Statistical machine translation using streaming string transducers

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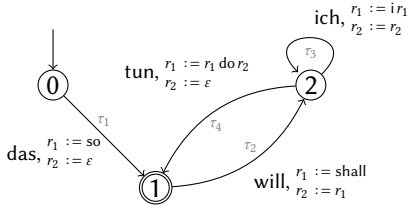
(Weighted) streaming string transducers (Alur and Deshmukh 2011)



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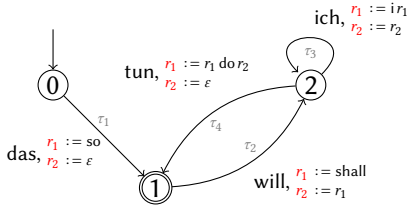
- fixed number of *registers k*



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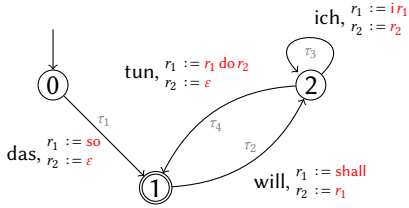

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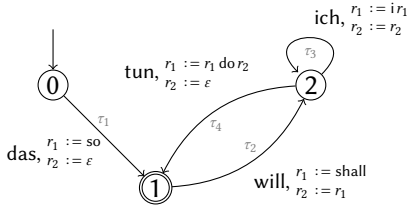

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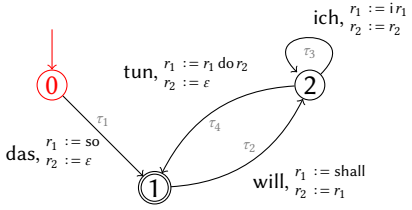

run

input

output

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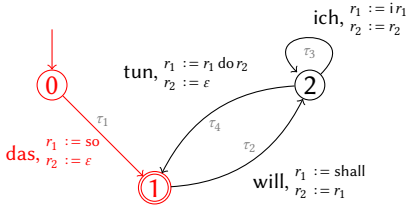

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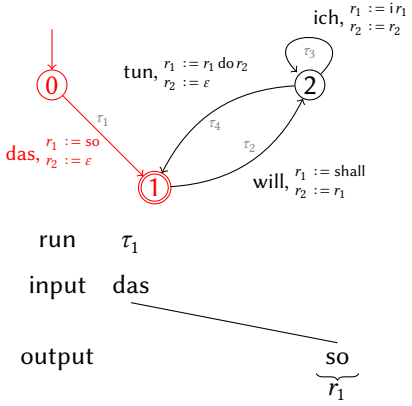

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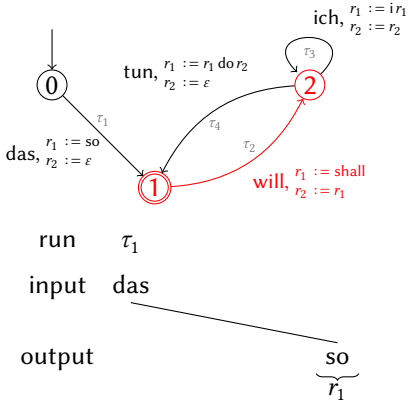

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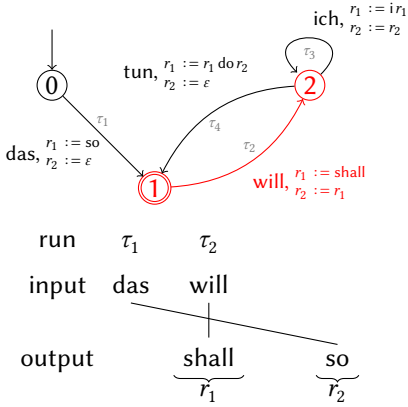

