

Transcript of the second expert interview

The interview was conducted on 9.2.2023 from 16:00-17:00. Participants were two experts (E1 and E2), two supervisors (B1 and B2) and one interviewer (IL).

This is a transcript of the audio recording of the interview, which will be made available to all participants of the interview. The conditions from the previously signed consent form apply to the transcript. This transcript has been anonymized.

For better understanding the interview content screenshots of the prototype are inserted when mentioned.

This interview was originally conducted in German. Unnatural English formulations can be attributed to that fact.

IL: Yes, I have your permission. Thank you very much for being back, even though Expert 3 unfortunately couldn't make it today. But never mind, I still have both of you. I'd now like to explain to you roughly what we're doing today. Based on the from a few months ago, I've created requirements. In other words, what needs to be done. After that I started programming. We also proceeded iteratively, i.e. we discarded stuff and re-built things if they didn't fit. didn't fit. And that's what I would like to present to you today. Today we still do it in such a way that you don't try out the program yourself, because you need a bit of training for that. However, I am going to demonstrate it first and show you everything that currently exists. You can give feedback to all the things I show you. Feel free to interrupt me. And two more disclaimers: The first: It's not quite finished yet. You are supposed to give feedback, which may then be incorporated. Errors can still happen. Hopefully I'll be able to fix them later on. And even if this is for my bachelor's thesis and I'm theoretically also being graded, feel free to give honest feedback. You're not ruining anything for me. So rather give more feedback than too little. Basically, you already knew the prototype from supervisor 1. I don't even know if you actively used it. Supervisor 1 had built this viewer with which you could look at the patterns. I built all things on top of that. I think you can see that quickly. The components and the view of the patterns are still the same. We now have many functions to analyze and change them. I would start to introduce them. Basically, it's like this for now: since either you or the dancers use the program and since the dancers only look at it and you potentially change it, there are two modes. There is an edit mode and a view mode. And this can be controlled via this button here.



Fig. 1: Button for switching between view and edit mode.

Initially, this view mode is active, in which you cannot make any changes. We will now switch to edit mode. We basically have five to six components. One is the view of the pattern, the other are the so-called Accordions, where more information about the patterns is contained. We will take a look at them later on.

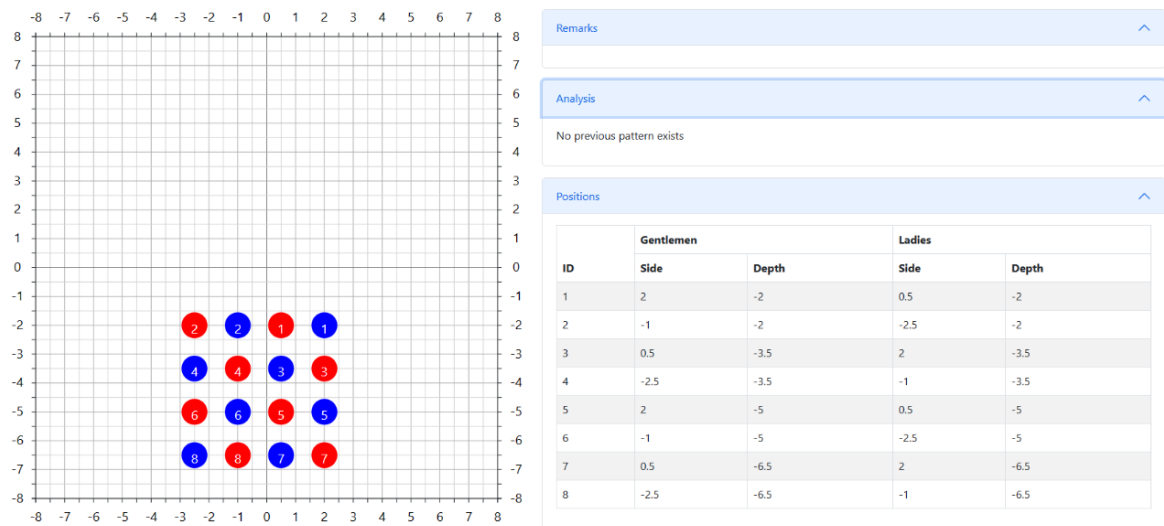


Fig. 2: Pattern visualization (left) and accordions (right).

