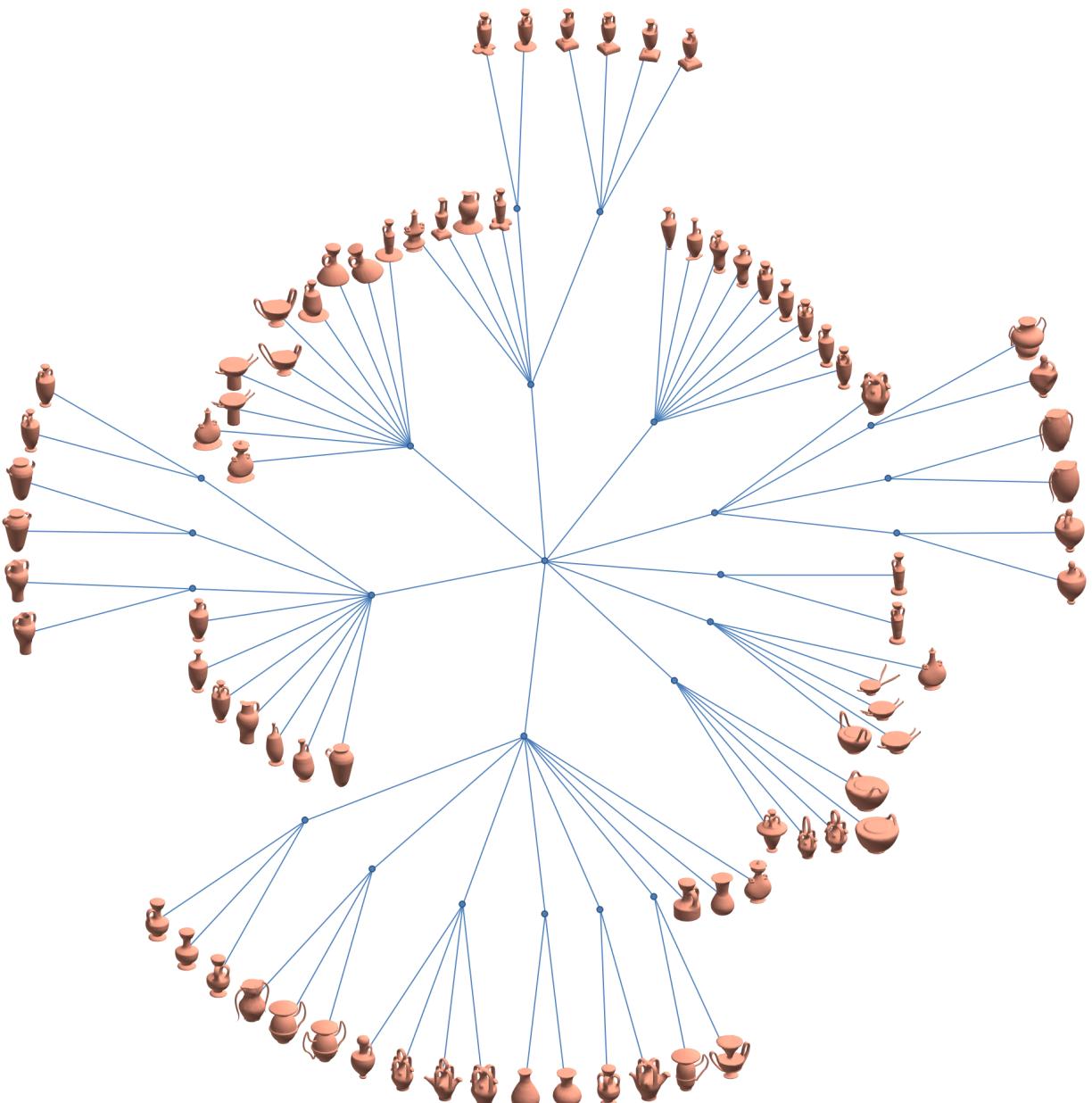
1.1.2 Tree for vases according to SHED with default weights



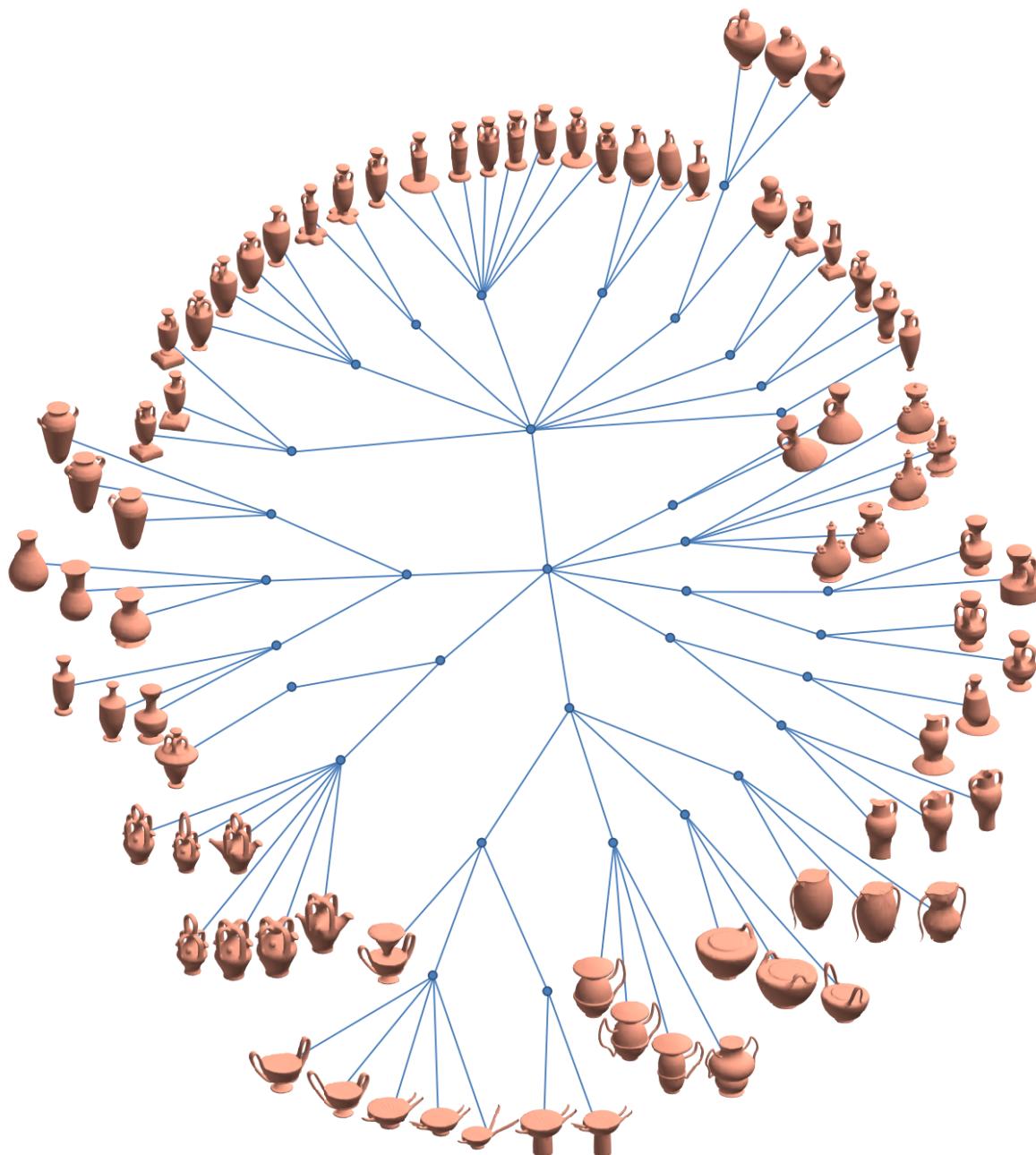
1.1.3 Tree for vases according to LFD



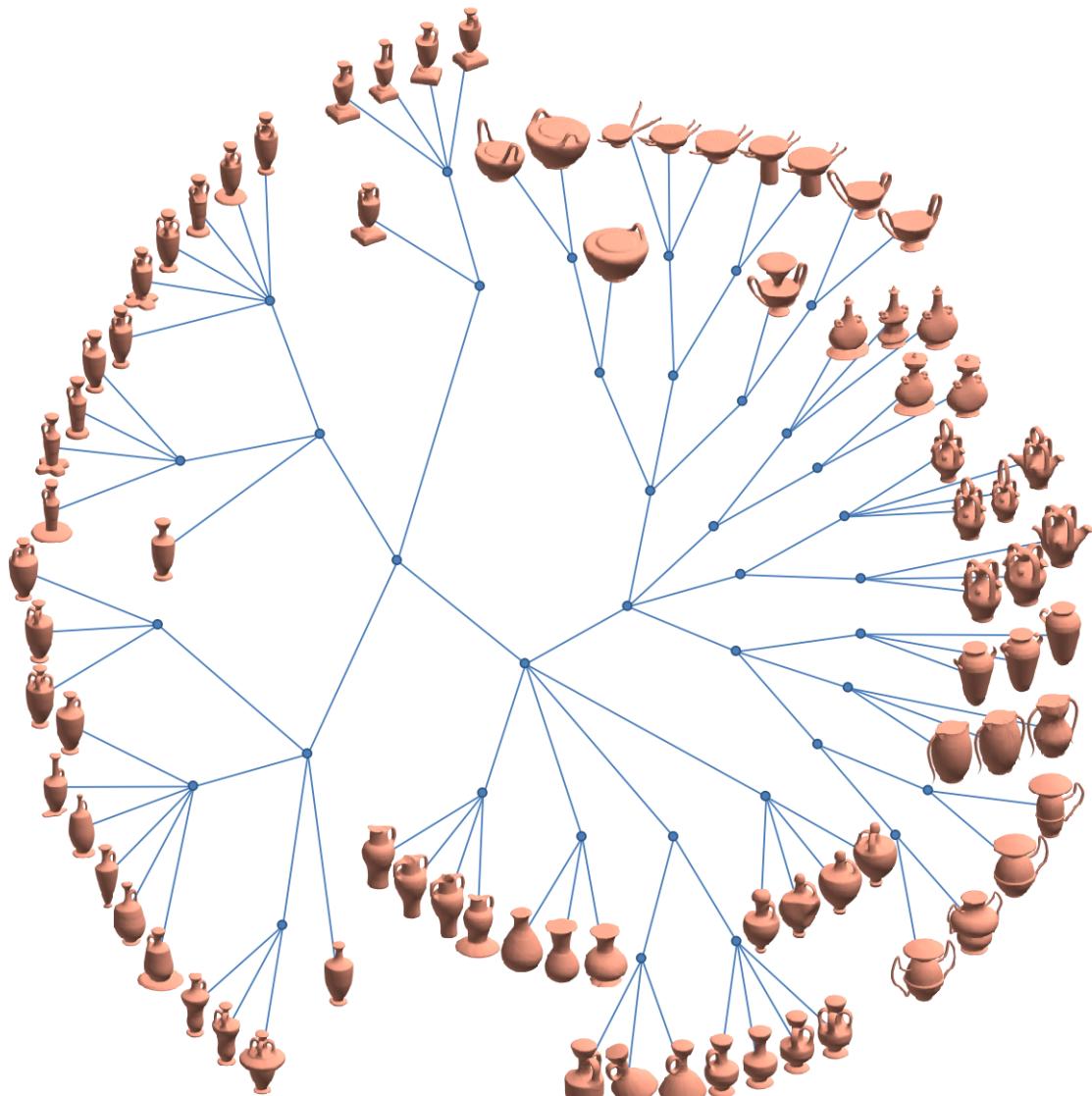
1.1.4 Tree for vases according to SPH



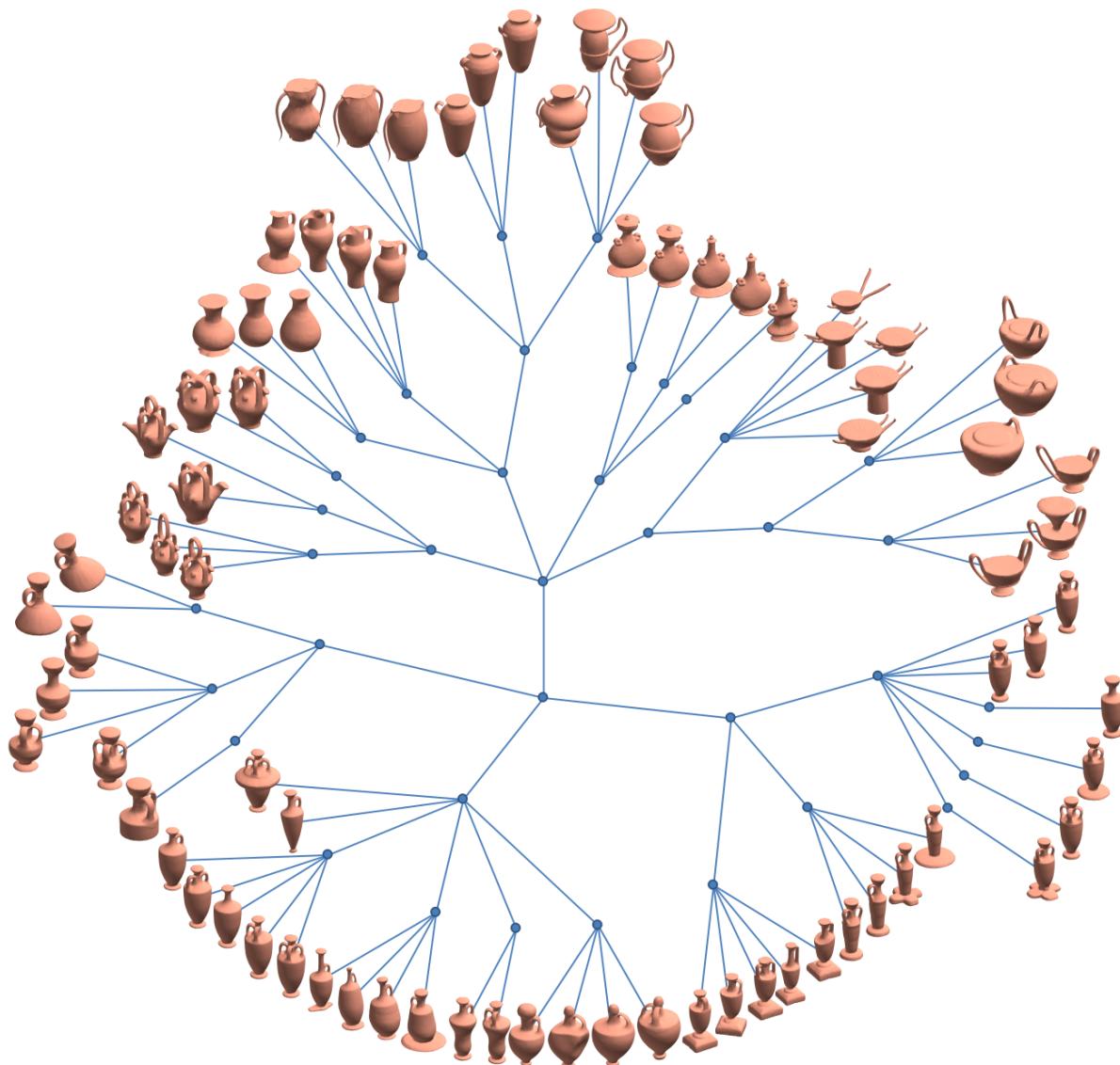
1.1.5 Ground-truth tree 1 for vases



1.1.6 Ground-truth tree 2 for vases

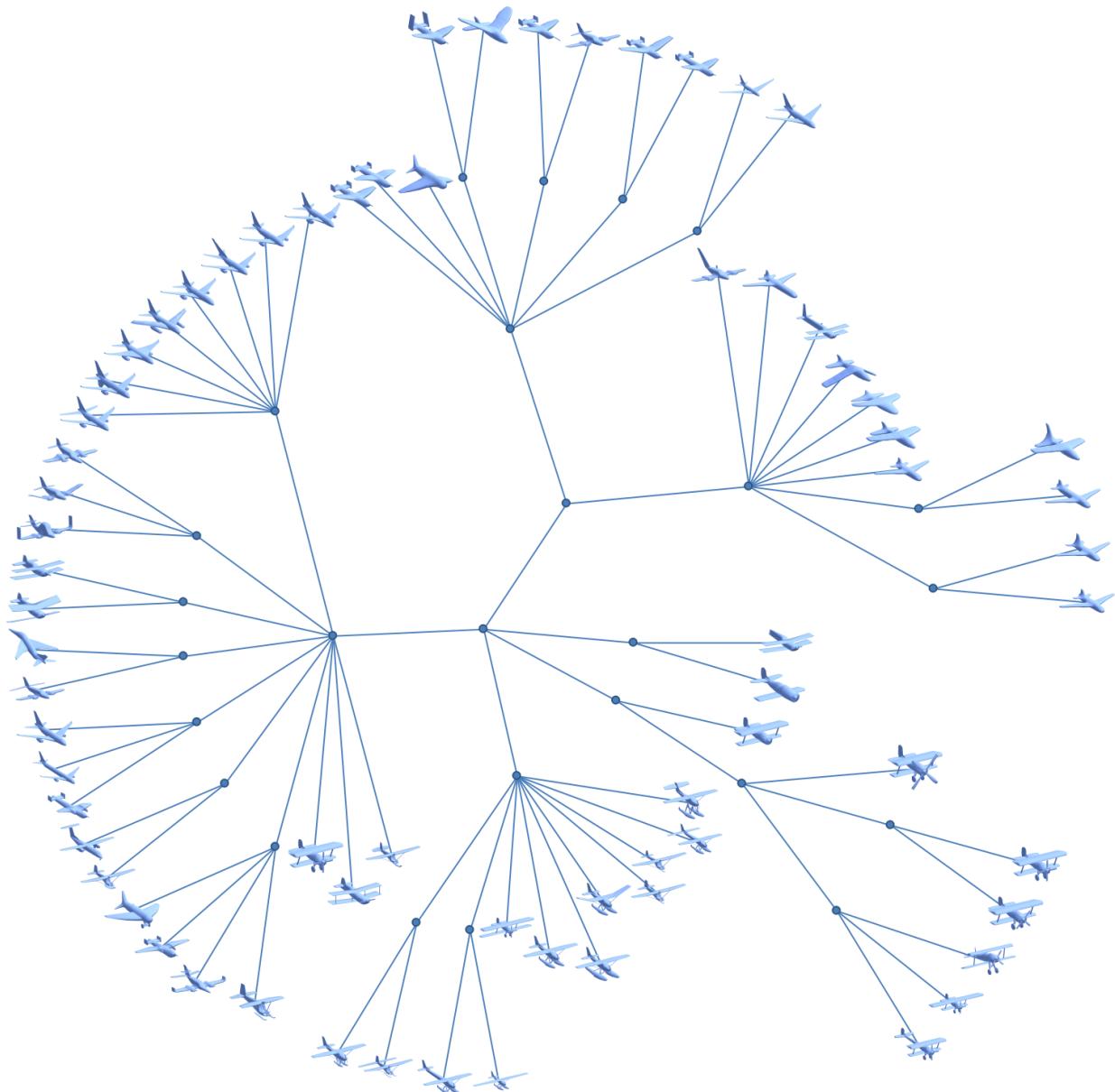


1.1.7 Ground-truth tree 3 for vases

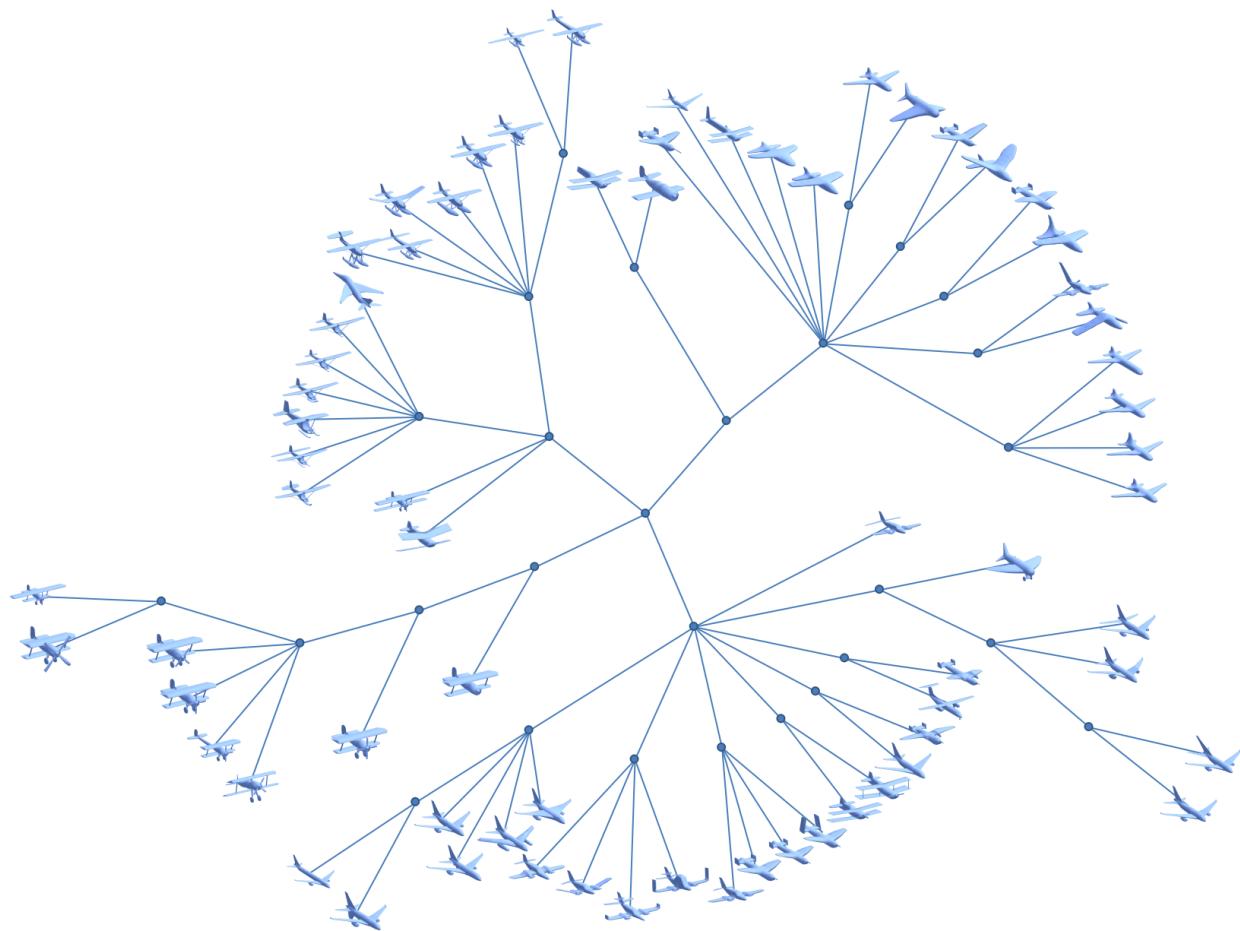


1.2 Planes

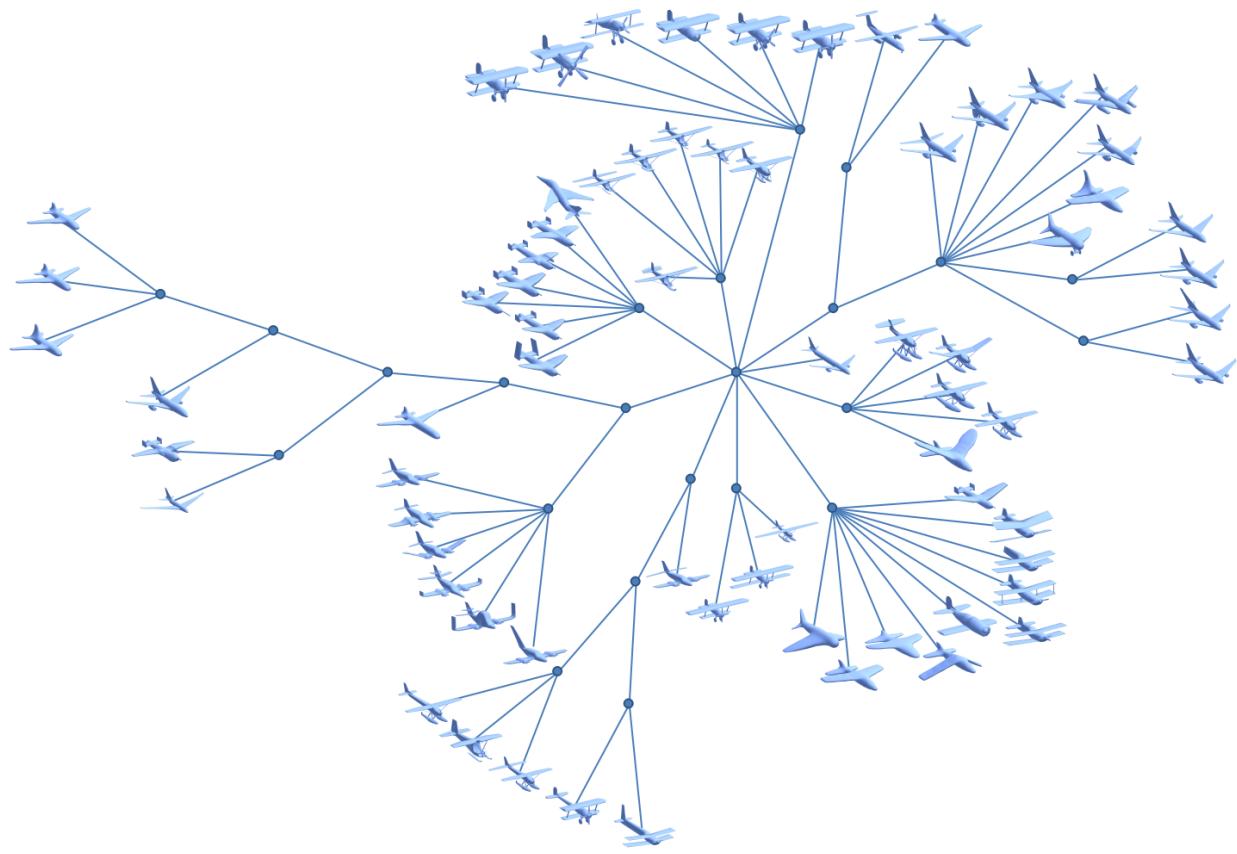
1.2.1 Tree for planes according to SHED with weights learned for the set



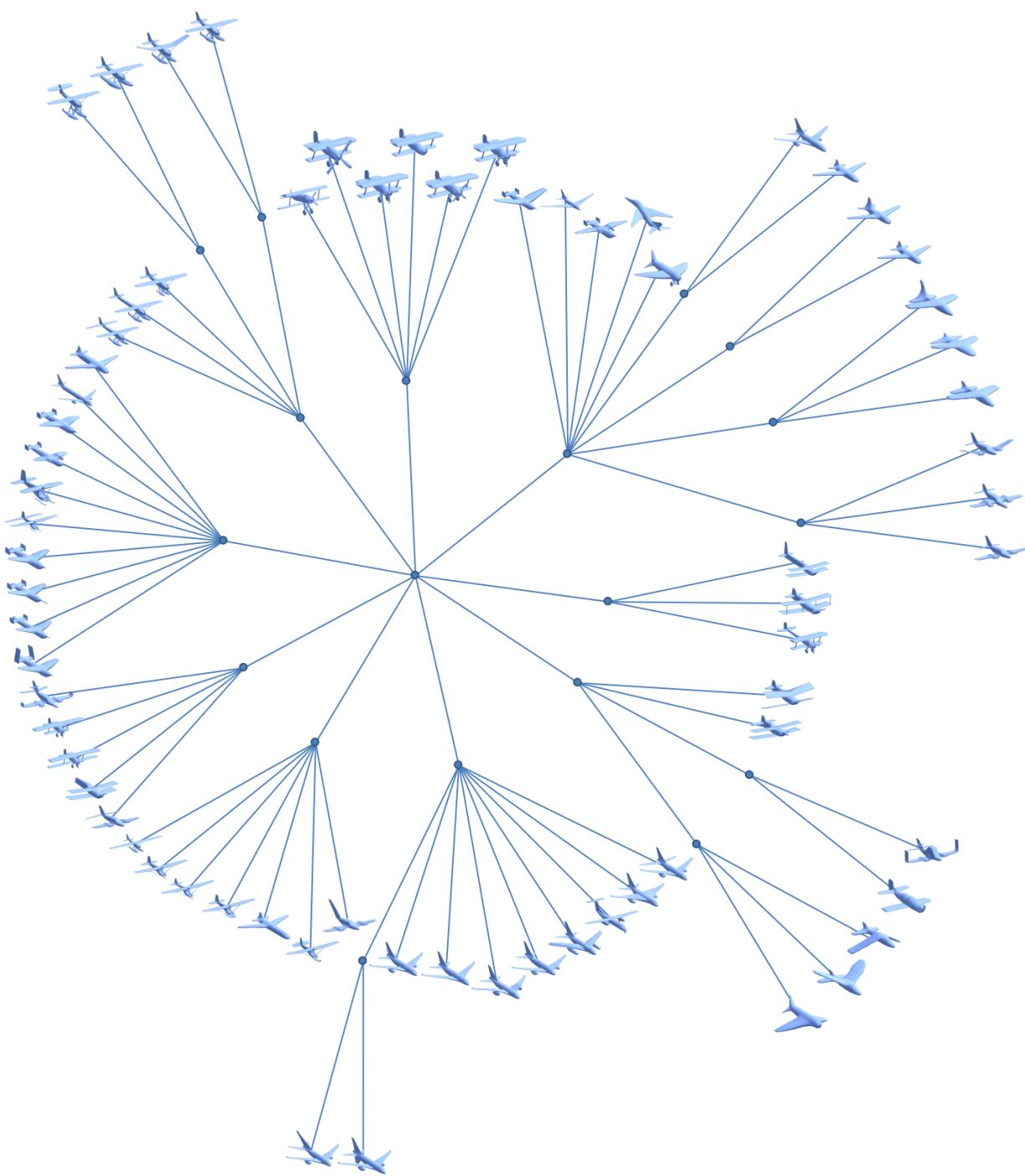
1.2.2 Tree for planes according to SHED with default weights



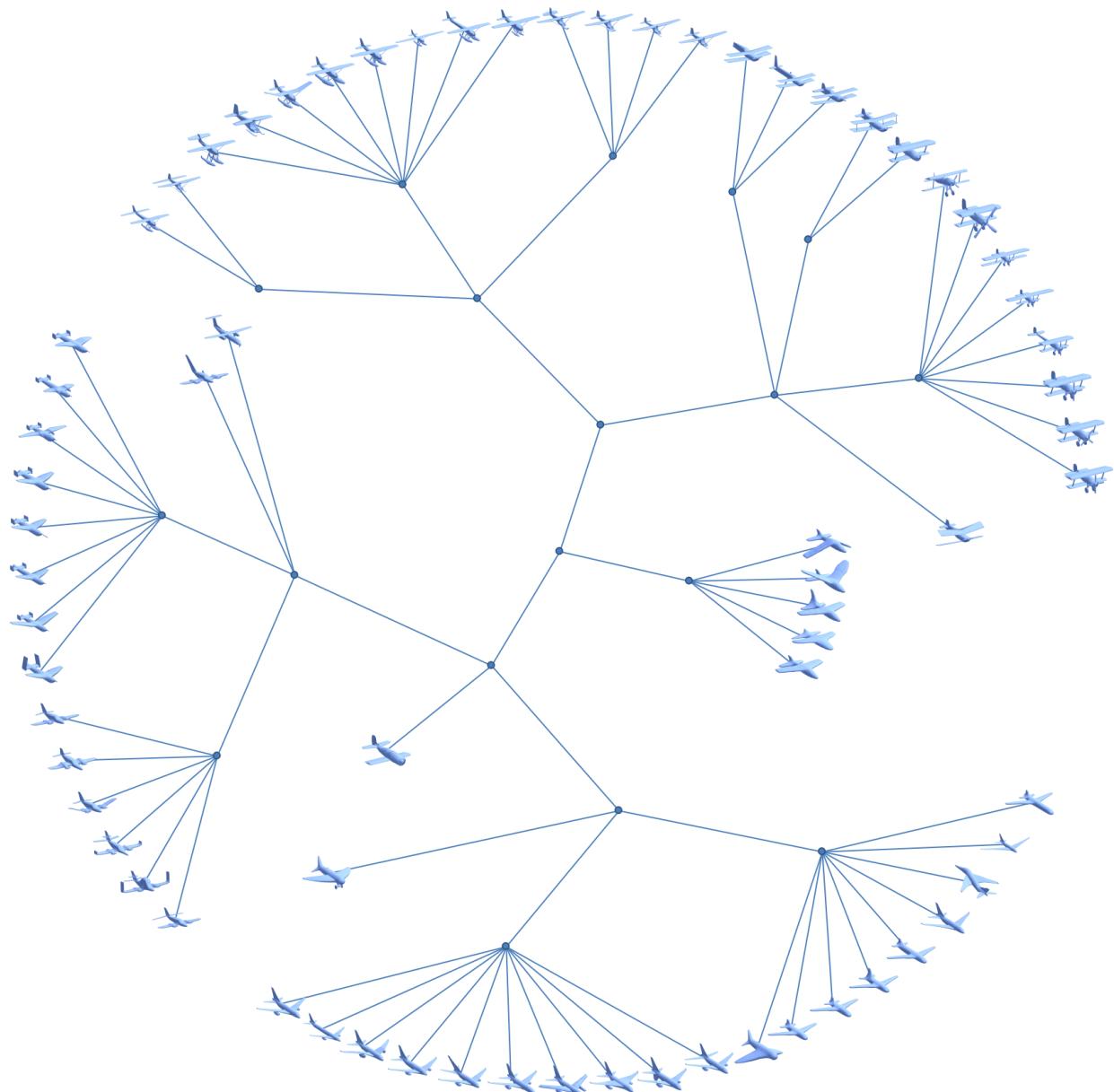
1.2.3 Tree for planes according to LFD



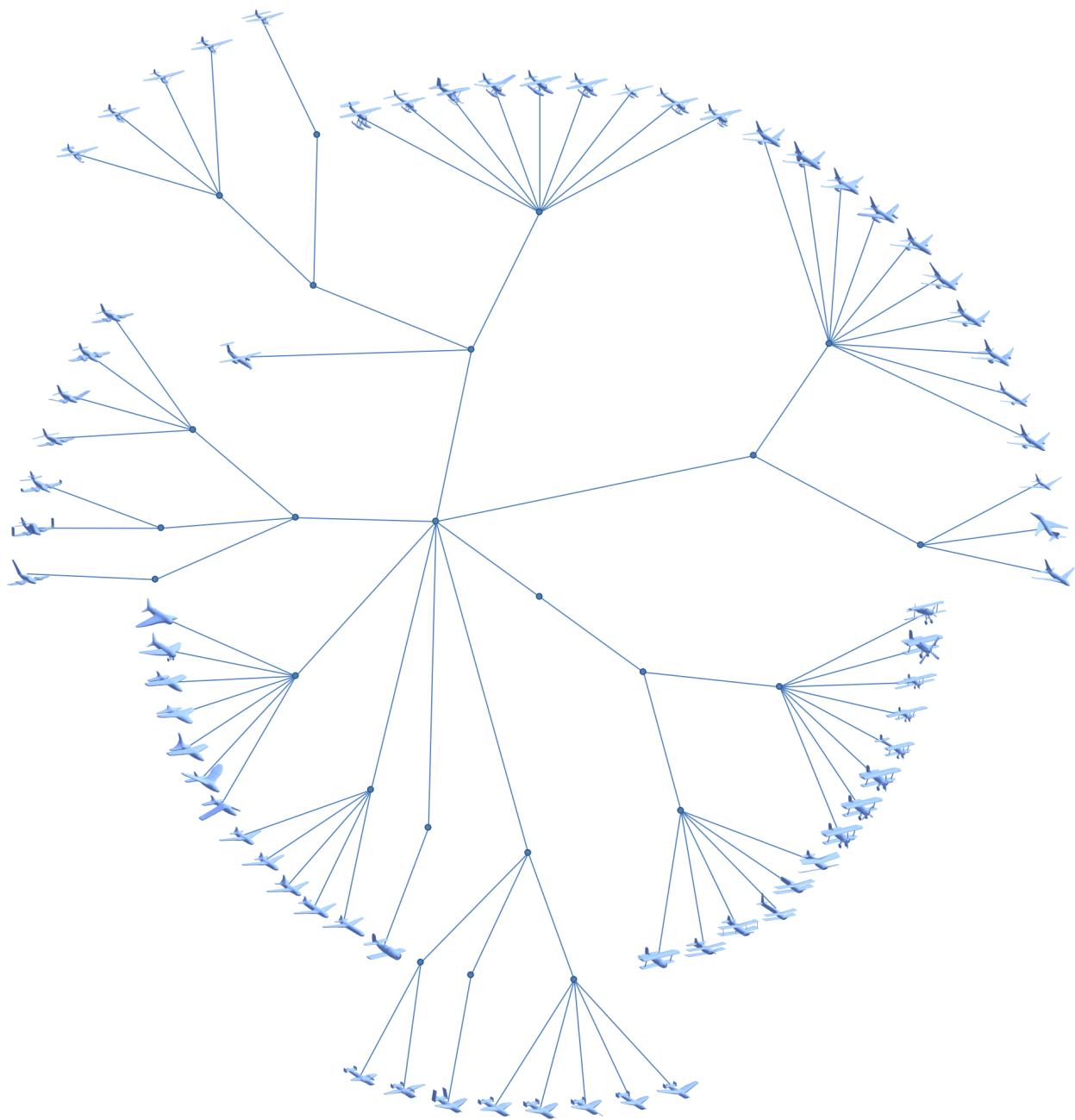
1.2.4 Tree for planes according to SPH



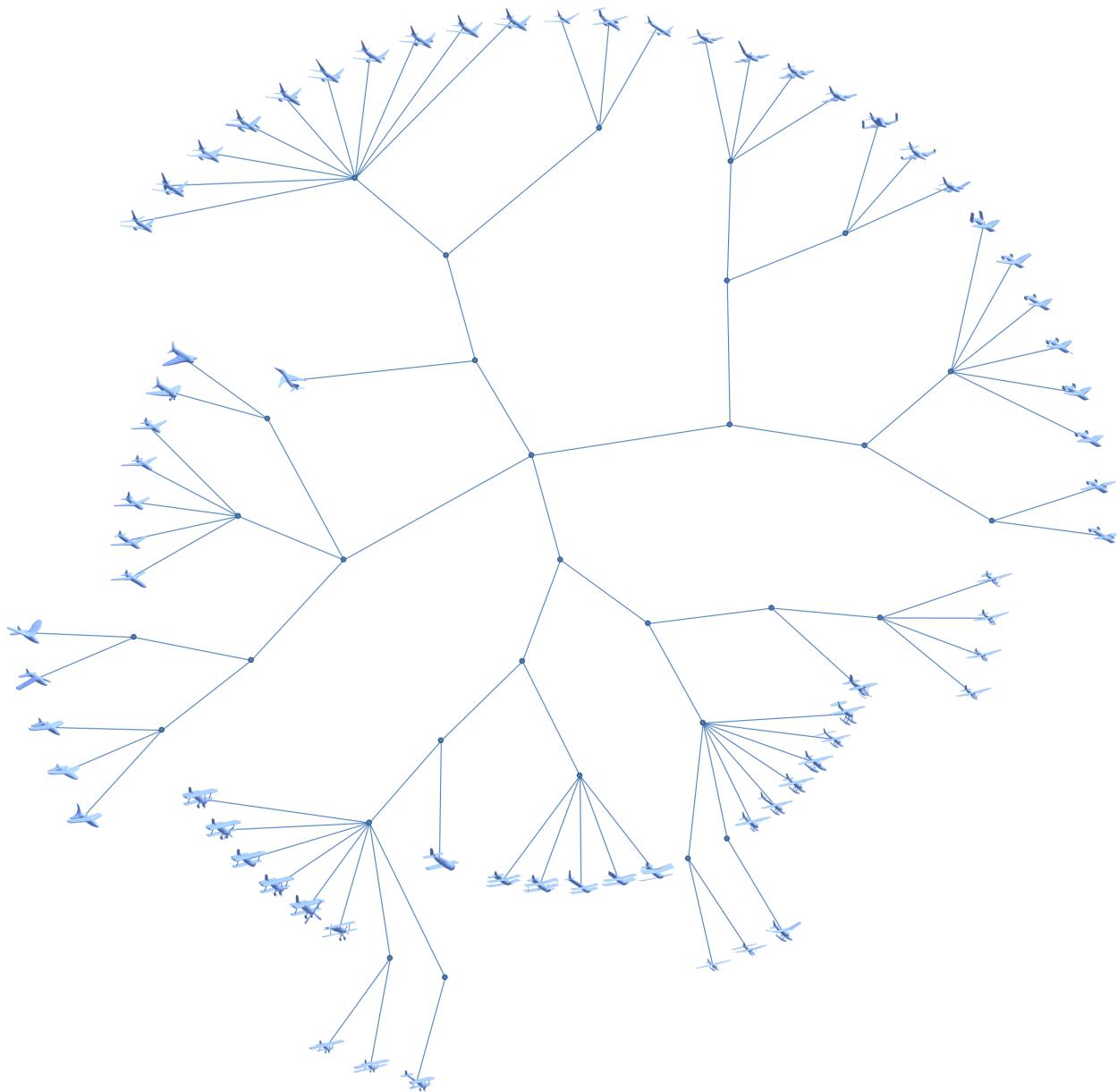
1.2.5 Ground-truth tree 1 for planes



1.2.6 Ground-truth tree 2 for planes

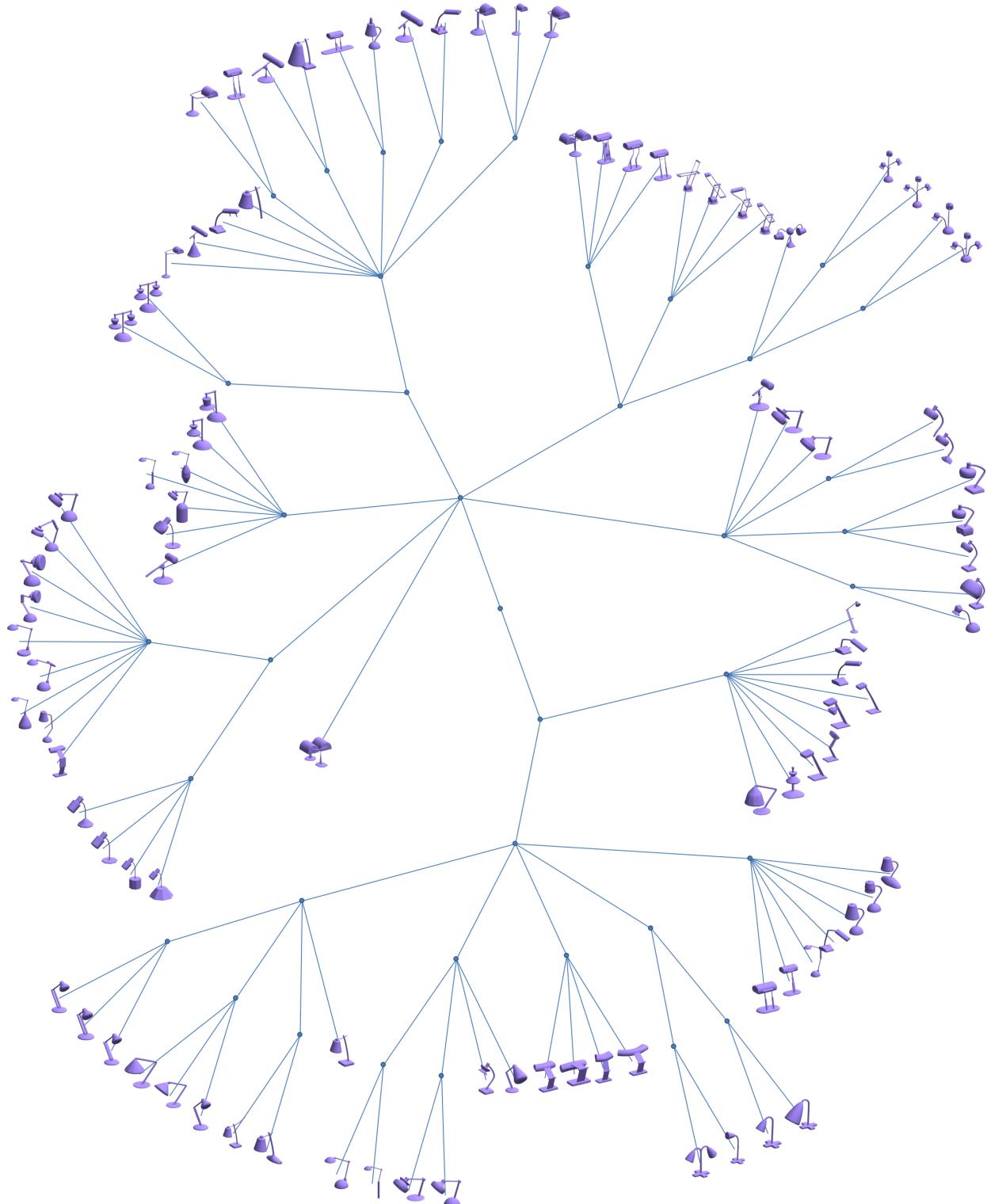


1.2.7 Ground-truth tree 3 for planes

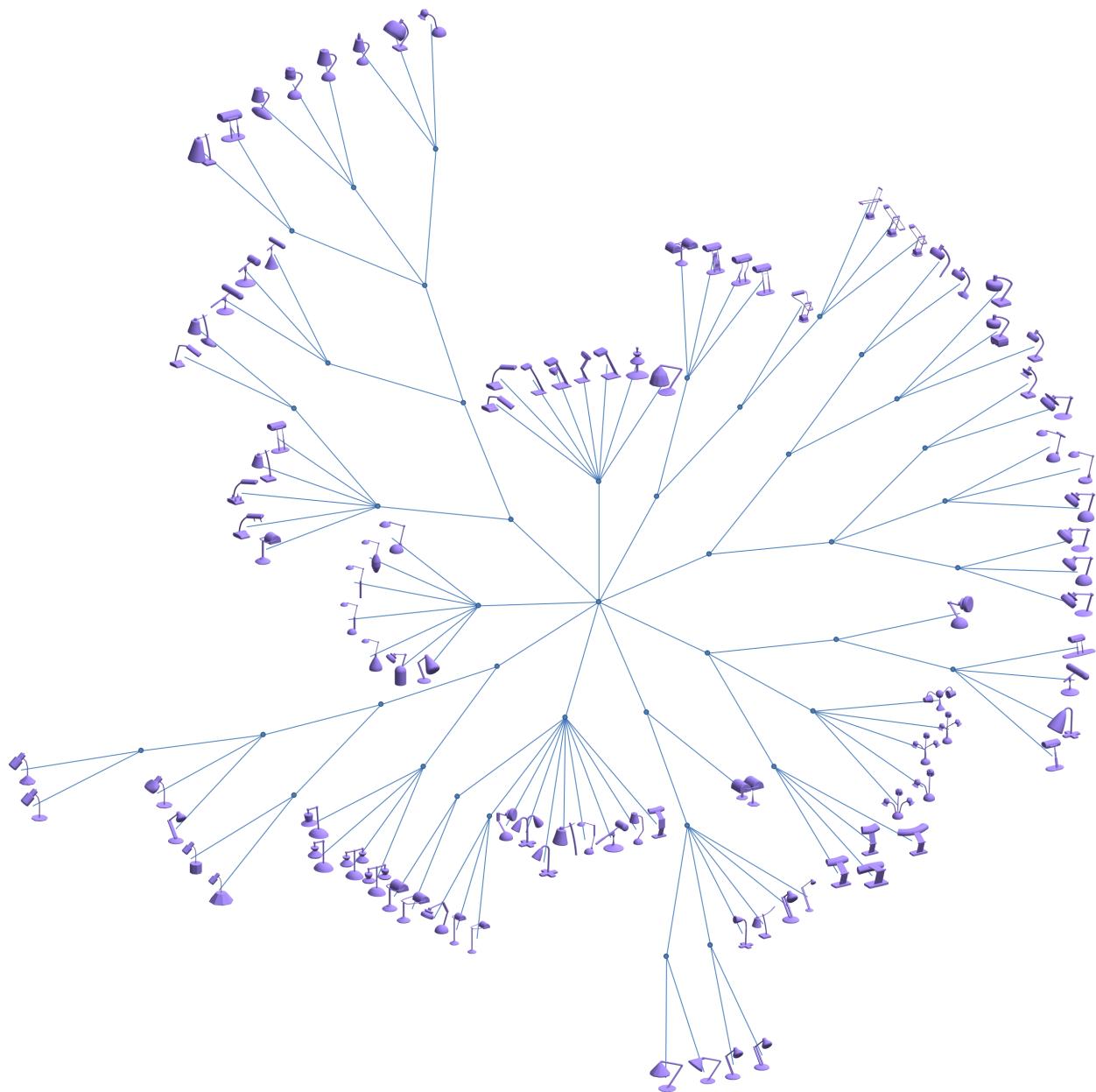


1.3 Lamps

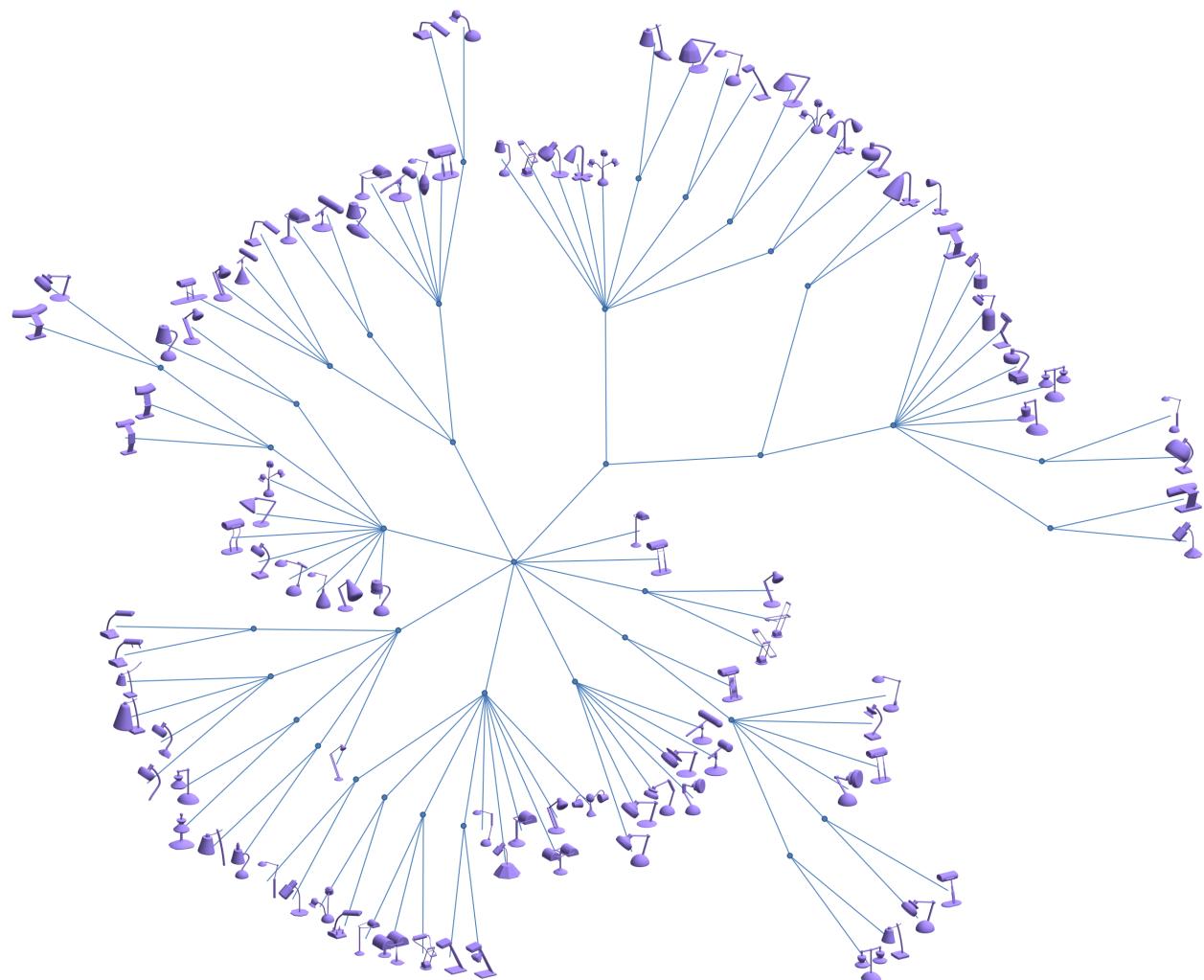
1.3.1 Tree for lamps according to SHED with weights learned for the set



