Galley, Hopkins, Knight, Marcu:

What's in a translation rule?

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Alignment

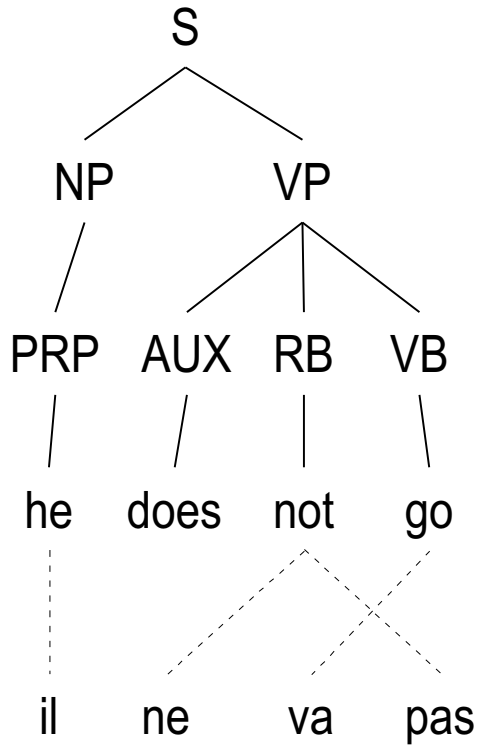

Figure 1: A French sentence aligned with an English parse tree.

