

We can name thousands of parts of objects, from fingers and legs to door knobs and handles. How do we learn which name goes with which part? Often we learn by ostensive definition -- a teacher points and names the part. But ostensive definition is ambiguous: each object has countless possible parts, and a new name might refer to any one (or none) of them. So how does one decide which part of the teacher intends to name? We propose that this decision is often guided by a minima-part bias, which uses the intrinsic geometry of shapes to define psychologically natural parts. This unconscious bias guides teacher and learner to the same parts, so that the teacher can point to a part and state its name, and the learner can tell which part is intended. We test this proposal in five experiments with adult subjects. Experiment 1 shows that the minima-part bias guides part naming for novel, uncolored and untextured, silhouettes. Experiment 2 shows that the minima-part bias works for different methods of "pointing". Experiment 3 confirms a prediction of the minima-part bias, that changing figure and ground changes which parts are named. Experiment 4 pits the minima-part bias against geons, and shows that the minima-part bias, not geons, determines part naming. Experiment 5 shows that subjects generalize the name for a minima part to a new minima part that differs from the the original by a translation or a uniform scaling, but fail to similarly generalize the names of nonminima parts. These experiments suggest that subjects use the minima-part bias to learn names for parts by ostensive definition and to generalize these names to other parts with similar shapes.