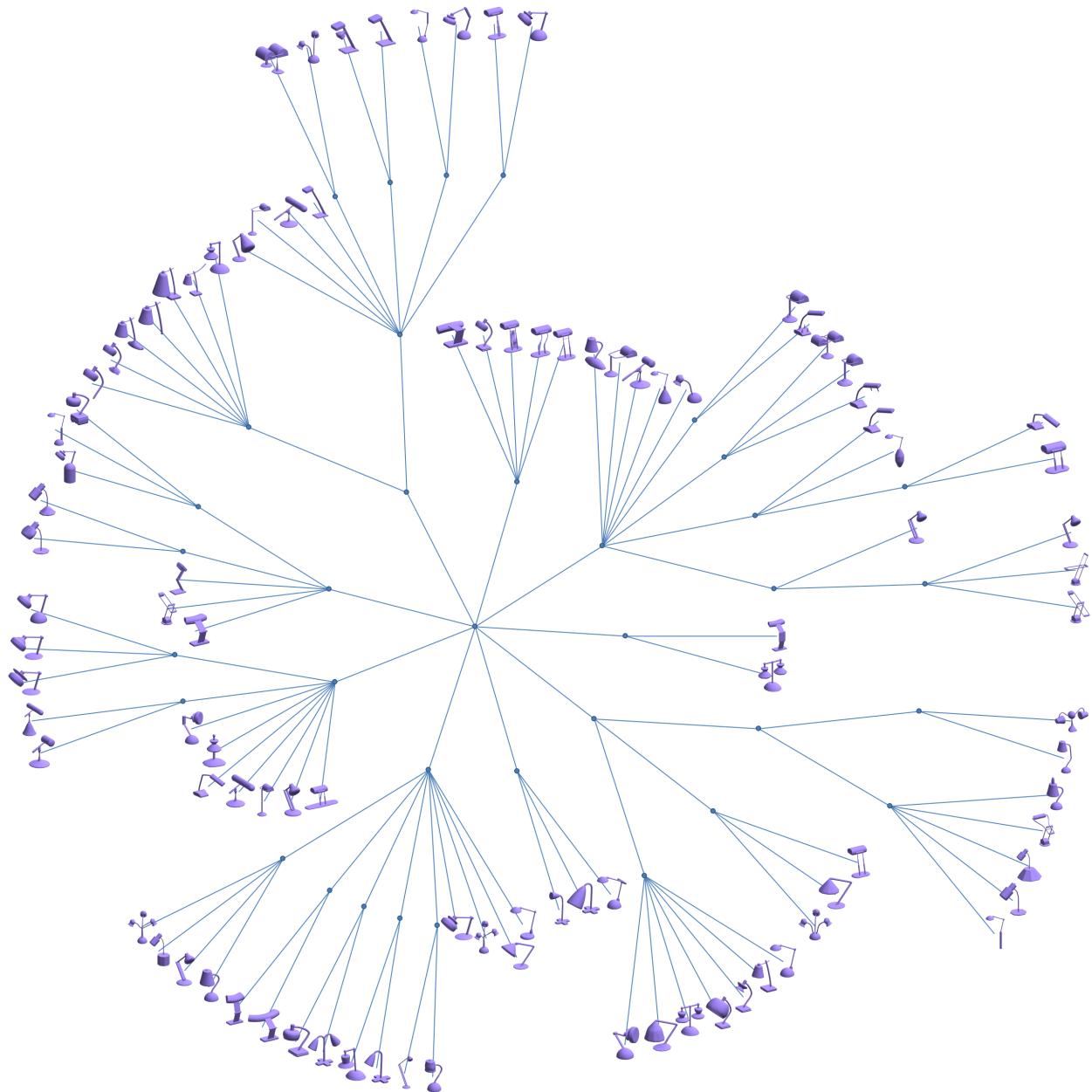
1.3.2 Tree for lamps according to SHED with default weights



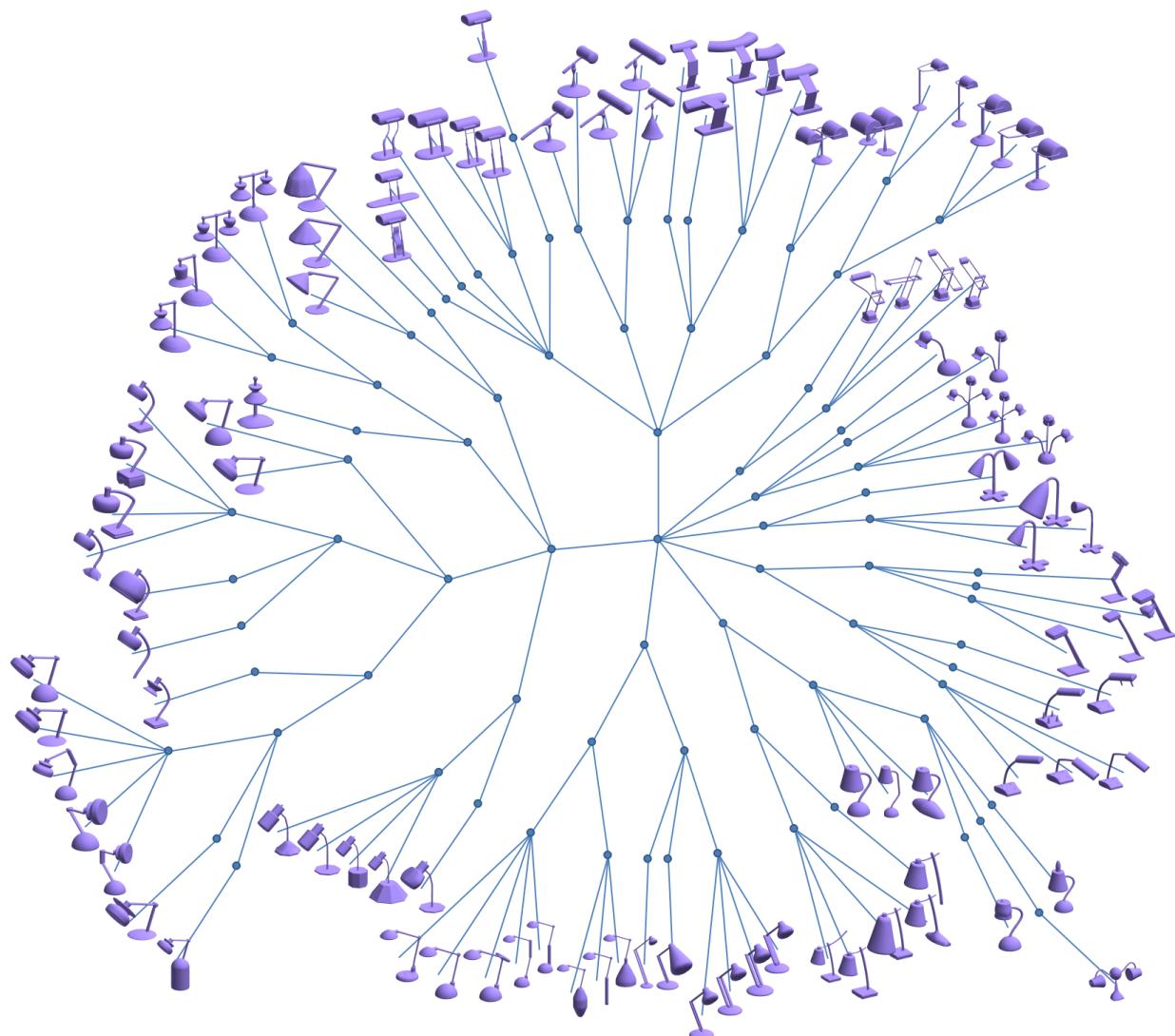
1.3.3 Tree for lamps according to LFD



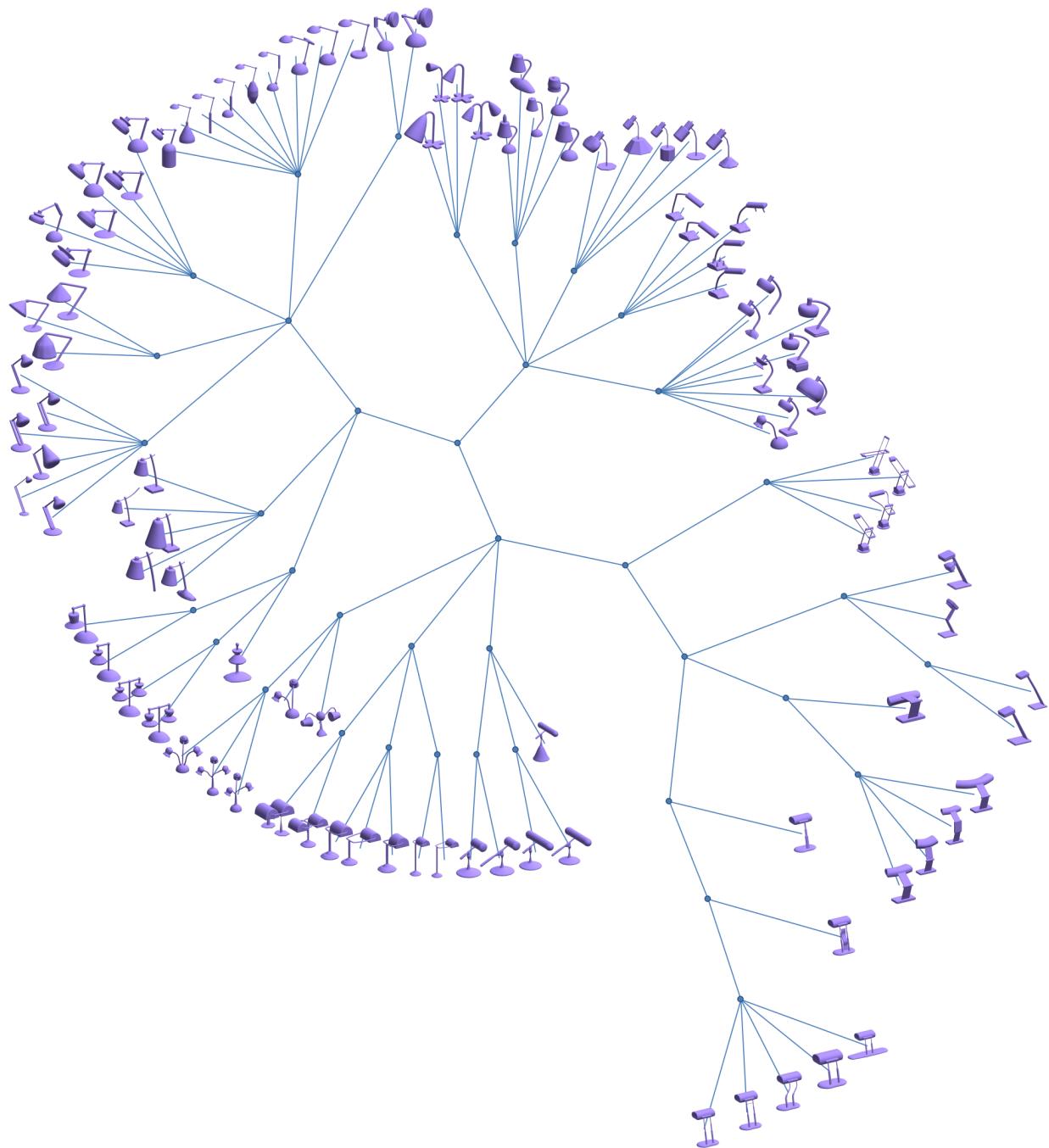
1.3.4 Tree for lamps according to SPH



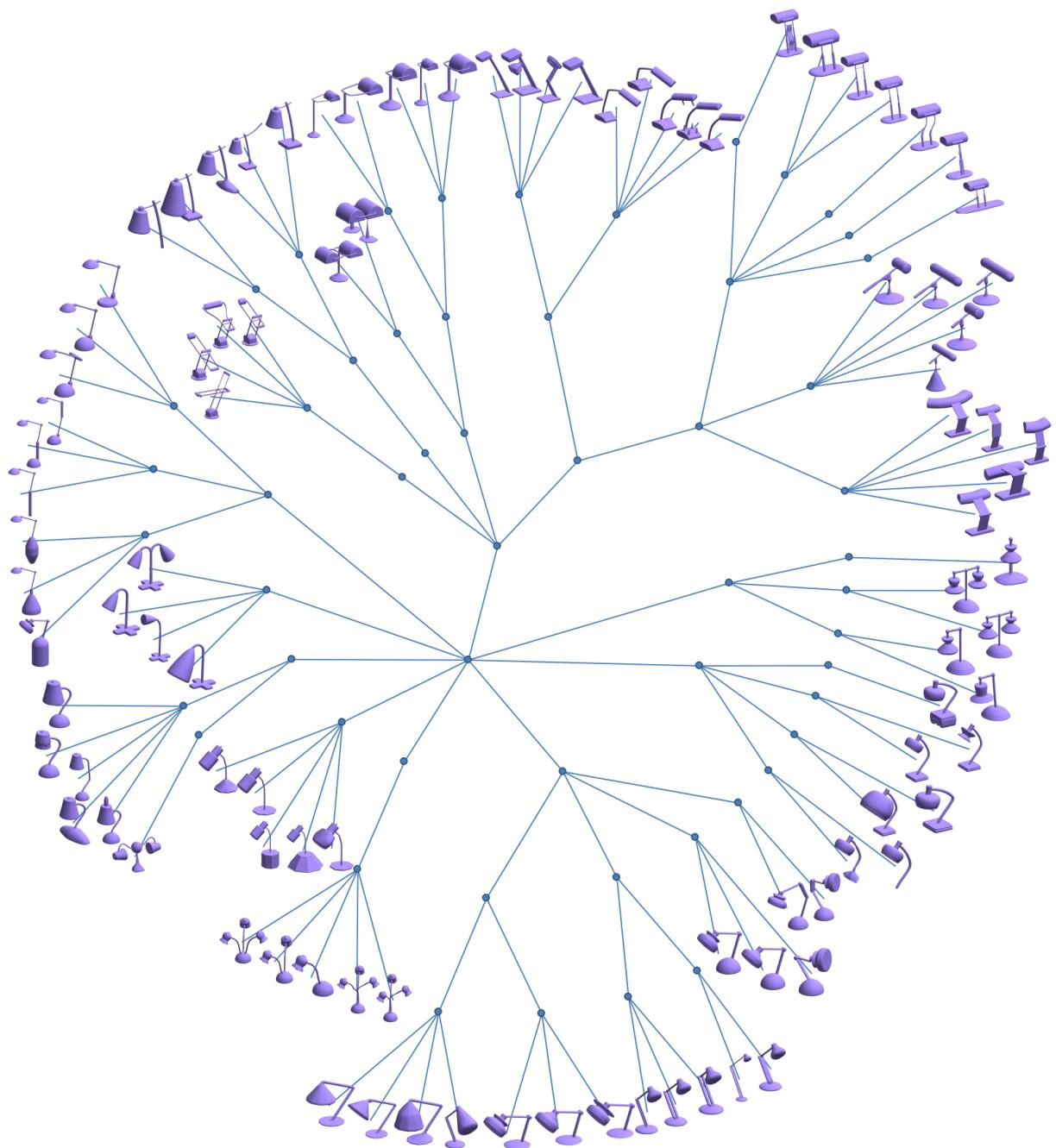
1.3.5 Ground-truth tree 1 for lamps



1.3.6 Ground-truth tree 2 for lamps

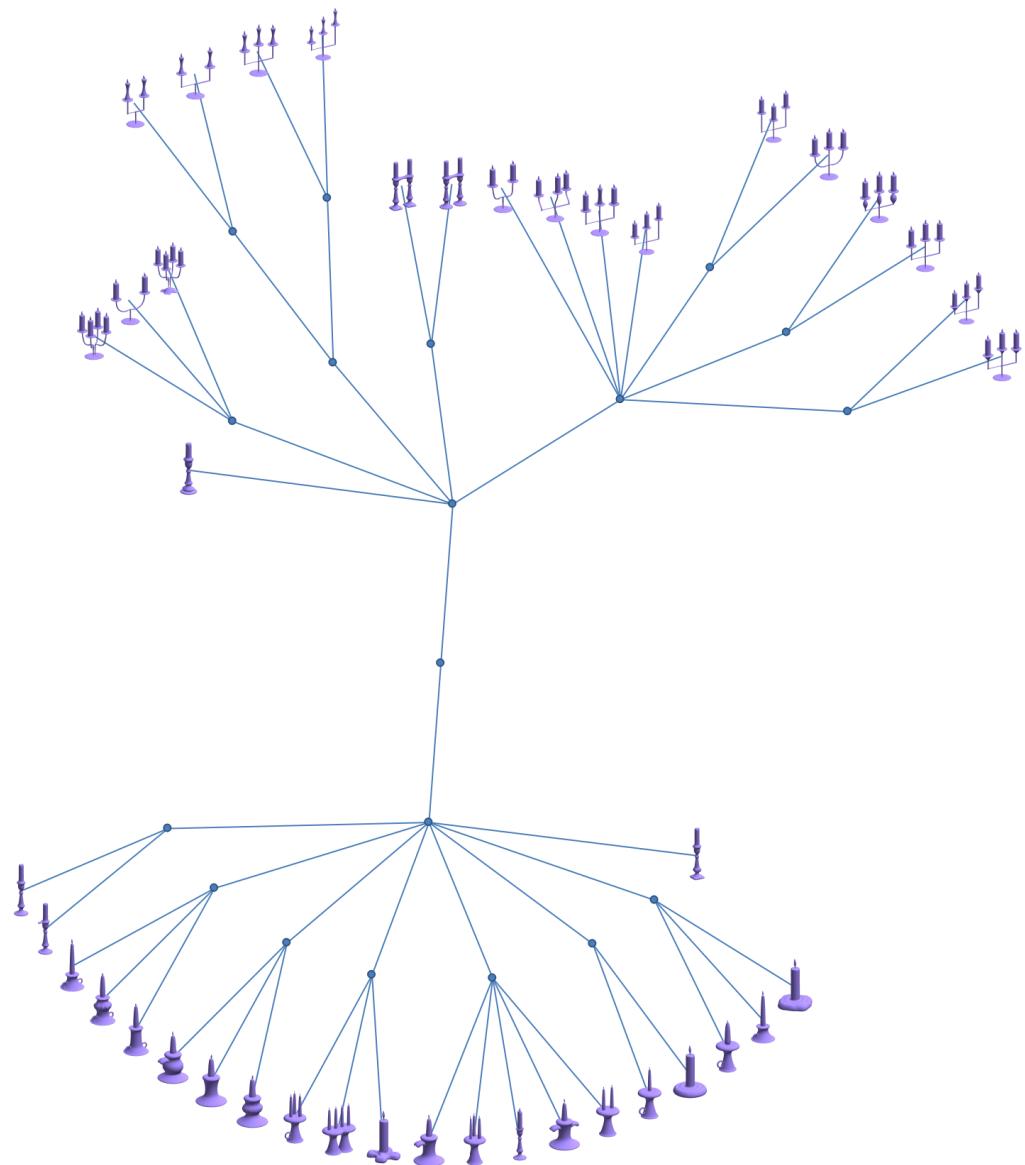


1.3.7 Ground-truth tree 3 for lamps

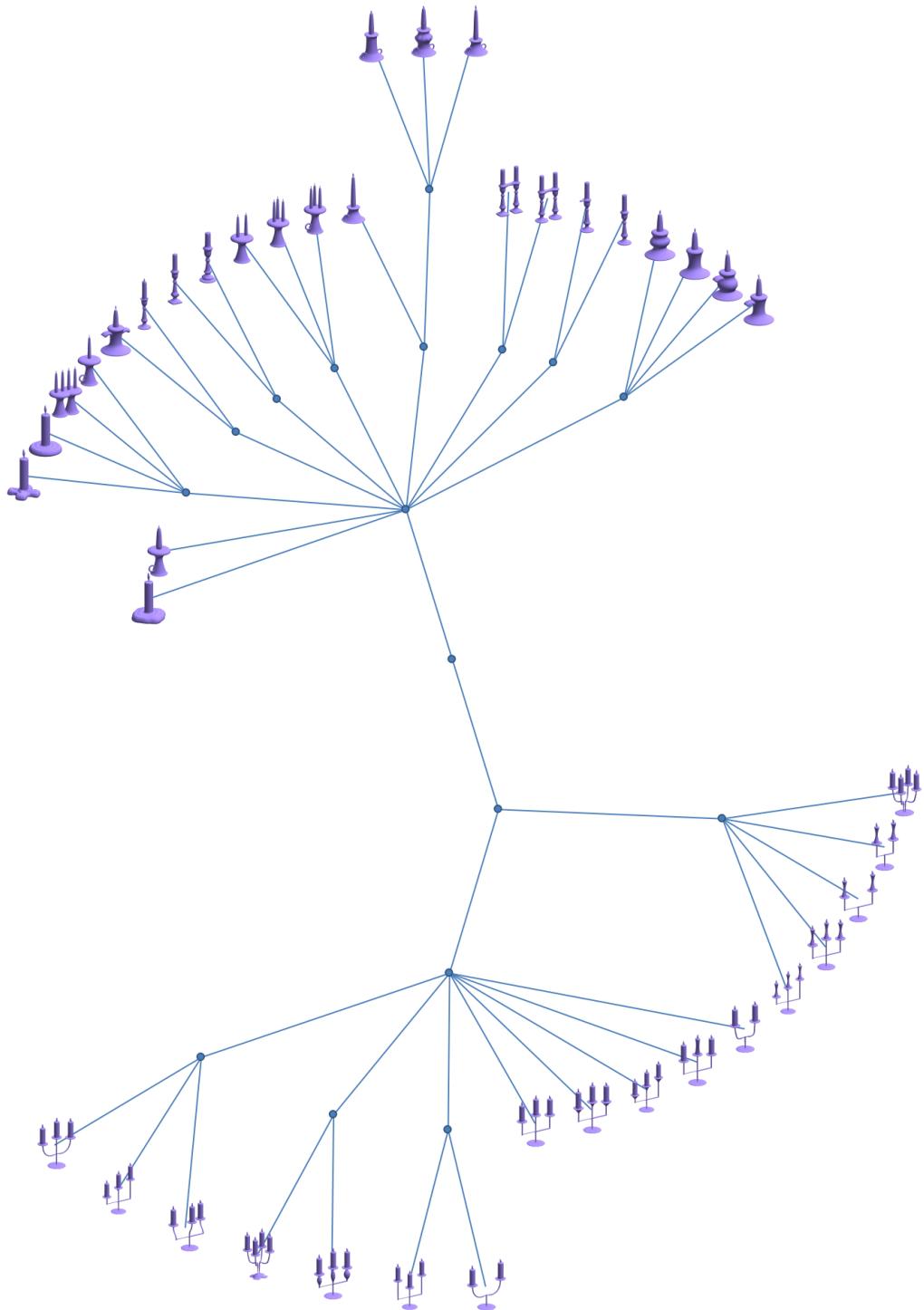


1.4 Candles

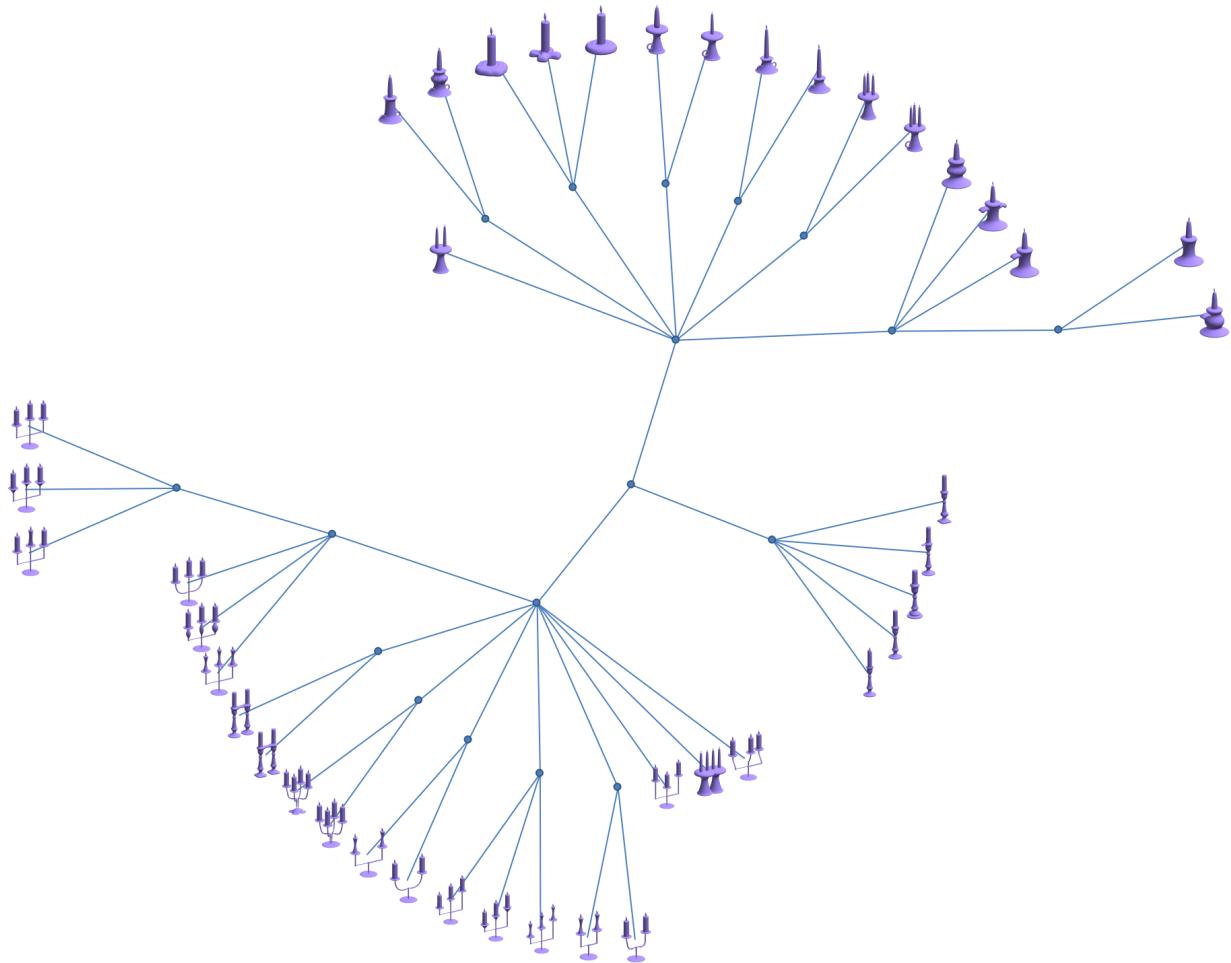
1.4.1 Tree for candles according to SHED with weights learned for the set



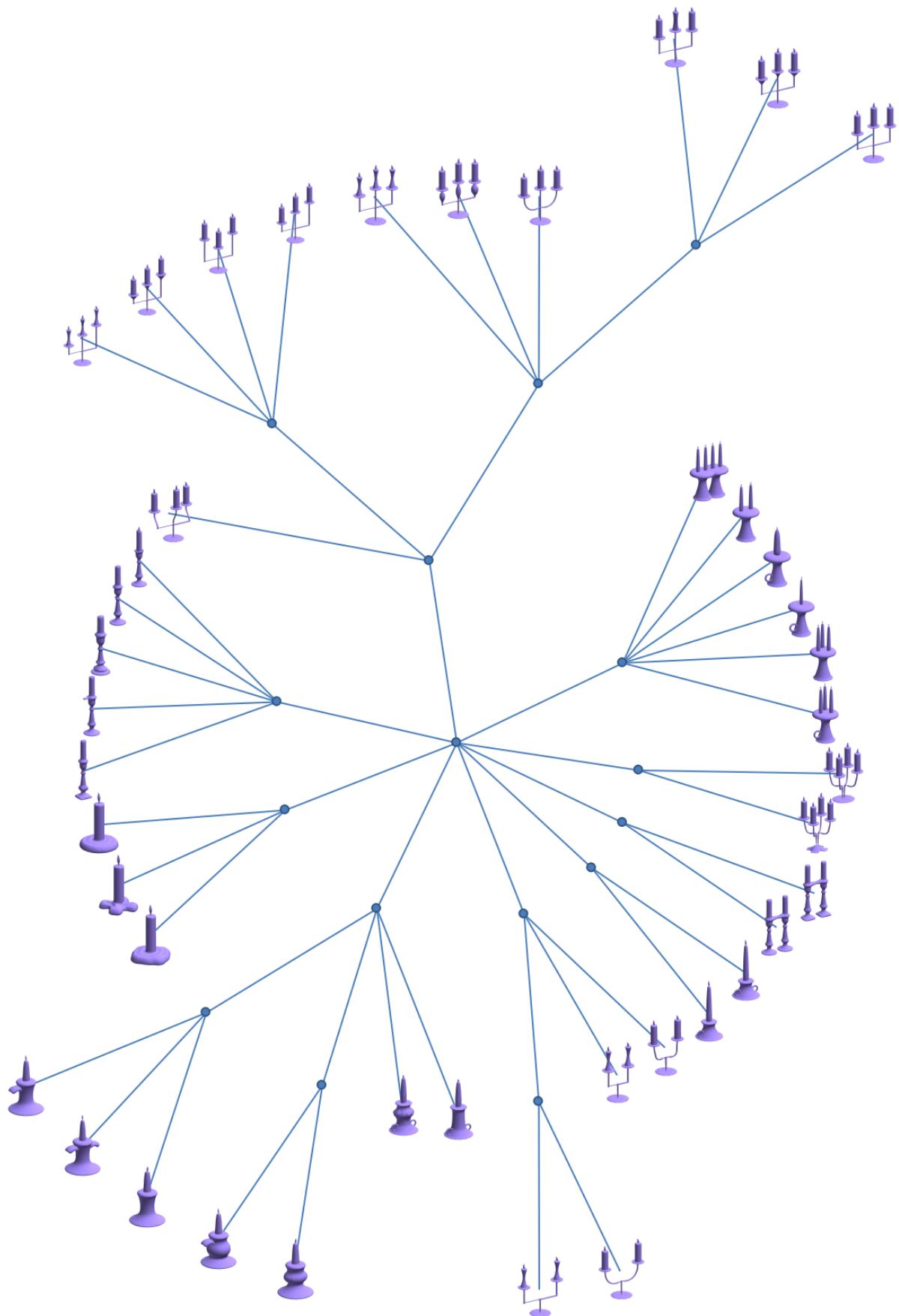
1.4.2 Tree for candles according to SHED with default weights



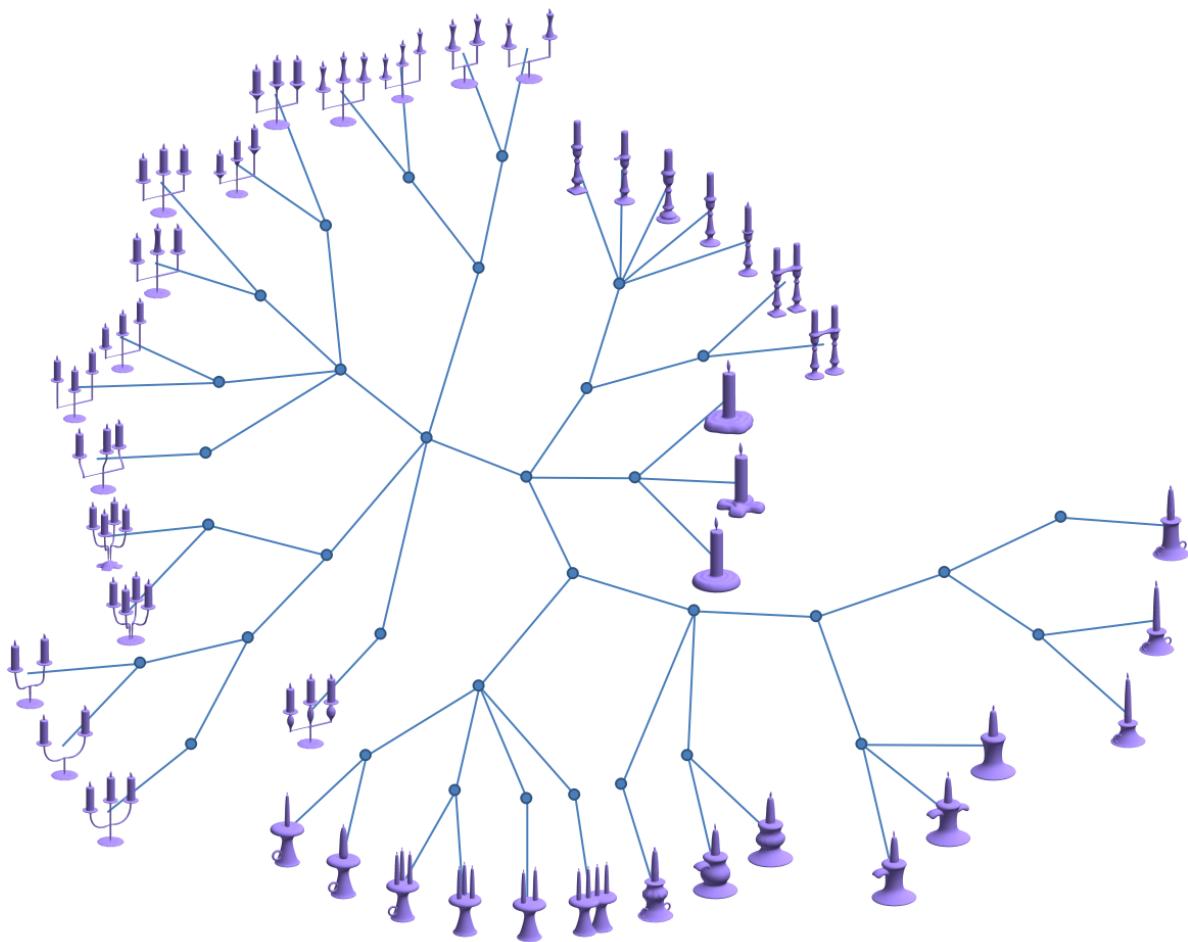
1.4.3 Tree for candles according to LFD



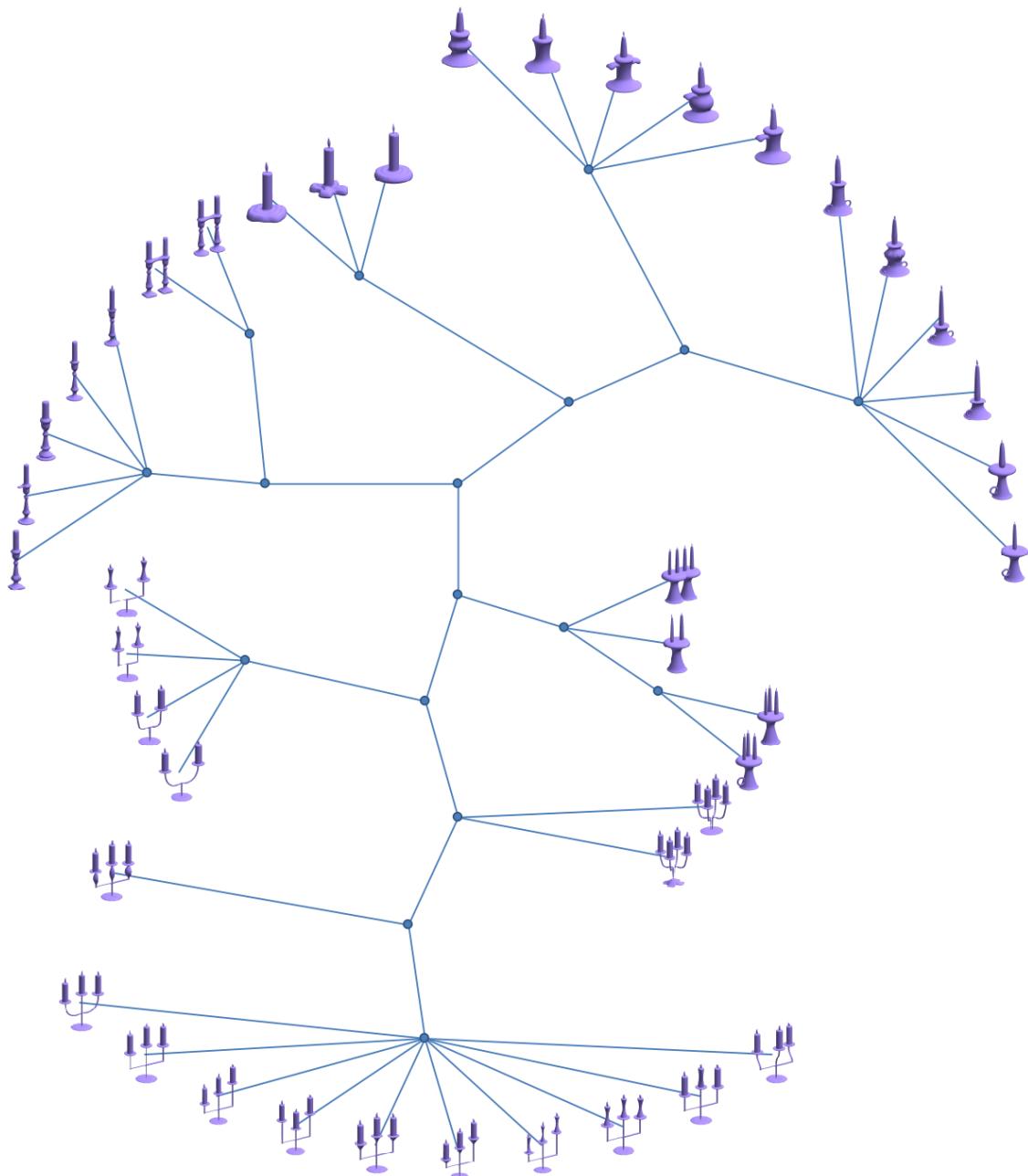
1.4.4 Tree for candles according to SPH



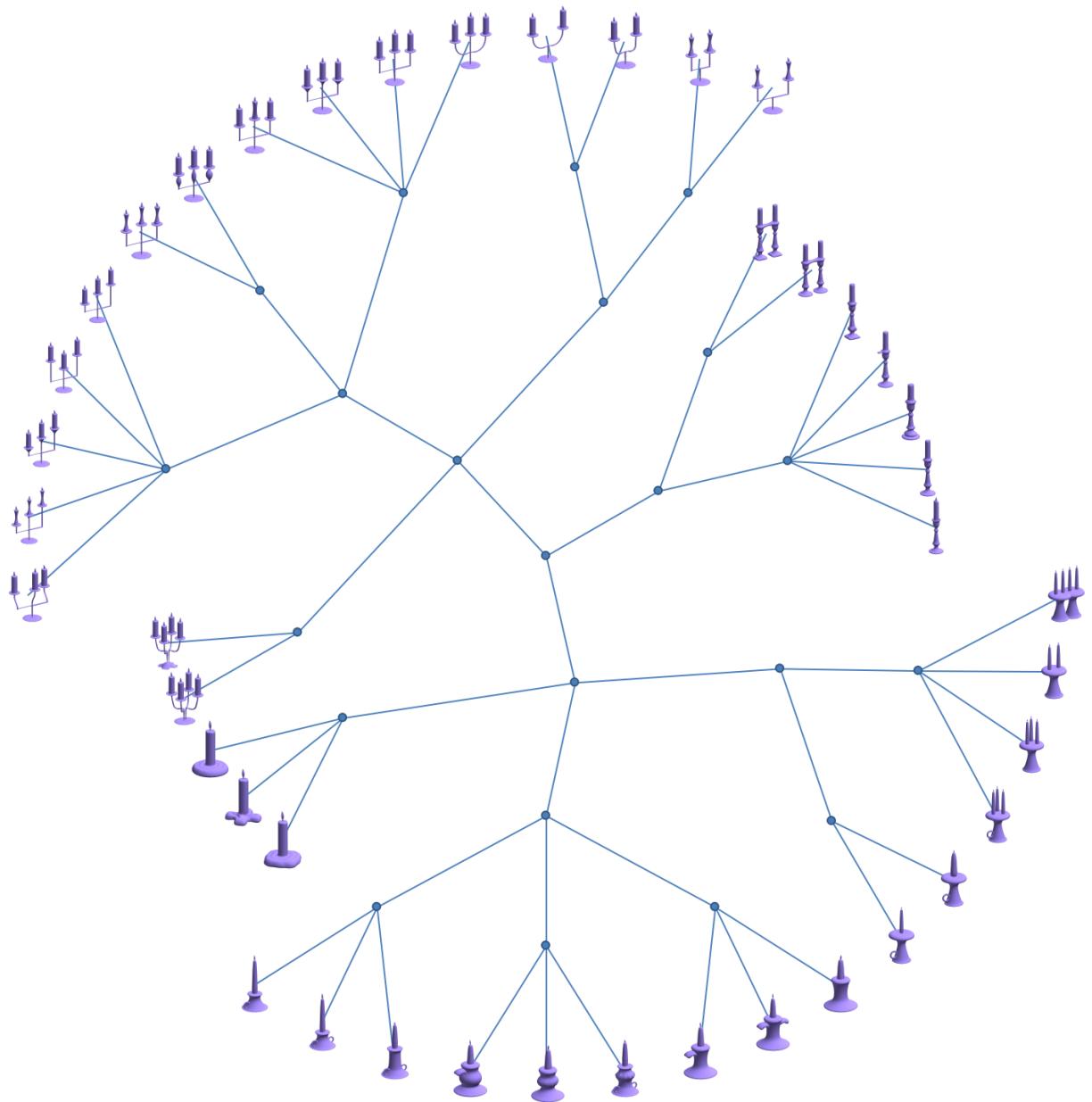
1.4.5 Ground-truth tree 1 for candles



1.4.6 Ground-truth tree 2 for candles



1.4.7 Ground-truth tree 3 for candles

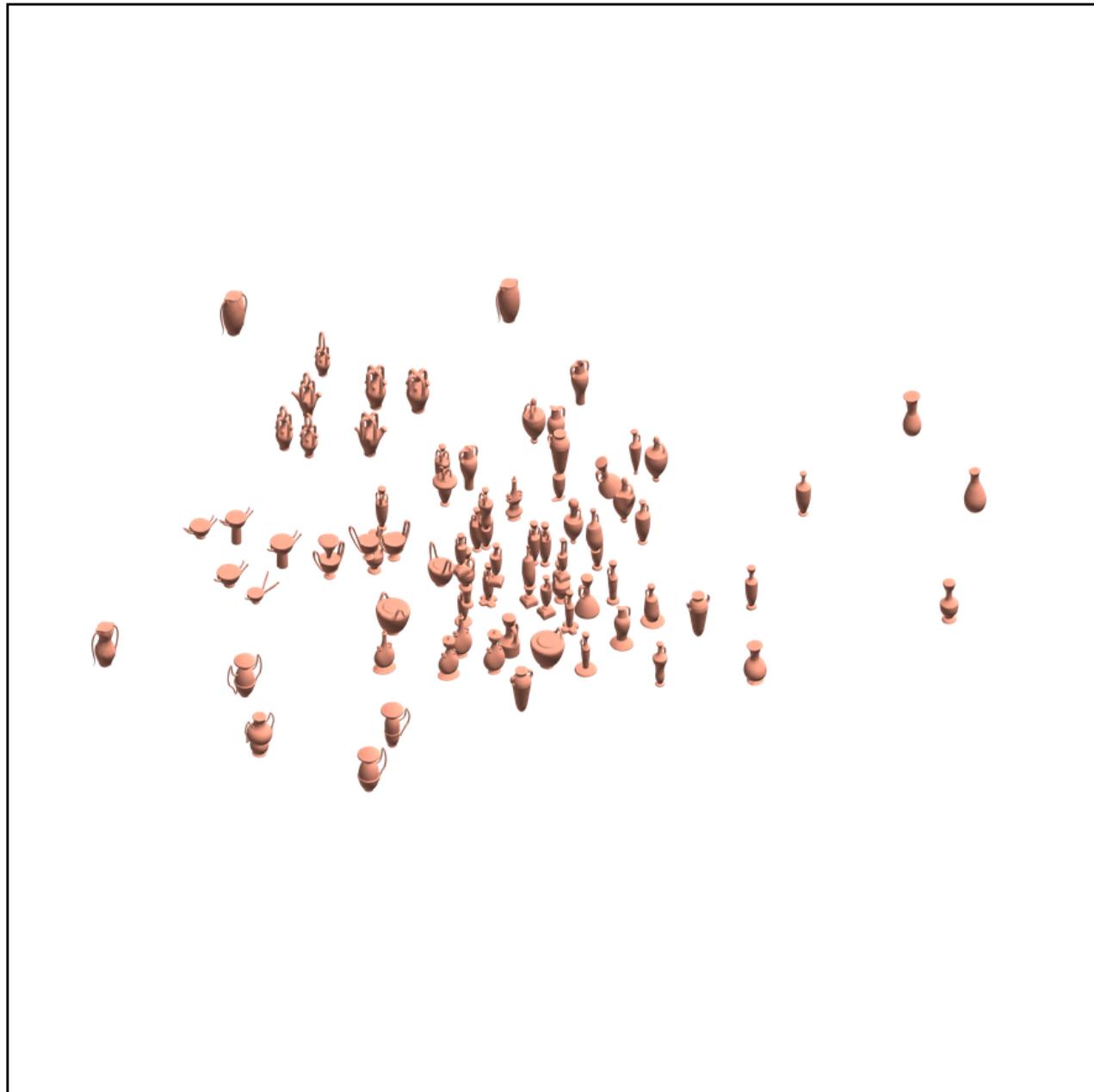


2 Embeddings

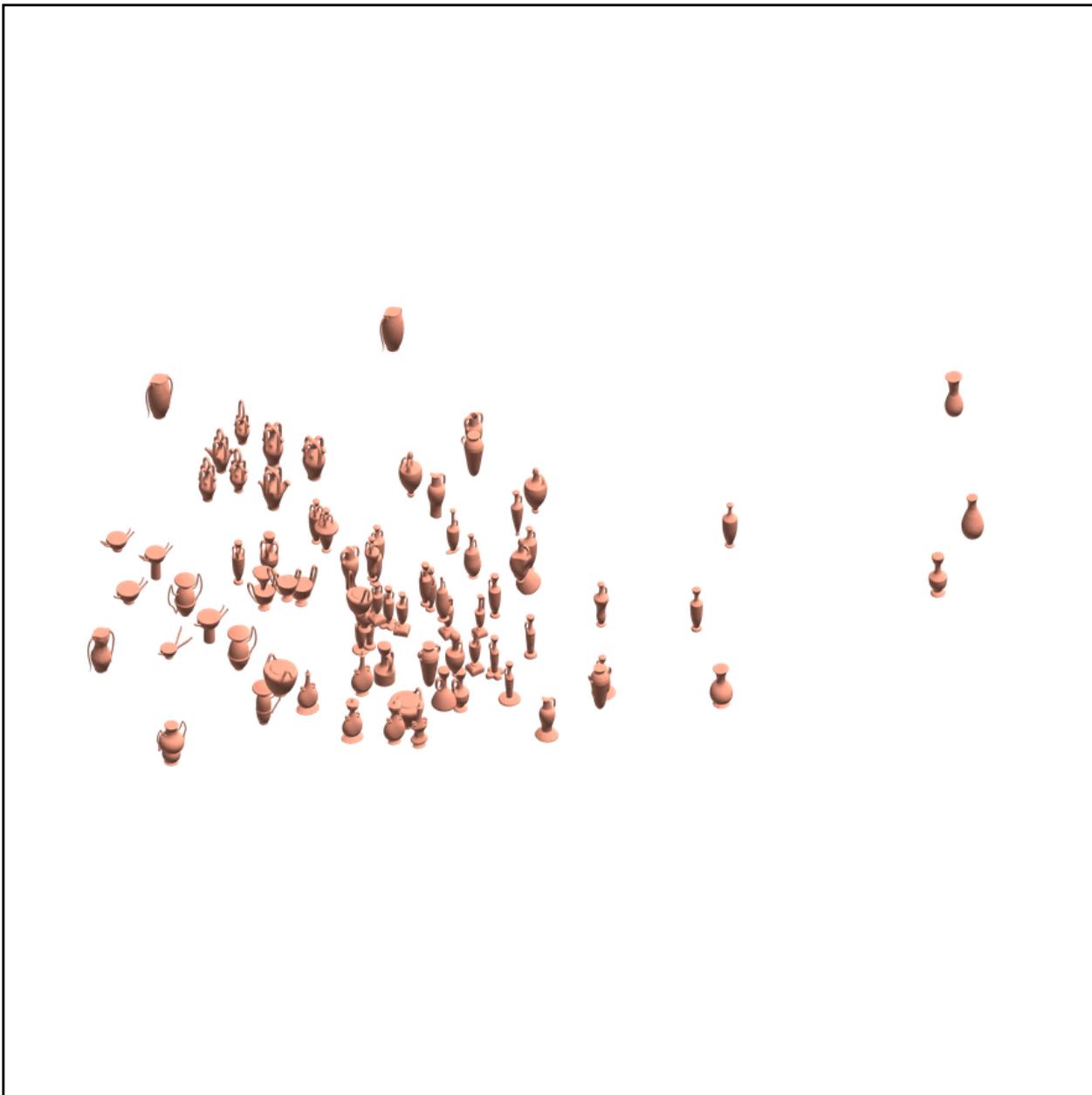
For each set of shapes, we show an embedding obtained with classical multi-dimensional scaling according to SHED, LFD and SPH.