Then I use the toolbar here on the left to switch different modes on and off.

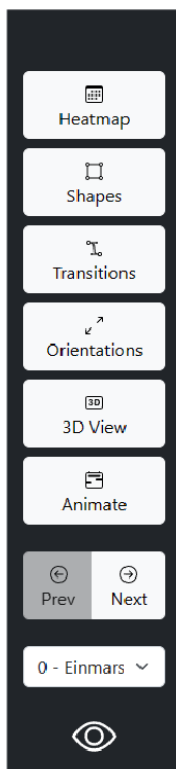


Fig. 3: Vertical toolbar for switching the various modes on and off.

And here at the top is a navigation bar from programs like Word, where you can load and save things and also change settings.



Fig. 4: Navigation bar for saving and loading the choreography and other functions such as rotating the pattern, switching between view and edit mode and opening the settings.

And at the bottom of the screen is the timeline, where you can see where the patterns appear during the music.



Fig. 5: Timeline, in which the temporal ordination of the pattern (bar and beat) is visualized.

I would start by explaining the area in which the pattern is visualized. We have 16 dancers. This is the Crazy Fire choreography. I don't think you performed that when I visited you...

E2: Yes, it's the same.

IL: Then you even danced it. We will make at all the examples today with this choreography. If you want to change this pattern here, you could do it by simply taking a dancer and moving them with drag-and-drop.

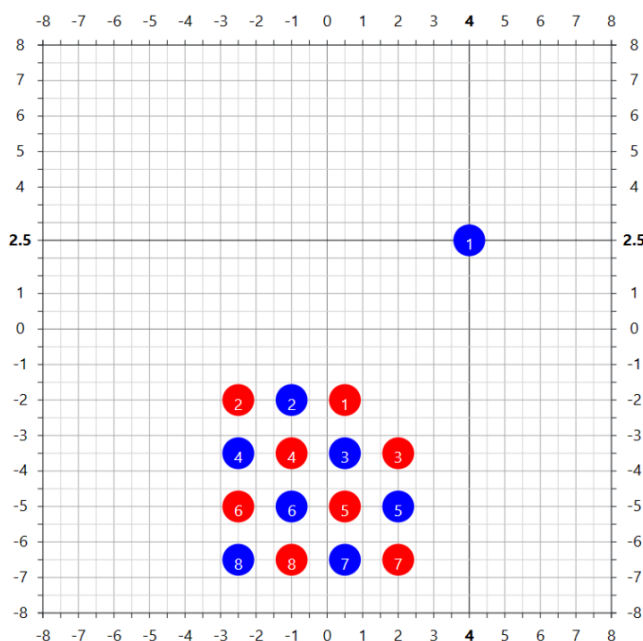


Fig. 6: Drag-and-drop. The gentleman with the id 1 is dragged to position (4, 2.5).

You can select several and then move them around in one block. You can also scale that block relative to the center of the dancefloor. Now first of all to these basic functions "Move" and "Scale". What do you think about them?

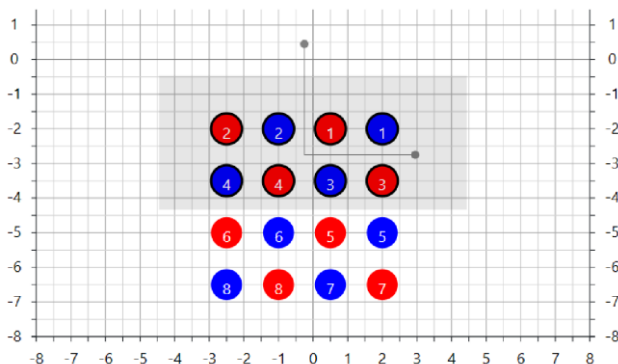


Fig. 7: Multiple selection via brush. In the example, the dancers with the numbers 1,2,3 and 4 are selected. An element is displayed with which the group can be scaled horizontally and vertically.

E2: In any case, it's much easier than it used to be, and I think it's good because it can also be done evenly. The fact that it scales them evenly and you don't have to take each one individually. I think that's good.

IL: Okay.