Derivations

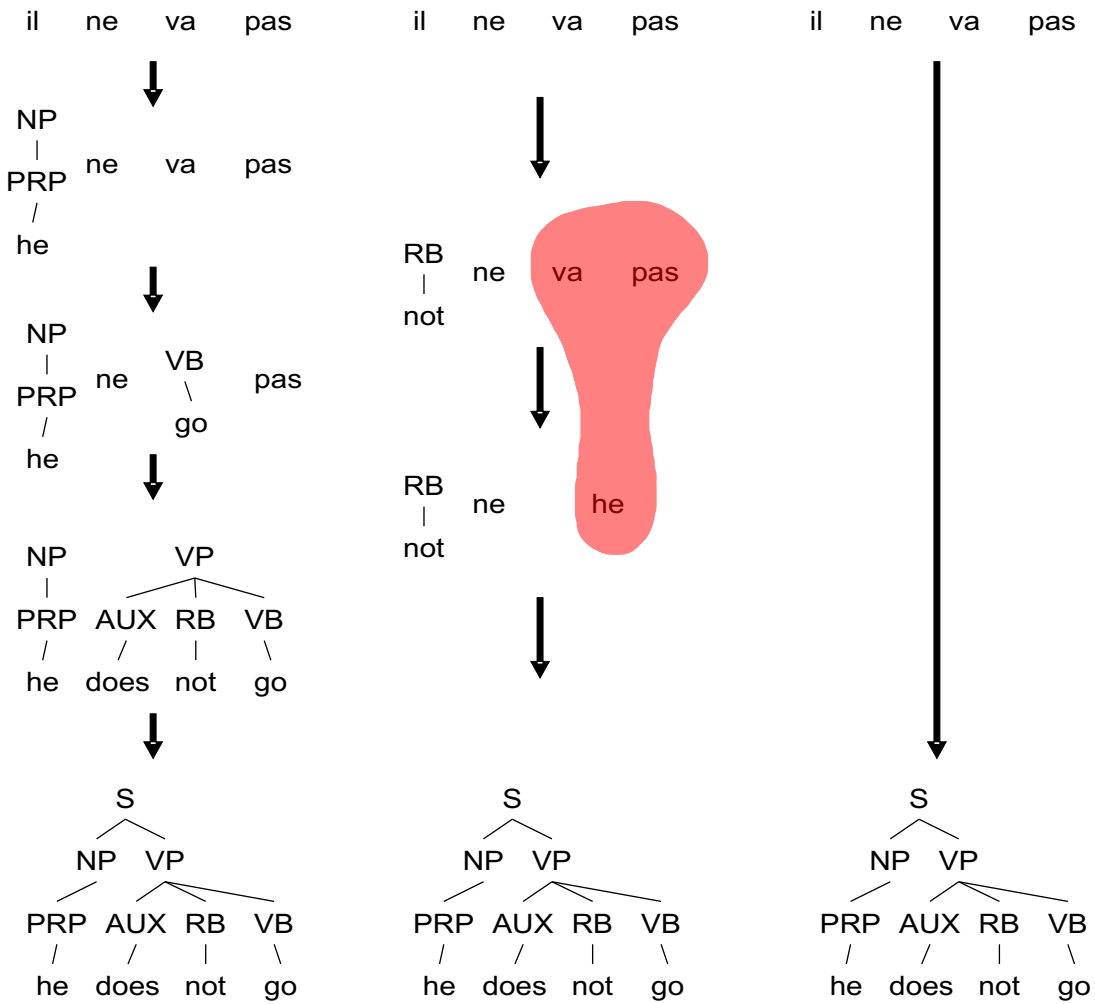

Figure 2: Three alternative derivations from a source sentence to a target tree.

Alignment (again)

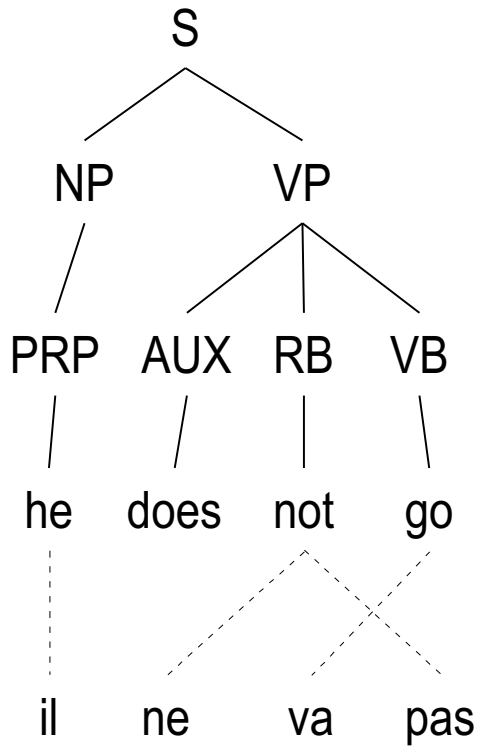

Figure 1: A French sentence aligned with an English parse tree.

