Closure-aware Sketch Simplification (Supplementary Materials) More Results and Comparisons

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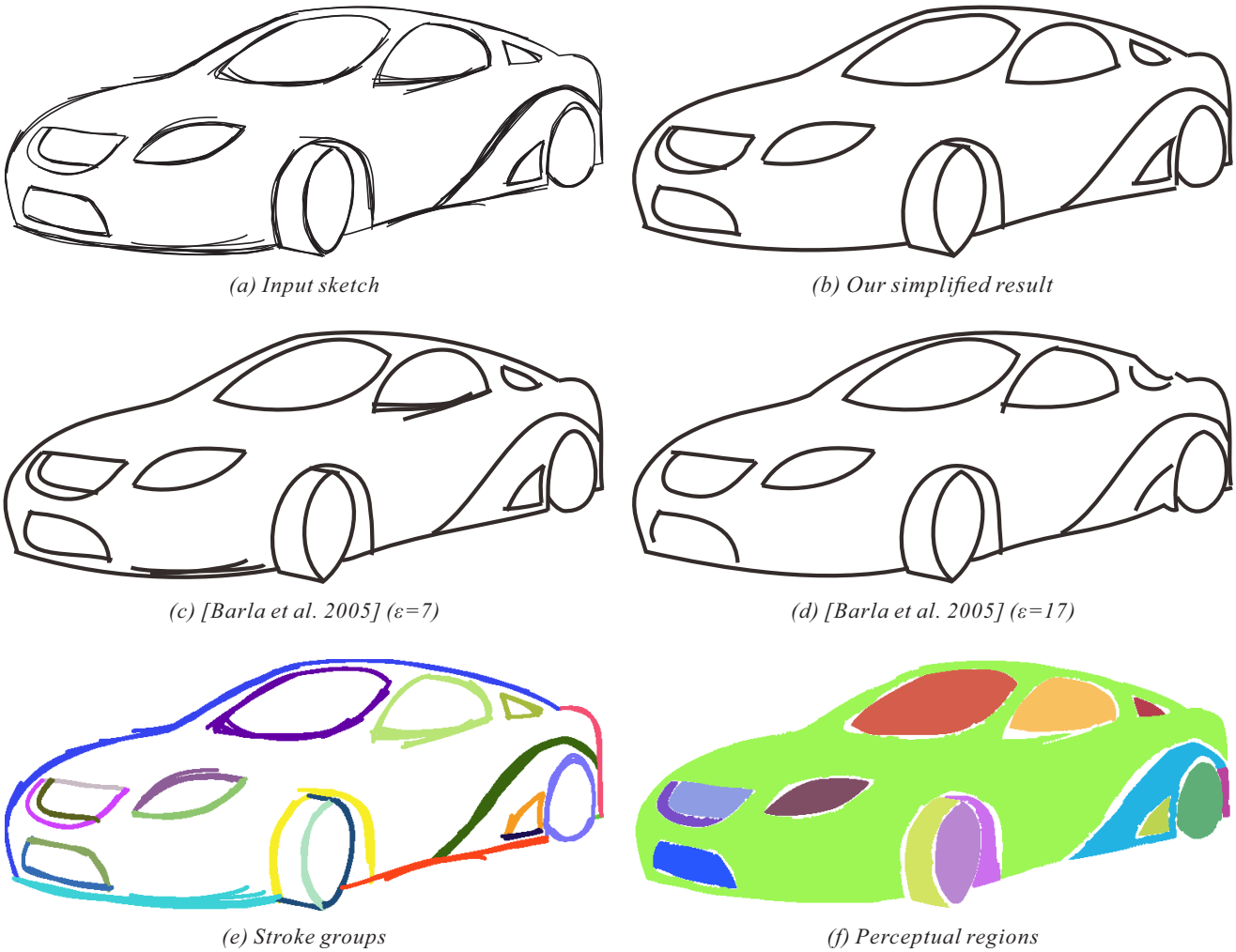

(a) Input sketch *(b) Our simplified result*

(c) [Barla et al. 2005] (ε=7) *(d) [Barla et al. 2005] (ε=17)*

(e) Stroke groups *(f) Perceptual regions*

Figure 1: *"Car". The sketch contains* 179 *input strokes and* 975 *initial regions.* 22 *stroke gestalts and* 15 *perceptual regions are obtained after simplification. The whole simplification process takes* 1.6 *minutes.*

