

# Indexing 3D Scenes Using the Interaction Bisector Surface

This document is a supplemental file to the paper 0219.

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# 1 More examples of object-pair database

In this section, we show more examples in the object-pair database which used for the classification experiment (section 7.1 in the paper).

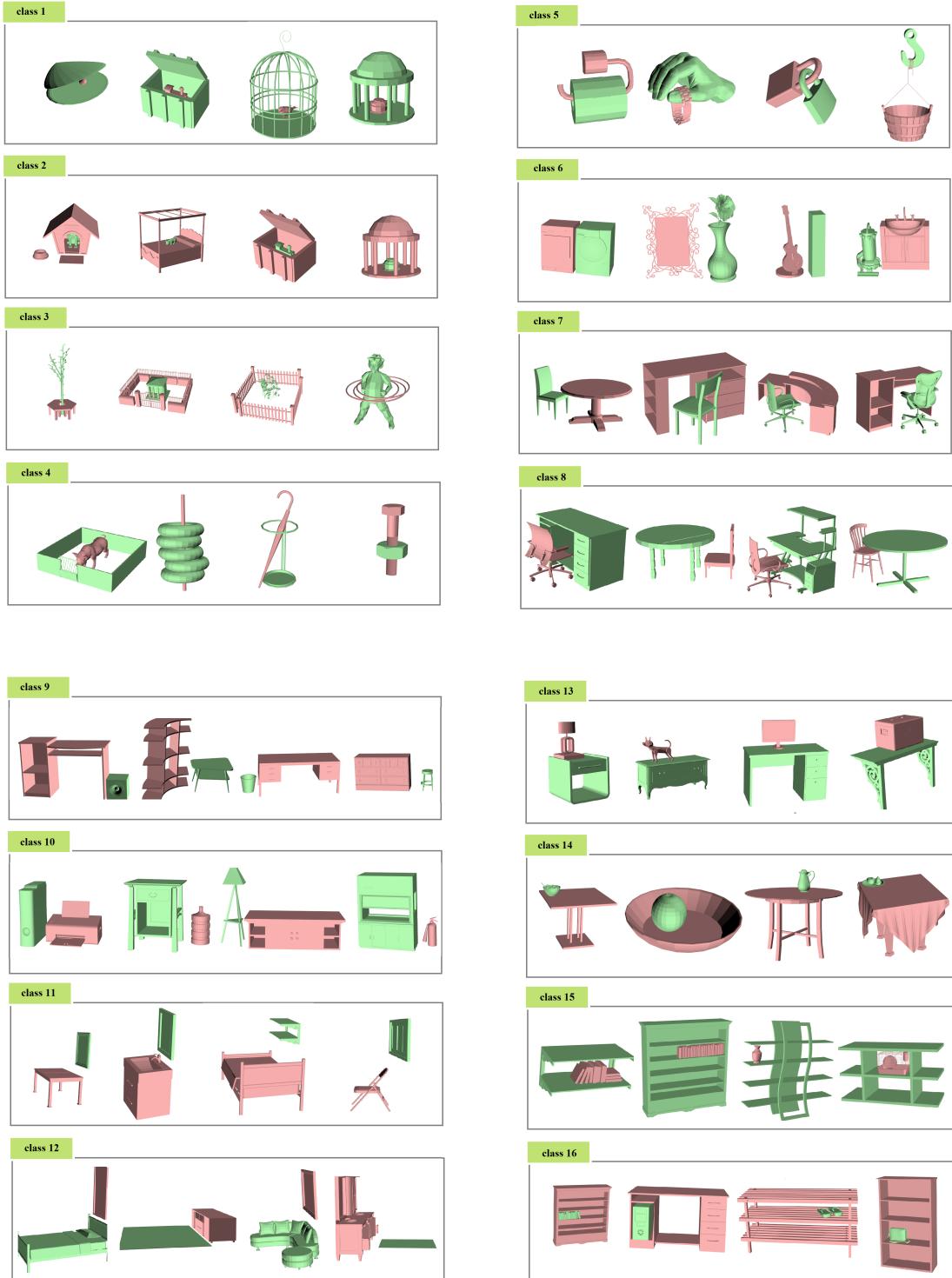


Figure 1: More examples from the 16-classes database.

## 2 Hierarchy structure for different scenes

In this section, we show structures of 9 example scenes. As the object number of some scenes are quite large, it is difficult to visualize the structure by graph. Here we only show the object groups in each level of the scene structure by different colours.

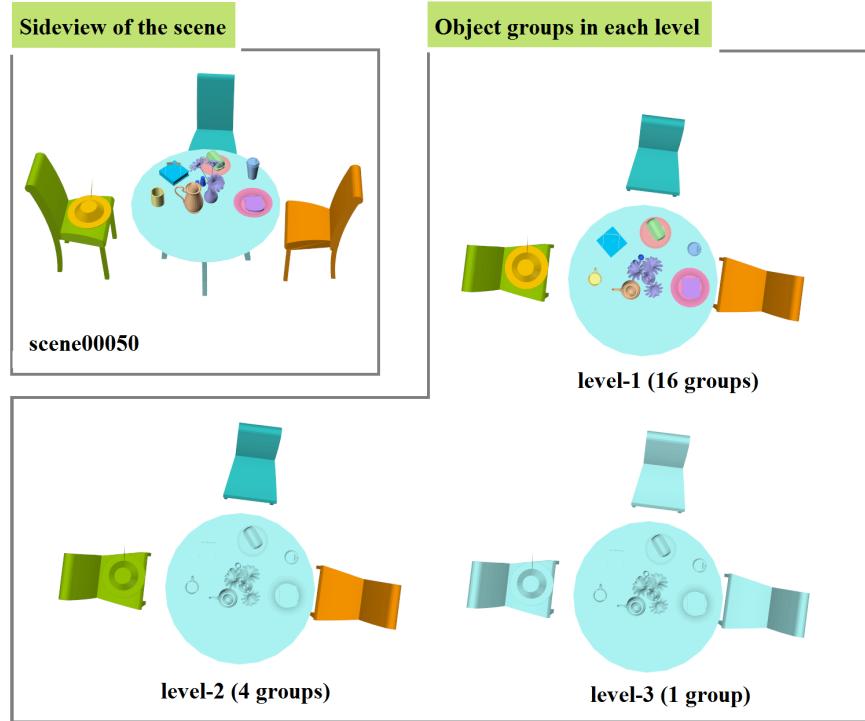


Figure 2: Example 1 of 9.