2.1 Vases

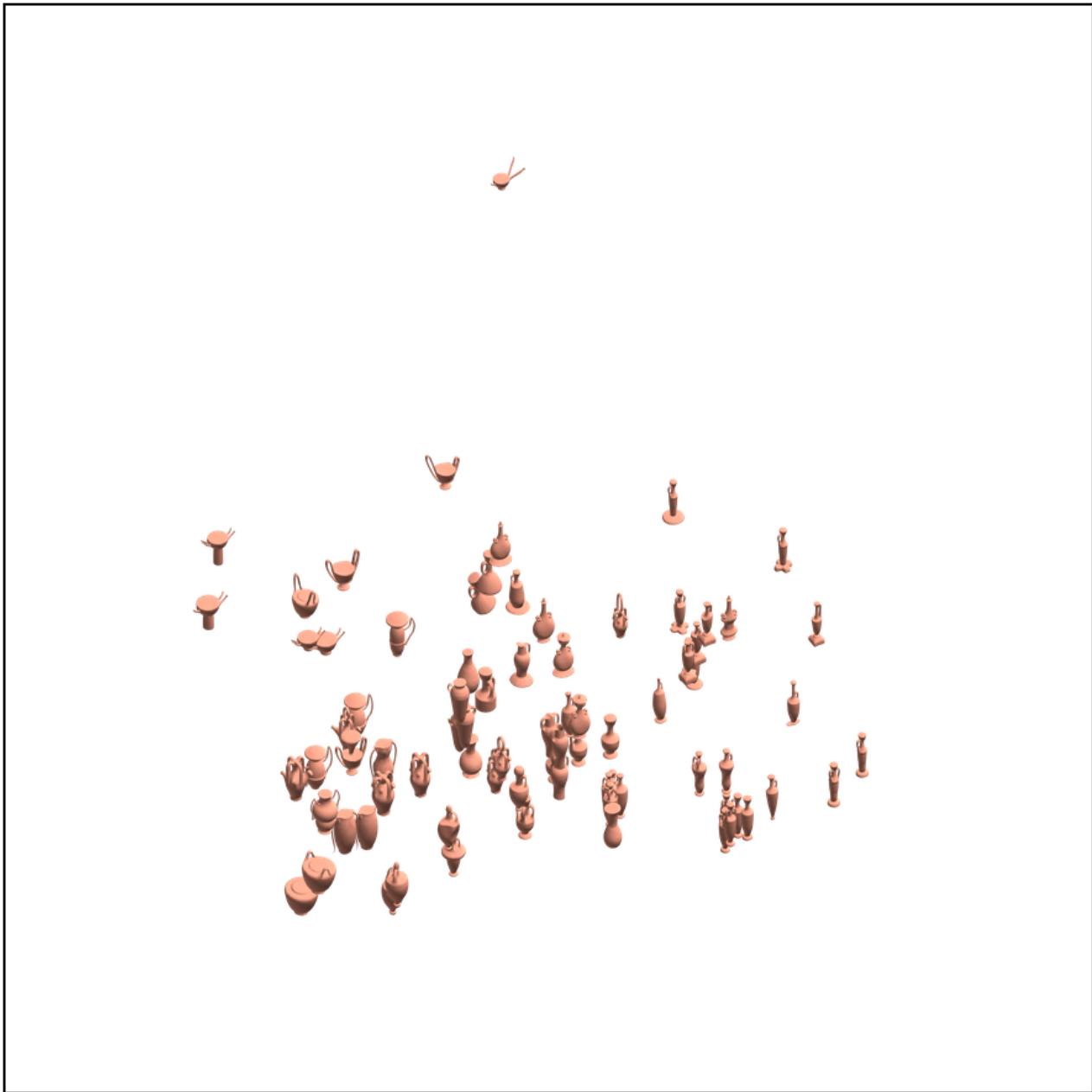
2.1.1 Embedding for vases according to SHED with weights learned for the set



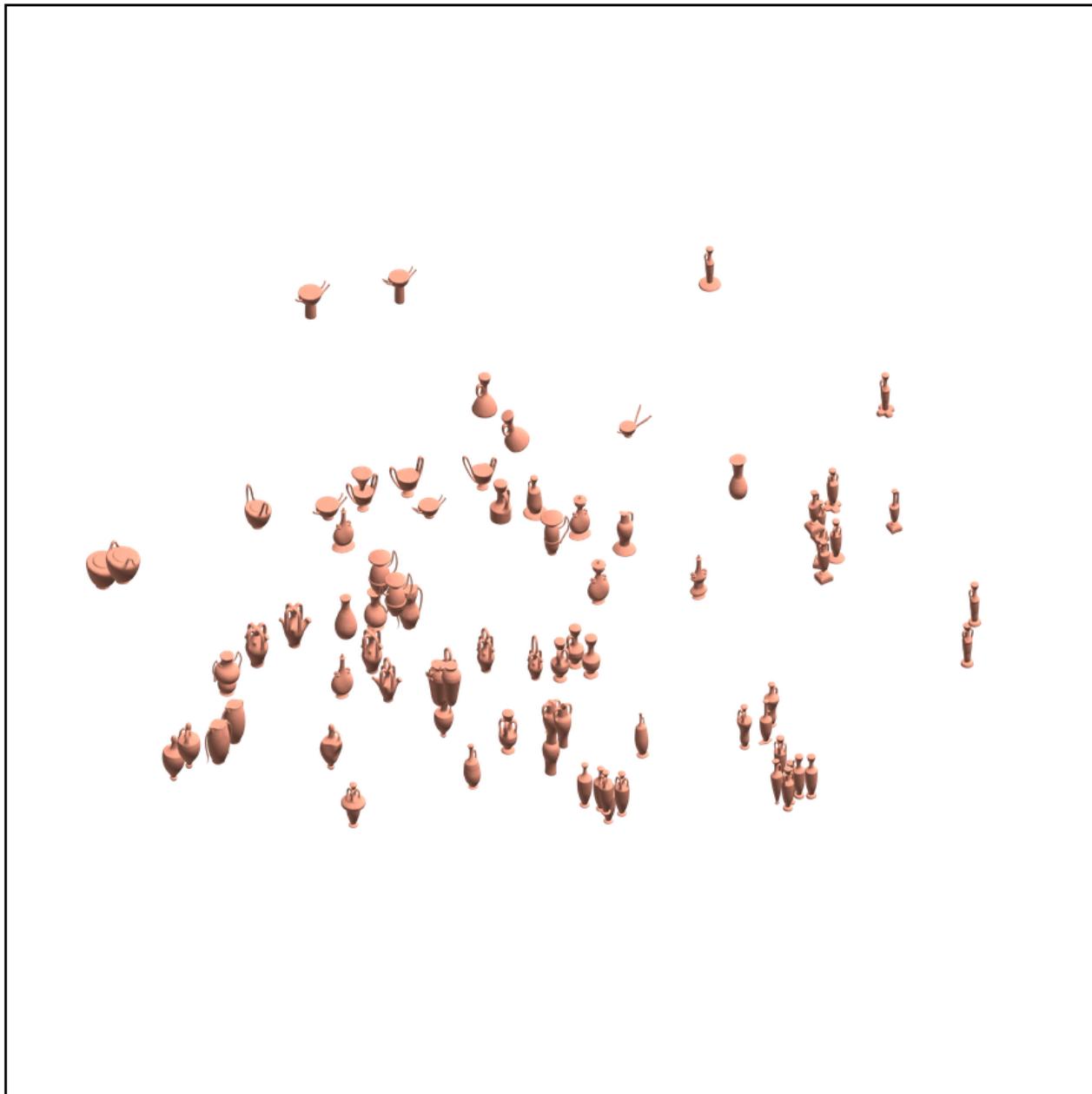
2.1.2 Embedding for vases according to SHED with default weights



2.1.3 Embedding for vases according to LFD

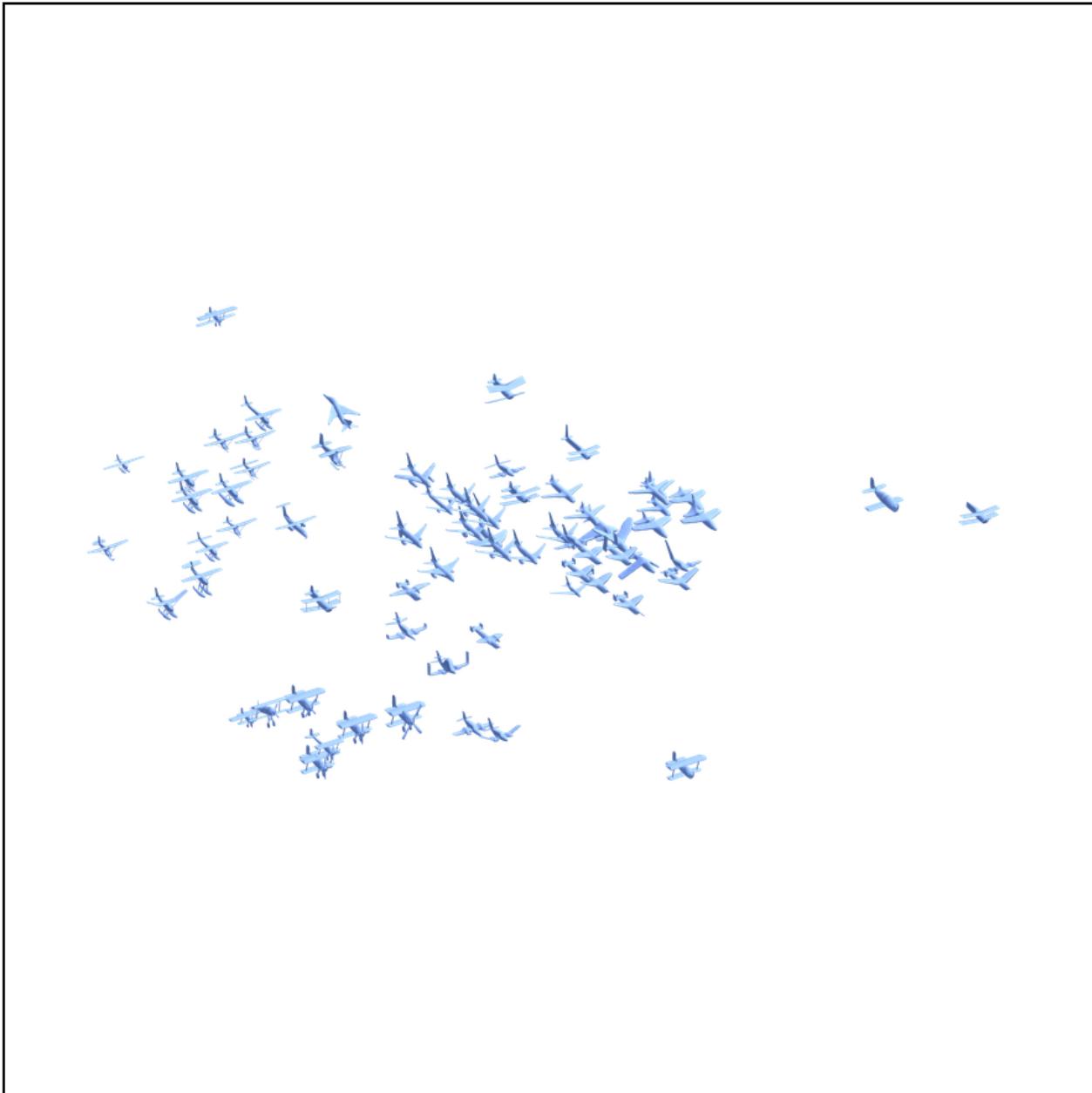


2.1.4 Embedding for vases according to SPH

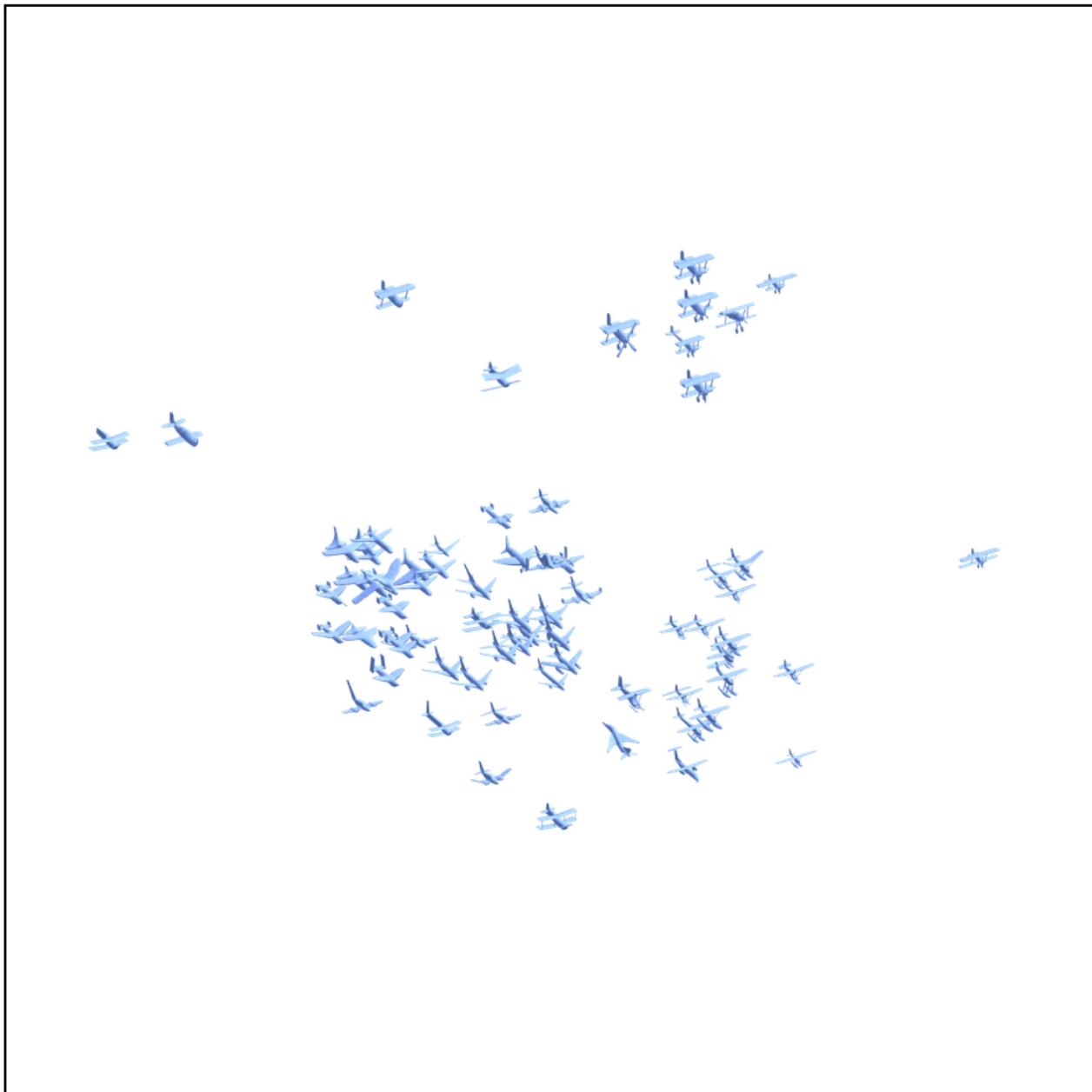


2.2 Planes

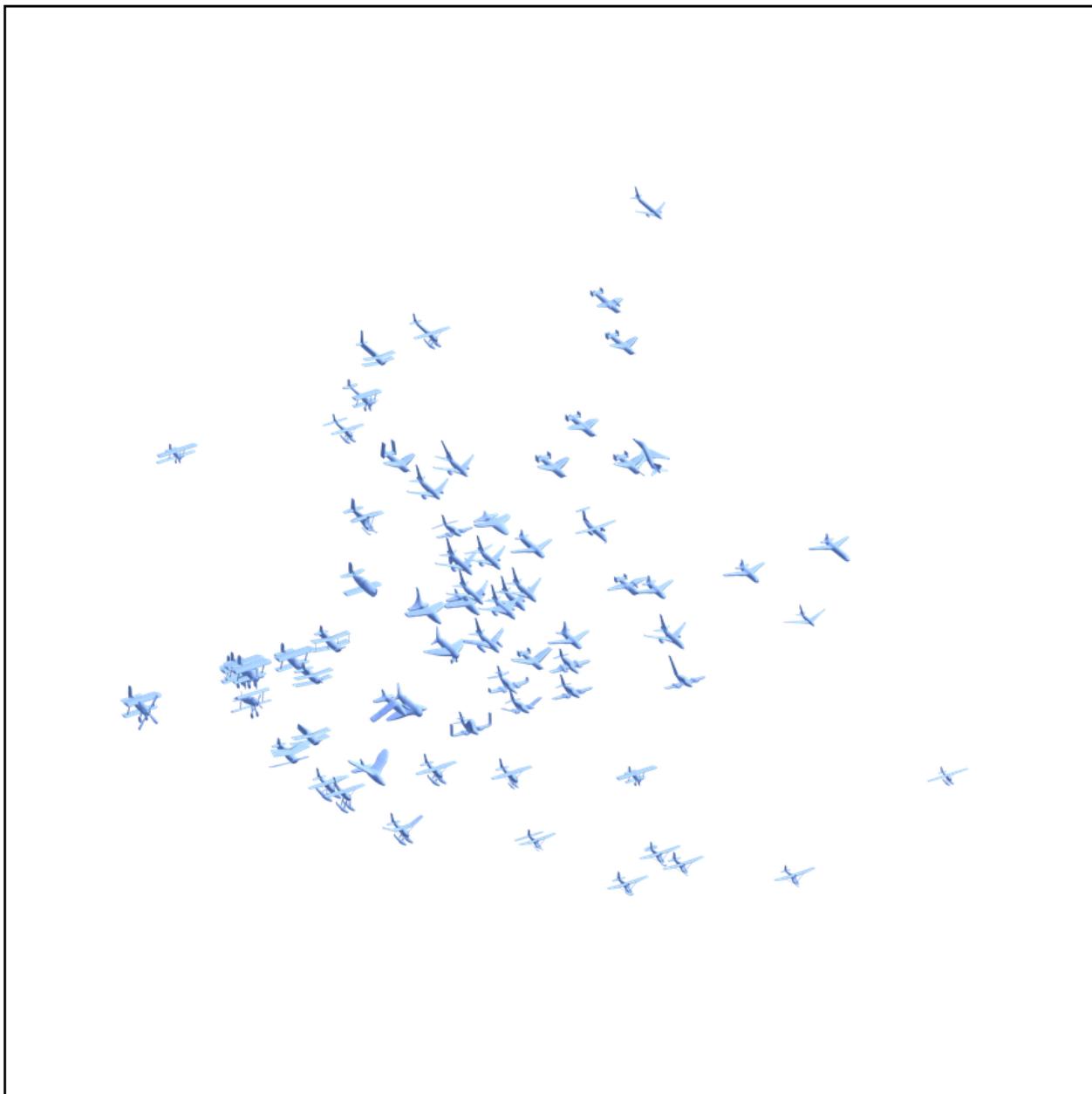
2.2.1 Embedding for planes according to SHED with weights learned for the set



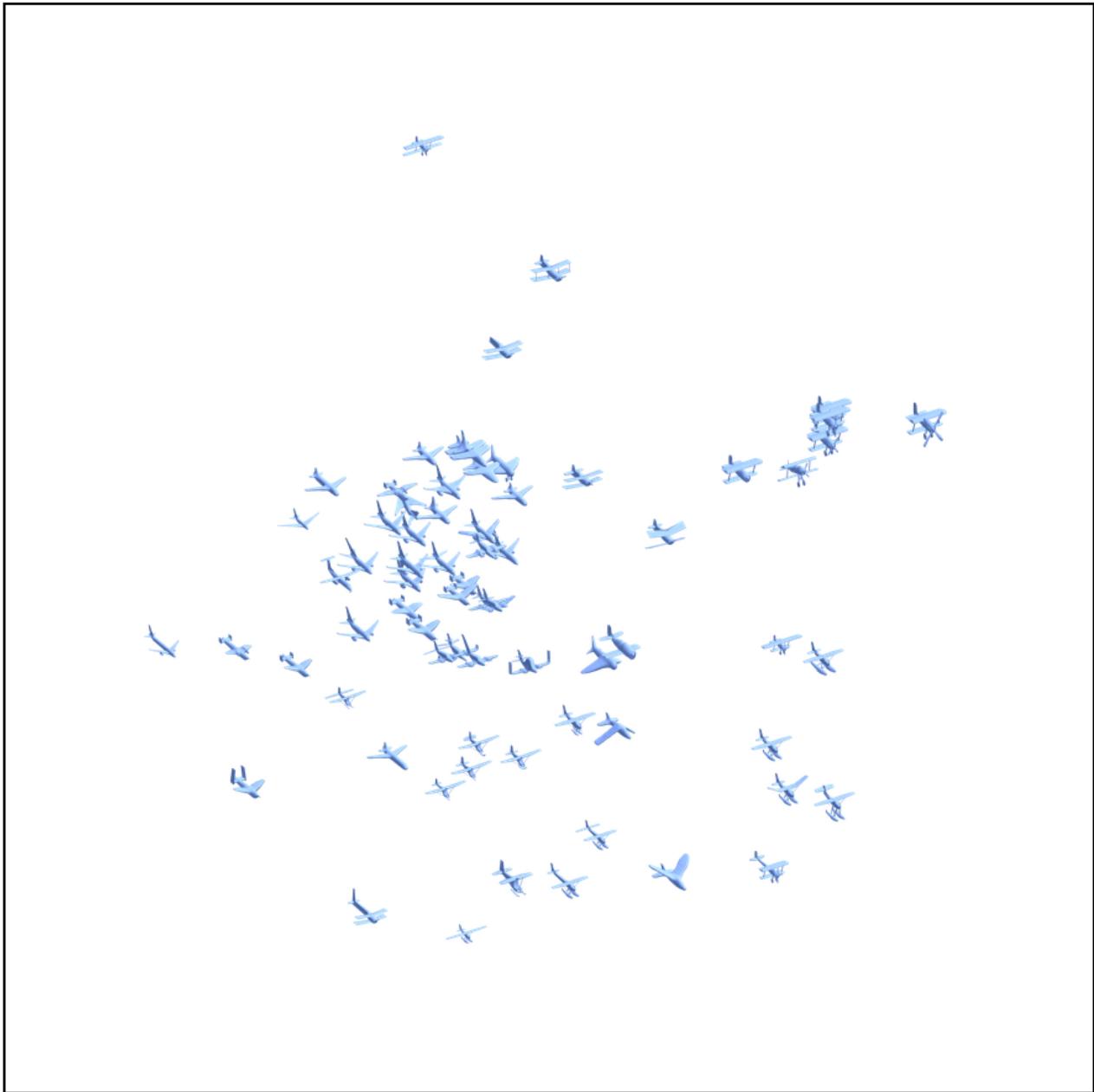
2.2.2 Embedding for planes according to SHED with default weights



2.2.3 Embedding for planes according to LFD

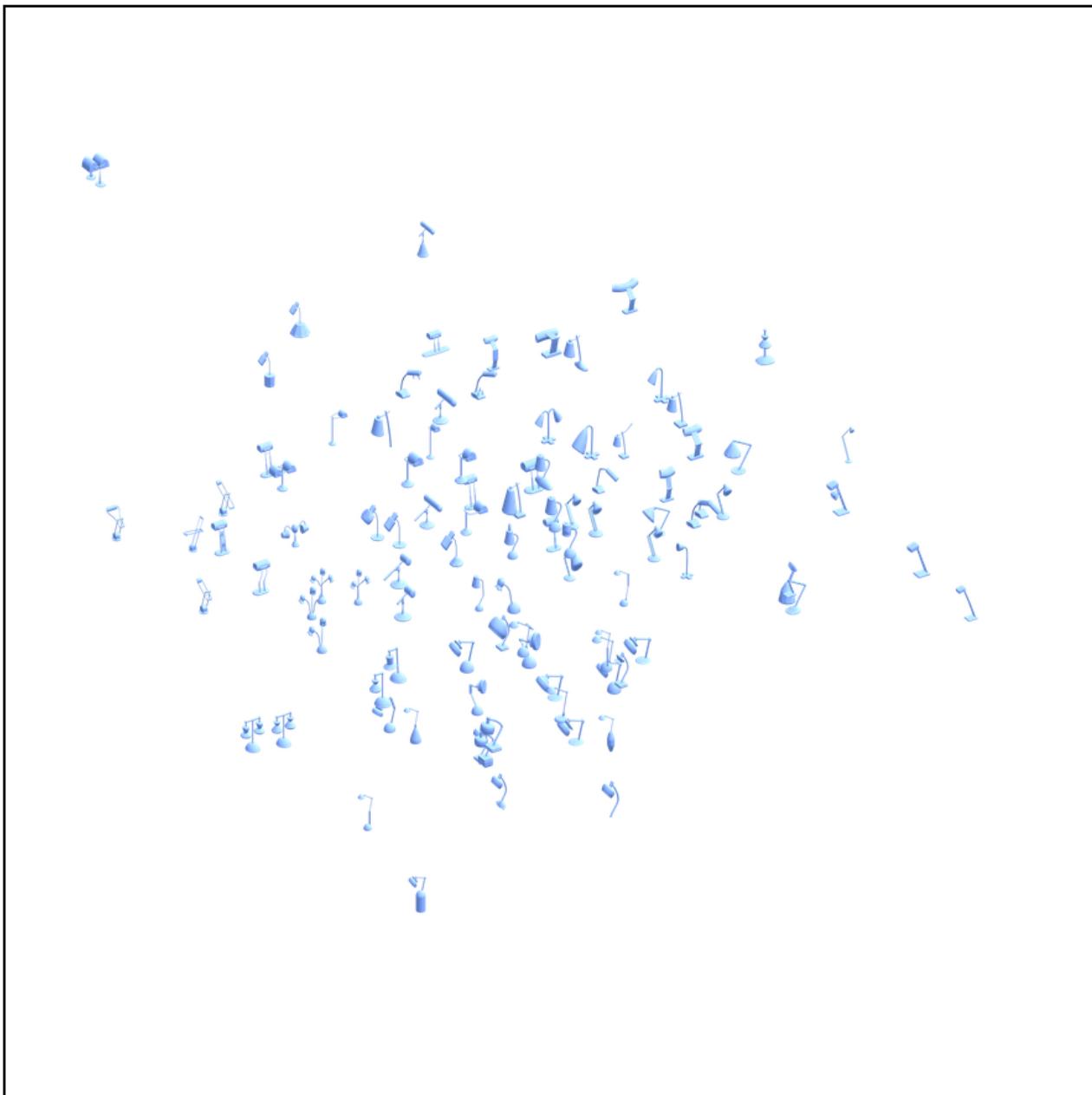


2.2.4 Embedding for planes according to SPH

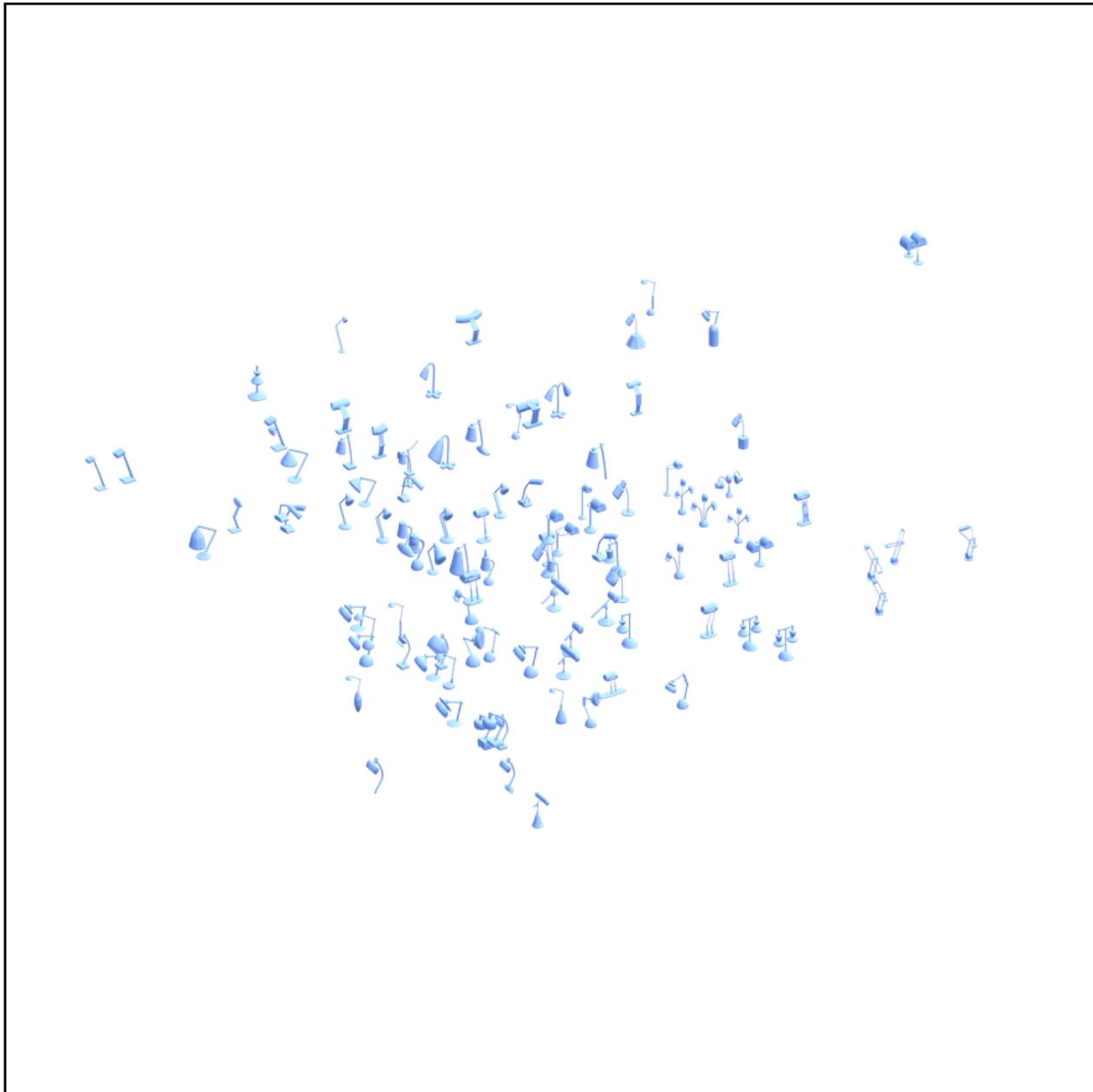


2.3 Lamps

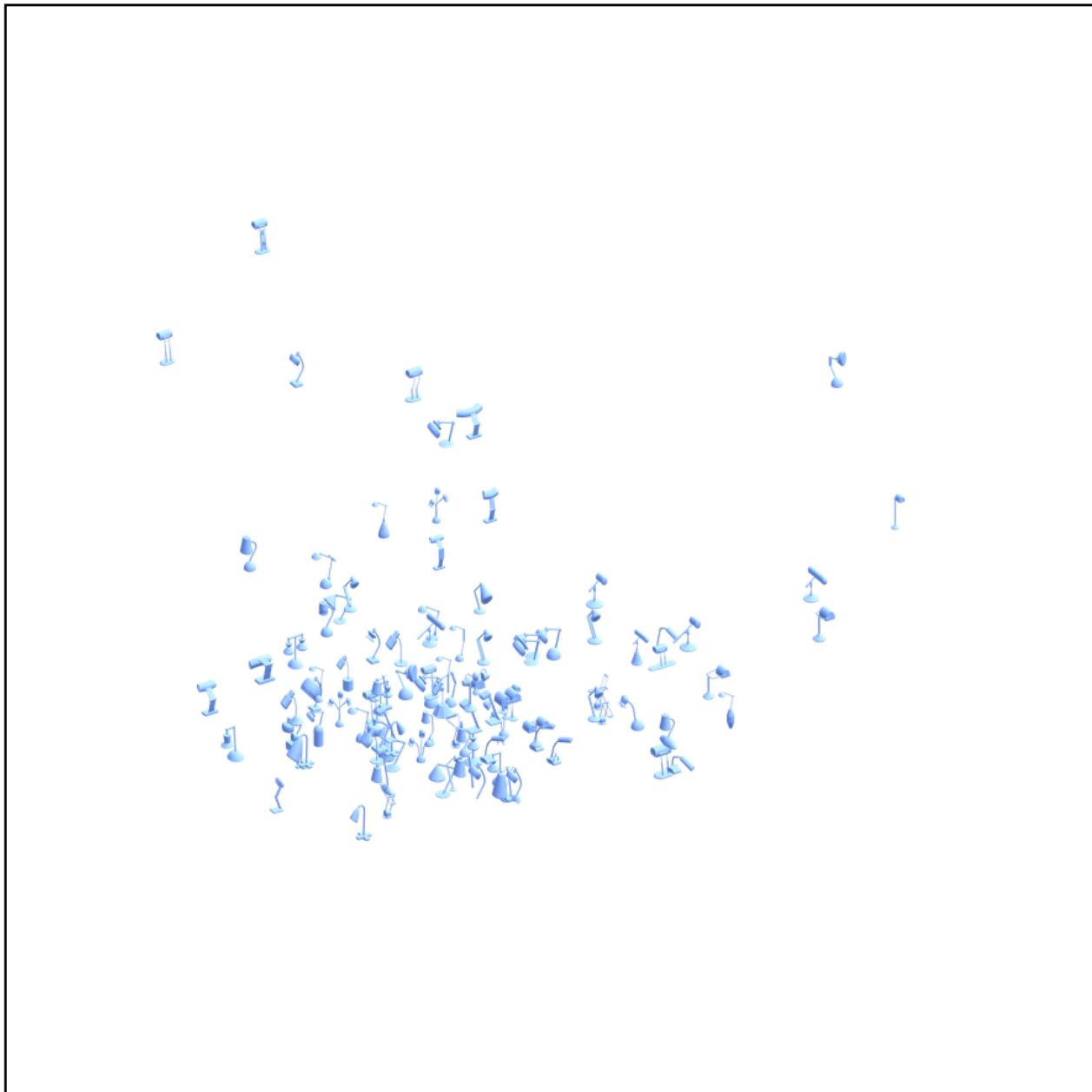
2.3.1 Embedding for lamps according to SHED with weights learned for the set



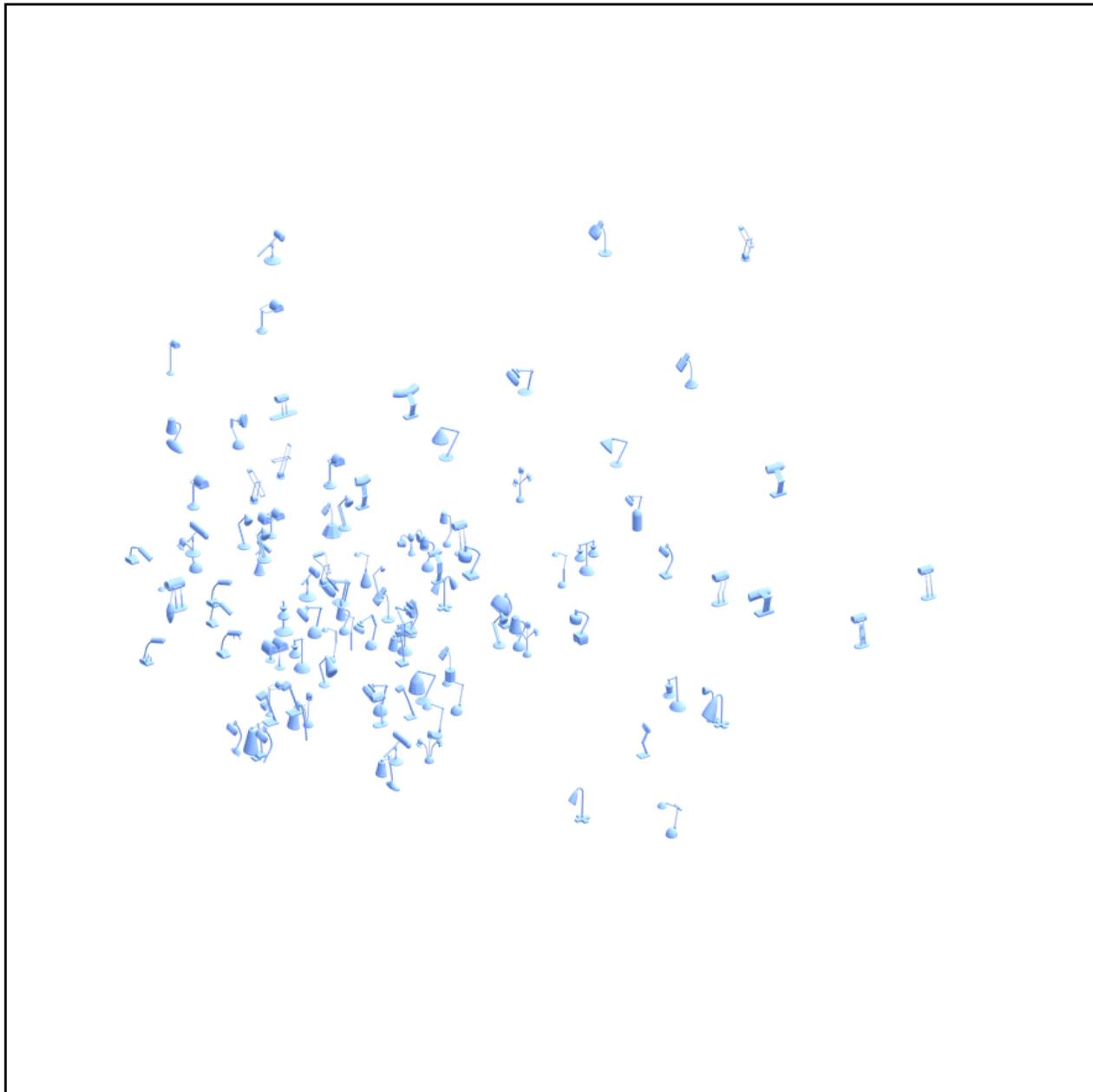
2.3.2 Embedding for lamps according to SHED with default weights



2.3.3 Embedding for lamps according to LFD

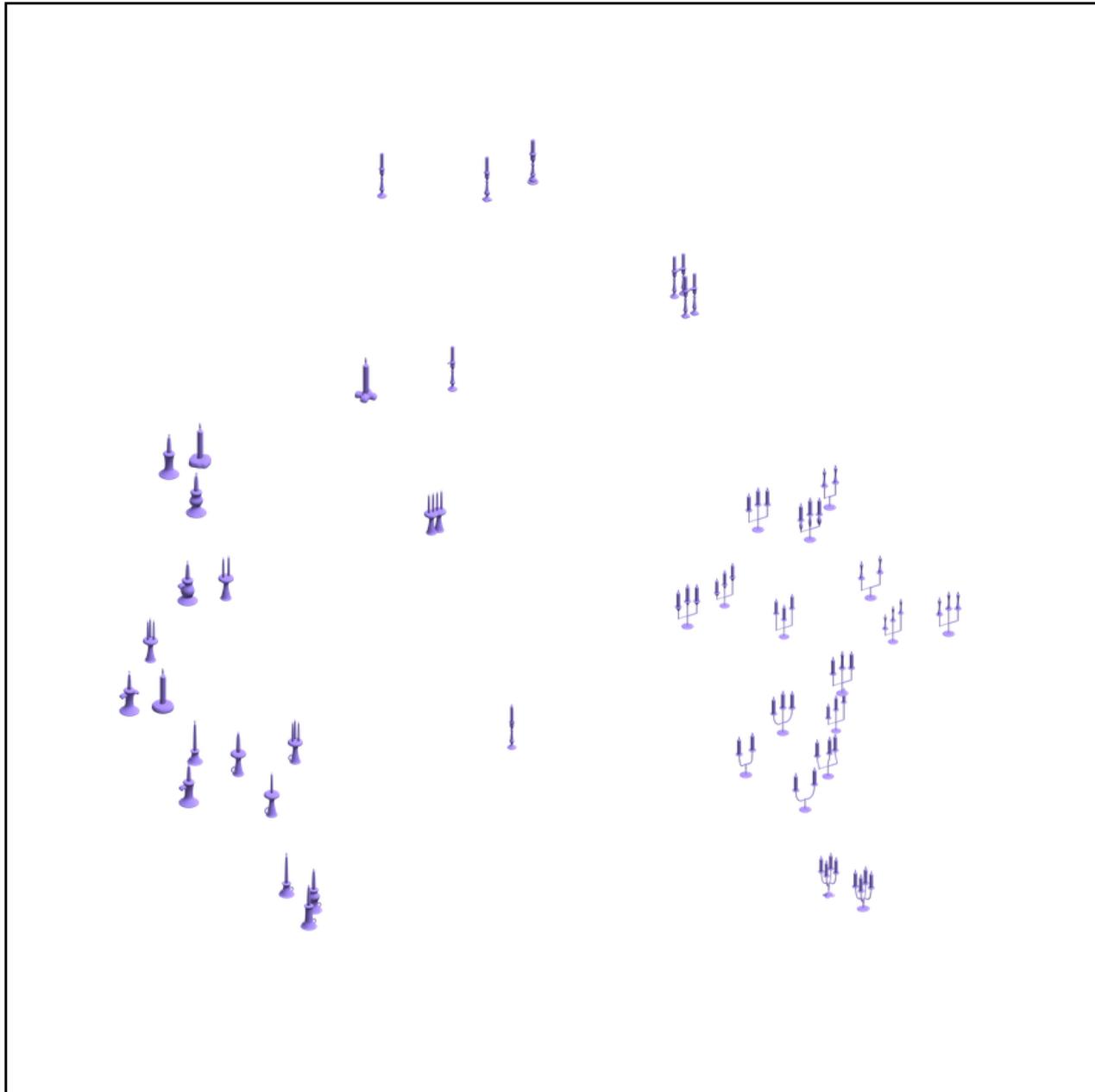


2.3.4 Embedding for lamps according to SPH

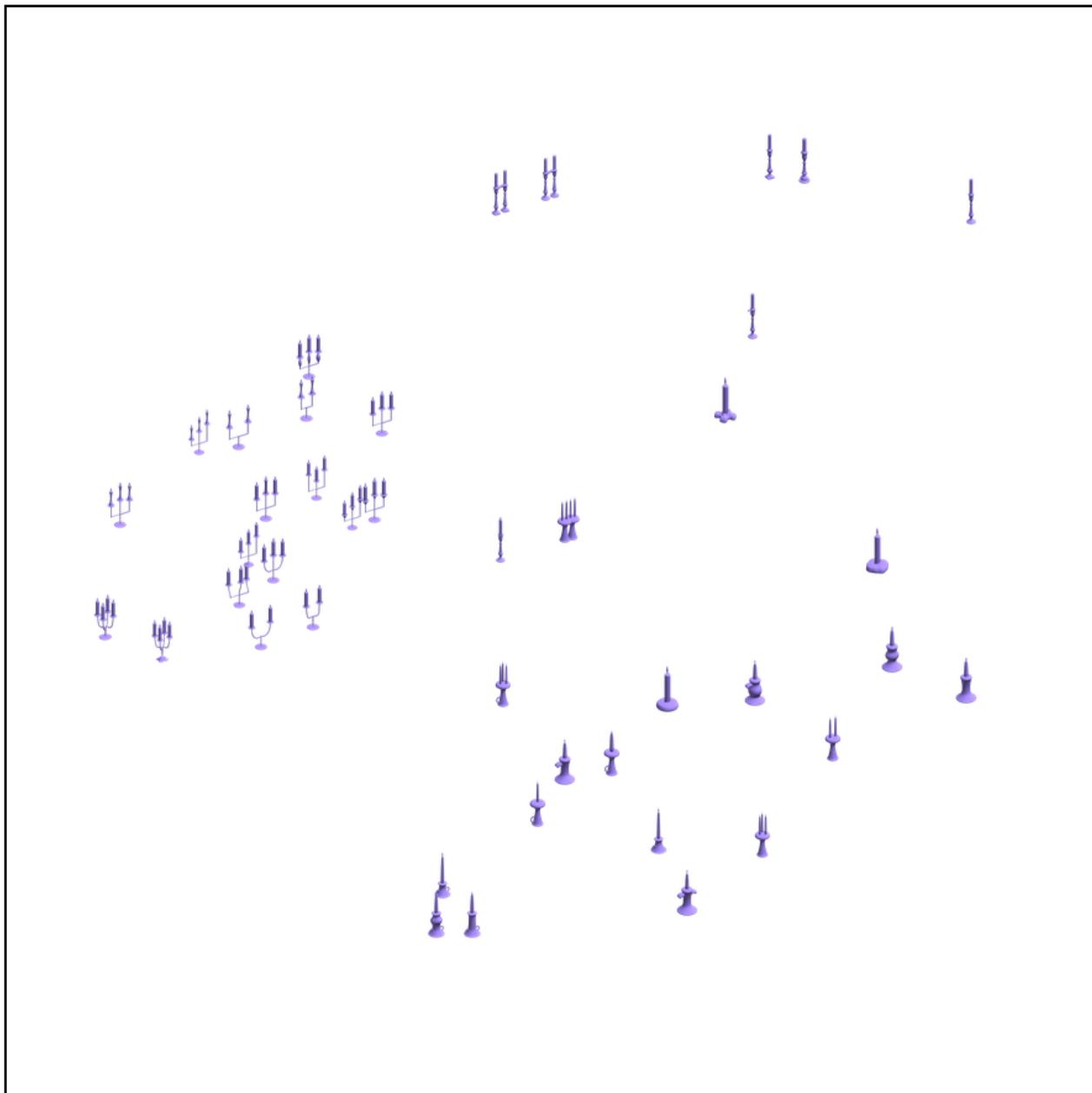


2.4 Candles

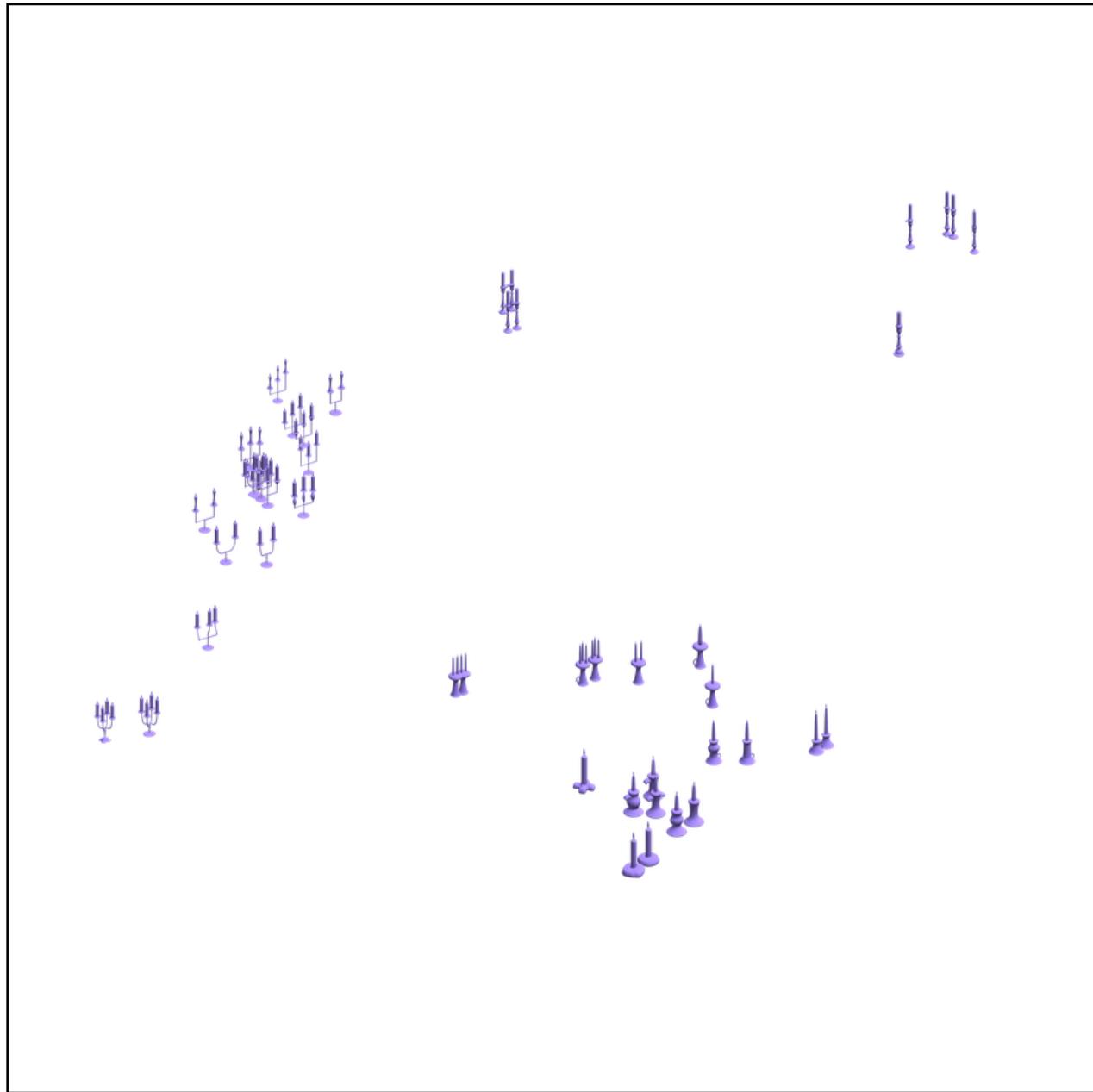
2.4.1 Embedding for candles according to SHED with weights learned for the set



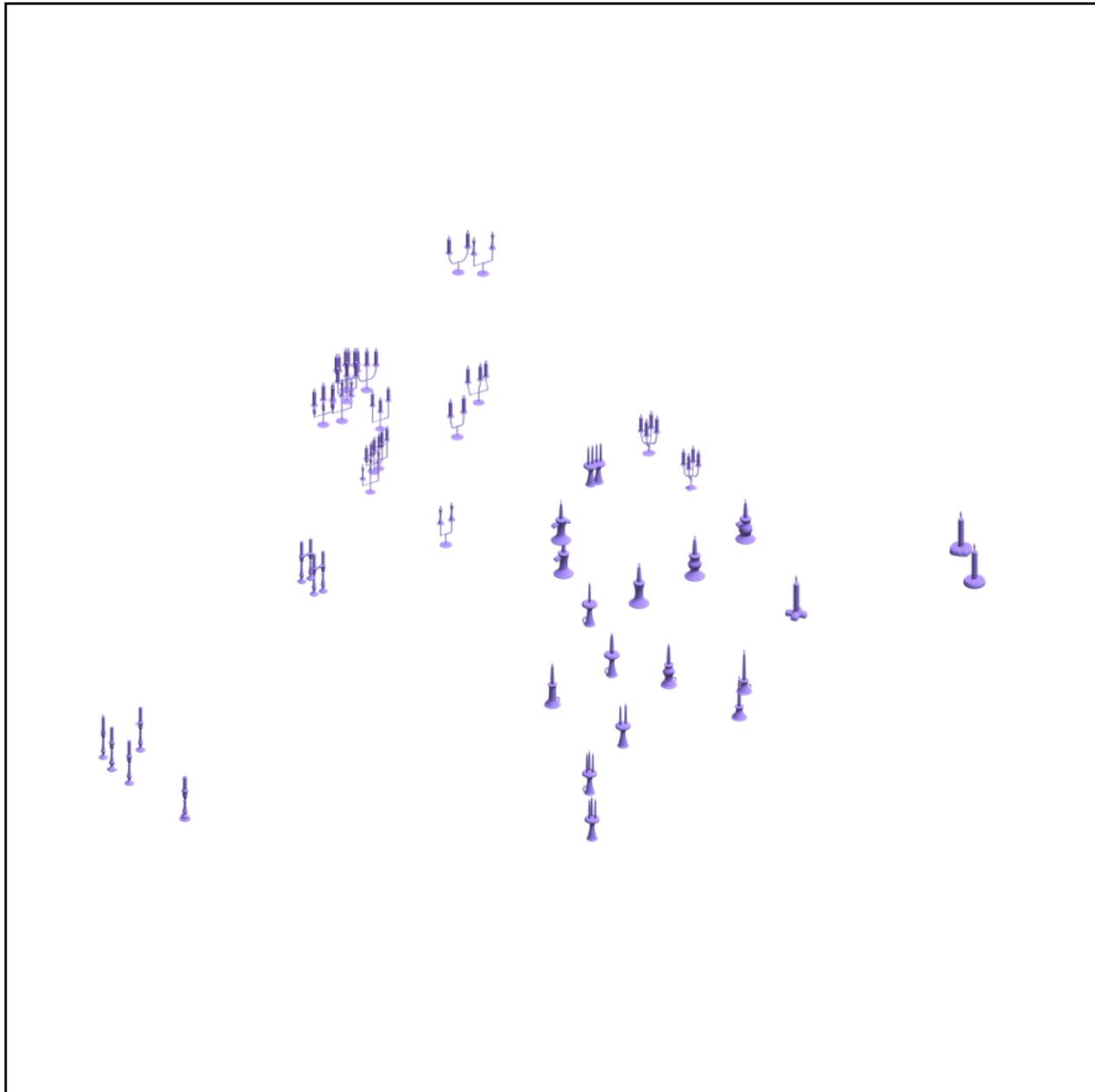
2.4.2 Embedding for candles according to SHED with default weights



2.4.3 Embedding for candles according to LFD



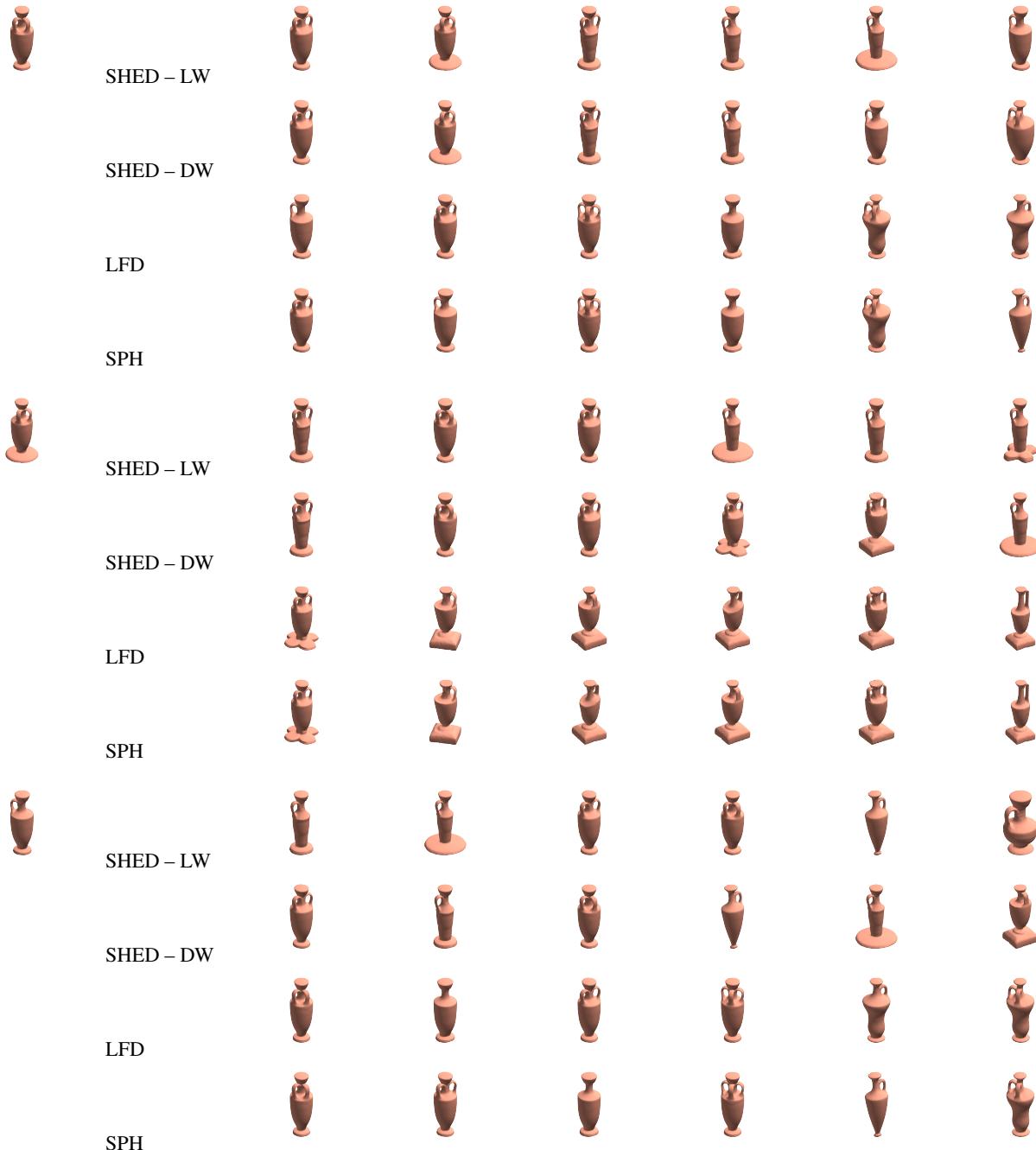
2.4.4 Embedding for candles according to SPH