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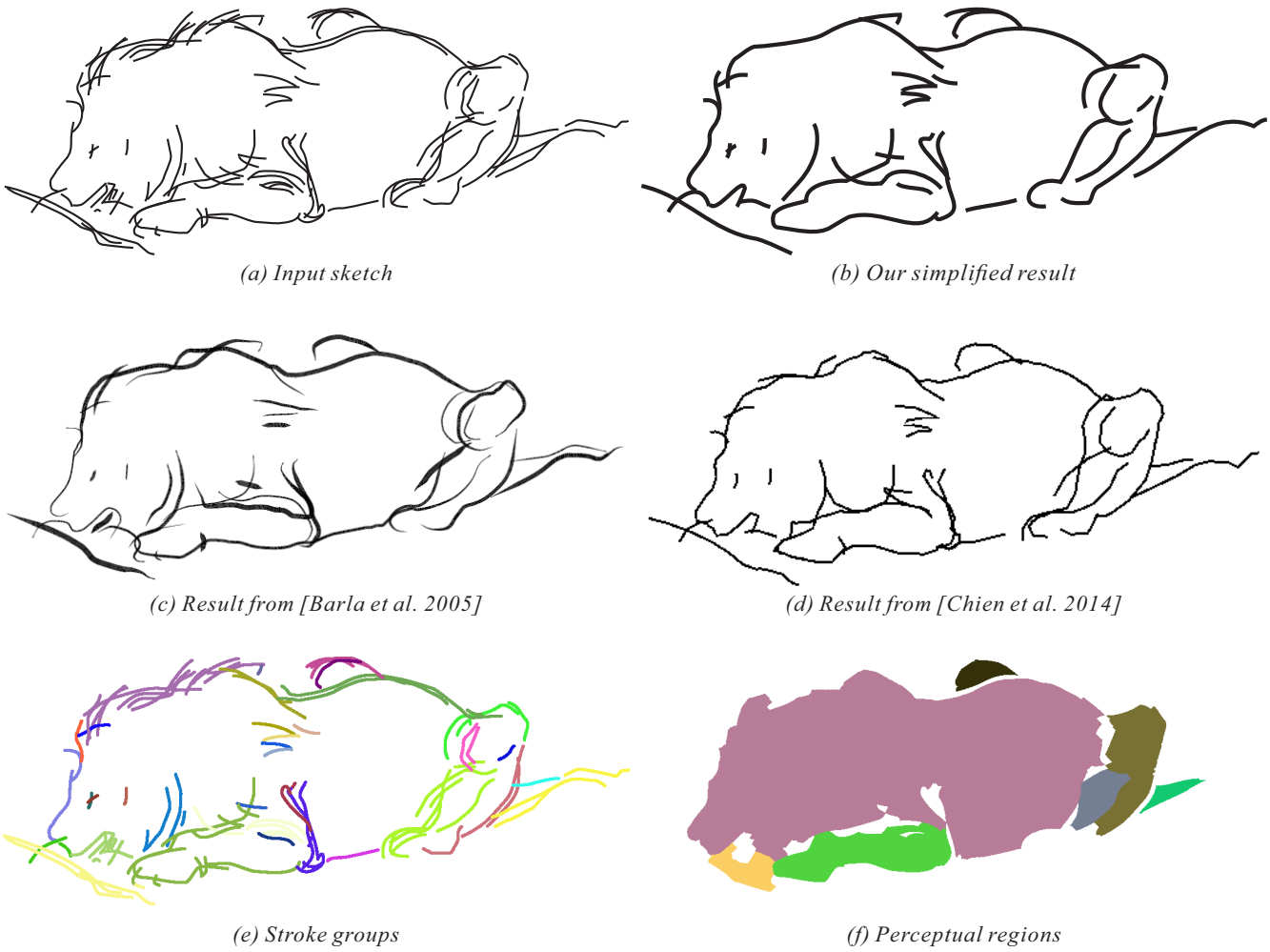
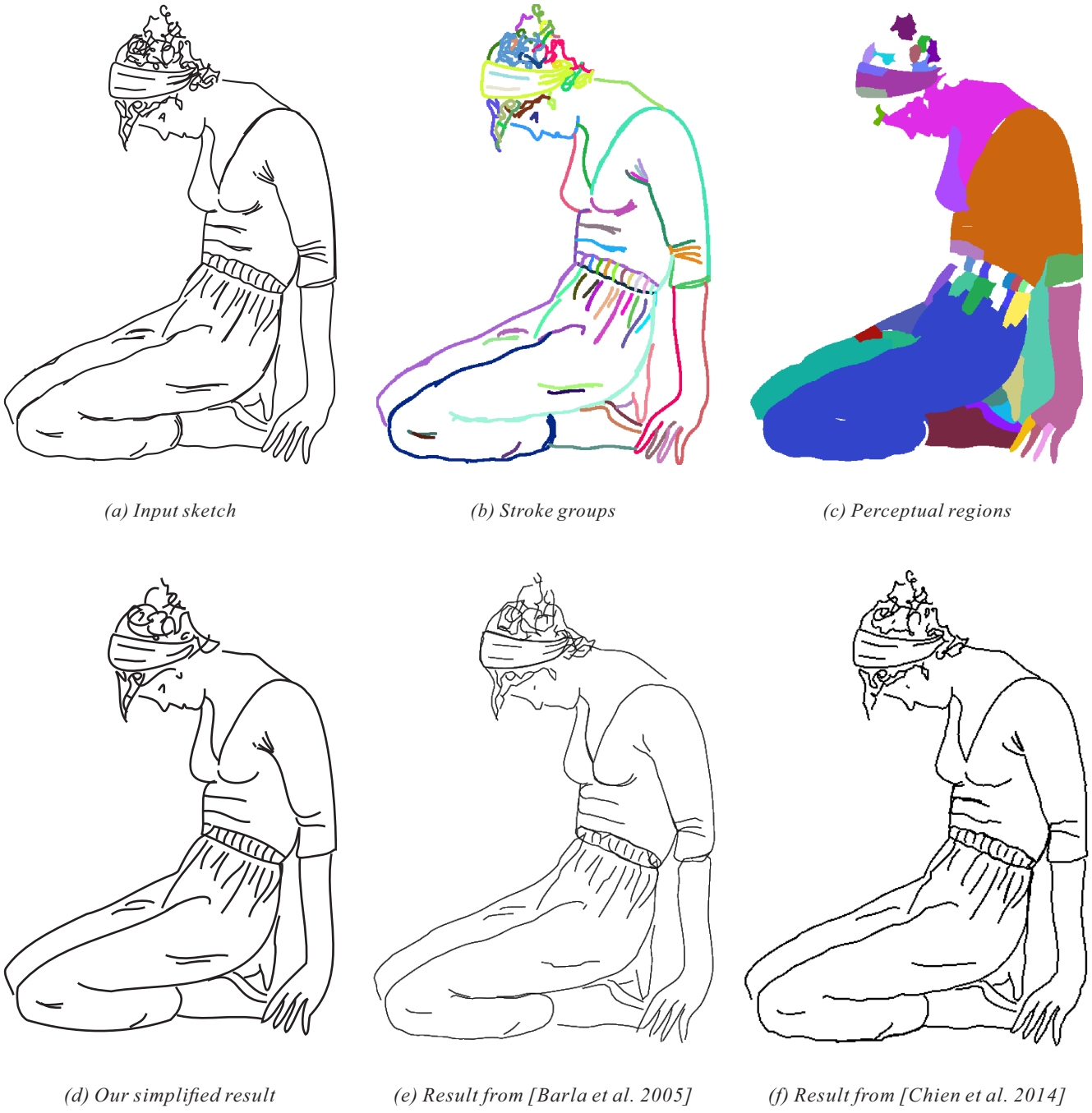


(a) Input sketch *(b) Our simplified result*

(c) Result from [Barla et al. 2005] *(d) Result from [Chien et al. 2014]*

(e) Stroke groups *(f) Perceptual regions*

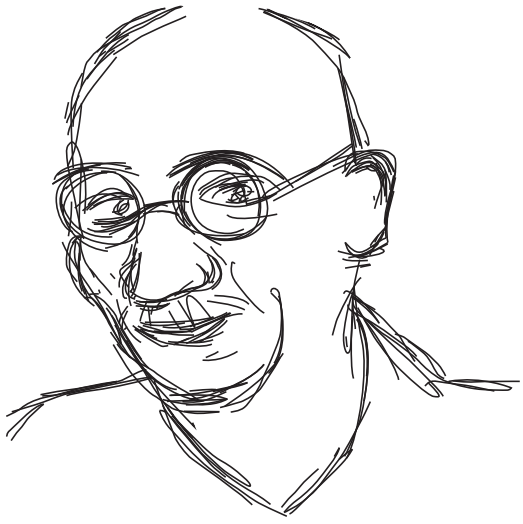
Figure 2: *"Lion". The input sketch is re-traced from [Barla et al. 2005], and contains* 106 *input strokes and* 72 *initial regions.* 36 *stroke gestalts and* 7 *perceptual regions are obtained after simplification. The whole simplification process takes* 0.7 *minutes.*



(a) Input sketch *(b) Stroke groups* *(c) Perceptual regions*

(d) Our simplified result *(e) Result from [Barla et al. 2005]* *(f) Result from [Chien et al. 2014]*

Figure 3: *"Woman". The input sketch is re-traced from [Barla et al. 2005], and contains* 174 *input strokes and* 126 *initial regions.* 79 *stroke gestalts and* 41 *perceptual regions are obtained after simplification. The whole simplification process takes* 1.3 *minutes.*