E1: I think that's good. I have one more question. I don't know if I haven't seen it yet. If I move a dancer, is it then displayed that I am lined up with someone else, e.g. with a dotted line? So, if I drag an image in PowerPoint, for example, it shows me that it is in line with another image. Is this function available? I don't know if I haven't seen it.

IL: Currently it is like this. These two lines, where you stand on the dance floor ... when you move, the line moves with you, but it doesn't show whether the dancer is in line with another one.

E2: But that is fine, you can always see the x- and y-axis.

IL: So, you would also say: That's enough.

E2: Yes, that's all right.

IL: I also had a question about the scaling tool that I showed, because we weren't sure about that either. At the moment, if I scale vertically, it takes all of them and scales the structure in relation to the center. This means that the distance between the man and woman with the number 2 always remains the same. Would you prefer it that way or would you like it the distance between the dancers to always increases evenly.

E2: I think we need it so that everything increases evenly. Because when we stand individually, we normally always stand at the same distance from each other. That's why I think it makes more sense if it scales evenly.

IL: Okay. Because we weren't sure about that either. That's why we've included it here. In the prototype of supervisor 1 there was this ... and you also have this in your choreographies from time to time that you can "join" the dancers, i.e. man and woman, with the same number dance together. Previously, it was always hard-coded. Now you can select this menu by right-clicking on a dancer. It says "Join". Then they are joined. In this case, a dark purple has been selected as the color, which you can't see quite so well here, but we'll get to that in a moment. You can change colors if you want. And you can also move them together. You can also cancel the "join" again, which means that you separate them again.

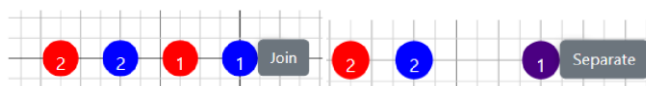


Fig. 8: By right-clicking on a dancer (here gentleman 1), you can "join" them (left) and "split" them (right).

E2: Does this also work if I right-click on the woman, so on the red one. Will both work?

IL: Yes, it doesn't matter who you click on.

E2: Okay. Very good.

IL: We also wanted to know: Are there patterns in which some couples dance together and some others are separated or is it uniform in a pattern?

E2: Let me put it this way: We don't have any.

E1: We don't have one yet, but it's a current trend for couples to dance together and individually the same pattern. Perhaps we will use it next season.

E2: The function makes sense, so that you can do this individually and that not the entire team is “joined”.

IL: Ok. Of course, you can change the selected pattern. So right now, we are looking at the first pattern in the choreography. Either via Next and Previous, as in supervisor 1 program, or via the selection you can change that.

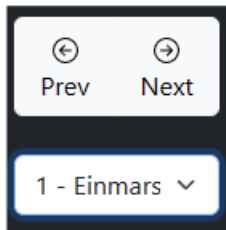


Fig. 9: Buttons to switch to the previous or next pattern. Alternatively, you can use the list below.

E2: Another function that would be nice is to join everyone. So that I don't always have to "join" individual pairs, but that I can "join" or “separate” them all. So that I don't have to do this individually.

IL: Yes, that's a good idea.

E1: That would rather be the idea of an intermediate pattern.

E2: Yes, it doesn't matter which pattern I use. I just don't want to go from 16 individual dancers into eight pairs, so when I merge the pairs, I don't want to right-click on all eight pairs and "join" them. It would just be an idea to add that.

IL: What you will use this function for is something that you are welcome to discuss during training. But you can definitely incorporate it. What else can be done, is that the color of the dancers can be changed. The standard colors here are red, blue and purple. Do you have any preferred colors that you would like me to set as default? Perhaps colors that are based on the dancers' clothing?

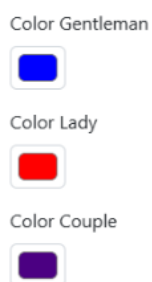


Fig. 10: The colors of the dancers in the visualization can be changed as desired using these three color-selectors.

E2: I would have made the men black.

E1: Just the basic colors and black and white, but nothing out of the ordinary. We don't know what colors we'll be wearing next year.

IL: Ok. You could of course still set it yourself.

E2: That's all right.

