Session 7. Constrained Mining with Convertible Constraints

Convertible Constraints: Ordering Data in Transactions

- Convert tough constraints into (anti-)monotone by proper ordering of items in transactions

- Examine c_1: avg(S.profit) > 20

  - Order items in value-descending order
    - <a, g, f, b, h, d, c, e>
  - An itemset *ab* violates c_1 (avg(ab) = 20)
    - So does *ab** (i.e., *ab-projected DB*)
  - C_1: anti-monotone if patterns grow in the right order!

- Can item-reordering work for Apriori?

  - Does not work for level-wise candidate generation!
  - *avg(agf)* = 23.3 > 20, but avg(*gf*) = 15 < 20

min_sup = 2

price(item)>0

TID	Transaction
10	a, b, c, d, f, h
20	b, c, d, f, g, h
30	b, c, d, f, g
40	a, c, e, f, g

Item	Profit
a	40
b	0
c	-20
d	-15
e	-30
f	10
g	20
h	-5