(a) Input sketch

(b) Our simplified result

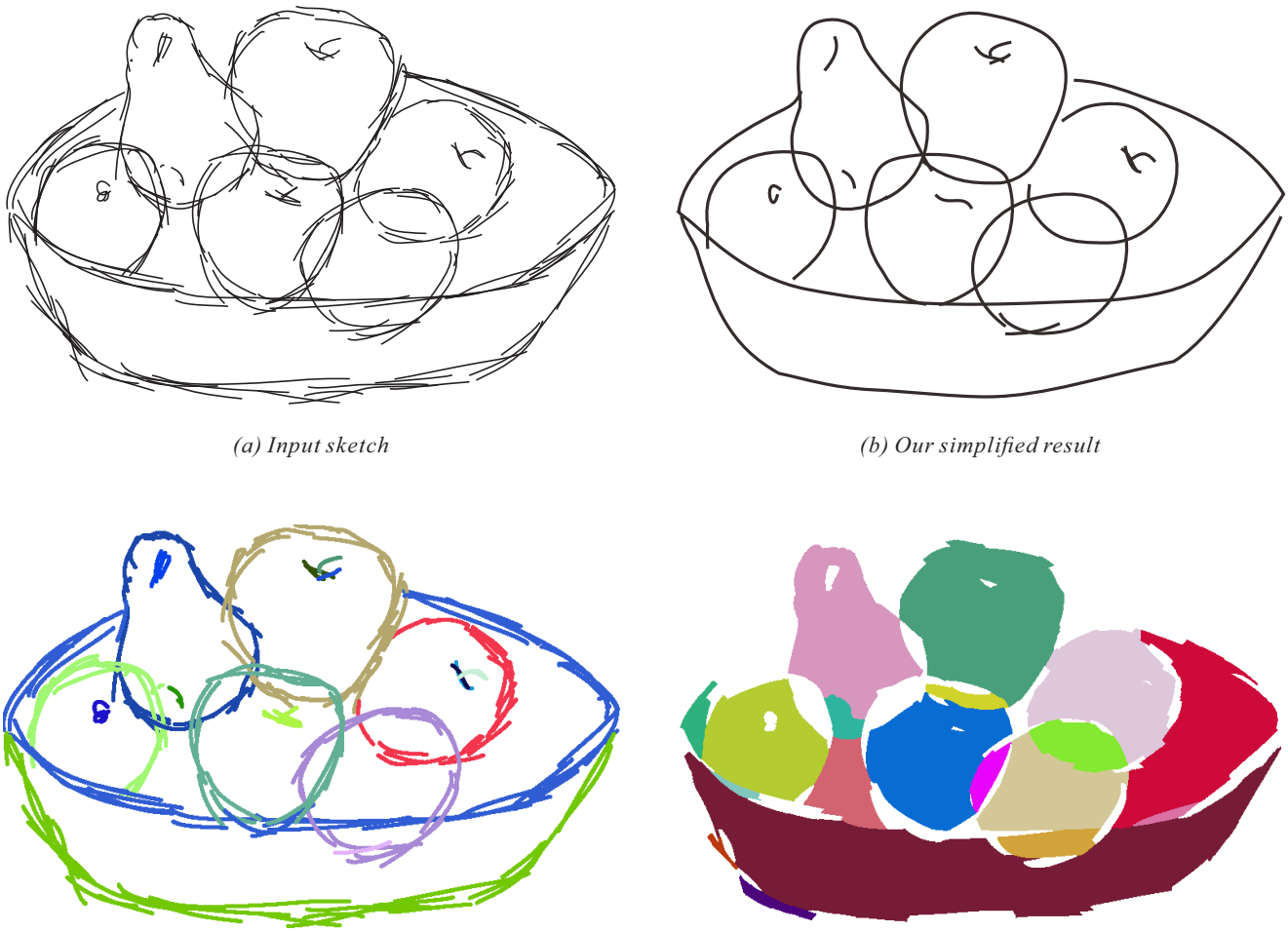
(c) Result from [Shesh and Chen 2008]

(d) Result from [Chien et al. 2014]

(c) Stroke groups

(d) Perceptual regions

Figure 4: *"Gandi". The input sketch is re-traced from [Shesh and Chen 2008], and contains 301 input strokes and 341 initial regions. 27 stroke gestalts and 18 perceptual regions are obtained after simplification. The whole simplification process takes 5.0 minutes.*