IL: Ok. Then you can also change the resolution of the underlying grid. You had the idea last time that it could be made dynamic. We have now done it in the intermediate steps of 1 meter and 0.5 meters, because you said that a resolution below 0.5 meters is virtually impossible to perform. Would you also say: That is fine. Or should a slightly larger grid be added?

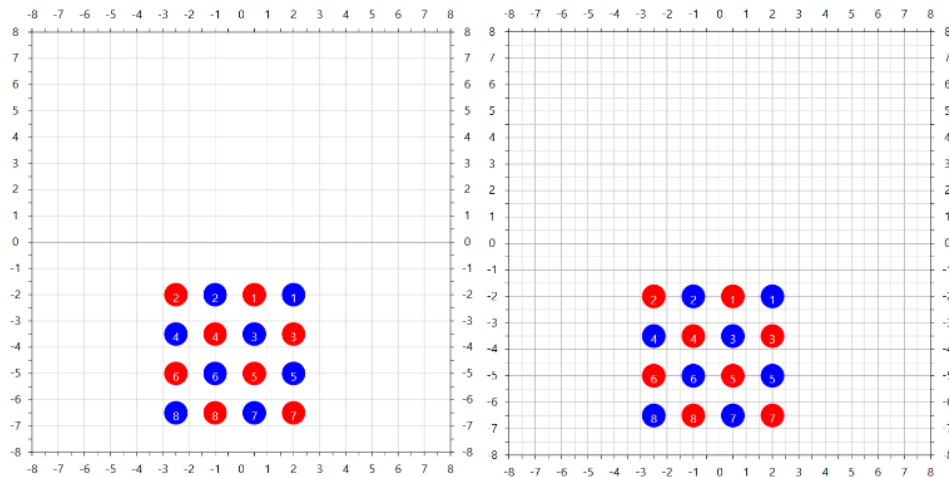


Fig. 11: Comparison of different grid resolutions. On the left the resolution is 1 meter and 0.5 meters on the right.

E2: No, that's fine.

E1: 1 and 0.5 meters are good.

IL: The next big topic we discussed was the alignment of the dancers. In other words, head and body direction. There is now a separate mode for this, called the orientation mode, where the body direction and the direction of the head is encoded. We can select a few dancers and change that. Then you can see it again here a bit larger. The body direction is encoded via a dark semicircle and the looking direction via the straight black line. We tried something that is also clearly visible on smartphones, and that worked best. Would you say that's clear enough, also for your dancers?

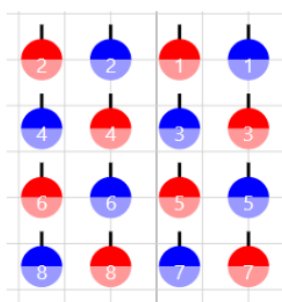


Fig. 12: Orientation mode is activated. The darker semicircle visualizes the orientation of the body and the black straight line the orientation of the head.

E1: Yes, definitely. I also think it's very good. And I can also move the head direction a little to the to the right?

E2: Yes, you can turn it around, I guess.

IL: Exactly. We can rotate the body a little here and the head too. At the moment, the head can only move within a 180-degree field of view, i.e. maximum like this. Should I limit it even more or do you think it can go further?

E2: What kind of steps do you currently have? 90-degree or 45-degree steps?

IL: These are currently 45-degree increments.

E2: Okay. That's all right. We always align our body or head diagonally or to the side or back. That's why 45 degrees is fine.

IL: Okay. Perfect.

E1: We have never looked behind.

E2: We all still have our heads on our shoulders.

E1: Really good, yes.

E2: Very good.

IL: Okay. Perfect. You can then ... we call it a brush, it's simply a selection tool ... mark several dancers, select one of them and change his or her rotations and this will be copied to all selected dancers. Since we selected a woman, for all women. Or just apply it to the selected dancer. I'll do it for all the women. At least that was often the case in your choreography, that men and women dance relatively different, so that's why it was included. Do you have any comments on that function?



Fig. 13: Menu to change the orientation of the dancers. In this case, the body and the head were rotated 90 degrees to the right. Eight dancers were selected with the brush and the menu was opened by clicking on dancer 2.

