

**Successive Linear Programming (SLP)**, also known as **Sequential Linear Programming**, is an [optimization](#) technique for approximately solving [nonlinear optimization](#) problems.<sup>[1]</sup>

Starting at some estimate of the optimal solution, the method is based on solving a sequence of first-order approximations (i.e. [linearizations](#)) of the model. The linearizations are linear programming problems, which can be solved efficiently. As the linearizations need not be bounded, [trust regions](#) or similar techniques are needed to ensure convergence in theory.<sup>[2]</sup>

SLP has been used widely in the [petrochemical industry](#) since the 1970s.<sup>[3]</sup>

## See also

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- [Sequential quadratic programming](#)
- [Sequential linear-quadratic programming](#)
- [Augmented Lagrangian method](#)

## References

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1. ([Nocedal & Wright 2006](#), p. 551)
2. ([Bazaraa, Sheraly & Shetty 1993](#), p. 432)
3. ([Palacios-Gomez et al.](#))

## Sources

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- Nocedal, Jorge; Wright, Stephen J. (2006). *Numerical Optimization* (2nd ed.). Berlin, New York: [Springer-Verlag](#). ISBN 978-0-387-30303-1.
- Bazaraa, Mokhtar S.; Sheraly, Hanif D.; Shetty, C.M. (1993). *Nonlinear Programming, Theory and Applications* (2nd ed.). [John Wiley & Sons](#). ISBN 0-471-55793-5.
- Palacios-Gomez, F.; Lasdon, L.; Enquist, M. (October 1982). "Nonlinear Optimization by Successive Linear Programming". *Management Science*. **28** (10). doi:10.1287/mnsc.28.10.1106 .

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