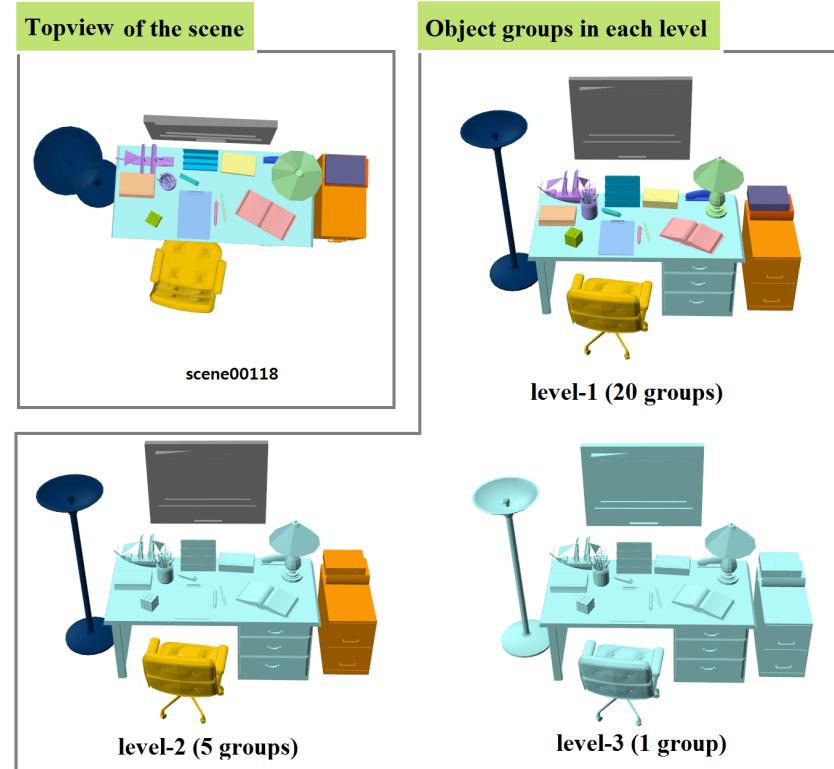


Figure 3: Example 2 of 9.

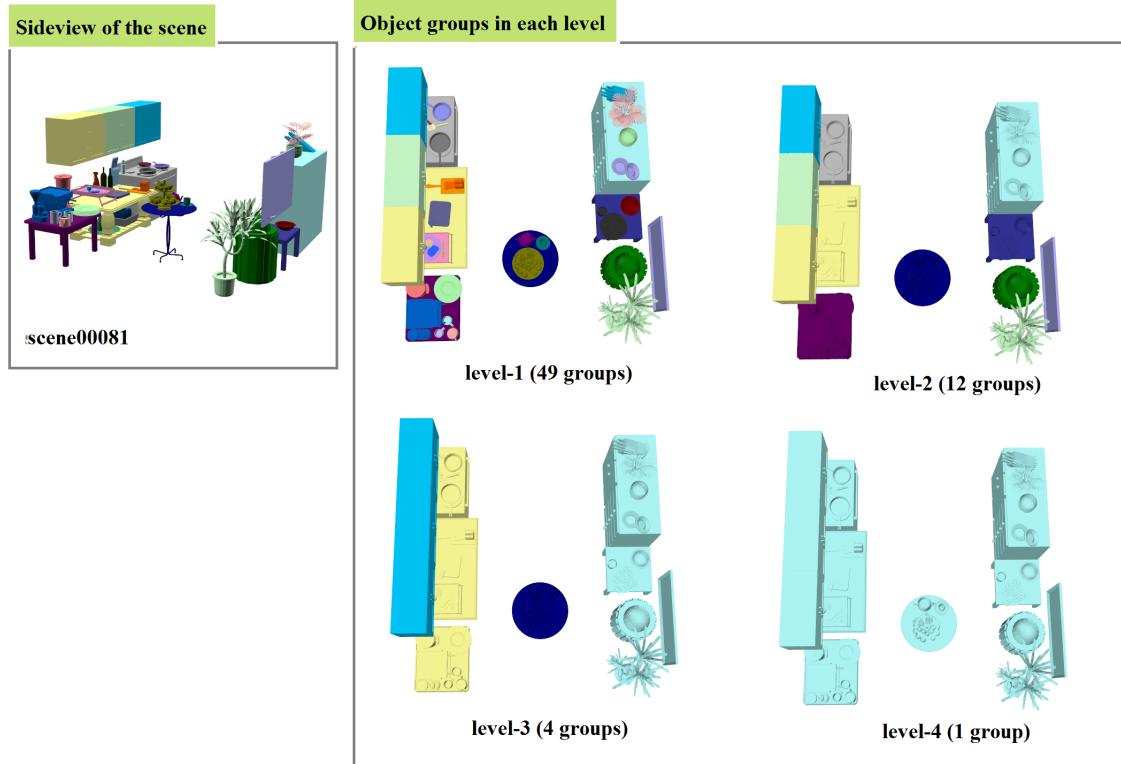


Figure 4: Example 3 of 9.

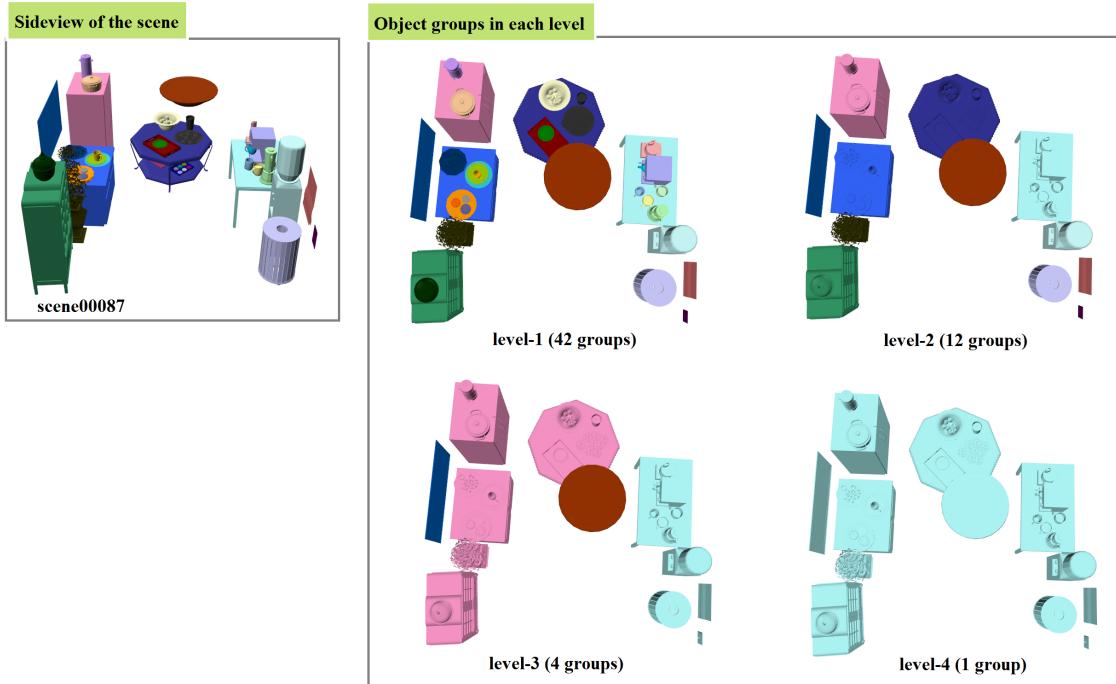


Figure 5: Example 4 of 9.