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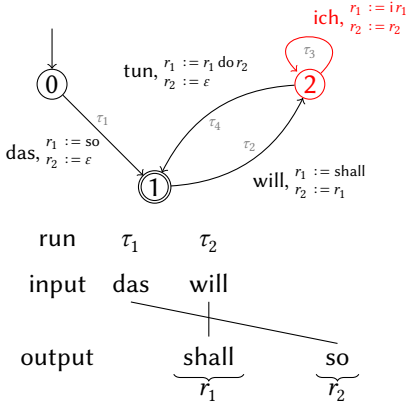

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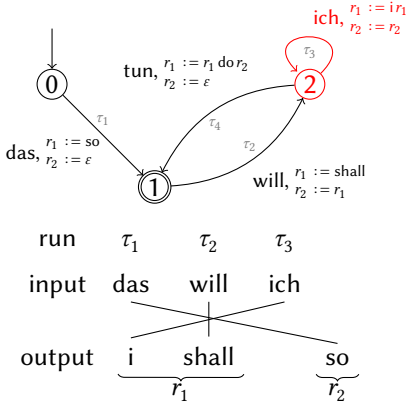

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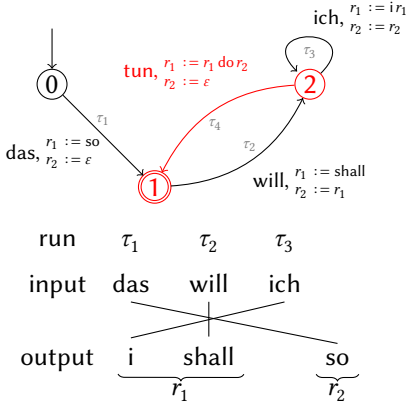

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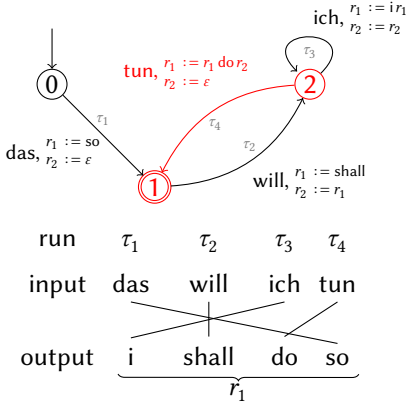

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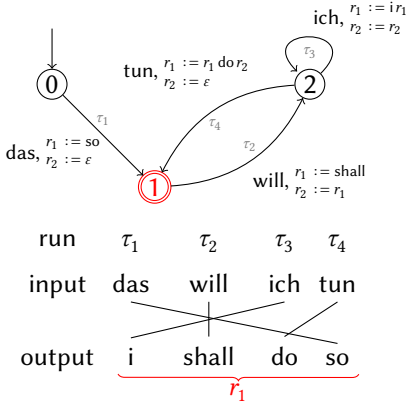

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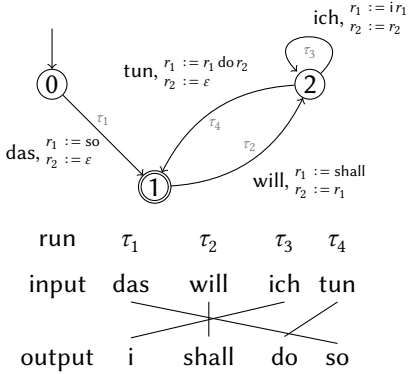

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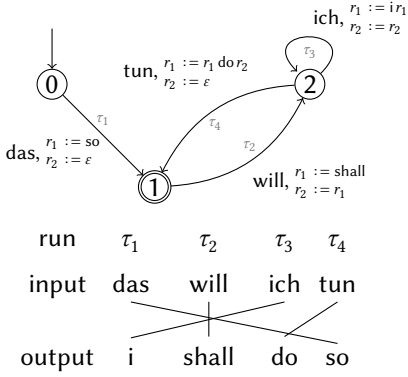
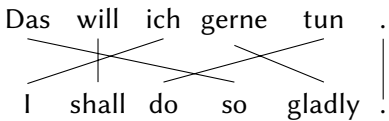
  - sum weight of multiple runs in A for input & output (& origins)



Why sst?

