Strategy-specific Preference Elicitation for Group Recommender

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INTRODUCTION

Group recommender systems propose items to a group of users by taking the preferences of individuals into account. There is little work that addresses the design of suitable preference elicitation interfaces for group scenarios. In this work, we propose, prototype, and evaluate novel user interface concepts that are tailored for aggregation strategies.

PLURALITY VOTING (PV)

- Allows users to vote for several candidates
  → Candidate with most votes wins

HEARTS INTERFACE

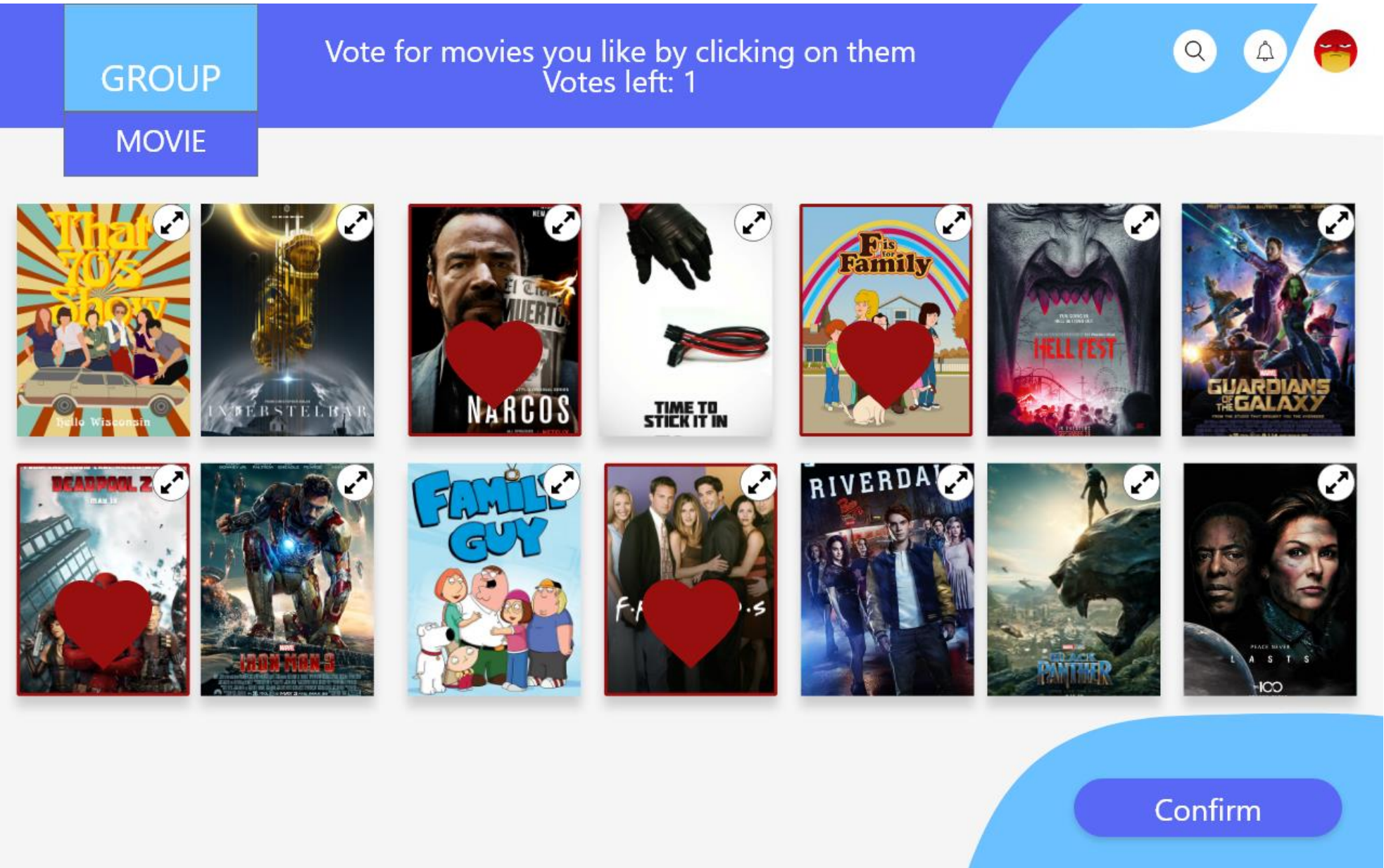- Votes are represented by red hearts

Figure 1: Hearts Interface (PV)

