

Polish-Japanese Institute of Information Technology, Warsaw, Poland
Institute of Applied Social Sciences, The University of Warsaw, Poland



Comment classification for Internet auction platforms

Tomasz Kaszuba
Albert Hupa
Adam Wierzbicki

Internet auctions reality



- Majority of users are vulnerable to being cheated due to their inexperience
- It is not easy to teach users how to protect themselves from Internet fraud
- Little detailed information about the fraud itself provided by Internet auction platforms (except comment)
- No distinction between different types of non-positive comment
- “-1 0 1” scale with comments counting is too simple

Internet auctions reality



Sample negative comments:

“Transaction was ok, item is a junk, it can be easily scratched”

“i've paid, but he never sent the item NEGATIVE !”

“I've received the package very late after 2 weeks after sending the money”

- Little detailed information about the fraud itself provided by Internet auction platforms (except comments)
- No distinction between different types of non-positive comment
- “-1 0 1” scale with comments counting is too simple

Internet auctions reality



Sample neutral comments:

“Item - putting it mildly - cheap junk.”

“Seller has sent the cable after I've threatened that I sent the Negative!!”

“It hard to sent the Positive after one month waiting for an item...”

- Little detailed information about the fraud itself provided by Internet auction platforms (except comments)
- No distinction between different types of non-positive comment
- “-1 0 1” scale with comments counting is too simple

Users: The Buyer

Most vulnerable to fraud

- advance payment method
- cash on delivery (still we do not know the quality of the product)
- no product or product received after >2 weeks => loss of time
- low quality or fake product – no central authority to check the item

Sample comments:

“The coin is a fake. Seller do not want to return the money.”

“No contact”

“To much waiting for the item, accumulators are in lower quality than it was described in the auction”

Users: The Seller

They do not risk any money... Really ?

- no payment after an appropriate time (5 working days)
 - time is money
 - the handling fee is lost
- cash on delivery payment method ...
 - what if the seller does not receive the item ?

Sample comments:

“There is no payment, and soon it will be one month”

“Immediate resignation after the winning the item, handling fee is lost”

“Lack of contact, resignation after remainder”

Users: The Service Provider



Risks no money

- its income depends directly on the total number of auctions carried out by sellers.
- the seller can demand his handling fee back.

It is in the best interest of the auction service provider to discourage users from cheating and punish frauds as quickly as possible.

Sample comments:

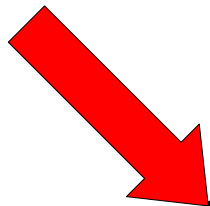
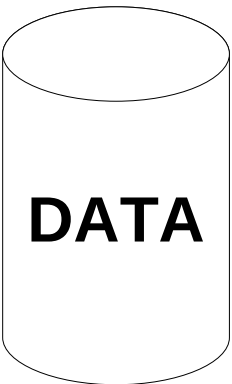
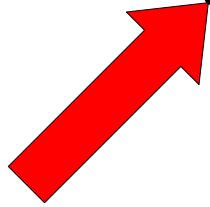
“Handling fee was returned by provider. ”

“No whatsoever contact. No payment. I've got the handling fee back.”

“buyer resigns after winning the auction, money returned from provider”

