like #5, thus does not generate new increase node, after add #1′, lattice shown in figure 4, where overstriking node is new increase node, overstriking real line denotes of connection between it and its generator sub node.

Step 2 add node #2′: it adds after node #1′ adds, thus does not consider operation between it and new increase node #5. Compute with node #1, because $\{TS_1,TS_4\}\cap\{TS_2,TS_3\}=\{\}$, does not generate new node, compute #2 $\{TS_1,TS_2,TS_4,TS_5\}\cap\{TS_2,TS_3\}=\{TS_2\}$, $\{TP_1\}\cup\{TP_3\}=\{TP_1,TP_3\}$, gain node #6($\{TS_2\},\{TP_1,TP_3\}$). In $L(O_1)$ and $L(O_2)$ nodes less than #2 and less than #2′ have not equal or more than #6, so node #6($\{TS_2\},\{TP_1,TP_3\}$) is new increase node. Its generate sub formula is #2, by the same way, compute with node #3 and generate new increase node #7($\{TS_3\},\{TP_2,TP_3\}$). Compute with node #4 and generate new increase node #8($\{TS_2,TS_3\},\{TP_3\}$), here new increase nodes which express add to $L(O_1)$, after add #2′ lattice shown in figure 5.

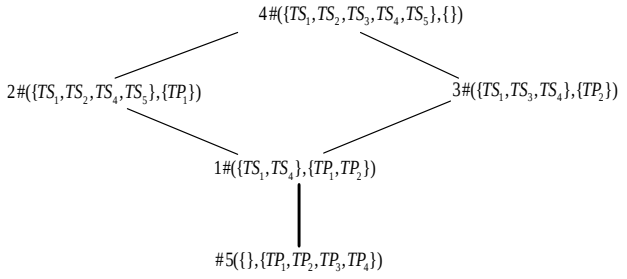

Fig. 4 add node #1′ of $L(O_2)$ in $L(O_1)$, $L(O_1)$ change sketch map

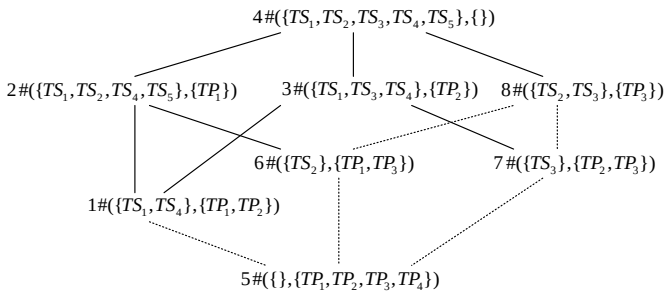

Fig. 5 add node #2′ of $L(O_2)$ in $L(O_1)$, $L(O_1)$ change sketch map

Step3 add node #3′: because does not consider operation between it and new increase node, first compute with node #1, because $\{TS_1,TS_4\}\subseteq\{TS_1,TS_4\}$, node #1 needs update, forms update $(\{TS_1,TS_4\},\{TP_1,TP_2\}\cup\{TP_4\})=(\{TP_1,TP_4\},\{TP_1,TP_2,TP_4\})$; #3′ and later #2, #3 and #4 operation form extension $\{TS_1,TS_4\}$, thus does not process again, after add #3′, lattice actually same as figure 1.

Step 4 add node #4′: only consider it operation with node #2, #3 and #4. Obviously, node #2, #3 and #4 need update, but node #4′ intension is empty, so these node do not change. It is observed that $L(O_1)\breve{\cup}L(O_2)=L(O_1\pm O_2)=L(O)$

V. Conclusions

In this paper, we have invested the problem of constructing and merging ontology of Web service using concept lattice theory. We form concept lattice and have a novel view to solution the service ontology constructing. And then we conclude the study as a Portrait Union of Multiple Concept lattices algorithm based on the discussion before. A merge example has illustrated the algorithm. Our future work is constructing actual service ontology based on concept and extending the proposed results to another research problem .

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