Group 06 Transcript

Control group, student experiment

All participants are male

Third recording has not been transcribed as this concerned the documentation of the model, not the design session

Respondent	Text	Annotation
	Recording 01 8:27	
0:00:01.5 PERSON 1	Alright. So the first one's gonna be the functional view, second one is gonna be the information view, third one functional again, and the fourth one information view and the context view we do more high level. General [inaudible] dutch expression	
0:00:24.2 PERSON 2	Yeah I guess four can be functional	
0:00:27.3 PERSON 3	That's the automated [inaudible] from one to another [inaudible] time	
0:00:33.1 PERSON 1	Yeah state diagram	
0:00:34.2 PERSON 3	Yeah essentially, yeah but it's, three for example, this is fairly simple. Compared to [inaudible]	
0:00:42.2 PERSON 2	Yeah but it adapts, state diagram. Ok.	
0:00:45.1 PERSON 1	That's the easiest notation that you're going to use	
0:00:48.7 PERSON 2	Yeah	

0:00:50.1 PERSON 3	So this would be the functional state, I guess. At number four this-	
0:01:07.3 PERSON 1	Would it be possible to create a busy, seldom-used, any variation of road? How exactly this is declared by the user and depicted by the system is up to you. Broadly, the tool should be easy to use, and [inaudible]	
0:01:27.1 PERSON 3	I have an idea, because with all the requirements that we have that they don't expect complete- I mean you cannot be accurate. But in my experience, in my bachelor's I did it in requirements engineering and there's four types of requirements you have which [inaudible]. It's called MoSCoW prioritization	
0:01:46.0 PERSON 1	Yeah	
0:01:46.7 PERSON 3	Yeah, you know it?	
0:01:47.9 PERSON 1	Yeah	
0:01:47.6 PERSON 3	So, must, should, could and wish. I think if we outline the must and should, those are the first two that we model.	
0:01:58.5 PERSON 1	Mhm	
0:01:58.1 PERSON 3	And the rest is optional. Because, no seriously, because-	
0:02:01.8 PERSON 1	Yeah I know. An optional is-	
0:02:04.2	Is never	

PERSON 2		
0:02:05.1 PERSON 3	It is. It is essentially, that's how you-	
0:02:07.9 PERSON 2	I know. If it's optional	
0:02:10.9 PERSON 3	Yeah, but it's specified like this	
0:02:12.1 PERSON 2	Ok	
0:02:12.8 PERSON 3	I mean	
0:02:13.5 PERSON 1	Yeah	
0:02:13.8 PERSON 3	Must is very different to should	
0:02:16.7 PERSON 1	Yeah. Well, three of them are must and one of them is should. Three of the four are must. So, I don't think, in the design of this document that they paid attention to the words must and should	
0:02:32.5 PERSON 3	I know but it's-	
0:02:34.9 PERSON 1	Probably what they want us all to do this-	
0:02:36.4 PERSON 3	I know but in the end it's-	
0:02:37.4 PERSON 2	If you're making [inaudible] if you look at the software engineer, someone, or programming.	

0:02:43.4 PERSON 1	Yeah, these are the instructions you're given, if you look at the words	
0:02:47.3 PERSON 2	If we make a wrong software architecture, the software is going to get build wrong	
0:02:54.2 PERSON 1	No, because these are-	
0:02:55.1 PERSON 2	We have to reduce this. Follow the exact word they give	
0:03:14.1 PERSON 1	You should design the basic appearance of the program. As well as the means by which the user creates a map, sets traffic timing schemes, and views traffic simulations.	
0:03:41.5 PERSON 2	You also should not be allowed but- all intersections will be four way. There are no T intersections nor one-ways ok. Must be able to design each intersection- who wrote this.	
0:05:00.4 PERSON 3	Maybe once we have all the requirements outlined we can kind of move them into logical components and for example, visual display, editor of the map, I don't know, logical sensors and then we can maybe build that into a contextual model. A very high level one. Or maybe not, it might actually be functional. And then-	
0:06:15.4 PERSON 2	If you want to design a traffic road simulation program, why are there restrictions to the user interaction, intersections in the software. So these restrictions also have to be made on the real world.	
0:06:34.2 PERSON 1	Which intersections?	
0:06:37.1	[inaudible] software	

PERSON 2		
0:06:40.4 PERSON 1	That's [inaudible]	
0:06:41.0 PERSON 2	Yeah you did [inaudible]	
0:06:56.8 PERSON 1	Probably yeah	
0:06:58.5 PERSON 2	[inaudible]	
0:07:04.1 PERSON 1	You know they have to transcribe this	
0:07:08.7 PERSON 2	What did I say	
0:07:09.5 PERSON 1	I don't know	
0:07:11.1 PERSON 3	[inaudible]	
0:07:12.0 PERSON 2	What? [inaudible] some weird verb [inaudible]	
0:07:21.2 PERSON 1	Now they have two minutes of transcribing. Something in here they have to do with a moderator but not, don't want everyone to know that [inaudible]	
0:07:41.7 PERSON 3	This program is not meant to be an exact scientific simulation but aims to simply illustrate the basic effect that traffic signal timing has on traffic. If you wish, you may assume that you will be able to reuse an existing package that provides relevant mathematical functionalities,	

	statistical distributions, random number generators, and queuing theory.	
0:08:26.2 PERSON 2	You want to press on pause?	
	Second Recording 65:12	
0:00:01.3 PERSON 1	Again	
0:00:02.1 PERSON 3	Maybe [Person 2]	
0:00:04.0 PERSON 2	Since you're good at this, maybe these parts, like, these are our outcomes but these are like four. One, two, three, four, so, these are like four different processes that can be modelled, I think quite quickly and-	
0:00:27.3 PERSON 1	What does creating a map- what does a map need.	
0:00:30.2 PERSON 2	That's an activity	
0:00:33.0 PERSON 3	Essentially it's a process	
0:00:34.3 PERSON 1	This is one process. I know, this should be a process, but we don't have the requirements-	
0:00:40.2 PERSON 3	We do	
0:00:40.2 PERSON 1	Of what is-	
0:00:41.2 PERSON 3	We do, we do, we do. It's on top here, look, for example, should be able to create a traffic density, that enters the	

	map blablabla. Where is it. The simulator should be able to simulate traffic flows on a map, and essentially this is- if you compare the number desired, outcome number one, with the four requirements that are there, a lot of the stuff relates to each other. Like the restrictions. So that could be a thing that exists with the way that the-	
0:01:11.8 PERSON 1	Yeah yeah	
0:01:13.7 PERSON 3	With the-	
0:01:17.3 PERSON 2	We start with the context alright?	
0:01:18.6 PERSON 3	Do we need to record this as well?	
0:01:19.9 PERSON 2	I'm recording	
0:01:21.0 PERSON 3	You're recording?	
0:01:21.9 PERSON 2	Yeah	
0:01:22.0 PERSON 3	We need to record?	
0:01:23.1 PERSON 1	Ah yeah let's try to record as much as possible. But I have not seen anything about its relations to software systems so the context view should be quite basic, general.	
0:01:41.1 PERSON 2	Yes	

0:01:44.3 PERSON 3	Where is my paper, did you take it? Or do you need it?	
0:01:46.4 PERSON 2	Yeah	
0:01:47.0 PERSON 3	Alright, I'll take yours then	
0:01:48.0 PERSON 1	Just use the context view we already-	
0:01:51.5 PERSON 2	Yeah	
0:01:51.9 PERSON 1	Yeah. That's the same. I don't care but, same context. Yeah isn't it? Yeah	
0:02:01.4 PERSON 2	[inaudible]	
0:02:01.8 PERSON 1	Of course. The simulation program has to run on something [inaudible]	
0:02:30.6 PERSON 2	All ready? [inaudible]	
0:02:40.7 PERSON 3	Alright [inaudible] something in this. We've not covered use cases	
0:03:45.0 PERSON 2	That's UML	
0:03:47.0 PERSON 3	But that's the first start I would go from, normally. But- something like this because- what are your opinions? You have information of, like, view model that will be-	
0:04:00.0 PERSON 2	[inaudible] model yeah	

0:04:00.7 PERSON 3	You have to right? Because this is [inaudible]	
0:05:49.1 PERSON 1	What. It's lovely weather outside right	
0:06:29.0 PERSON 2	Mhm very nice weather	
0:07:08.1 PERSON 1	More anybody?	
0:07:09.0 PERSON 3	Yes	
0:07:10.1 PERSON 2	Ok	
0:09:30.2 PERSON 1	Thanks.	
0:09:34.0 PERSON 3	Alright, you started with the context one. Work on that together or you gonna work on that on your own?	
0:09:40.5 PERSON 1	We can start with the context view, I was trying to find out the functional view in number one but we can start the context view.	
0:09:47.8 PERSON 2	Just do that one.	
0:09:48.9 PERSON 1	You have a paper on which we can draw?	
0:09:51.7 PERSON 3	I have this one	
0:09:52.9 PERSON 2	Right	