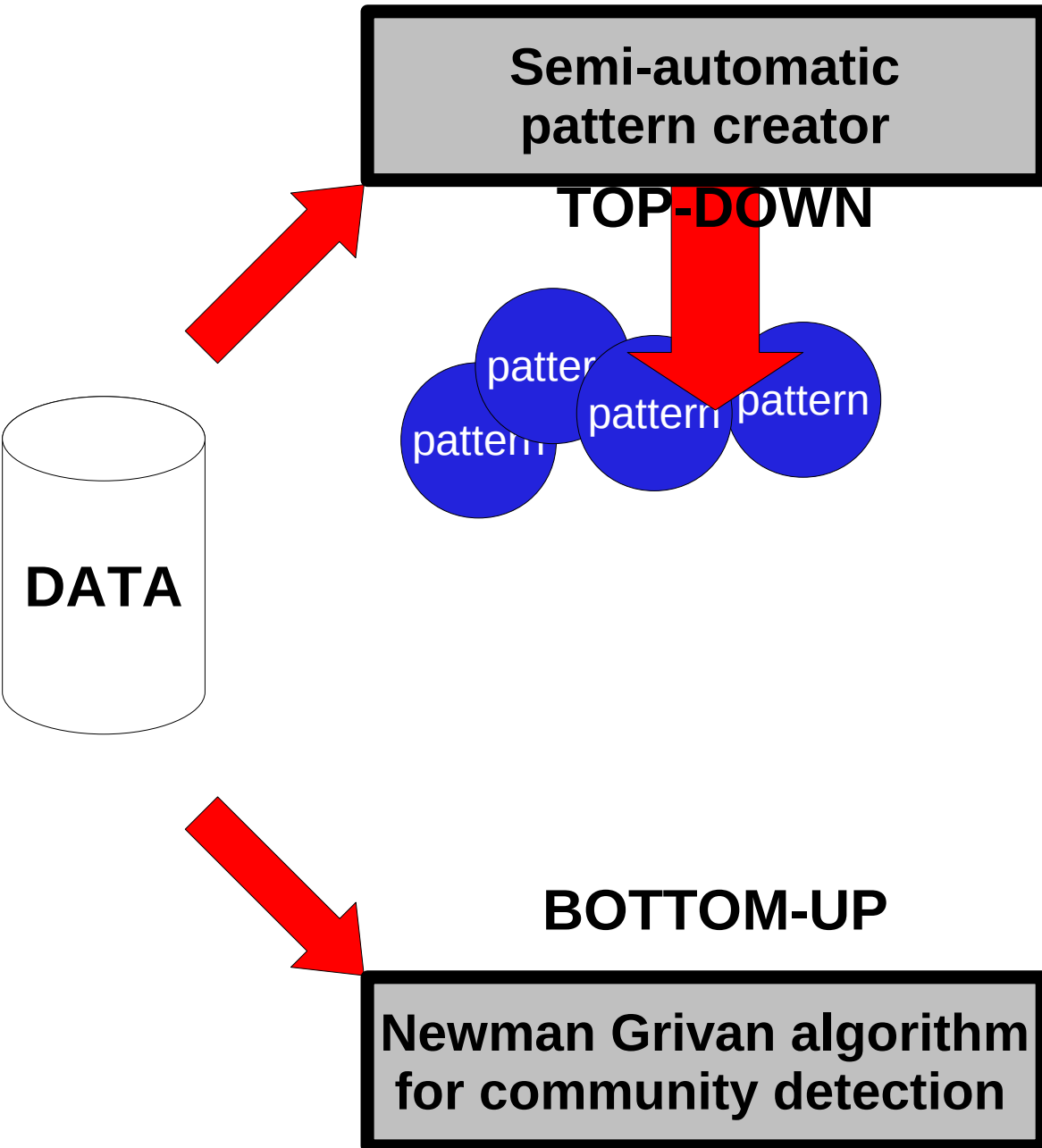
Creating the model

Semi-automatic
pattern creator

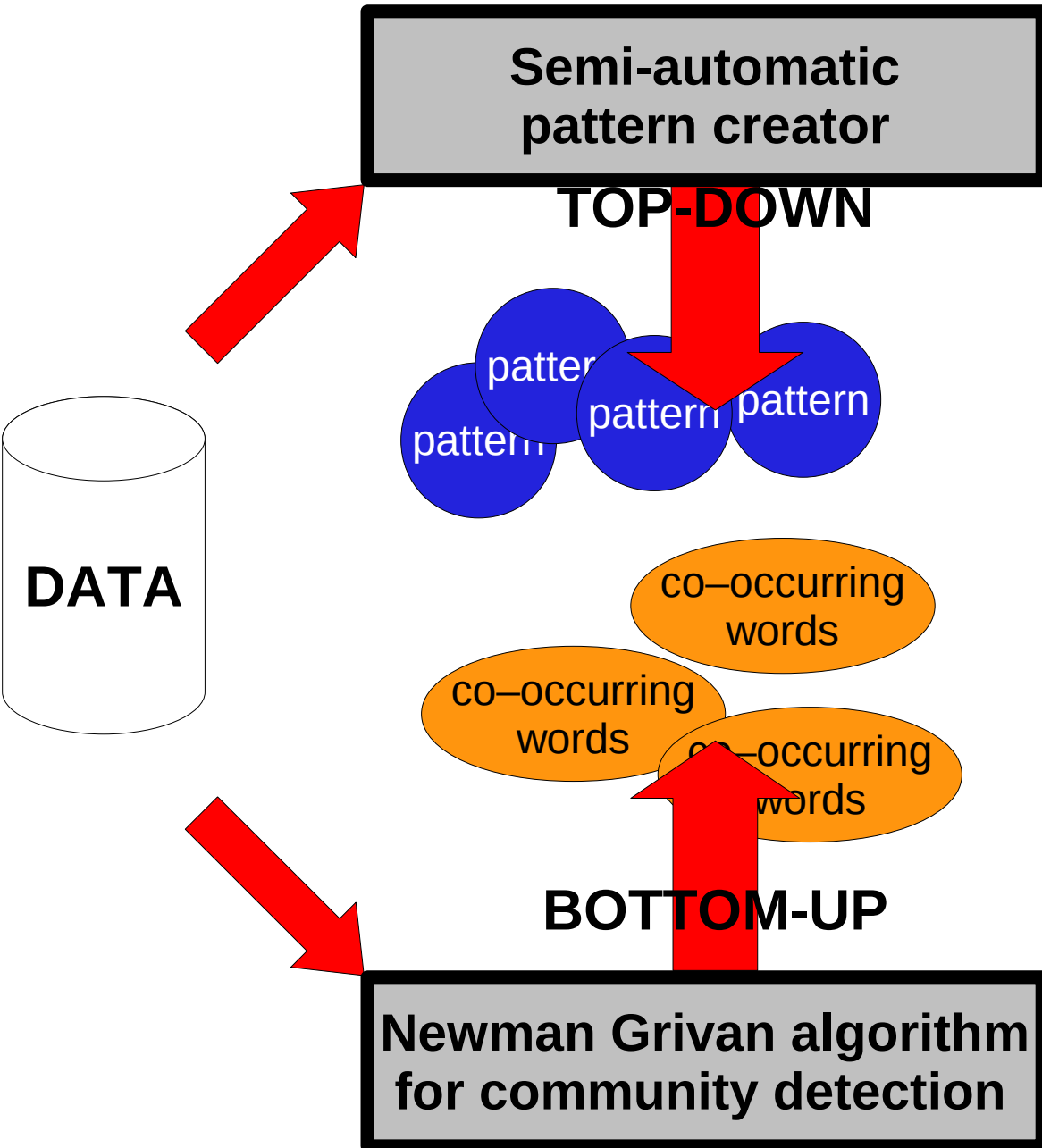


Newman Grivan algorithm
for community detection

