Product Configuration over the Internet

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  - Is a partial assignment consistent?
  - What values can be assigned to each variable, given a partial assignment?

Example: The 8-Queens Problem

Place 8 queens on a chessboard so that no queen can capture another.

```
constant
   N: 8;
variable
   col: array N of [0..N-1];
rule
   forall i in [0..N-2]:
      (forall j in [i+1..N-1] :
         (col[i] <> col[j] and
          i+col[i] <> j+col[j] and
          i+col[j] <> j+col[i]);
```

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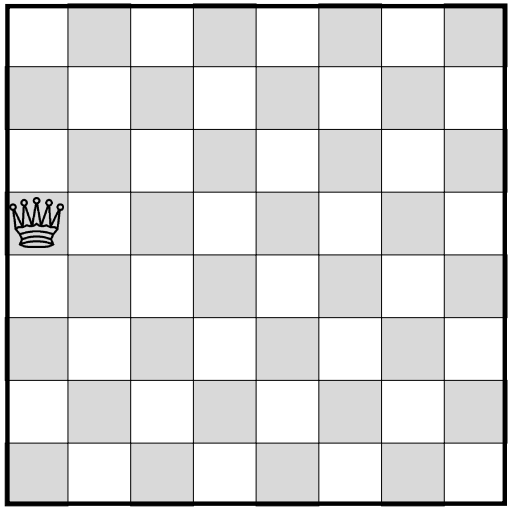

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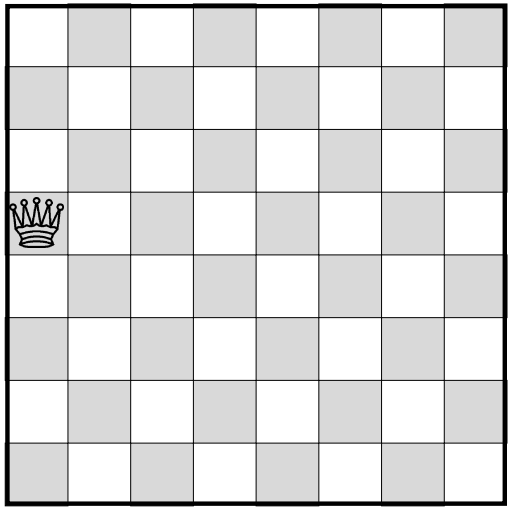

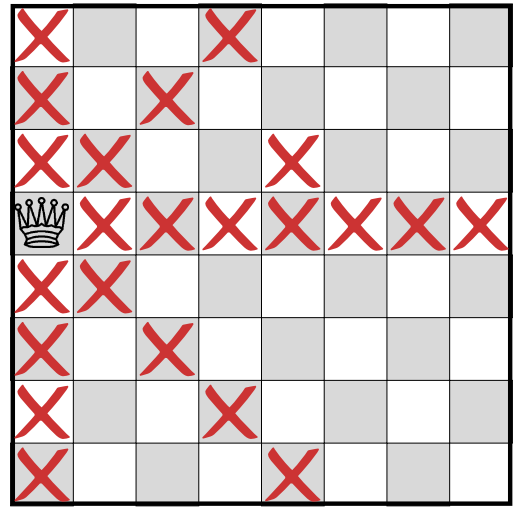

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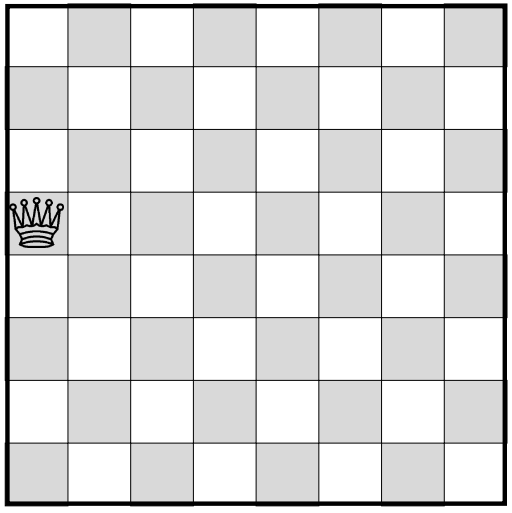