- origin graphs resemble translation alignments
  - functional, total wrt. output



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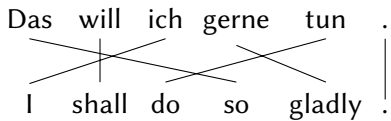
- capture *gaps* in alignments



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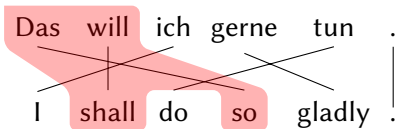

Why sst?

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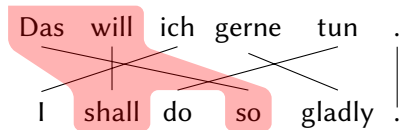
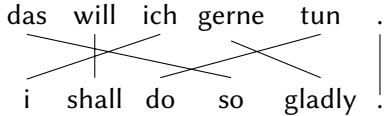
- conceptionally simple, linear model
- capture *gaps* in alignments
- possible application in neural machine translation



Induction from origin graphs

- k: max no. output spans with origin in a prefix of the input



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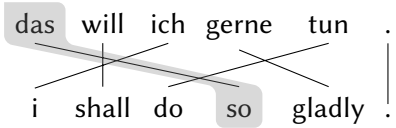

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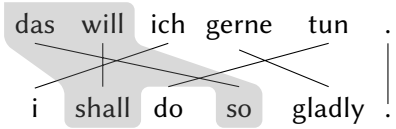

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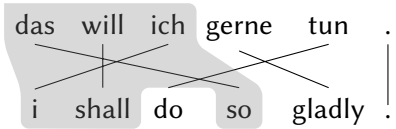

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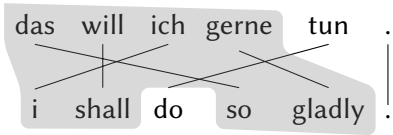

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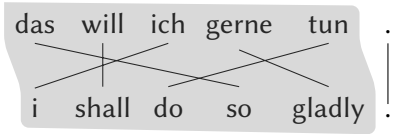

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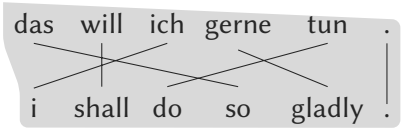

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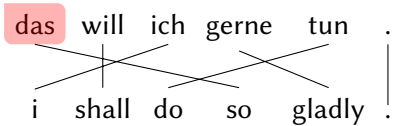

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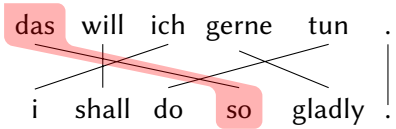

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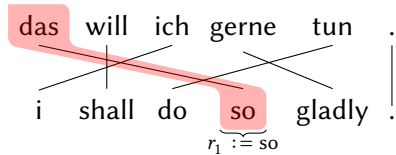

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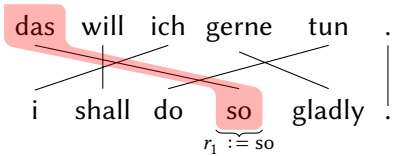

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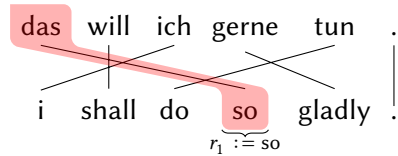

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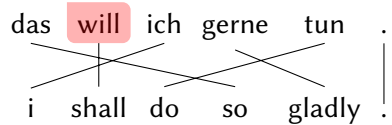

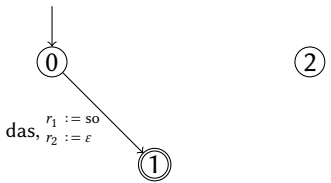

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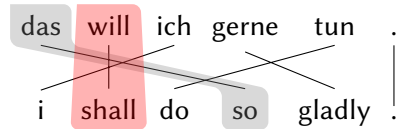