0:09:54.7 PERSON 1	Well, we opened the one-	
0:09:56.8 PERSON 2	Right, so we start with-	
0:10:00.9 PERSON 1	Context	
0:10:02.4 PERSON 2	So-	
0:10:04.1 PERSON 1	So you would have the traffic simulator as one thing. I guess in the middle.	**[1. actor (AS?)]** Traffic simulator
0:10:09.0 PERSON 3	I'm just gonna start. So that would be the traffic simulator.	
0:10:14.3 PERSON 2	Yeah. Let me see	
0:10:25.3 PERSON 3	Also these on this- which was relevant here. Oh yeah, if you wish you may assume that you would be able to use an existing software package that provides relevant mathematical functionalities such as statistical distributions, random number generators, and queuing theory. So these could be part of the context diagram as in providing additional functionality yeah. So-	**[2. resource (AS1)]** Traffic Simulator has resource "Queuing theory library"
0:10:54.5 PERSON 2	Sure	
0:10:54.9 PERSON 3	I would go with queuing. I don't even know what it is but I'm guessing queuing theory is something relevant. No? I mean, for cars and shit. Yeah, for cars and things.	
0:11:14.9	Yeah I agree	

PERSON 2		
0:11:19.8 PERSON 1	Yeah sure, I-	
0:11:25.0 PERSON 3	I don't know what statistical distributions, why would we need to- traffic simulations	
0:11:32.9 PERSON 2	Why would we need statistical distributions or queuing-	
0:11:38.8 PERSON 1	Mathematical functionality you would, speed and all	
0:11:43.3 PERSON 3	That's more physics but	
0:11:44.3 PERSON 2	Yeah but- traffic lights not- we don't have to do anything with the speed	
0:11:50.0 PERSON 3	No but you still have to create the road, the density of the cars, the number of cars, their speed, the left turns. So I think mathematical functions here are needed. Just in terms of the user perspective, for example, there enter three cars, one would be 90 kilometers per hour and the first one would be 5 kilometers per hour.	**[3. resource (AS1)]** Traffic simulator has resource "Mathematical functionality"
0:12:11.1 PERSON 1	Let's then create one entity and we call it mathematical functionality	
0:12:15.3 PERSON 3	Yeah mathematical	
0:12:17.0 PERSON 1	Let's not go too much into detail.	
0:12:18.2 PERSON 3	Yeah yeah, that's all I wanted. Functionality. So we have traffic simulator, queuing theory, mathematical	

	functionality. Alright, did you want to combine queuing theory with mathematical as well.	
0:12:30.8 PERSON 2	Yeah	
0:12:32.9 PERSON 3	Combine. Basically it's all, ok. Separate functionality. And there was another, as in high level, I think it fits into the environment that this is part of their curricula, I think. They're part of the- some course or something. Their teacher wants to provide	**[4 actor (AS?)]** Student **[5 softgoal (AS4)]** Student has softgoal "fulfill curricula" **[6 goal (AS3)]** Student has goal "use simulator" **[7 contribution (AS7)]** Goal "use simulator" contributes to softgoal "fulfill curricula"
0:12:52.0 PERSON 2	Civil engineering course	
0:12:52.8 PERSON 3	Yes. So the environment would be-	
0:12:56.1 PERSON 1	The software itself doesn't necessarily have a- what kind of relation does it have?	
0:13:01.2 PERSON 3	No, it's just- when you model the environment we then have to explain each of the components that we drew, so environment would be the engineering course, that's part of their studies	
0:13:11.2 PERSON 2	Yeah I know, would you going to-this software program, it's going to be created not for the civil engineer student	**[8 critical question CQ2 on 6]** The student cannot do "use simulator" because the software is not created for the students
0:13:20.8 PERSON 3	Yeah it is	**[9 attack on 8]** The software is created for the students, as explained in the problem specification

0:13:21.8 PERSON 2	Not for a student right?	
0:13:23.3 PERSON 3	Yeah	
0:13:24.0 PERSON 2	By a student	
0:13:26.1 PERSON 3	No for the students	
0:13:27.0 PERSON 2	Ah ok	
0:13:27.6 PERSON 1	Yeah	
0:13:30.7 PERSON 3	Because this is a particular challenging subject for the student	
0:13:32.9 PERSON 1	For practice	[**10 softgoal (AS4)]** Student has softgoal "Learn queuing theory from practice" **[11 contribution (AS6)]** Task "use simulator" contributes to softgoal "learn queing theory from practice"
0:13:33.9 PERSON 3	Yeah. It's just for their purpose, so I think environment is just, UCI course, whatever.	
0:13:41.6 PERSON 2	Yeah	
0:13:42.0 PERSON 3	So this would be- the environment would be Uni. Ok. So if we do the- I guess the traffic simulator	
0:13:54.8	That would be in the middle yeah.	

PERSON 1		
0:13:55.7 PERSON 3	Traffic simulator and the context, is it FAM? Right?	
0:14:05.5 PERSON 2	It is functional architecture model	
0:14:06.9 PERSON 1	Yeah right, isn't it?	
0:14:07.8 PERSON 2	Sure	
0:14:09.1 PERSON 3	[inaudible] And it takes the mathematical functionality	
0:14:14.4 PERSON 2	From outside, yeah	
0:14:17.8 PERSON 3	Math function? This would be the environment, this would be the UCI civil-	
0:14:28.6 PERSON 1	HCU	
0:14:30.3 PERSON 3	What? UCI.	
0:14:33.9 PERSON 2	UCI yeah. UCI is fine I think. And a user I guess. Do you wanna draw a separate user. For them to-	
0:14:46.2 PERSON 1	Student	
0:14:48.7 PERSON 3	Cause there- so this would take- maybe for the sake I would, maybe, queuing theory, I would put that separate. But it's still math I guess, so we can just lead to -	
0:15:02.2	The usual-	

PERSON 1		
0:15:03.1 PERSON 2	I thought the relations between the-	
0:15:05.2 PERSON 3	Yeah, that was my question. Do you show interaction between a user and the system in the context, do you, already? Or do you just show the high level overview	
0:15:15.7 PERSON 1	Yeah, you do show the relationship between the system and the user. Would you?	
0:15:20.5 PERSON 3	But how do you show it, just with arrow?	
0:15:22.1 PERSON 1	Yeah	
0:15:25.1 PERSON 2	Ok. Just draw, like, an arrow that says- what do they have to- they're gonna create a visual map of an area. So one arrow could be like creating or editing or	**[12 task (AS2)]** Student has task "Create map"
0:15:39.6 PERSON 3	Then you're going more to use cases. And a model because traffic system isn't one functionality. I mean there's one package-	
0:15:47.7 PERSON 1	Well, then you can call it like, editing. Which is more general, what they do	
0:15:51.3 PERSON 2	Or interaction	
0:15:52.4 PERSON 1	Or interact. Well, the arrow already is	
0:15:55.4 PERSON 3	Yeah I don't know, but maybe something more as in, well, using the system more. Modelling? Within the system?	
0:16:04.0	Yeah, that's what they-	

PERSON 2		
0:16:05.7 PERSON 3	Simulating within the simulation system of [inaudible]	
0:16:09.6 PERSON 1	Simulating, I like simulating. You can just call it simulating.	
0:16:11.2 PERSON 2	The users do not simulate, the software is simulating	**[13 task (AS2)]** Simulator has task "Simulate map"
0:16:15.2 PERSON 1	Right	
0:16:16.3 PERSON 3	It's a map. Ok. We remodel this. I guess this is our context, I don't know.	
0:16:24.2 PERSON 1	Does it have any other, well, it doesn't say	
0:16:26.3 PERSON 2	No	
0:16:26.6 PERSON 1	Does it say any other external-	
0:16:28.8 PERSON 3	This would be the context one	
0:16:30.9 PERSON 2	Relations	
0:16:31.5 PERSON 3	Well you gave up on the-	
0:16:33.6 PERSON 1	Huh?	
0:16:34.5 PERSON 2	Yeah [inaudible]	

0:16:35.5 PERSON 3	What happened to you	
0:16:36.8 PERSON 2	So much for [inaudible]	
0:16:39.3 PERSON 1	Do we have any other?	
0:16:41.3 PERSON 3	Of context, I don't think so. It's basically just explaining, this shouldn't be too difficult. Yeah, some mathematical functions, this can be explained in an environment like this	
0:16:53.1 PERSON 1	Does the user do anything else besides simulating?	
0:16:56.0 PERSON 3	No nothing	
0:16:58.2 PERSON 1	No?	
0:16:58.7 PERSON 3	No. not really no.	
0:17:02.5 PERSON 2	It's the students	
0:17:03.1 PERSON 1	Yeah, one of the-	
0:17:04.0 PERSON 2	Do anything	
0:17:05.7 PERSON 3	Ok, so that's the context one. So then the next one was information. No seriously, what were you doing when you stopped.	
0:17:14.4	I was doing this. [inaudible]	

PERSON 2		
0:17:24.1 PERSON 1	[inaudible] and I was searching through here, for which activities I can use.	
0:17:29.0 PERSON 3	Ok. This was for what	
0:17:32.0 PERSON 1	The process of creating a map	
0:17:37.1 PERSON 2	Ok. Or something.	
0:17:39.5 PERSON 1	And in that process there are activities like create a visual map, create a road	**[14 task (AS2)]** Student has task "Create road" **[15 decompositon (AS??)]** Task "Create map" decomposes into "Create a road"
0:17:45.0 PERSON 2	Ok.	
0:17:45.4 PERSON 1	Yeah	
0:17:45.7 PERSON 2	Create a car	**[16 task (AS2)]** Student has task "Create a car"
0:17:47.8 PERSON 1	Ok	
0:17:48.3 PERSON 2	Really?	
0:17:49.9 PERSON 3	Yeah sure. I think it should be because you need to place cars and then you also, I'm guessing	
0:17:58.0	Do you actually- I was under the assumption that they were	**[17 critical question CQ2 on 16]** Is

