

4. C O n t e n t s

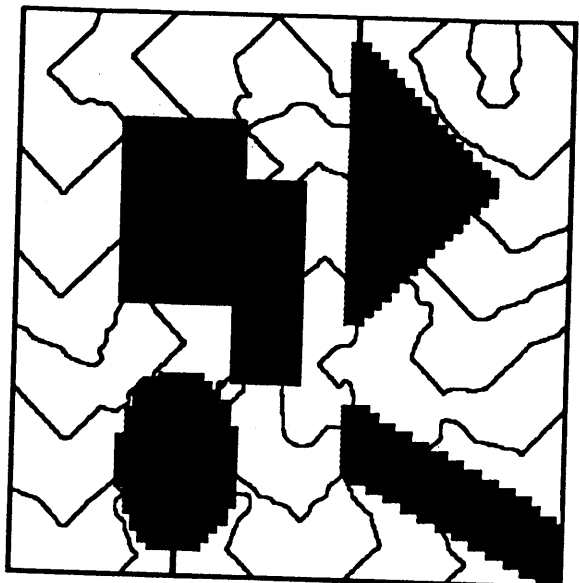
we can expect a $(m - 1)$ -dimensional skeleton of both SKELE in n .

Variants of the algorithm 39 of NF2, we can find a potential U that

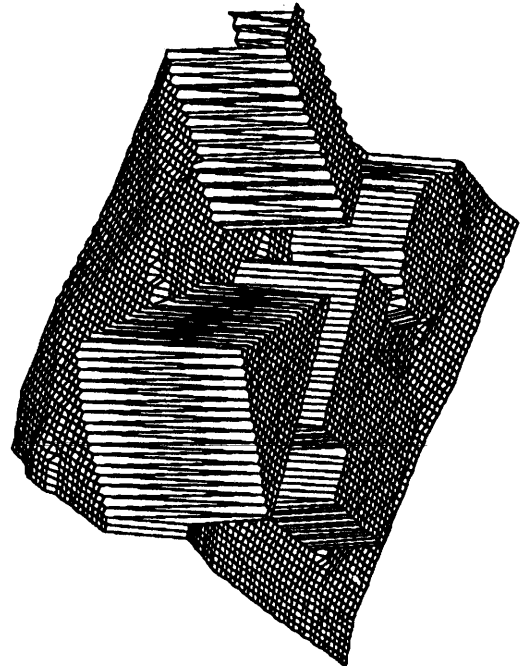
4.2.3 Applications

The procedures [1] and [2], since they can only be applied to a region m of the robot workspace, require exponential spaces, we can apply sections 2.2 and 2.3 to the workspace potential combining them in a single algorithm. Since the workspace W or NF2 remains regular, we can

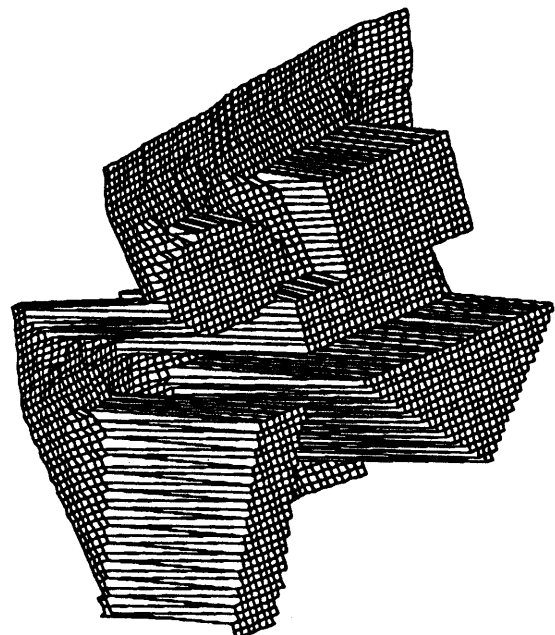
Let GW be a regular grid is constructed on W . We assume that



