Korrektur im Skriptum vom Februar/September 2008

3.3.1 **Lineare Porgrammierung** – Abschnitt **Weitere Übungsaufgaben**, S. 145

175. Carco manufactures cars and trucks. Each car contributes \$300 to profit and each truck, \$400. The ressources required to manufacture a car and a truck are shown in the following table.

Vehicle	Days on Type 1 Machine	Days on Type 2 Machine	Tons of Steel
Car	0.8	0.6	2
Truck	1	0.7	3

Each day, Carco can rent up to 98 Type 1 machines at a cost of \$ 50 per machine. The company now has 73 Type 2 machines and 260 tons of steel available. Marketing considerations dictate that at least 88 cars and at least 26 trucks be produced. Let

$$\begin{aligned} X1 &= \text{number of cars produced daily} \\ X2 &= \text{number of trucks produced daily} \\ M1 &= \text{type 1 machines rented daily} \end{aligned}$$

To maximize profit, carco should solve the LP given in the figure on page 147. Use the LINDO on page 147 output to answer the following questions:

(a) If cars contributed \$310 to profit, what would be the new optimal solution to the problem?

(b) What is the most that Carco should be willing to pay to rent an additional Type 1 machine for 1 day?
(Hint: Mind also the righthand side ranges.)

(c) What is the most that Carco should be willing to pay for an extra ton of steel.

(d) If Carco were required to produce at least 86 cars, what would Carco's profit become?

(e) Carco is considering producing jeeps. A jeep contributes \$600 to profit and requires 1.2 days on machine 1, 2 days on machine 2, and 4 tons of steel. Should Carco produce any jeeps?
(Hint: Consider the dual problem.)