Projection onto A Nonnegative Max-Heap

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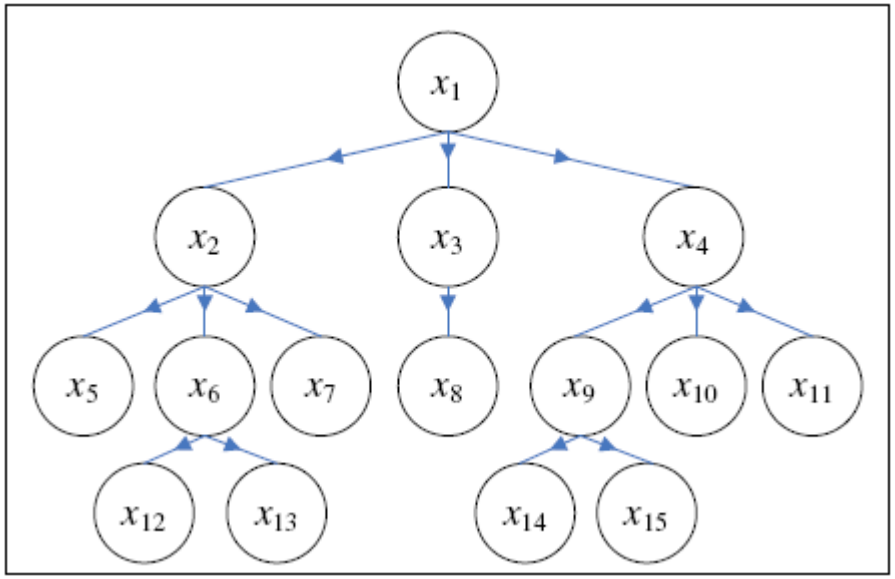
W039

Heredity Principle induced by Nonnegative Max-Heap



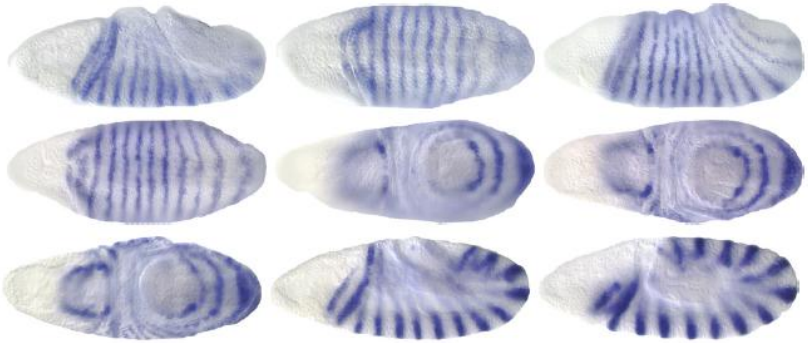
Key Contributions:

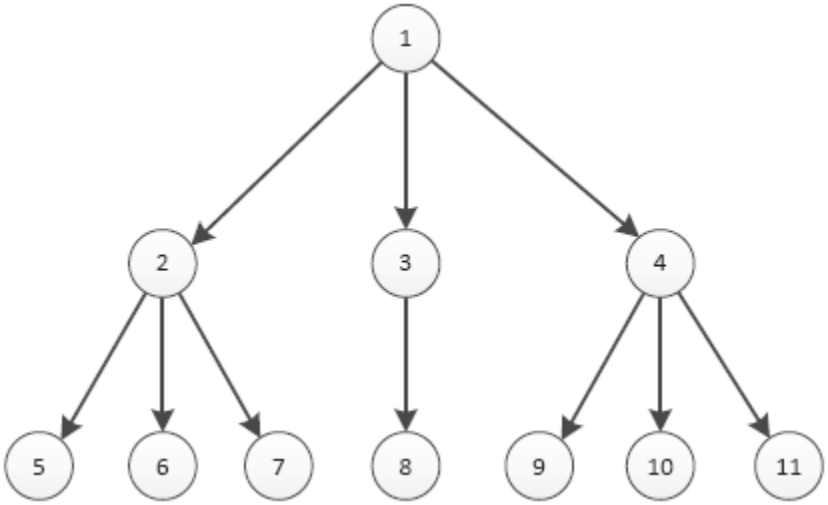
- Develop an analytical top-down algorithm for the projection onto *P*
- Develop an efficient bottom-up algorithm with empirically linear time complexity