E1: No. Not really. I just have the idea that there could be a lot more patterns because you could take the same pattern every time and then, whenever a head rotation changes, you create a new pattern.

E2: In theory, yes.

IL: So, it would be...

E1: So that's fine.

IL: Next up: I really need your honest opinion. We were very unsure. This is the mode we called "Shapes", i.e. geometric shapes. I asked you last time what is contained in a pattern, e.g. diamonds, diagonals, lines or rectangles. And that's what your dancers should ideally adhere to. That's why we thought it would be useful to explicitly emphasize the shapes in a pattern. The current state is that you can use the selection tool to select a number of dancers and then it calculates the appropriate shape. The shape that is calculated here is called a convex hull. It means: All dancers that are on the outside are connected to each other. Of course, not all things are possible here. For example, I assume that the men are dancing a kind of arrow. It might be something like that. And you can't emphasize that yet. You could only highlight individual rhombuses or the entire structure as a rhombus. You can also delete it again if you want to. My 2 questions now would be: Do you think the feature could be helpful for the dancers and secondly, if so: Would this selection be enough or would we need to refine it, that structures like the one here, which the men dance, can also be highlighted.

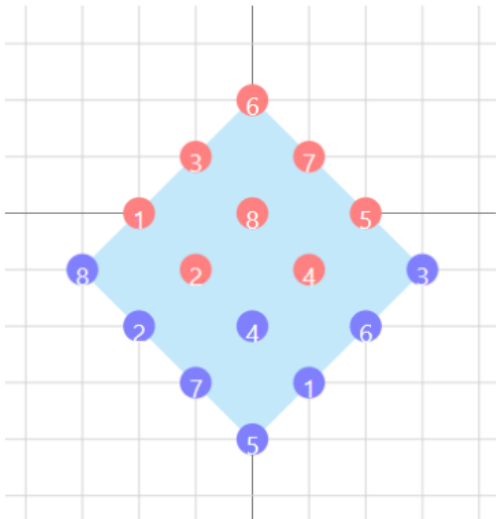


Fig. 14: All dancers in the pattern were selected with the brush. The resulting convex hull is drawn in light blue. It is not possible to select only the men and draw a concise shape for their part.

E1: They need to know who's standing next to them, who's standing behind them, but I don't know if this is helpful. Do you know what I mean?

E2: Yes, let me put it this way: if you look at the thing on your cell phone or PC, you can usually recognize the shape from the outside. The only thing that would interest me: We have a pattern in the Rumba, the bird, how that would be represented. It should be in there somewhere. That's the first rumba. A little further. A little further. Here. Because that's just difficult to represent as a shape. That's the only thing, where I would say: The pattern might be interesting as a whole. All the others are self-evident ... that if you have 2 diamonds, that there are 2 diamonds. So, if you look at it ... I don't think it would bring any great benefit.

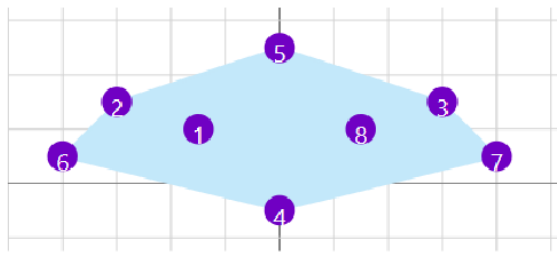


Fig. 15: Pattern that represents a bird.

IL: Ok. Would you say that it might be useful for such patterns if you can select the dancers in the row dancers in a row and draw the bird into the pattern?

E2: You mean like these pictures where I connect the numbers?

IL: Something like that, exactly.

E2: Difficult.

IL: Ok. I would say that since it is not wanted so urgently...

E2: No. I don't see any great gain. I also wouldn't know whether it could help me. I'd just be interested to see what the thing would produce when you select the choose the dancers.

IL: At the moment it would look like this.

E2: Yes, it's always just the outermost ones.

IL: What you could still do, in theory, would be to select individual structures here. But I don't know if that would help.

E2: I don't think it really helps.

IL: Okay. The next mode we have is called "Transitions". I had written down pattern 49. You can see it in here quite nicely.

E2: You still have the very old version.