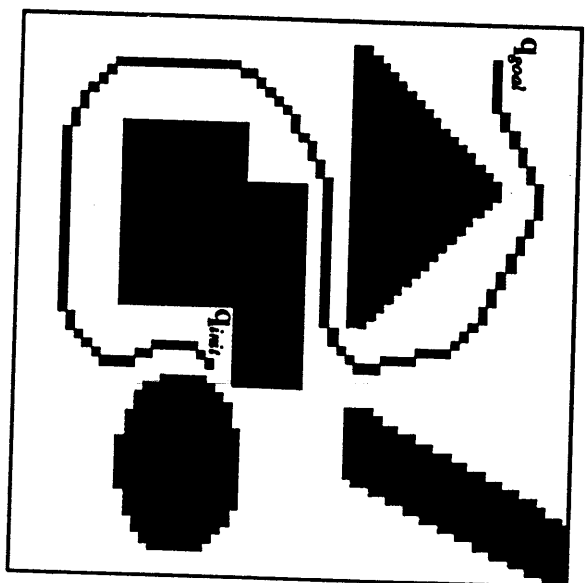
(a)



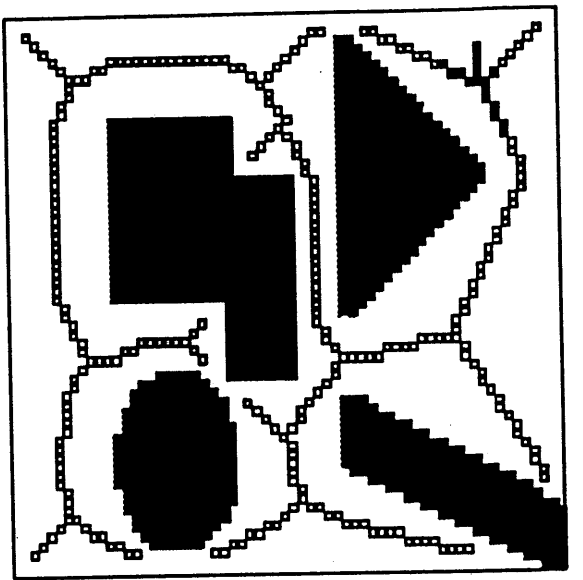
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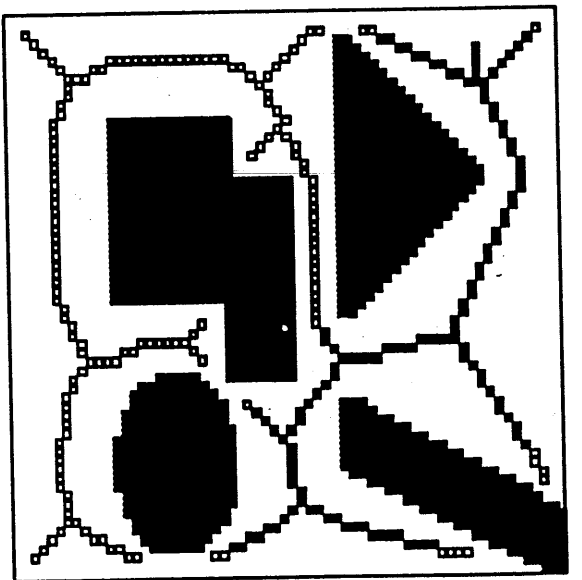
(c)



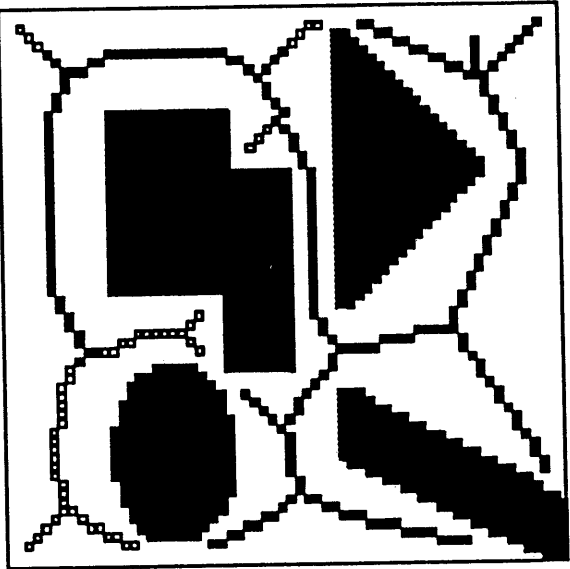
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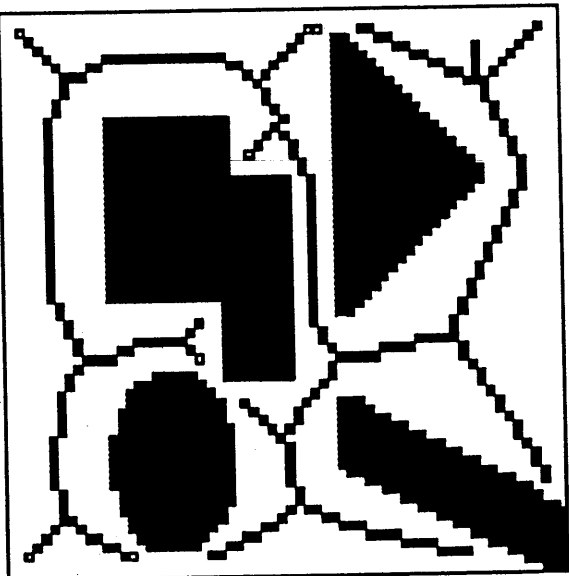
(a)