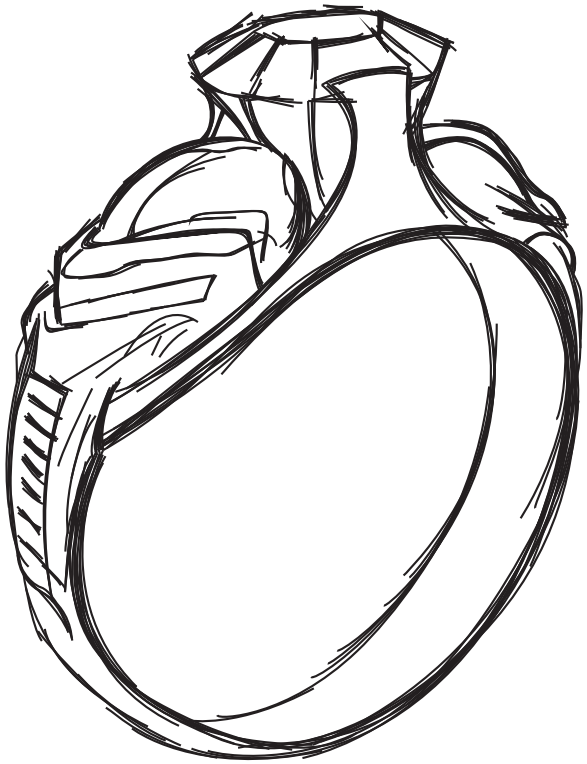
(a) Input sketch

(b) Our simplified result

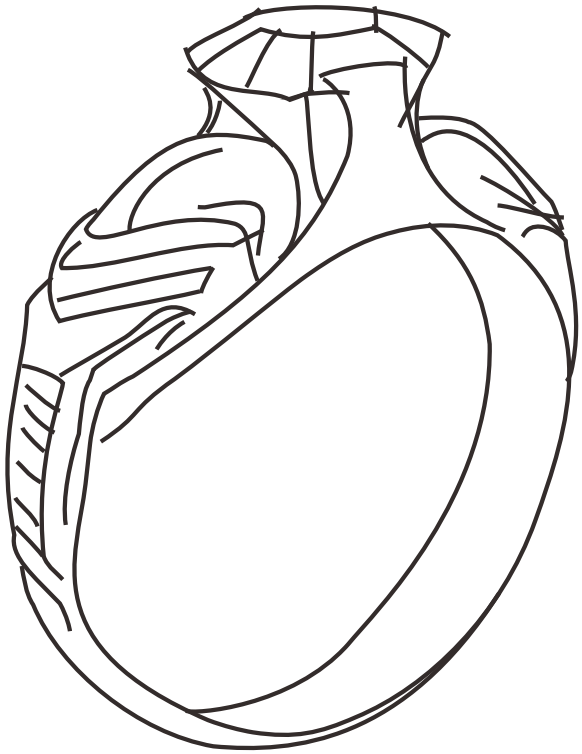
(c) Stroke groups

(d) Perceptual regions

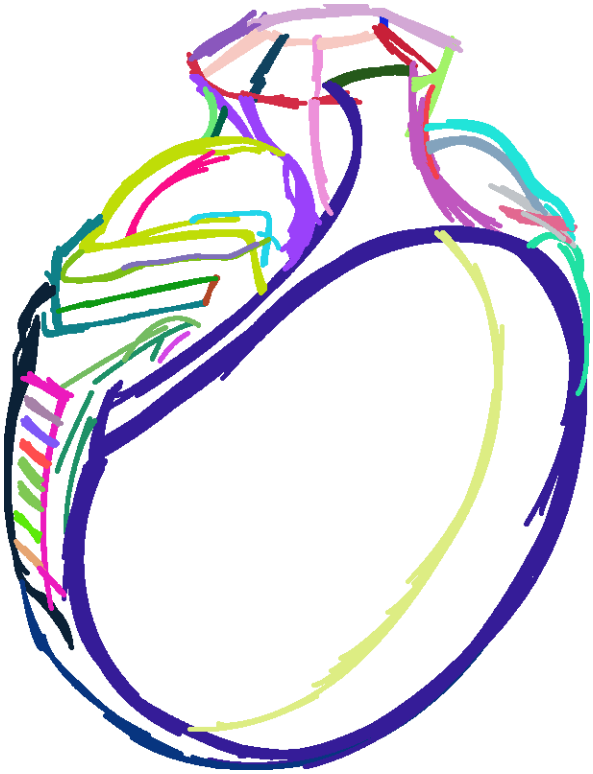
Figure 5: *"Fruit". The input sketch is re-traced from [Pusch et al. 2007], and contains* 199 *input strokes and* 160 *initial regions.* 18 *stroke gestalts and* 17 *perceptual regions are obtained after simplification. The whole simplification process takes* 3.1 *minutes. But since Pusch et al. only presented the manually traced result of the this input sketch and did not present their simplified result, so we cannot compare their result with ours.*



(a) Input sketch



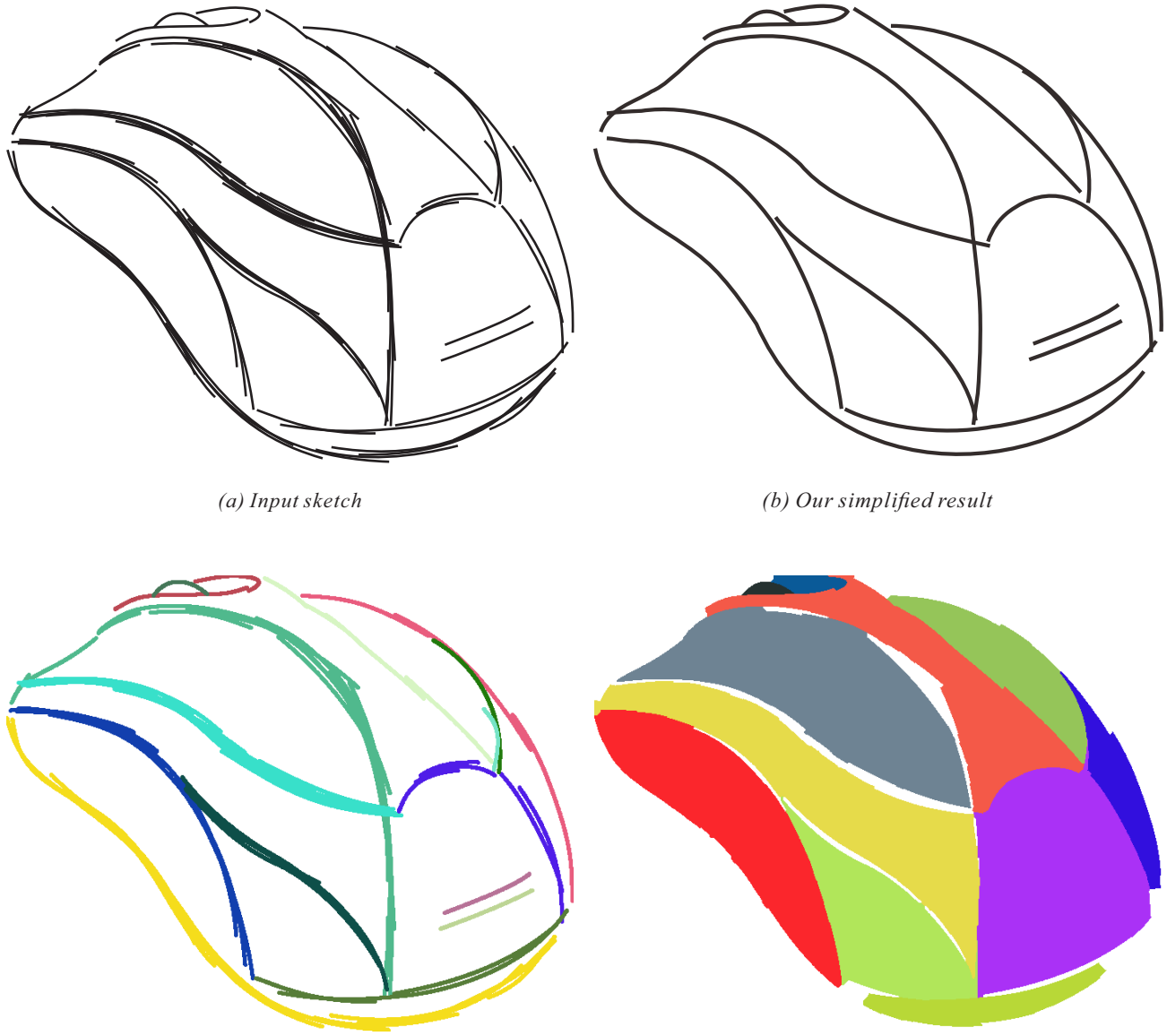
(b) Our simplified result



(c) Stroke groups

(d) Perceptual regions

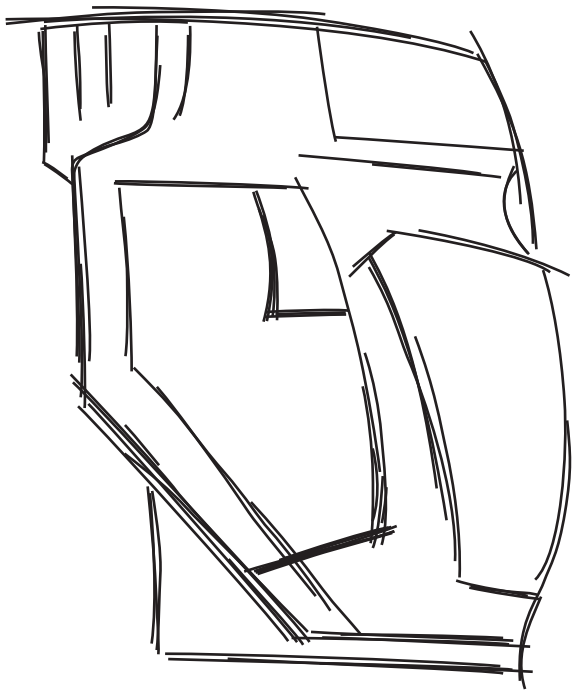
Figure 6: *"Ring". The input sketch contains* 303 *input strokes and* 1499 *initial regions.* 41 *stroke gestalts and* 42 *perceptual regions are obtained after simplification. The whole simplification process takes* 11.1 *minutes.*