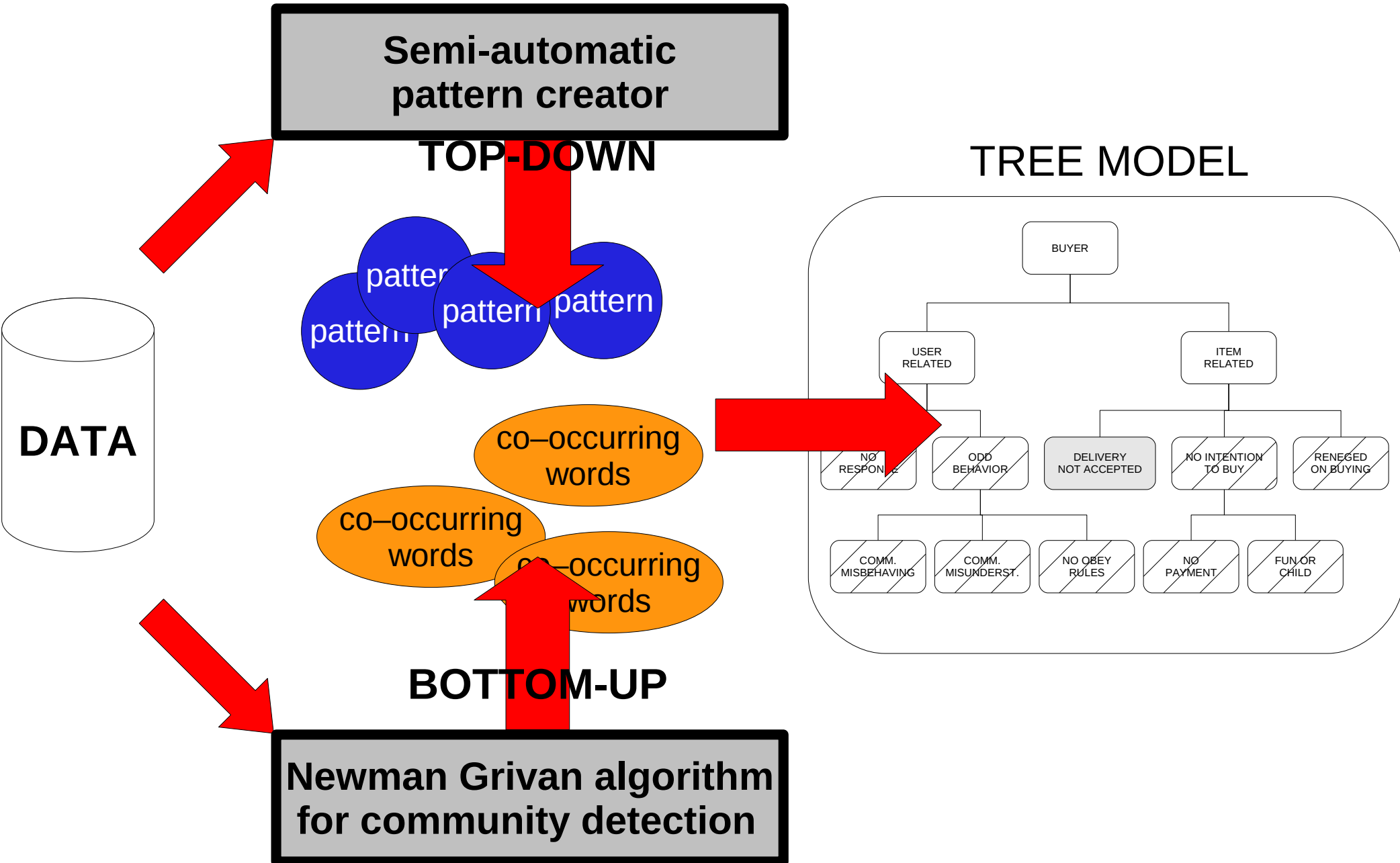
Creating the model



Creating the model



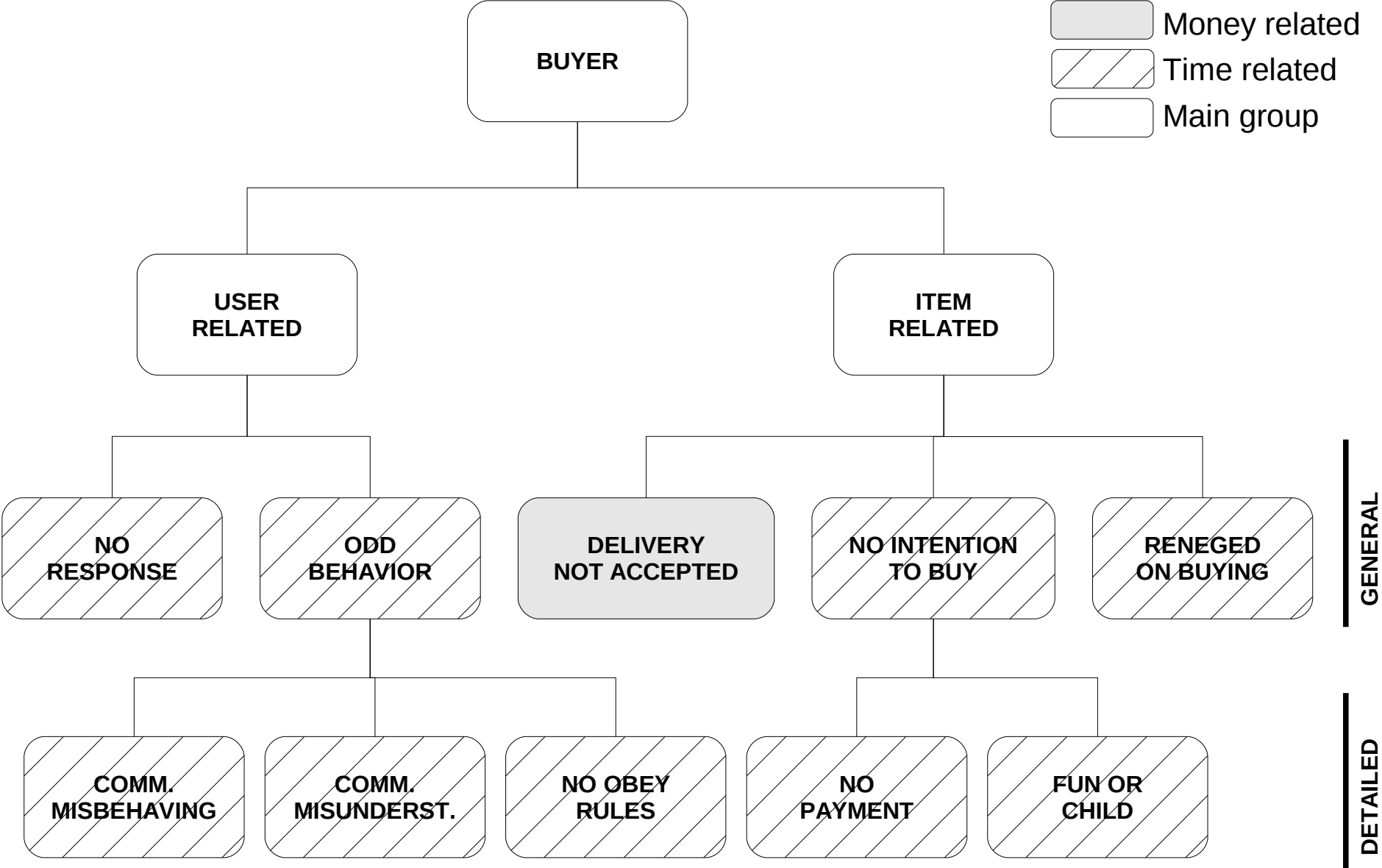
Creating the model