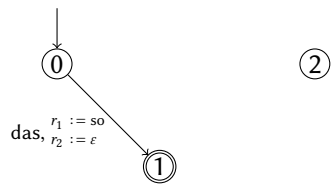

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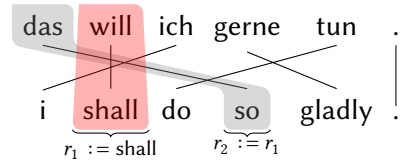

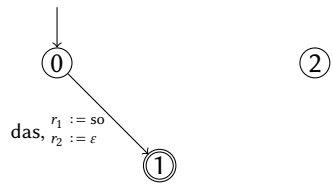

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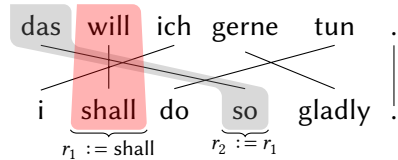

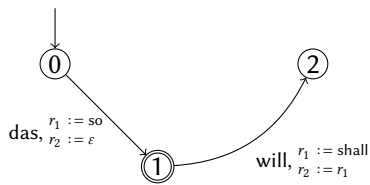

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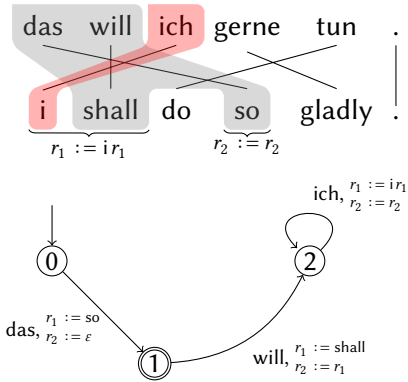

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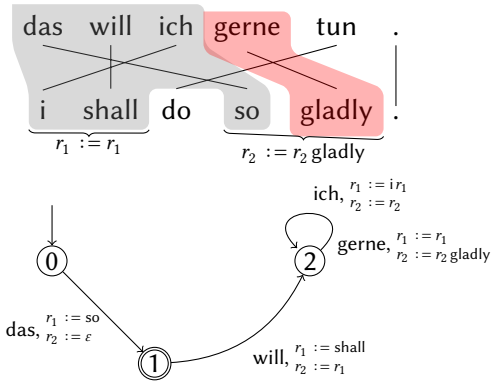

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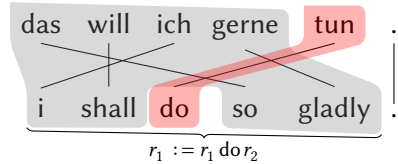

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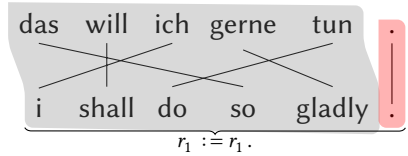

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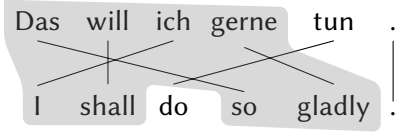

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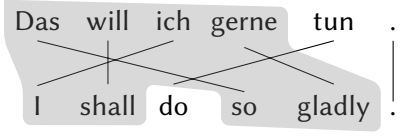

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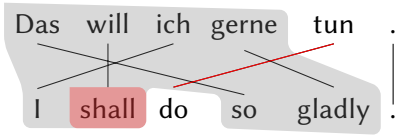

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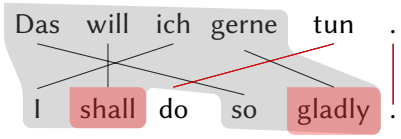

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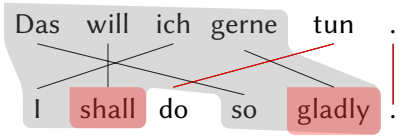

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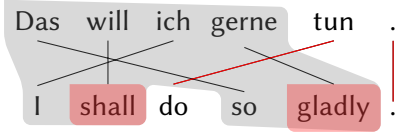

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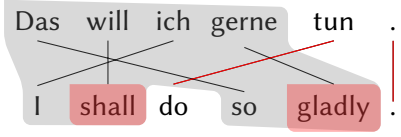

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References

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