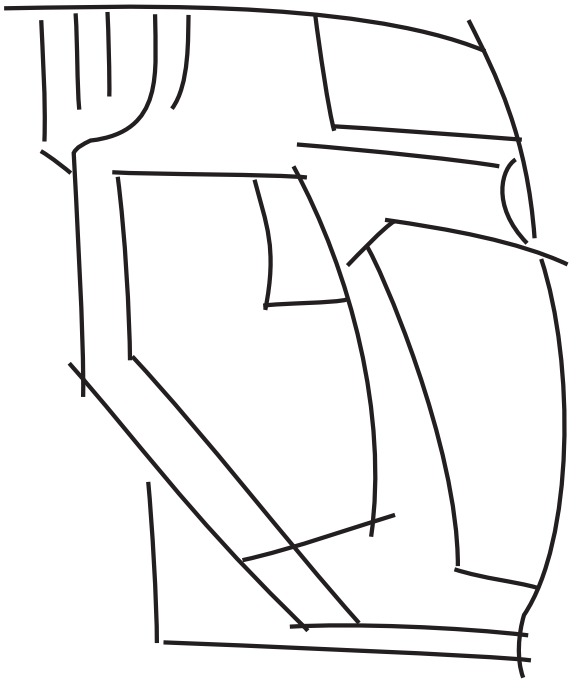
(a) Input sketch *(b) Our simplified result*

(c) Stroke groups *(d) Perceptual regions*

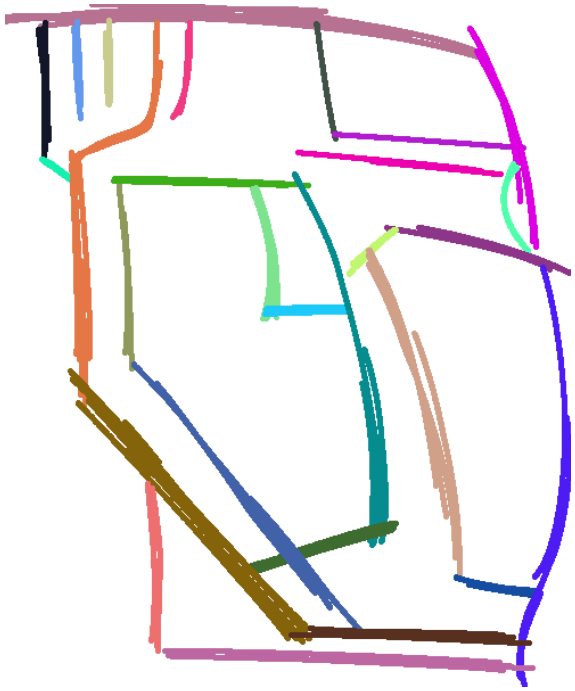
Figure 7: *"Mouse". The input sketch is re-traced from [Orbay and Kara 2011], and contains* 67 *input strokes and* 83 *initial regions.* 14 *stroke gestalts and* 11 *perceptual regions are obtained after simplification. The whole simplification process takes* 0.9 *minutes.*