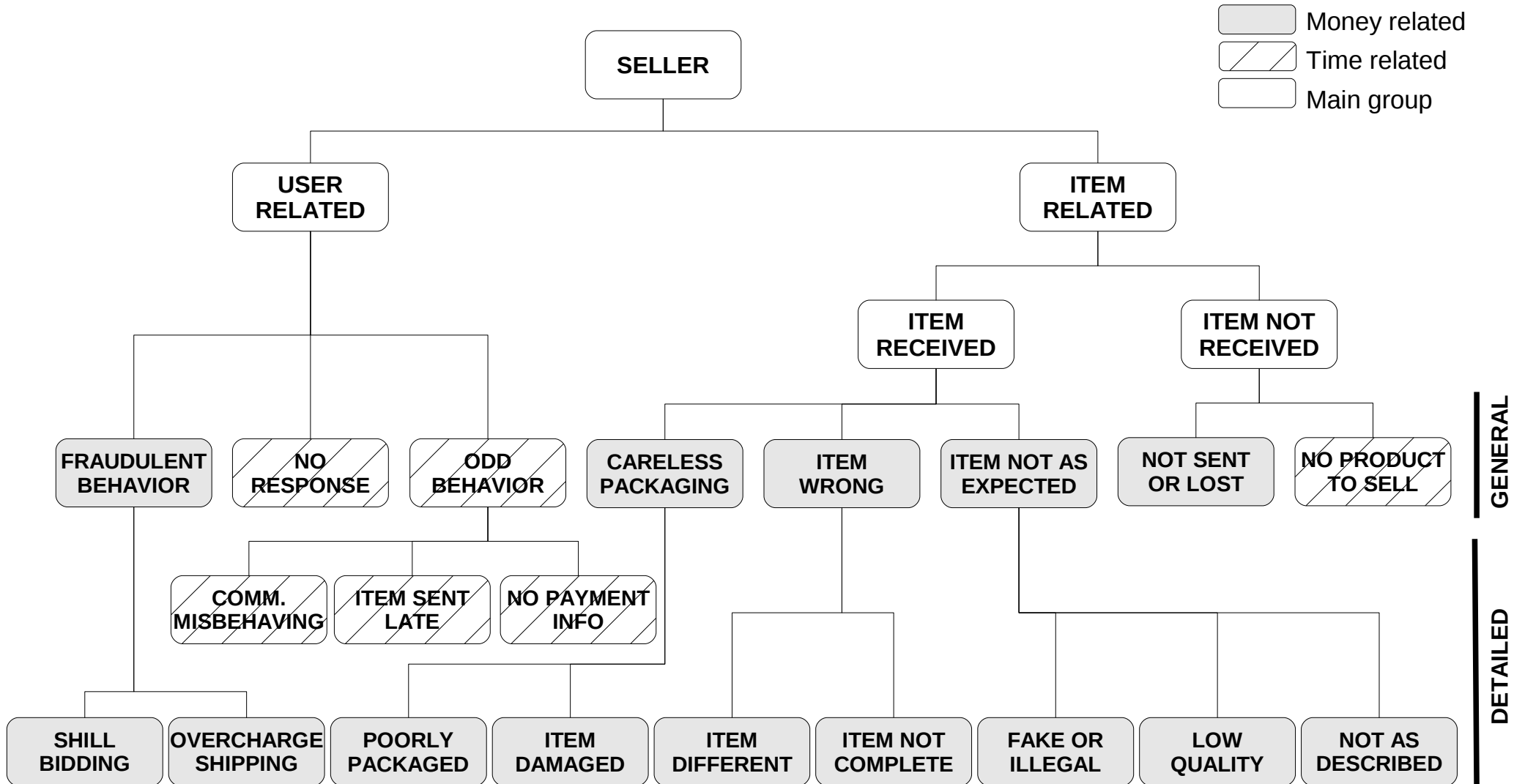
Complaints against buyer



- Money related
- Time related
- Main group



Complaints against seller



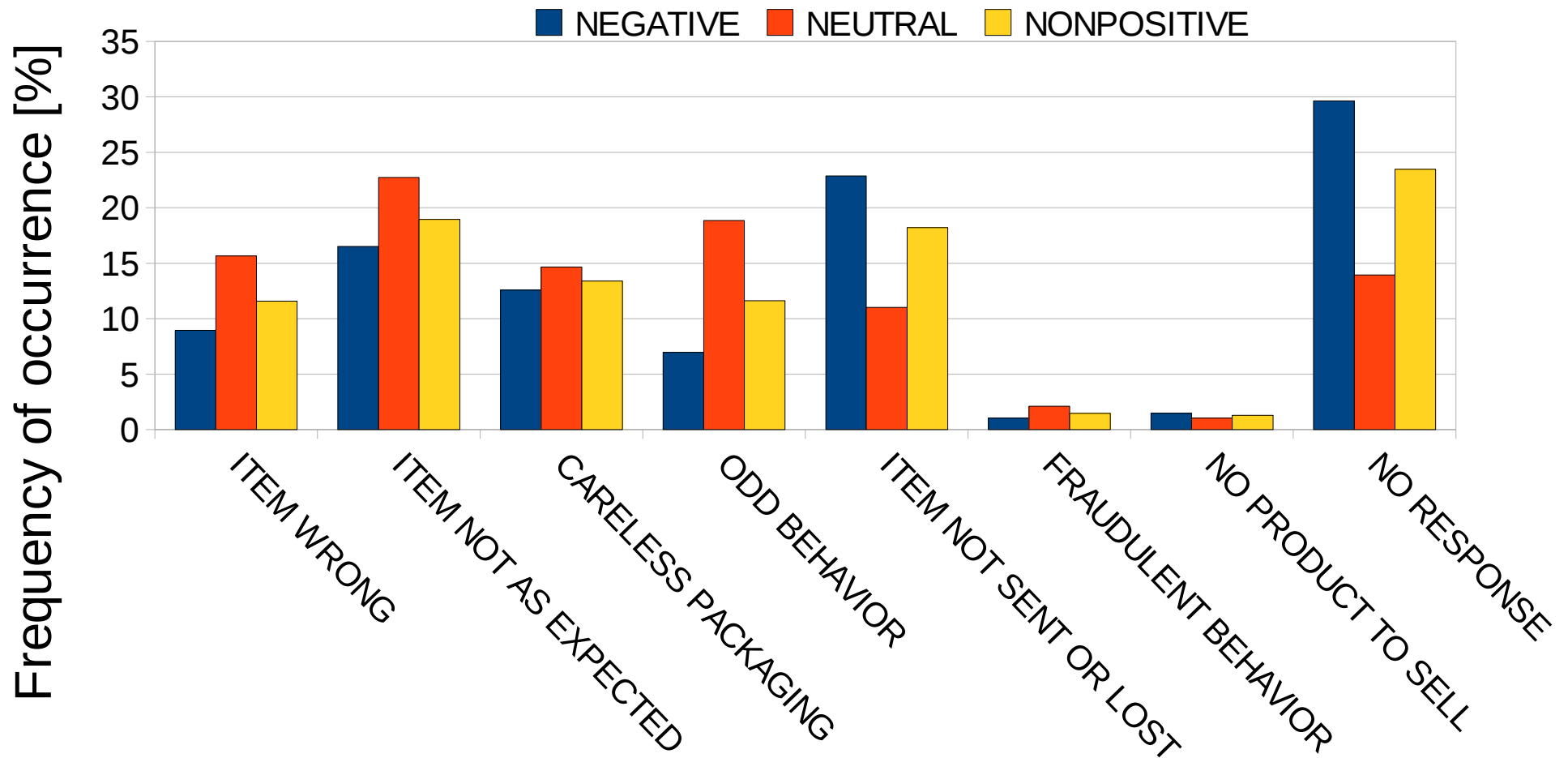
Data



The dataset has been acquired from www.allegro.pl which is the leading Polish online auction provider. It contains 15159 negative or Neutral comments for 12188 different users.