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Figure 5. This figure illustrates four stages of the wavefront expansion carried
 out by the algorithm NFD in the skeleton of Figure 4. The skeleton elements

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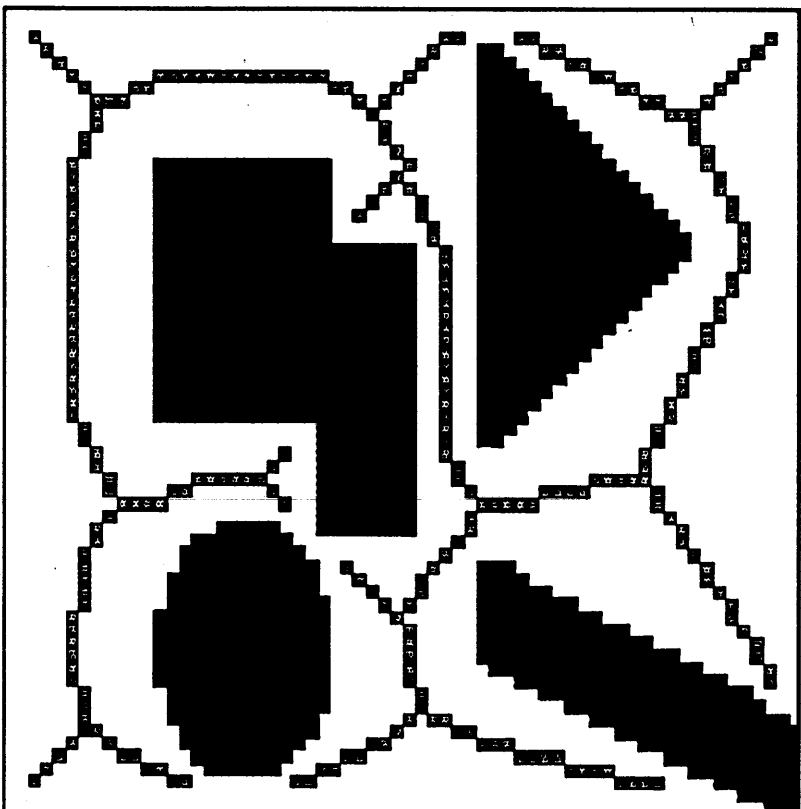


Figure 4. This figure shows the skeleton computed in the same two-dimensional space as in Figure 3 (with the parameter α equal to 4).

of Q — call it \mathbf{q} — is removed from Q ; every m -neighbor¹⁰ \mathbf{q}' of \mathbf{q} in S whose potential has not been computed yet receives a potential value equal to $U(\mathbf{q}) + 1$ and is inserted in Q . The algorithm terminates when Q is empty, i.e. when all the configurations in S accessible from \mathbf{q}_{goal} have been given a potential value. A formal expression of the algorithm