(a) Input sketch



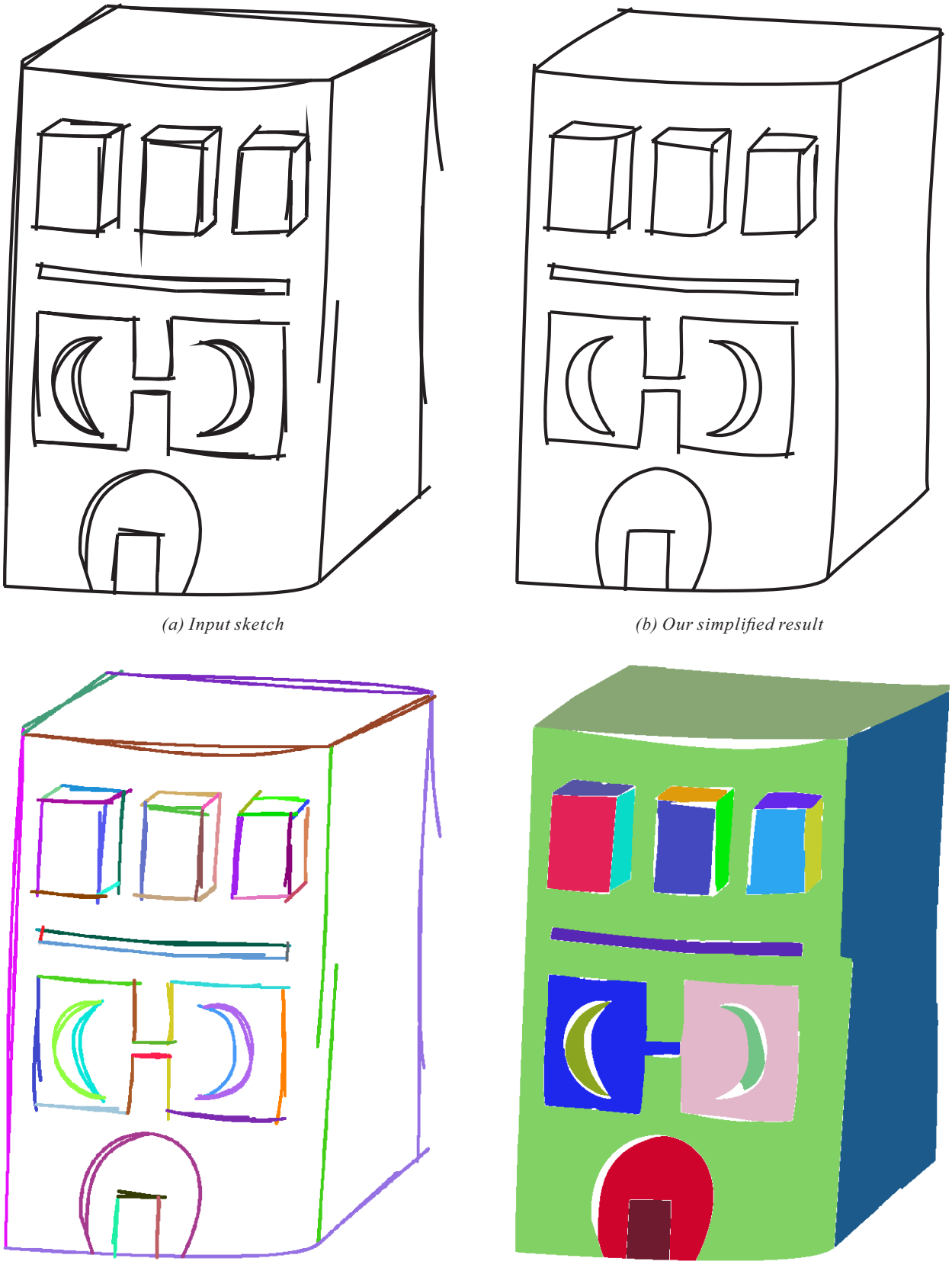
(b) Our simplified result



(c) Stroke groups

(d) Perceptual regions

Figure 8: *"Geometry". The input sketch is re-traced from [Orbay and Kara 2011], and contains* 89 *input strokes and* 60 *initial regions.* 28 *stroke gestalts and* 11 *perceptual regions are obtained after simplification. The whole simplification process takes* 1.6 *minutes.*



(a) Input sketch

(b) Our simplified result

(c) Stroke groups

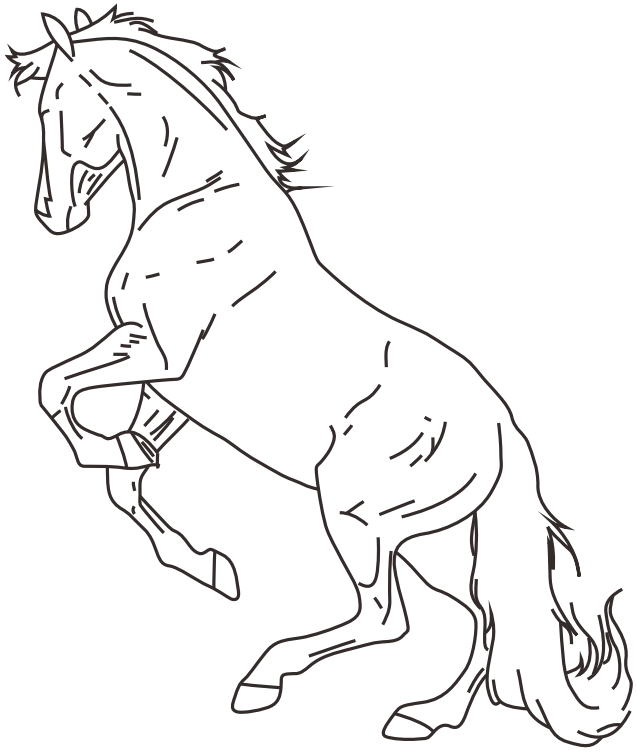
(d) Perceptual regions

Figure 9: *"Building". The input sketch contains* 127 *input strokes and* 78 *initial regions.* 59 *stroke gestalts and* 21 *perceptual regions are obtained after simplification. The whole simplification process takes* 0.5 *minutes.*

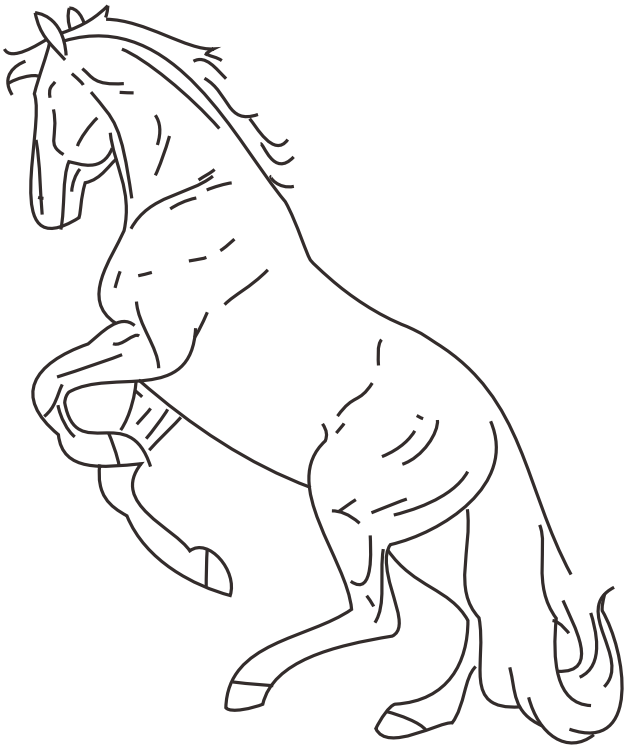
(a) Input sketch *(b) Our simplified result*

(c) Stroke groups *(d) Perceptual regions*

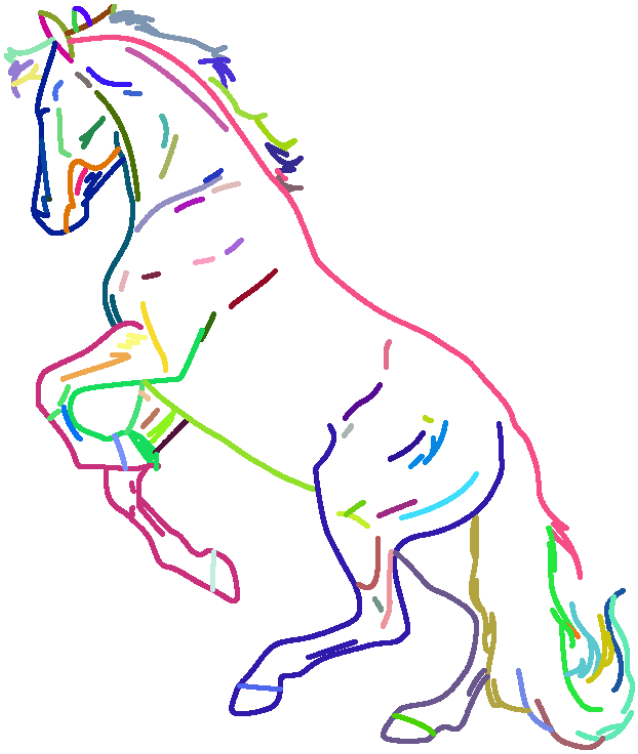
Figure 10: *"Fairy". The input sketch contains* 350 *input strokes and* 43 *initial regions.* 53 *stroke gestalts and* 19 *perceptual regions are obtained after simplification. The whole simplification process takes* 0.5 *minutes.*