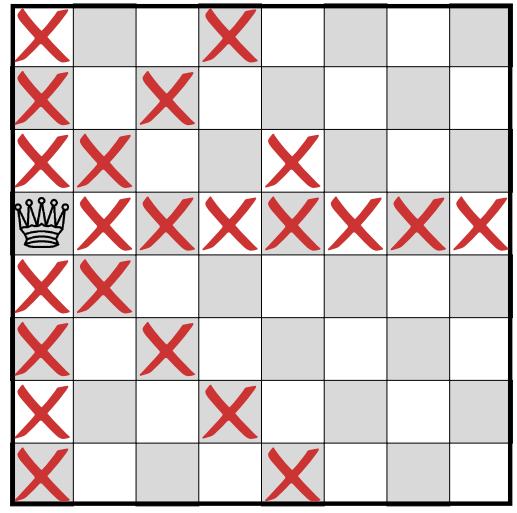

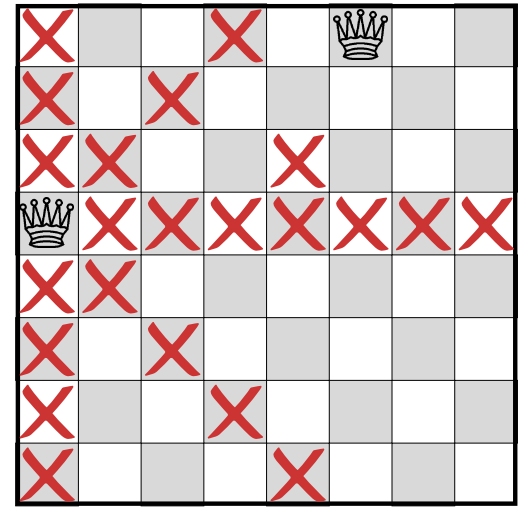

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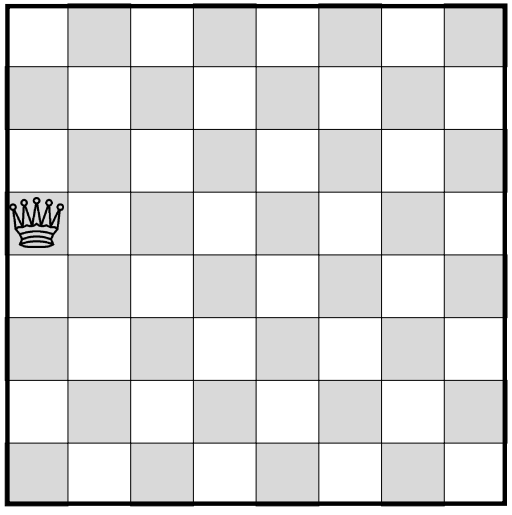

