

Exercise 4, TEK5010 Multiagent systems 2018

**Question 1**

A cooperative game is described by the following marginal contribution net:

$$a \wedge b \rightarrow 7$$

$$b \rightarrow 4$$

$$c \rightarrow 6$$

$$b \wedge c \rightarrow 3$$

Let  $v$  be the characteristic function defined by these rules.

- a) Calculate the values of the following coalitions:

$$v(\emptyset)$$

$$v(\{a\}), v(\{b\}), v(\{c\})$$

$$v(\{a, b\}), v(\{a, c\}), v(\{b, c\})$$

$$v(\{a, b, c\})$$

- b) Draw the weighted graph representing this game.
- c) Is this game stable?
- d) Calculate the Shapley value for each player in this game.