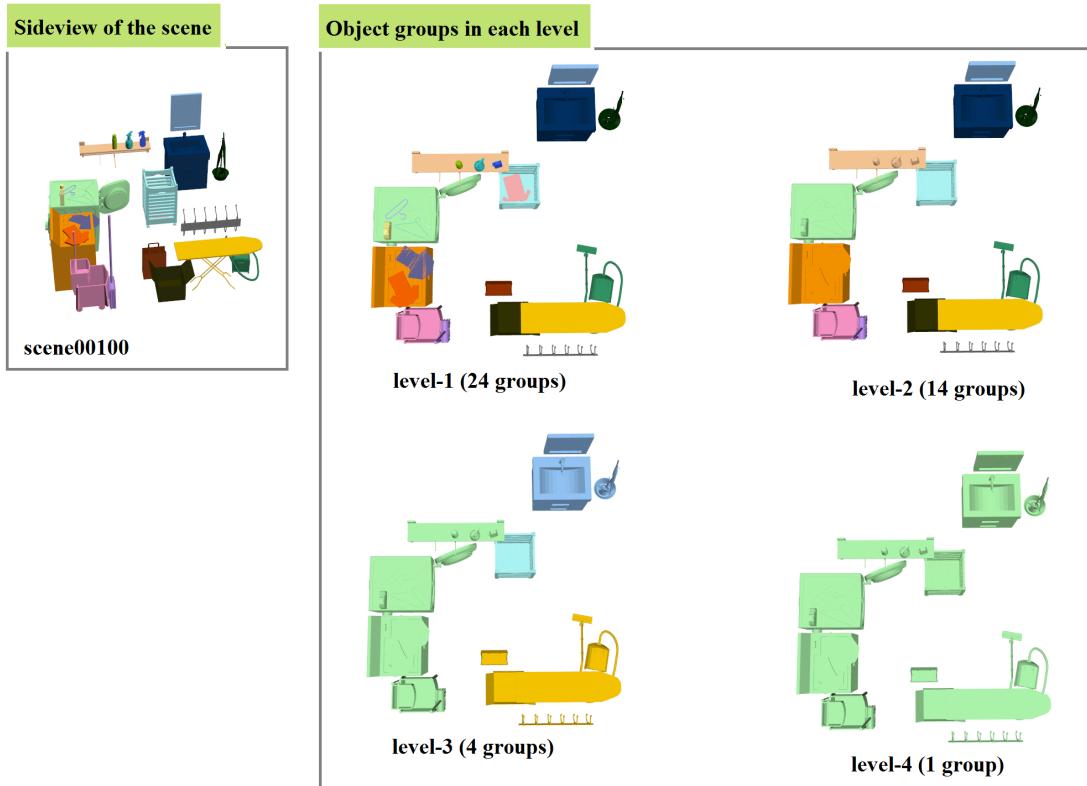


Figure 6: Example 5 of 9.

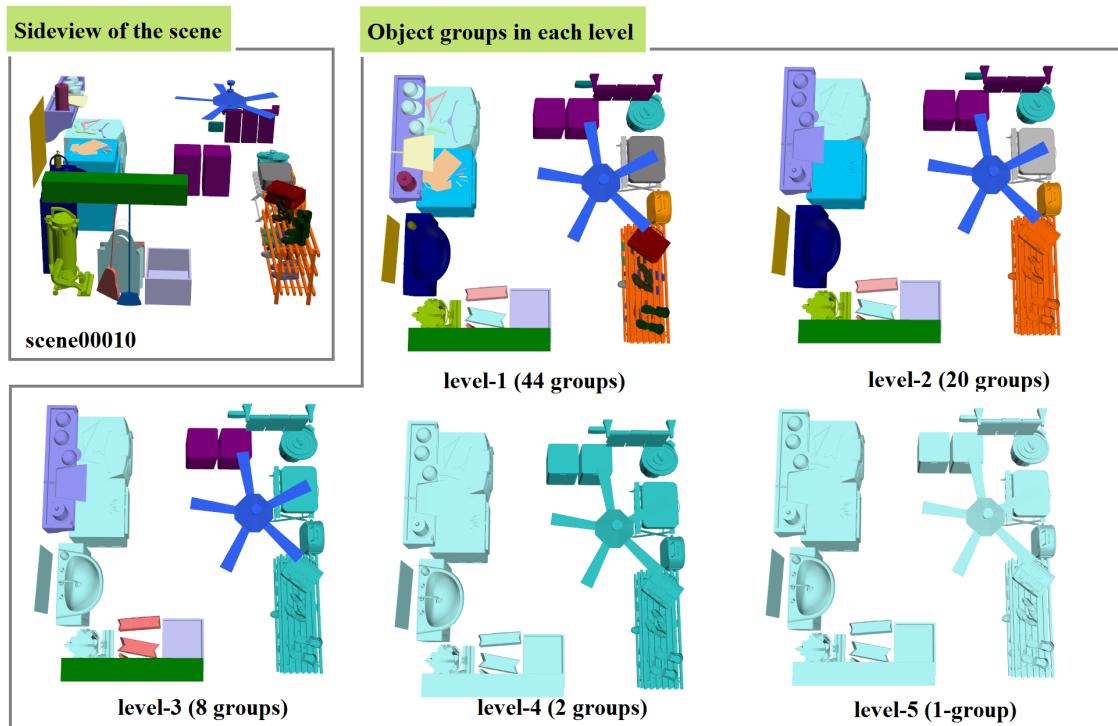


Figure 7: Example 6 of 9.