$$P = \{\mathbf{x} \geq 0, x_i \geq x_j \ \forall (x_i, x_j) \in E^t\},$$

$$\min_{\mathbf{x} \in P} f(\mathbf{x})$$

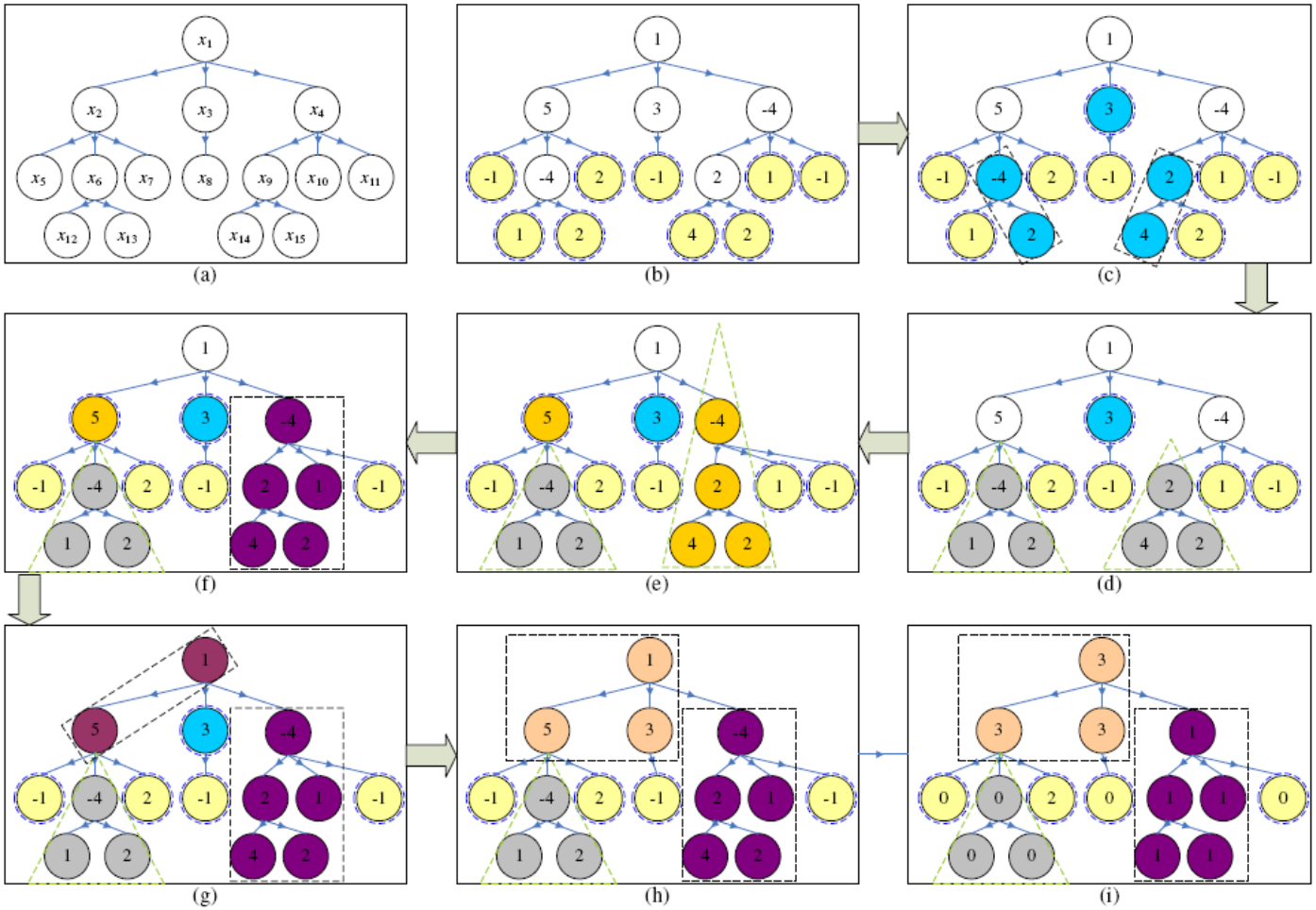
Drosophila Gene Expression Images



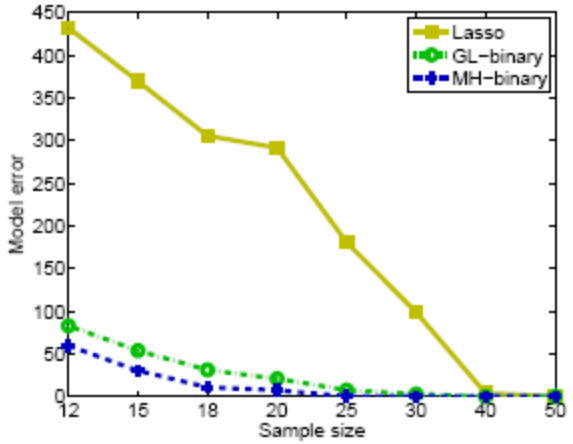


1. cellular blastoderm;
2. segmentally repeated;
3. yolk;
4. ectoderm anlage in statu nascendi;
5. pair rule;
6. segment polarity;
7. gap;
8. yolk nuclei;
9. procephalic ectoderm anlage in statu nascendi;
10. foregut anlage in statu nascendi
11. clypeolabrum anlage in statu nascendi