PERSON 1	only busy with roads and traffic lights, and not necessarily cars as entities.	the task "Create a car" possible? **[18 answer to 17]** No, students are only busy with roads and traffic lights, and not cars as entities. **[18a remove]** Task "Create a car" is removed.
0:18:07.7 PERSON 3	Yes, because you need a model of how the cars will flow evenly through the intersections. So you need to time everything, but you still need the entity that will travel on the simulation to show that you've actually done something-	**[19 counter argument to 18]** You need a model of how cars will flow through the simulation.
0:18:21.4 PERSON 1	Right	
0:18:21.4 PERSON 3	In an about way	
0:18:22.3 PERSON 1	It doesn't specify if one of the systems does that for you automatically, or if you-	
0:18:26.3 PERSON 3	I think it does	
0:18:27.4 PERSON 1	Does it? I was under the assumption that there was only changing like, traffic	
0:18:37.1 PERSON 3	For example you may choose to depict individual cars, or to use a more abstract representation	
0:18:42.0 PERSON 1	Right	
0:18:43.4 PERSON 3	I think the easiest way to go would be creating the car. It should be possible to create a busy road or seldom used one. Or any variation in between. That means that you need	

	to specify, for example, I want 50 cars on these two roads. So I think, yeah	
0:19:01.8 PERSON 1	I don't- you can go either way	
0:19:04.6 PERSON 3	Yeah I guess	
0:19:05.8 PERSON 1	It's ambiguous so you can assume-	
0:19:07.0 PERSON 3	Yeah	
0:19:07.6 PERSON 1	Either one	
0:19:08.9 PERSON 3	My pic would be, go with the car instead of guessing that the program would do that, or else	
0:19:14.5 PERSON 1	Yes	
0:19:16.1 PERSON 3	There is also, create light timing. [inaudible] so create visual map, create road, create car, create light timing. And you also have- maybe change create to set light timing.	**[20 task (CQ2)]** Student has task "Create light timing" **[21 decomposition (CQ??)]** Task "Create map" is decomposed into "create light timing" **[22 critical question (CQ??) for 20]** Is Task "Create light timing clear? **[23 answer to 22]** No **[23a rename]** "Create light timing" becoemes "Set light timing"
0:19:47.5 PERSON 1	Define lights, on track of light timing or something	
0:19:50.7 PERSON 2	Yeah	
0:19:51.9 PERSON 1	I like the timer set, yeah	
0:19:54.7	And he goes with setup	

PERSON 3		
0:19:56.6 PERSON 2	Whatever	
0:19:59.5 PERSON 3	So create a car, maybe we can set a create car. Specify number of cars, that would be, I guess, better. Because you don't necessarily create a car but you would more specify.	**[24 critical question CQ?? for 16]** Is the task "Create a car" specific enough? **[25 answer to 20]** No. You may choose to depict inidividual cars or use more abstract. **[25a rename]** replace "Create a car" with "Specify the number of cars on roads"
0:20:15.8 PERSON 2	Specify	
0:20:16.6 PERSON 3	Entity number	
0:20:18.6 PERSON 2	[inaudible] track this	
0:20:22.6 PERSON 3	That sounds more [inaudible]. Also you need to see the visualization. So from the entire one you need-	
0:20:31.8 PERSON 1	But is this done to create a map?	
0:20:34.5 PERSON 3	Oh you mean-	
0:20:35.2 PERSON 1	This is only one process.	
0:20:37.7 PERSON 3	Oh, so now you're doing, creating the map only. Ok. So-	
0:20:40.5 PERSON 2	That's what you-	
0:20:41.9	Ok. That's fine.	

PERSON 3		
0:20:43.4 PERSON 2	I wasn't really sure	
0:20:48.2 PERSON 3	You must design the interaction-	
0:20:50.7 PERSON 1	Oh the students	
0:20:51.4 PERSON 2	But we can't really [inaudible] because every [inaudible] we have to go into more detail.	
0:20:59.4 PERSON 3	Better to have more, but I don't know if-	
0:21:02.1 PERSON 1	What would be the second process? In this case. We have create map, traffic timing scheme. Program: appearance, and traffic simulation. Yeah, maybe I can delete this one and this one-	
0:21:16.5 PERSON 3	What do we wanna do	
0:21:17.3 PERSON 1	And keep program and appearance	
0:21:19.3 PERSON 3	I would, yeah ok, program and appearance, but maybe I would just go with one-	
0:21:23.0 PERSON 1	Yeah	
0:21:23.1 PERSON 3	One high level, and then for the specific parts, for example, creating a visual map and setting the lighting timing-	
0:21:31.6 PERSON 2	We can go into a process	

0:21:33.2 PERSON 3	Yeah, but that would be more a petri net. It's as a logical representation of what can actually be done.	
0:21:39.4 PERSON 1	Ok	
0:21:40.1 PERSON 3	I don't know, what do you guys think.	
0:21:45.6 PERSON 1	I think, yeah, it's gonna be really difficult to specify an entire process of the other ones that you have, because there's not enough information. A lot of this is going to be under the assumption of-	
0:21:55.9 PERSON 3	Yeah true, but then again. I don't know. For example, if we think of for example, first you need to specify the road, or the map	
0:22:08.1 PERSON 1	Yeah	
0:22:08.1 PERSON 3	So you specify the map and then the second part would be, you specify the pipe of the road, basically	**[26 task (AS2)]** Student has task "specify pipe of the road" **[27 decomposition (AS??)]** Task "create map" decomposes into "specify pipe of the road"
0:22:15.6 PERSON 1	Yeah	
0:22:16.0 PERSON 3	Like the length and, yeah, and also if it´s like the really populated- or if it's really abandoned one or something.	**[28 critical question CQ?? for 26]** Is task "specify pipe of the road" clear? **[29 answer to 28]** No, use "specify length of the road"
0:22:28.1	[inaudible] this, we need to [inaudible] interactions	

PERSON 2		
0:22:32.3 PERSON 1	[ook]	
0:22:33.9 PERSON 3	Apologies to the transcribers, pausing too much	
0:22:41.0 PERSON 1	So we're done with the context view yeah?	
0:22:42.2 PERSON 3	I think so yes. What I would suggest is that we help [Person 2] out and outline all the interactions that we can find from the text	
0:22:52.1 PERSON 1	One of these [inaudible]	
0:22:53.3 PERSON 3	Or I'll give this to [Person 2]. So we basically go, for example, the first model is creating the interaction. And we outline all the steps that are there, and then the second one and then he can model it quicklier and we can also just transfer it into documentation	
0:23:10.0 PERSON 1	Alright	
0:23:12.9 PERSON 3	Ok so-	
0:23:14.0 PERSON 1	So this one is finished. I don't- for now	
0:23:16.5 PERSON 2	Yeah, it's -	
0:23:16.8 PERSON 3	We can [inaudible] can you get me another paper so I don't ruin this for any-	

0:23:22.9 PERSON 1	Functional view	
0:23:23.8 PERSON 3	Ok so, are we going to functional or are we doing the-	
0:23:27.9 PERSON 1	Which one do you wanna do?	
0:23:29.9 PERSON 3	Maybe it would be good if we covered this one first? Because this essentially is the functional view, but if, for example, right now [Person 2] has five different entities, and if we go into each of those and outline all this, the entire subprocess-	
0:23:44.4 PERSON 2	What is the fifth entity?	
0:23:46.8 PERSON 3	You only have four? I don't know if there's a fifth one. So yeah, basically, going into creating a map, the process of picking- you can pick one or the second. You shouldn't, yeah	
0:23:56.9 PERSON 1	For sure	
0:23:57.3 PERSON 3	Alright so-	
0:23:58.4 PERSON 2	Only the visualization of the map isn't in there, in this process. Should it be added, or in a different process?	**[30 task (AS2)]** Simulator has task "Visualize map"
0:24:08.8 PERSON 3	I would go- I would put it in that one and-	
0:24:11.1 PERSON 1	Creating an actual map-	
0:24:12.2	Yeah	

PERSON 3		
0:24:12.7 PERSON 1	Should be there right?	
0:24:13.7 PERSON 3	I would put it as the last one, as create a visualization of whatever you've modelled. But ok, so, students must be able to create a visual map, so ok.	
0:24:25.9 PERSON 2	That's a first activity	
0:24:27.9 PERSON 3	Yeah so create-	
0:24:28.8 PERSON 1	Create visual map, create road, specify a few numbers, set up light timing and?	
0:24:36.0 PERSON 3	And, well interaction. Visualization sorry. Or interaction, I don't know. So create a visual map would have laying out roads and a pattern of their choosing. So this would be first, would be choose a pattern.	**[31 critical question CQ?? for 14]** Is Task "Create road" clear? **[32 answer to 31]** no, according to the specification the student should choose a pattern. **[32a rename]** "Create road" becomes "Choose a pattern"
0:24:55.4 PERSON 1	How do you mean, choose a pattern	
0:24:57.5 PERSON 3	Students must be able to create a visual map of an area, laying out roads in a pattern of their choosing	
0:25:03.4 PERSON 1	Right	
0:25:05.2 PERSON 3	So, select an area pattern	