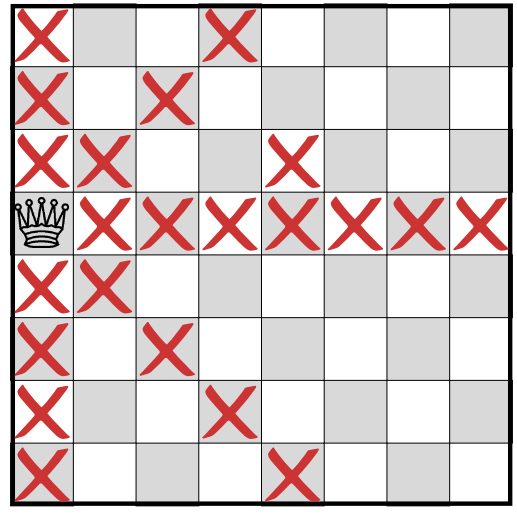

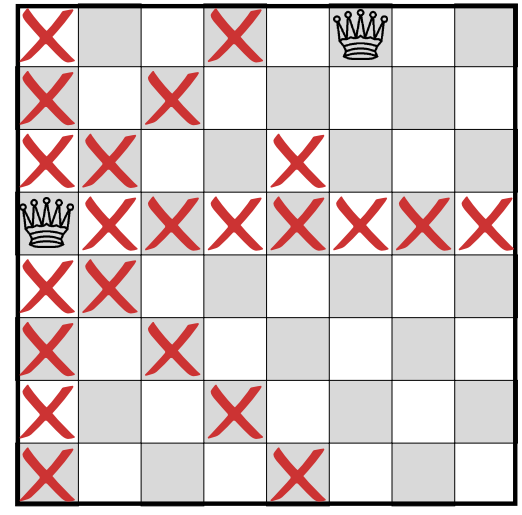

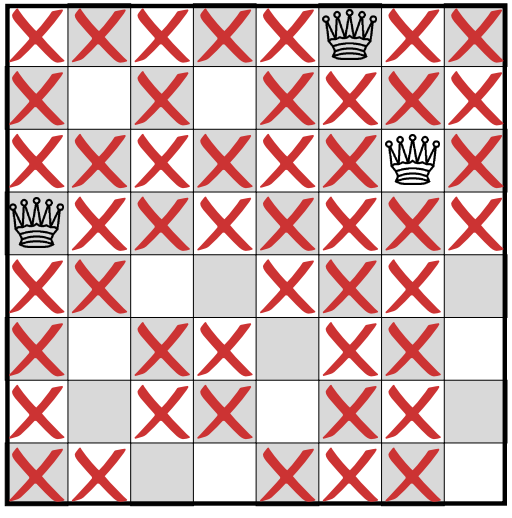

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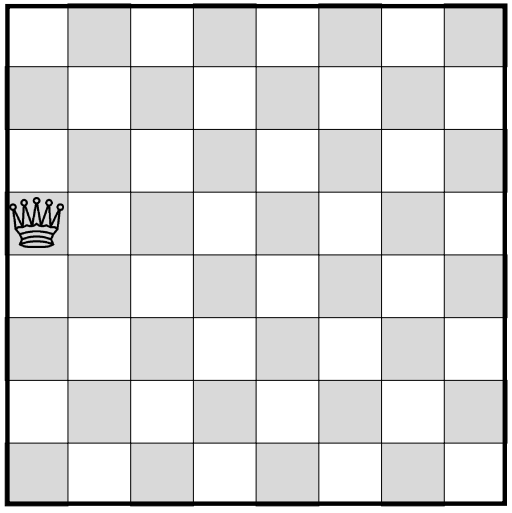