IL: I asked last time what it was like: I had always displayed the next pattern and you said it had to be the last one. And this is now the last one. Here are the transitions. The transitions from the last one, the one that is less highlighted, to the next pattern are marked as straight lines. And the dancers' path across time is encoded via a of color gradient. The idea behind it: You want to use it to recognize collisions, i.e. that the dancers do not collide with each other. The idea is that when lines intersect and have the same color, then the dancers meet at approximately the same time. In this case, you can see that here: There, both lines are slightly dark red. I hope you can see that. The lighting conditions here are a bit difficult. But yes, that could potentially be a conflict.

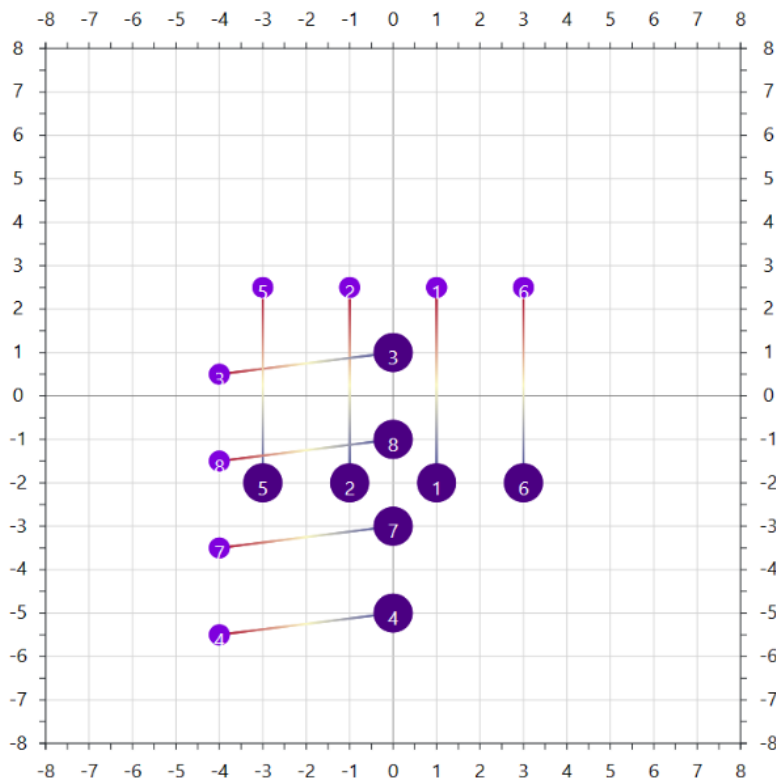


Fig. 16: Representation of the transitions from pattern 48 to pattern 49 encoded by a color gradient. Straight line crossings with similar colors indicate a collision of dancers.

E2: Could you theoretically change the color, so that you can say with the color: You cover the path differently to the one coming from above. For example: the dancers, who walk from left to right. If I were to turn it from blue to red. Would that mean that you start off slower and then faster and those from red to blue first run faster and then slow down. Do you know what I mean?

IL: Yes, so that the speed changes. At the moment we assume, because otherwise it would be very complicated, that everyone moves with the same speed. The only place where the speed could potentially be displayed is the timeline down here, which we haven't even talked about yet. So here we are in pattern 49 and this transition can now be edited. You could say that a kind of keyframe comes in and you change it. If you say that they should move from left to right very slowly, then they have covered little distance here. That would be one possibility. Do you think that is enough?

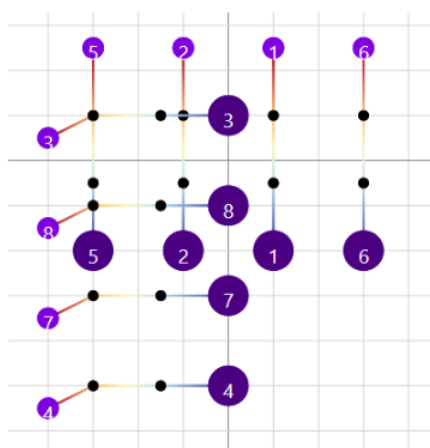


Fig. 17: Representation of transitions when two intermediate patterns are inserted in the timeline.