Different alignments

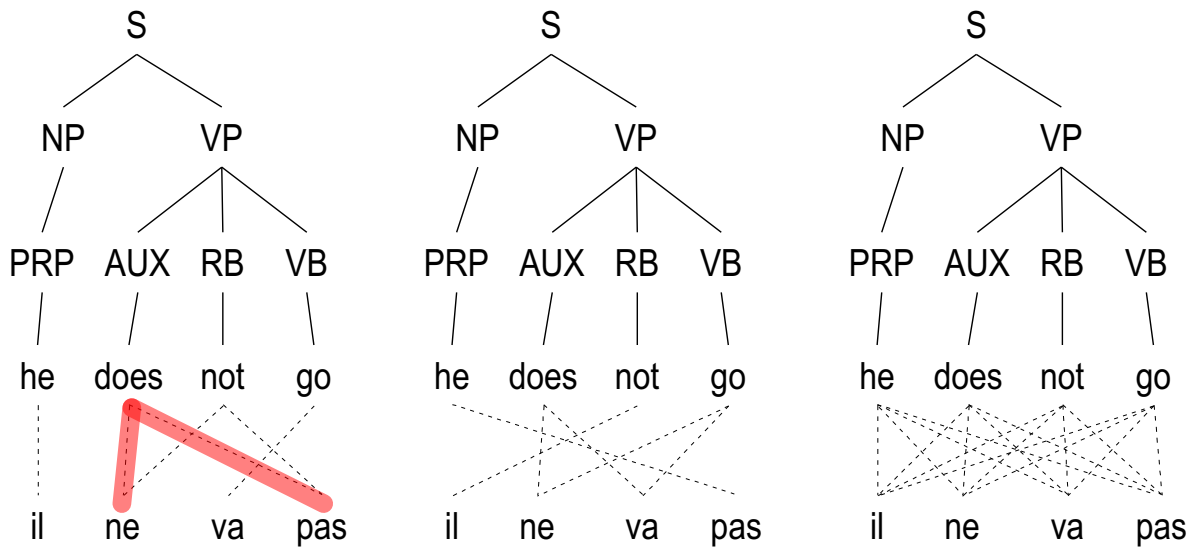

Figure 3: The alignments induced by the derivations in Figure 2

From derivation steps to rules

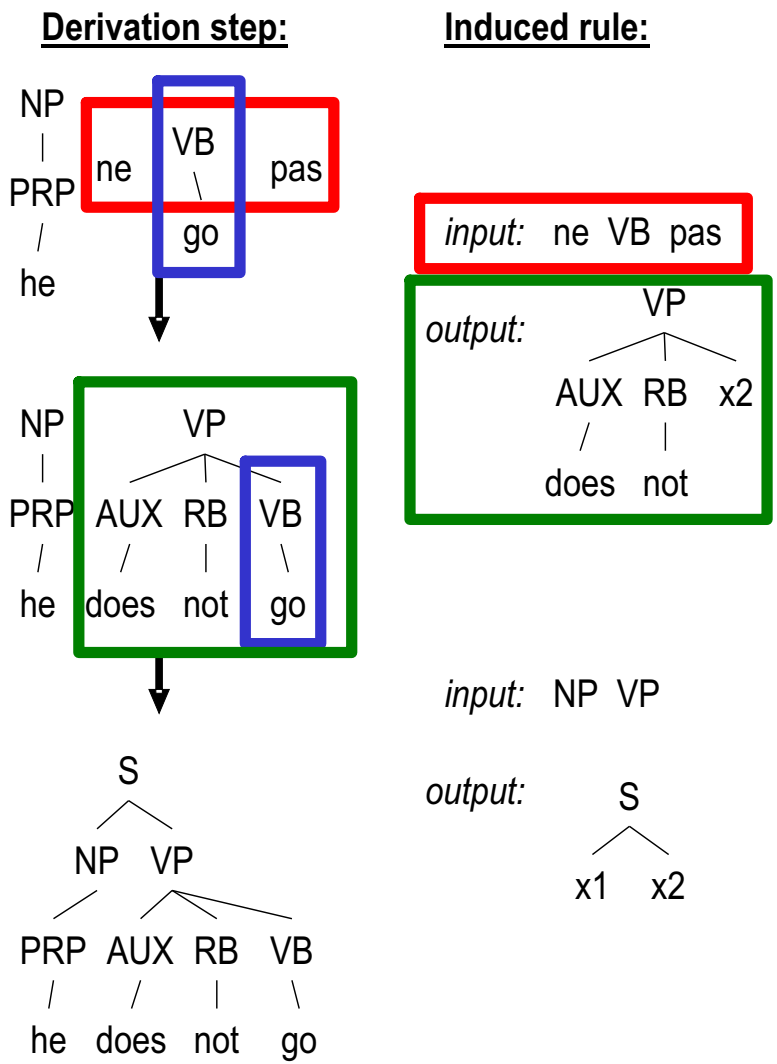

Figure 4: Two derivation steps and the rules that are induced from them.