DOODLE INTERFACE

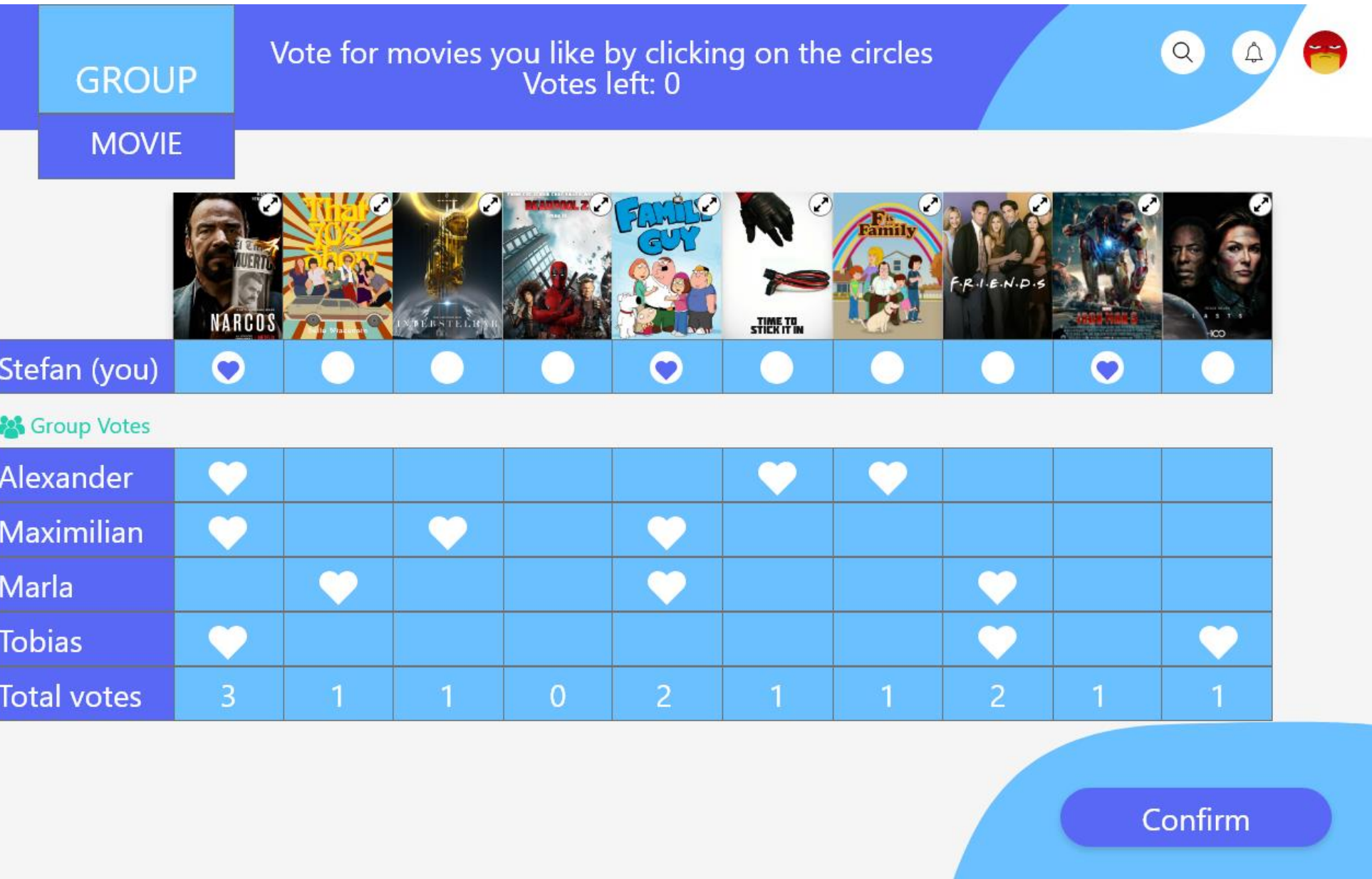- Votes can be submitted by clicking on the white empty circle

Figure 2: Doodle Interface (PV)

AVERAGE WITHOUT MISERY (AVM)