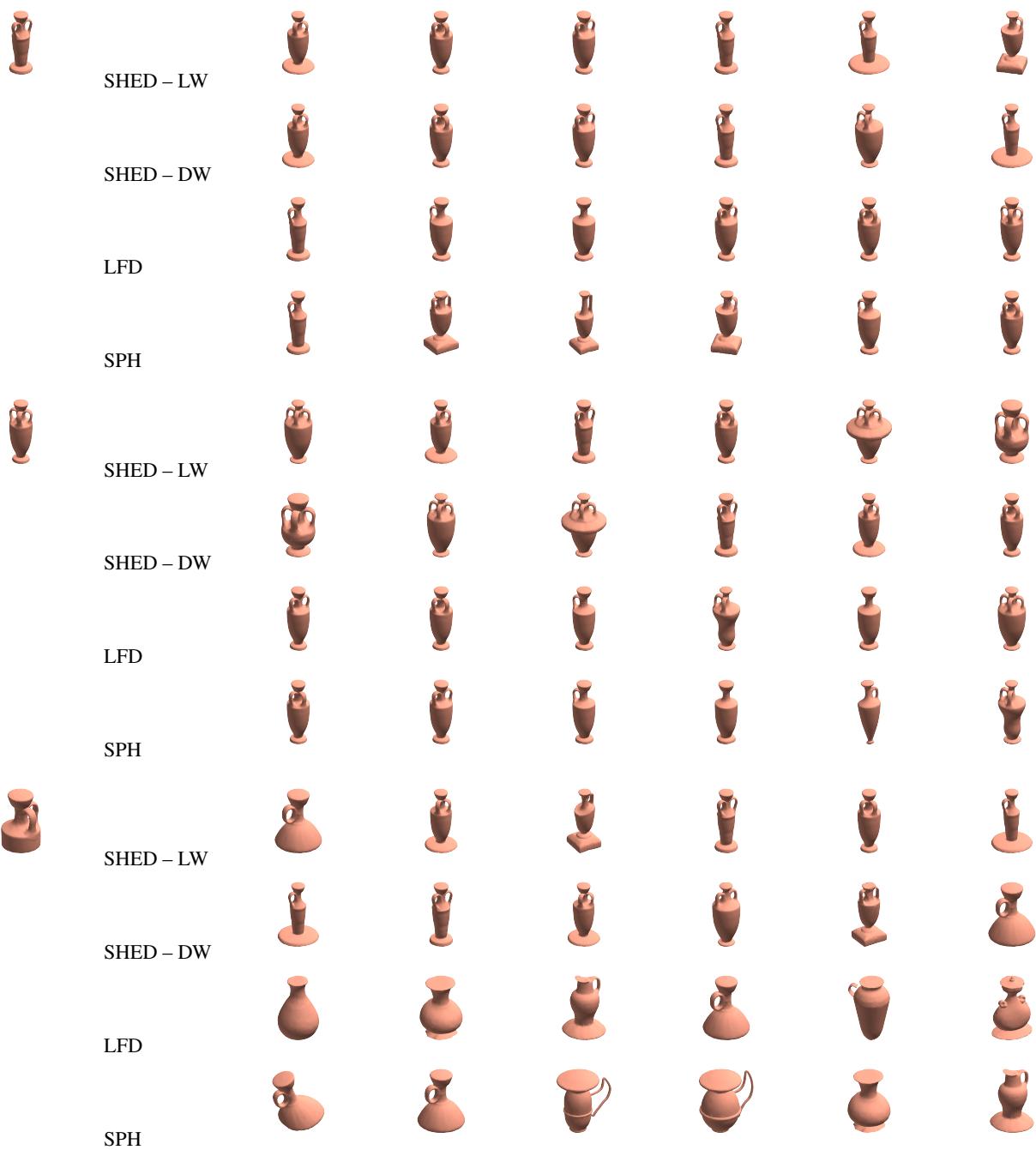


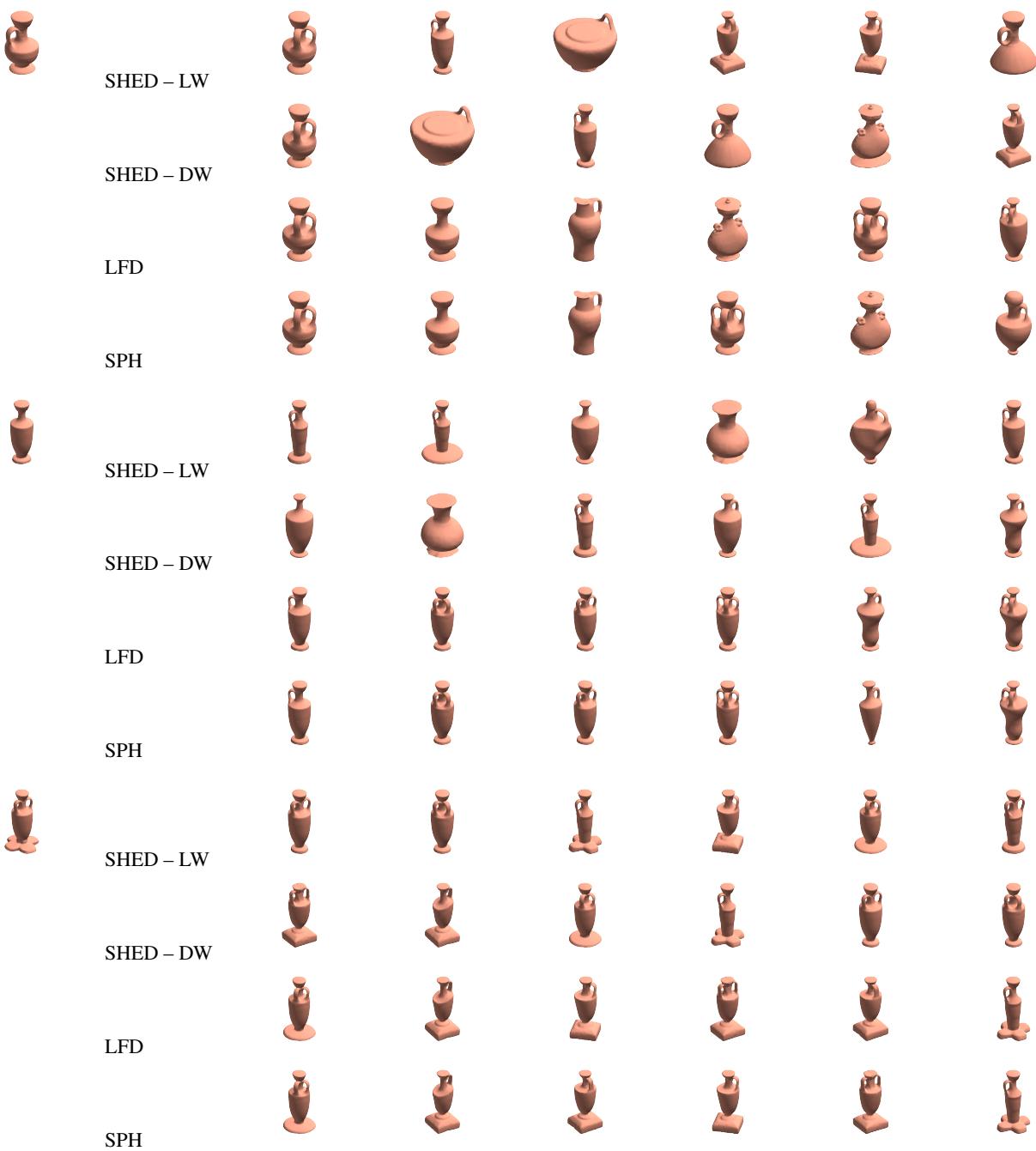
3 KNN Queries

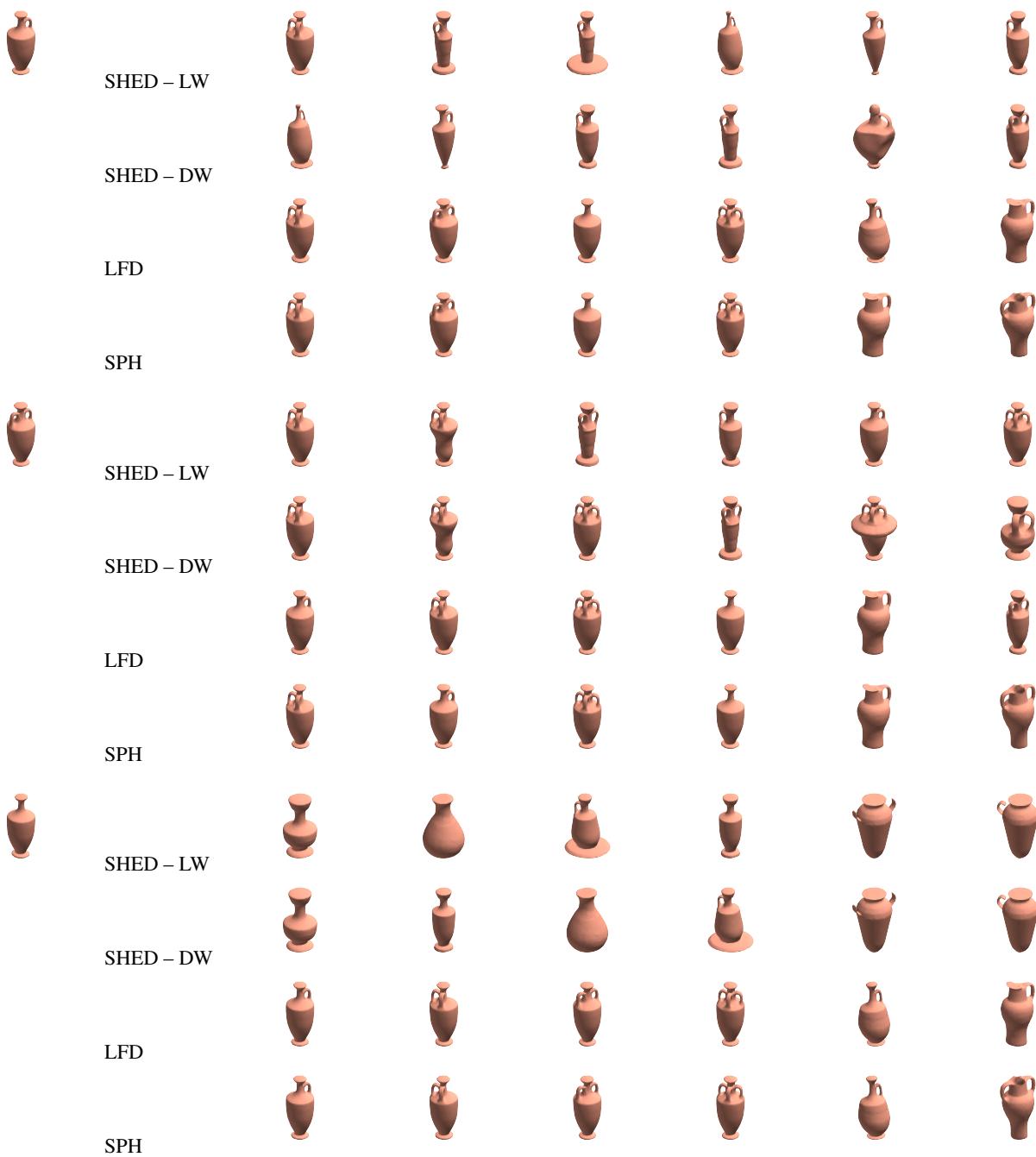
Below are the full nearest neighbors queries for all the sets. The results are ordered by similarity to a query. In each example, the shape on the top left is the query, the first two rows are the 6 nearest neighbors ordered according to SHED with weights learned for the set (LW) and default weights (DW), the next row are the neighbors ordered according to LFD, and the final row are the neighbors ordered according to SPH.