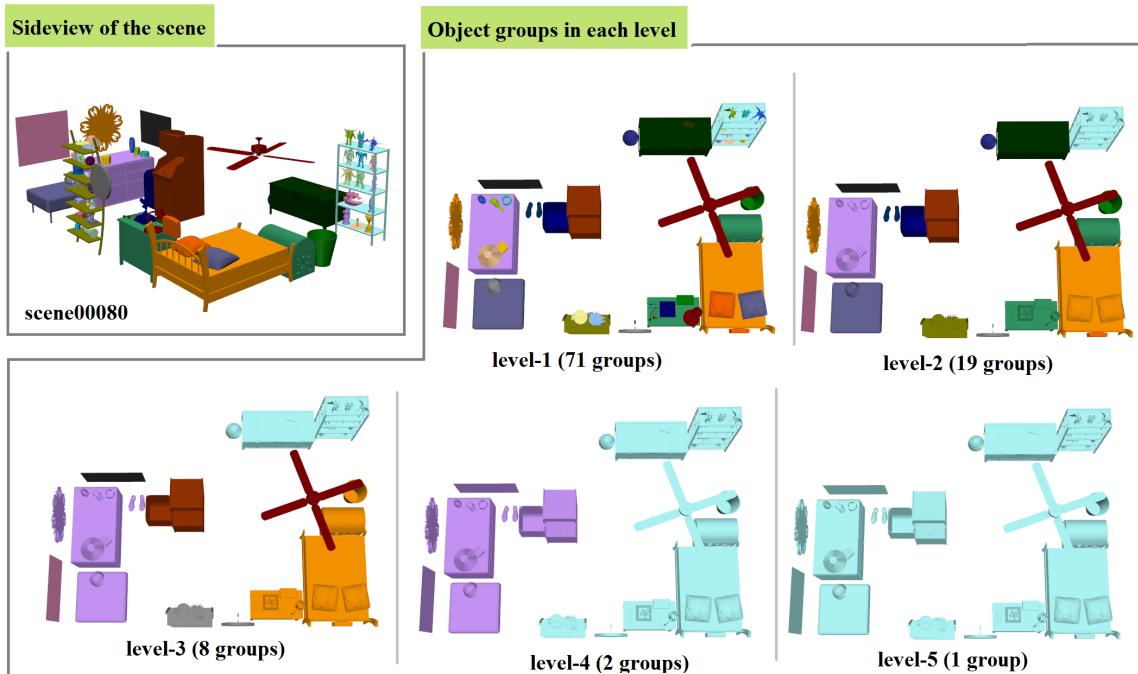


Figure 8: Example 7 of 9.

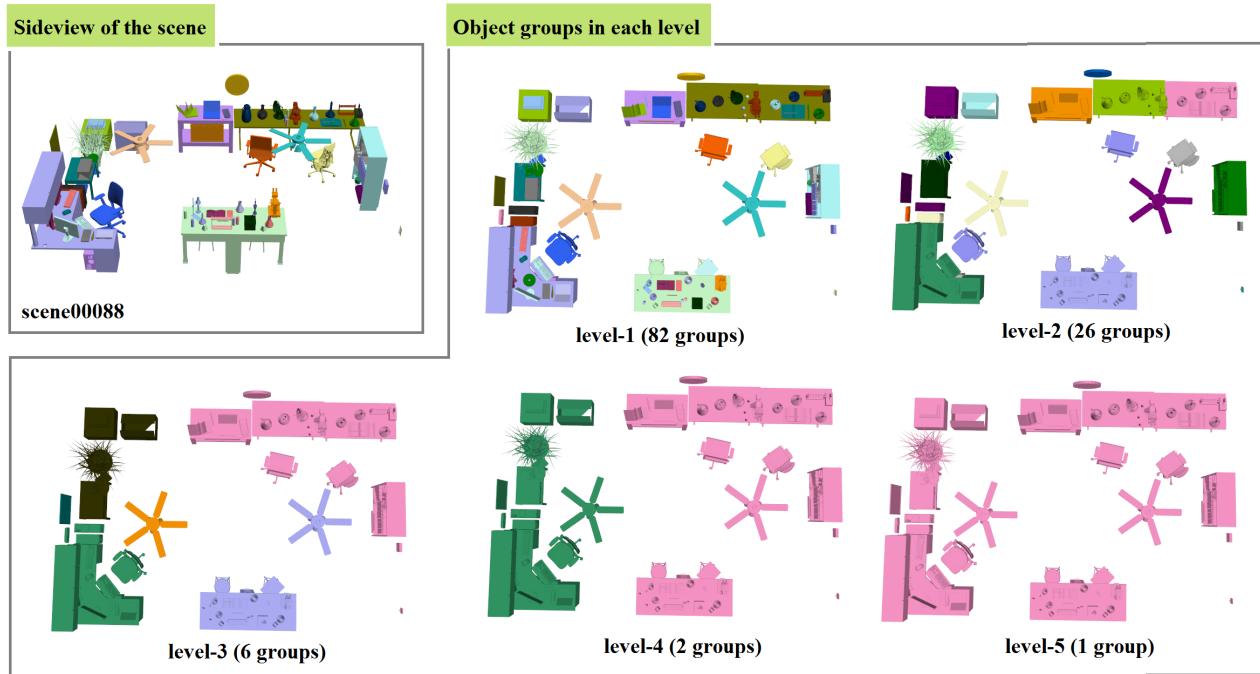


Figure 9: Example 8 of 9.

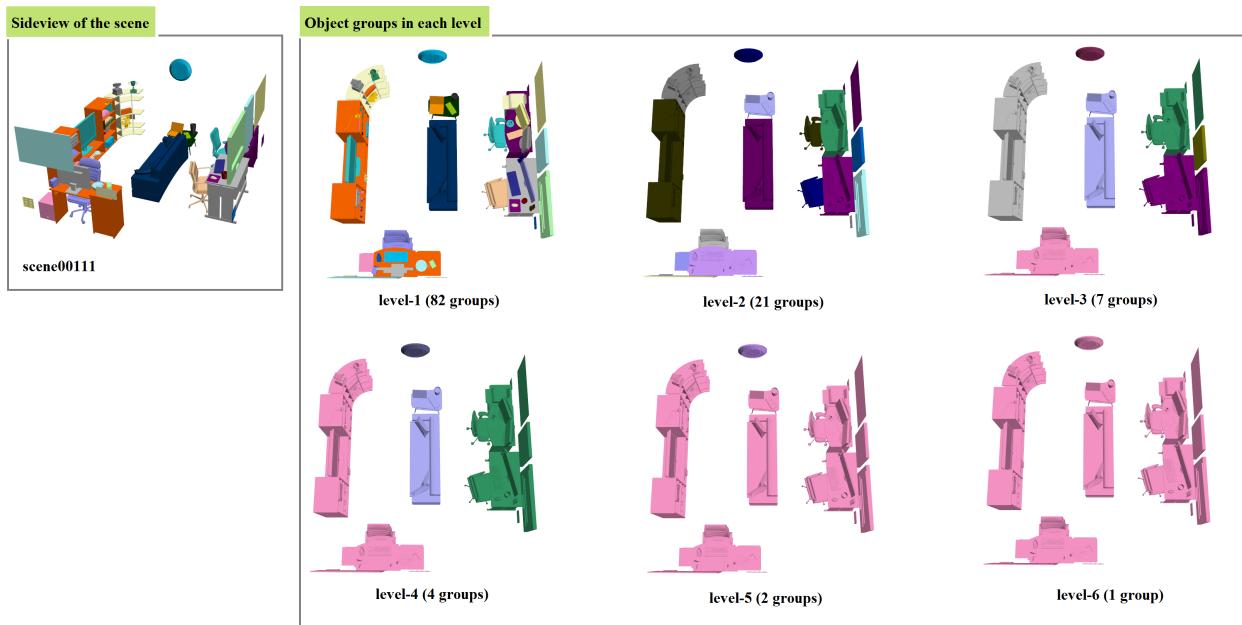


Figure 10: Example 9 of 9.

### 3 Retrieval result for the four queries (which are evaluated in section 7.3)

In this section, we show the retrieval results for the four queries which are evaluated by user's labels in section 7.3. Note that here the retrieval was done on the whole database.