Alignment graph with frontier set

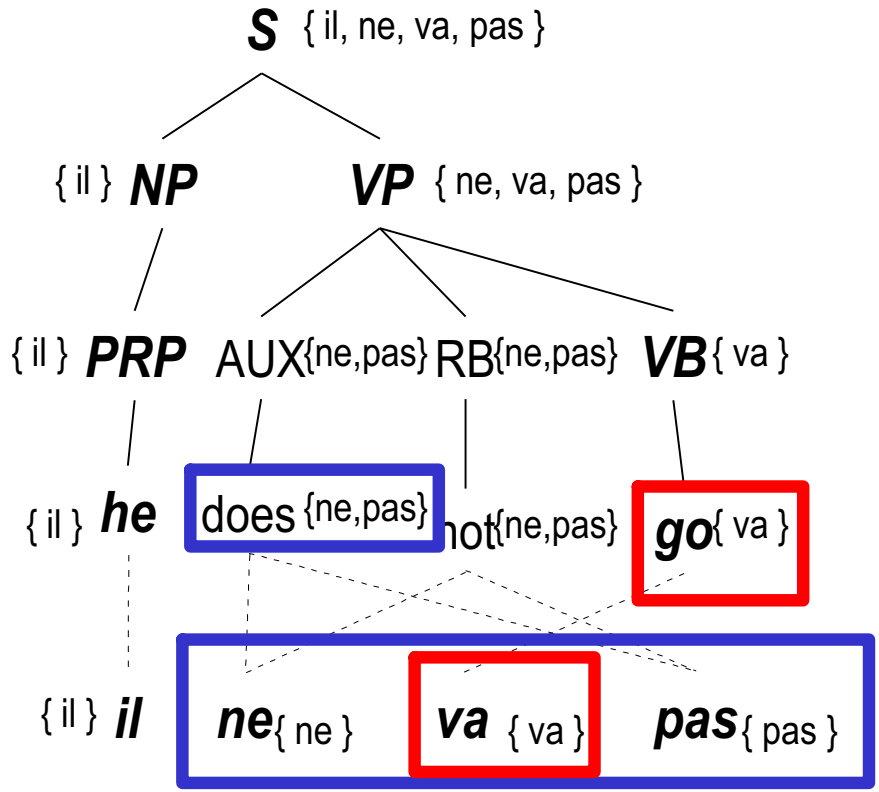

Figure 5: An alignment graph. The nodes are annotated with their spans. Nodes in the frontier set are boldfaced and italicized.

Frontier graph fragments and rules

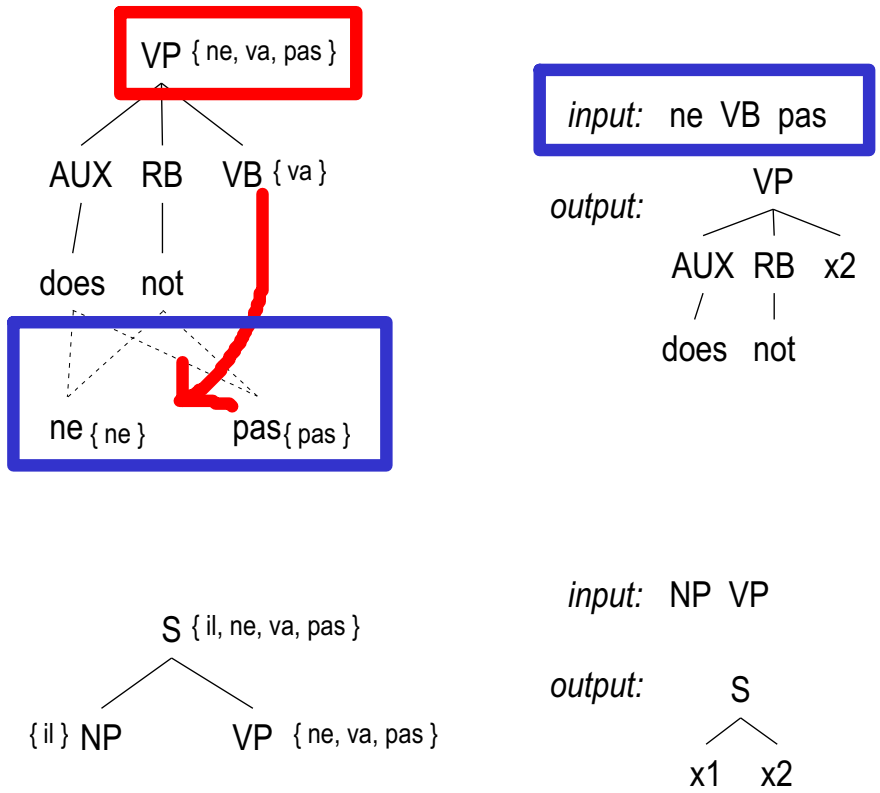

Figure 6: Two frontier graph fragments and the rules induced from them. Observe that the spans of the sink nodes form a partition of the span of the root.