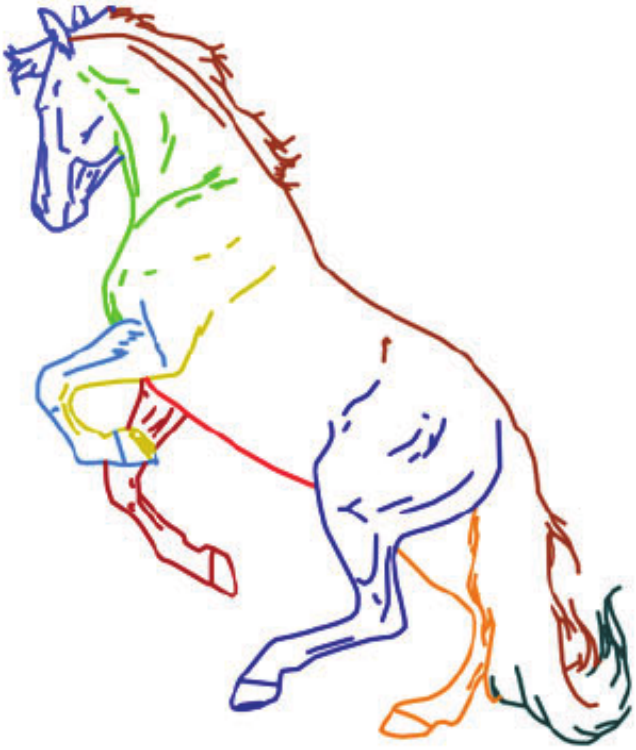
(a) Input sketch



(b) Our simplified result

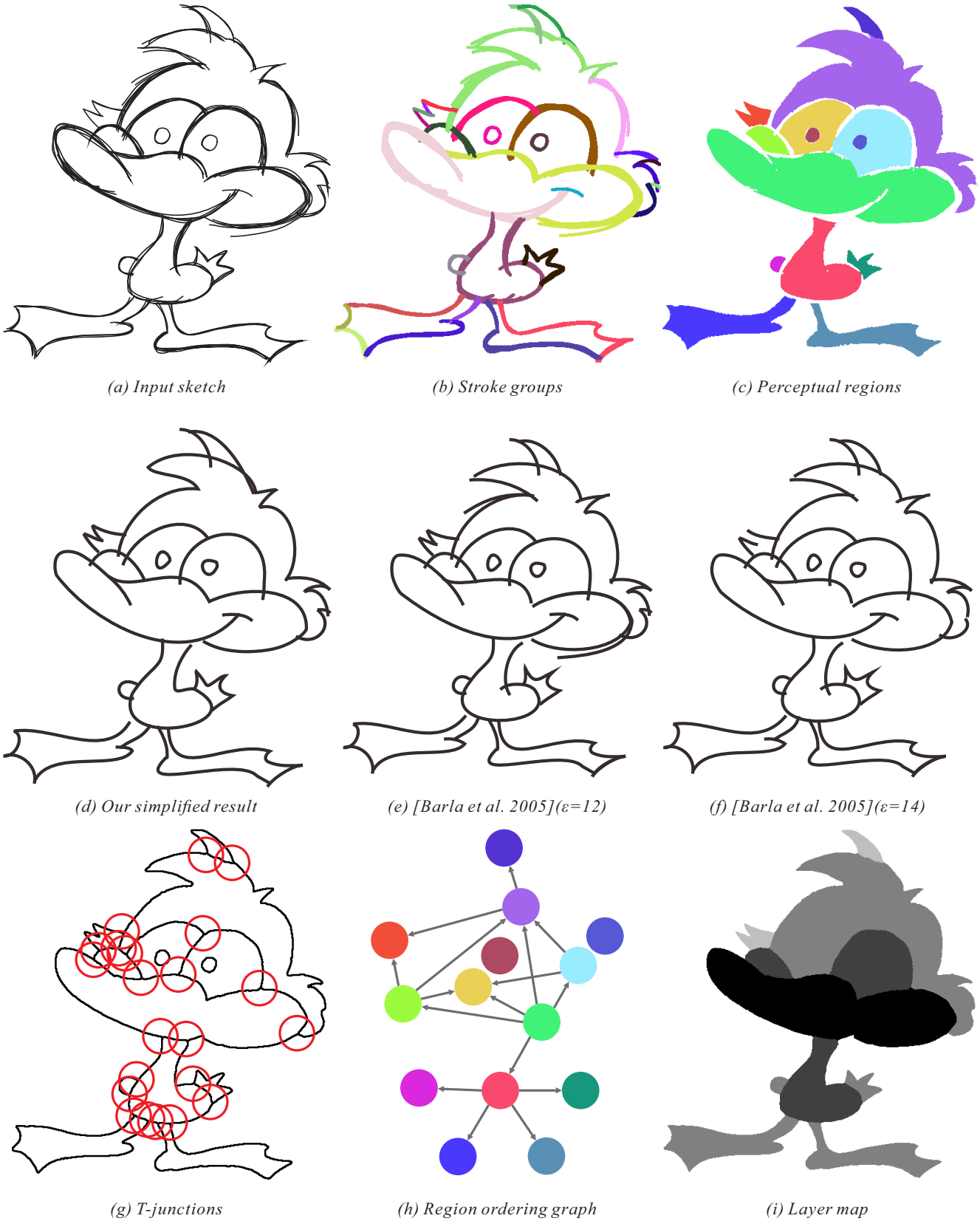


(c) Our stroke groups



(d) Stroke grouping result from [Fu et al. 2011]

Figure 11: *"Horse". The input sketch is re-traced from [Fu et al. 2011], and contains* 150 *input strokes and* 66 *initial regions.* 83 *stroke gestalts and* 35 *perceptual regions are obtained after simplification. The whole simplification process takes* 1.2 *minutes. Note that the grouped strokes in [Fu et al. 2011] are not used for the application of simplification.*