0:25:07.5 PERSON 1	Yeah I'm not sure if they mean that. I don't know what they mean by pattern in this case. I thought you could just pick roads, varying sizes and like, broads of roads.	**[33 critical question CQ?? for 32a]** Is "Choose a pattern" specific enough? **[34 answer to 33]** No, I am not sure what they mean by a pattern.
0:25:21.4 PERSON 3	Yeah probably	
0:25:22.0 PERSON 1	Automatically creating a pattern. You don't just pick a pattern	
0:25:26.0 PERSON 3	No yeah exactly, but you would have them provide, it's a pattern, it's a different type of road but essentially you would select- how would you call them, selecting a-	
0:25:36.3 PERSON 1	Yeah, selecting a- I don't know	
0:25:38.0 PERSON 3	Pattern preference maybe? As in, maybe we can explain this in the documentation	**[34a rename]** "Choose a pattern" becomes "Choose a pattern preference".
0:25:43.9 PERSON 1	What kind of patterns though. Would you be able to select	**[35 critical question CQ?? for 34a]** Is "Choose a pattern preference" clear? **[36 answer to 35]** no, what kind of pattern?
0:25:47.4 PERSON 3	Maybe, I don't know it's-	
0:25:48.5 PERSON 1	[inaudible] a road pattern	**[36a rename]** "Choose a pattern preference becomes "Choose a road pattern"
0:25:50.5 PERSON 3	Maybe it's one-sided road for example-	

0:25:52.6 PERSON 1	Right	
0:25:52.9 PERSON 3	Well not one-sided, but it could be double like, on the highway, coming into the intersection. And two coming out and maybe you could have one-	
0:26:00.4 PERSON 1	Right	
0:26:00.6 PERSON 3	So that type of thing, but I think that's too	
0:26:02.8 PERSON 1	Right that makes sense, I just [inaudible] in a road. Context, but sure.	
0:26:08.7 PERSON 3	Ok, so select a road pattern, then we agree on that one. Yeah? So that would be the first one. So after you select the pattern-	
0:26:18.2 PERSON 2	You select the length	**[37 task (AS2)]** Student has task "select road length"
0:26:21.8 PERSON 3	The resulting map need not to be complex but should allow for roads to vary in length, to be placed in different arrangements of intersections to be created. So maybe select a road pattern has two, or three sub options. One would be, selecting the type of intersection you want to have although they give kind of a restriction that they cannot be T	
0:26:41.2 PERSON 1	Yeah	
0:26:41.8 PERSON 3	But it still says that you can select, and also I think it's placing the intersection where you want it. As in, on the map, so-	

0:26:48.8 PERSON 2	Yes	
0:26:50.5 PERSON 3	I would go with selecting the intersection	**[38 task (AS2)]** Student has task "select type of intersection"
0:26:55.5 PERSON 1	Select type of intersection yeah	
0:26:57.5 PERSON 3	Yeah ok.	
0:27:00.2 PERSON 2	That's more activity and [inaudible]couple of other types of intersection.	
0:27:08.5 PERSON 3	Yeah yeah	
0:27:09.8 PERSON 1	What are the types of intersection	
0:27:11.8 PERSON 3	We don't know, but it doesn't matter because we're just modelling the process. So that could be in petri nets, just one or the other. Going backwards and forwards. Intersection selection, ok. Road length, specify road length	
0:27:30.7 PERSON 1	Yeah	
0:27:33.7 PERSON 3	Road	
0:27:35.2 PERSON 2	Only length?	
0:27:36.8 PERSON 3	I'm just- length to be placed in different arrangements of intersections to be created. So intersection selection arrangements.	

0:27:46.2 PERSON 1	Yeah if you call it, specify road measurement.	
0:27:50.4 PERSON 3	Specify road characteristics maybe? Or as measurements?	**[39 critical question CQ?? for 37]** Is "Road length" clear? **[40 answer to 39]** No. **[40a rename]** "Set road length" becomes "Set road characteristics"
0:27:54.1 PERSON 1	Yeah that's better, then you're also done with [inaudible]	
0:27:58.0 PERSON 3	True. Characteristics	
0:27:59.4 PERSON 1	Yeah	
0:28:01.7 PERSON 3	Ok, so that would be that. Your approach should readily accommodate at least six intersections, if not more	
0:28:09.7 PERSON 1	I don't know how we're supposed to model that	
0:28:12.0 PERSON 3	So you specify the road characteristics, but this would be a restriction. How do we model restrictions in FAM? How was it modelled again. Was it with QA notation, that was explained last week wasn't it. You remember. It was just a notation, it was like a note where he had some sort of constraints. QA constraints? You remember, you were there	
0:28:37.8 PERSON 1	Yeah [inaudible]	
0:28:41.3 PERSON 3	Can you check, which lecture	

0:28:44.0 PERSON 1	I'm trying.	
0:28:45.6 PERSON 3	Ok. Students must be able to describe the behavior of the traffic light at each of the intersection	
0:28:54.4 PERSON 1	Right	
0:28:55.0 PERSON 3	Ok so, that means that for each of the intersections you can have a minimum of six, and up to infinite, for each of them you need to specify the traffic light. So that would be a sub process of intersection arrangement. That is not a separate step but it's- once you select	**[41 task]** user Student has task "Set traffic light behavior"
0:29:18.4 PERSON 1	Is it? Can't it be a different step altogether	
0:29:22.1 PERSON 3	Ok maybe, yeah	
0:29:23.3 PERSON 2	Compares the-	
0:29:27.1 PERSON 3	Ok, so this would be the traffic light behavior	
0:29:36.0 PERSON 1	Yeah, because you're setting up these traffic light after you select the intersection	
0:29:43.4 PERSON 3	True but in essence you could have them select six intersections, as it would give you the option to model them. But it might be better to do it afterwards	
0:29:52.6 PERSON 1	Yeah	
0:29:53.5	Ok so you would go-	

PERSON 3		
0:29:54.6 PERSON 1	The traffic light would automatically be there as an intersection, but the behavior-	
0:29:58.5 PERSON 3	Yeah	
0:29:58.5 PERSON 1	You specify later	
0:29:59.5 PERSON 3	Ok so traffic light behavior you would specify it- it is up to you to determine what the exact interaction will be, but a variety of sequences and timing schemes should be allowed. So, you would have- we would have traffic light behavior gives you, I guess two options then.	**[42 task (AS2)]** Student has task "set sequence scheme" **[43 task (AS2)]** Student has task "set timing scheme" **[44 decomposition (AS??)]** Task "set traffic light behavior" XOR-decomposes into "set sequence scheme" and "set timing scheme"
0:30:23.6 PERSON 1	Sequences and timing schemes	
0:30:25.0 PERSON 3	Sequences and timing schemes. So you can either go for, yeah, sequences-	
0:30:30.9 PERSON 1	Or timing schemes	
0:30:32.1 PERSON 3	Or a predefined timing scheme. Ok? Your approach should also be able to accommodate left hand turns, protected by left hand-	
0:30:48.4 PERSON 1	Green arrow lights	
0:30:52.7 PERSON 3	I don’t understand this one. Should be able to accommodate left hand turns, protected by left hand green arrow lights.	
0:31:04.2 PERSON 2	Isn’t something-	

0:31:04.5 PERSON 3	Nah, the lights turn?	
0:31:06.1 PERSON 1	Right, they mean for a set of traffic lights to have, like the, the first two to be straights. And then the other one you can take a right as well. That makes sense	
0:31:23.7 PERSON 3	Oh -	
0:31:24.4 PERSON 1	So separate traffic lights	
0:31:26.3 PERSON 3	But that's in sequences already defined right?	
0:31:29.6 PERSON 1	I would say so, but they specify here as [inaudible] requirements so	
0:31:33.3 PERSON 3	But it also says that we don't have to take everything into consideration. Ok, I think we	
0:31:41.4 PERSON 1	We assume this one is defined in the traffic lights-	
0:31:43.9 PERSON 3	Yeah, I think so	
0:31:44.8 PERSON 1	Sequence	
0:31:45.3 PERSON 3	Yeah we assume this. Combinations of individual signals that would result in crashes should not be allowed. I think we should assume that this is done in sequences and timing schemes. Because-	
0:31:59.6 PERSON 1	Yes. Then we have to model that somehow	

0:32:01.6 PERSON 3	No we don't. we don't model the schemes do we. How, sorry, how are you gonna model	
0:32:06.7 PERSON 1	I don't know	
0:32:07.2 PERSON 3	The entire intersection, we cannot do that. I think it's out of our scope	
0:32:12.5 PERSON 1	Right	
0:32:13.2 PERSON 3	So I think number 8	
0:32:16.1 PERSON 1	Why would they specify it so	
0:32:19.1 PERSON 3	A lot of things is specified, but it's kind of-	
0:32:21.7 PERSON 1	Yeah, you want to just put this under traffic lights sequences and timing	
0:32:25.4 PERSON 3	Yeah. Maybe- can you take a note of these things that we kind of put down. For example, so that we can write the documentation. So that we can go back to the requirements and just say, under sequences we also have this constraint that it should not allow for crashes etc.	
0:32:44.9 PERSON 1	I'm gonna type it	
0:32:45.6 PERSON 3	Or you can type it, yeah, as well [inaudible] either way	
0:32:51.8 PERSON 1	[inaudible]	

0:32:53.6 PERSON 3	And also these like, every intersection of the map must have traffic lights, there are not any stop signs, overpasses, or other variations. All intersection will four way, there are no T intersections and nor one way road. This is also when you select intersection arrangement. This is also constraint on that part	
0:33:15.9 PERSON 1	If that's the requirement. If you select an intersection	
0:33:19.0 PERSON 3	Yeah	
0:33:20.0 PERSON 1	You can choose if you have traffic lights or not	
0:33:23.3 PERSON 3	No	
0:33:23.8 PERSON 1	So	
0:33:24.9 PERSON 3	That's just a restriction on the system, but it's not- from the users perspective it doesn't matter. For the process because-	
0:33:30.3 PERSON 2	So they need same activity timing. When you select an intersection the selection of traffic lights has also been premade. But it's not a different activity	
0:33:45.5 PERSON 3	It's not. No, you don't, no. There's two things, selecting the traffic lights for the intersection, you don't select them because they are already there-	
0:33:55.9 PERSON 2	Yeah	
0:33:56.5	So if we imagine the intersection being a four way, and also	

