Coding Guidelines - Perception of Soft Robots

Before starting coding, please (a) click through our main study on risks and benefits of soft robots & read the scenario texts on (i) socially assistive robots + information "soft", (ii) search and rescue robots + information "soft", (b) read the 100 words from our randomly created sub-word lis (e.g. 5% of all unique drawn concepts) generated by Shiny-App which we provide to you. The random sub-word list was created based on all concepts that have been written by participants in our CAM-study, (c) read the coding guidelines below (the category system) several times, and (d) the "to consider" section below. It is strongly recommended to display the coding guidelines on a second screen during coding or to print them out in advance.

Link to main study (click twice on the link to see both studies: (i) socially assistive and (ii) search and rescue robots): https://studien.psychologie.uni-freiburg.de/publix/BouM0e5AbxG?PROLIFIC_PID=111

General remarks:

- After reviewing the coding guidelines, categorize the 100 concepts from the provided word list into subordinated categories based on our coding guidelines
- Important: The word list also includes our predefined concepts for the CAMs. Please do not summarize them into superordinate categories. The predefined terms are: "Vorteile", "Nachteile", "sozialer Assistenzroboter", "Rettungsroboter"
- Please carefully decide which category each concept belongs to

How to proceed:

- To summarize the concepts, please do the following: In the first column of the wordlist (A) you will see concepts, which have been written by the participants in our study.
    - Based on our coding guidelines, you should consider which superordinate category the respective concept should be assigned to. You then enter the superordinate term based on our coding guidelines in column B ("Superordinate"). For example, the concept "Diskriminierung" could be superordinate into the category "HRI, neg." from our coding guidelines
- You should not summarize the predefined concepts (see general remarks above)
- If you are facing any problems or have any open questions regarding single concepts, please write them down in the respective comment column (C). Please do not talk to other rather during this process, because the independence of the raters is crucial

Timeline for the three central tasks:

1. Finish the coding process (each of us will code the same 100 concepts) till 20th of February
2. We have a joint session to discuss possible ambiguities and difficulties in a hybrid meeting on the 23th of February

To consider

Please consider the following while coding:

- All the key points mentioned in the "Coding Rules" do not have to be fulfilled to assign the respective categories

- If you have difficulties assigning the concepts from the wordlist to the given categories, sort them into the “Rest Category” => You should use the comment column (C) to explain why you are assigning a term to the “Rest Category”
- You can write comments if you have assigned concepts to categories but have questions/uncertainties

If you have any questions or something is unclear, please send me an E-Mail:
louisa.estadieu@philosophie.uni-freiburg.de

Coding Guidelines for Assessing Risks and Benefits of (Soft) Robots

Category	**Definition**	**Coding Rules**
Safety	The belief that the robot is ● operating safely ● performing tasks without posing risks or harm to humans ● performing tasks even safer than humans	Compared to "Trust" this concept primarily concerned with operational safety rather than overall reliability and integrity of the robot
Risk	The belief that the robot is ● operating unsafely ● performing tasks that pose risks to humans ● performing tasks riskier than humans	Compared to "Mistrust" this concept emphasizes the assessment of risky behaviors and actions on the operational level, rather than focusing on the robot's overall reliability and integrity
Trust	The belief that the robot ● performs with integrity and reliability ● is thus considered trustworthy	Compared to "Safety" this concept focuses on the overall reliability and integrity of the robot, rather than focusing solely on operational safety components
Mistrust	The lack of belief that the robot ● performs tasks with integrity and reliability ● leading to mistrust, skepticism or doubt	Compared to "Risk" this concept focuses on skepticism or doubts about the robot's reliability and integrity, rather than focusing on specific risky behaviors or actions on the operational level

Perceived Usefulness	The belief that the robot is ● useful and assistive ● on a personal and societal level	Compared to “Societal Impact, pos.,” this concept focuses on the immediate and tangible benefits provided by the robot at the personal and societal levels, while societal impact evaluates the broader and often long-term effects of HRI and the robot's presence on society as a whole
Perceived Uselessness	The belief that the robot is ● useless ● on a personal and societal level	Compared to “Societal Impact, neg.,” this concept highlights the immediate lack of utility and ineffectiveness perceived by individuals and society due to the robot's shortcomings, while societal impact evaluates the broader and often long-term negative effects of human-robot interaction (HRI) and the robot's presence on society as a whole
Anthropomorphism pos.	Positive evaluation of the ● attribution of human characteristics or behaviors to the robot ● such as autonomy or emotions	Compared to “HRI, pos.,” this concept focuses more on the evaluation of specific positive robot characteristics than on the interaction itself
Anthropomorphism neg.	Negative evaluation of the ● attribution of human characteristics or behaviors to the robot such ● as autonomy or emotions	Compared to “HRI, neg.,” this concept focuses more on the evaluation of specific negative robot characteristics than on the interaction itself
Human-robot-interaction = HRI, pos.	Positive implications of the ● interaction between humans and robots	Compared to “Social impact, pos.,” this concept emphasizes positive aspects of interaction, not broader societal impacts

Human-robot-interaction = HRI, neg.	Negative implications of the ● interaction between humans and robots	Compared to "Social impact, neg.," this concept emphasizes negative aspects of interaction, not broader societal impacts
Social impact pos.	Positive impacts of ● robots ● & human-robot-interaction on society	Compared to "HRI, pos.," this concept emphasizes positive impacts that robots and HRI might have on society, including long term impacts
Social impact neg.	Negative impacts of ● robots ● & human-robot-interaction society	Compared to "HRI, neg.," this concept emphasizes negative impacts that robots and HRI might have on society, including long term impacts
Low Cost	Low cost of ● robot fabrication & deployment ● on a personal & societal level	Compared to "High Cost," this concept focuses on economical aspects and cost-effectiveness in robot development and deployment
High Cost	High cost of ● robot fabrication & deployment ● on a personal & societal level	Compared to "Low Cost," this concept highlights the higher financial investment required for robot development and deployment
Rest Category	All terms that do not fall under above constructs	All terms that cannot be clearly assigned to one of the above-mentioned constructs belong in this category