TYPE	FOR SELLER	FOR BUYER	TOTAL
NEGATIVE	5071	4366	9437
NEUTRAL	4802	920	5722
NONPOSITIVE	9873	5286	15159

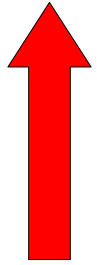
Complaints against seller



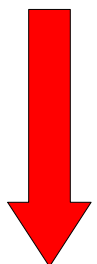
Grading of complaint types



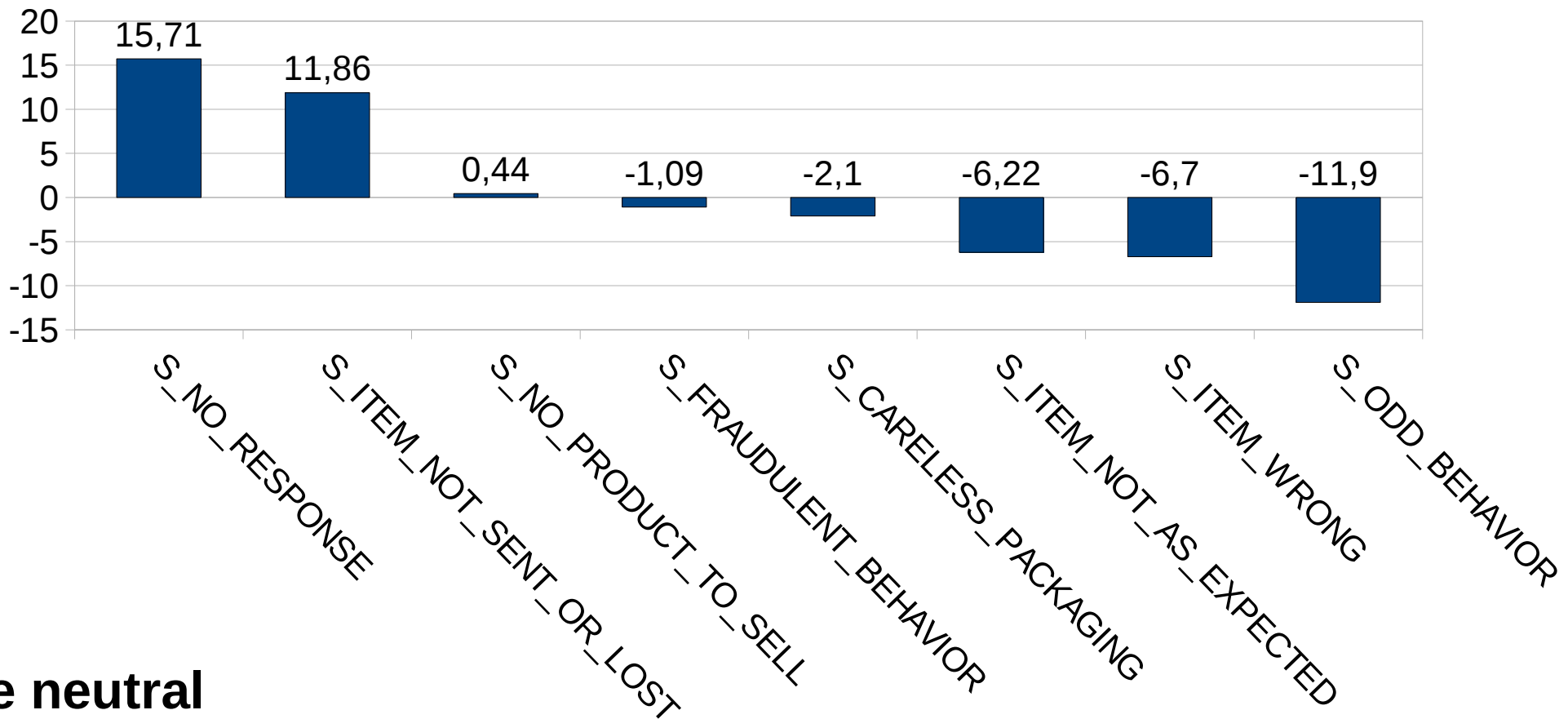
More negative



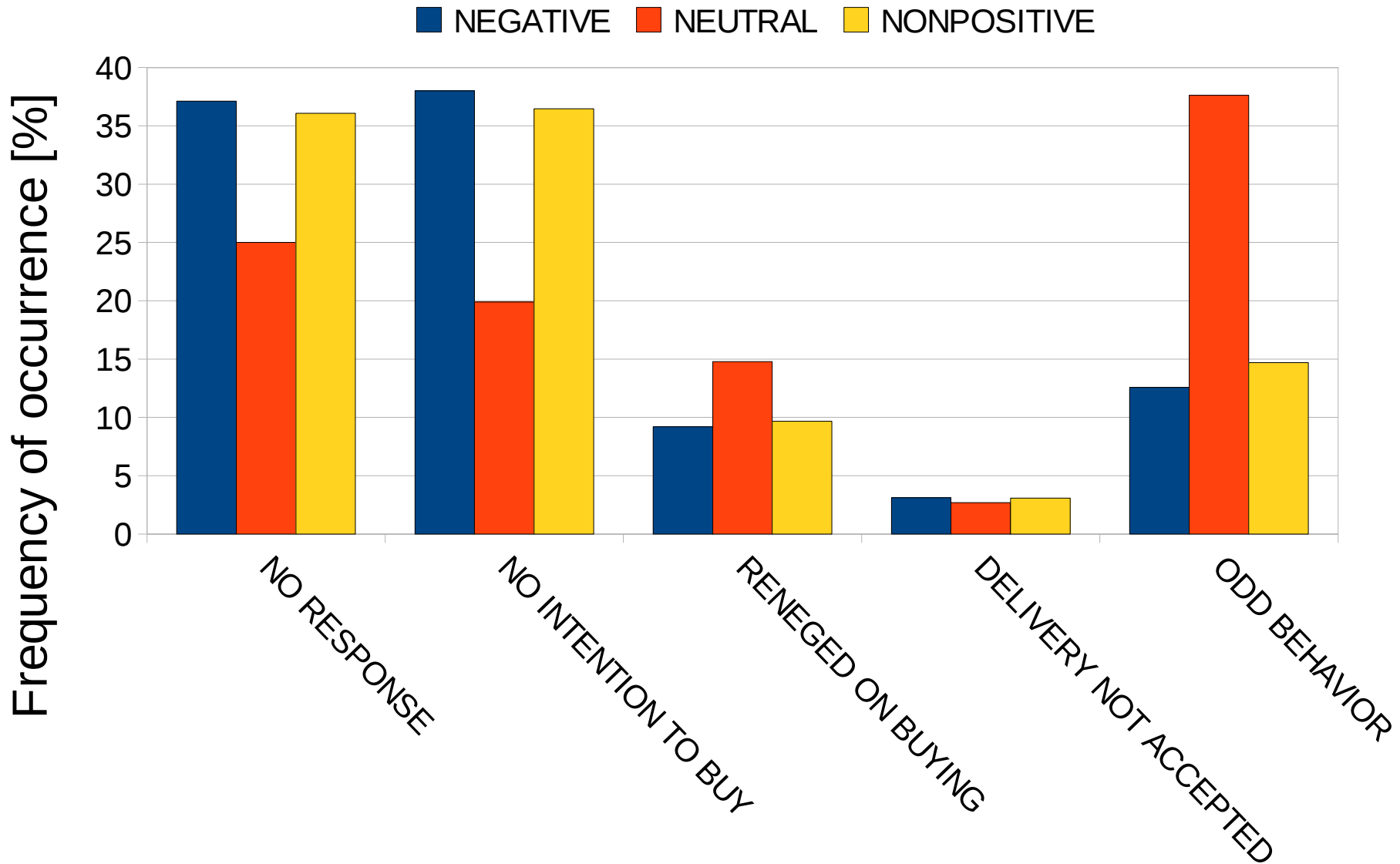
HARMFULNESS



More neutral



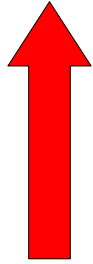
Complaints against buyer



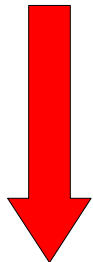
Grading of complaint types



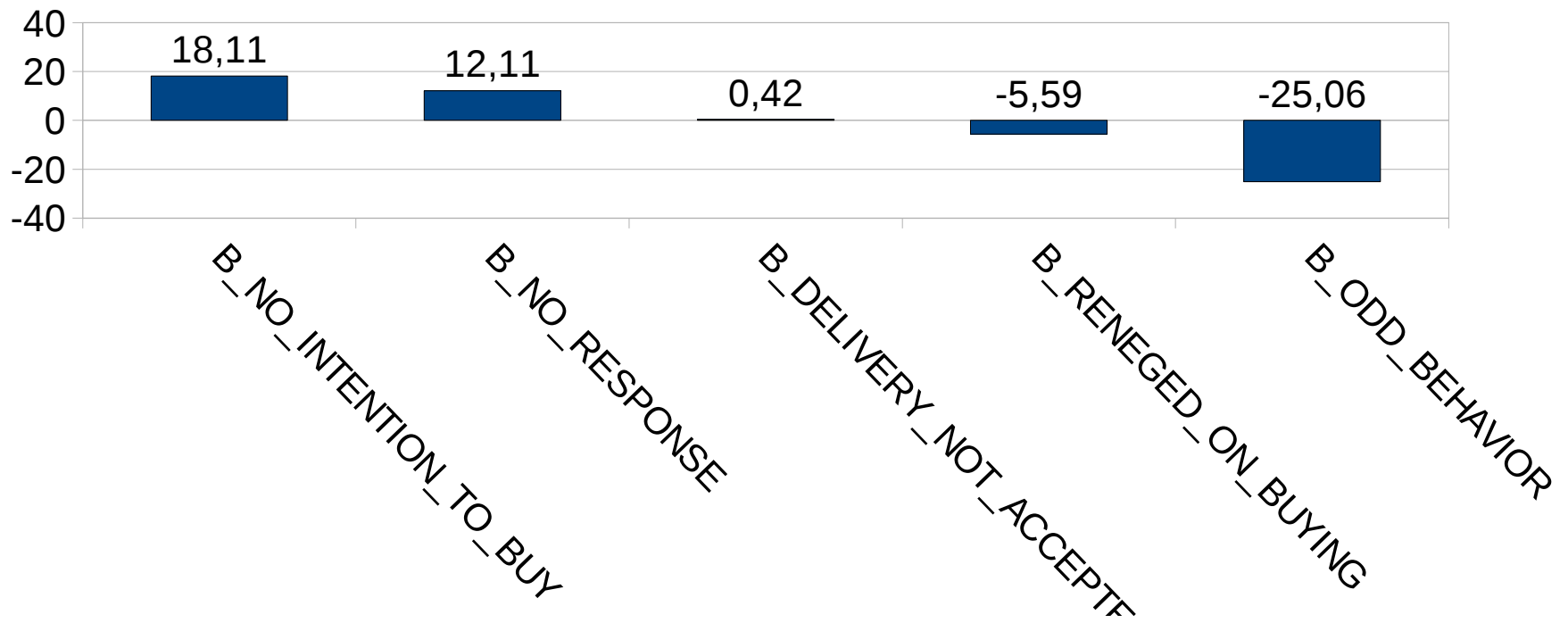
More negative



HARMFULNESS



More neutral



Major threats: seller

Complaint type against seller	Harmfulness [%]	Time or Money related	Frequency of occurrence [%]
NO RESPONSE	15.71	T	23.48
ITEM NOT SENT OR LOST	11.86	M	18.22
NO PRODUCT TO SELL	0.44	T	1.29
FRAUDULENT BEHAVIOR	-1.09	M	1.46
CARELESS PACKAGING	-2.1	M	13.4
ITEM NOT AS EXPECTED	-6.22	M	18.96
ITEM WRONG	-6.7	M	11.58
ODD BEHAVIOR	-11.9	T	11.62

Major threats: seller

Complaint type against seller	Harmfulness [%]	Time or Money related	Frequency of occurrence [%]
NO RESPONSE	15.71	T	23.48
ITEM NOT SENT OR LOST	11.86	M	18.22
NO PRODUCT TO SELL	0.44	T	1.29
FRAUDULENT BEHAVIOR	-1.09	M	1.46
CARELESS PACKAGING	-2.1	M	13.4
ITEM NOT AS EXPECTED			18.96
ITEM WRONG			11.58
ODD BEHAVIOR			11.62

Almost 1/4