- Average of ratings which received a rating above a certain threshold

SMALL SLIDERS INTERFACE

- Flash symbol → show threshold.
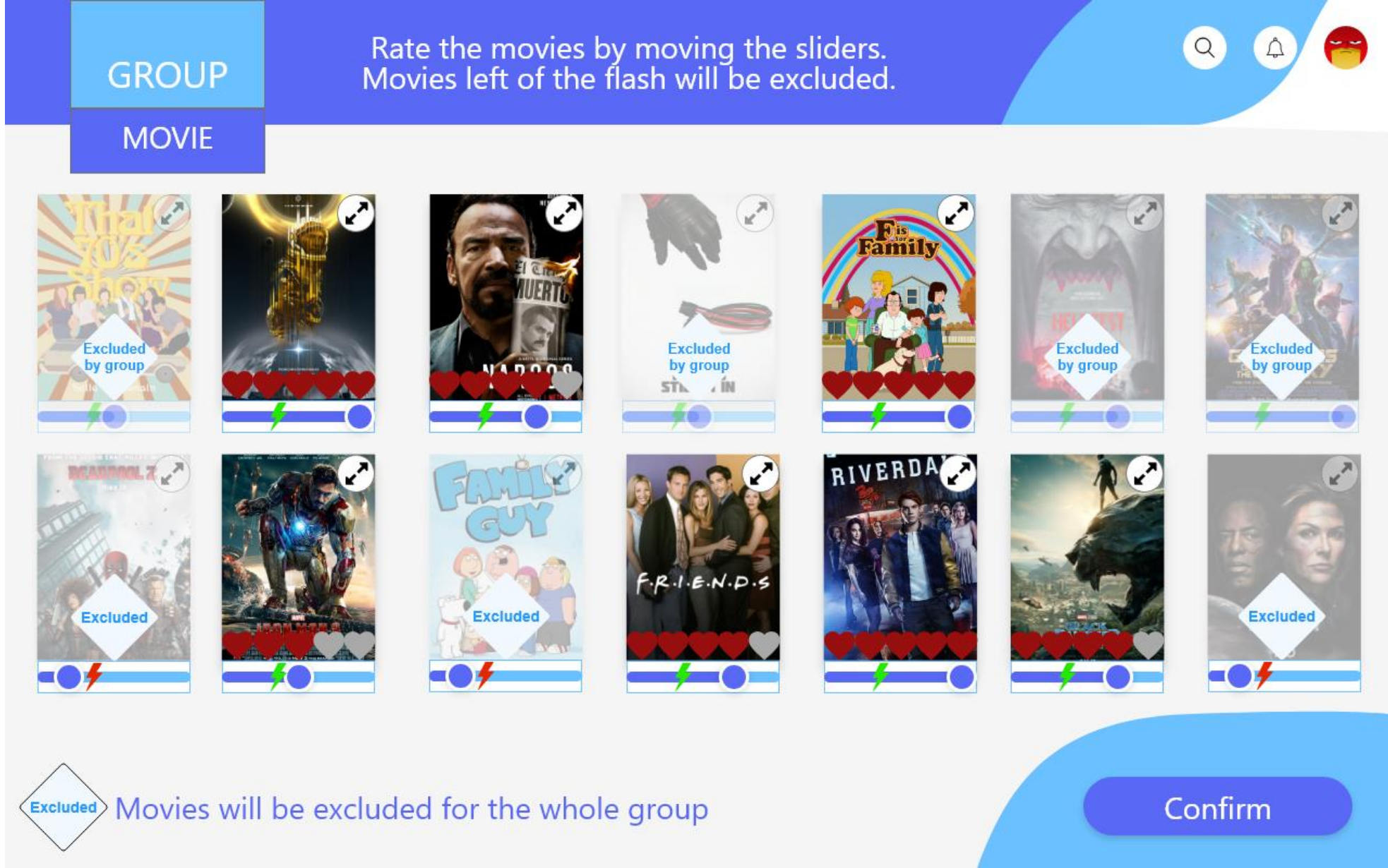- Below threshold → excluded from group and blurred out

Figure 3: Small Sliders Interface (AVM)

BIG SLIDER INTERFACE

- Users express their preferences by placing the movies on a big slider

Figure 4: Big Slider Interface (AVM)

APPROVAL VOTING

- Uses threshold to convert ratings greater or equal to rating into votes
- Similar interfaces as in Figure 3 & 4

BORDA COUNT (BC)

- Item with lowest rating gets zero points; next best item 1 point, etc.

BOXES INTERFACE (FIG. 5)

- Sort movies in boxes (ties allowed)
  → Each box corresponds to number of points

