- The detailed relationships between the 64 thematic labels and their respective categories

Researcher Labels					
Introduction labels	**Clarification labels**	**Workshop management labels**	**Implementation labels**	**Failure labels**	**Noise labels**
<introduce background>	<provide clarification>	<prompt action>	<propose action>	<identify failure>	<robot speech>
<prepare demonstration>	<additional info>	<prompt clarification>	<propose approximation>	<explain failure>	<fillers>
	<explain behavior>	<prompt evaluation>	<propose choice>	<debugging>	
	<explain resources>	<confirm intention>	<implement behavior>	<identify limitation>	
	<refer to resources>	<provide opinion>		<robot limitation>	
	<refer to simulation>	<summarize discussion>		<resources - setup limitation>	
		<time management>			
		<encouragement>			
		<prompt resources clarification>			

Participant Labels					
Information labels	**Design action labels**	**Failure action labels**	**Failure reasoning labels**	**Perception labels**	**Noise Labels**
<ask for clarification>	<propose role>	<identify failure>	<robot limitation>	<positive>	<fillers>
<accept suggestion>	<propose behavior>	<propose replacement>	<social context>	<indifferent>	
<accept clarification>	<propose action>	<propose fixes>	<spatial context>	<anthropomorphize>	
<call for discussion>	<choose behavior>	<propose addition>	<user context>	<unsuitable goal>	
	<explain proposed behavior>	<propose removal>	<liability concern>	<interaction - engagement failure>	
	<clarification reasoning>	<identify limitation>	<safety concern>	<performance failure>	
	<refer to experience>		<ethical concern>	<inappropriate behavior>	
			<resources - setup limitation>	<unexpected behavior>	
				<refer to simulation>	

- The usage of 64 thematic labels

List of inductive codes applied to transcripts of researchers (translator and moderators) utterances	
Tag	**Meaning/Use**
<explain behavior>	Detailed account of the behaviour (i.e., sequence of actions and logic operation) executed by the robot either in simulation or in the hardware Provide details or explanation of what the robot is doing. Detailed account of the behaviour (i.e., sequence of actions and logic operation) programmed by the translator and that best approximates participants' design. This happens often during behavior demonstration
<introduce background>	Explanation about the scenario (physical space and social context) in which the robot is placed and that participants should keep in mind when designing robots' behaviours
<provide clarification>	Whenever the researchers provide further explanation and guidence regarding the choice of function and actions for the robot (usually during brainstorming phase). This is always in answer to an explicit query from the participants
<prompt action>	Whenever the researchers encourage participant to engage in a workshop activity, such as discuss work around (or give a try) of a possible robot function, behaviour, and/or robot primitive
<encouragement>	Researchers comments intended to keep the flow of the discussion, brainstorming, and behaviour design process
<prompt clarification>	Whenever researchers asked participants to further elaborate, think and/or explain what a chosen robot function, behavior, and/or action will imply. This label applies only to queries from researcher to participant

<prompt resources clarification>	Whenever the moderator asked the translator to further elaborate on the robot's capabilities. This label applies only to queries from researcher (moderator) to researcher (translator)
<propose action>	Suggestions made by researchers related to workshop activities, e.g., seeing the behaviour, controlling the pace of the workshop or encouraging participants or another research to move on onto another workshop activity
<propose approximation>	Suggestions made by the translator on how to best approximate an action/behavior in the robot given the available primitives
<identify failure>	Whenever the translator observed that there was an inconsistency between the programmed and executed behavior (e.g., condition was skipped or never verified)
<debugging>	Whenever the translator went throught the process of understanding and identifying why a behavior was not executed as programmed
<provide opinion>	Whenever the moderator commented on reasons for an execution failure and/or participants' comments and perceptions
<prompt evaluation>	Whenever the moderator asked participants to comment and assess the robot behaviors after seeing its execution in simulation or in the real robot
<summarize discussion>	Whenever a researcher paraphrased participants comments and/or desing decisions as a way of confirming their understanding on what the current robot's behavior is missing
<confirm intention>	Whenever researchers confirm participants intentions regarding the changes to the robot's current behavior or a specific question. Most of the times this queries can be answered with a yes or no
<implement behavior>	Further details on how specific robot actions are implemented using the available primitives and logic operators
<time management>	Comments related to the logistics (in time) of the workshop
<explain resources>	Whenever the translator presented any additional tool (e.g., Rviz feed) that could provide further insight on how and why the robot is behaving in a given way
	A member of the research team presents and explains the different resources (i.e, robot, cheat-sheet, simulator, programming interface, and translator) that are at the disposal of all participants during the workshop
	Whenever the translator provided details about robot routines and/or primitives available to the participants
	When the researchers made mention of the resources (programming aids and tools, and robot hardware and primitives) available to the participants
	Whenever the translator provided additional details on existing resources, i.e., progamming interface
<robot speech>	Sentences the robot said during demo with physical robot
<propose choice>	Whenever the translator presented the participants with multiple options on how an action/functionality could be implemented and prompted them to decide on the best option
<identify limitation>	Whenever the translator identified limitations in primitives implementations, robot controllers, or the programming tool (it applies specifically to the instant in which limitation is first