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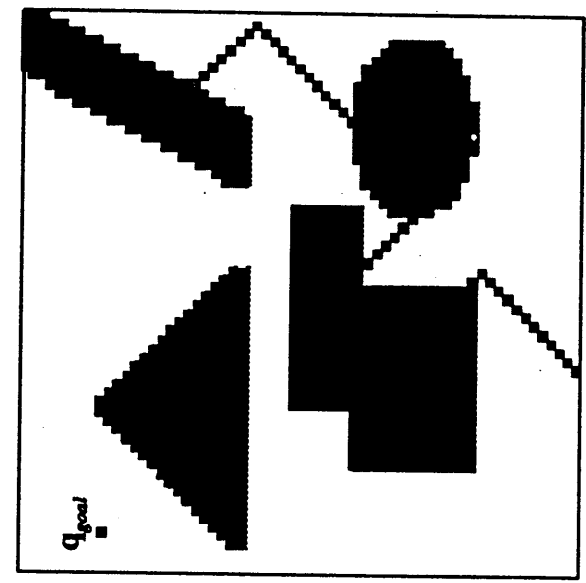
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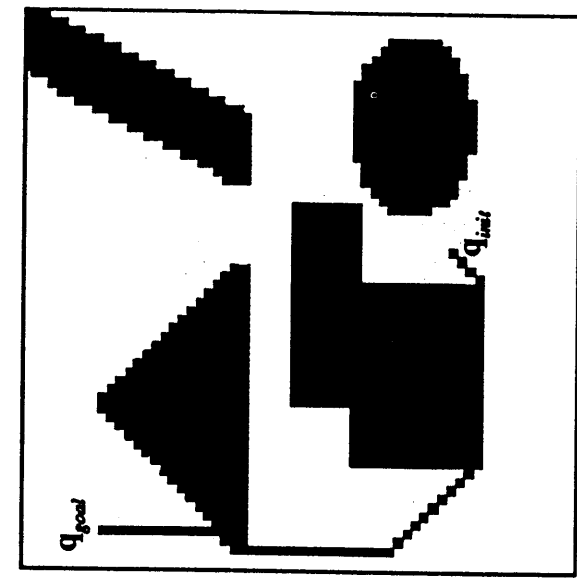
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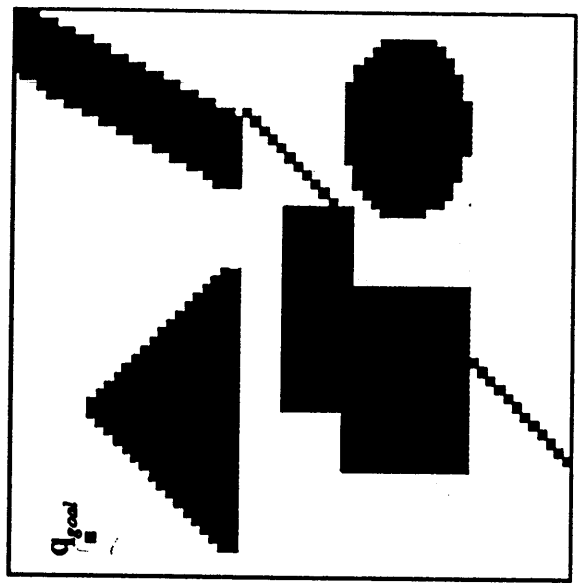
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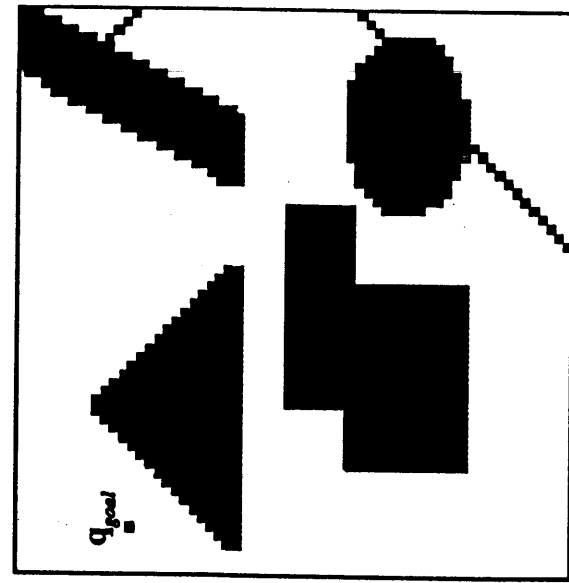
(e)



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(g)



(h)

Figure 3.2. This figure is the continuation of Figure 3.1.