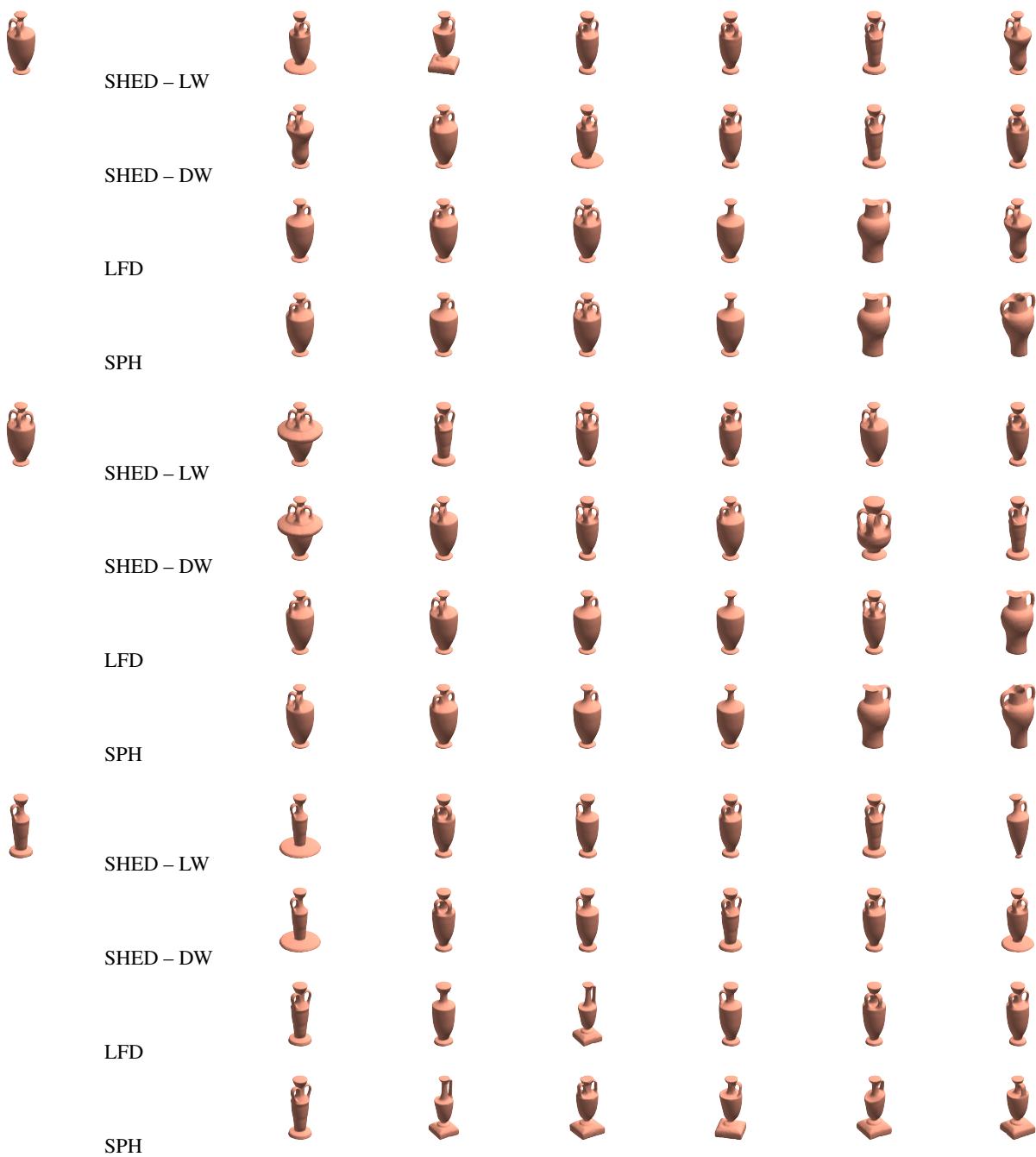
3.1 Vases

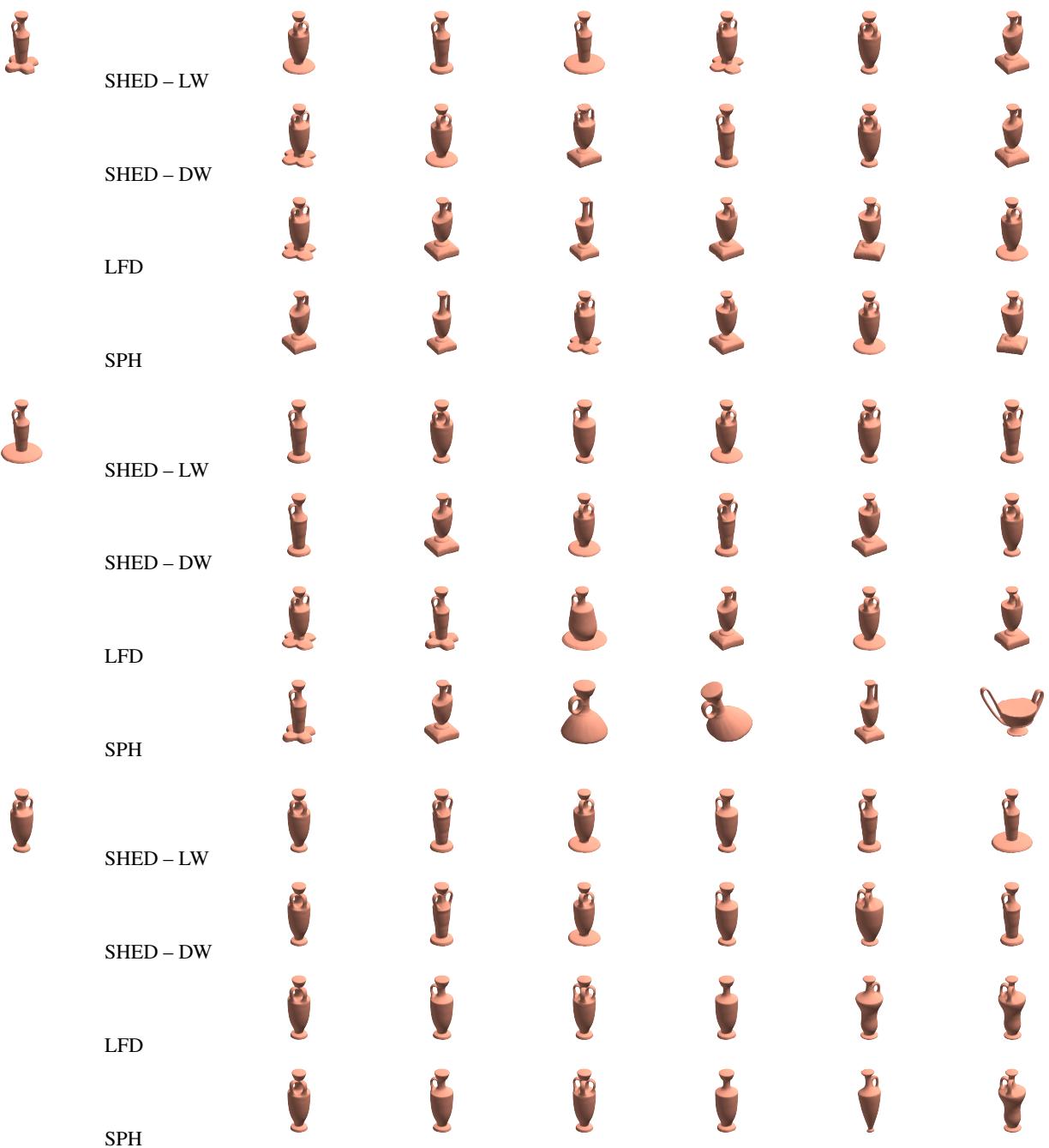


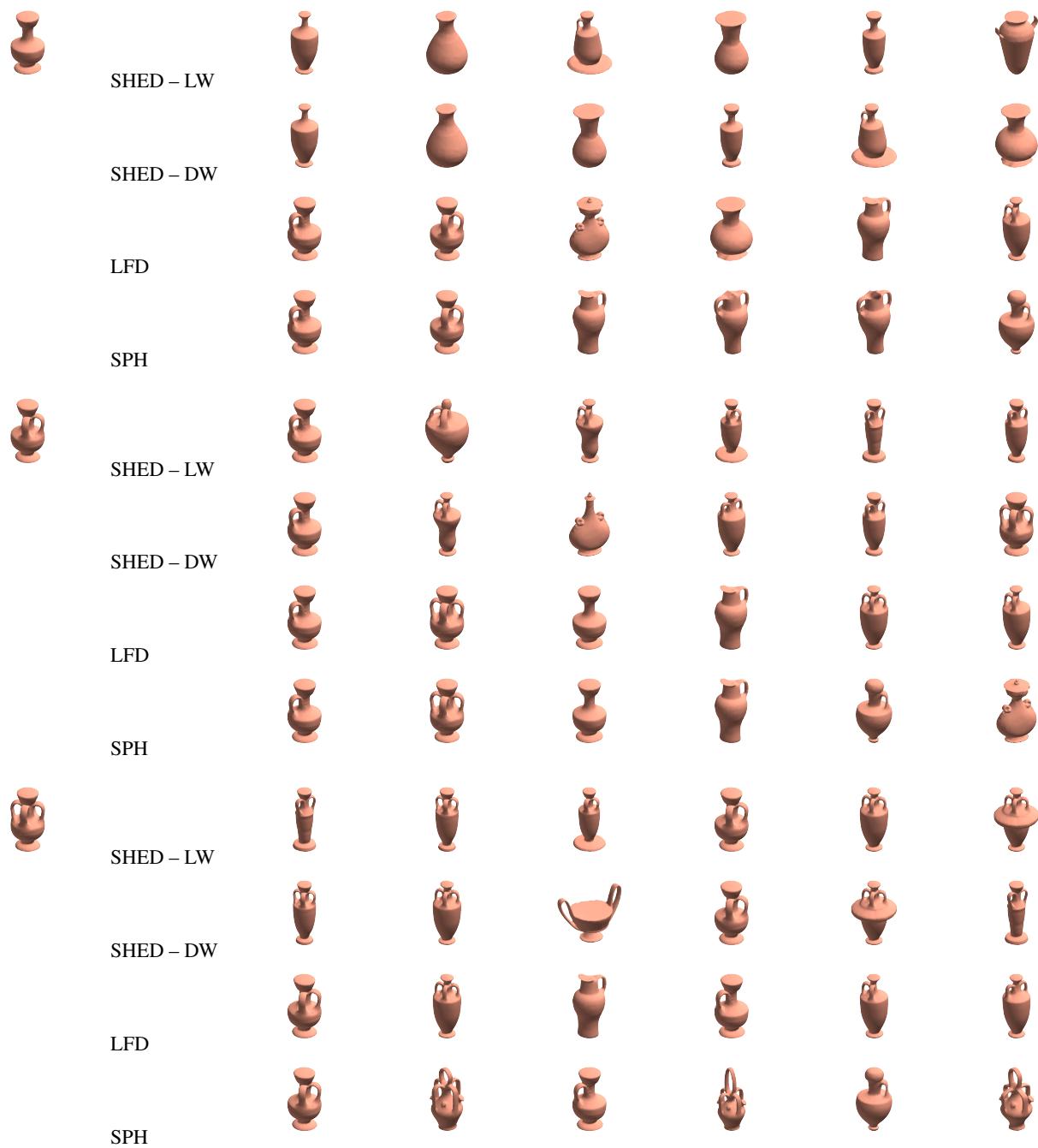


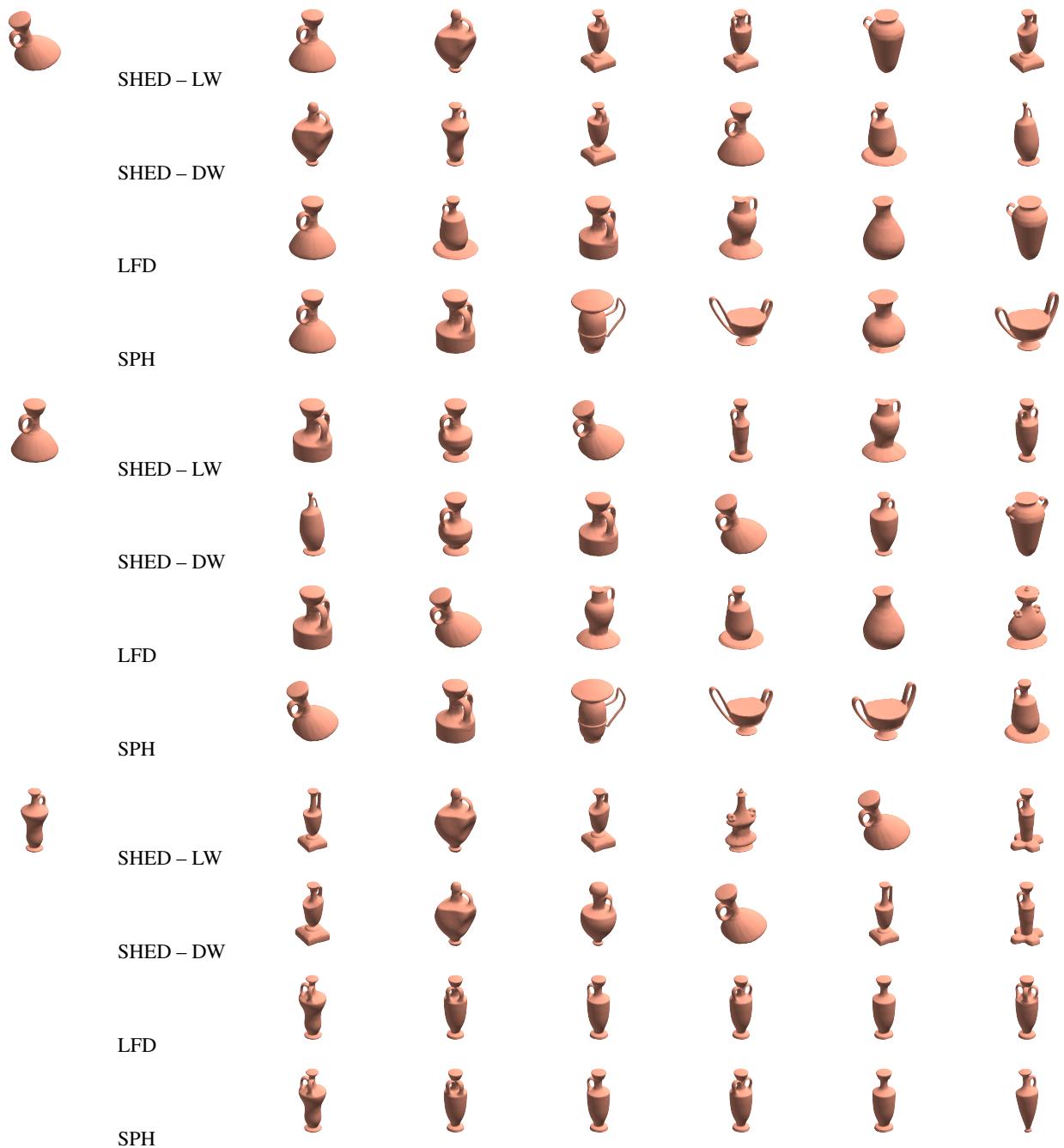


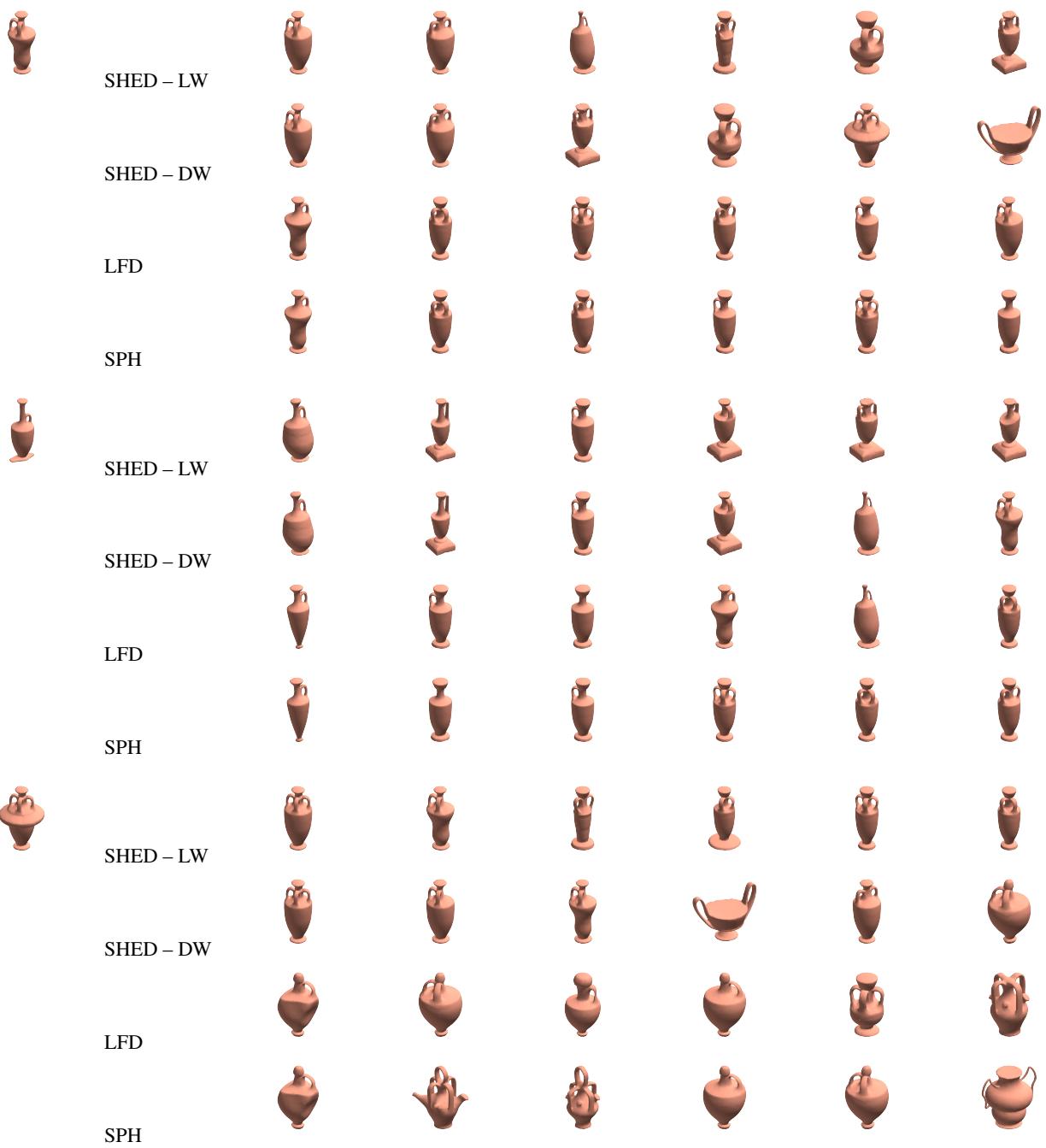














SHED – LW

SHED – DW

LFD

SPH



SHED – LW

SHED – DW

LFD

SPH



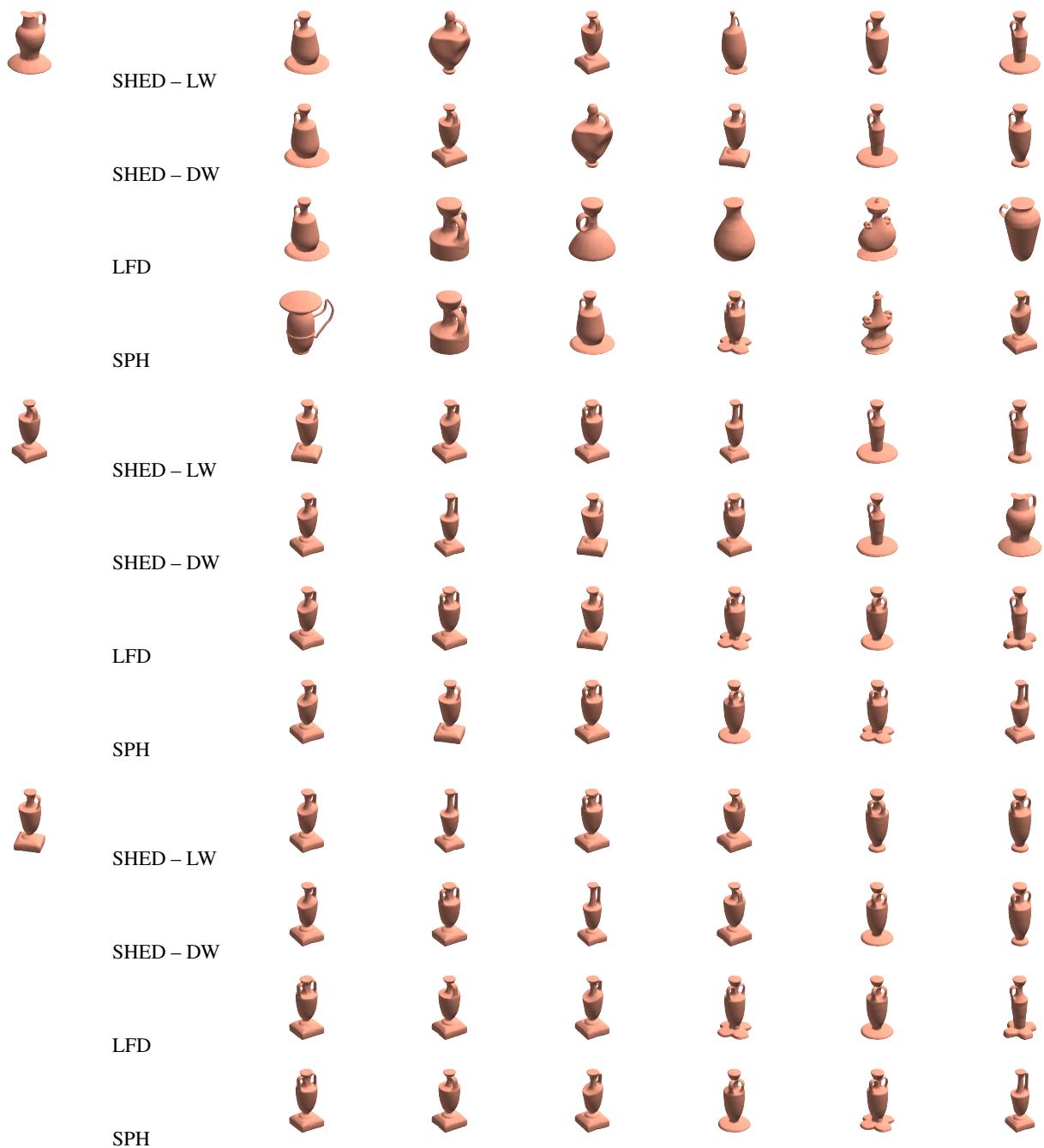
SHED – LW

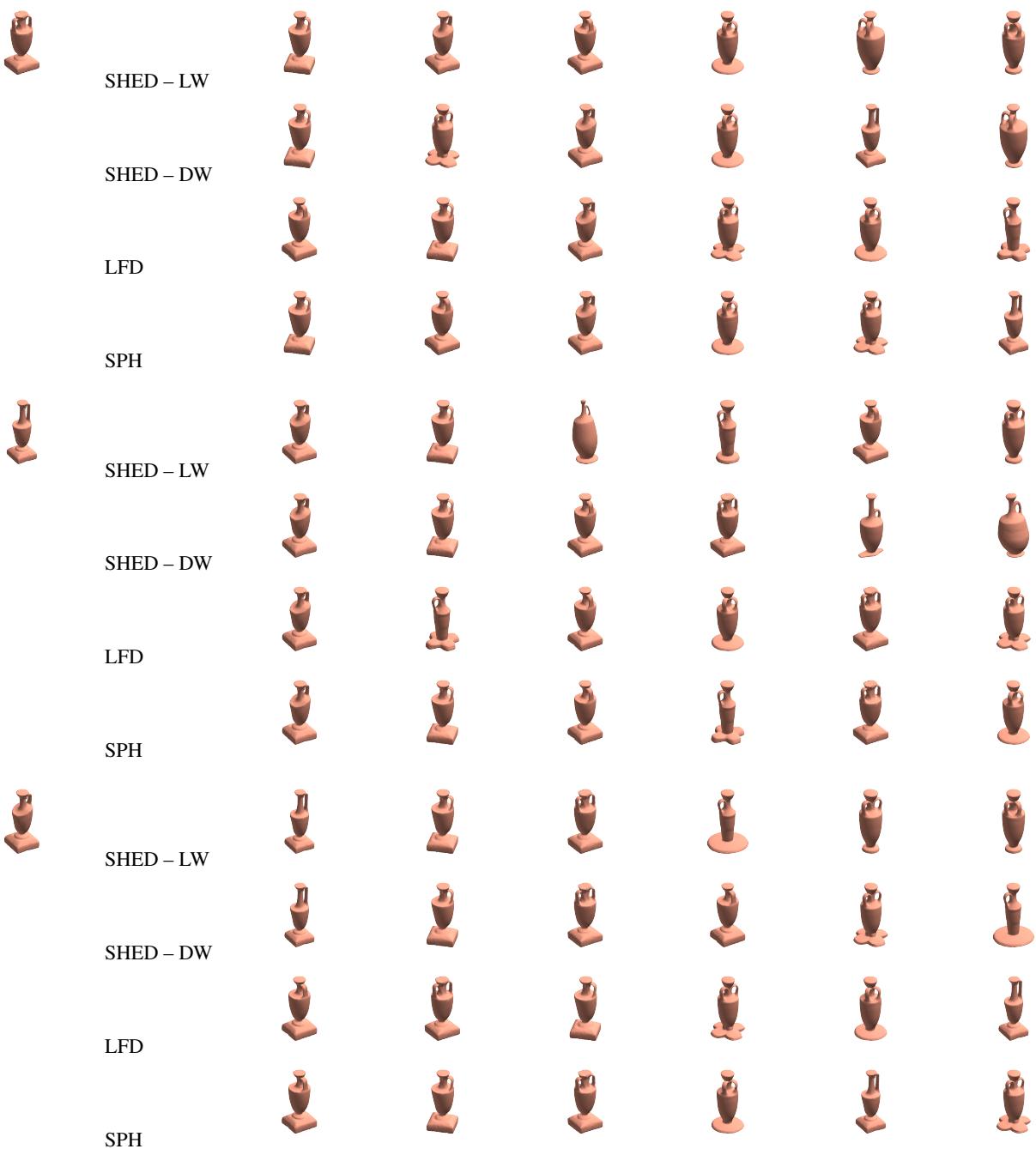
SHED – DW

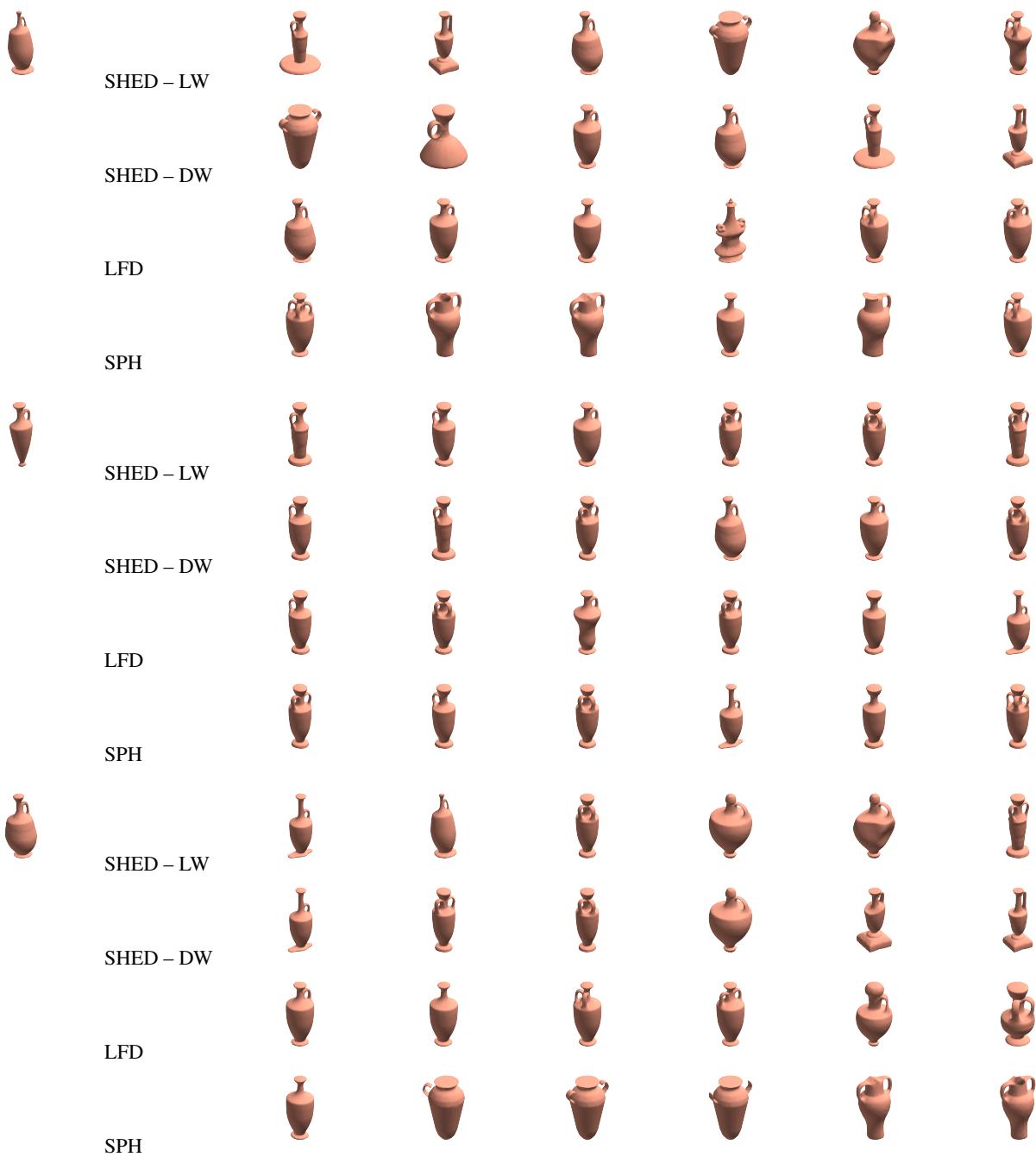
LFD

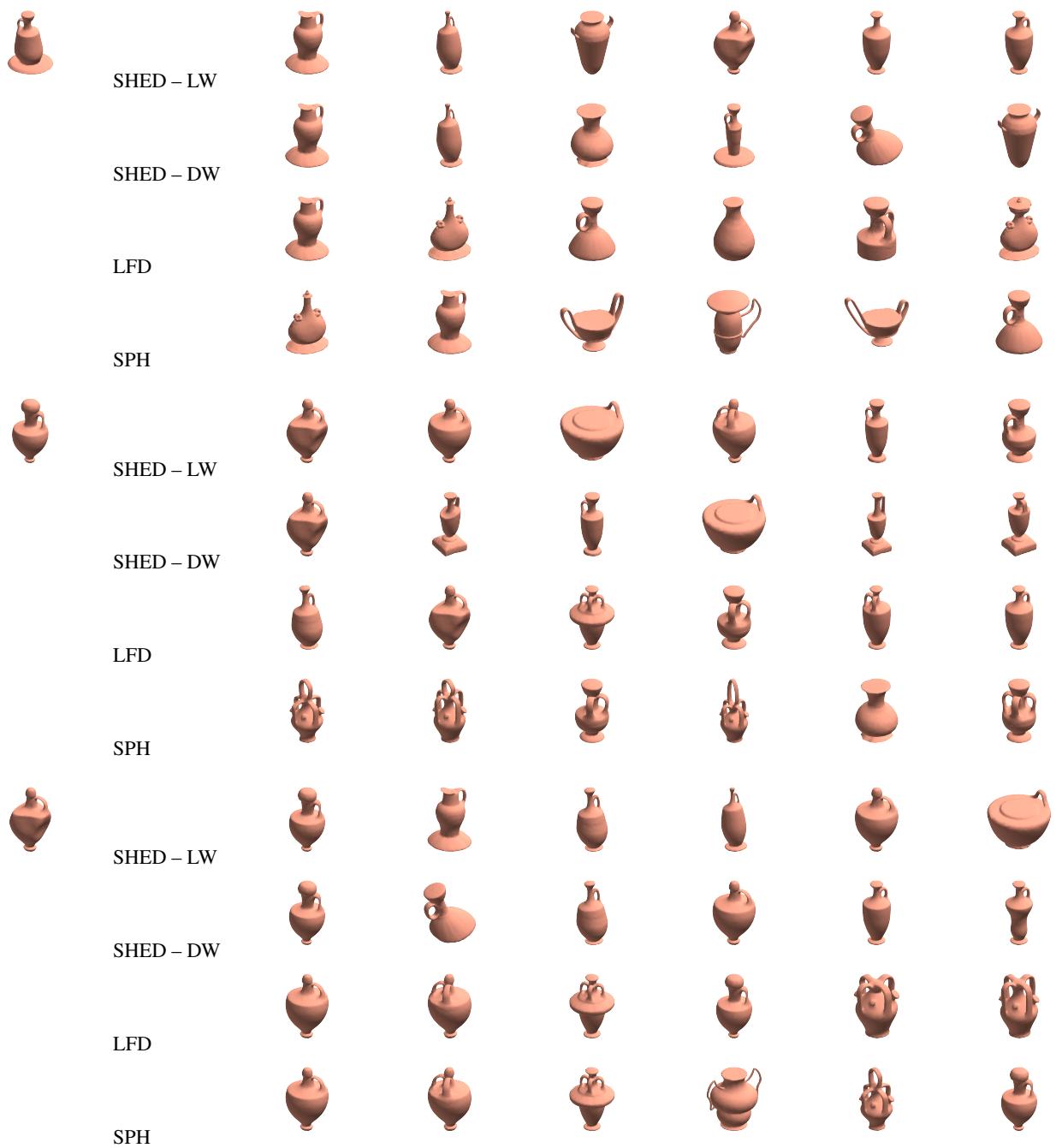
SPH

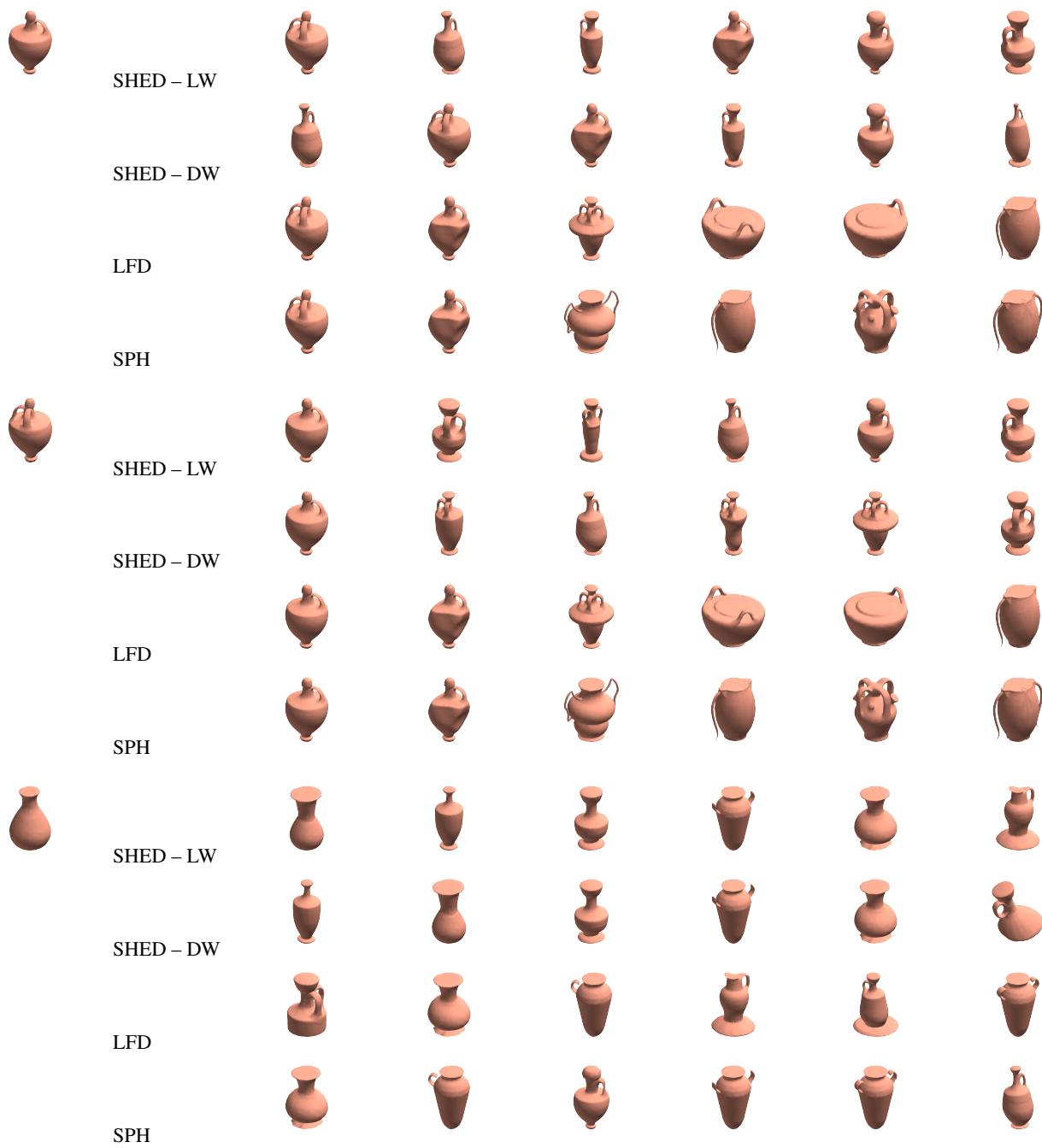


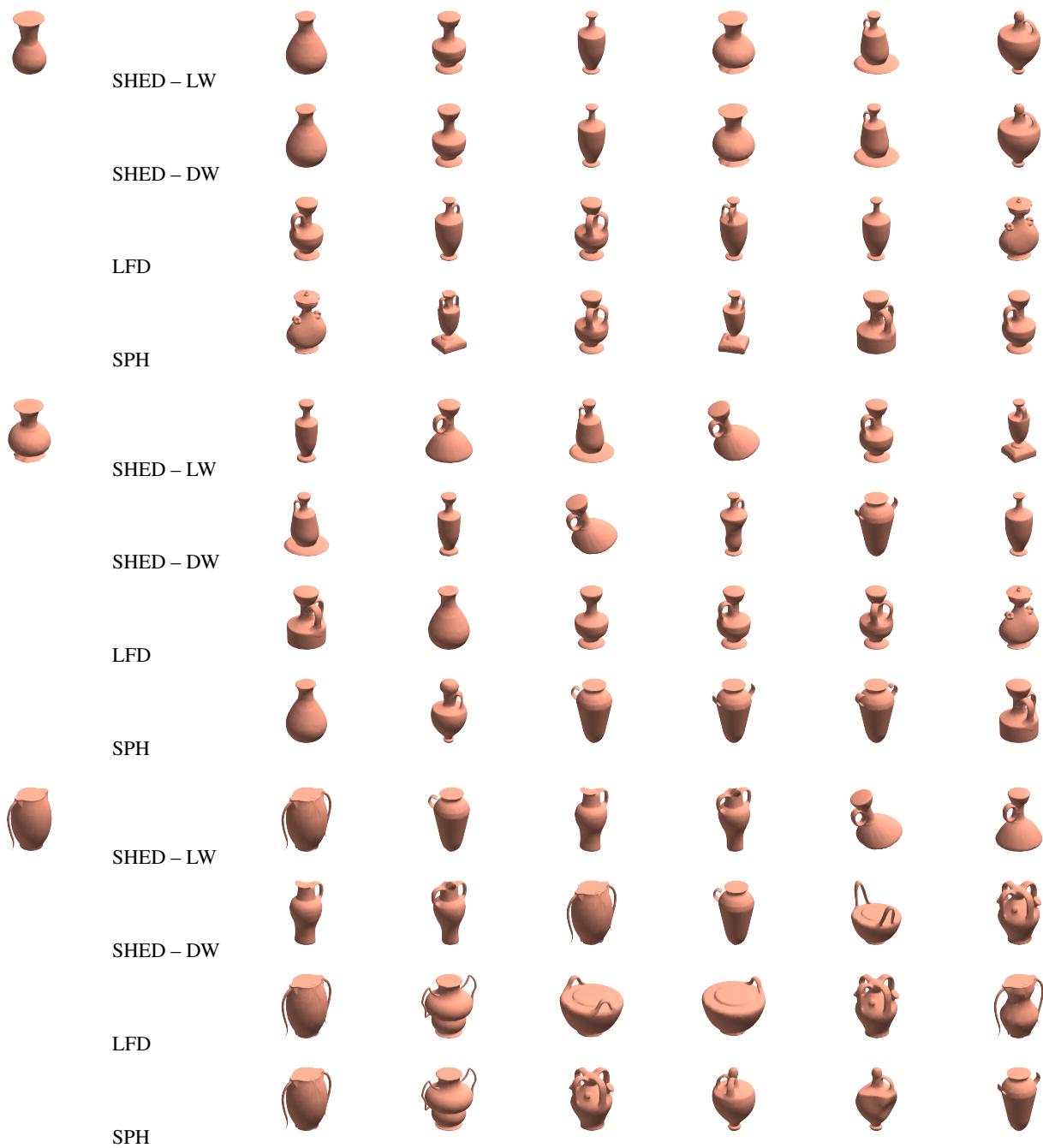


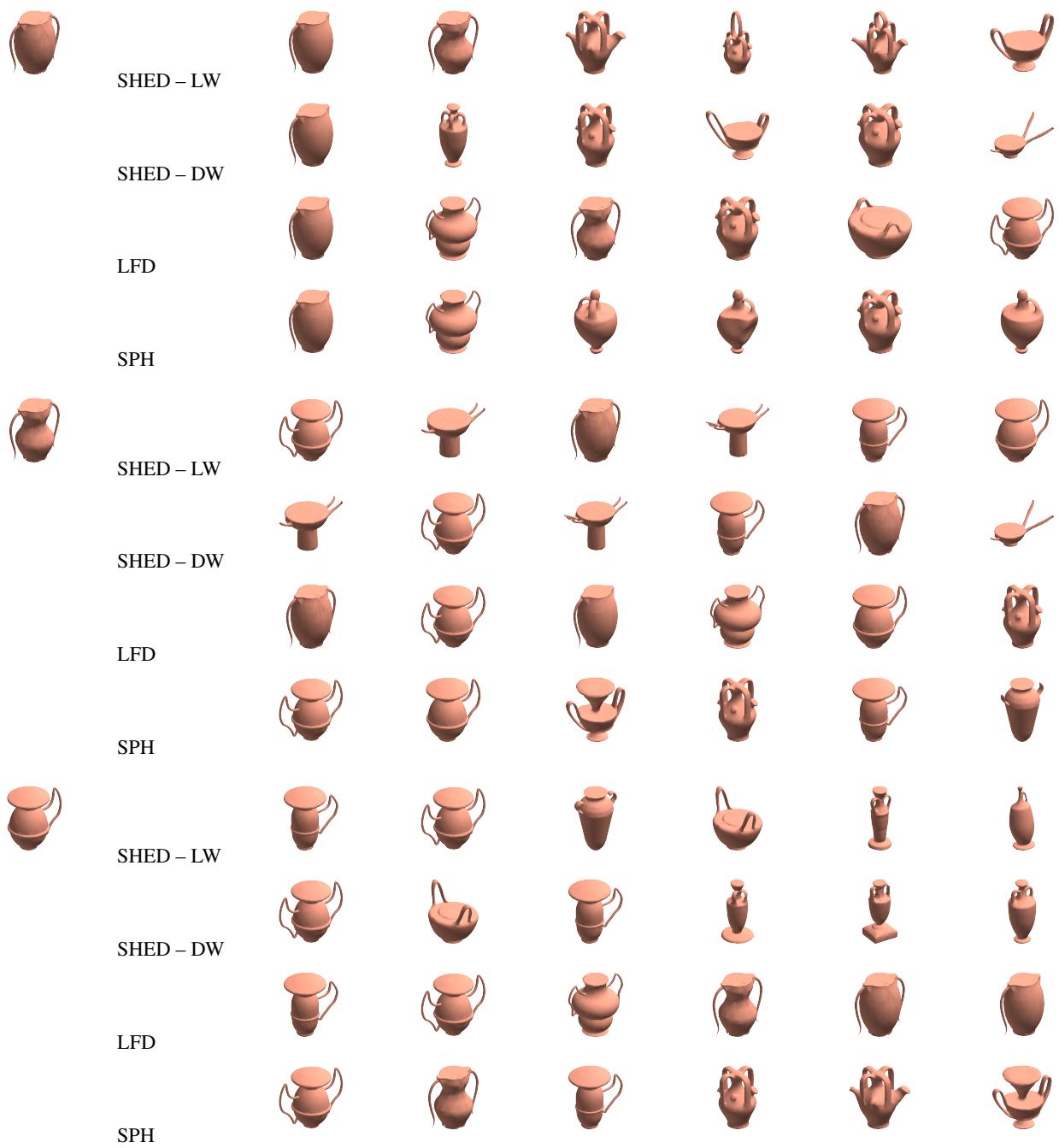




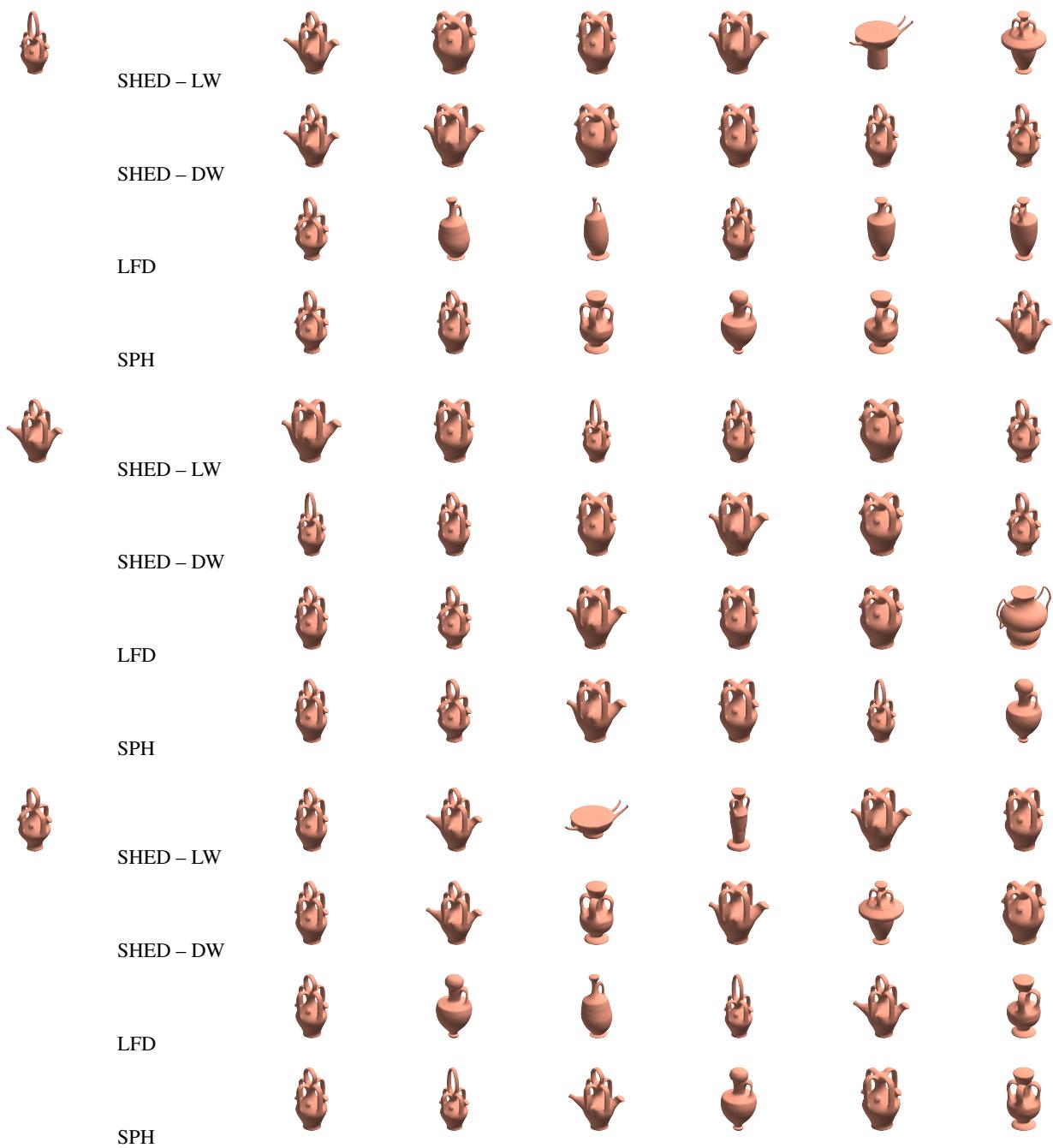


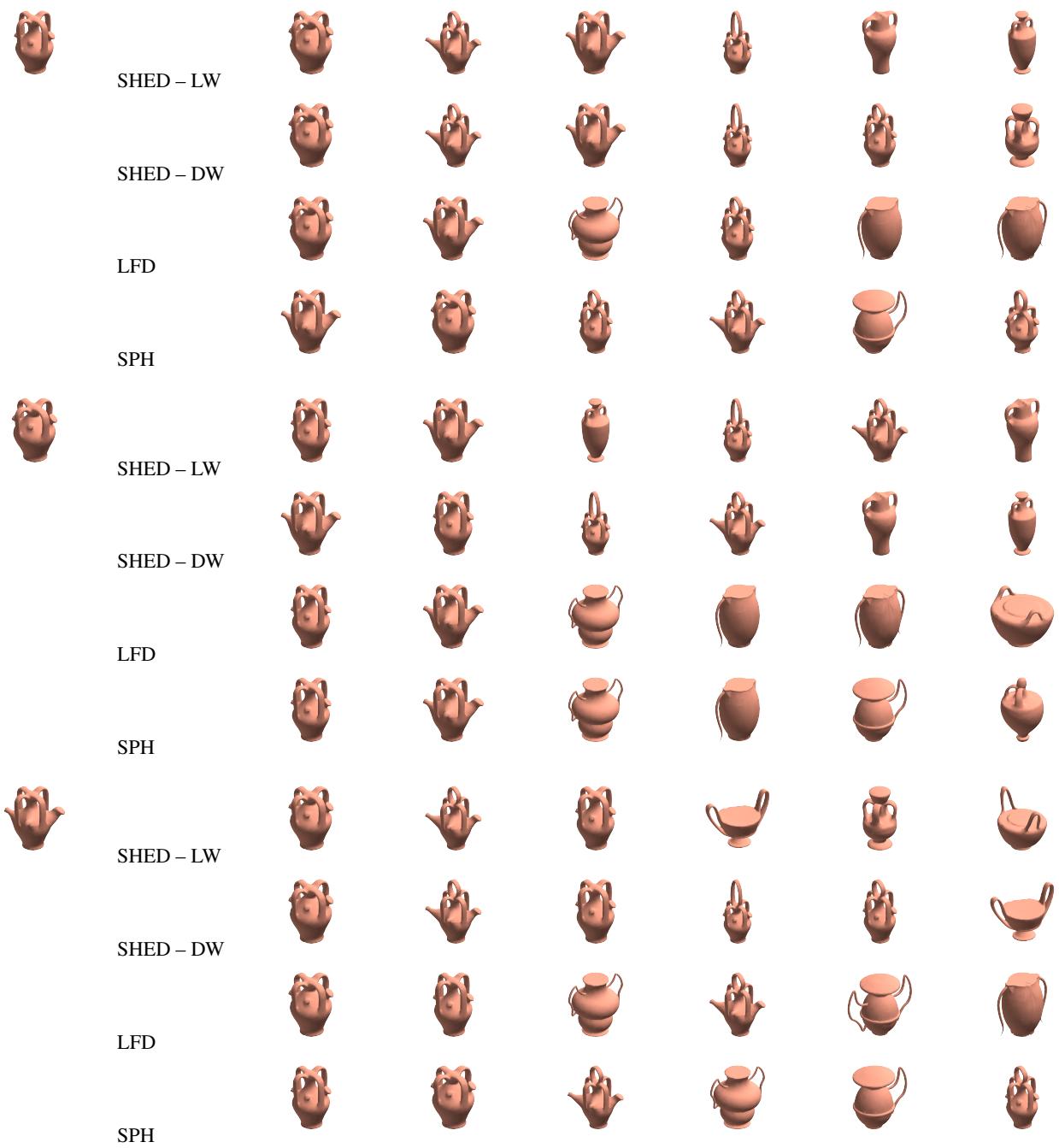


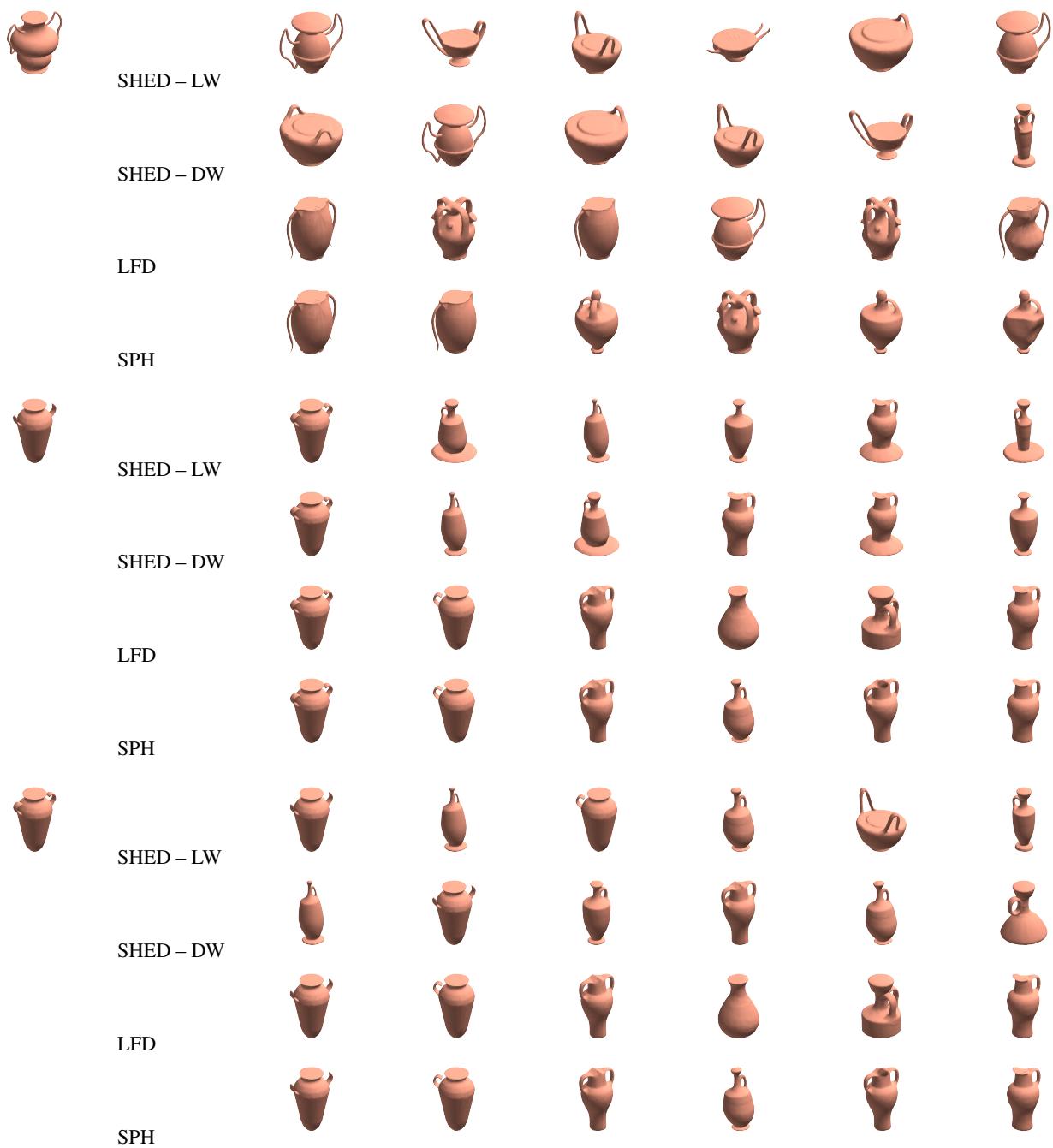


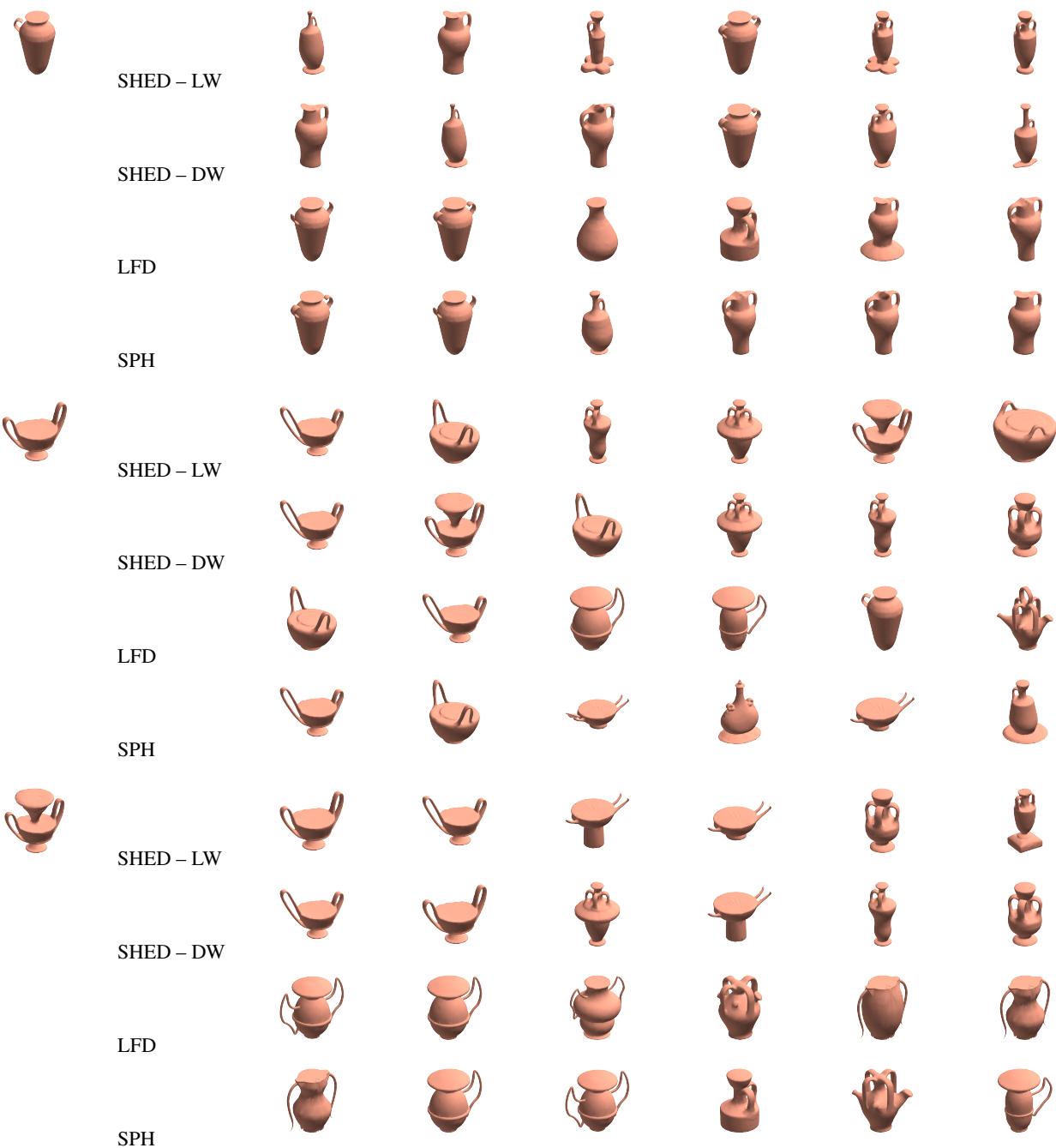


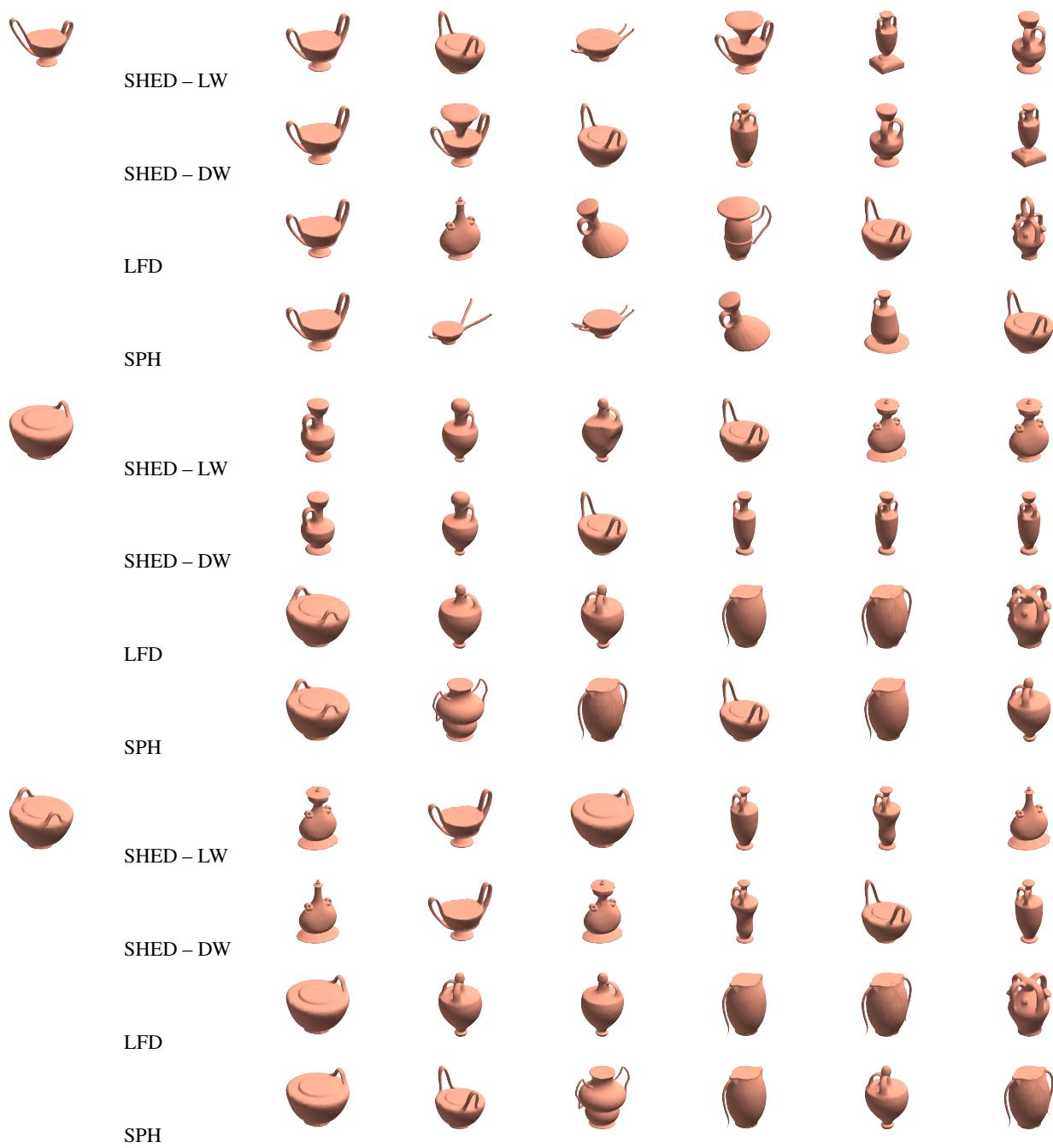


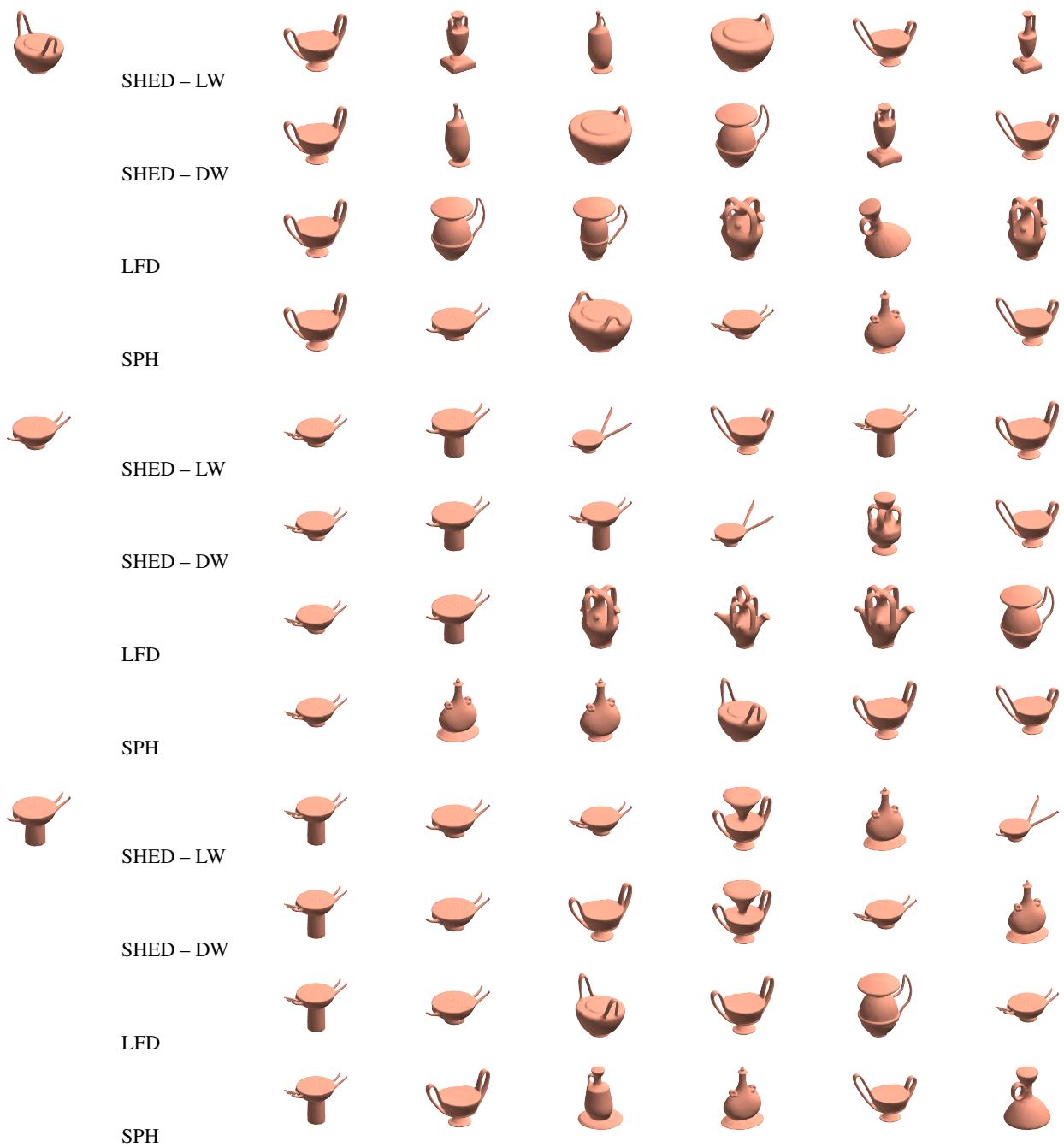


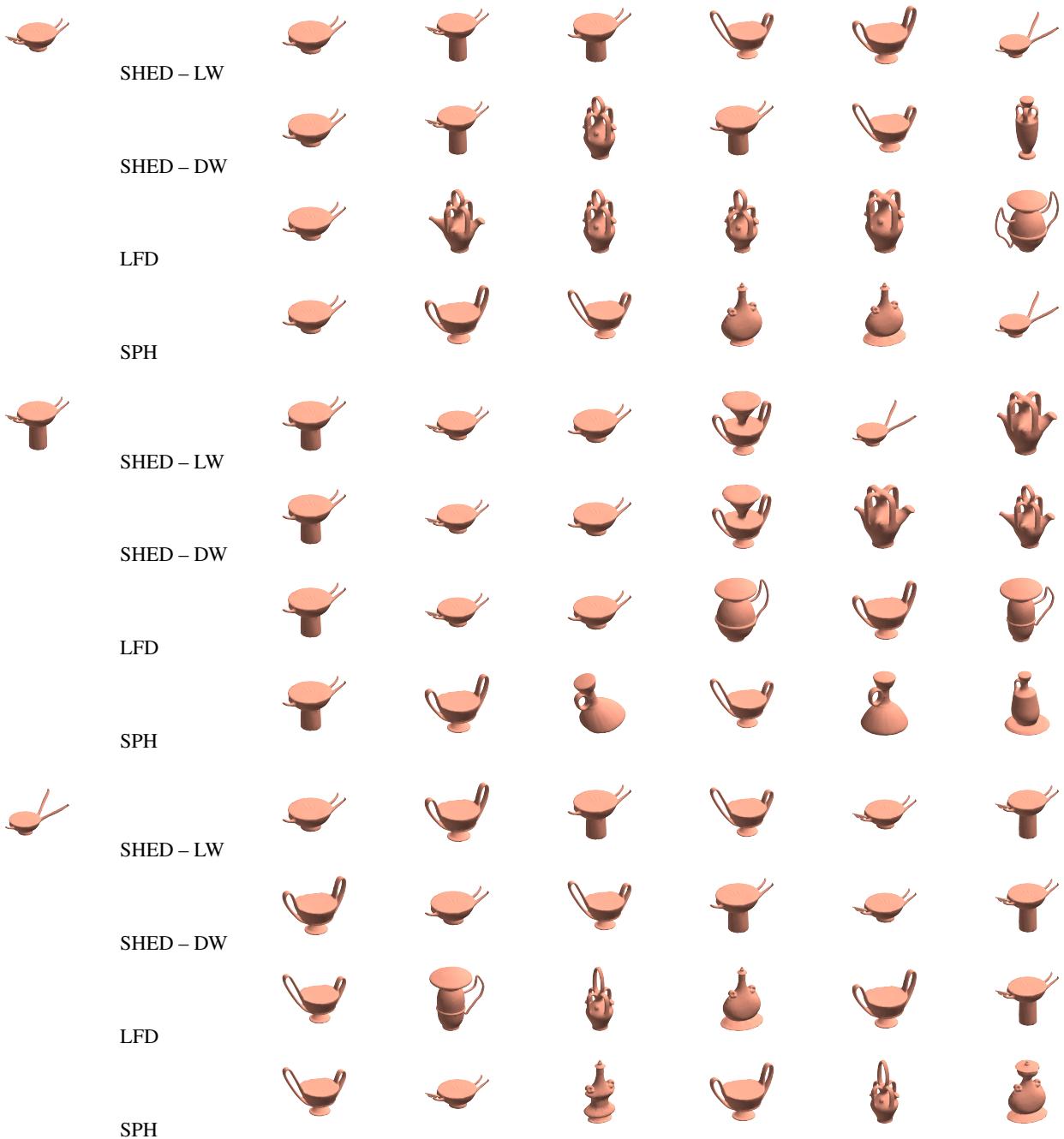


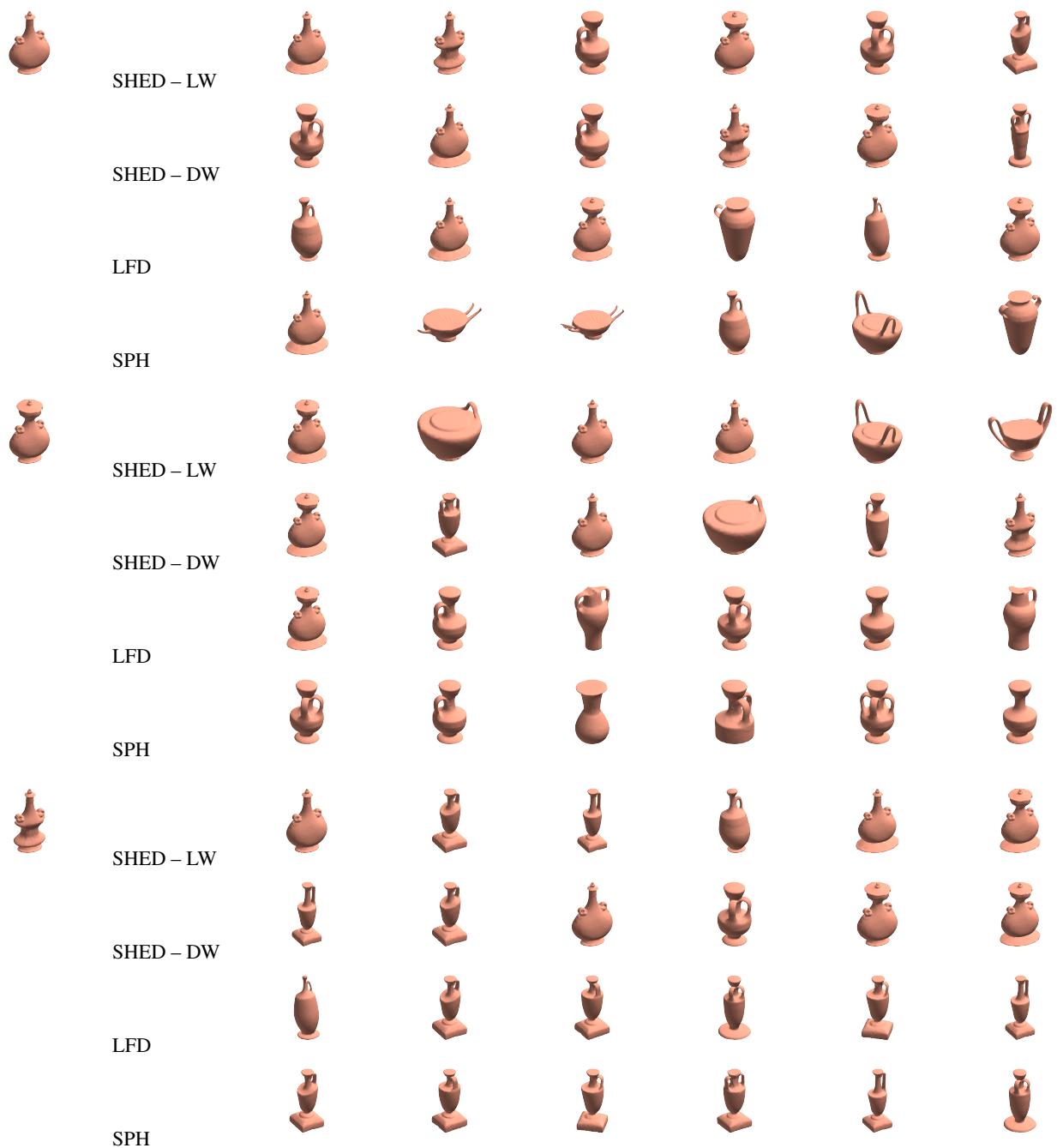


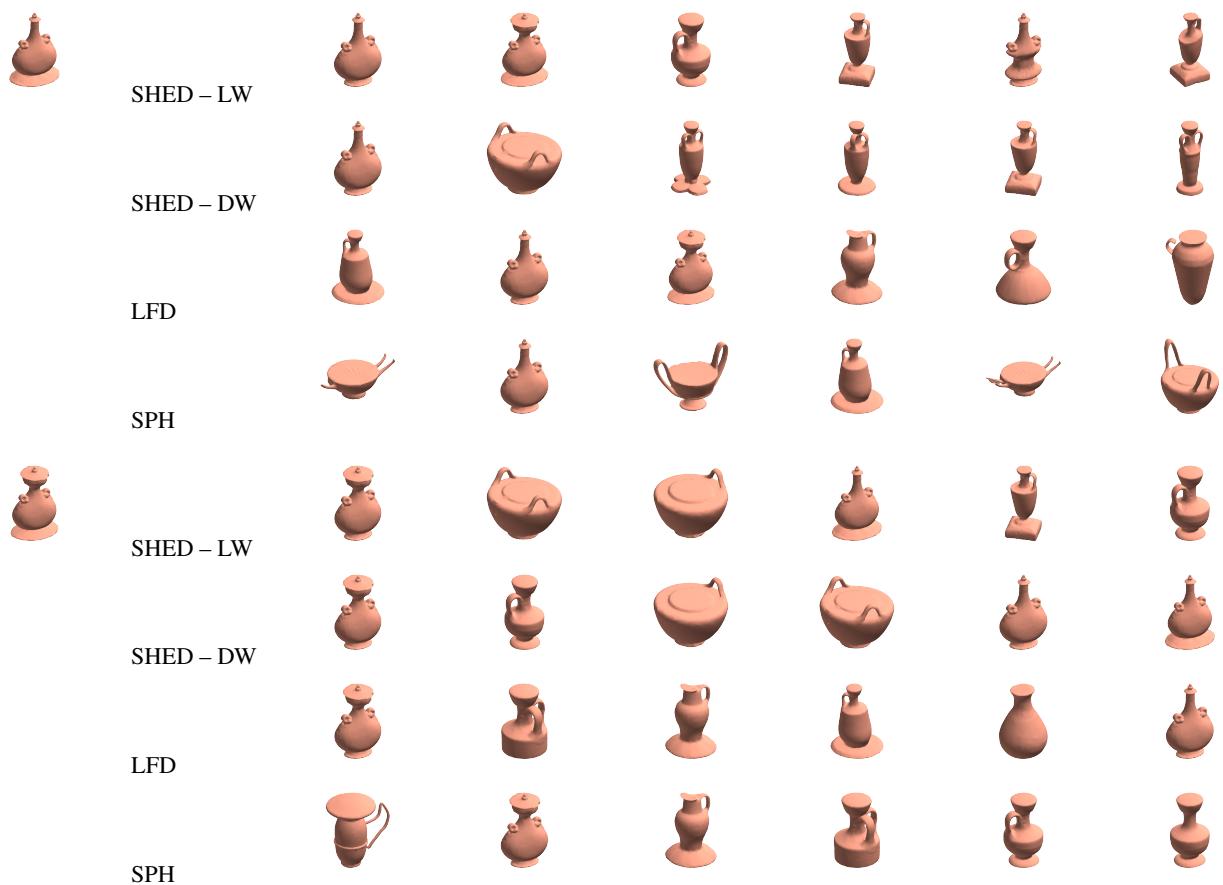




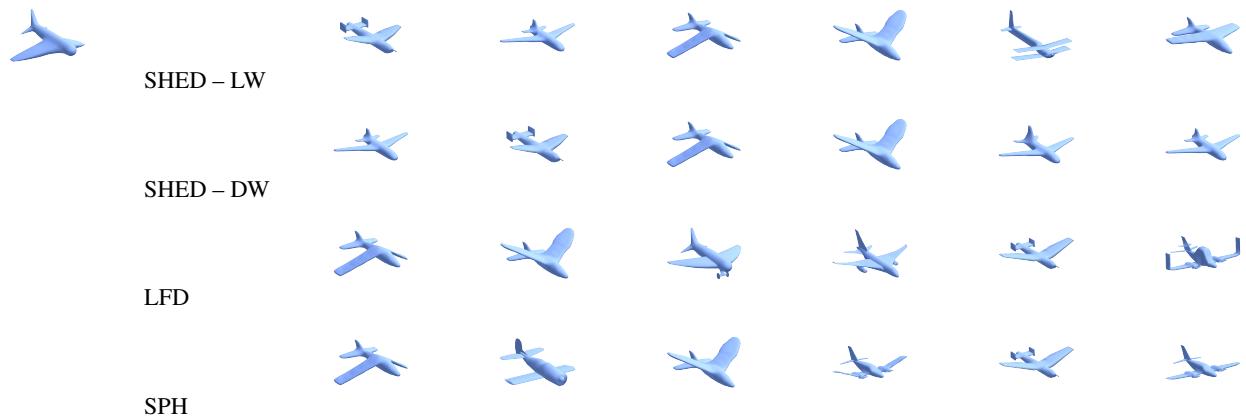








3.2 Planes





SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



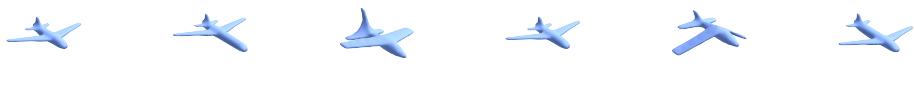
SPH



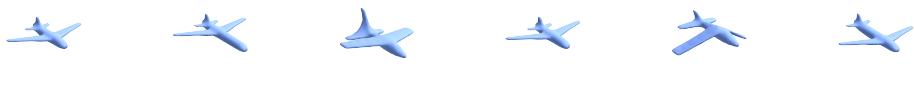
SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



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SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



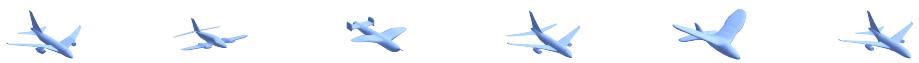
SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



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SHED – LW



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SPH



SHED – LW



SHED – DW



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SPH



SHED – LW



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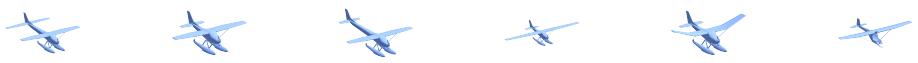
SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



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SHED – LW



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SPH



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SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



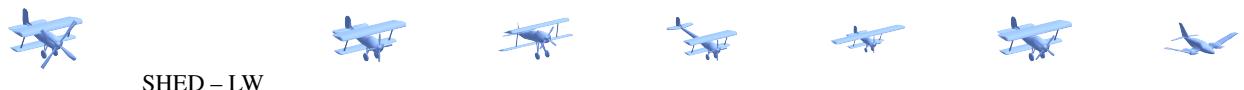
SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH





SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



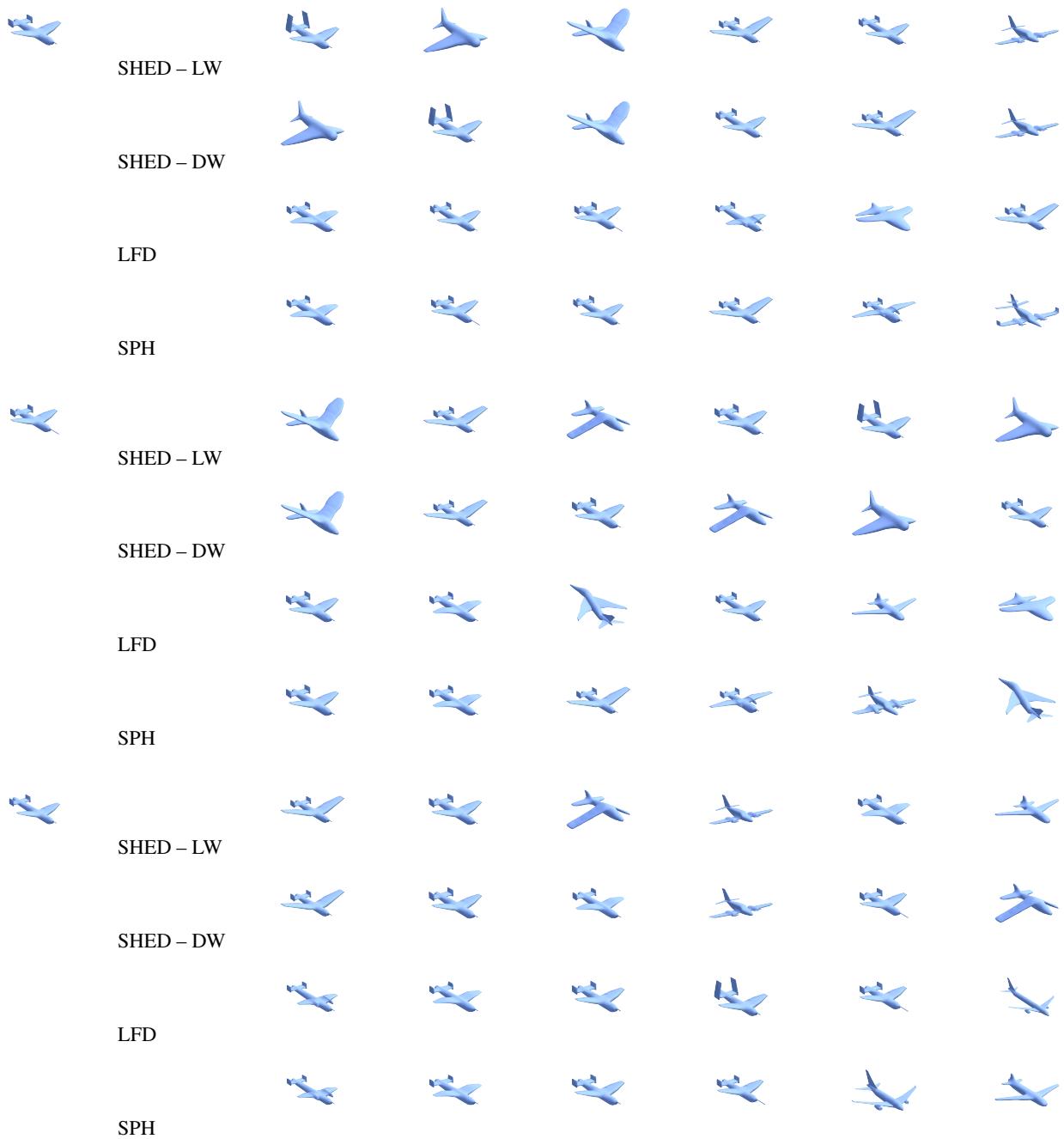
SHED – DW



LFD

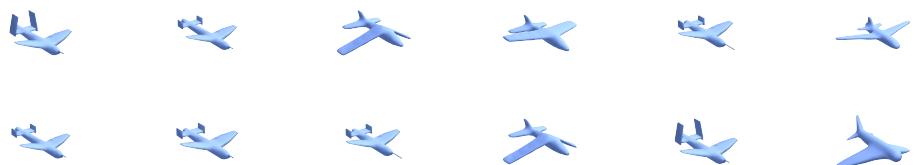


SPH





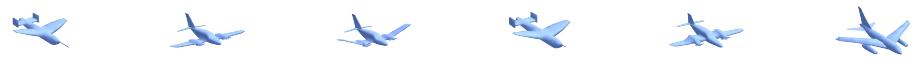
SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW