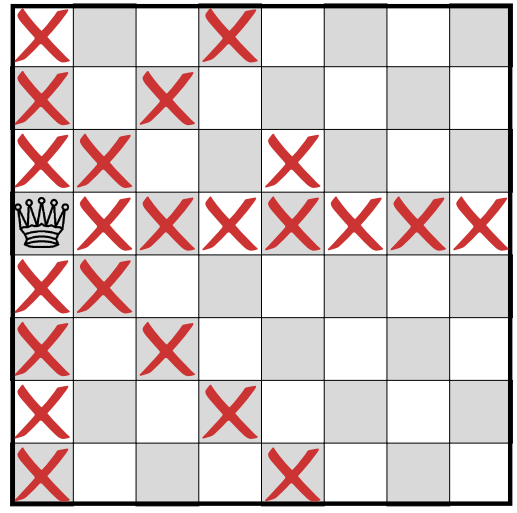

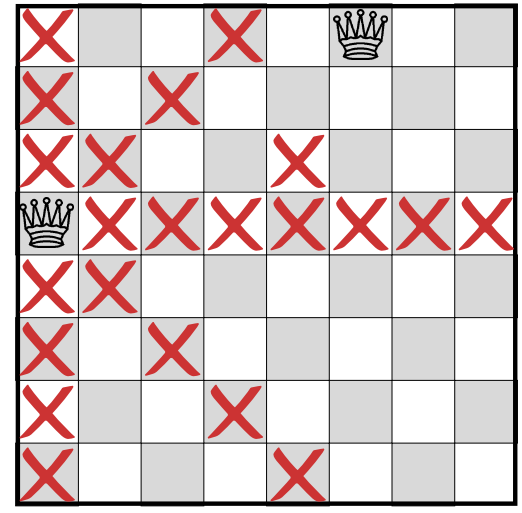

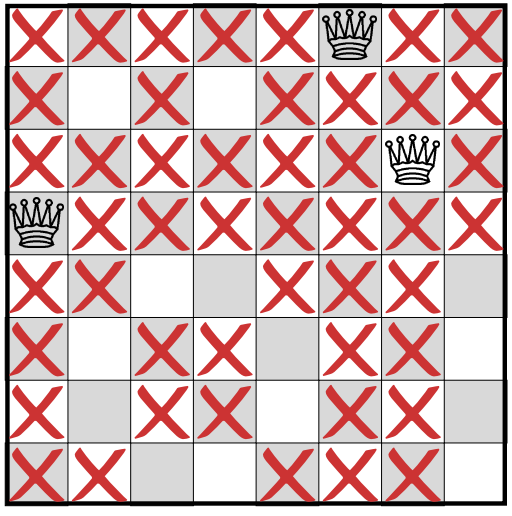

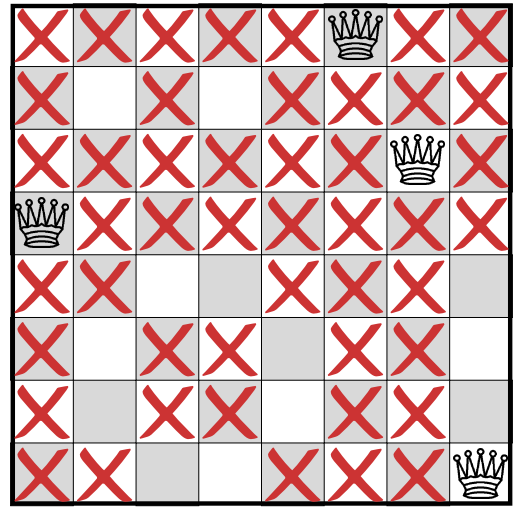

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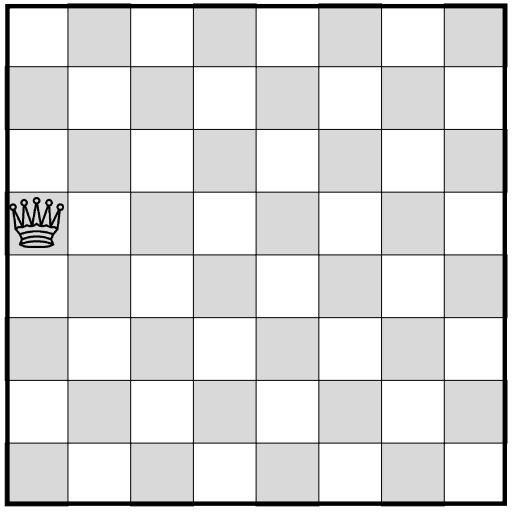