The four queries are:

- Object 8 of scene00050 (the plate)
- Object 37 of scene00087 (the water dispenser)
- Object 14 of scene00118 (the chair)
- Object 14 of scene00109 (the table)

We show retrieval results for all depth (from 1 to the maximal depth) for each query. We also show both the results of our method(IBS) and the displacement feature(DIS) for comparison.

In the rest of this document, we show more retrieval results. The query object is always shown in red bounding box in the query scene. The result objects are shown in red, and the result scenes are ordered by the similarity(left-to-right, top-to-bottom). The note below each result with the format “XXXX-YY” means current result is the YY-th object of the scene named XXXX. The object ID and the scene names are from the Stanford Scene Database.

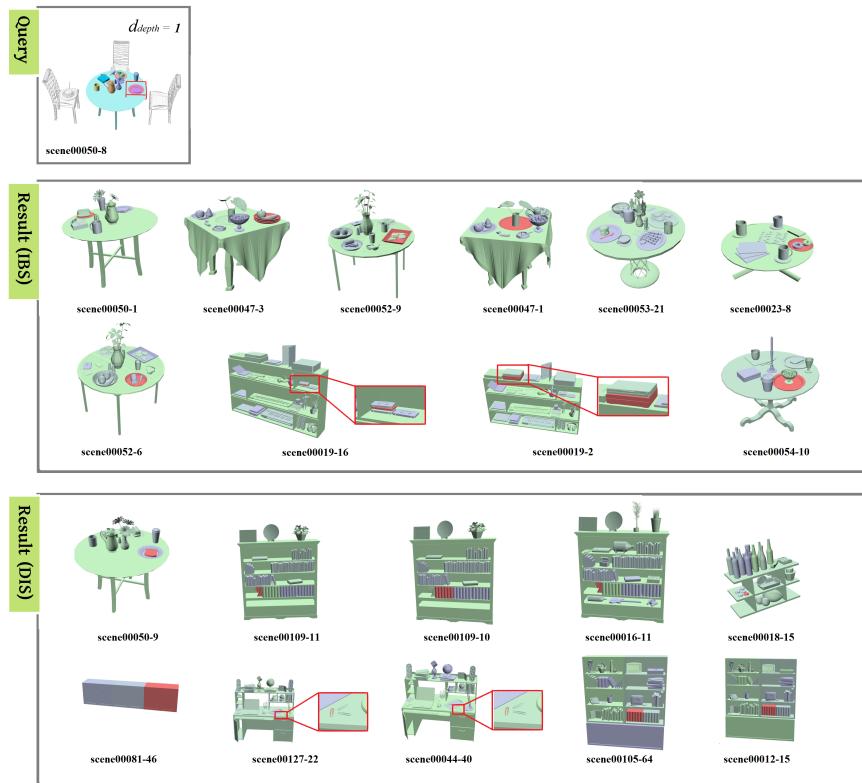


Figure 11: Comparision (query 1 of 4).

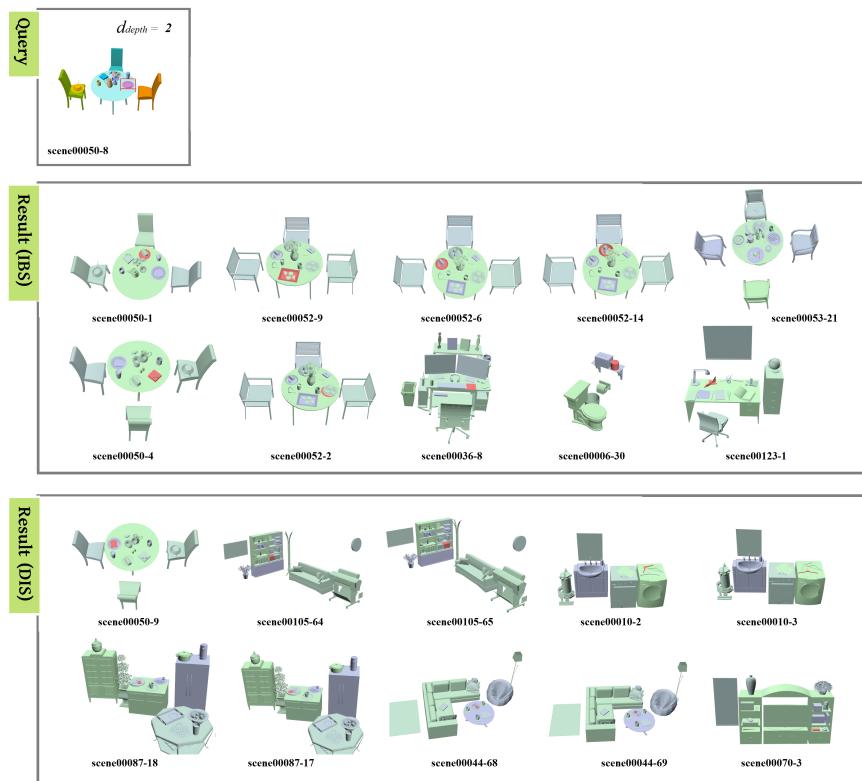


Figure 12: Comparision (query 1 of 4).

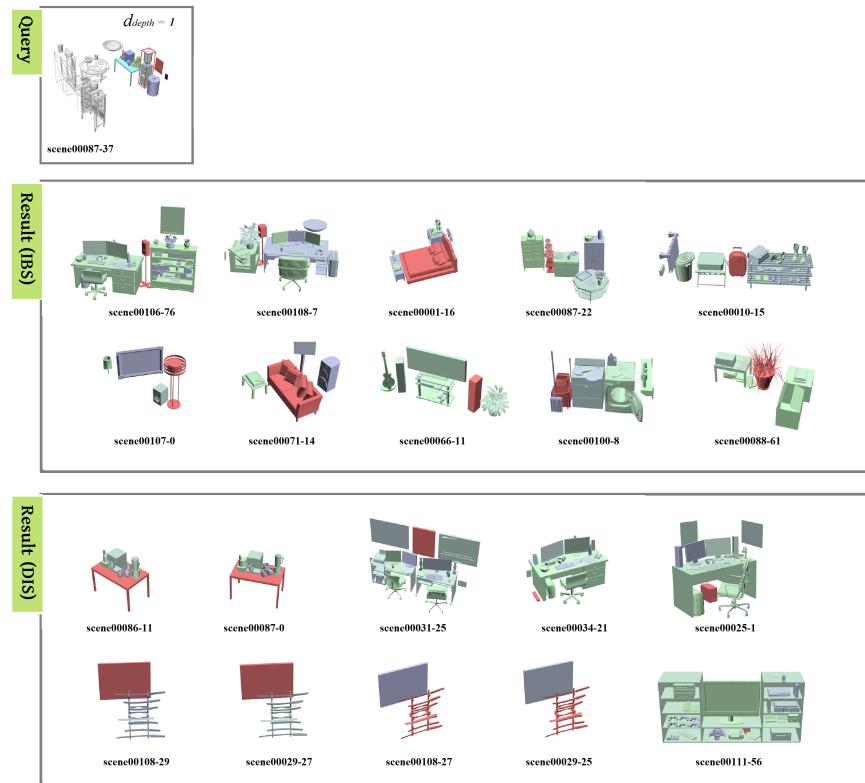


Figure 13: Comparision (query 2 of 4).