	seen/identified and it should be followed by an explanation of the type of limitation)
<refer to simulation>	Comments related to the differences in perception and execution of a robot's behavior between the simulator and the physical robot
<robot limitation>	Whenever the translator commented on an existing hardware/software limitation of the robot (Pepper or Fetch) identified by any workshop attendee
<resources - setup limitation>	Anything other than the robot. I.e., programming interface, cheat-sheet, zoom setup
	Whenever the translator commented on how the progamming interface or set of implemented primitives constrained/limited what the robot could do during the workshop
	Whenever the translator provides further details on a technical failure on the programming interface or coding identified by the translator themselves or the participant
<fillers>	The filling words, include "Mmm", "yeah", "okay", "oh", "you know"
	Sentences that do not make sense or do not seem meaningful in the context of the workshop
	<Exclude>: One single word sentences that seem to belong to previous or next line should be assigned the label of the previous or next sentence
<prepare demonstration>	Any computer work/manipulation other than robot behavior implementation done by the translator in preparation to showcase/demonstrate current robot execution to participants

List of inductive codes applied to transcripts of participants utterances	
Tag	**Meaning/Use**
<ask for clarification>	Any question or comment said by participants with which they seek for confirm and/or improve their understanding about the resources and purpose of the workshop
<propose role>	Comments related to the overall intended function of the robot within the chosen scenario
<robot limits>	Any physical and/or programming limitation of the robot as identified/understood by participants
	When the physical design (hardware), appearance and programmed functionalies (software) of the robot are perceived as limiting for its intended function
<unsuitable goal>	When a robot action and/or function suggested for the robot does not fit with participants' perception of robots capabilities and/or the chosen scenario
<accept suggestion>	Whenever participants agreed on suggestions made by the researchers in regards of possible robot actions and/or functions
<propose behavior>	Comments related to the specific actions and logic flow the robot should take to accomplish a goal associated to its intended function (usually at the start of the workshop)

<call for discussion>	Whenever one participant asked other participant for their input and thoughts on a proposed behavior, function, action, and change
<propose fixes>	Whenever participants made suggestions on how to solve an execution failure during programming and debugging. This includes adjustments to primitives parameters, replacement of part or whole of a primitive to address an evaluation
<performance failure>	Whenever participants observed and commented on a technical and/or programming failure during the execution of the robot's behaviors
<inappropriate behavior>	Whenever participants identified that although the robot behaviour executed as designed, the outcome appears inappropriate in the given context
<refer to experience>	Participants comments on previous experiences and/or knowledge about other service robots and how these robots do things When participants refer to previous experience encountering robots, seeing robots being used in some context, or related scenarios
<propose addition>	Whenever participants decided to amend an existing behavior by adding a new primitive to it
<explain proposed behavior>	Whenever participants elaborated on their reasoning behind a new behavior or change to an existing behavior
<interaction - engagement failure>	Whenever participants identified that as currently implement the robot's behavior is likely to not address the interaction flow properly and fail to engage the intended audience
<clarification reasoning>	Whenever participants further elaborated on their choices in response to a researcher's prompts and questions and other participants calls for clarification
<positive>	Whenever participants made optimistic comments regarding the robot's behavior and how the current implementation is appropriate
<social context>	Whenver participants comment on the social role and presence of the robot in the chosen scenario. Mentions of cultural background, social norms
<accept clarification>	Whenever a participant confirmed that the clarification question has been answered
<unexpected behavior>	When the robot behaviour was perceived as a surprise
<choose behavior>	Whenever participants make a choice among the implementation options provided by the translator
<liability concern>	When the robot behavior was perceived as problematic due to potential legal issues
<spatial context>	Whenever participants reflect/comment on how the robot's behavior is in alignment or misaligment w.r.t to the physical context and/or space in which is located. For example, the chosen location and characteristics of this location, physical aspects of the robot (e.g., too big, too small)
<user context>	Whenever participants reflect/comment on how the robot's behavior is in alignment or misaligment w.r.t to characteristics of the intended end-user or interactee (i.e., their profile)

<propose removal>	Whenever participants decided to amend an existing behavior by removing a primitive
<anthropomorphize>	Whenever participants attributed human characteristics to the robot
<indifferent>	Neither positive nor negative perception on the robot's observed behavior
<safety concern>	When the robot's behavior was perceived as problematic due to potential safety risks
<ethical concern>	When the robot's behavior was perceived as problematic due to potential ethical/moral issues
<propose replacement>	Whenever participants decided to amend an existing behavior by replacing an existing primitive or adjusting the parameters of this primitive
<fillers>	The filling words, include "Mmm", "yeah", "okay", "oh", "you know"
	Sentences that do not make sense or do not seem meaningful in the context of the workshop
	<Exclude>: One single word sentences that seem to belong to previous or next line should be assigned the label of the previous or next sentence