of all feedbacks

connected to
communication problem

Major threats: seller

Complaint type against seller	Harmfulness [%]	Time or Money related	Frequency of occurrence [%]
NO RESPONSE	15.71	T	25.48
ITEM NOT SENT OR LOST	11.86	M	18.22
NO PRODUCT TO SELL	0.44	T	1.29
FRAUDULENT BEHAVIOR	-1.09	M	1.46
CARELESS PACKAGING	-2.1	M	13.4
ITEM NOT AS EXPECTED	-6.22	M	18.96
ITEM WRONG	-6.7	M	11.58
ODD BEHAVIOR	-1.1	M	11.62

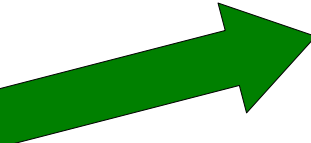
Almost 1/5
of all feedbacks

connected to
the delivery problem

Major threats: seller

Complaint type against seller	Harmfulness [%]	Time or Money related	Frequency of occurrence [%]
NO RESPONSE	15.71	T	23.48
ITEM NOT SENT OR LOST	11.86	M	18.22
NO PRODUCT TO SELL	0.44	T	1.29
FRAUDULENT BEHAVIOR	-1.09	M	1.46
CARELESS PACKAGING	-2.1	M	13.4
ITEM NOT AS EXPECTED	-6.22	M	18.96
ITEM WRONG	6.7	M	11.58
ODD BEHAVIOR			11.62

Almost 45%
of all feedbacks
connected to Item



Major threats: seller

Additional methods for communication
Between seller and buyer

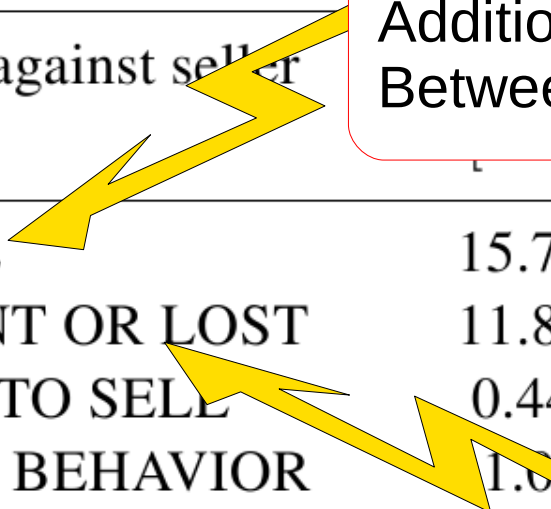
Complaint type against seller			occurrence
NO RESPONSE	15.71	T	23.48
ITEM NOT SENT OR LOST	11.86	M	18.22
NO PRODUCT TO SELL	0.44	T	1.29
FRAUDULENT BEHAVIOR	-1.09	M	1.46
CARELESS PACKAGING	-2.1	M	13.4
ITEM NOT AS EXPECTED	-6.22	M	18.96
ITEM WRONG	-6.7	M	11.58
ODD BEHAVIOR	-11.9	T	11.62