PERSON 3	with the lights. You just place it on the map, but you still have to click on those lights to configure them. So that is still a process. Because you can choose from different sequences	
0:34:11.2 PERSON 1	Yeah true	
0:34:13.8 PERSON 3	Ok, which one are you doing right now?	
0:34:16.3 PERSON 1	I'm typing the combination of individual signals and accommodating left hand turns by left hand green arrow lights. They are not modelled separately, they fall under the specification of timing schemes and sequences.	
0:34:25.5 PERSON 3	Ok	
0:34:26.7 PERSON 1	Through the traffic lights behaviors	
0:34:32.5 PERSON 3	Ok	
0:34:34.1 PERSON 1	Alright, next one	
0:34:34.6 PERSON 3	Can I just ask you. Can you just, on top, just do create a visual map. On top, just as a title, create a visual map. And do two, this would be two, no no, this would be the two. And the first one, ok, and there is another one we need to do. That is for- number one, 1A. 1A is intersection selection and arrangement. And it says here basically, restriction, just write, restriction 2B.	
0:35:20.9	Yeah	

PERSON 1		
0:35:23.8 PERSON 3	Students must be able to design each intersection with or without the option to have sensors that detect whether any cars are present in a given lane. Ok, so this would be when you-	**[45 task (AS2)]** Student has task "add sensor to intersection" **[46 decomposition (AS??)]** task "Create visual map" decomposes into "Add sensor to intersection"
0:35:36.8 PERSON 1	That's mandatory or must-	
0:35:39.3 PERSON 3	They must be able, so meaning when they select intersection they should be able to say, intersection one has the sensors, intersection two hasn't, third one doesn't have them	
0:35:49.4 PERSON 1	But are those sensors mandatory	
0:35:50.7 PERSON 3	Yes. No they're manda-	
0:35:51.9 PERSON 1	Does the- is the option to use mandatory	
0:35:54.4 PERSON 3	The option is mandatory. Also, that basically gives you another restriction, choosing- on the same one basically- that would be -	
0:36:09.5 PERSON 1	We mentioned that one was A. 1A	
0:36:11.8 PERSON 3	Yeah	
0:36:13.1 PERSON 1	What is B	
0:36:16.9 PERSON 3	Oh no, so it's again would be A, because it's the same bullet point essentially.	

0:36:23.9 PERSON 1	I mean-	
0:36:24.5 PERSON 3	Intersections like an arrangement, this one also needs to have- maybe you can just do restriction 2B, and just restriction-	
0:36:32.4 PERSON 1	And 2C	
0:36:33.3 PERSON 3	2C. 2B and 2C	
0:36:35.1 PERSON 1	How about this one. Your approach should readily accommodate at least six intersections if not more	
0:36:42.6 PERSON 3	Where is that	
0:36:42.9 PERSON 1	That's one, and then on the end	
0:36:47.0 PERSON 3	Should readily accommodate at least six intersection-	
0:36:49.5 PERSON 1	You have to-	
0:36:50.2 PERSON 3	If not more	
0:36:50.9 PERSON 1	You have to address the requirements	
0:36:52.7 PERSON 3	Yeah. I'll go with restriction again, when you select them it should be at least, for example, restriction 2 plus 2C, you can just do restriction minimum of six of, yeah, intersections, or more	

0:37:16.5 PERSON 1	Alright yes	
0:37:20.6 PERSON 3	Have you managed to find those QA's? How we can write them. Because I know he did, it was quite simple. I think it was just a- once you have the model you can just type, write on top of the model. Ok. Based on the map created and the intersection timing schemes a student must be able to simulate traffic flow on the map. Ok so that was creating a map	
0:37:54.8 PERSON 1	QA quality attributes right?	
0:37:56.5 PERSON 3	This would be another, this would be a separate one I guess. Traffic light behavior would be the second activity, the second process. Effectively	
0:38:09.3 PERSON 1	What are you talking about?	
0:38:10.7 PERSON 3	Because of the model that [Person 2] drew, as for example, first you create a visual map, then you find the traffic behavior, but this traffic behavior would be a separate process, wouldn't it? Essentially. Or is this part of creating a visual map	
0:38:25.0 PERSON 1	You mean QP isn't it? Not QA	
0:38:26.8 PERSON 3	I don't know, QP	
0:38:28.4 PERSON 1	QP are different things.	

0:38:31.9 PERSON 3	No, whatever quality annotations or something	
0:38:35.9 PERSON 1	No. oh this thing	
0:38:41.4 PERSON 3	Oh that's quality properties	
0:38:43.4 PERSON 1	Those are-	
0:38:43.9 PERSON 3	Oh fuck. I don't know. Sorry transcribers, for all these	
0:38:52.3 PERSON 1	Aren't we supposed to transcribe our own stuff?	
0:38:54.5 PERSON 3	No, [professor] and the rest of the-	
0:39:01.0 PERSON 1	Right so, based on the map created and the intersections timing schemes, students must be able to simulate traffic flows on the map. Yeah	
0:39:08.8 PERSON 3	The-	
0:39:09.7 PERSON 1	It's not a different requirement	
0:39:11.6 PERSON 3	This would be simulate the traffic flow. Yeah? That's like the last that we have? Simulating traffic flow? The traffic levels should be conveyed visually to the user in a real-time manner as they emerge in the simulation. So, traffic flow would be, simulate traffic flow action would consist of, start the simulation yeah	

0:39:47.8 PERSON 1	Sure. Sure yeah	
0:39:51.0 PERSON 3	And, it would display it. Start the simulation and then it would display it in real-time	**[47 task (AS2)]** Simulator has task "Display simulation in GUI" **[48 goal (AS2)]** Simulator has goal "Provide real-time feedback"
0:39:57.8 PERSON 1	Yes	
0:39:59.7 PERSON 3	Display it in a window? In a-	
0:40:05.4 PERSON 1	Some sort of UI yeah	
0:40:07.4 PERSON 3	GUI. User interface. Window or frame. Frame for the user. And once it displays, this is maybe additional requirement, pause, stop and play options. As in a player functionality	
0:40:29.1 PERSON 2	Sure	
0:40:31.7 PERSON 3	Let's say media player functionality. And maybe this is really extra, exporting option probably would be usable for software, but we can- this is quite simple to model that's why I'm just kind of thinking what else we could. Because they do ask-	**[48 task (AS2)]** Simulator has task "Provide media player functionality"
0:40:52.3 PERSON 2	But why do you want to put in a media player function if you already have a possible media player on your-	
0:41:01.8 PERSON 3	That's for the simulation	

0:41:02.4 PERSON 2	Yeah I know but, why do you	
0:41:04.9 PERSON 3	Oh, you would use-	
0:41:05.1 PERSON 2	Have exporting a -	
0:41:08.3 PERSON 3	For their assignment	
0:41:11.2 PERSON 2	Yeah I know but if you export an image or a movie of the simulation	
0:41:18.4 PERSON 3	Yeah	
0:41:18.8 PERSON 2	That's done.	
0:41:22.0 PERSON 3	Yes but from the point of view of-	
0:41:24.1 PERSON 2	You say, media player available on your computer to do this.	
0:41:32.9 PERSON 3	I get what you mean, but, I agree with you, but, from my point of view that's not really viable in terms of the software that they're trying to build because if you want somebody to learn-see all the interactions, they will want to play it instantly. They will try to model things and then play, I want to see it. That's one thing and as the second thing is, that's a requirement of the system	**[49 negative contribution (AS??)]** task "media player functionality" contributes negatively to "real time"
0:41:53.7 PERSON 2	Oh	

0:41:53.7 PERSON 3	It has to be presented in real-time to the user. To simulate traffic flow on the map, so we need some sort of player. The export option I think would come in handy in real world because-	
0:42:07.0 PERSON 2	Right	
0:42:08.3 PERSON 3	Yeah it could be an assignment or exercise you wanna do, so yeah. So I would go with this one because we can specify it literally-	
0:42:17.0 PERSON 2	Right	
0:42:17.8 PERSON 3	Gives two more options, which is media player functionality and exporting function.	
0:42:23.8 PERSON 2	Sure.	
0:42:28.7 PERSON 3	Ok. So once you simulate this. The current state of the intersection traffic lights should also be depicted visually and updated when they change, it's up to you how to represent this information to the student using your program. For example, you may choose to depict individual cars or to use a more abstract representation.	
0:42:53.5 PERSON 1	I like individual cars	
0:42:55.0 PERSON 3	But what-	
0:42:55.4 PERSON 1	Just visualize all the cars	