LFD



SPH



SHED – LW



SHED – DW

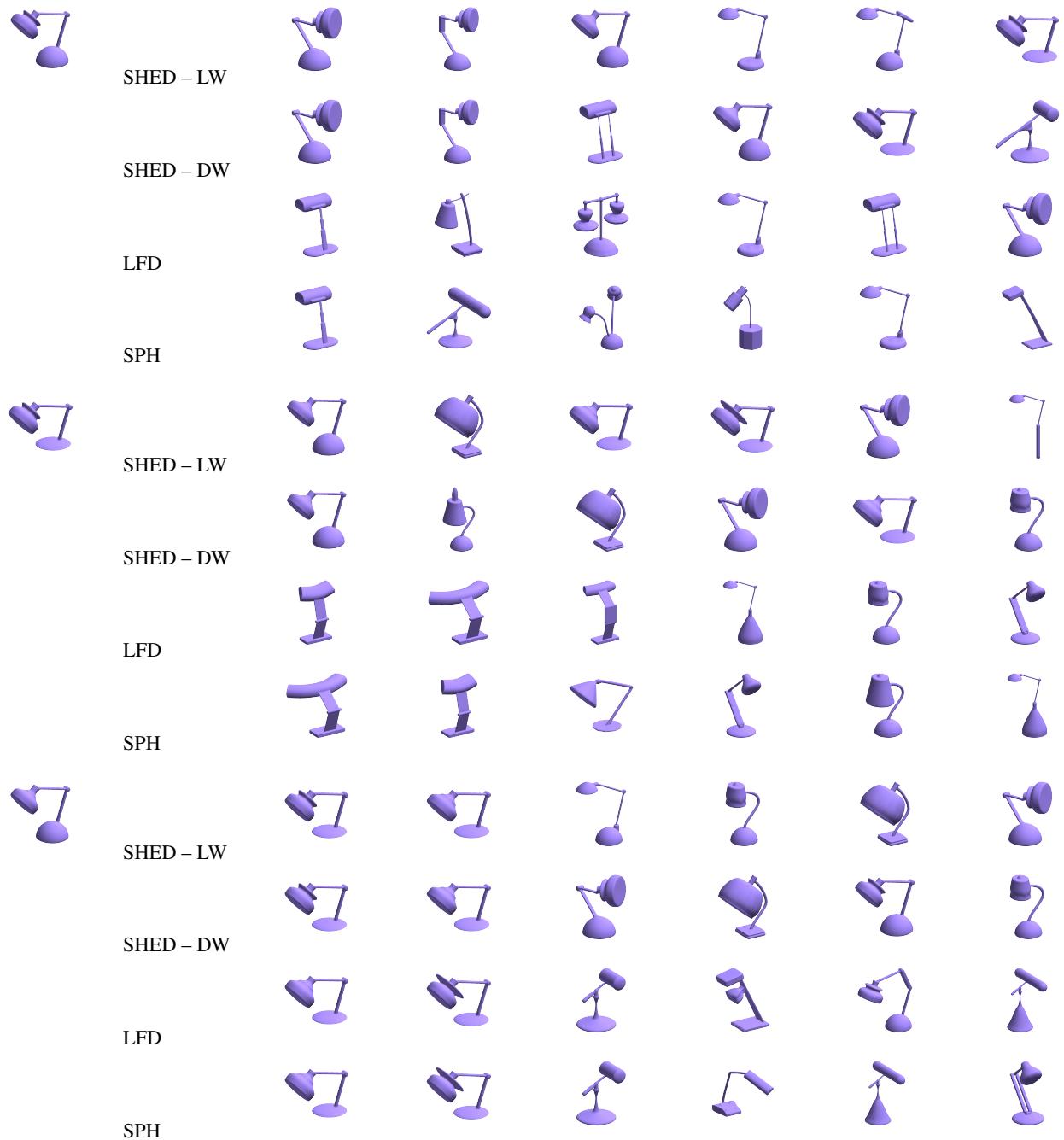


LFD

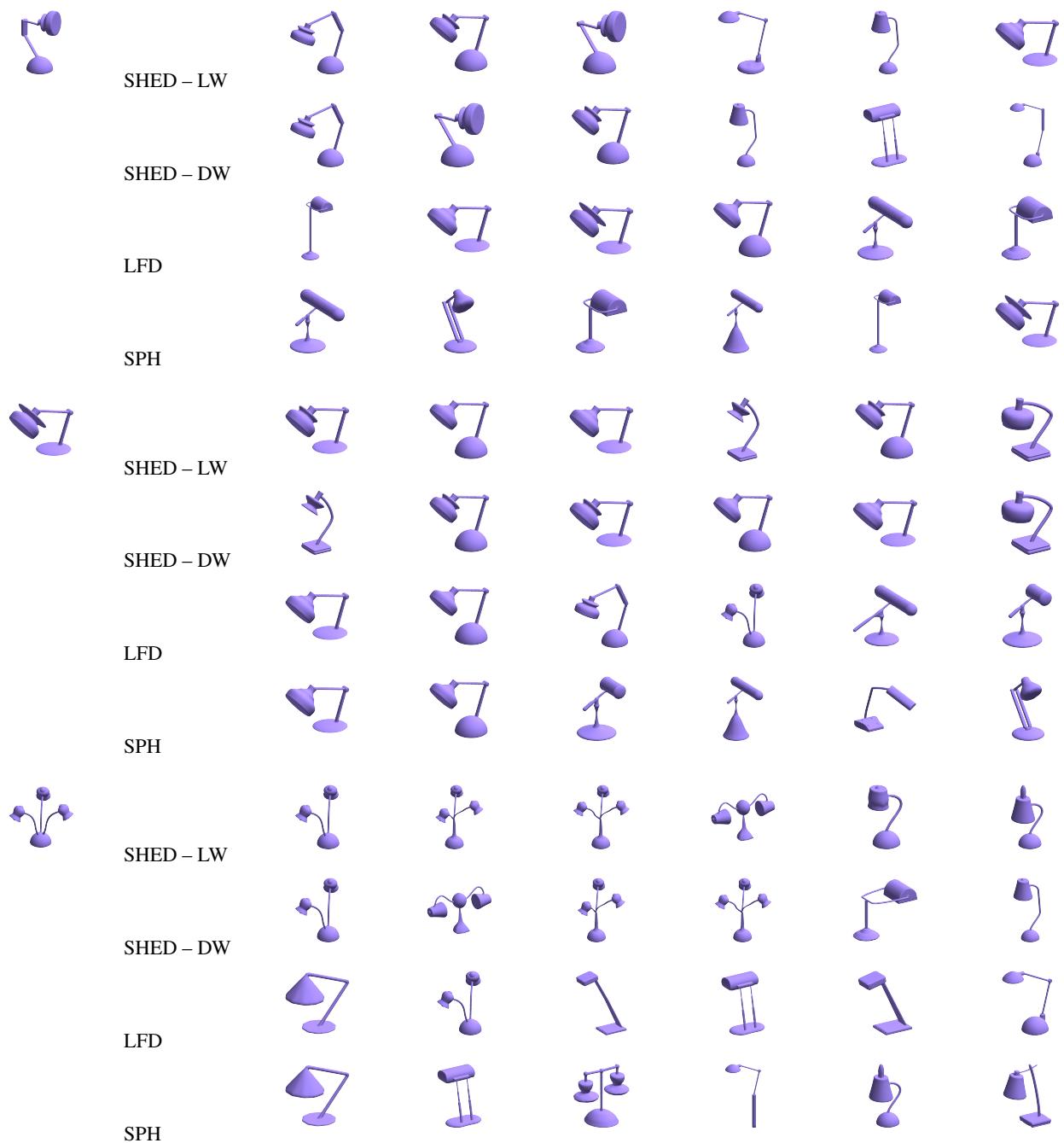


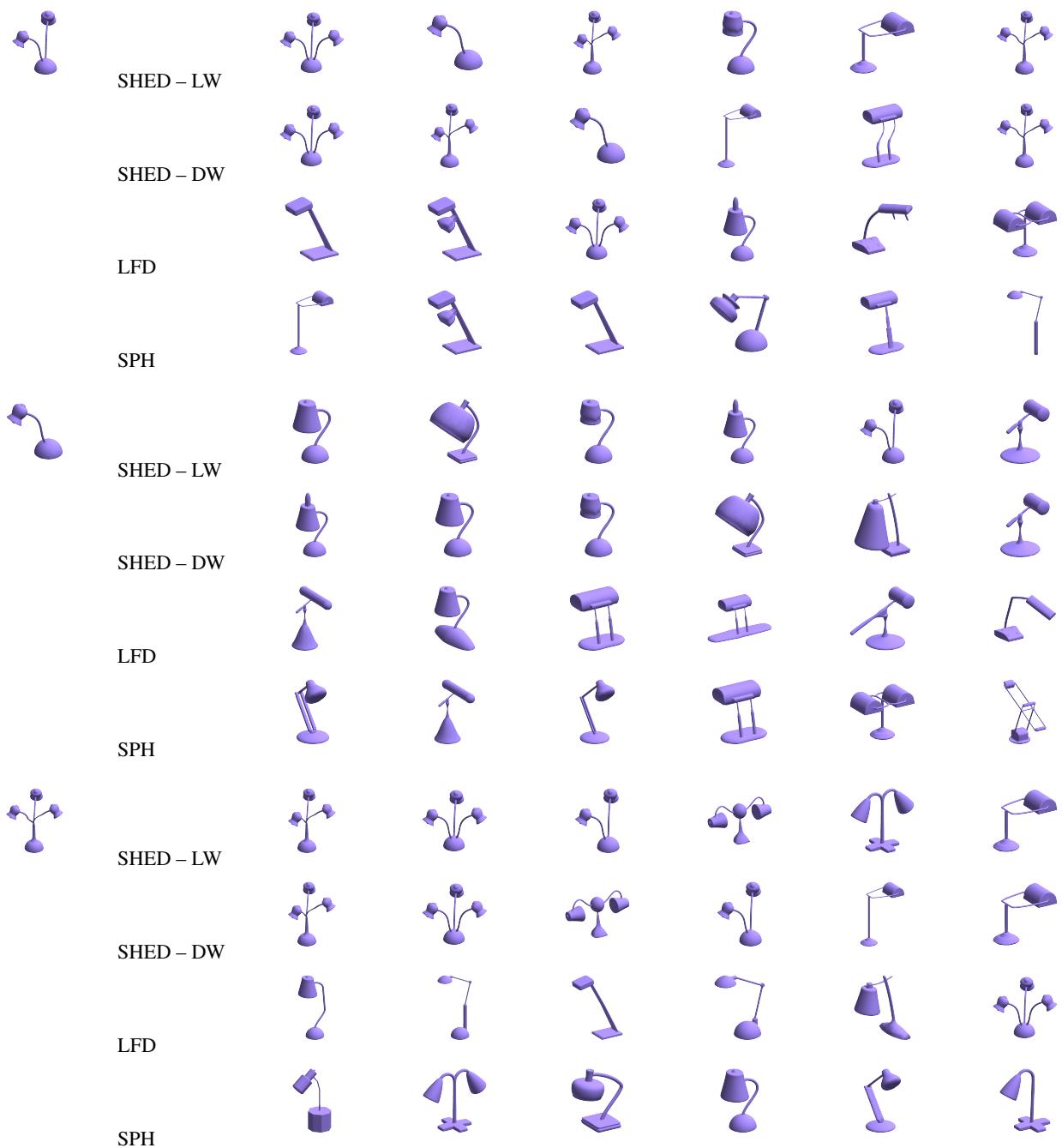
SPH

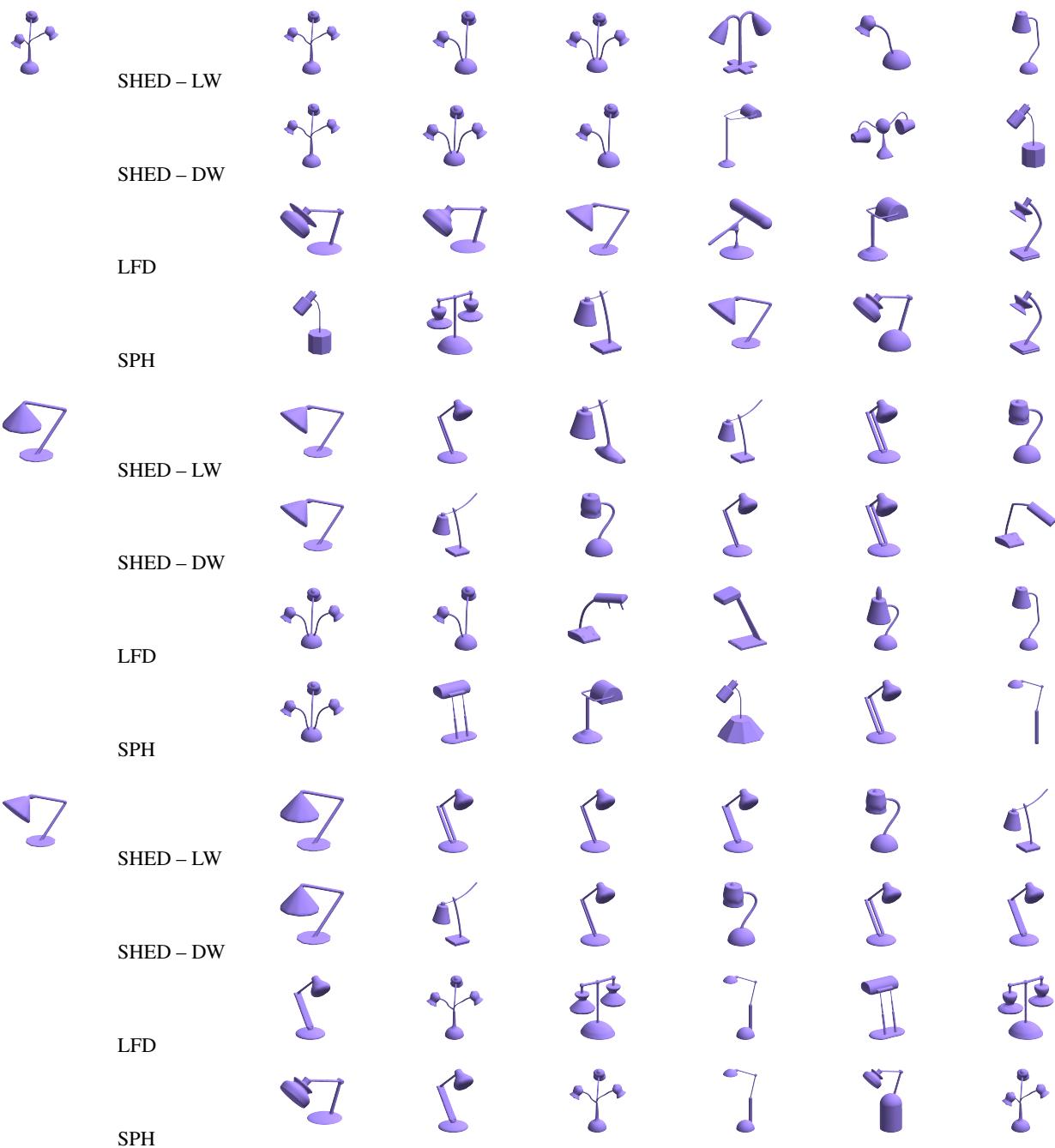
3.3 Lamps

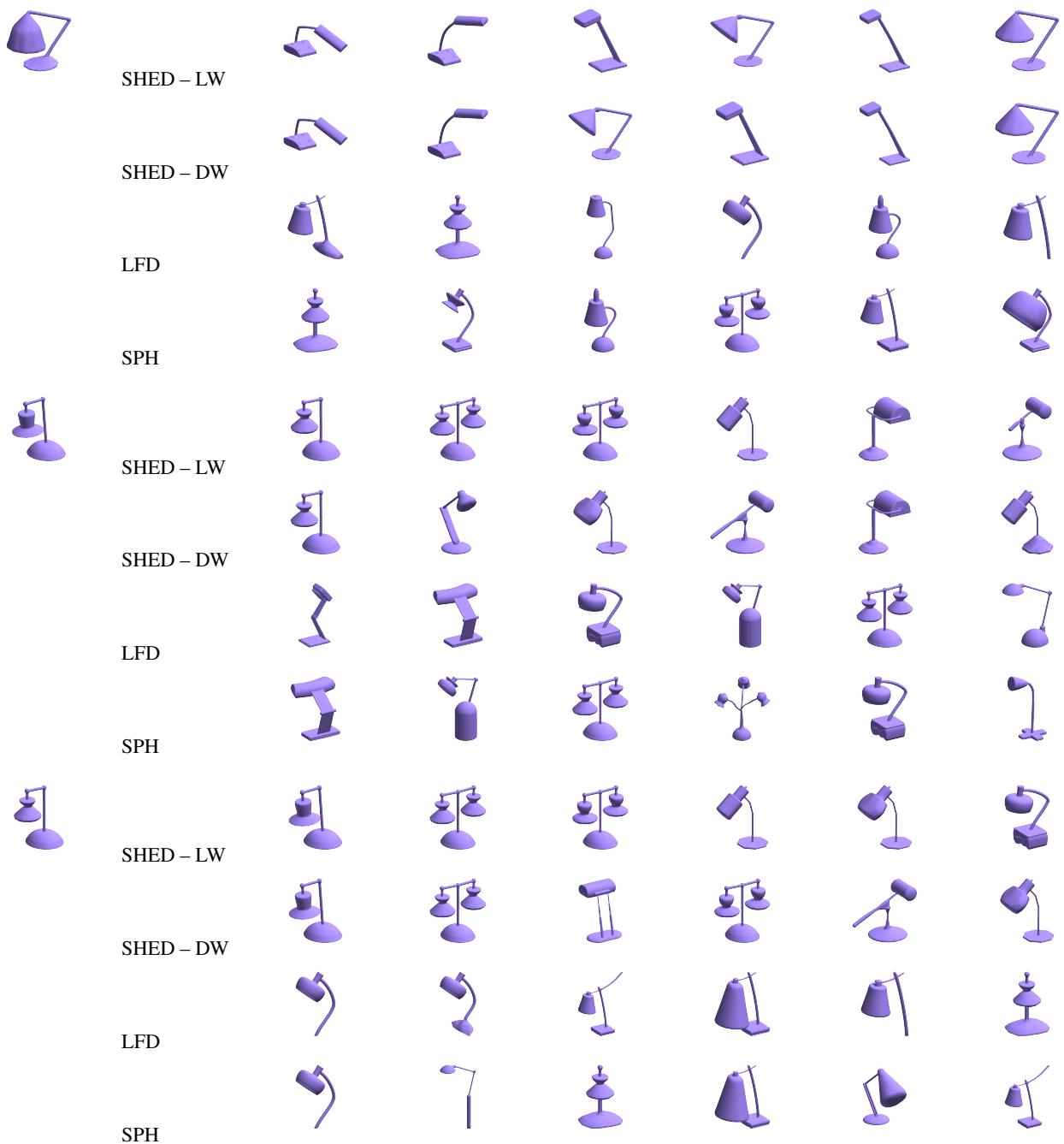


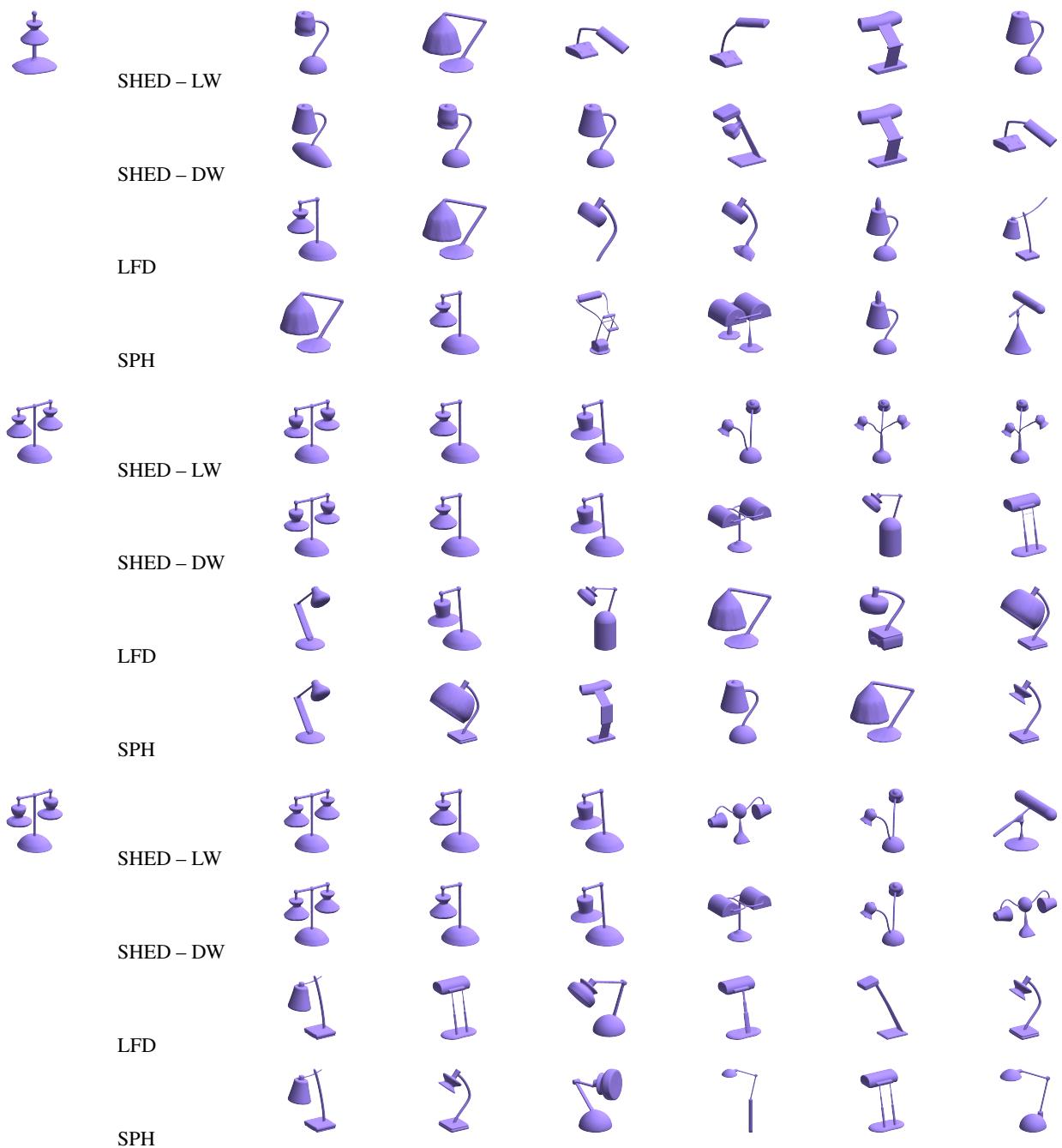


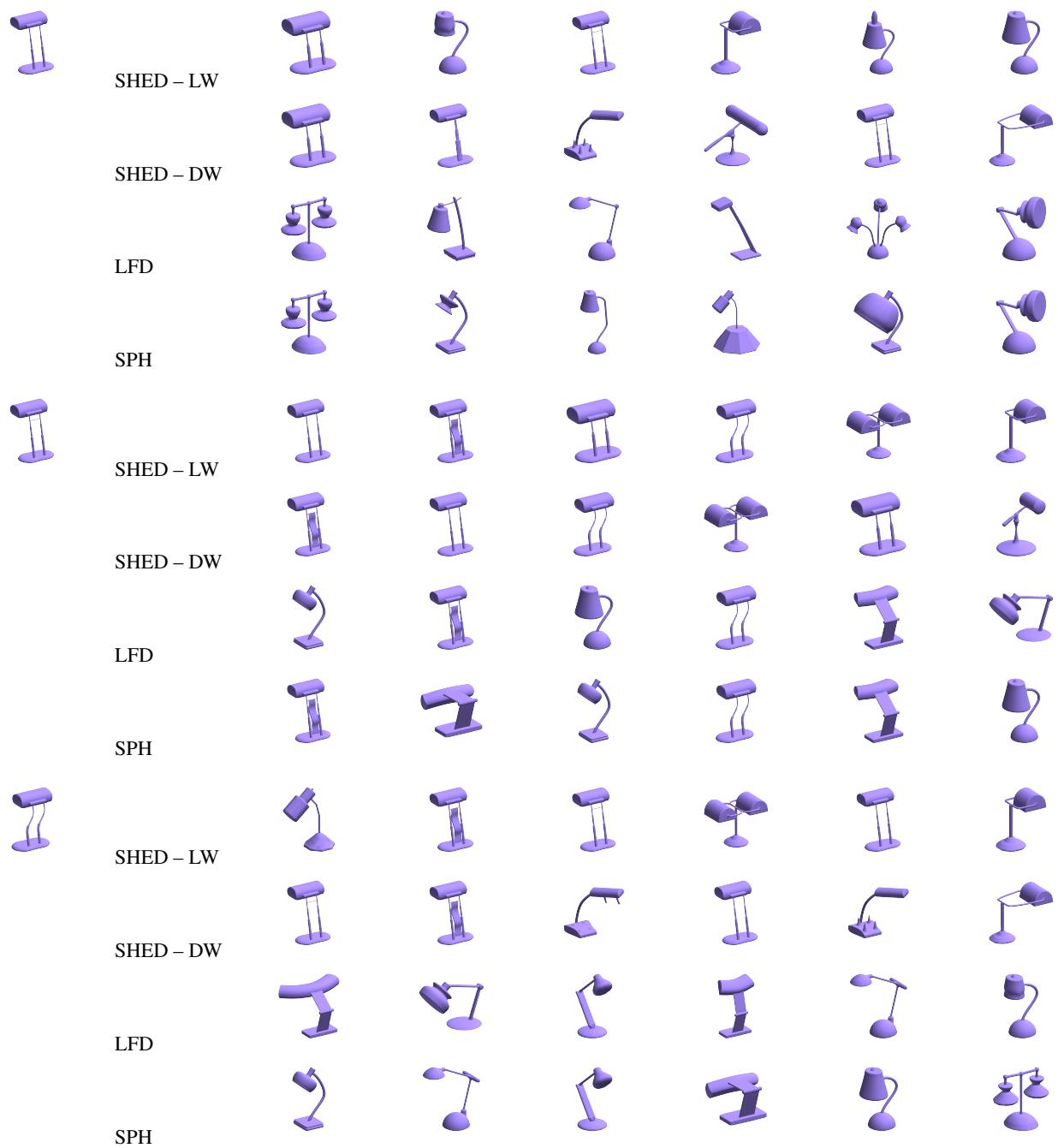


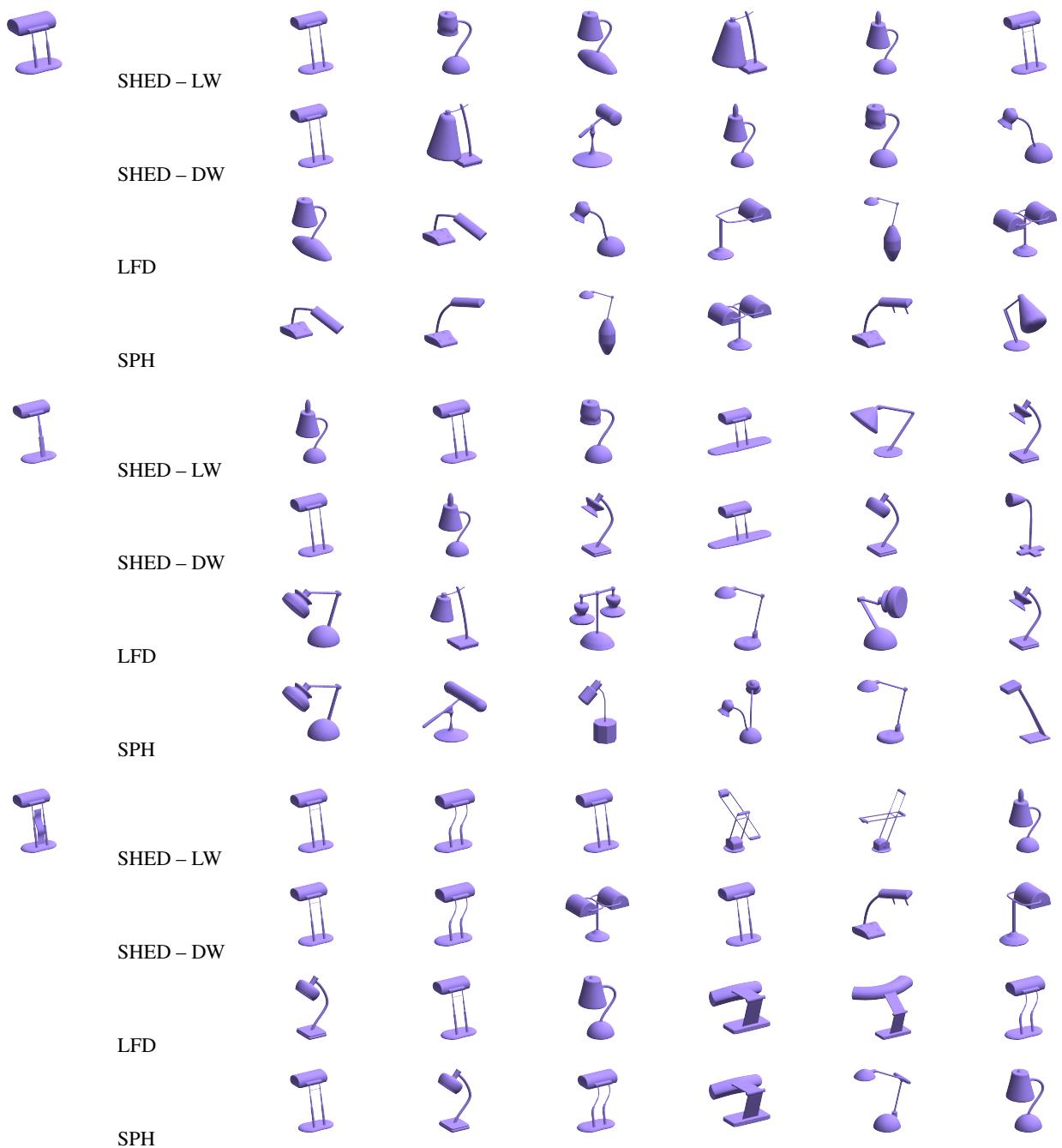


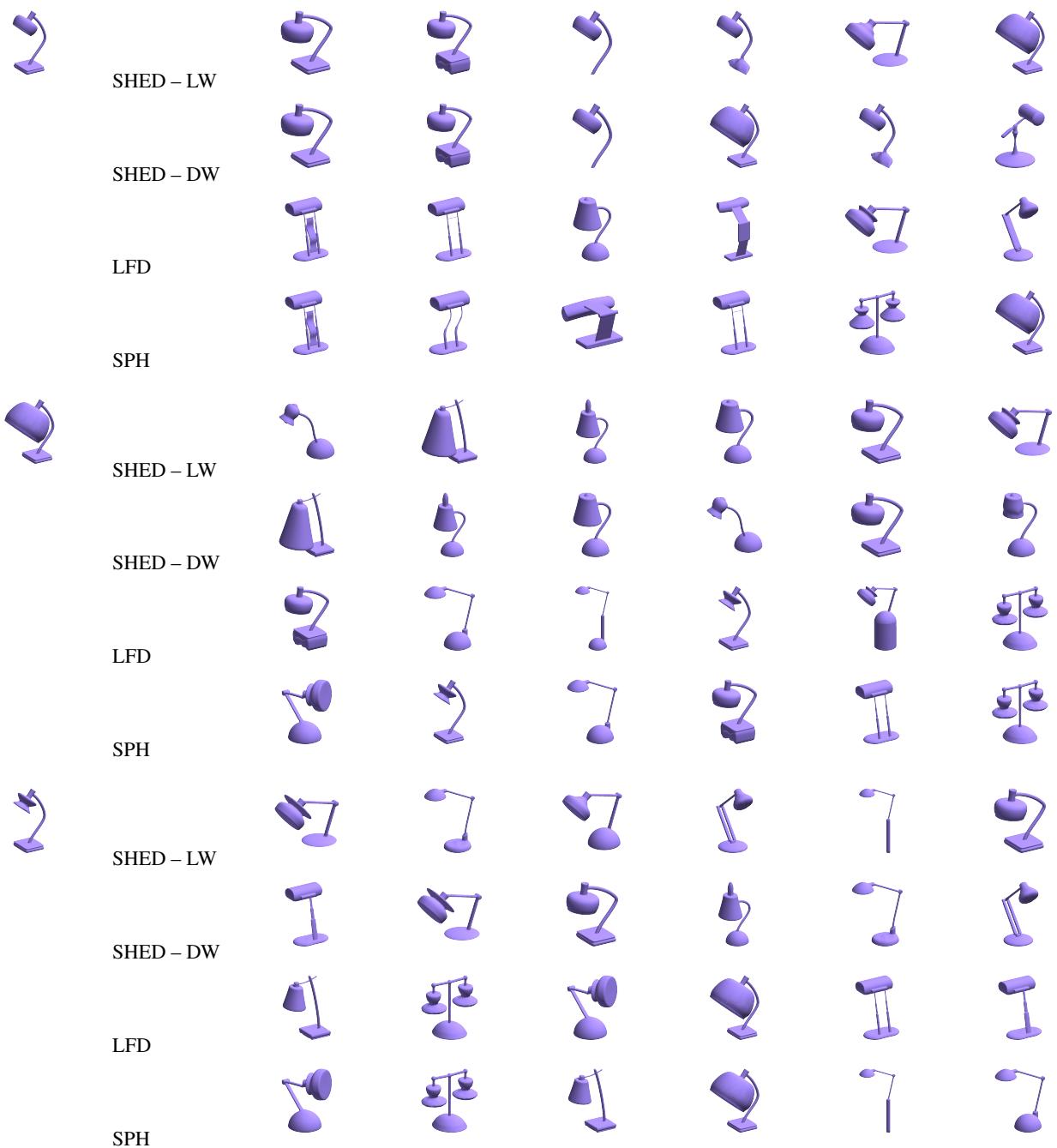


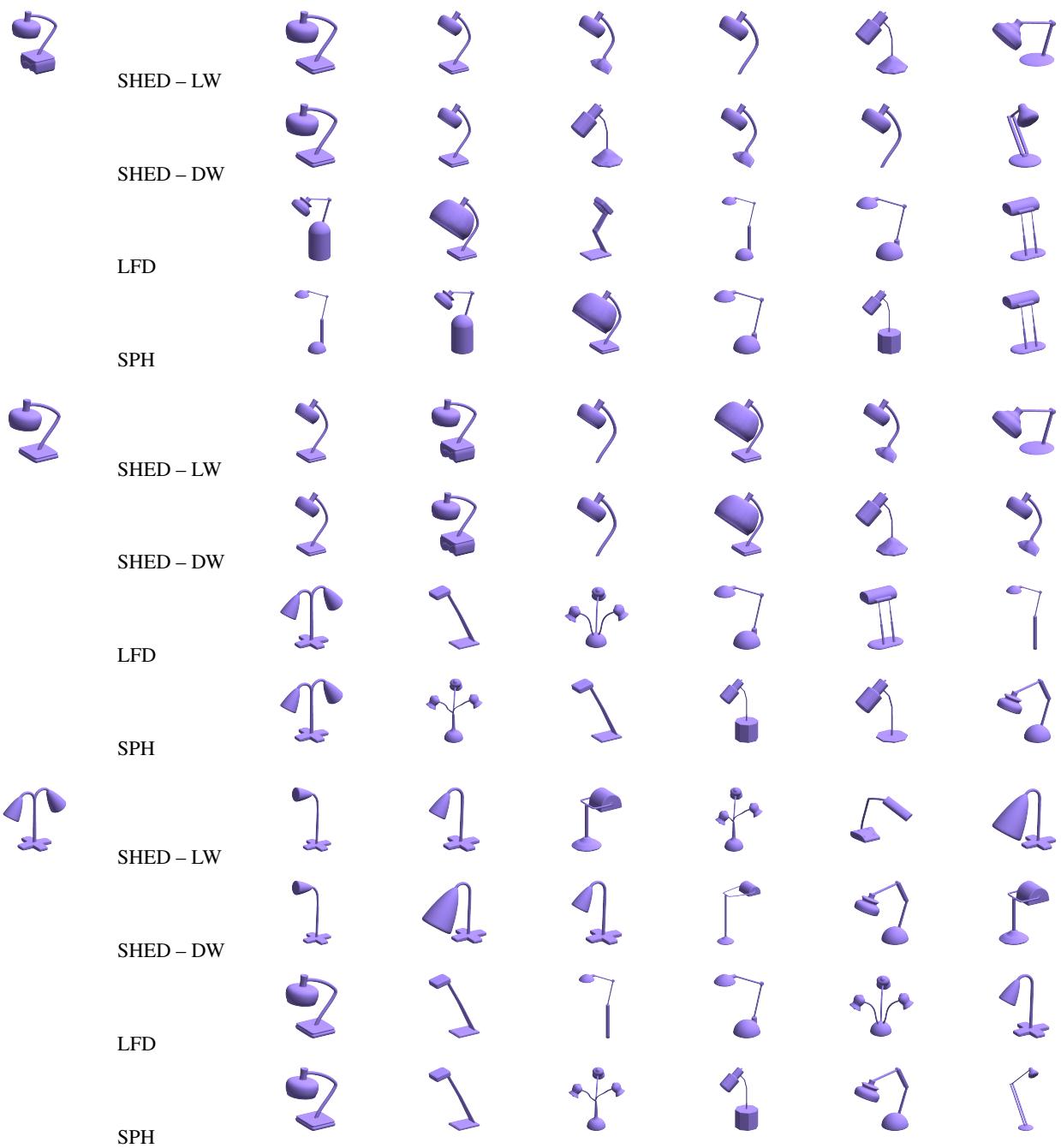


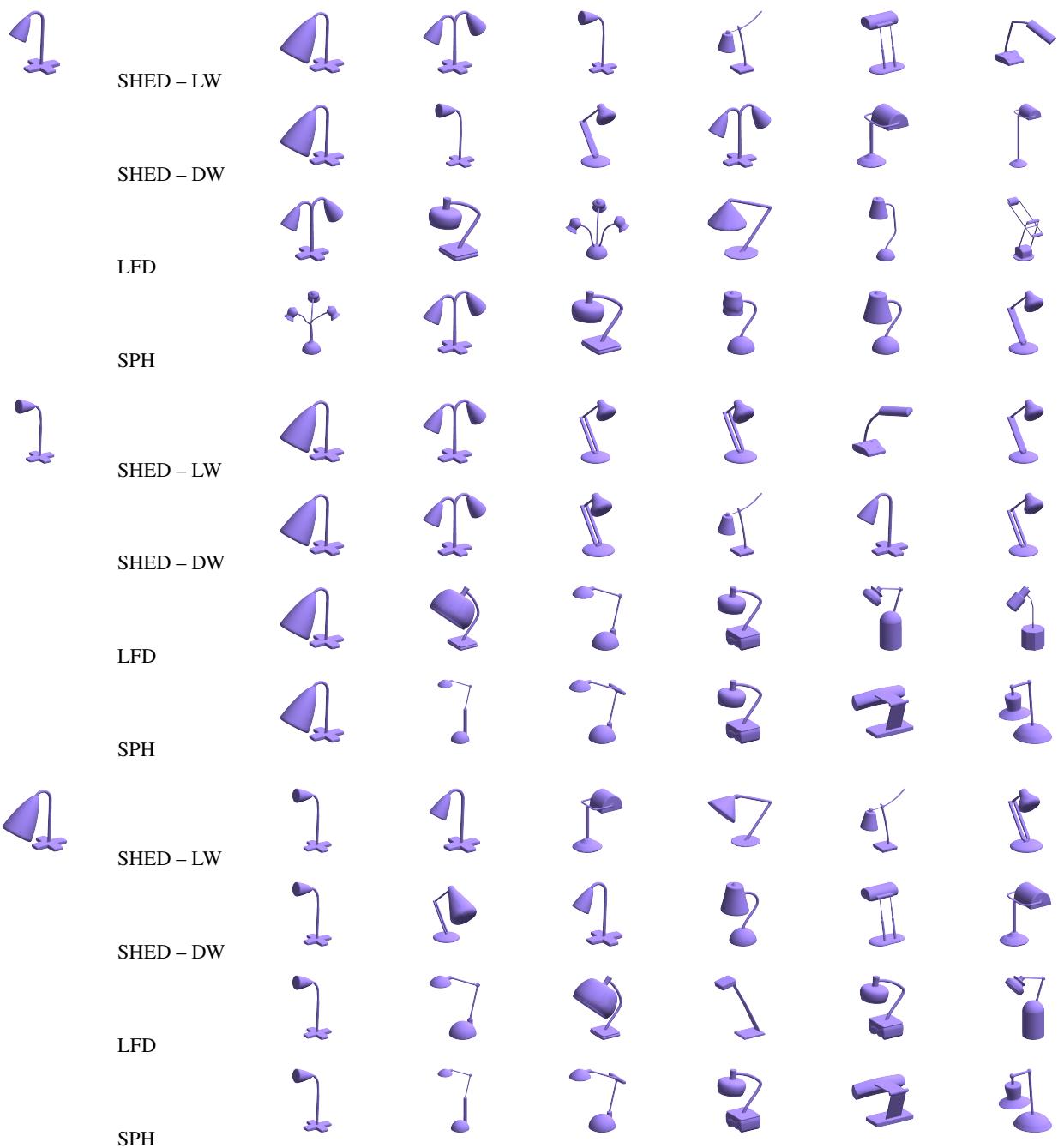


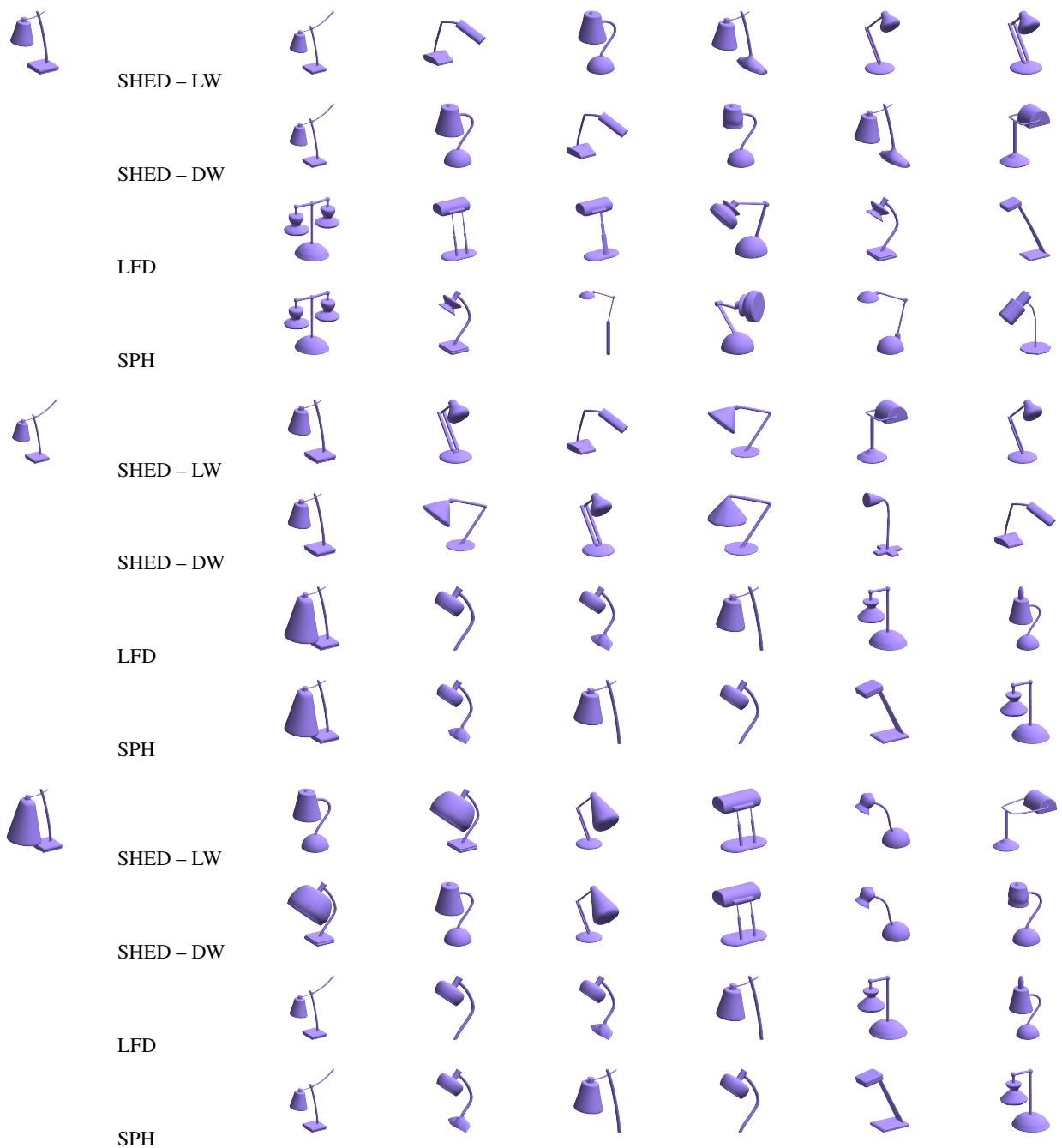


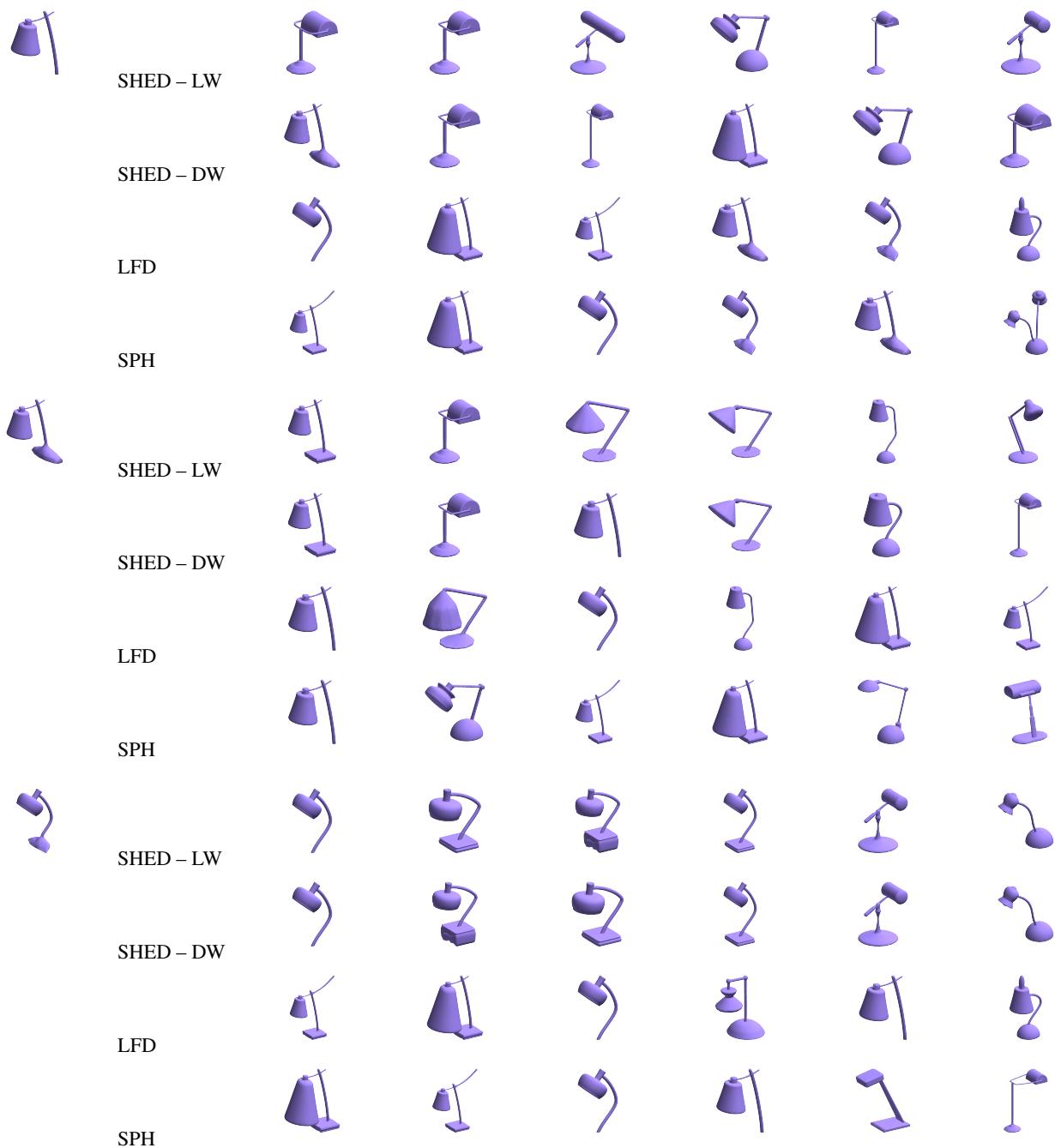


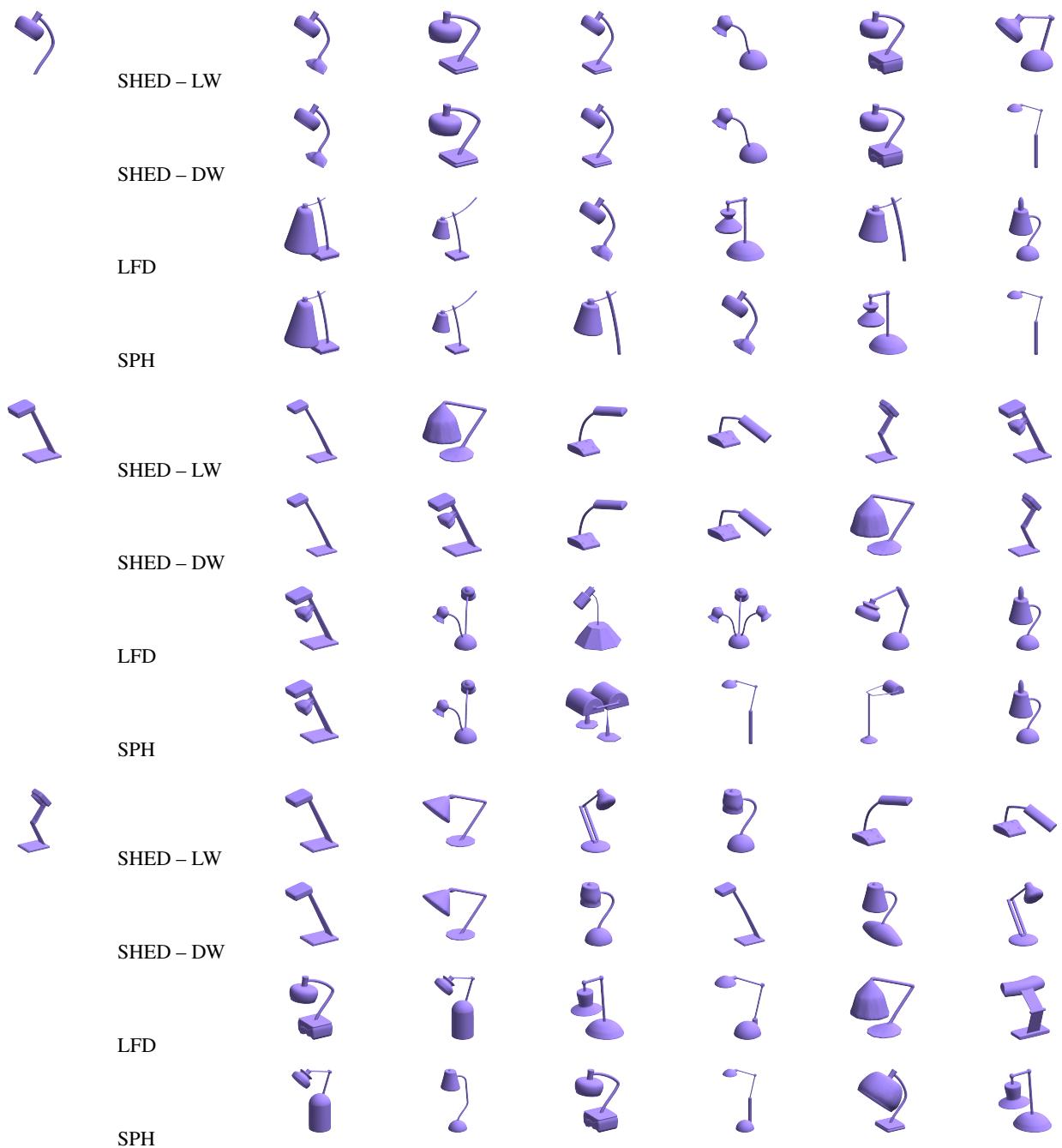


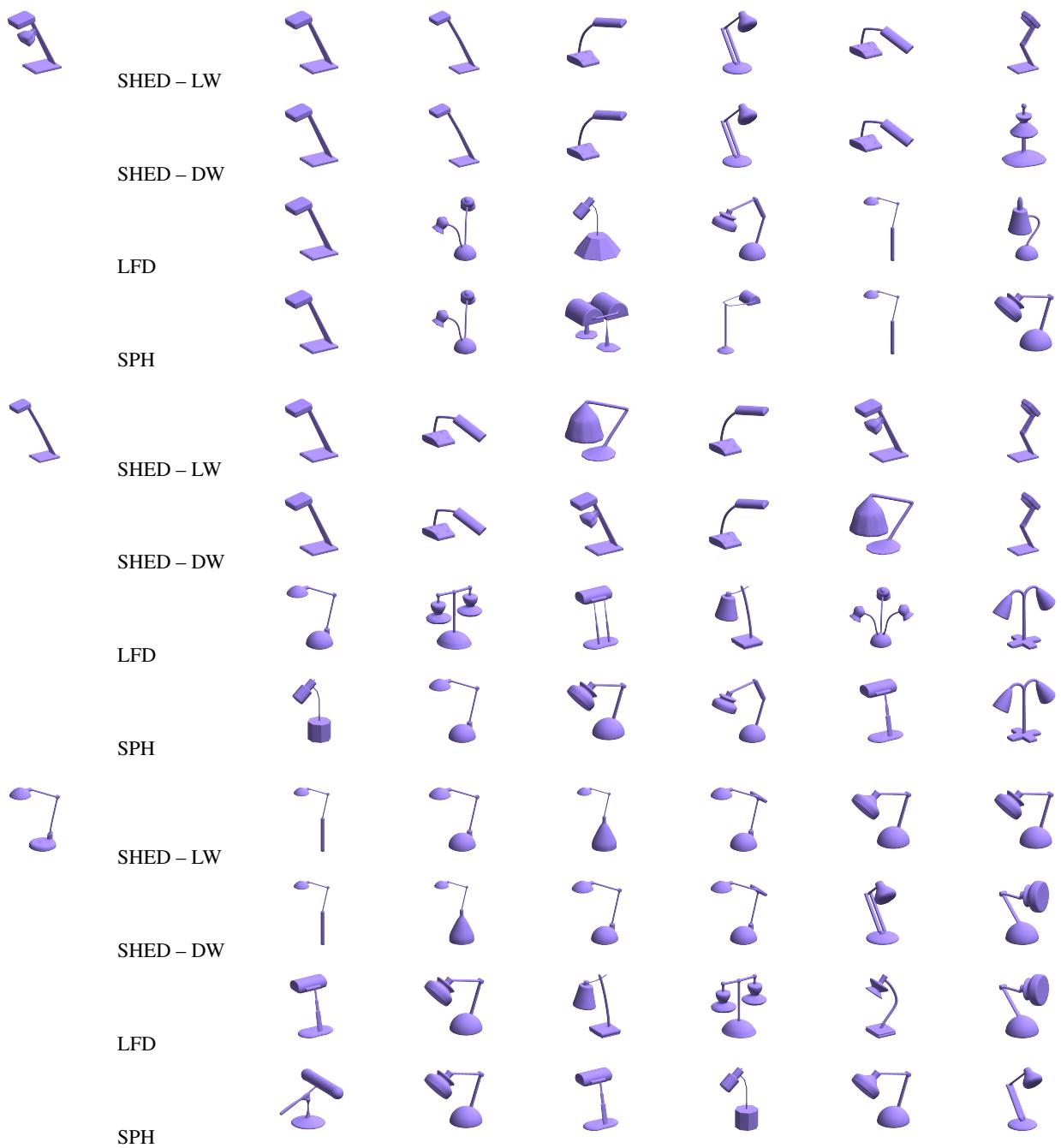


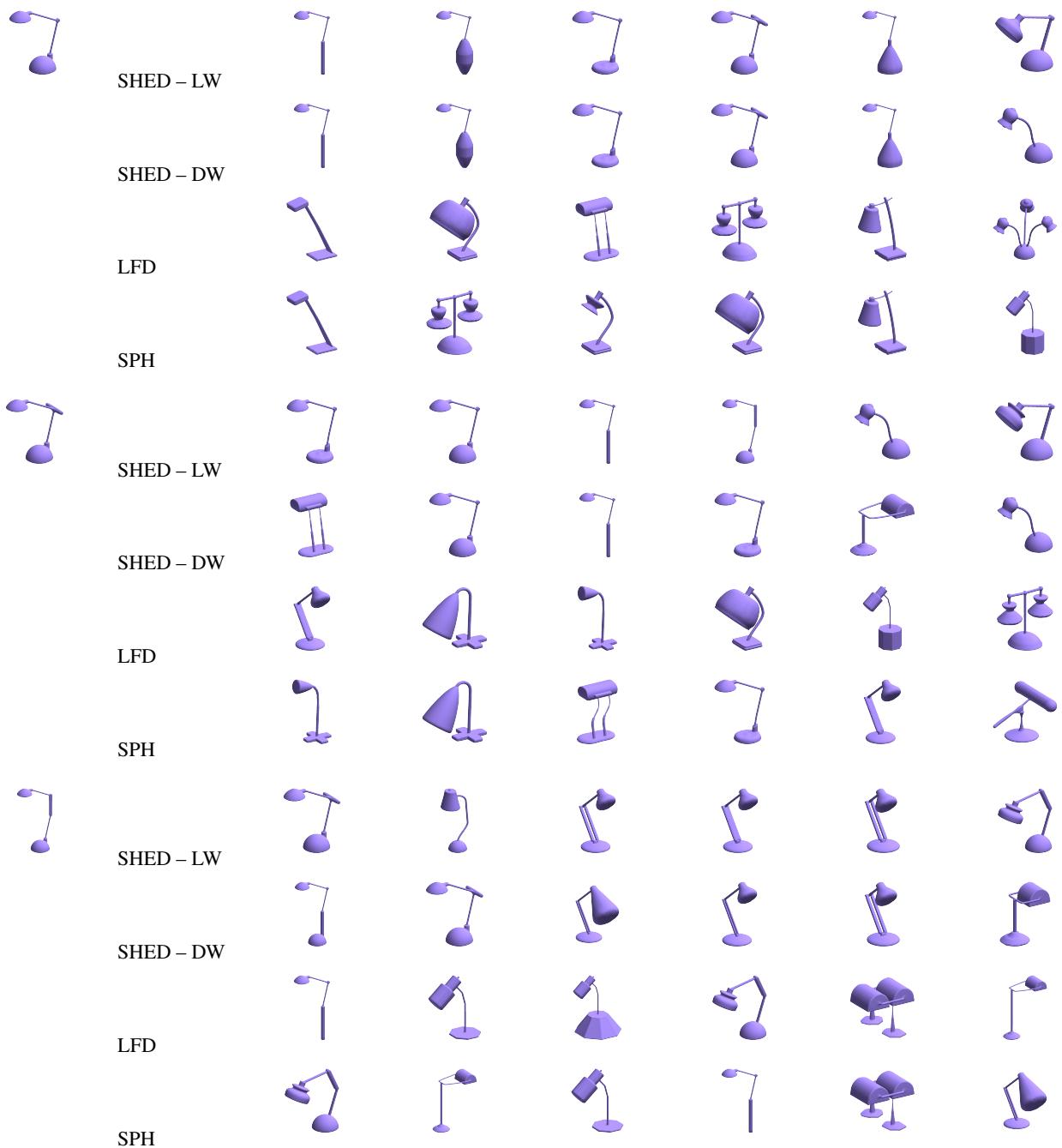