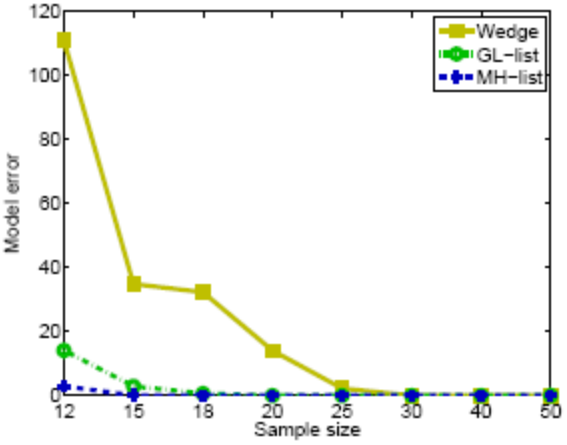
A Bottom-Up Algorithm



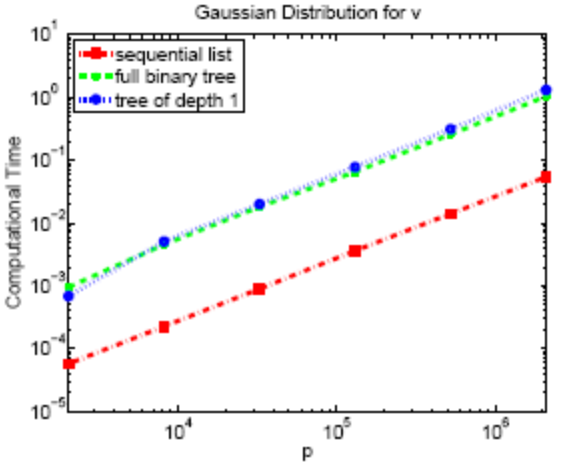
Empirical Evaluation



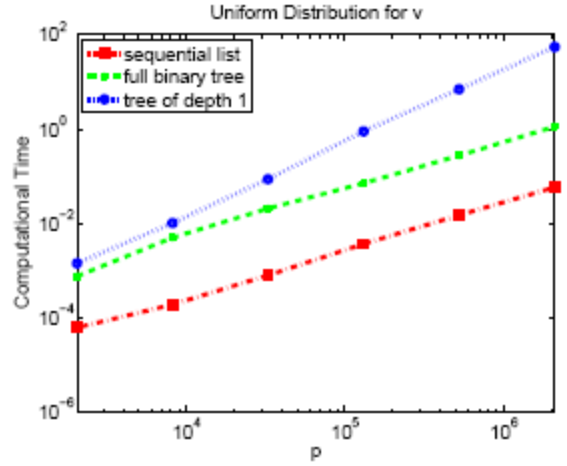
(a)



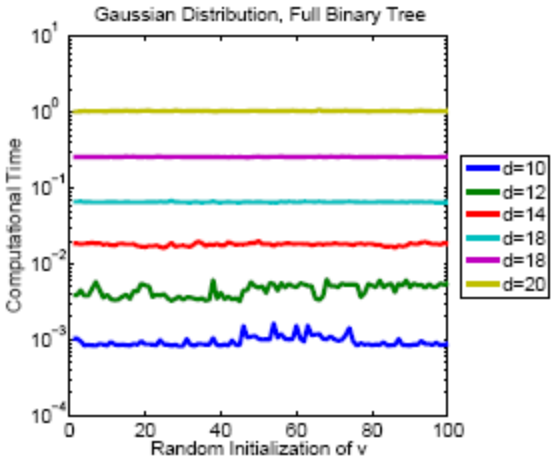
(b)



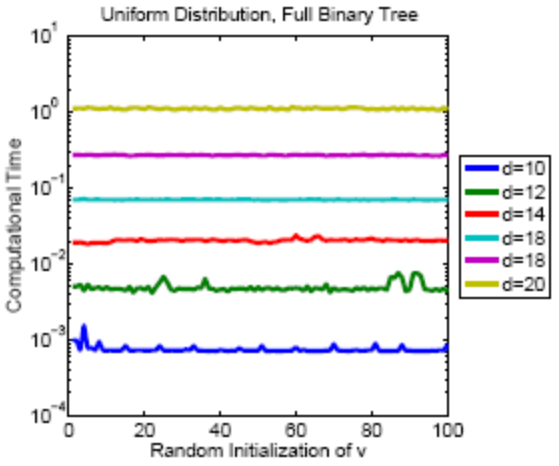
(c)



(d)



(e)



(f)