Major threats: seller

Additional methods for communication
Between seller and buyer

Complaint type against seller			occurrence
NO RESPONSE	15.71	T	23.48
ITEM NOT SENT OR LOST	11.86	M	18.22
NO PRODUCT TO SELL	0.44	T	1.88
FRAUDULENT BEHAVIOR	-1.6	T	1.88
CARELESS PACKAGING	-2.1	T	1.88
ITEM NOT AS EXPECTED	-6.22	M	18.96
ITEM WRONG	-6.7	M	11.58
ODD BEHAVIOR	-11.9	T	11.62

Verifying the seller ?
Punishing the seller for such behavior.
Force Escrow-like transaction.



Major threats: seller

Complaint type against seller	Frequency	Category	Occurrence
NO RESPONSE	15.71	T	23.48
ITEM NOT SENT OR LOST	11.86	M	18.22
NO PRODUCT TO SELL	0.44	T	1.00
FRAUDULENT BEHAVIOR	-1.6	T	1.00
CARELESS PACKAGING	-2.1	T	1.00
ITEM NOT AS EXPECTED	-6.22	M	18.96
ITEM WRONG	-6.7	M	11.58
ODD BEHAVIOR	-11.9	T	11.62

Additional methods for communication
Between seller and buyer

Verifying the seller ?
Punishing the seller for such behavior.
Force Escrow-like transaction.

Better descriptions of an item,
improve packaging methods (on demand)

Major threats: buyer

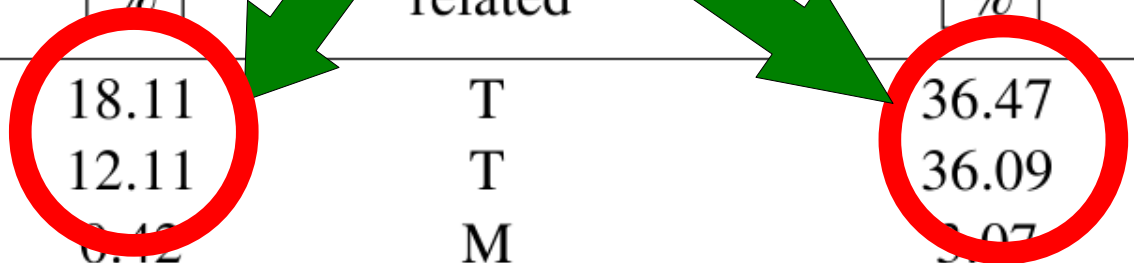
Complaint type against buyer	Harmfulness [%]	Time or Money related	Frequency of occurrence [%]
NO INTENTION TO BUY	18.11	T	36.47
NO RESPONSE	12.11	T	36.09
DELIVERY NOT ACCEPTED	0.42	M	3.07
RENEGED ON BUYING	-5.59	T	9.67
ODD BEHAVIOR	-25.06	T	14.7

Major threats: buyer

Almost $\frac{3}{4}$
of all feedbacks
most harmful

connected to the buyer behavior

Complaint type against buyer	Harmfulness [%]	Time or Motivation related	Frequency of occurrence [%]
NO INTENTION TO BUY	18.11	T	36.47
NO RESPONSE	12.11	T	36.09
DELIVERY NOT ACCEPTED	6.42	M	3.07
RENEGED ON BUYING	-5.59	T	9.67
ODD BEHAVIOR	-25.06	T	14.7



Major threats: buyer

Almost 1/4
of all feedbacks

connected to
the incompetence of buyer

Complaint type against buyer	[%]	reason	frequency of occurrence [%]
NO INTENTION TO BUY	18.11	T	36.47
NO RESPONSE	12.11	T	36.09
DELIVERY NOT ACCEPTED	0.42	M	3.07
RENEGED ON BUYING	-5.59	T	9.67
ODD BEHAVIOR	-25.06	T	14.7



Major threats: buyer

Additional methods
for communication
Between seller and buyer

Complaint type against buyer	Harmfulness [%]	Time or Money related	Frequency of occurrence [%]
NO INTENTION TO BUY	18.11	T	36.47
NO RESPONSE	12.11	T	36.09
DELIVERY NOT ACCEPTED	0.42	M	3.07
RENEGED ON BUYING	-5.59	T	9.67
ODD BEHAVIOR	-25.06	T	14.7

Major threats: buyer

Additional methods
for communication
Between seller and buyer

Transfer the auction fee on the buyer

Complaint type against buyer	Harmfulness [%]	related	[%]
NO INTENTION TO BUY	18.11	T	36.47
NO RESPONSE	12.11	T	36.09
DELIVERY NOT ACCEPTED	0.42	M	3.07
RENEGED ON BUYING	-5.59	T	9.67
ODD BEHAVIOR	-25.06	T	14.7

Major threats: buyer

Additional methods
for communication
Between seller and buyer

Transfer the auction fee on the buyer

Complaint type against buyer	Harmfulness [%]	related	[%]
NO INTENTION TO BUY	18.11	T	36.47
NO RESPONSE	12.11	T	36.09
DELIVERY NOT ACCEPTED	0.42	M	3.07
RENEGED ON BUYING	-5.59	T	9.67
ODD BEHAVIOR	-25.06	T	14.7

Verifying the age of the buyer ?
Insert more management tools.
Educate the buyer.

Future use



- Integrate with ProtoTrust (Firefox extension)
- Enable automatic classification of the user
- Design new reputation algorithm for the Internet auctions



THANK YOU