Set of minimal frontier graph fragments

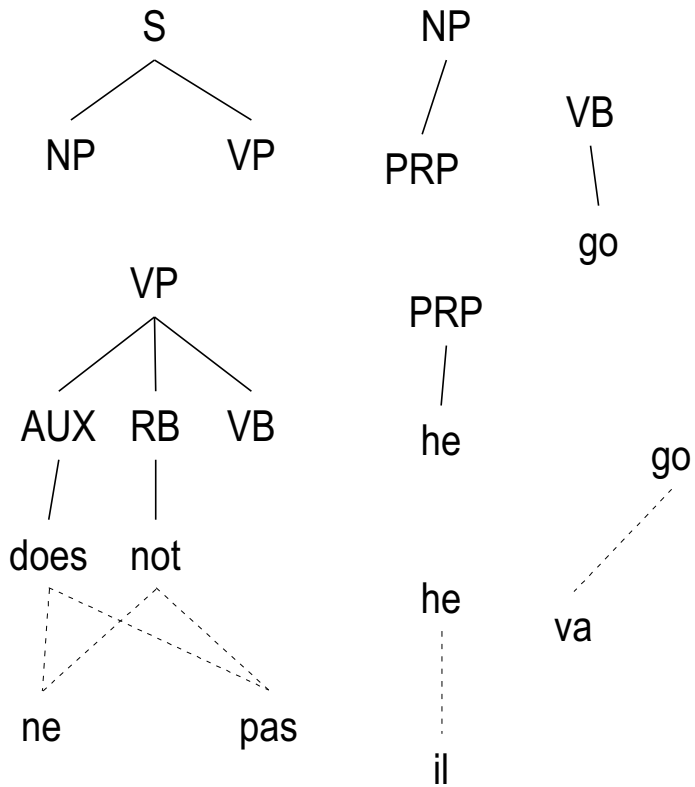

Figure 7: The seven minimal frontier graph fragments of the alignment graph in Figure 5

Compositions of minimal frontier graph fragments

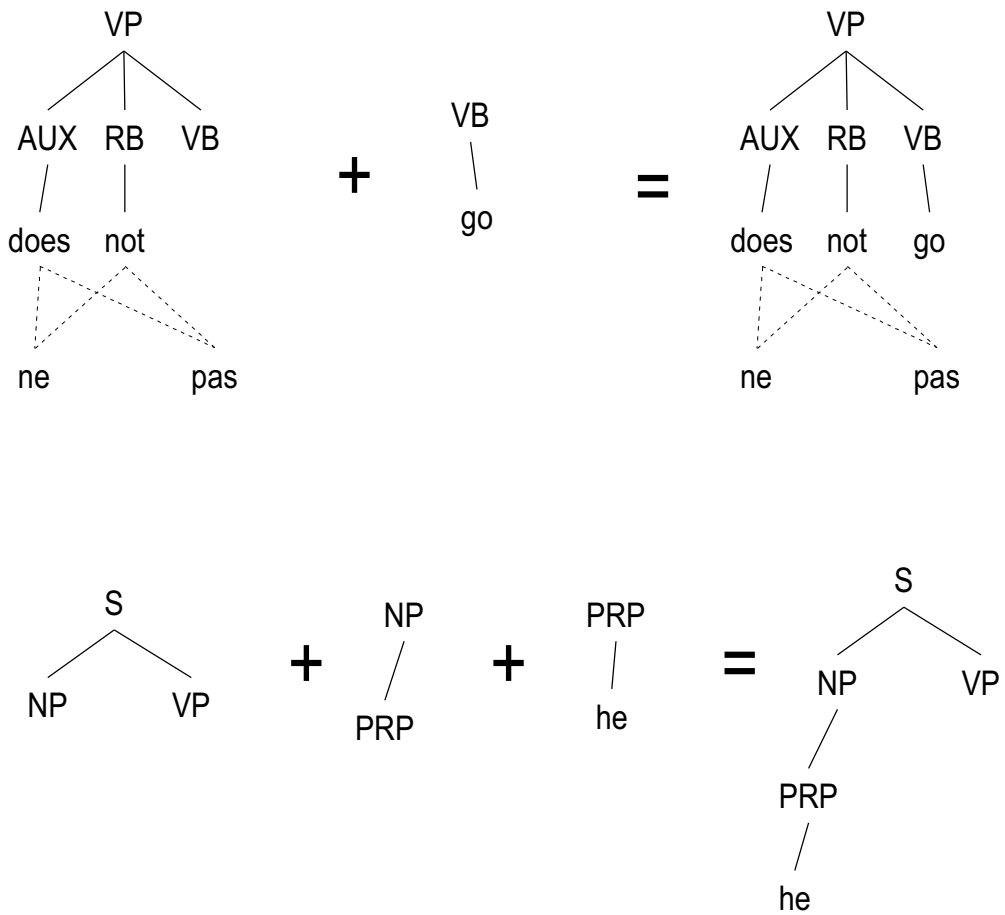

Figure 8: Example compositions of minimal frontier graph fragments into larger frontier graph fragments.

