Each node of the graph should represent a status, that is a time instant and a provider. Therefore beside an initial and an ending node \((b, e)\) we have nodes \(i_V\) and \(i_R\), for \(i = 1, \ldots, 24\) representing the end of month \(i\) and the current provider \((V\) or \(R\), respectively).

The arcs represent the decision of staying with a provider or changing it. The arc set includes:

- \((i_V, i + 1_V), (i_R, i + 1_R)\) representing the decisions of staying one month longer with provider \(V\) or \(R\). The cost of this decisions are \(c_V t\) and \(c_R t\), respectively.

- \((i_V, i + k_R), (i_R, i + k + V)\), where \(k \geq 6\) representing the changing provider and staying with it at least \(k \geq 6\) months. The cost of these decisions is given by \(\max\{0, c_Rtk - s_R\}\) and \(\max\{0, c_Vtk - s_V\}\). Note that the max operation is due to the fact that if \(t\) is small with respect to \(s_R\) and \(S_V\) we could change the provider before the discount is completely consumed. Note that it is not necessary to generate all arcs for all possible values of \(k\). It is sufficient to stop at the smallest \(k\) for which the max operation gives a non null value.

- \((b, 1_V)\) representing the initial decision of staying another month with the initial provider, whose cost is \(c_V t\).

- \((b, k_R)\) with \(k \geq 6\) representing the decision of changing the provider since the beginning, whose cost is \(\max\{0, c_Rtk - s_R\}\).

- \((24_V, e)\) and \((24_R, e)\) which are dummy arcs whose cost is 0.

A path from \(b\) to \(e\) represents a possible changing decision sequence. The minimum cost path correspond to the most profitable decision sequence.

Sketch of a portion of the graph