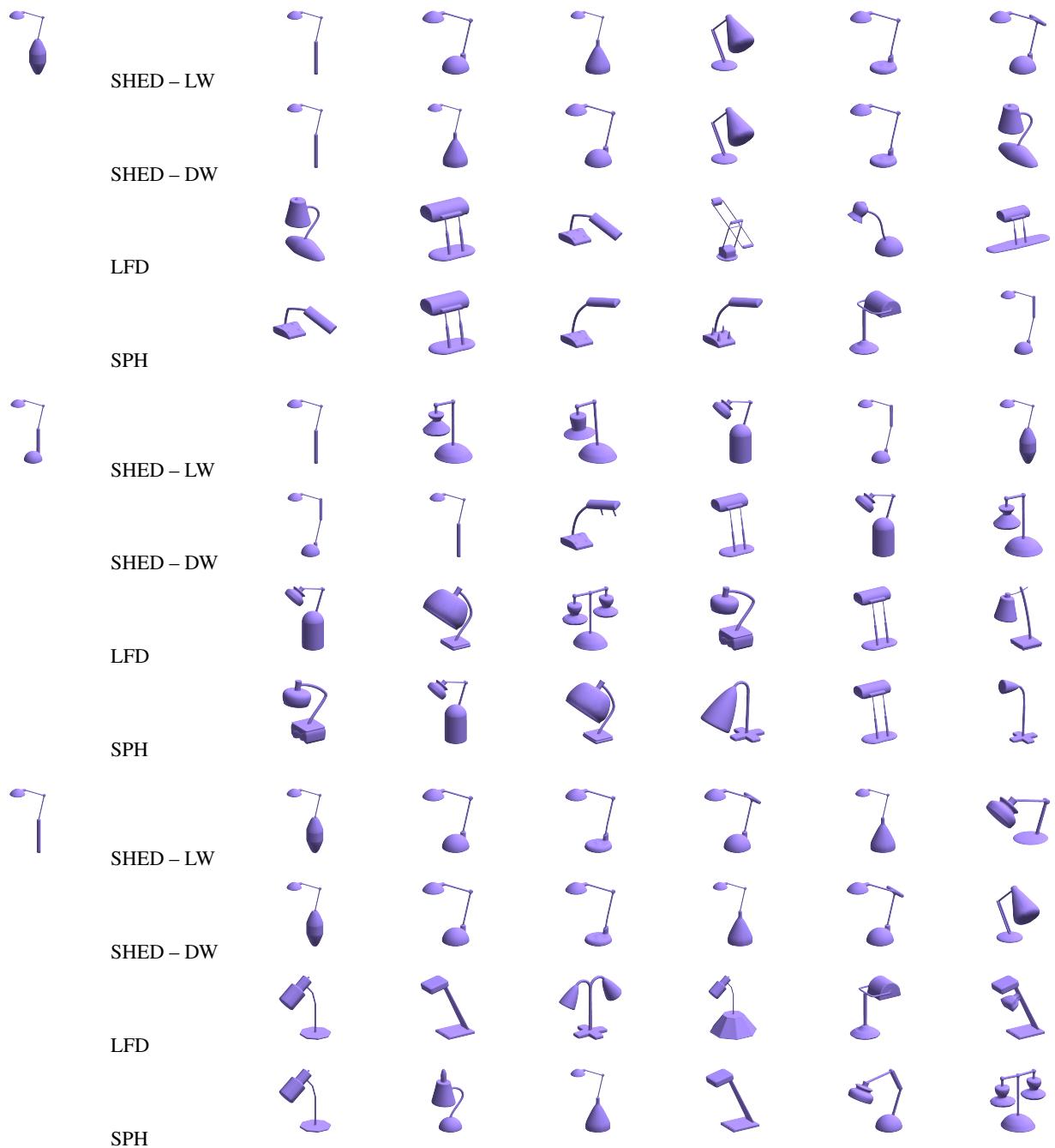


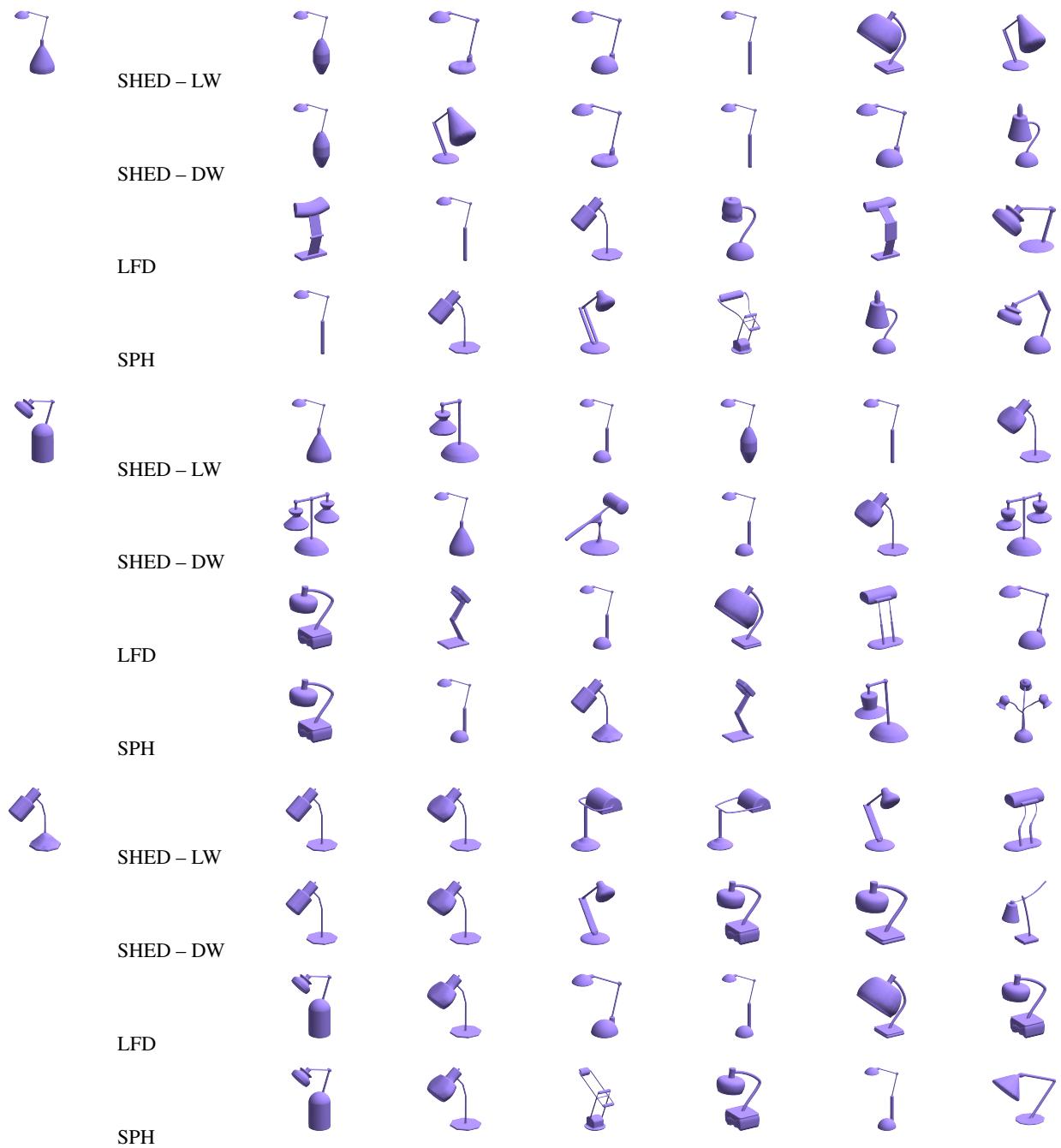


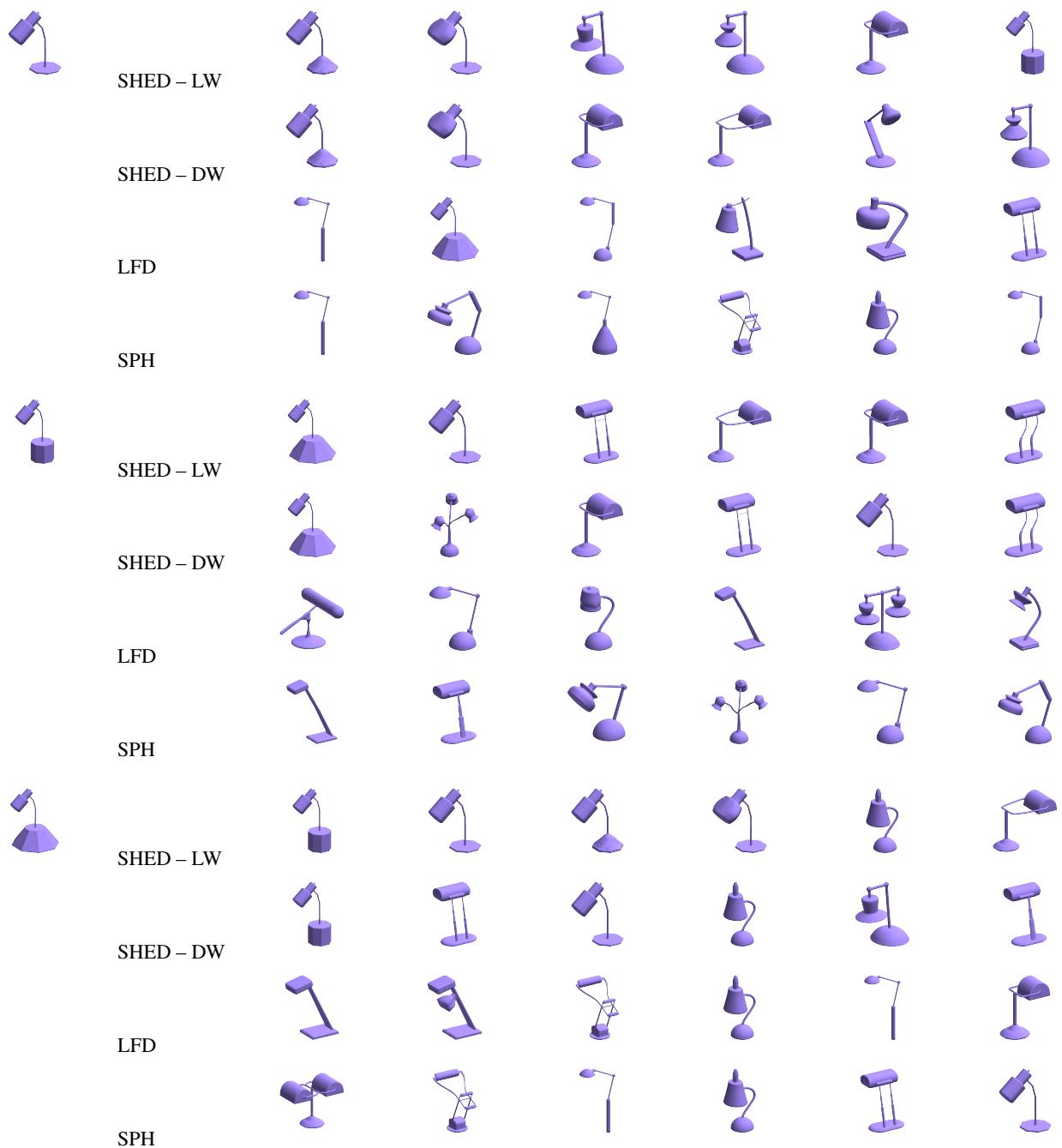


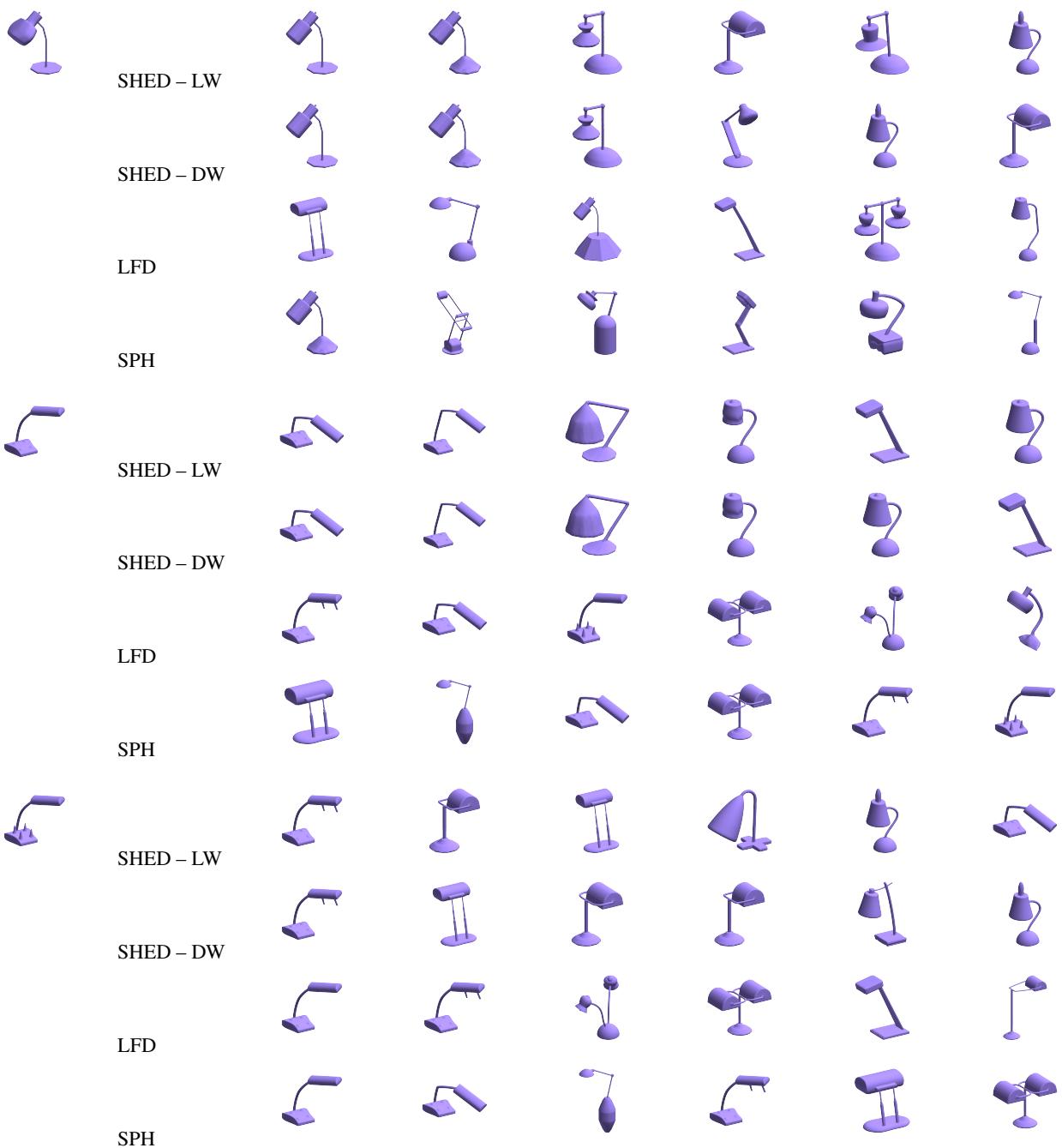


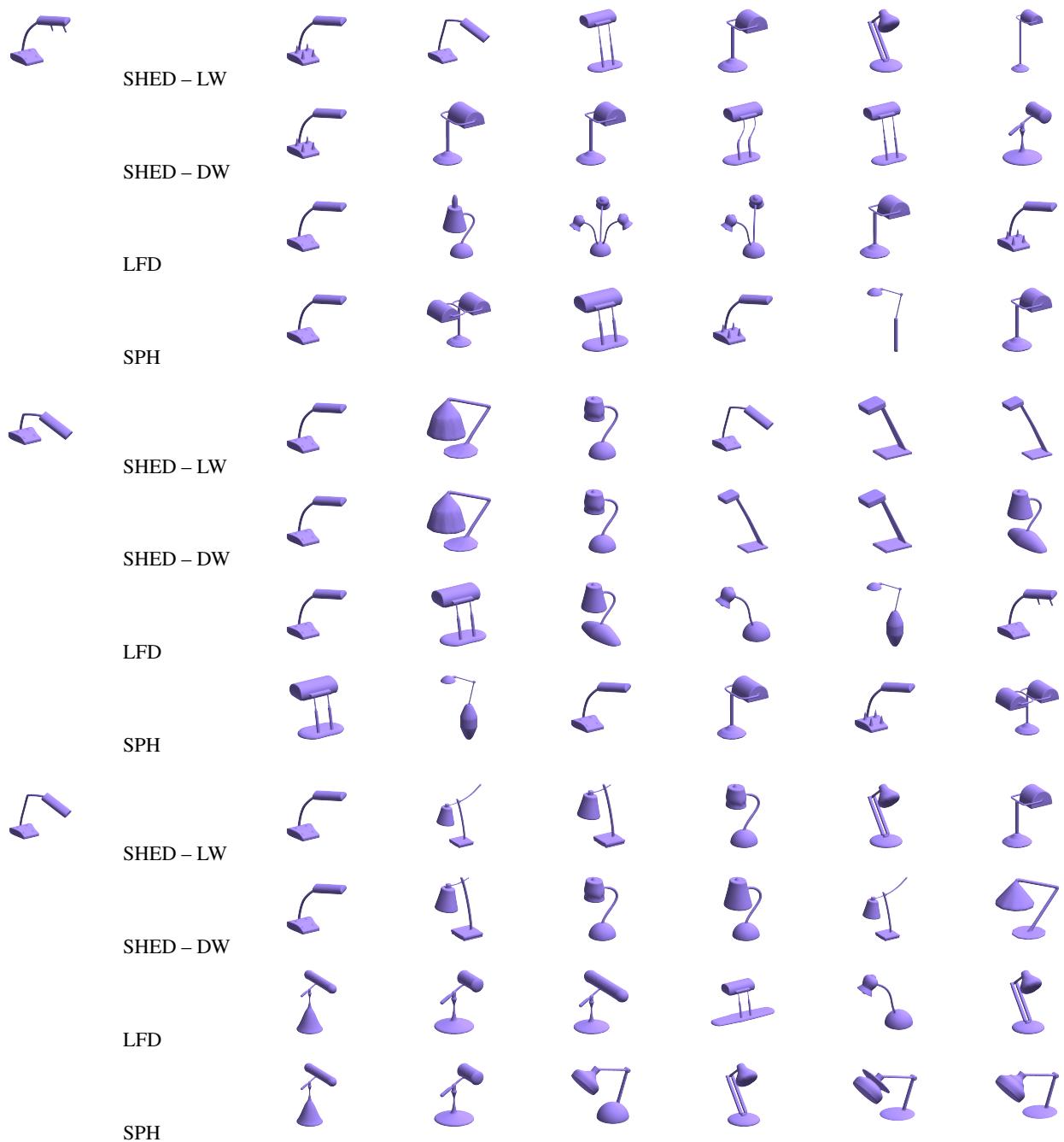


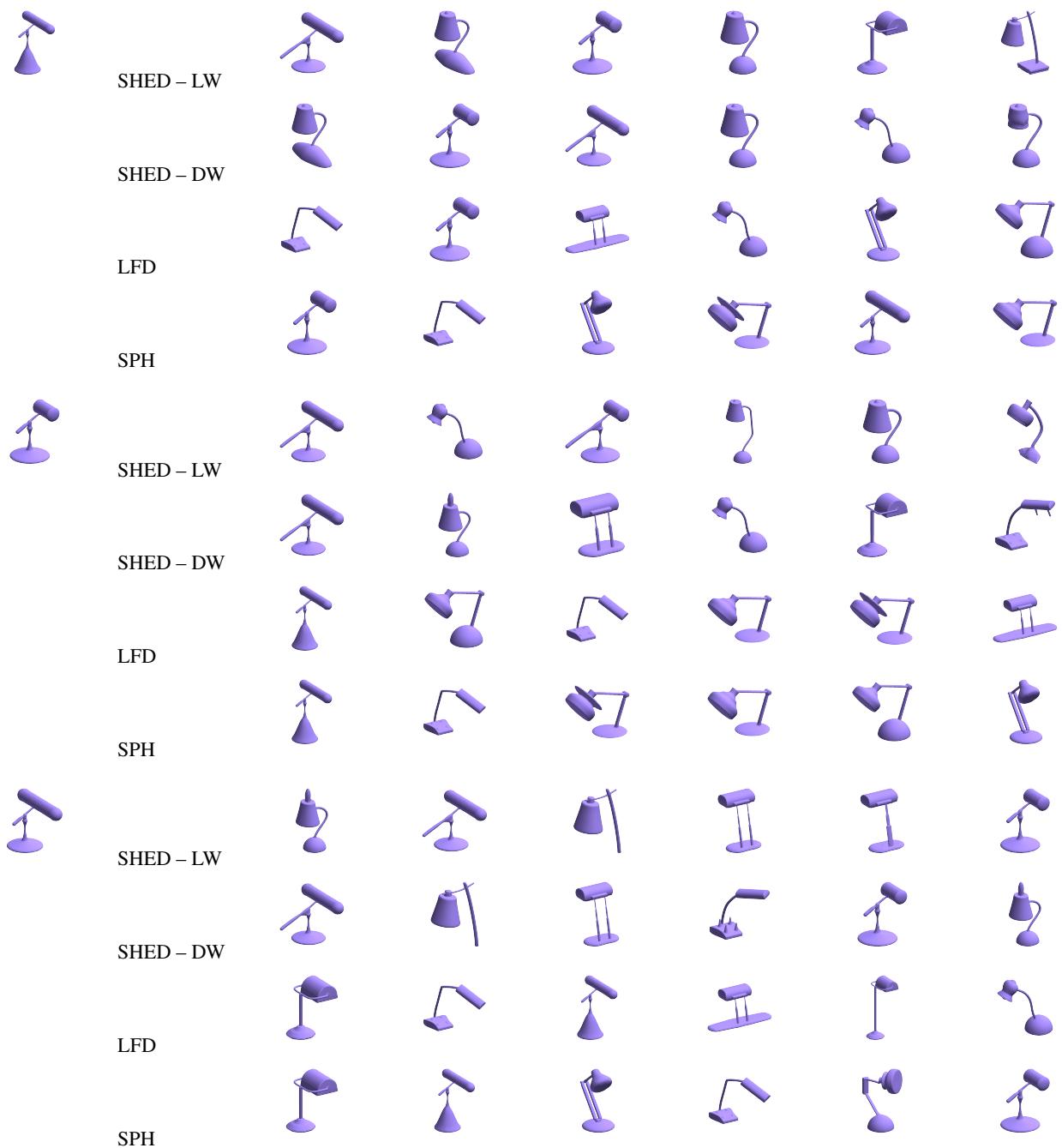


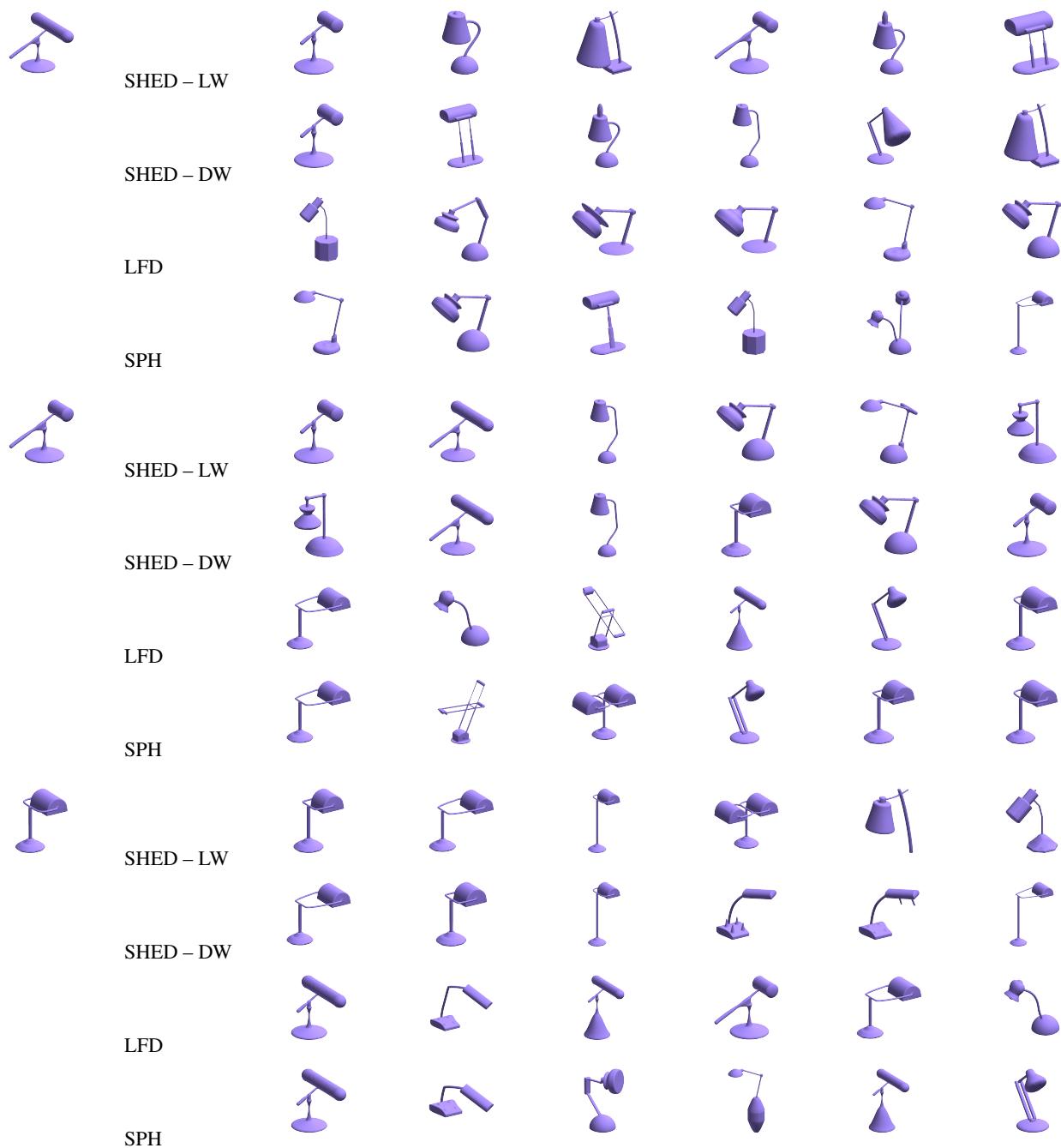


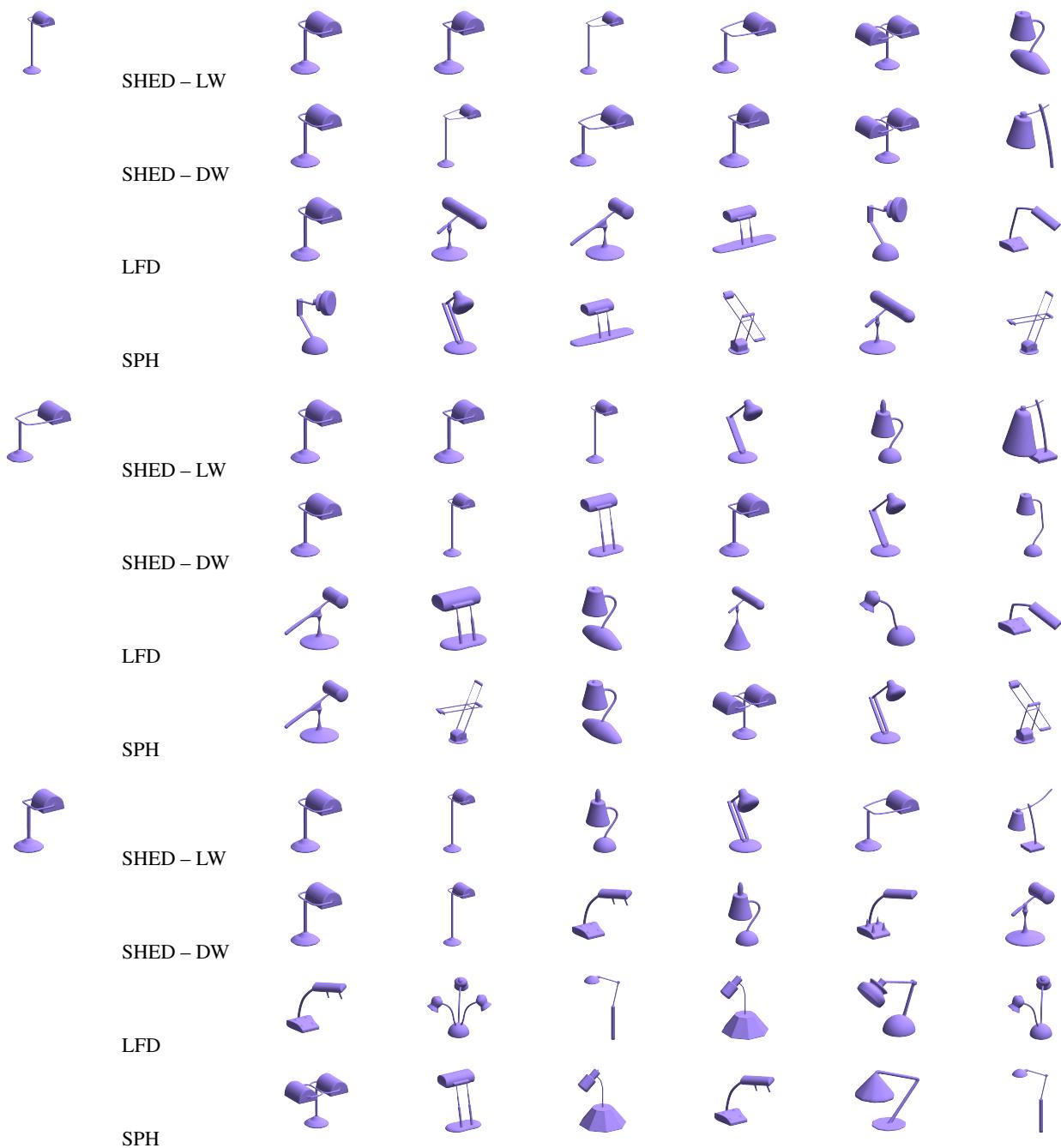


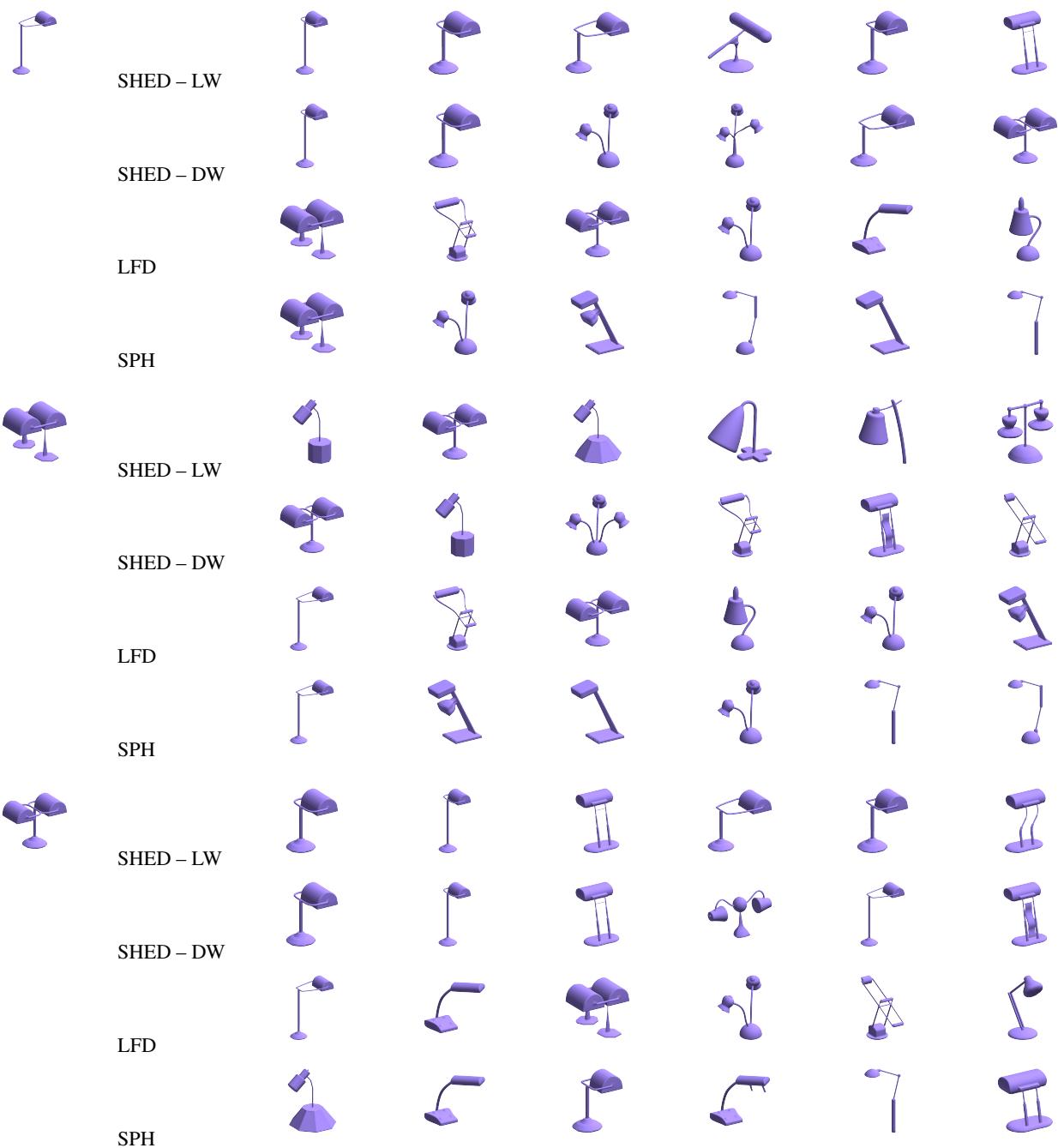


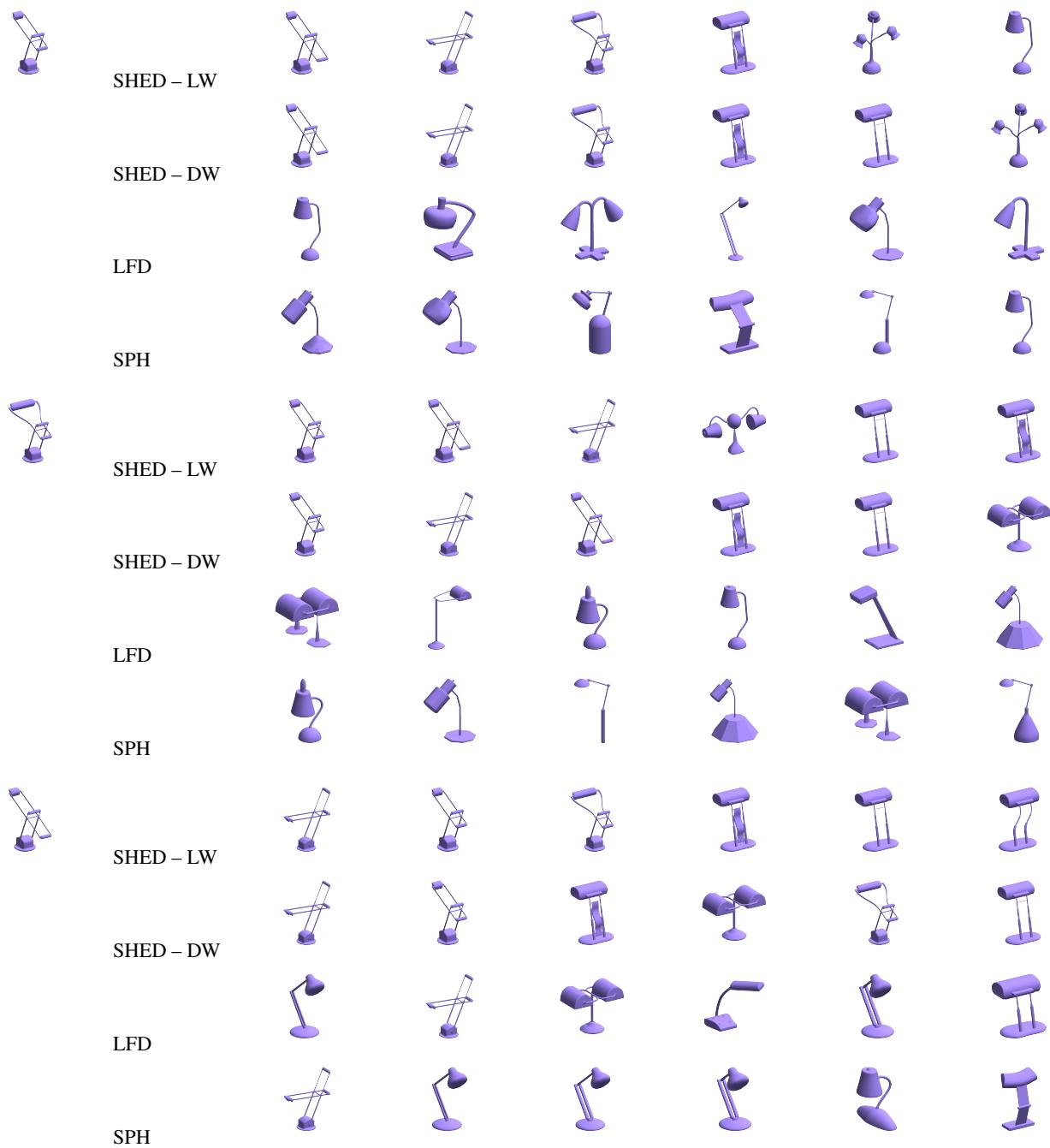


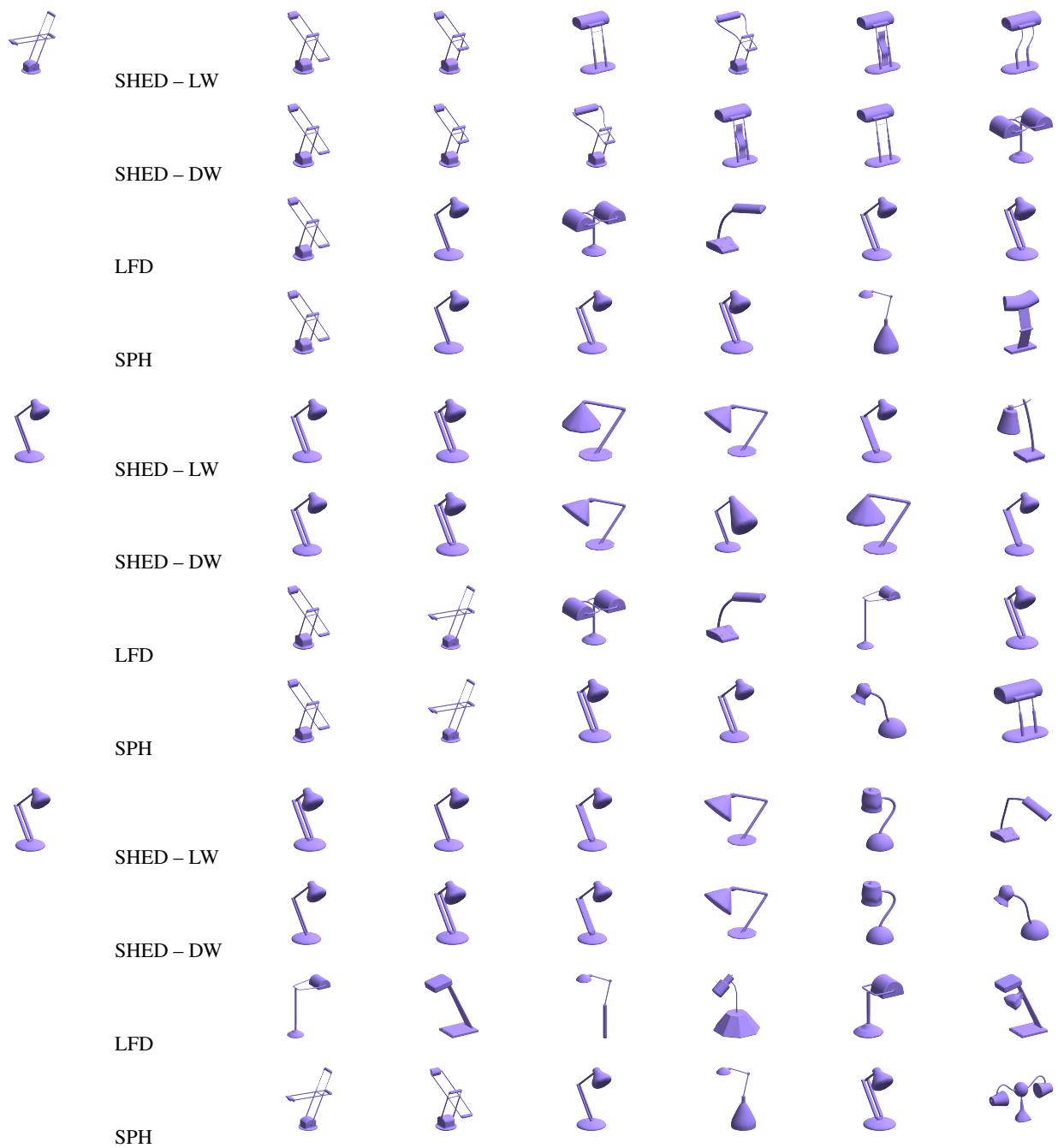


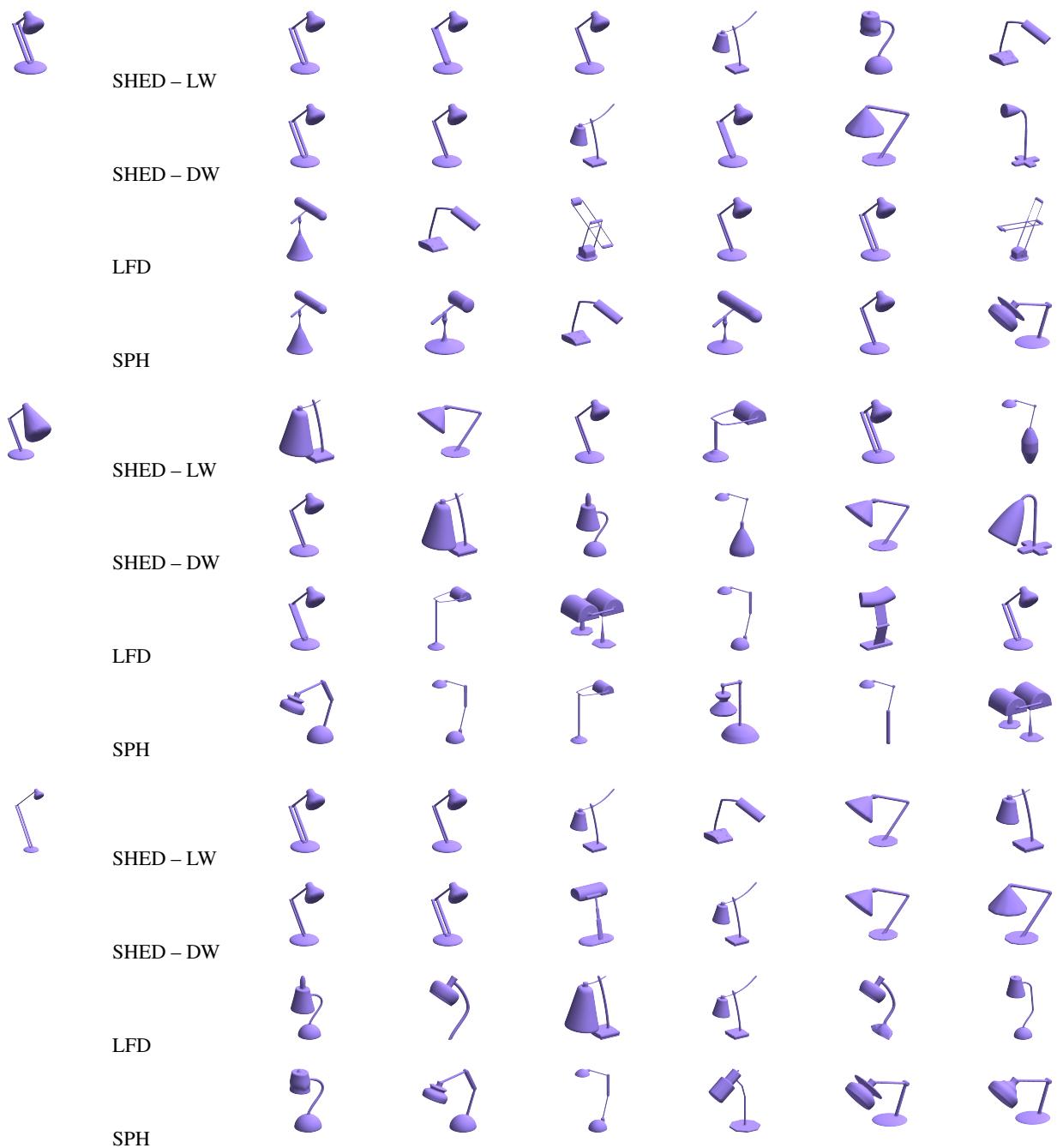


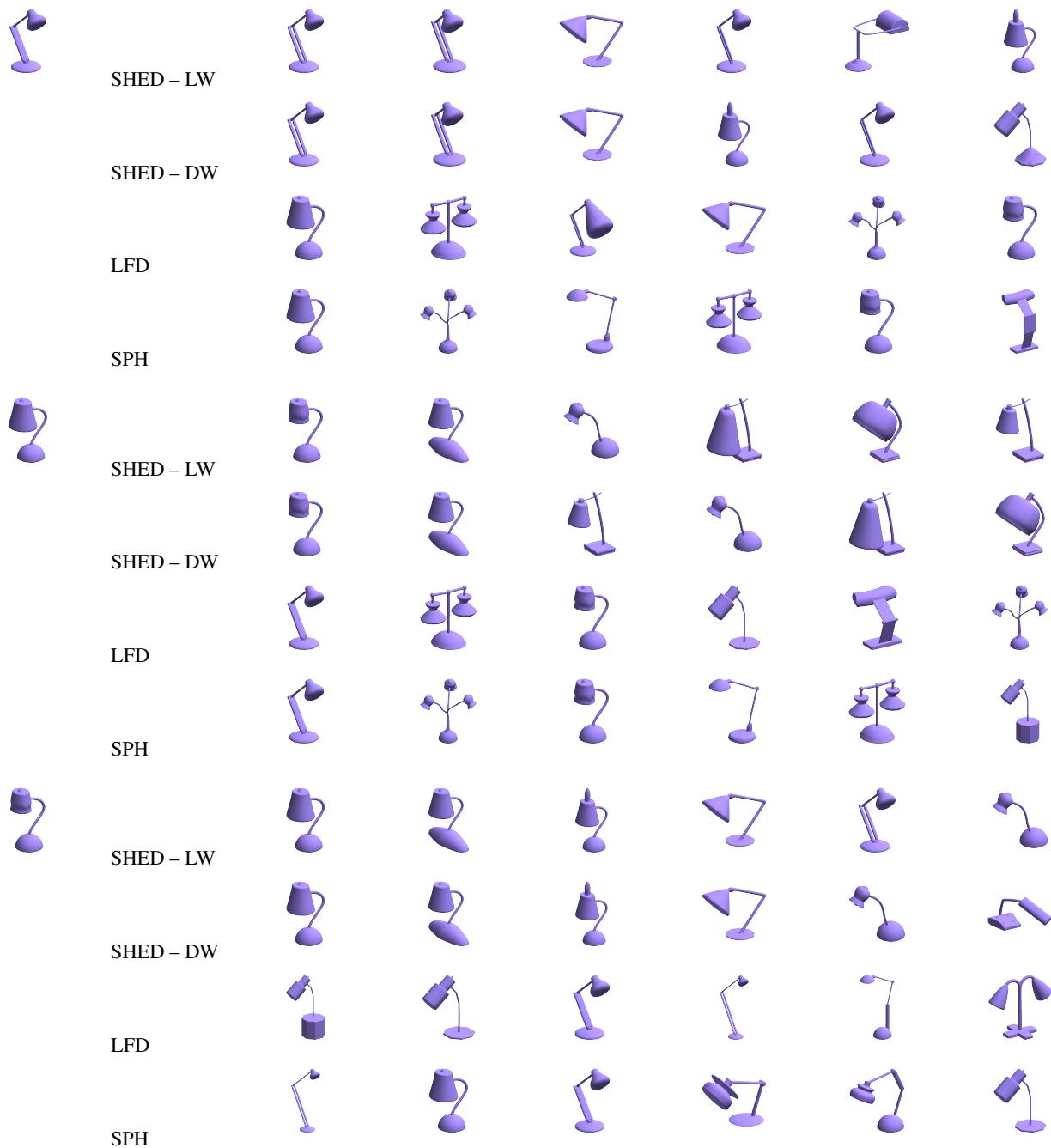


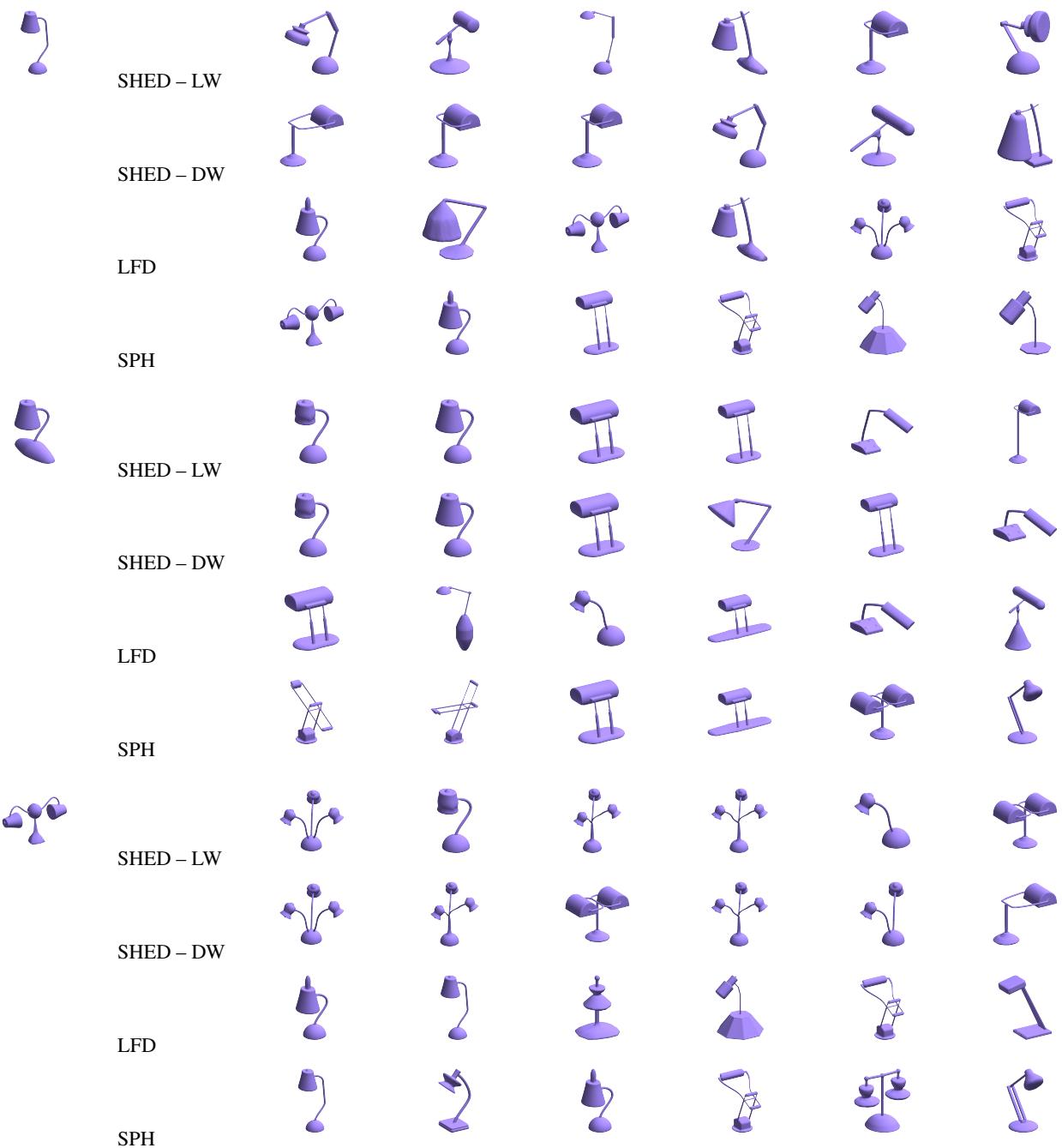


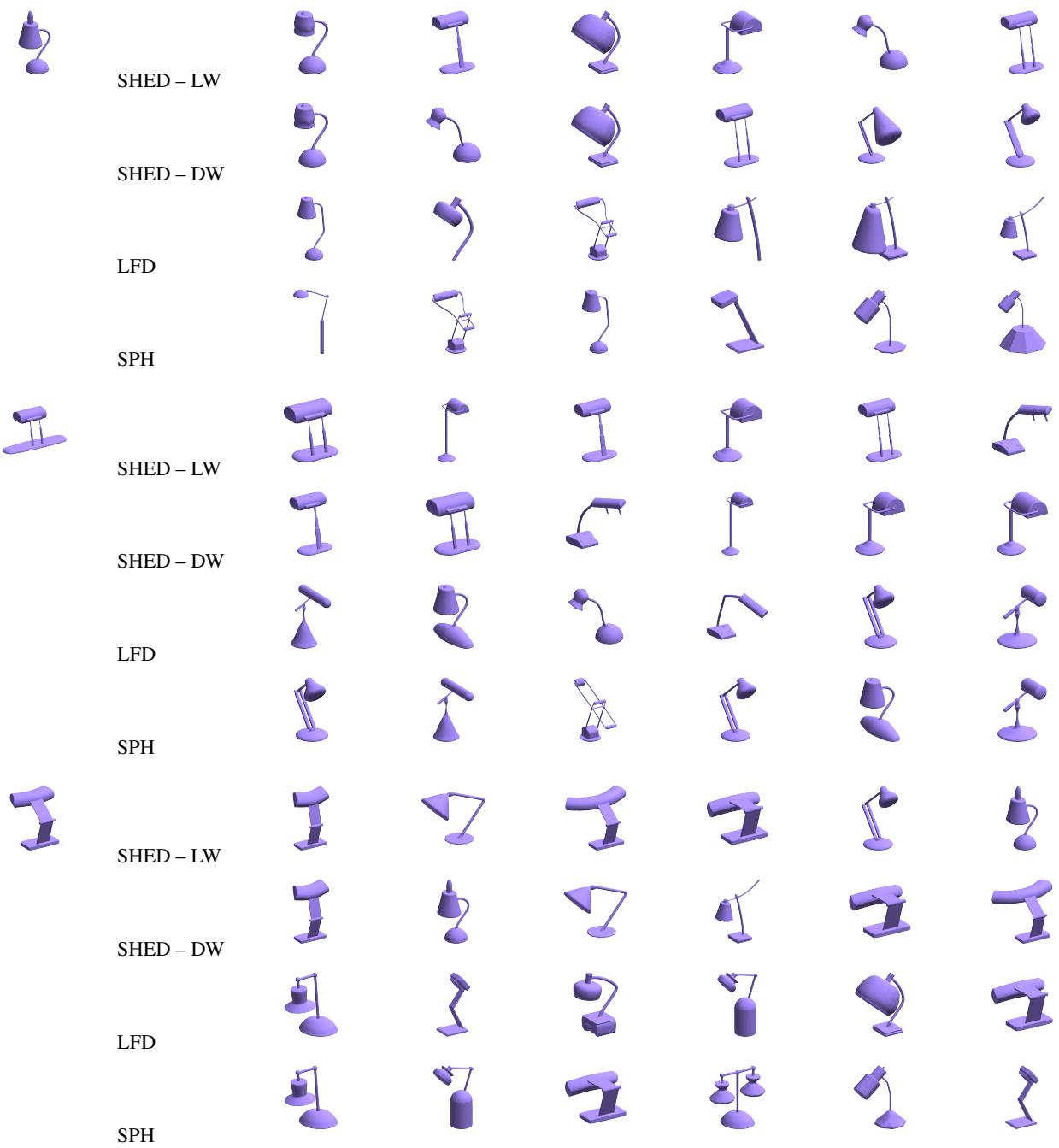


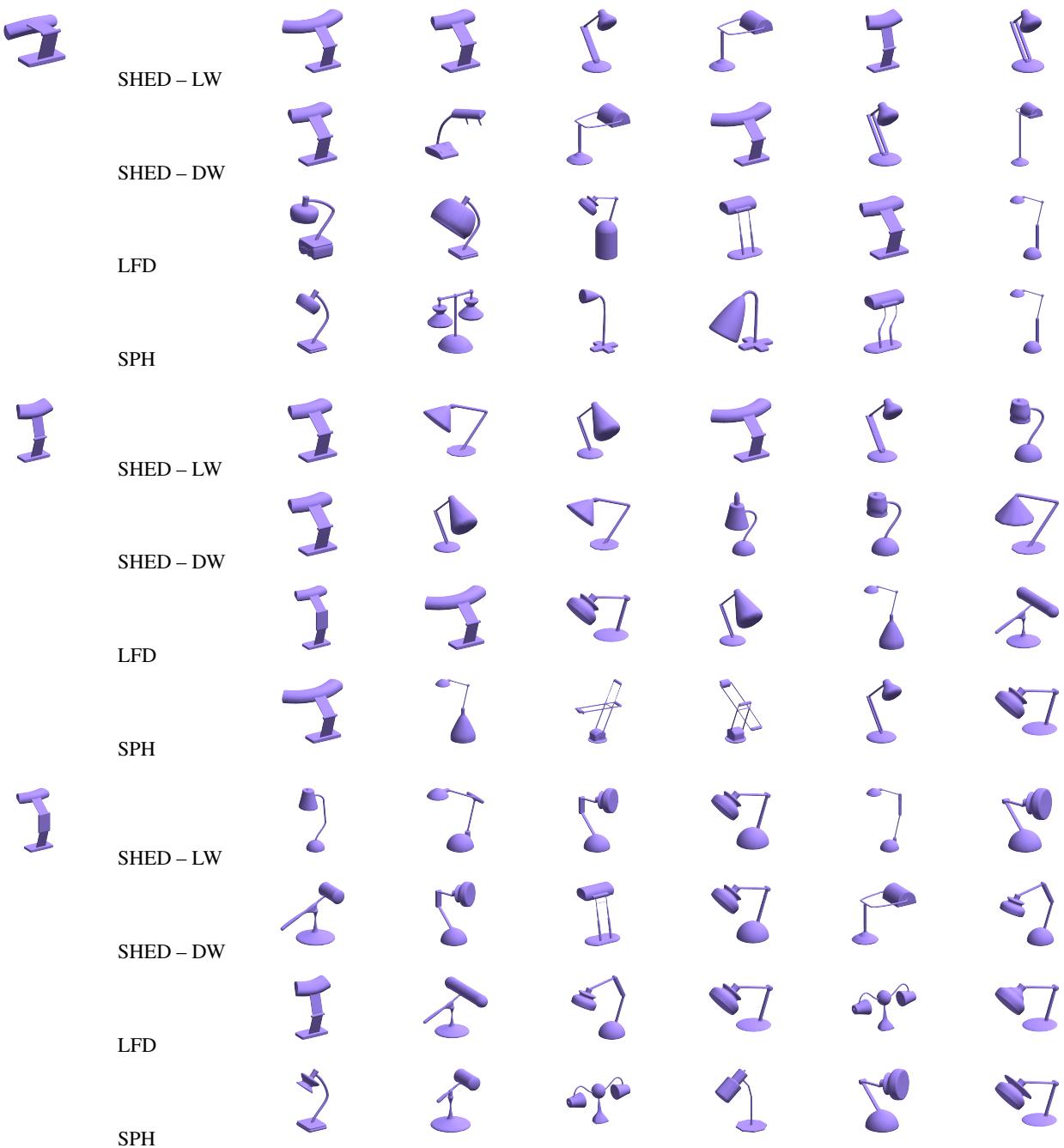


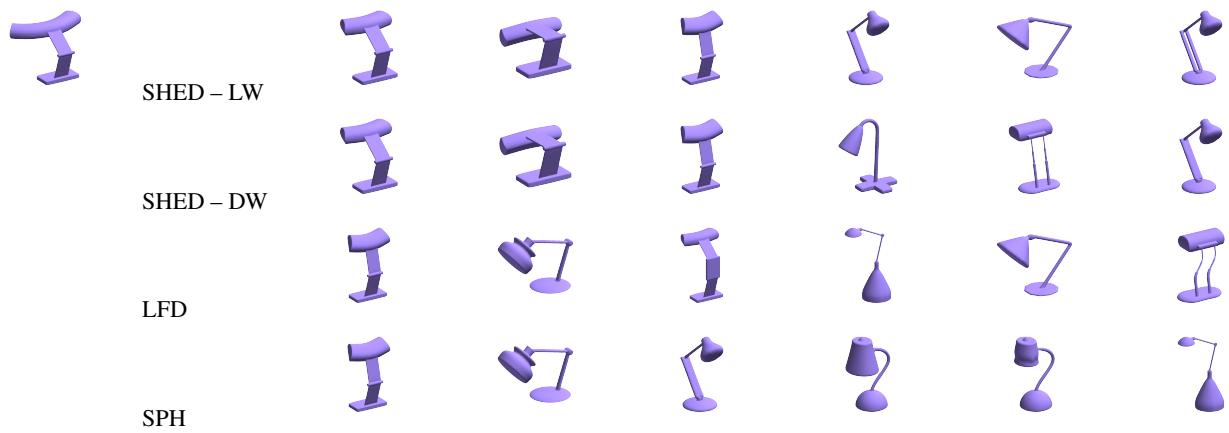




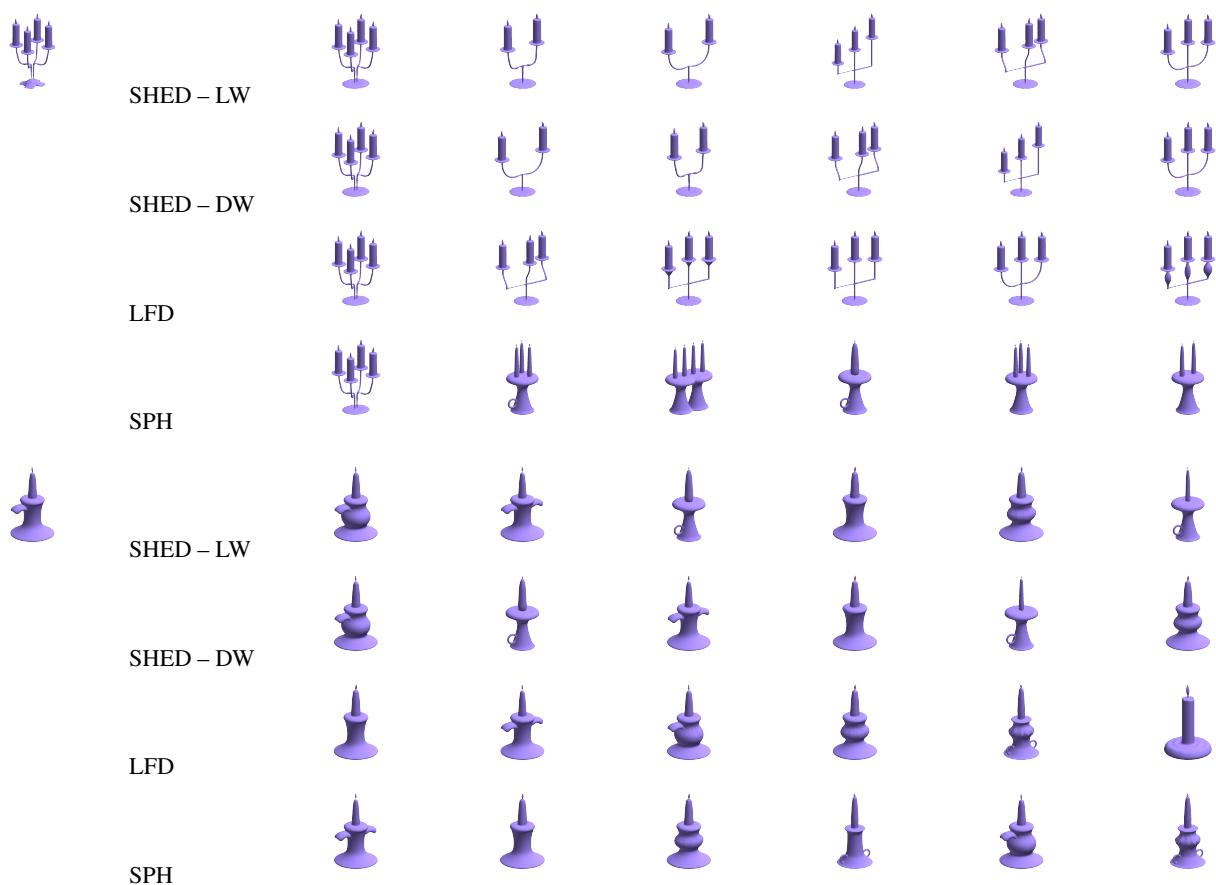