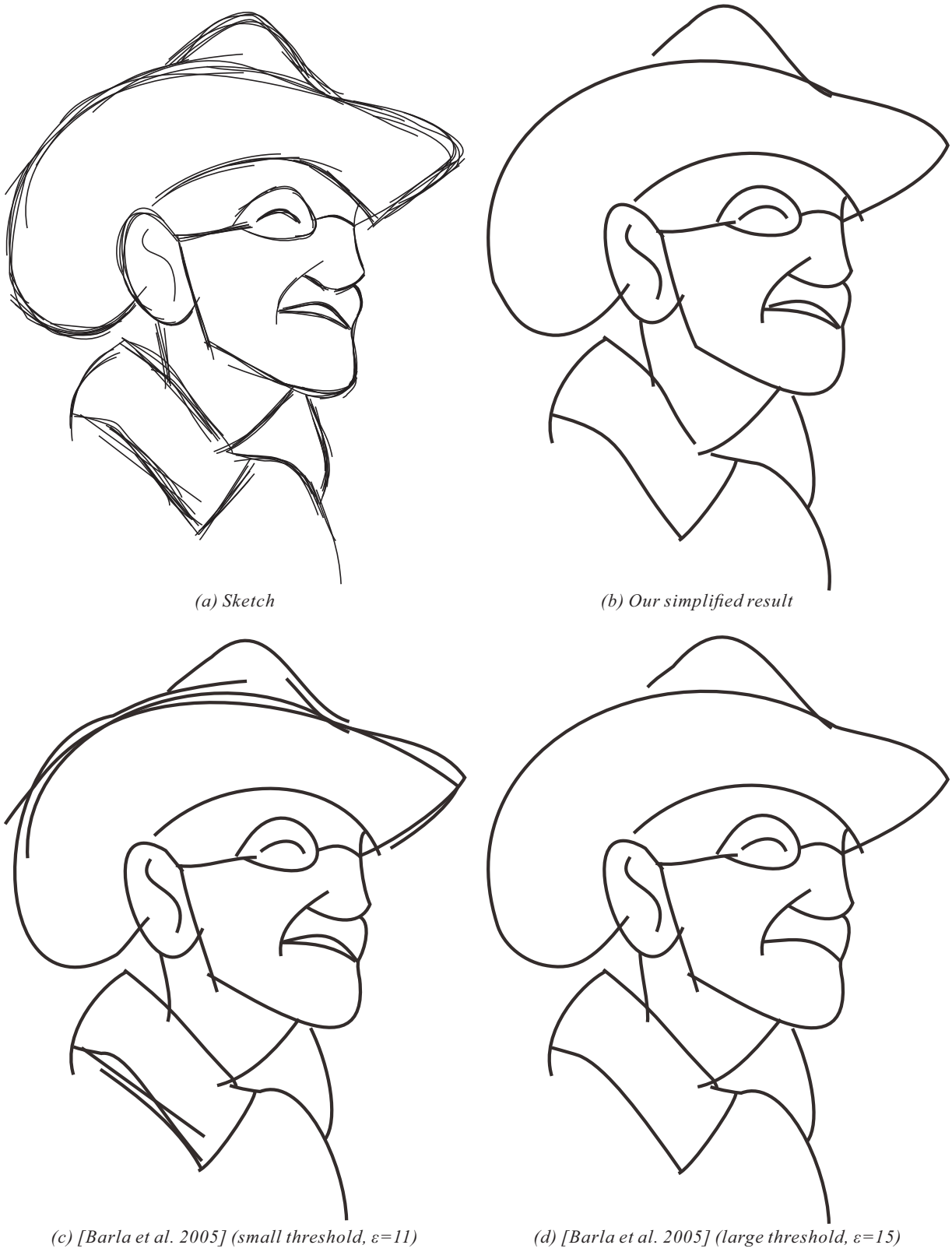


(a) Input sketch *(b) Stroke groups* *(c) Perceptual regions*

(d) Our simplified result *(e) [Barla et al. 2005](ε=12)* *(f) [Barla et al. 2005](ε=14)*

(g) T-junctions *(h) Region ordering graph* *(i) Layer map*

Figure 12: *"Duck".*



(a) Sketch

(b) Our simplified result

(c) [Barla et al. 2005] (small threshold, ε=11)

(d) [Barla et al. 2005] (large threshold, ε=15)

Figure 13: *"Grandpa".*

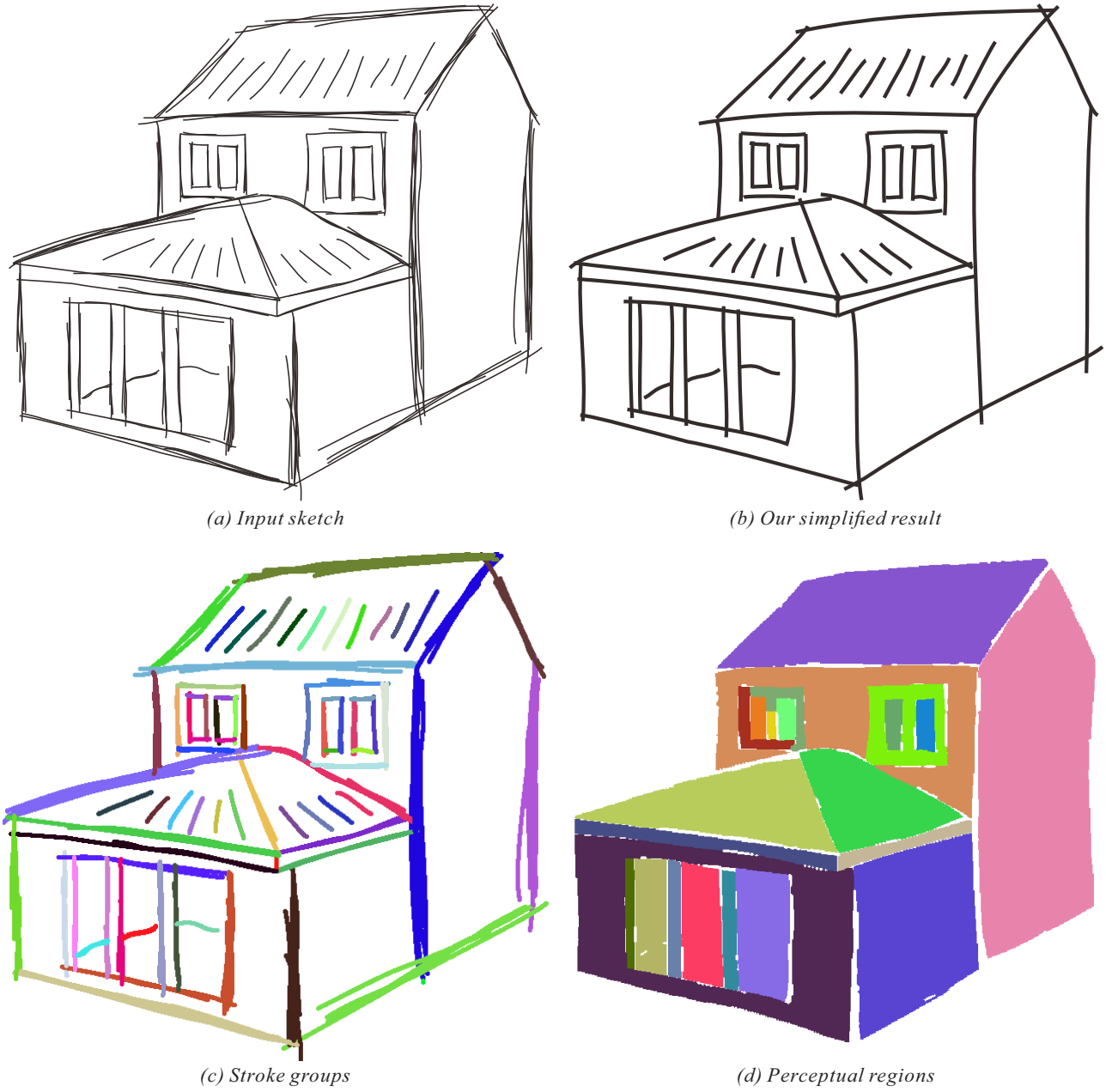
(a) Input sketch

(b) Our simplified result

(c) Stroke groups

(d) Perceptual regions

Figure 14: *"Girl".*



(a) Input sketch *(b) Our simplified result*

(c) Stroke groups *(d) Perceptual regions*

Figure 15: *"House".*