BIG SLIDER INTERFACE

- Like Figure 4 without flash symbol
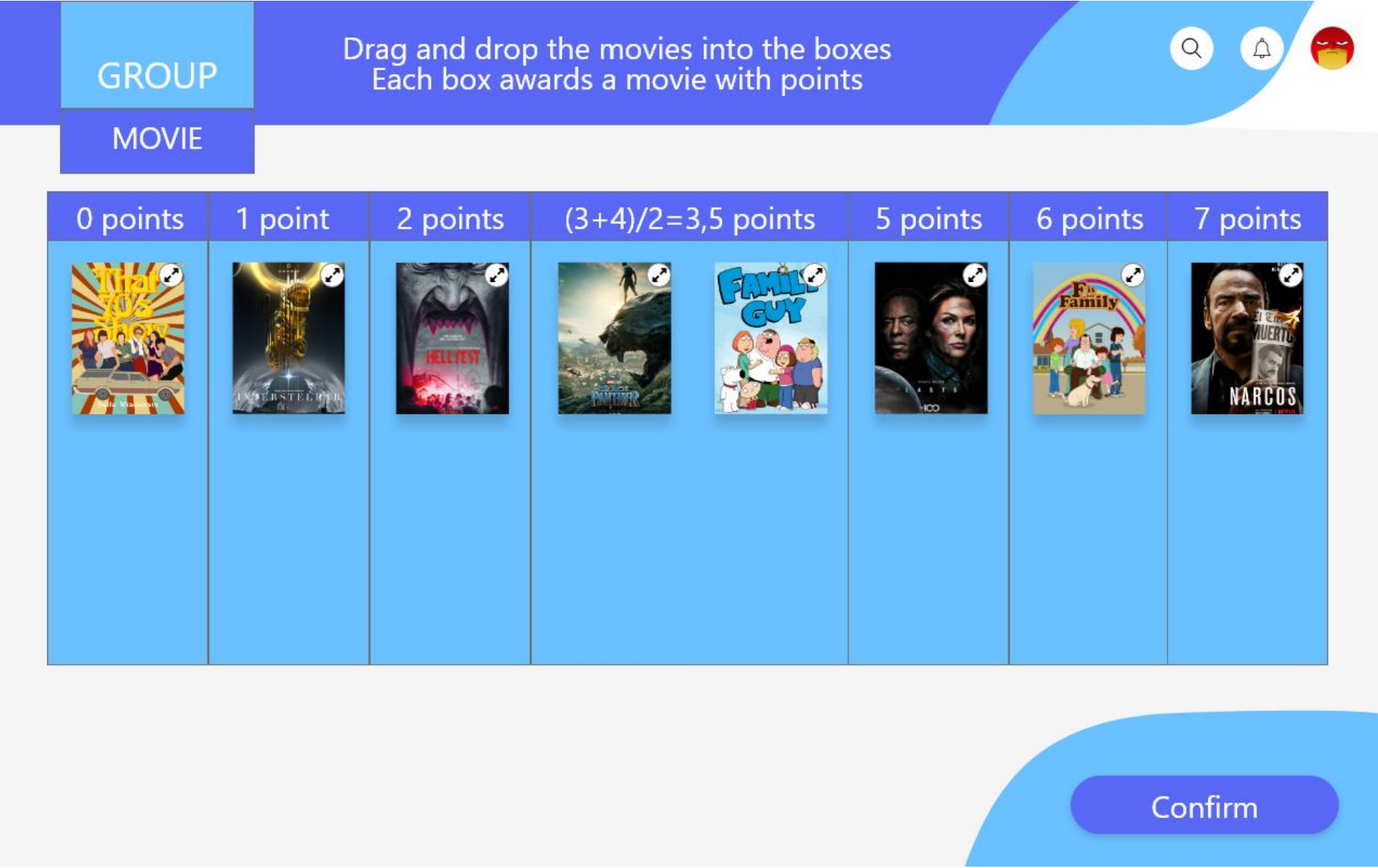 → Movie on the left receives 0 points, next one 1 point, etc.

Figure 5: Boxes Interface (BC)

USER STUDY & RESULTS

- S1 Preference expression
- S2 Understandability
- S3 Attractiveness
- S4 Adequacy of interface
- S5 Suitability for strategy

PLURALITY VOTING

Statement	Ø Hearts	Ø Doodle	P-value	Significant? [Y/N]
S1	4.42	3.81	0.00085	Y
S2	4.55	4.13	0.00988	Y
S3	4.13	3.48	0.001	Y
S4	4.45	3.55	0.00001	Y
S5	4.39	3.84	0.01687	Y

AVERAGE WITHOUT MISERY

Statement	Ø Small Sliders	Ø Big Slider	P-value	Significant? [Y/N]
S1	3.90	3.32	0.01175	Y
S2	3.87	3.65	0.24292	N
S3	3.55	3.35	0.37434	N
S4	3.90	3.23	0.00111	Y
S5	4.06	3.48	0.0071	Y

APPROVAL VOTING

Statement	Ø Small Sliders	Ø Big Slider	P-value	Significant? [Y/N]
S1	3.90	3.74	0.5012	N
S2	3.94	3.77	0.40691	N
S3	3.58	3.52	0.73767	N
S4	3.77	3.77	1.0	N
S5	4.10	3.87	0.22881	N

BORDA COUNT

Statement	Ø Boxes	Ø Big Slider	P-value	Significant? [Y/N]
S1	3.55	3.58	0.82283	N
S2	3.55	3.84	0.184	N
S3	3.35	3.52	0.39288	N
S4	3.48	3.48	1.0	N
S5	3.84	3.48	0.10179	N

CONCLUSION

- Correlation between complexity of aggregation strategies and feedback received → **Hide underlying logic**
- UI elements cannot be used universally → Must be **tailored to underlying logic** behind strategy

FUTURE WORK

Investigate strategy-specific interfaces for **smaller screens** e.g., smartphones

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MENSCH UND **COMPUTER**