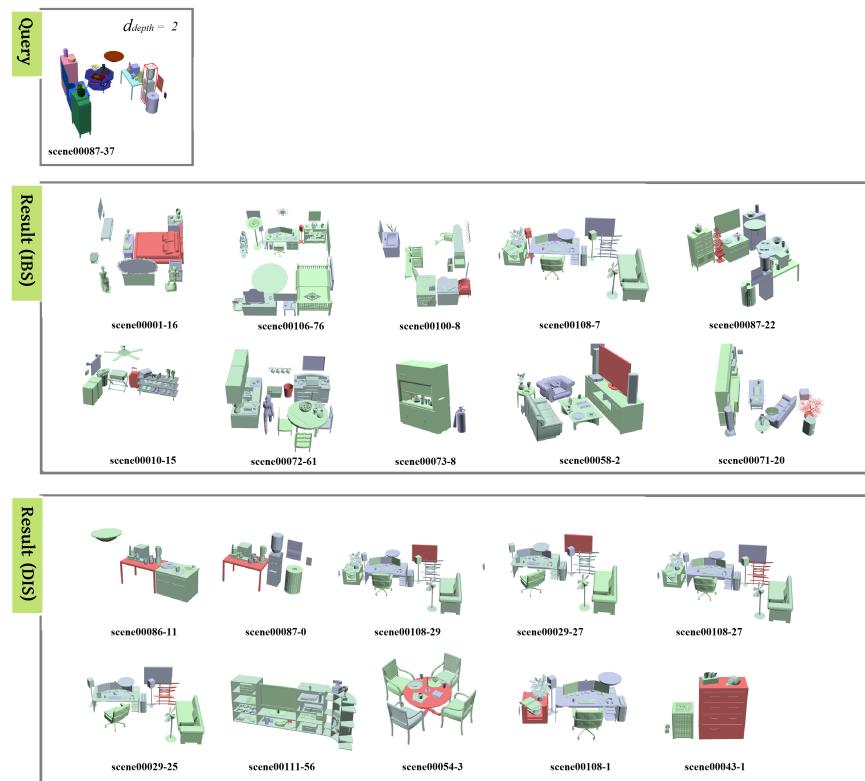


Figure 14: Comparision (query 2 of 4).

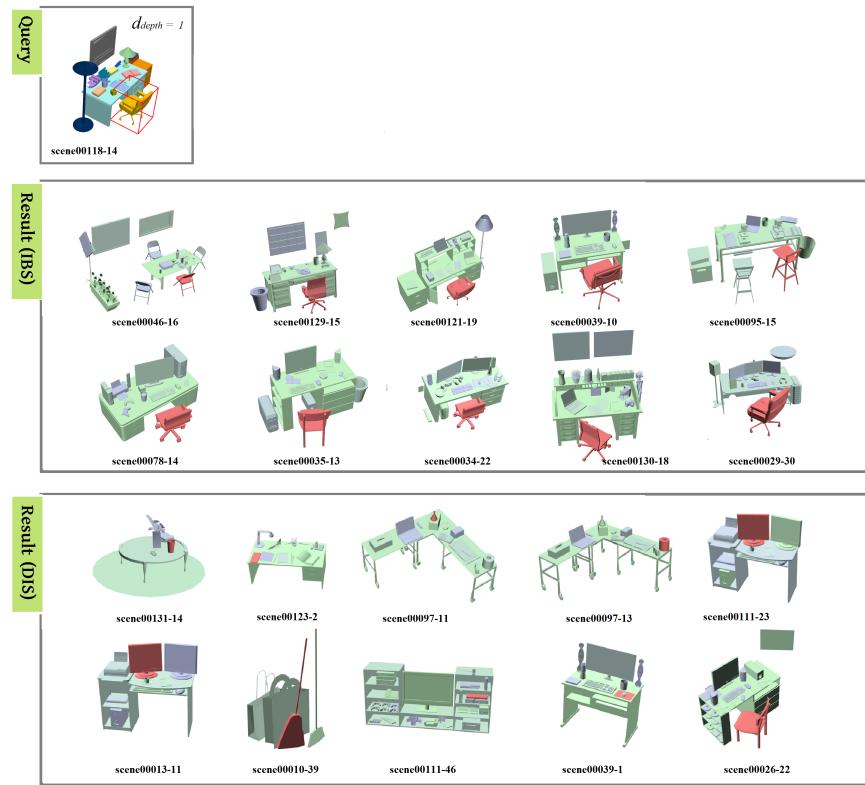


Figure 15: Comparision (query 3 of 4).

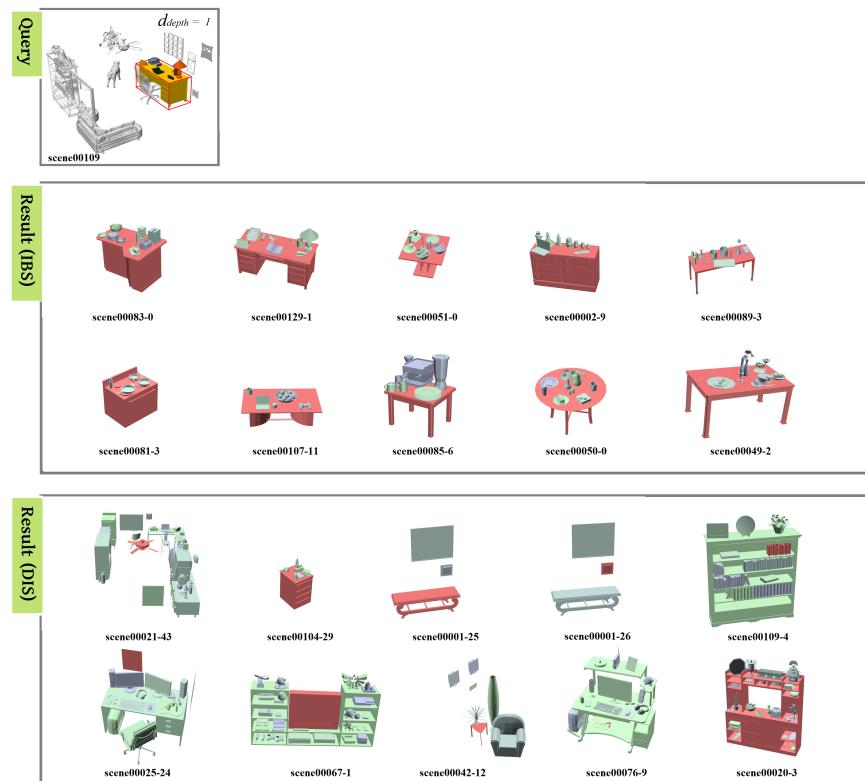


Figure 16: Comparision (query 4 of 4).