0:42:58.1 PERSON 3	Yes, I agree but-	
0:43:00.0 PERSON 1	It's easiest	
0:43:01.4 PERSON 3	The current state of the intersection traffic lights should also be depicted visually and updated when they change	**[50 task (AS2)]** Simulator has task "Process user input" **[51 task (AS2)]** Simulator has task "Update simulation" **[52 task (AS2)]** Simulator has tasks "Update light colors", "Move individual cars" **[53 decomposition (AS??)]** Task "Update simulation" decomposes into "Update light colors" and "Move individual cars"
0:43:06.4 PERSON 2	Yeah	
0:43:07.3 PERSON 3	That's- ok but that's part of the simulation itself, that's- I mean. So traffic light behaviour, sequences, timing schemes, maybe here we would have update the colours on the-	
0:43:19.5 PERSON 2	Just use colours in, yeah	
0:43:21.5 PERSON 3	Yeah just update colours on lights.	
0:43:30.6 PERSON 1	Yeah	
0:43:31.6 PERSON 3	So that would be after choosing the sequence or timing scheme. Yeah. Display on a GUI for the user, exporting function, and we- update colours on light, exporting function	
0:43:48.4 PERSON 1	Yeah	
0:43:49.1 PERSON 3	And we pick the individual cars representation.	
0:43:52.7 PERSON 2	I like it	
0:43:56.9	Represent [inaudible] cars	

PERSON 3		
0:44:02.8 PERSON 1	But why?	
0:44:04.3 PERSON 2	I have no idea.	
0:44:05.2 PERSON 1	Cause it gives you more accurate information?	
0:44:08.0 PERSON 3	I think so, yeah. Well I don't know, what would be the higher abstraction of the-	
0:44:13.3 PERSON 1	I don't know	
0:44:13.8 PERSON 3	[inaudible] as an option?	
0:44:16.9 PERSON 1	I can't think of anything that's better than individual cars in software packages like this.	
0:44:22.4 PERSON 3	Ok number four then. Students should be able to change the traffic density that enter the map on a given road. That would be before the simulation in my opinion. Because you would model the road, you would specify about three hundred cars, and then before-	
0:44:42.8 PERSON 1	Right	
0:44:44.2 PERSON 3	You would press start you could specify, yeah ok, the average speed of the cars is thirty point whatever, the density of cars coming into each of the intersections is 1.5 per second. And, I don't know, some other parameters that might be- maybe even the sequence of the lights, that	**[54 task (AS2)]** User Student has task "set car density". **[55 decomposition (AS??)]** Task "Control simulation" decomposes into "set car density"

	might-	
0:45:02.9 PERSON 1	Doesn't this just fall under this step, selecting a road pattern? Just an extra step where you can also choose the density of the traffic on a given road. Because they mention here, it should be possible to create a busy road or a seldom used one and any variation. Just create an extra step	**[56 critical question (CQ??)]** Does task "set car density" contribute to goal "control simulation"? **[57 answer to 56]** No, it is just an extra step of creating the visual map. **[57a remove]** remove decomposition from "control simulation" to "set car density. **[57b decomposition (AS??)]** Task "Create map" decomposes into "set car density".
0:45:17.6 PERSON 3	That would be specify density	**[58 critical question CQ?? for 57b]** Is "set car density" clear? **[59 answer to 58]** no. **[59a rename]** "set car density" becomes "specify traffic density"
0:45:19.8 PERSON 1	Traffic density yeah	
0:45:21.3 PERSON 3	Specify traffic density	
0:45:27.6 PERSON 1	Yeah	
0:45:27.6 PERSON 3	And maybe two options, as in enter map and enter intersection. If that makes sense, but we don't have to take that into account, it doesn't matter	
0:45:40.8 PERSON 2	Sure	
0:45:44.2 PERSON 3	Ok. For example, it should be possible to create a busy road, seldom used one, or any variation in between. Ok so that's	

	covered. How exactly-	
0:45:52.5 PERSON 1	Any variation in between, so we have to give more options then	
0:45:55.8 PERSON 2	Yeah	
0:45:56.5 PERSON 3	But it also says, how exactly this is declared by the user and depicted by the system is up to you, so we've kind of covered this	
0:46:04.2 PERSON 1	Have we?	
0:46:04.5 PERSON 3	Yeah	
0:46:04.5 PERSON 1	Because they want any variation in between and now you've just mentioned two options, haven't you?	
0:46:08.8 PERSON 3	No no no. they should be able to change the traffic density that enters the map on a given road	
0:46:16.1 PERSON 1	Yeah	
0:46:16.6 PERSON 3	For example, it should be possible, between a busy road or a seldom used one, or any variation in between. That means that it should be either going from empty to completely busy, so that's just the density and the number of cars.	
0:46:28.0 PERSON 1	Sure, but I- what kind of option do we give. The users.	**[60 critical question for 59a]** is "set traffic density" specific enough? **[61 answer to 60]** no **[61a rename]** "set traffic density" becomes "set traffic density (number
0:46:33.0 PERSON 3	Specify the road characteristics?	
0:46:35.4	Just like a number?	

PERSON 1		of cars per road)"
0:46:36.8 PERSON 3	Mhm	
0:46:37.2 PERSON 1	Like an integer?	
0:46:39.5 PERSON 3	I guess that's the easiest. How else would you specify, I don't know, how would you specify if this was a simulation. I think you would start, how many cars will enter this road. And you would say 30 and you would see how much that is and you would go back and you would specify, I don't know, 50, because it wasn't enough.	
0:46:58.6 PERSON 1	So we just give them- just gonna enter an integer, the amount of-	
0:47:03.9 PERSON 3	Yeah I would go for a number of cars, the density of the cars and average speed maybe. Something- but that can also be done with the help of those mathematical functions as in, I don't know, average speed on the highway, average speed in a- what do you call it- suburban area or whatever. But I think that's just input that we could give when they create a map or before the start of the simulation.	
0:47:31.1 PERSON 2	Probably simulation	
0:47:31.9 PERSON 3	I would go with simulation in my case, because it's easier. Cause otherwise you have to go back and define the map and-	
0:47:38.7 PERSON 1	Yeah, so I -	**[62 critical question CQ?? for 61a]** Can "set traffic density (number of

0:47:39.0 PERSON 3	Ok. So you start a simulation, you would- ok, before you display it you would have these two. So specify the road characteristics, no, maybe just this one. So you specify the traffic characteristics basically, that would- so traffic characteristics. And that would be the density, speed, and what else did we say. Number of cars	cars per road)" be decomposed into subtasks? **[63 answer to 62]** Yes, it is more generally "road characteristics", which is decomposed into three actions. **[63a rename]** "set traffic density (number of cars per road)" becomes "set road characteristics" **[63b task (AS2)]** Student has tasks "density", "speed", and "number of cars" **[63c decomposition (AS??)]** Task "set road characteristics" decomposes into " density", "speed", and "number of cars".
0:48:20.4 PERSON 1	Density, speed and number of cars. But isn't density-	**[64 critical question CQ?? for 63c]** Is task "density" redundant? **[65 answer to 64]** yes, it is a synonym for "number of cars" **[65a remove]** task "density" is removed
0:48:23.3 PERSON 3	Yeah exactly	
0:48:23.8 PERSON 1	Number of cars, it's the same	
0:48:27.5 PERSON 3	What if we specify the number of cars per intersection maybe. I mean as in percentages. For example if you have three hundred cars, and you have ten intersections, if three hundred cars will go from one end, imagine this is a straight	**[66 critical question CQ?? for 63c]** Is "number of cars" specific enough? **[67 answer to 66]** No. **[67a rename]** "number of cars"

	road	becomes "number of cars per intersection (%)"
0:48:43.9 PERSON 1	Yeah	
0:48:44.2 PERSON 3	And they will go through three hundred and if you have the option to specify, I don't know, distribute them equally onto six intersections. You would have a better visualization maybe? I don't know, I'm just talking shit.	
0:48:56.6 PERSON 1	I don't know either. I don't know, we've got to visualize	
0:49:02.3 PERSON 3	Alright, just, can be-	
0:49:03.5 PERSON 1	It's really specific, details	
0:49:05.3 PERSON 3	So, density, speed and, is there anything else.	**[68 critical question for 63c]** Does "set road characteristics" decompose into any other tasks? **[69 anwer to 68]** Yes, type of cars. **[69a task (AS2)]** Student has task "set type of cars" **[69b decomposition (AS??)]** Task "set road characteristics" decomposes into "set type of cars"
0:49:09.7 PERSON 1	No, speed, density	
0:49:20.1 PERSON 3	Maybe type of cars	
0:49:21.5 PERSON 1	Yeah	
0:49:22.0 PERSON 3	Type of cars, because you could have trucks, you could have personal cars. That would be good because-	
0:49:27.5 PERSON 1	Type of traffic	
0:49:28.7	Yeah	

PERSON 3		
0:49:29.1 PERSON 1	Yeah [inaudible]	
0:49:30.0 PERSON 3	So you basically include, like a random number of – if you have equal- then we could them- the reasoning of the mathematical inclusion. For example-	
0:49:41.5 PERSON 1	Does it calculate the size of cars or maybe	
0:49:45.1 PERSON 3	No more, for example, you say, oh I want three hundred cars and then it gives you a list. I want trucks, I want personal cars and I want bikes	
0:49:52.1 PERSON 1	Right	
0:49:52.1 PERSON 3	Distribute them equally, so I would have hundred cars, hundred trucks and hundred more bike- motorcycles. I think-	
0:50:01.4 PERSON 2	Do you want to specify weight in a different truck	
0:50:10.0 PERSON 3	Maybe you would	
0:50:11.3 PERSON 2	If you have that truck over there, or that truck over there	
0:50:15.0 PERSON 3	Yeah but-	
0:50:16.0 PERSON 2	But still different	
0:50:16.7 PERSON 3	Yeah it is, but maybe that could be also taken care of by a list of providing all the different types of- like trucks	