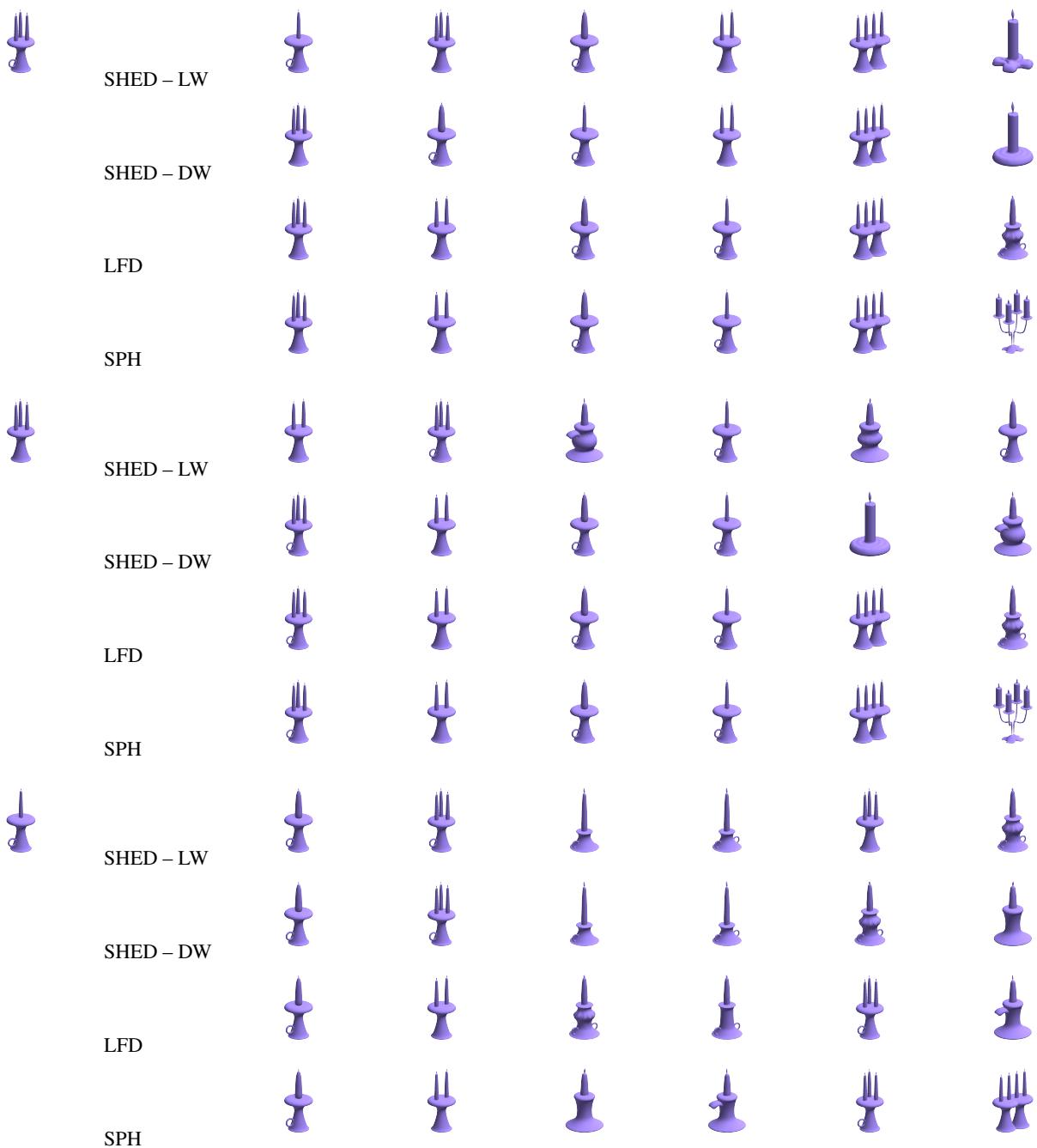


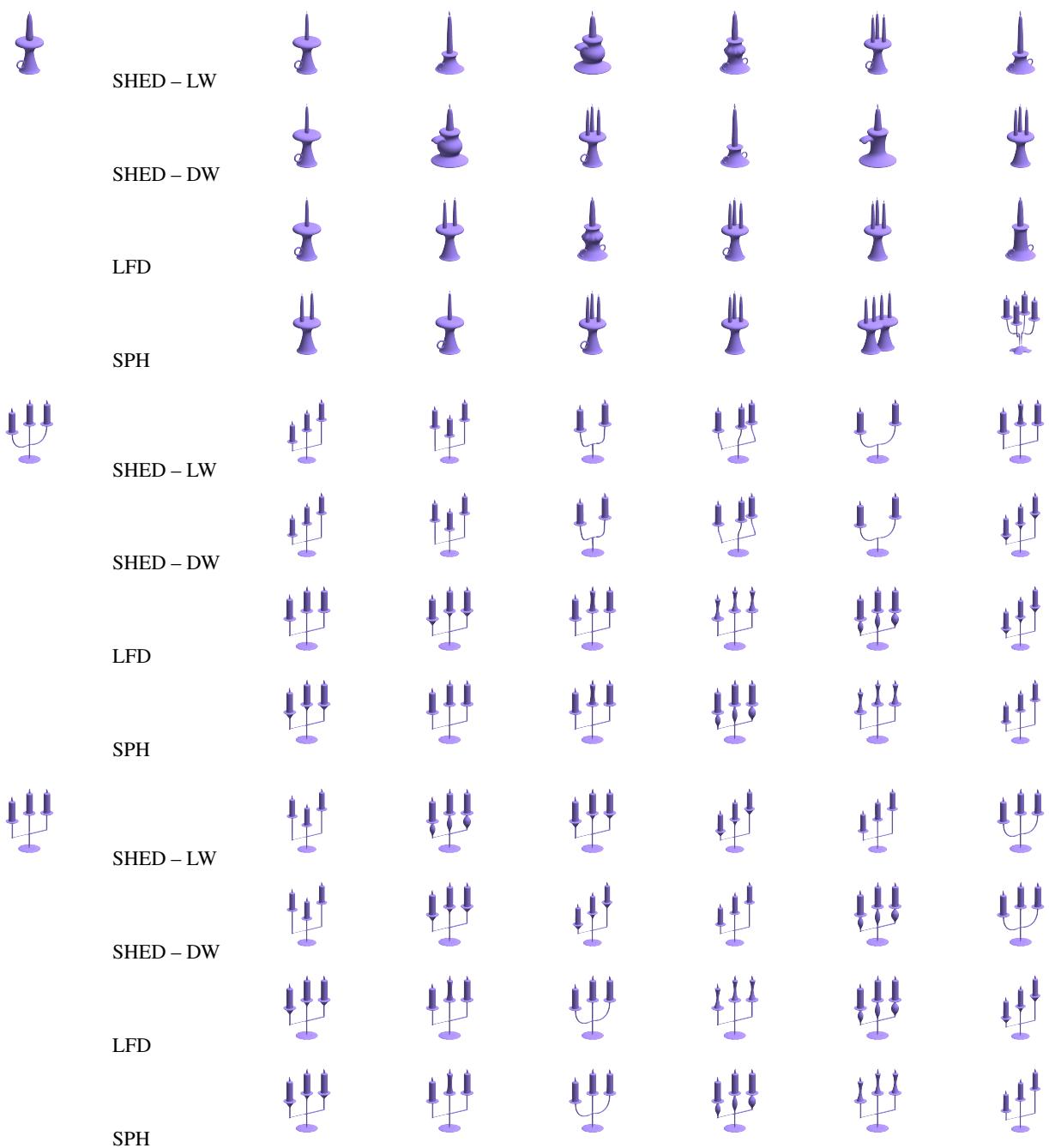


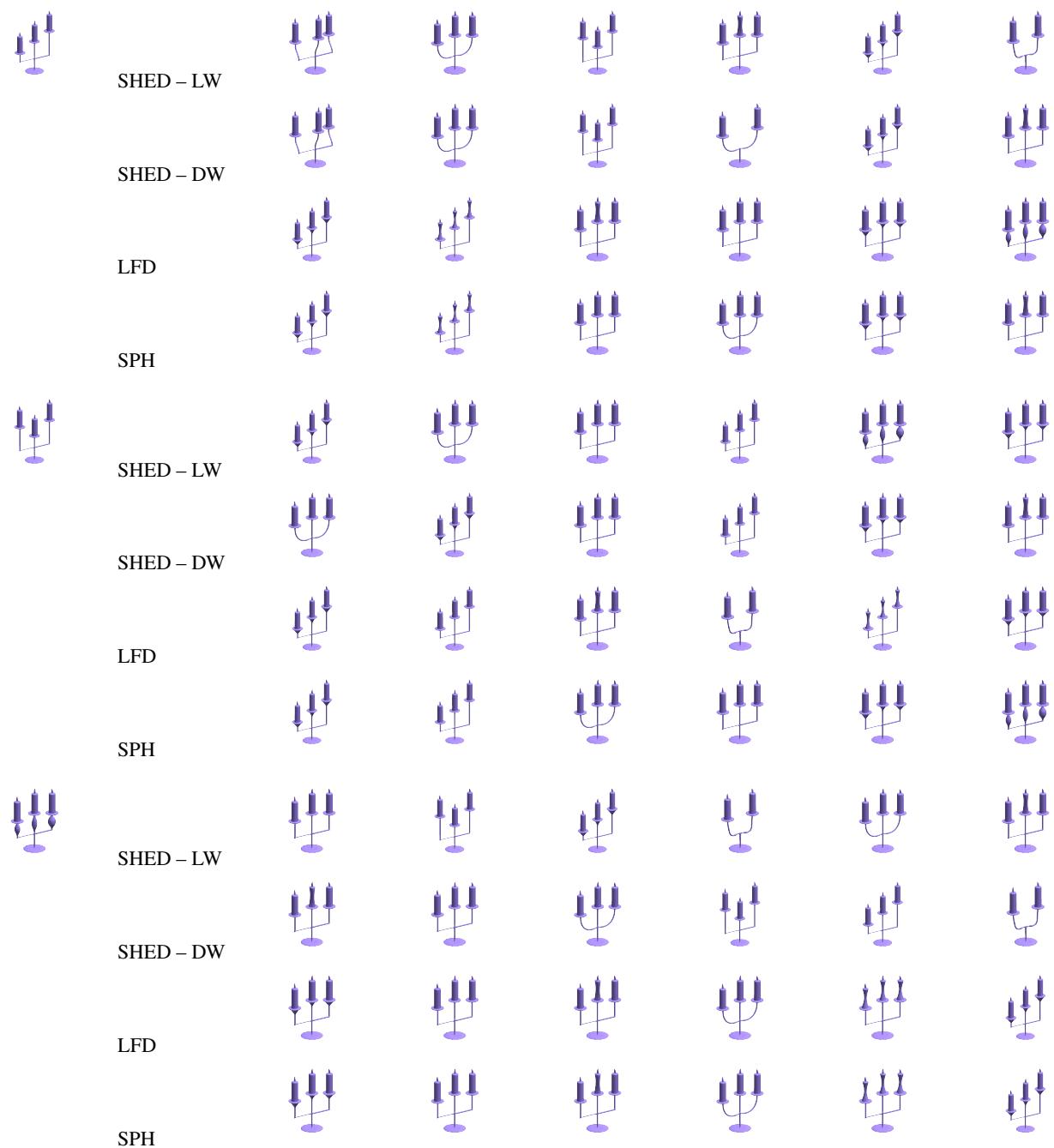


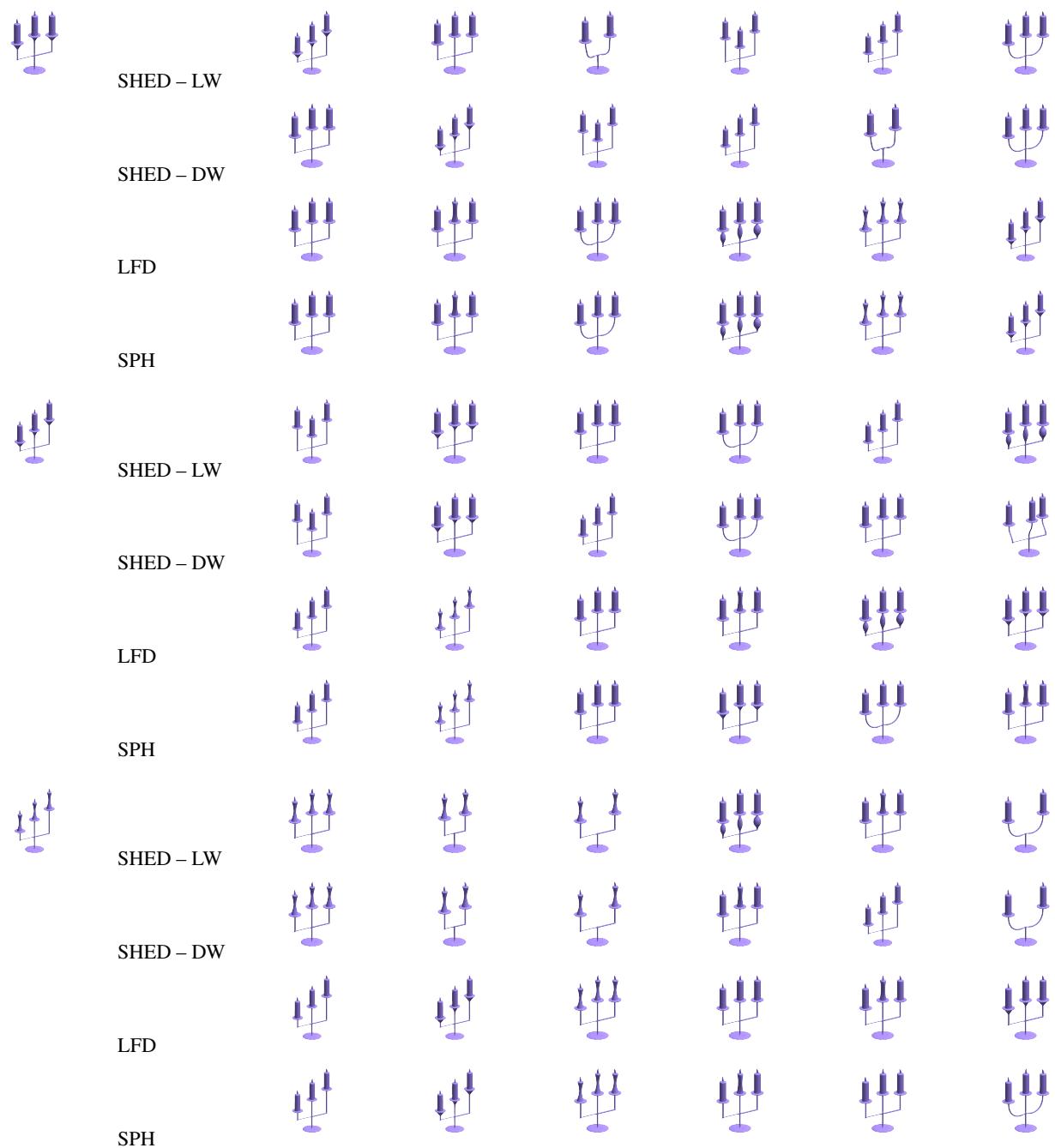
3.4 Candles

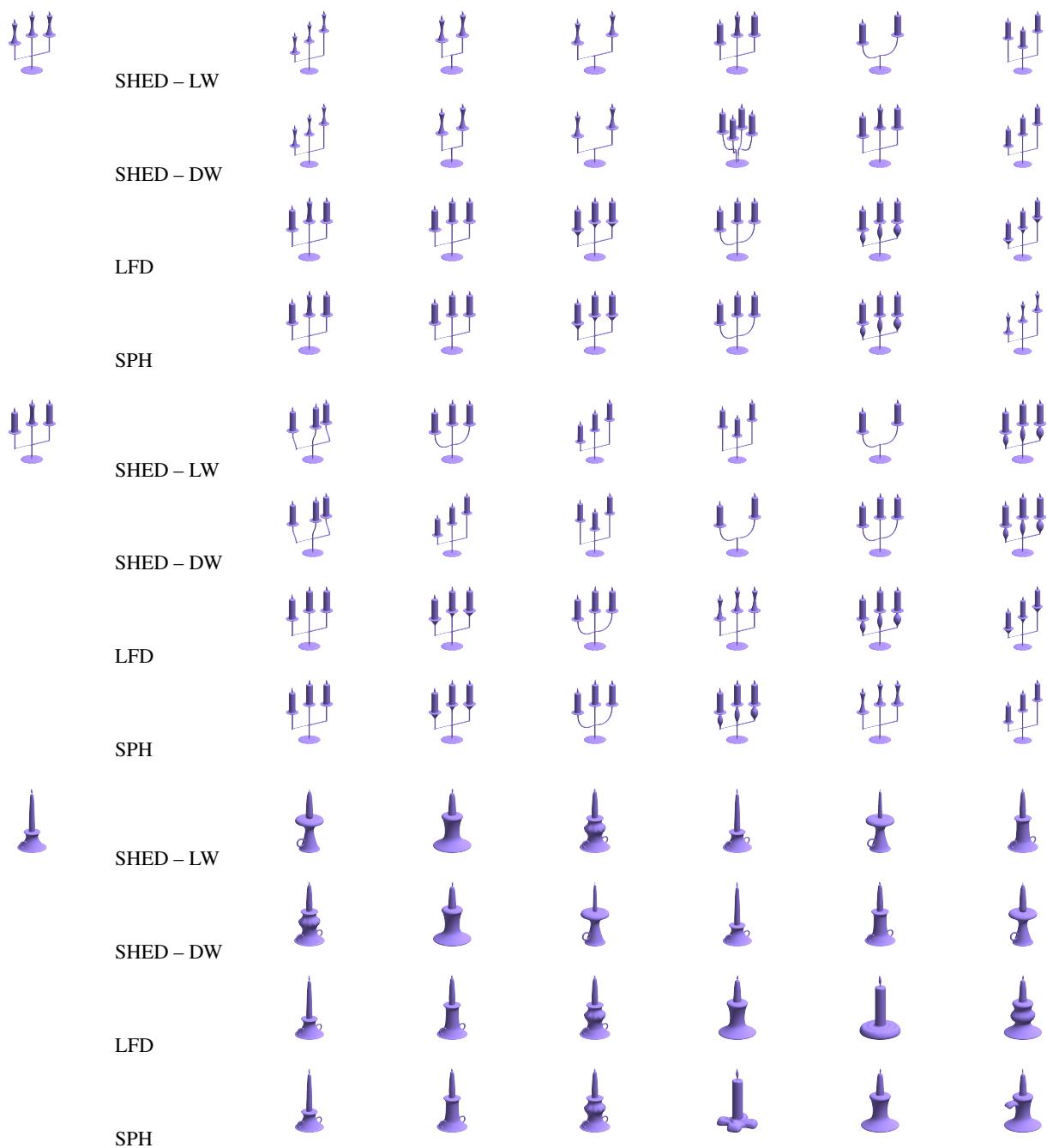


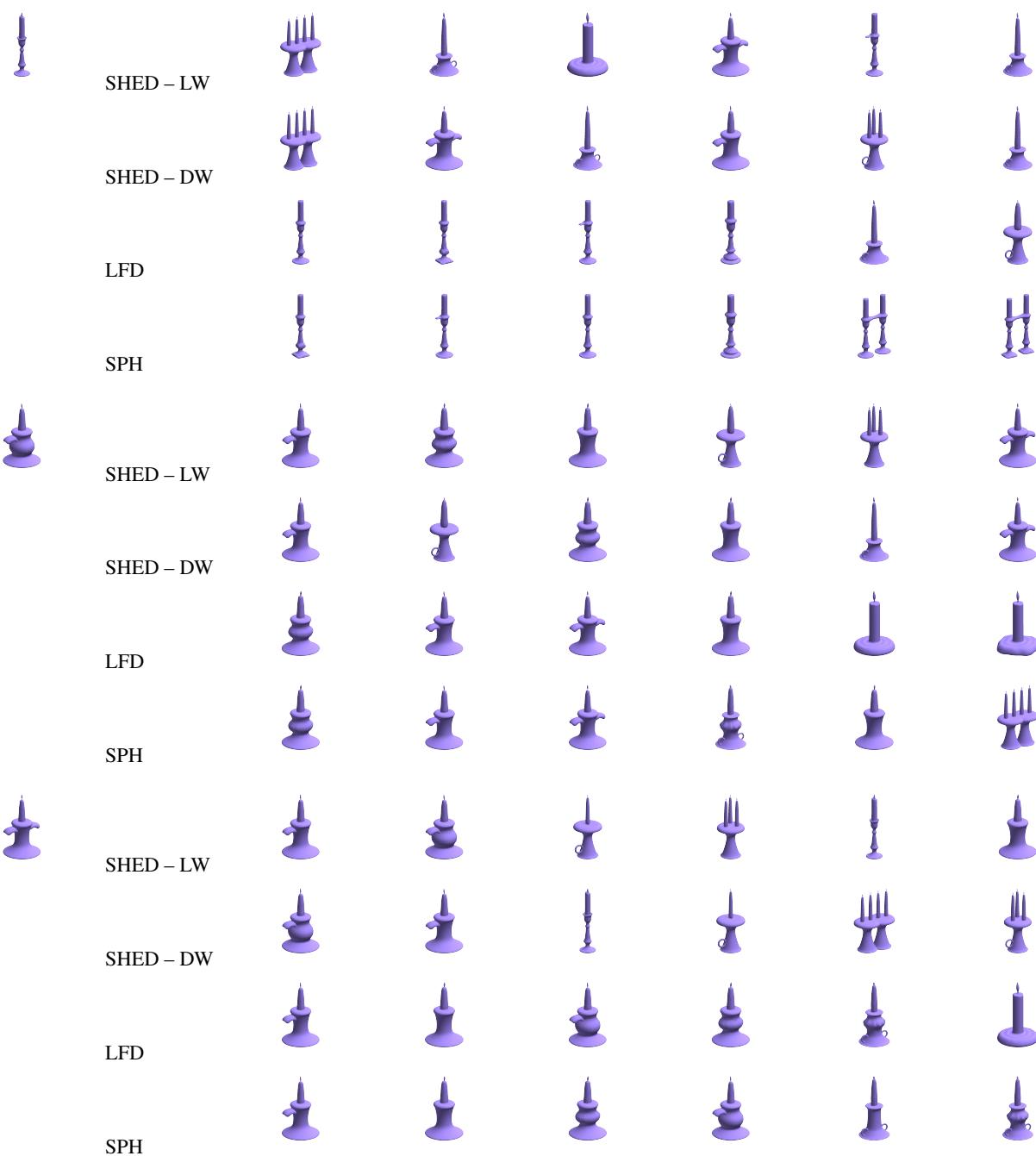


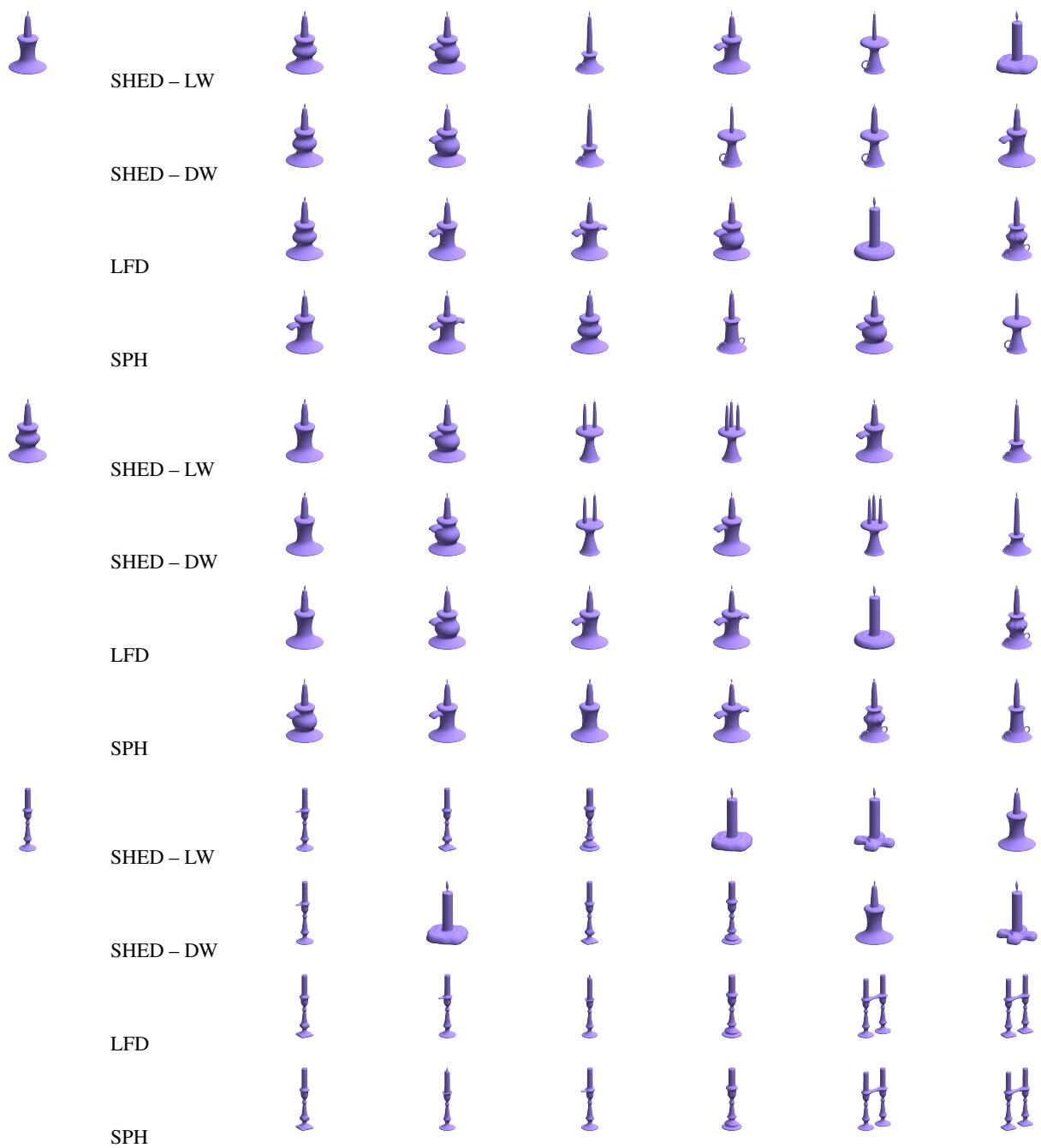


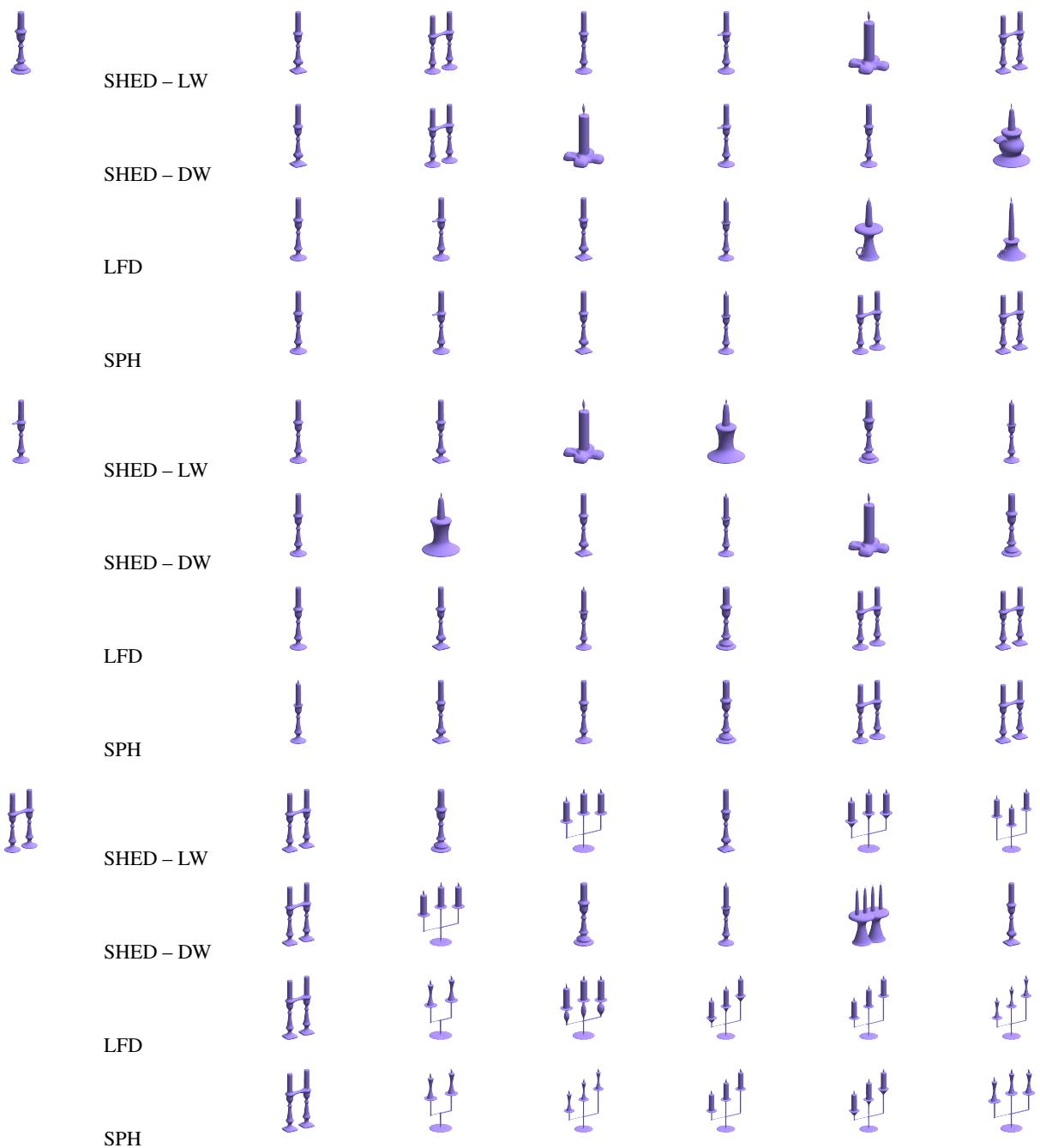


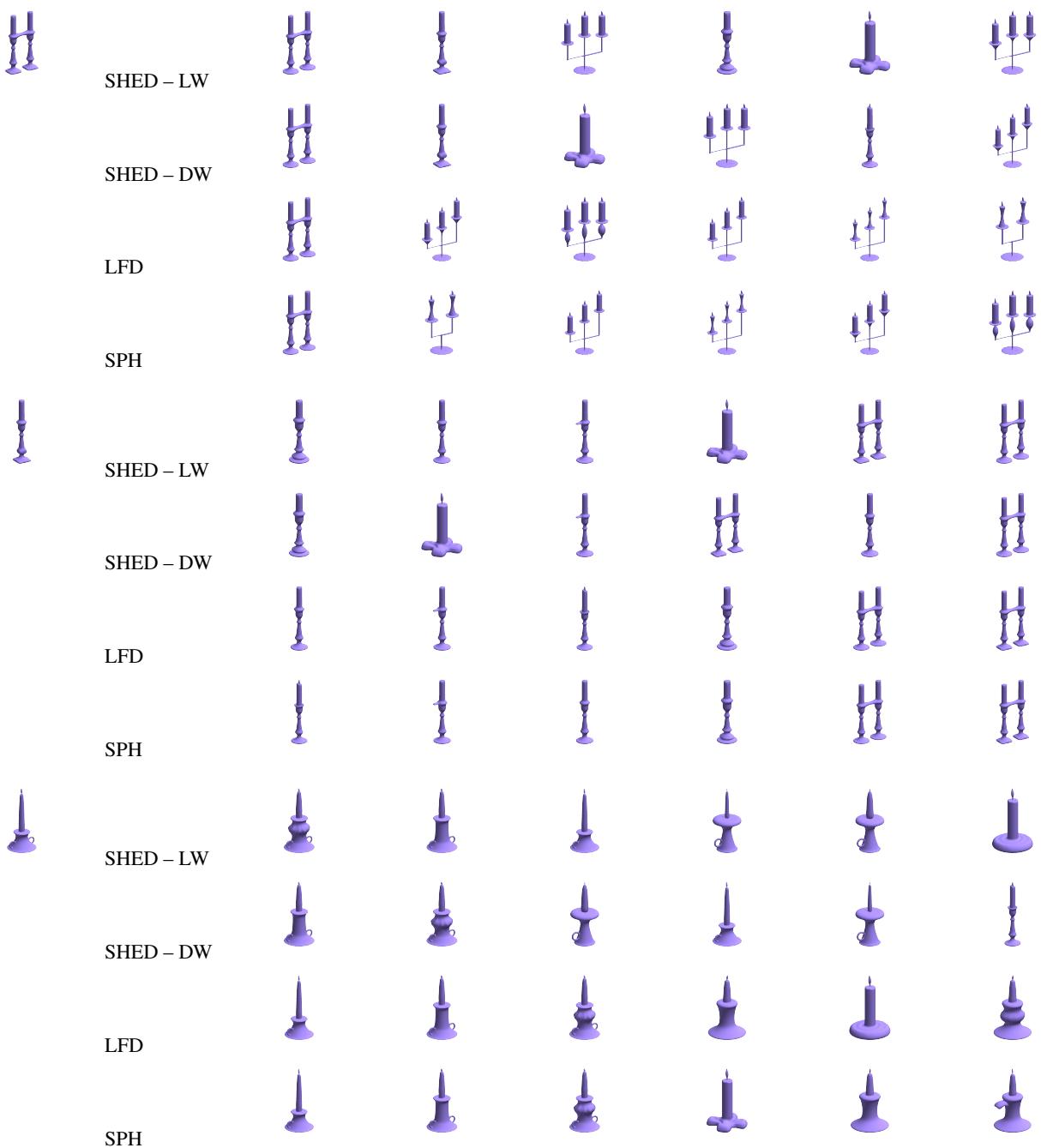


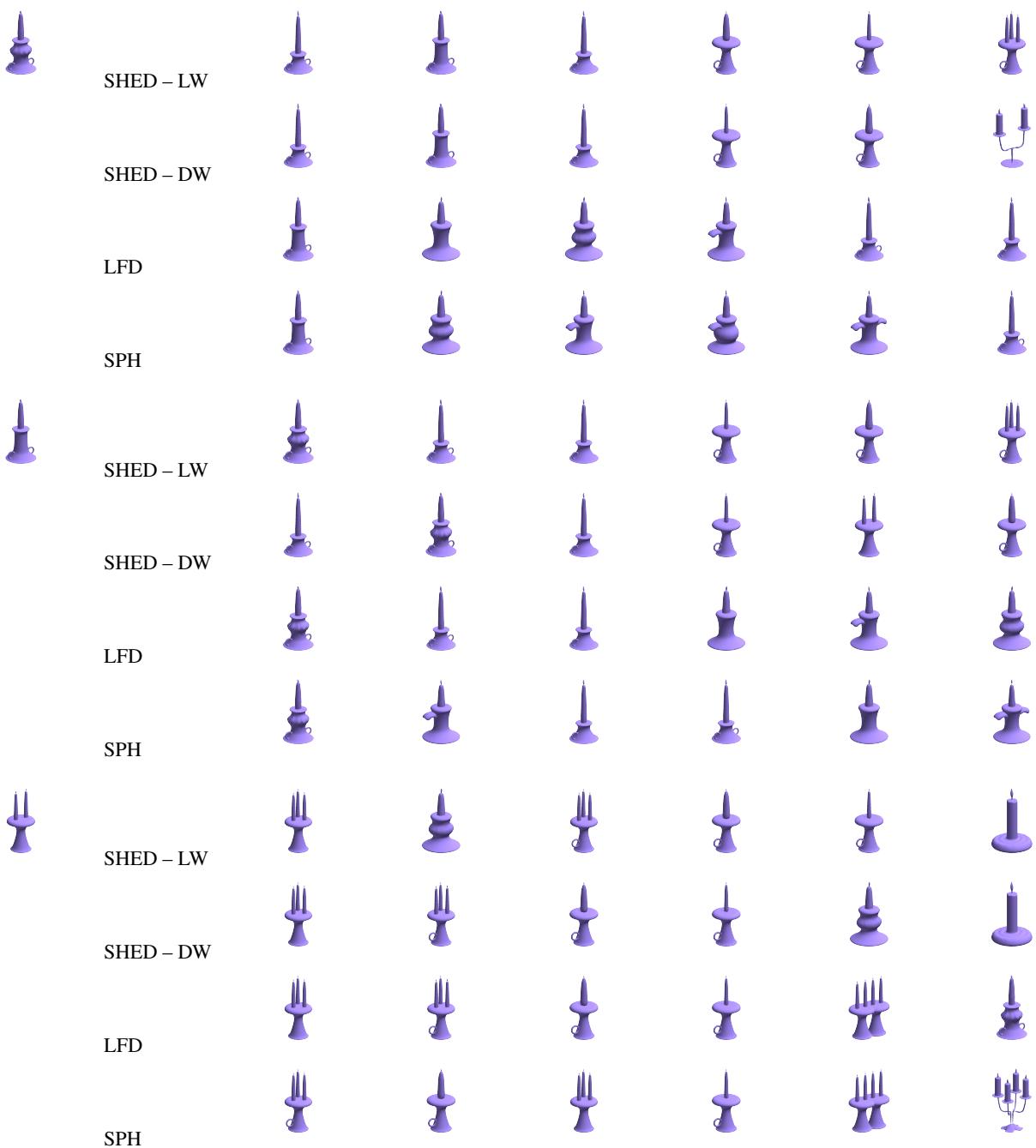


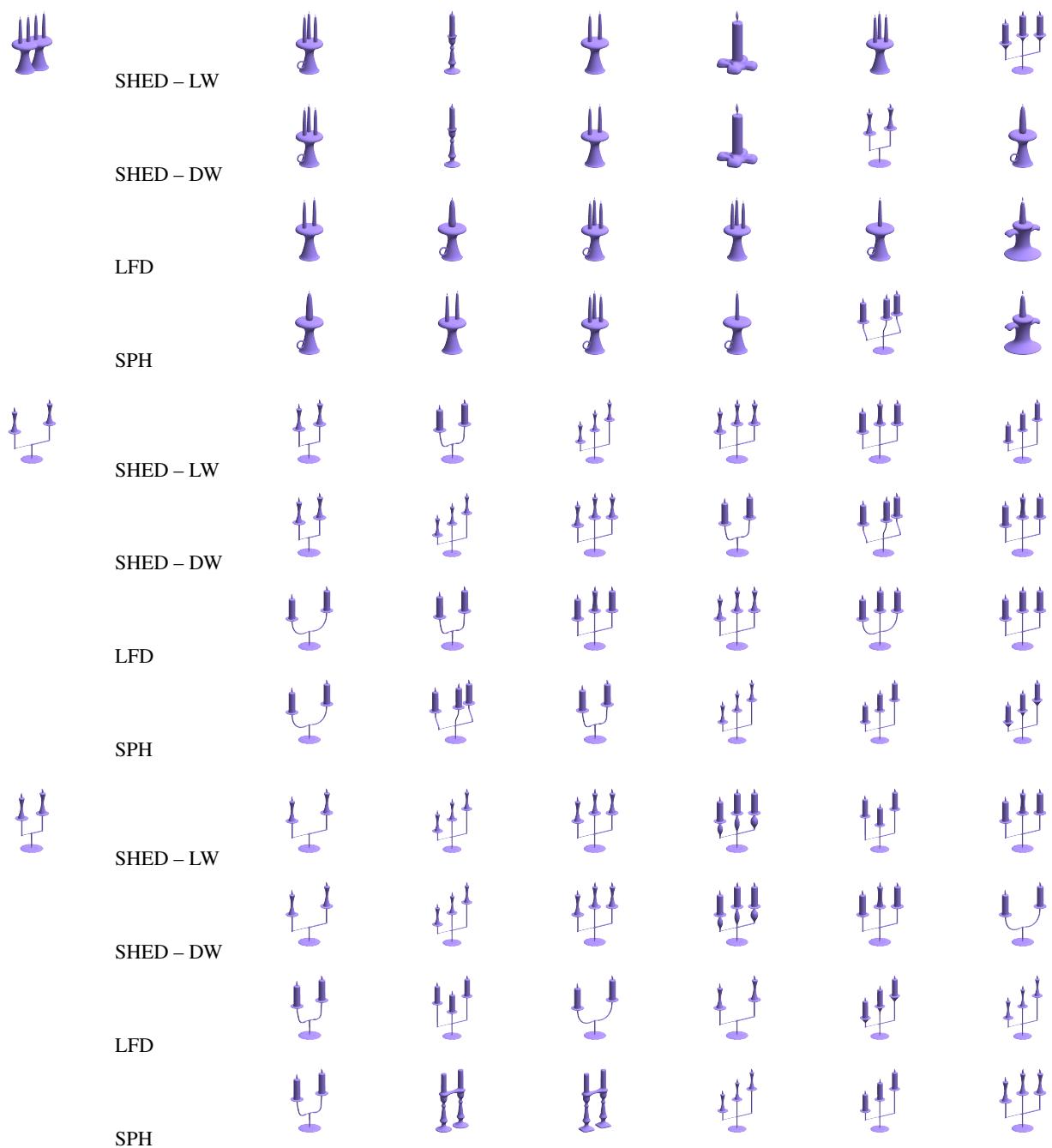


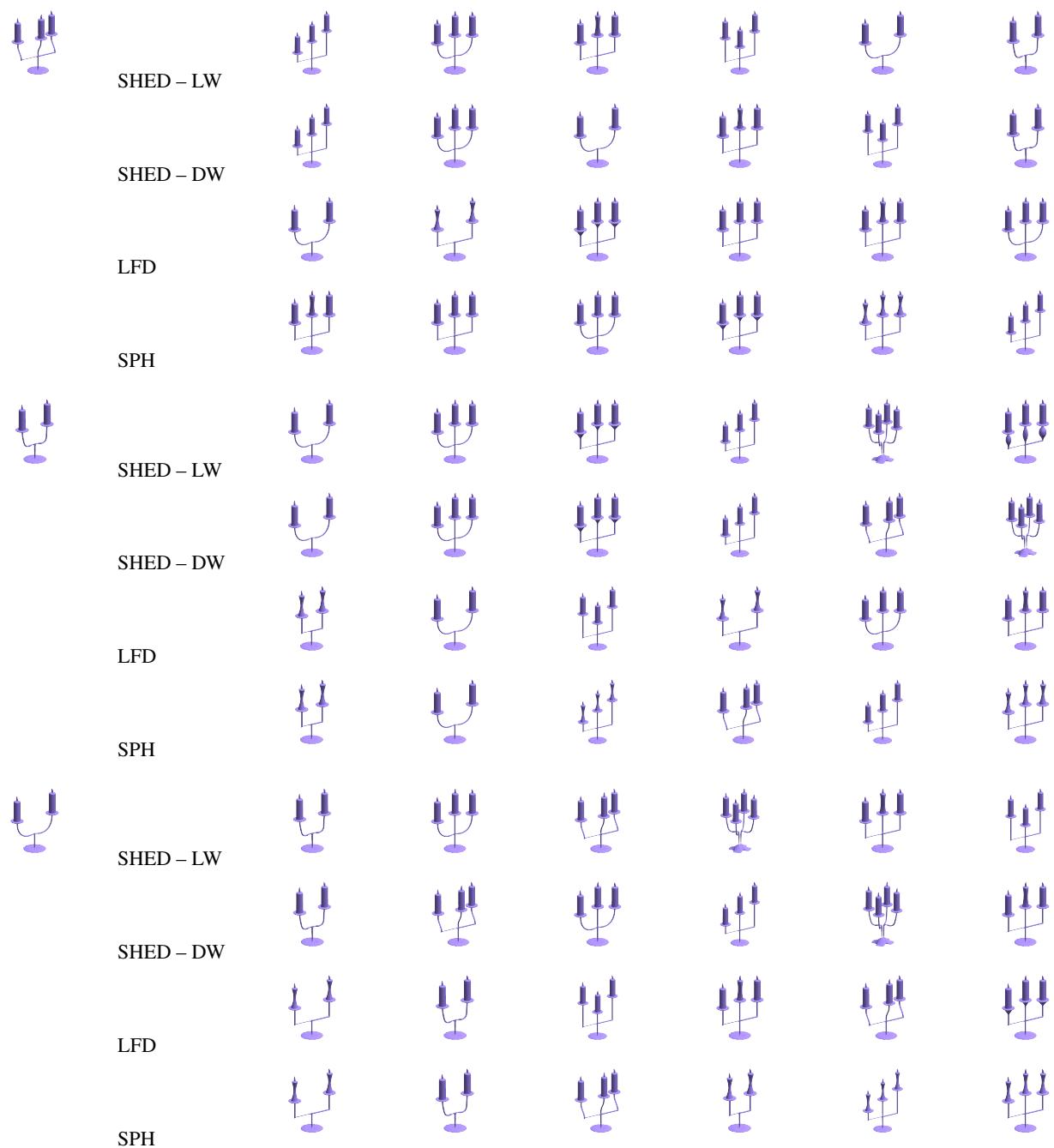


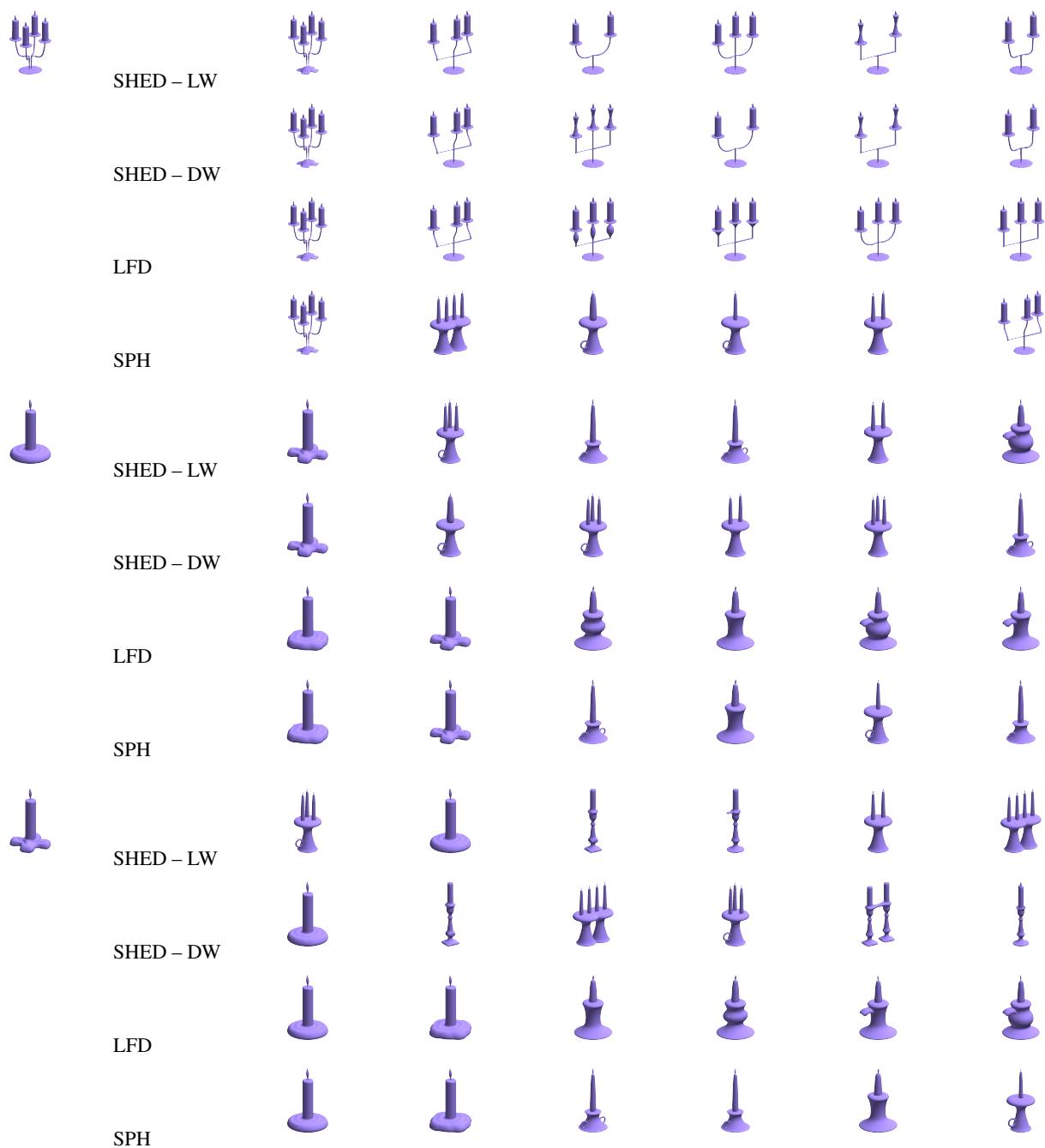


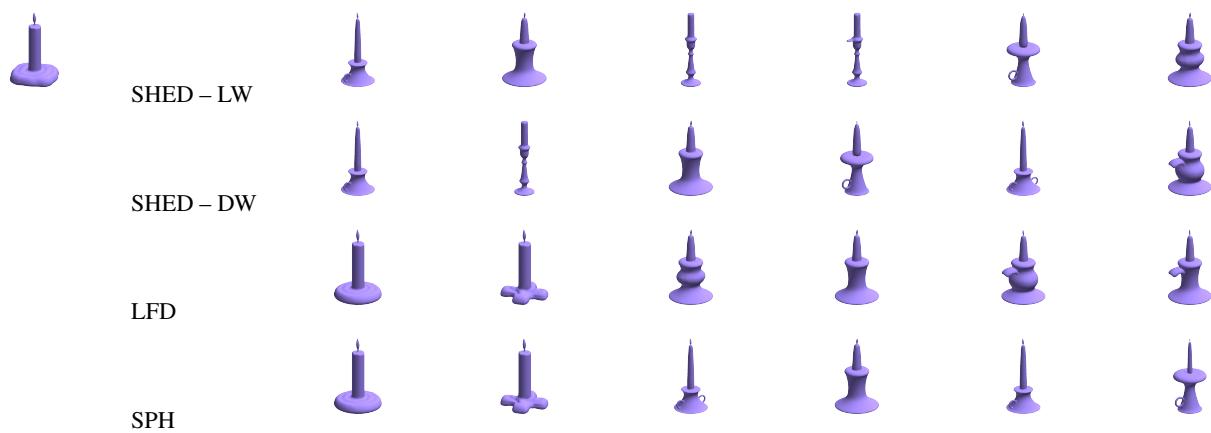












3.5 Articulated Shapes

Full nearest neighbors queries for the sets of articulated Shapes from the Princeton Segmentation Benchmark.