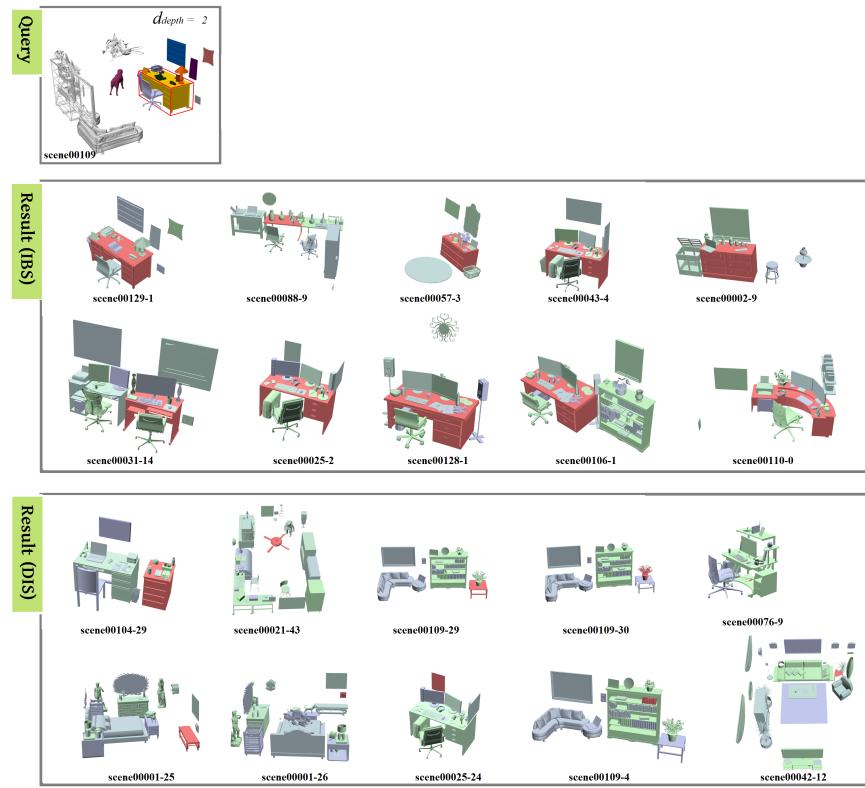


Figure 17: Comparision (query 4 of 4).

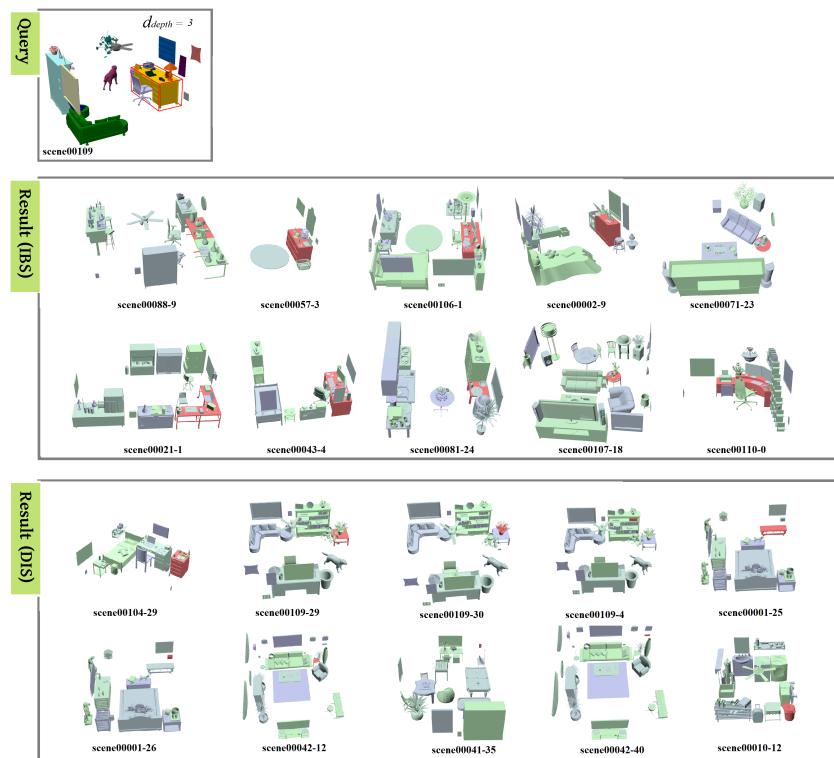


Figure 18: Comparision (query 4 of 4).

## 4 More retrieval result

In this section we show more retrieval results by using our method.

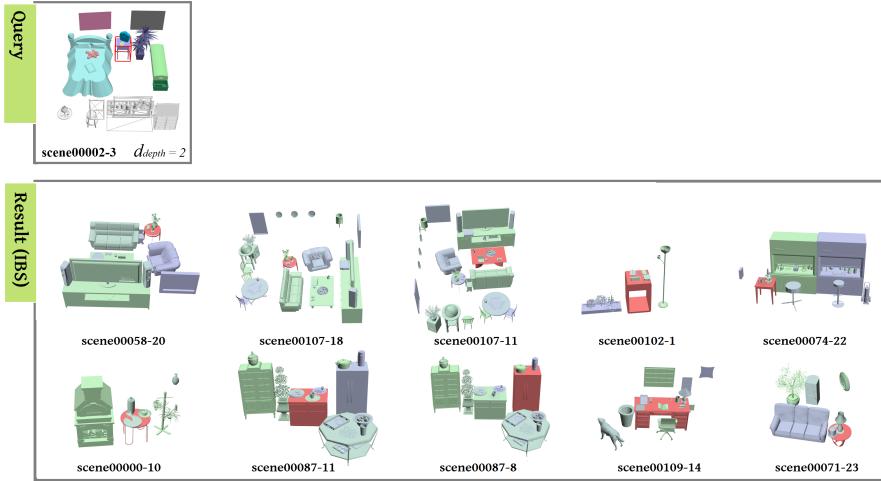


Figure 19: Retrieval result(example 1 of 6).