0:50:24.0 PERSON 1	Yeah, I think it's best to specify on, not specify on a motorcycle or car or truck, but on rate.	
0:50:33.7 PERSON 3	On what?	
0:50:33.7 PERSON 1	On size	
0:50:35.2 PERSON 3	But then you have- you need to know the length and-	
0:50:37.1 PERSON 1	I know	
0:50:37.7 PERSON 2	[inaudible] and you need the seize for traffic digestion yeah	
0:50:39.9 PERSON 3	It is, it definitely is but do you expect the students to know what's the length of a truck or what is the weight of the truck	
0:50:48.5 PERSON 1	Well we can enter that into the system. The system knows, like an average length of a car or truck	
0:50:54.1 PERSON 3	Exactly, but that would mean that in the end when you present it to the user he would still have just the list. He would not have what is in the back, saying that if he selects a truck the system will know that the truck carries ten tons.	**[70 resource (AS1)]** Traffic simulator has resource "car database"
0:51:05.4 PERSON 1	Yeah	
0:51:05.6 PERSON 3	So the user doesn't need to know about that	
0:51:06.6 PERSON 1	If- maybe it's easy to	

0:51:09.3 PERSON 2	[inaudible]	
0:51:12.7 PERSON 1	Specify what kind of traffic type, [inaudible] or a car and a different process of specify a traffic entity. How big is your car, or how heavy is your car, that's-	
0:51:31.0 PERSON 3	Well yeah	
0:51:31.9 PERSON 1	Let's make- that process is easier to include then another process of defining what is a car and how big is the car and how big is the truck.	
0:51:40.4 PERSON 3	Yeah but that	
0:51:40.4 PERSON 1	That's not really a big [inaudible]	
0:51:42.1 PERSON 3	No it's not, but it's not on the side of the system. That won't be the logic behind it because, logically speaking, if you have to select something you're not gonna care about how much that selection actually weighs or something, you just need the selection. So if the students are presented with ten options of all the possible cars	
0:52:03.9 PERSON 1	No, because if you have a traffic light and the timing on the traffic lights from green to red	
0:52:11.6 PERSON 3	Yeah	
0:52:12.3 PERSON 1	It's really short, and that intersection if 50 kilometers per hour	
0:52:20.0	Ok	

PERSON 3		
0:52:21.1 PERSON 1	And you have a large truck and a heavy truck	
0:52:23.6 PERSON 3	Yeah	
0:52:24.6 PERSON 1	And you break-	
0:52:25.5 PERSON 3	Obviously we have a system we need to model [inaudible]	
0:52:27.3 PERSON 1	[inaudible] intersection is why	
0:52:29.0 PERSON 3	Yeah yeah, no no. I definitely agree with you on this- from usage perspective, doing the activity, they don't care about the weight, they just care about selection. But when it comes to the system, that would need to be modelled, that- of course. But those are basically physics, those are, I mean-	**[71 resource (AS1)]** Traffic simulator has resource "physics library" **[72 task (AS2)]** Traffic simulator has task "compute car movement" **[73 contribution (AS8)]** "car database" contributes to "render cars" **[74 contribution (AS8)]** "physics library" contributes to "render cars"
0:52:48.0 PERSON 1	Right	
0:52:48.0 PERSON 3	Those are gravitational laws and stuff that have to be applied to different types of [inaudible]	
0:52:53.8 PERSON 1	Then you should specify truck, big truck.	
0:52:57.1 PERSON 3	Yeah like-	
0:52:57.8 PERSON 1	[inaudible]	
0:52:58.6	Vehicles specification, I think that tells enough, and maybe	

PERSON 3	we can explain it as in, it's either a list or an option needed, it's a big truck, small truck, it's personal vehicle, I think that satisfies it. Maybe also restriction, we can just write- can you maybe just take a note of this. That's the vehicle spec, vehicle spec should adhere to like, gravitational laws, the laws of mass and shit like that- oh sorry. The things like that, that makes them- I just hope they don't get angry with my language. Ok so-	
0:53:39.0 PERSON 1	They need to anonymize you, they don't know that you did this	
0:53:42.0 PERSON 3	Well, yeah they kind of know our group, yeah, they kind of do	
0:53:45.2 PERSON 2	You can say fuck	
0:53:47.5 PERSON 1	[inaudible]	
0:53:51.0 PERSON 3	Ok. Broadly the tool should be easy to use and should encourage students to explore multiple alternative approaches. So this also supports our theory of different vehicles, different-	**[75 softgoal (AS4)]** Traffic simulator has softgoal "easy to use" **[76 softgoal (AS4)]** Traffic simulator has softgoal "allow student to explore multiple alternatives" **[77 contribution (AS6)]** Task "Set road characteristics" contributes to softgoal "Allow student to explore multiple alternatives
0:54:05.0 PERSON 1	Types of roads, the speed of the-	

0:54:08.7 PERSON 3	Exactly	
0:54:09.5 PERSON 1	Stuff like that ok	
0:54:10.4 PERSON 2	What is easy	
0:54:12.4 PERSON 3	Yeah well, to be honest, options. Options are easy	
0:54:15.1 PERSON 1	Just a-	
0:54:15.8 PERSON 3	And a few [inaudible] lists	
0:54:17.0 PERSON 1	Yeah that's easy	
0:54:18.1 PERSON 2	If you have [inaudible] options, that's not easy	
0:54:20.0 PERSON 3	Yeah but, if they have a vehicle	
0:54:23.4 PERSON 1	If you just want to see a road visualization simulation	
0:54:29.4 PERSON 3	Yeah	
0:54:29.7 PERSON 1	And you have to choose three [inaudible]	
0:54:36.5 PERSON 3	No it's not the fact that you need to choose between hundred types of trucks, you've got ten different vehicles, some speed, and you can still, for example, press ok without	

	choosing any and it just goes to default. That might also be a restriction that we, kind of come up with is the fact that the user should not be limited to specifying all the characteristics of the simulation. The simulation should have a default option. Which is, for example, if they don't want to select their- there's a-	
0:55:02.4 PERSON 1	Yeah but just-	
0:55:04.0 PERSON 3	Just want to see the traffic flow, and in the beginning	
0:55:05.7 PERSON 1	Yeah, [inaudible] important intersection and one speed yeah	
0:55:08.9 PERSON 3	Yeah exactly	
0:55:10.0 PERSON 1	That's right	
0:55:10.1 PERSON 3	But I think that you should write that down as well. So the simulation-	
0:55:14.2 PERSON 1	Systematic default option	
0:55:16.3 PERSON 3	Yeah	
0:55:17.0 PERSON 1	Simulation options, user can specify	
0:55:21.6 PERSON 3	Yeah so it is possible, but it's not a must because that restricts the user. And if, for example, they forget to click something and they get an error, you fucked up this, they	

	will be inclined not to-	
0:55:33.3 PERSON 2	Yeah	
0:55:33.3 PERSON 3	Well- he's so enthusiastic about it	
0:55:35.5 PERSON 2	That's right, so it's the ease of use of the system	
0:55:37.3 PERSON 3	Yeah	
0:55:39.0 PERSON 2	I agree	
0:55:39.7 PERSON 3	Broadly the tool, ok blablabla, students should be able to observe any problems with their map, timing schemes, alter it and see the results of their changes on the traffic patterns	
0:55:49.9 PERSON 1	Yeah	
0:55:50.3 PERSON 3	This is also important- the simulation	
0:55:54.1 PERSON 1	If you add some activities on- and you loop it, then that's the requirement here done.	
0:56:03.6 PERSON 3	Yeah but my concern is that, when you have, for example, you specify a [inaudible] change timing, and you do the visualization. Visualization runs, it doesn't matter what you specify. And everything can crack, for example, although we've specified it's not allowed, but in some cases it might because of some strange, I don't know, combination of vehicles or whatever. And they should be able to see	

	potential problems on this visualization, so there could be like a window, for potential problems, and it could just be intersection, six, I don't know, the timing is incorrect. Or something. It's like a warning	
0:56:40.7 PERSON 1	When you [inaudible] modeller	
0:56:44.8 PERSON 3	Yeah	
0:56:45.1 PERSON 1	If you make a process and you want to execute it, you get a dropdown menu when- well this is wrong and what you have to change. That's [inaudible]	
0:56:55.5 PERSON 3	Yeah yeah yeah. Exactly something like that. And maybe also, although we set the traffic light behaviour in the previous step, which is creating the map itself, the visualization should, I guess, support the option of going backwards and altering it. Because, maybe not within the visualization because that would just be the player, but maybe before specifying like, when do you specify the characteristics of the car? Like the weight and stuff? There could be an option to reset the behaviour of lights, or just maybe a link to the map and they can alter it. If they didn't select the good one or something. You don't follow me do you	
0:57:45.6 PERSON 1	No no, the last part I didn't	
0:57:48.2 PERSON 3	When, for example, you go step 1, you create a map, you select all the behaviours, you basically update the colours of	

	the lights, then you go to visualization. And you realize that your combination for some reason doesn't-	
0:58:01.0 PERSON 1	All the traffic stops at the intersection	
0:58:02.0 PERSON 3	Yeah	
0:58:02.6 PERSON 1	Yeah	
0:58:02.6 PERSON 3	And your intersection lights are not working, so from here you need to have a clear option, the user-	
0:58:09.1 PERSON 1	Yeah	
0:58:09.6 PERSON 3	To change this without going back to this step. I think.	
0:58:14.0 PERSON 1	Well you would need the system to have, like, to have a basic understand of which of the options causes this-	
0:58:19.0 PERSON 3	Yeah	
0:58:20.1 PERSON 1	This traffic stop, at this intersection-	
0:58:22.0 PERSON 3	True	
0:58:23.5 PERSON 2	But that's for functionality, you have to have a more algorithm that's- can be created	
0:58:27.8 PERSON 3	Yes, but it should still somehow need to how-	
0:58:31.3	Display visually	