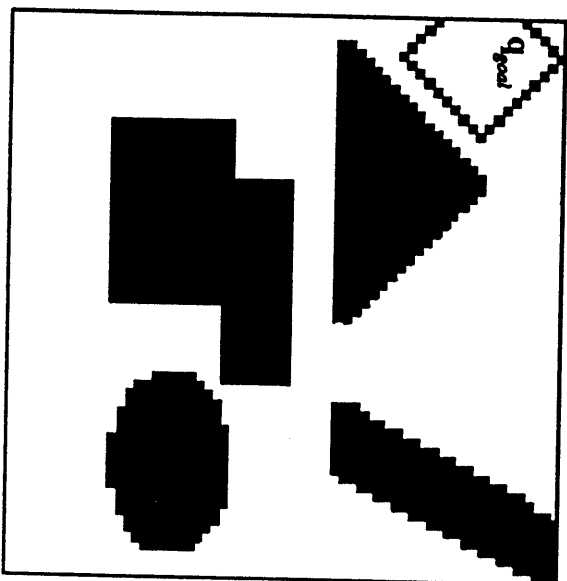
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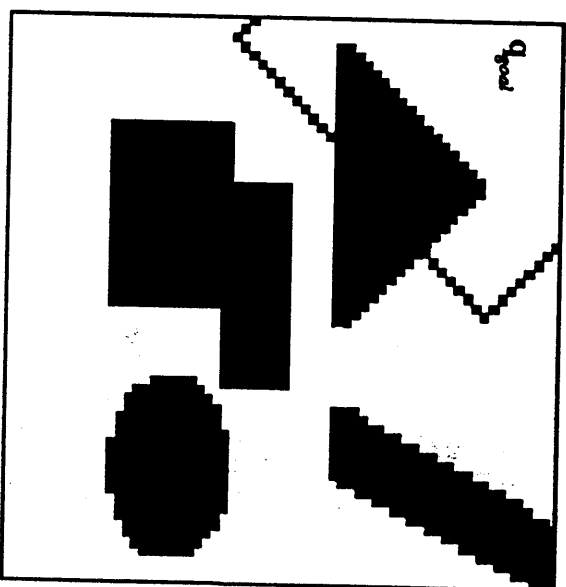
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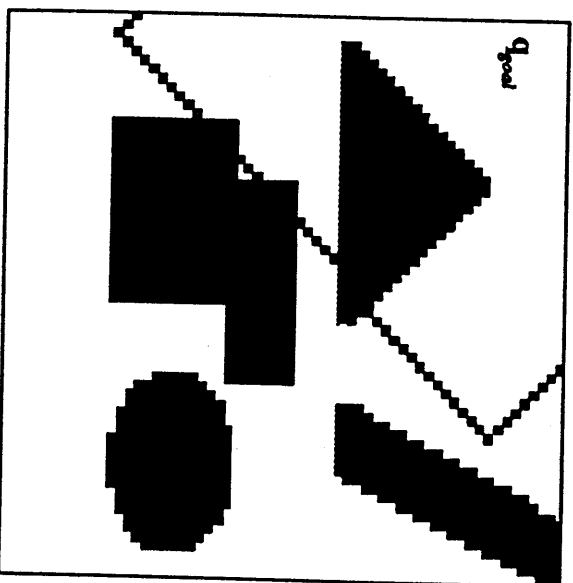
4 Other Potential Functions



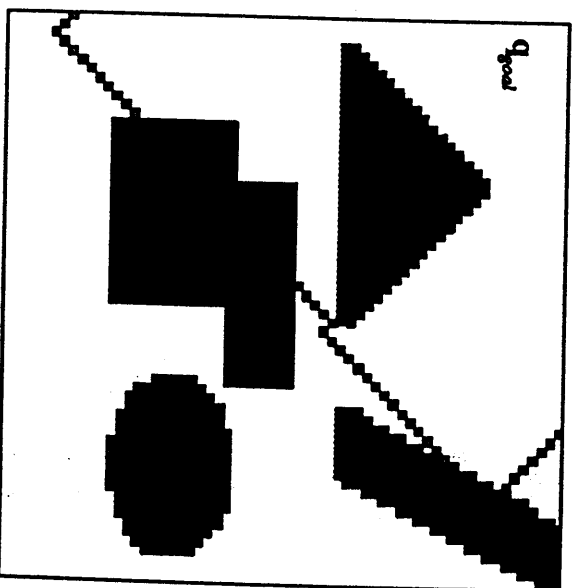
(a)



