



HOMEWORK WEEK 2

Consider a simple example of a transportation mode choice. We assume here that four alternatives are considered by a traveler for a commuter trip: car, bus, metro, and bike. Each alternative is characterized by two attributes: the travel time (t) and the travel cost (c), as reported in Table 1.

| Alternatives | Attributes | |
|--------------|--------------------------|----------------------|
| | Travel time (in minutes) | Travel cost (in CHF) |
| Car | 10 | 18 |
| Bus | 16 | 16 |
| Metro | 14 | 12 |
| Bike | 30 | 2 |

Table 1: Attributes of the alternatives

The utility function associated by the traveler with each alternative i is written as

$$U_i = -\beta_t t_i - \beta_c c_i.$$

Answer the following questions:

1. Is there any dominating or dominated alternative?
2. What alternative has the highest utility if $\beta_t = \beta_c = 0.5$?
3. What alternative has the highest utility if $\beta_t = 1.0$ and $\beta_c = 0.5$?
4. What alternative has the highest utility if $\beta_t = 0.5$ and $\beta_c = 1$?
5. Are the answers to the above questions the same or different for an individual without a driving license? Why?