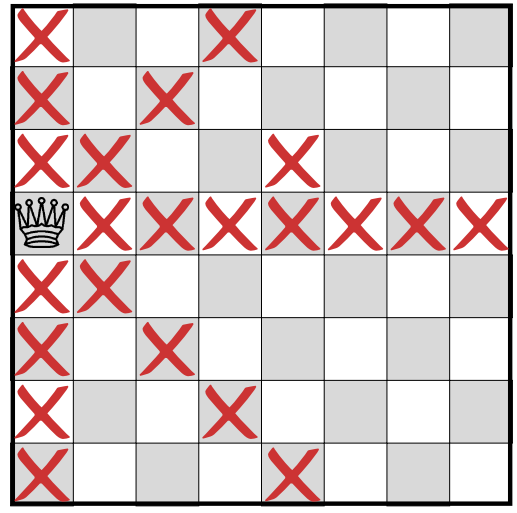

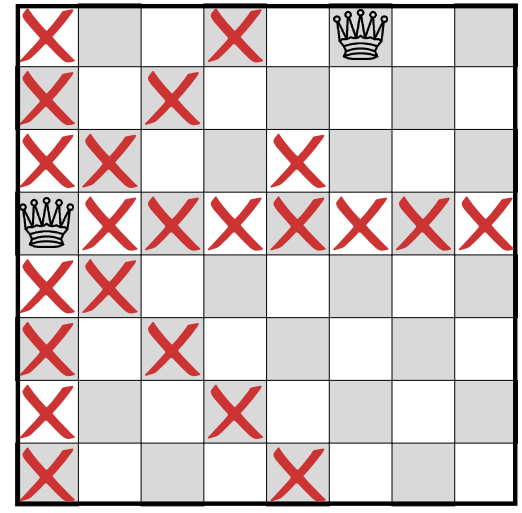

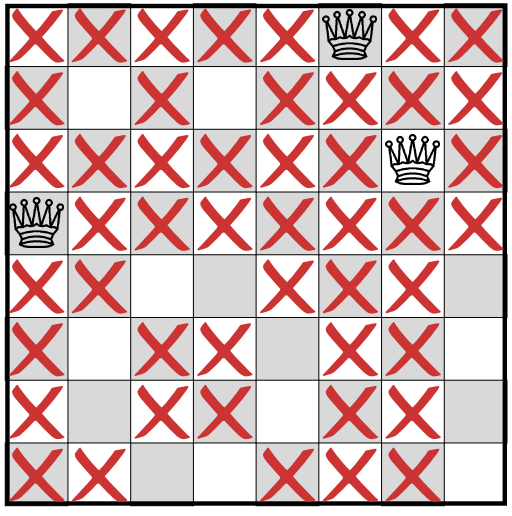

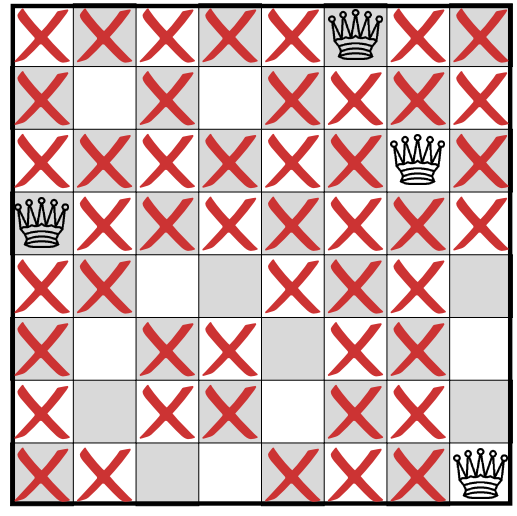

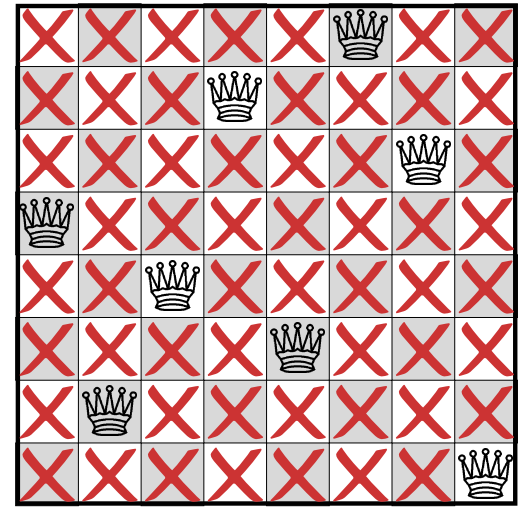

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- Size depends on the **structure** of the product model, not the number of solutions.
- Efficient algorithms for building/querying a VT:
  Deciding consistency: $O(1)$.
  Possible values for x_i: $O(|D_i| + |\text{VT}|)$.

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- Virtual table must be recompiled whenever the product model changes
- Most product models have compact virtual tables, but some don’t

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- Available as add-on configuration module for IdealSeller [www.idealseller.com] developed by Catalog-International

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- Let's try it: [localhost/configit/Bike/bike.asp]

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