(b)



(c)



(d)

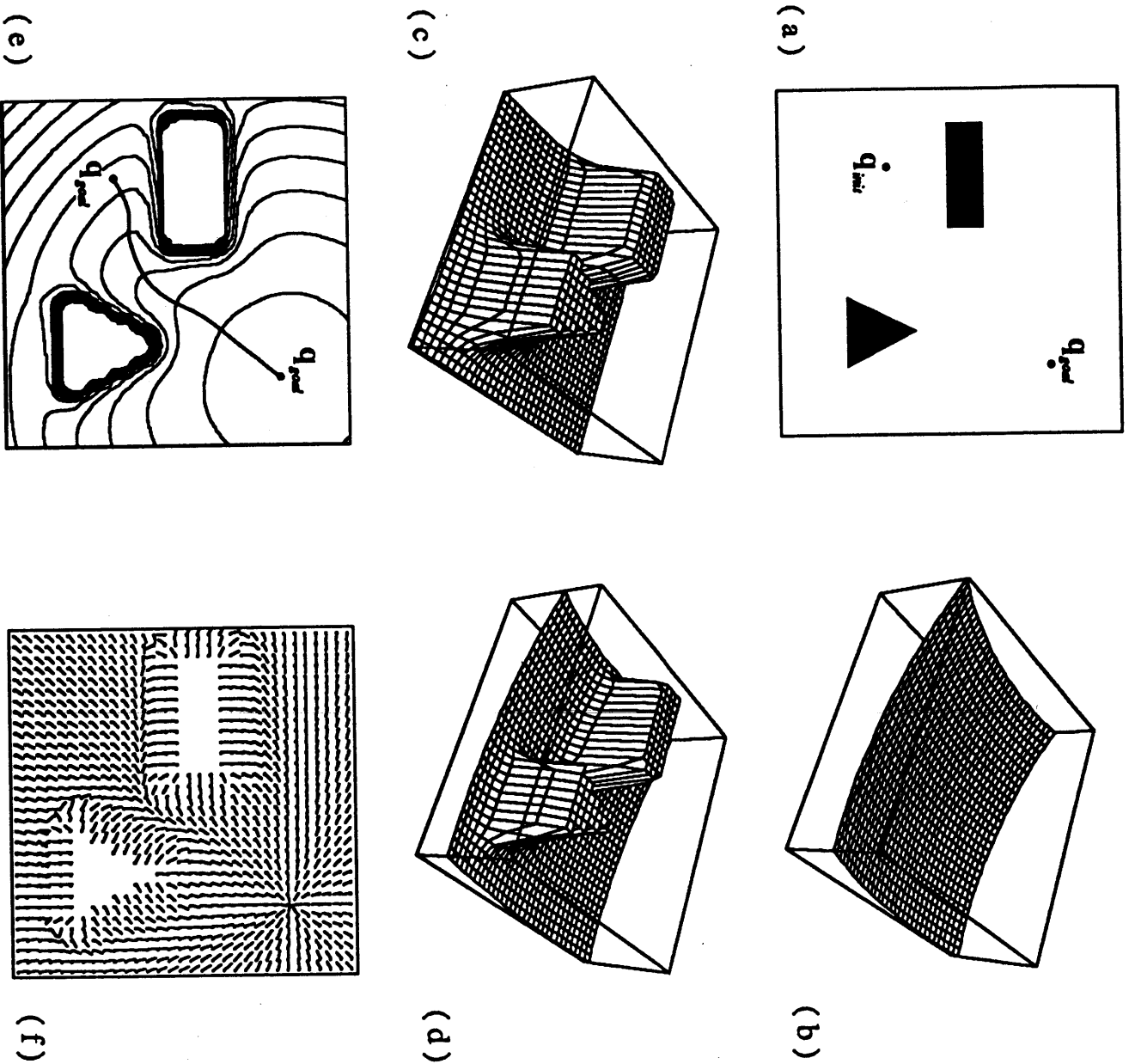


Figure 1. This figure shows an attractive potential field (Figure b), a repulsive potential field (Figure c) and the sum of the two (Figure d) in a two-dimensional

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