Evaluation: parse trees covered

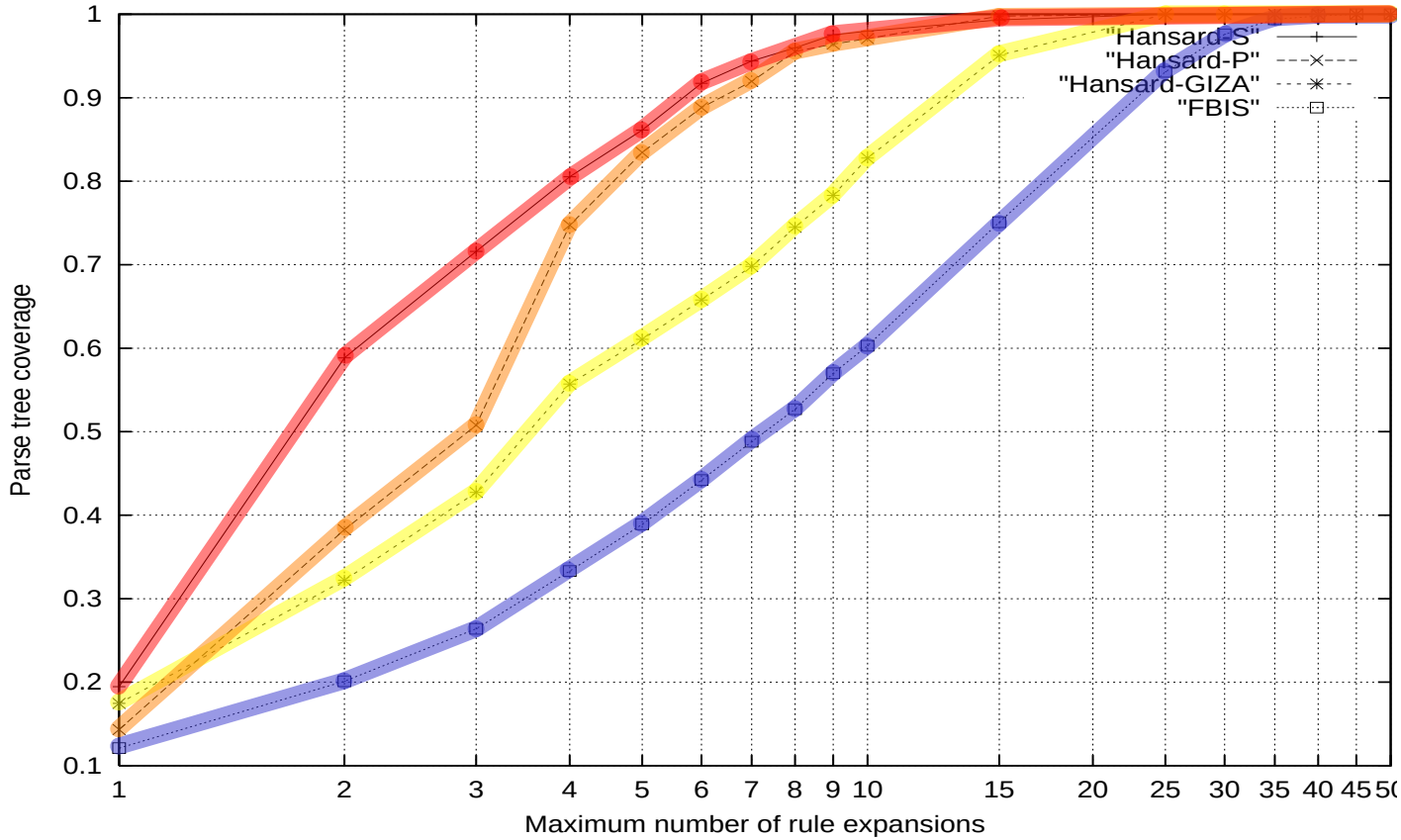

Figure 9: Percentage of parse trees covered by the model given different constraints on the maximum size of the transformation rules.