PERSON 1		
0:58:32.0 PERSON 3	Yeah yeah, so they can change it basically because that's gonna be the- would be the main usages. Create something, simulate it and then go back and change it. Change it and visualize it	
0:58:43.3 PERSON 1	Then you have all the options of editing, creating or setting up a light or car or intersection. That should all be graphical, in a graphical interface.	
0:58:59.0 PERSON 3	Yes	
0:58:59.2 PERSON 1	So you can edit it directly when it's wrong.	
0:59:03.2 PERSON 3	Yeah basically yeah, so this would all, all of this, I guess, would be in a graphical user interface as well	
0:59:09.2 PERSON 2	In every activity, that's on the paper, there should always be a link or trajection to a process that's always checking if it's correctly or not	**[78 task (AS2)]** Simulator has task "Validate input" **[79 dependency (AS??)]** "Validate input" of simulator depends on "Set road characteristics of Student.
0:59:24.3 PERSON 3	No, maybe, yeah ok. We can have a validator now	
0:59:31.1 PERSON 1	That might- validator- do you want a validator that's validating at the end of view- I'm not with- creating an intersection, can you validate?	
0:59:40.8 PERSON 3	Yeah	
0:59:40.8 PERSON 1	Or do you want to validate that- validate after each step you're doing. So creating an intersection, changing the speed and the timing on the traffic lights	

0:59:54.9 PERSON 3	I would say validate needs to be present at all times because, for example, if we have a lot of inputs for like, the mass and speed	
1:00:02.2 PERSON 1	Yeah	
1:00:02.8 PERSON 3	People will apeshit and they will for example say, I'll have a motorcycle which ways one gram and goes-	
1:00:11.7 PERSON 1	Ten thousand kilometres	
1:00:11.4 PERSON 3	Yeah yeah exactly. And then you have a problem solve validator would be good. Also this would help with all the constraints that we have, with like, the different intersections- you could immediately check if the intersection was a proper cross, or was it a T, was it this, was it different pattern, was it something else. So, a validator, I guess, on every single step. Yeah I think that's- and we can model this. We don't have to model what it actually validates but it's- we can explain it	
1:00:44.4 PERSON 2	Is there, for example, do you have a database on a game like need for speed. For example-	
1:00:54.8 PERSON 1	Yeah	
1:00:55.1 PERSON 2	There are in the database- in the car database there are the setup of all cars and how much they weigh, how big they are-	
1:01:06.2 PERSON 3	Yeah	

1:01:06.7 PERSON 2	Isn’t there any [inaudible] database of [inaudible] where you can link it to this software. And that’s the validator of cars	
1:01:17.1 PERSON 3	That is- yes but still, I would go with validator as being an external entity-	
1:01:22.4 PERSON 1	Yeah	
1:01:22.8 PERSON 3	A very good because-	
1:01:23.1 PERSON 1	[inaudible’]	
1:01:24.0 PERSON 3	Yeah, but also for example, here we have the system, and this- and we would connect this to the database as you said, that’s a very good idea actually. Because there’s a lot of data on the vehicles	[80 contribution (AS8)] Resource "Mathematics library" contributes to "Validate input" [81 contribution (AS8)] Resource "Physics library" contributes to "Validate input"
1:01:37.4 PERSON 1	Vehicle data	
1:01:38.5 PERSON 3	So this would be vehicle-	
1:01:41.0 PERSON 1	Also -	
1:01:42.1 PERSON 3	Data?	
1:01:42.6 PERSON 1	Basic physics laws, could also be external	
1:01:45.7 PERSON 3	Math yeah, maybe a-	
1:01:46.4	Math and physics laws	

PERSON 1		
1:01:48.9 PERSON 2	Traffic law	
1:01:50.9 PERSON 3	Physics? And also we would validate it, that would be the validator, which would be externally. Validator. And traffic laws?	
1:02:03.8 PERSON 1	You mean that cars stop at a stop sign? [inaudible]	
1:02:05.7 PERSON 3	There's no stop signs, so we don't need-	
1:02:08.8 PERSON 2	I would have just traffic lights, you have to stop at a red sign or the maximum-	
1:02:13.6 PERSON 1	Basic traffic laws	
1:02:14.7 PERSON 3	The validator could have that data as well, or no?	
1:02:18.0 PERSON 1	Yeah	
1:02:18.4 PERSON 3	That no-but	
1:02:19.7 PERSON 2	Validator, you can have a validator rule engine that checks the laws on maximum speed	
1:02:28.5 PERSON 3	But you still need to get the laws into the system before you can validate them. So validator would be external, that would mean, yeah external, but it wouldn't have all the old data. It would just get the data from different external entities-	

1:02:40.8 PERSON 1	Yeah yeah	
1:02:40.8 PERSON 3	And process that data	
1:02:42.2 PERSON 1	Validator functionality is internal	
1:02:44.3 PERSON 2	Yeah	
1:02:44.7 PERSON 3	Yeah we don't need- no we don't need to really- yes	
1:02:47.2 PERSON 1	That just [inaudible] validator	
1:02:49.4 PERSON 3	Yeah ok, so that wouldn't come into context view then, because it's internal. It's part of the system	
1:02:55.3 PERSON 1	Well the information would be gathered externally	
1:02:59.5 PERSON 2	Yeah	
1:03:00.2 PERSON 1	Wouldn't it?	
1:03:00.5 PERSON 3	Yeah but that would be done by the-	
1:03:03.0 PERSON 1	That's still a part of the context view	
1:03:08.0 PERSON 3	How do you model it because then you can only model it as a-	
1:03:10.2	Yeah, but that's fine	

PERSON 1		
1:03:11.3 PERSON 3	Internal?	
1:03:11.8 PERSON 1	Yeah	
1:03:12.2 PERSON 3	So you would	
1:03:12.8 PERSON 1	Just to the TS	
1:03:14.8 PERSON 3	Inside the TS?	
1:03:16.2 PERSON 1	To the TS	
1:03:17.0 PERSON 2	To, outside the UCI	
1:03:19.6 PERSON 1	Right	
1:03:19.9 PERSON 2	Outside. Validator is external here	
1:03:23.1 PERSON 3	No no, it's internal. Validator would be internal as part of the simulation	
1:03:26.6 PERSON 2	Yeah ok, yeah yeah, you can model the validator	
1:03:30.7 PERSON 3	So you do here for example	
1:03:32.4 PERSON 2	Yeah	

1:03:32.8 PERSON 3	Really?	
1:03:33.4 PERSON 2	Yeah ok. That's to the TS yeah. But the data of the validator comes outside the UCI	
1:03:40.0 PERSON 2	But the validator itself is inside the TS, isn't it?	
1:03:41.8 PERSON 3	Yeah exactly, that's my point. Validator is part of the TS, the TS gets all the data-	
1:03:47.3 PERSON 2	Ok	
1:03:47.3 PERSON 3	And then this-	
1:03:48.4 PERSON 2	Ok fine	
1:03:48.4 PERSON 3	Function here would be the validator, which process all the data and-	
1:03:52.4 PERSON 1	I would agree	
1:03:52.9 PERSON 3	Makes a decision	
1:03:53.7 PERSON 1	Right, but you would still need to model, like, the external information that's going to the TS	
1:03:58.8 PERSON 3	That's vehicle data? The math and physics	
1:04:00.9 PERSON 1	Traffic law	
1:04:02.3	Ok maybe traffic law	

PERSON 3		
1:04:02.4 PERSON 1	Basic	
1:04:02.8 PERSON 3	Ok traffic law	
1:04:04.2 PERSON 1	Basic traffic law information, that car stops at a red car sign	
1:04:08.0 PERSON 3	Traffic-	
1:04:08.9 PERSON 1	You know, stuff like that	
1:04:09.3 PERSON 3	Laws and-	
1:04:12.1 PERSON 1	That the maximum speed of that road	
1:04:13.2 PERSON 3	We call it a CPP	
1:04:15.3 PERSON 2	Do you have traffic laws in Slovenia	
1:04:17.2 PERSON 3	No we drive on communist laws	
1:04:21.0 PERSON 1	Basically, as long as you're driving you're good	
1:04:23.5 PERSON 2	If you have a five year plan, it's good	
1:04:27.7 PERSON 1	Right	

1:04:27.7 PERSON 3	If you have a life insurance, then you're all good	
1:04:32.1 PERSON 2	Let's work through this last part and then we can start modelling	
1:04:34.7 PERSON 3	Then we can have a break	
1:04:35.5 PERSON 2	And then we can have a break and-	
1:04:36.4 PERSON 3	We can have a break. Ok	
1:04:38.3 PERSON 1	Five minutes break	
1:04:40.6 PERSON 3	We take fifteen, no I'm kidding, we take two minutes only. They're kidding	
1:04:45.6 PERSON 1	Haha	
1:04:48.0 PERSON 3	Alter and see the results of the change in traffic, that would be done by the validator. The problem is not meant to be an exact scientific simulation, but aims to simply illustrate the basic effects of traffic signal timing has on traffic.	
1:04:59.5 PERSON 2	Yes [inaudible]	
1:05:00.7 PERSON 3	If you wish you may assume that you will be able to reuse the existing software package. Ok so that's- we don't need	
1:05:05.5 PERSON 1	Yeah good	
1:05:06.9	You may add additional features and support. Ok.	

PERSON 3		