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ABSTRACT

1. Simplification Masks

We describe here the sets of masks used for the automatic simplification algorithm described in Section 3. We used 18 different initial masks. Considering all the rotations the total number of masks is 340. There are two main types of masks:

- Masks with more than one set of Points of Interest;
- Masks with only one set of Points of Interest.

The masks of the second type are very simple: if we find a set of adjacent cubes corresponding to the signs of the mask, we just switch the signs of its Points of Interests. The first type of masks are harder to be examined, because they have more than one set of Points of Interest. We choose the preferred set using the area of the involved charts. We list all the masks in the next sections.

1.1. Masks with more than one set of Points of Interest

We designed 10 different types of masks with more than one set of Points of Interest. For all these masks, the two sets of Points of Interest are circled in cyan and orange respectively, and one of the two sets is selected according to the area of the two facets. The masks are listed in figure 1.

1.2. Masks with only one set of Points of Interest

We designed 8 different types of masks with only one set of Points of Interest. They are listed in figure 2.

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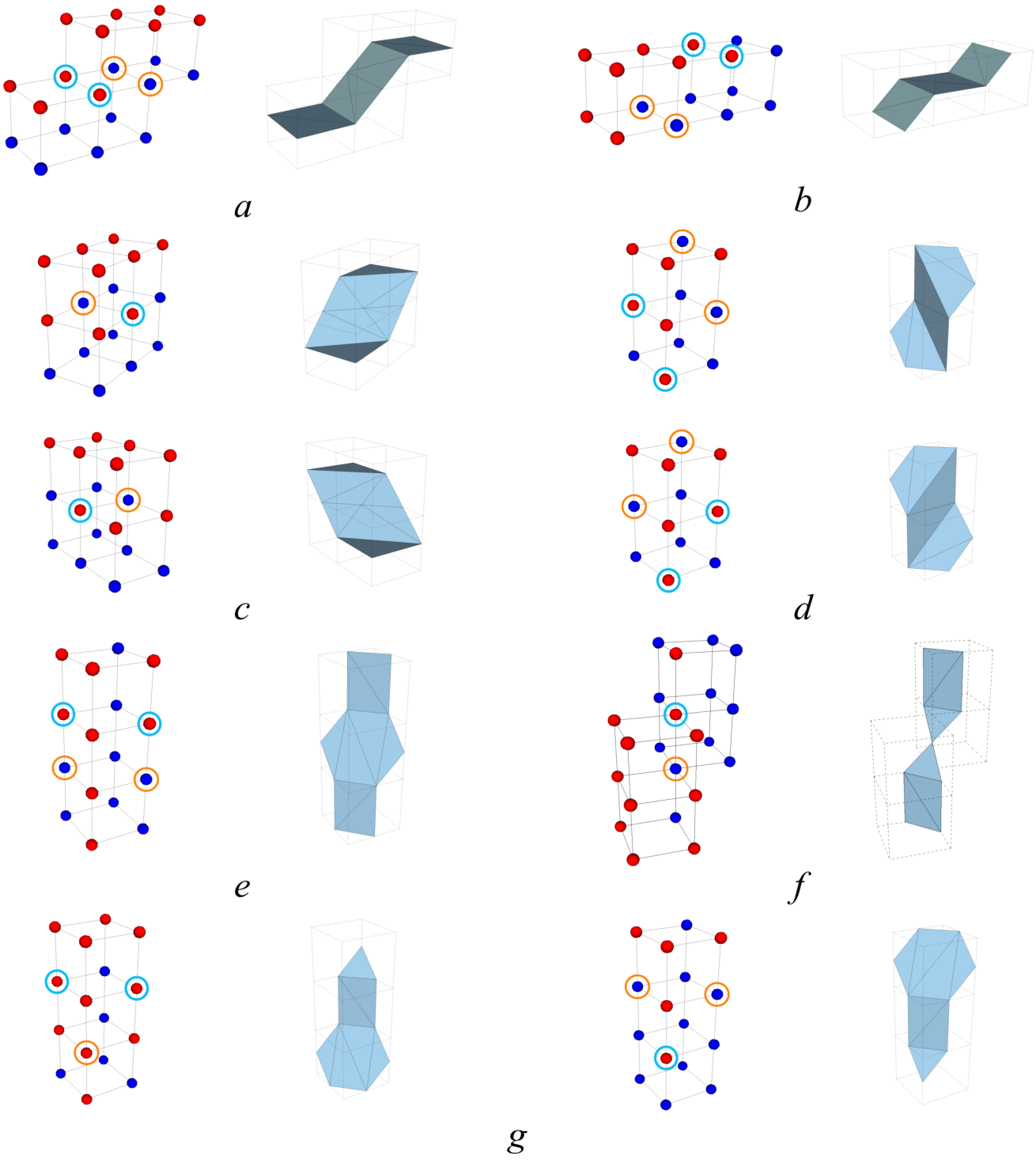

Fig. 1. a) Step between two facets with normal of cat. 1 and a facet with normal of cat. 2. It can be rotated, generating a total number of 24 masks. b) Step between two facets with normal of cat. 2 and a facet with normal of cat. 1. It can be rotated, generating a total number of 24 masks. c) The masks are the reflection of each other, and they represent a step between two facets with normal of cat. 1 and a facet with normal of cat. 3. They can be rotated, generating a total number of 48 masks. d) The masks are the reflection of each other, and they represent a step between two facets with normal of cat. 3 and a facet with normal of cat. 1. They can be rotated, generating a total number of 48 masks. e) Step between two facets with normal of cat. 2 and a facet with normal of cat. 3. It can be rotated, generating a total number of 24 masks. f) Step between two facets with normal of cat. 2 and a facet with normal of cat. 3. It can be rotated, generating a total number of 24 masks. g) The masks are the reflection of each other, and they represent a step between two facets with normal of cat. 3 and a facet with normal of cat. 2. Theys can be rotated, generating a total number of 48 masks.