Evaluation: nodes covered

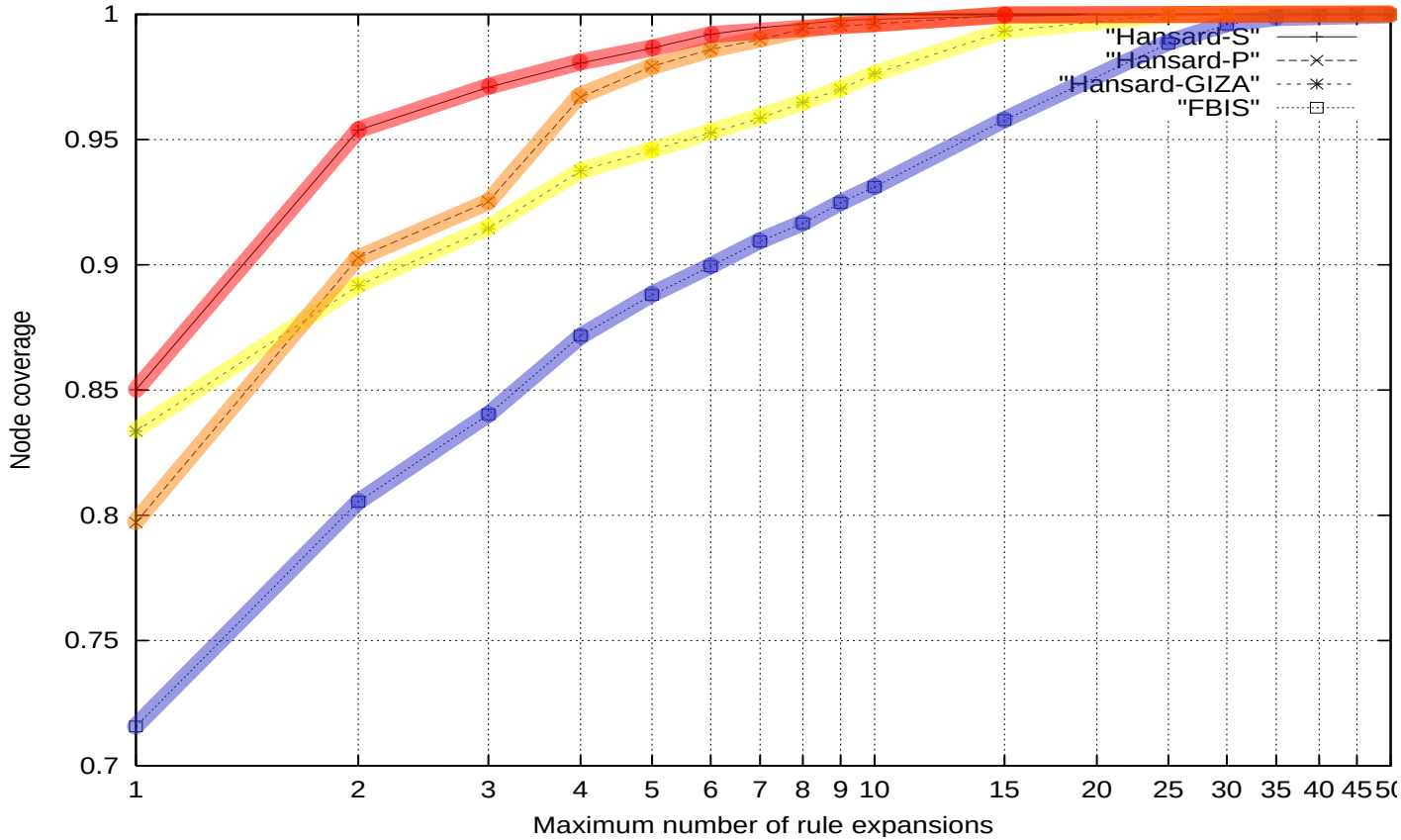

Figure 10: Same as Figure 9, except that here coverage is evaluated at the node level.