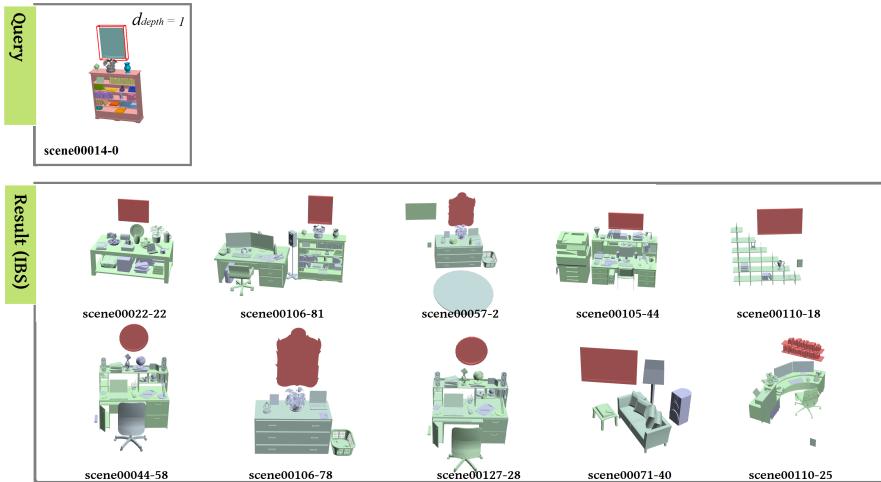


Figure 20: Retrieval result(example 2 of 6).

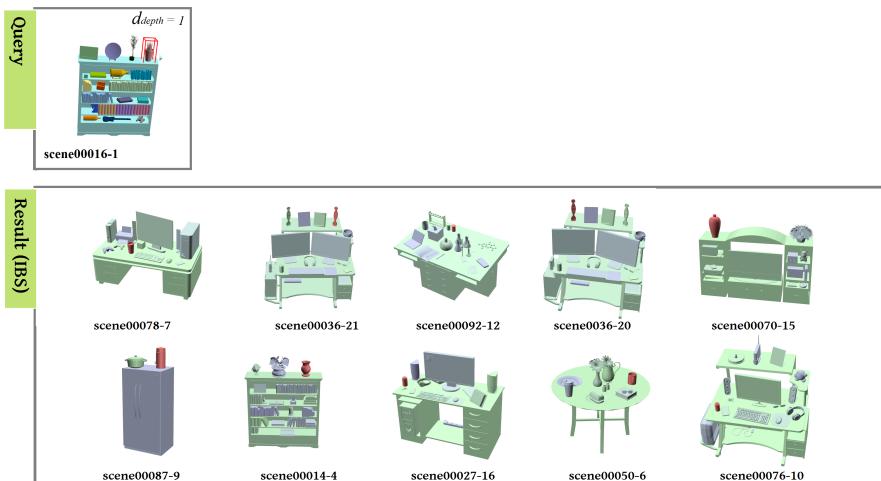


Figure 21: Retrieval result(example 3 of 6).

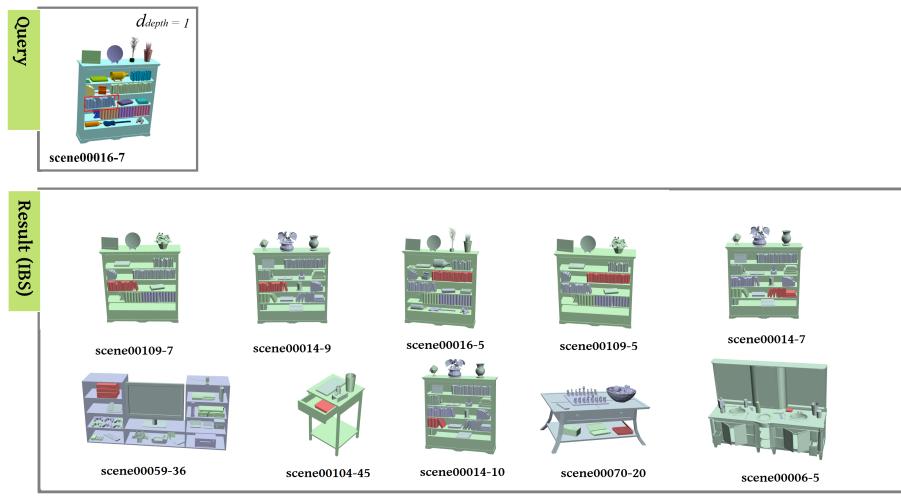


Figure 22: Retrieval result(example 4 of 6).

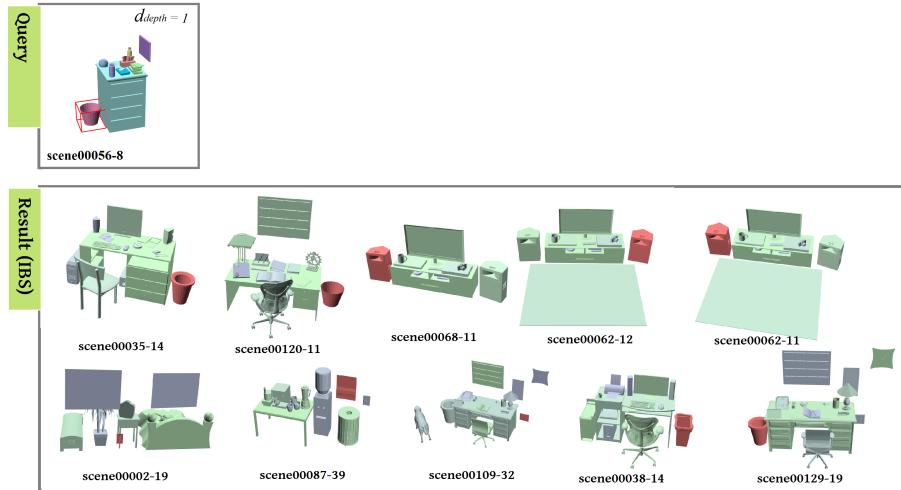


Figure 23: Retrieval result(example 5 of 6).

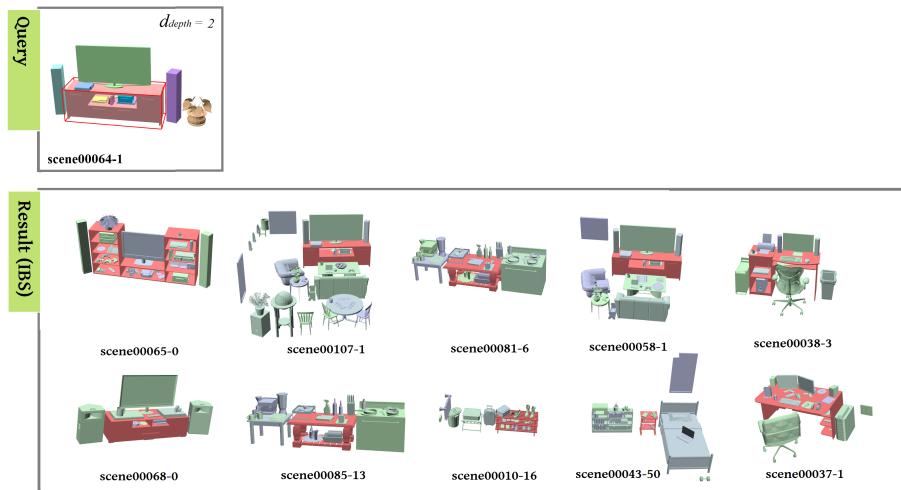


Figure 24: Retrieval result(example 6 of 6).