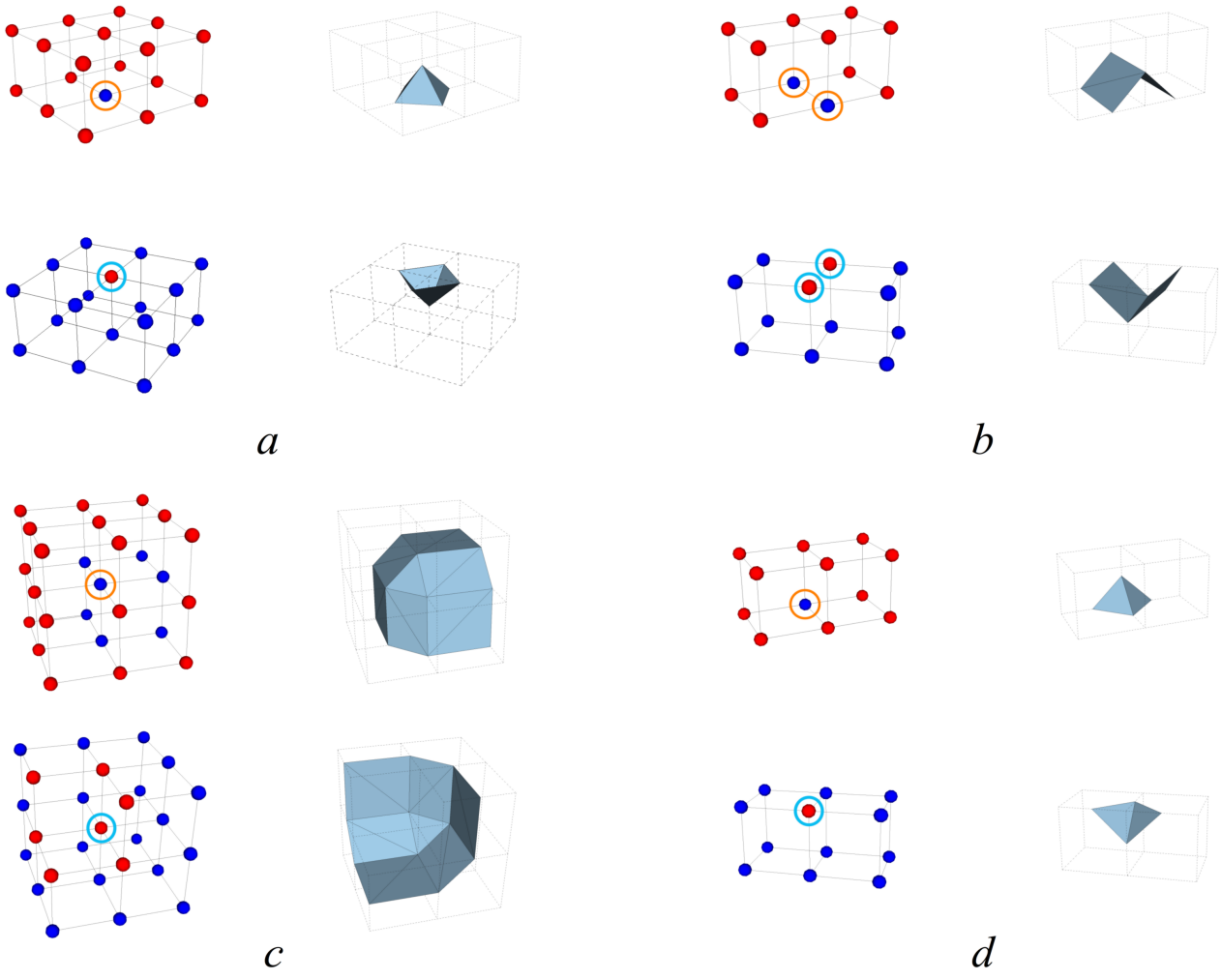

Fig. 2. a) The masks are the reflection of each other, and they represent a "pyramid" on a local surface with facets with normals which do not belong to cat. 3. The single set of Points of Interest is circled and the points are switched if the configuration of points is found on the regular lattice. They can be rotated, generating a total number of 12 masks. b) The masks are the reflection of each other, and they represent a "pyramid" on a local surface with facets with normals which do not belong to cat. 2. The single set of Points of Interest is circled and the points are switched if the configuration of points is found on the regular lattice. They can be rotated, generating a total number of 24 masks. c) The masks are the reflection of each other, and they represent a local configuration where the surface has facets with normals which belong to cat. 3. The single set of Points of Interest is circled and the points are switched if the configuration of points is found on the regular lattice. They can be rotated, generating a total number of 16 masks. d) The masks are the reflection of each other, and they represent a "pyramid" on a local surface with facets with normals which do not belong to cat. 3. The single set of Points of Interest is circled and the points are switched if the configuration of points is found on the regular lattice. They can be rotated, generating a total number of 48 masks.