E2: That will be enough. Yes. Can I also display the timeline afterwards as a viewer or is it only possible as an editor?

IL: So, if we now go into view mode, then all the dots are just gone. This means that you can see the transition even more clearly. But the color coding is still there.

E2: No, that's good. That's exactly what we need in this case.

E1: I also think it's nice that you can see that: There's a bang. We have to be careful. As a coach you can do a bit of preparatory work.

E2: Then you can do the pattern development.

IL: Would you also like a function that shows you to all possible collisions or do you do you think it would be enough if you could see it yourself?

E1: That's good enough.

IL: You can also look at these patterns here in smaller version if you hover over them in the timeline and you can also move them, i.e. adjust the beat and the bar. At the moment, because you said last time that we don't need more than eighth notes, it is divided into bars with eight beats. I've just done that here, because I didn't have the data, I just entered random values. You can also delete a pattern completely. Supervisor 1 told me that this happens a lot. You are also warned again here.

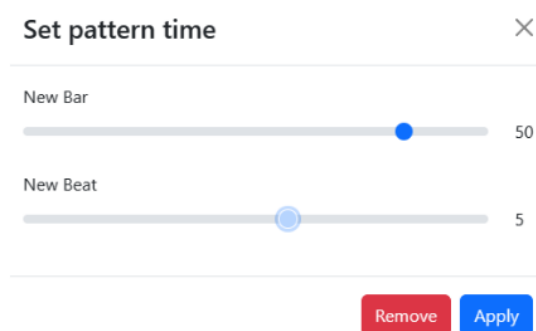


Fig. 18: Pattern 49 is placed on beat 5 in bar 50. Alternatively, you could also delete it (Remove button).

E2: That's only when I create patterns and there are too many intermediate patterns.

E1: But with this program I might become a fan of intermediate patterns, let's see.

IL: We can still find that out. At our third appointment, we'll do a kind of evaluation, where you can hopefully try out the program yourself to see if it is really usable. Do you have any comments or questions up to this point?

E2: Question about the ... You have just moved the individual point. This means that I can theoretically also create curves that a single person dances.

IL: Exactly. Let's make a slightly longer transition. I'll put two of these intermediate patterns. Then you can't create a complete curve here ...

E2: Yes, exactly. That he runs through individual points. That's very good.

IL: Would you say it works with the straight lines or do you want real curves?

E2: No, we don't need a curve. We just have to say: At a certain beat you are at this point for a very short time and then you move on to the next point. So that the dancer sees: How is my path to be danced? It doesn't matter whether it's a straight line or a curve. He will normally never meet the point 100 percent, but he has a good orientation as to how he has to move visually, so that it is a clean development. I think that's quite good enough.

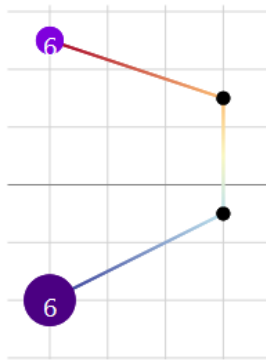


Fig. 19: Transition in Figure 49, which is made up of connected straight lines.

IL: Okay. About the colors I have chosen here. Do you think it is fine like this, i.e. from red to blue? Or would you like a different color scheme?

E2: Now the question is whether it is misleading if it is the individual dancers afterwards.

IL: What exactly do you mean?

E2: We have the individual dancers. The man in blue and the woman in red. Whether that is misleading because it goes from red to. I don't know whether it will be misleading afterwards. I have no idea. I can't tell you. But in principle, the fact that it's such a transition is very good. Maybe you also have the option to adjust it individually.

IL: Okay.

E2: Would be an idea.

IL: So far, we have made sure to use a color scheme that colorblind people can use, but we could offer a palette of color schemes. That would be possible. Let's move on. So far, we've only dealt with this area here on the left. We also have the area on the right, these three accordions. You can save remarks here. Whatever you want, and they're saved. And if you click on them again, you can edit them as you wish. Not everything can be visualized. Text, I think, is still helpful. Then there's the Analysis tab at the bottom where you can see the movement distance of the dancers between patterns. I can now select dancer 6 here and then you can see here, this is now man and woman, that both have walked 6.4 meters between the patterns.

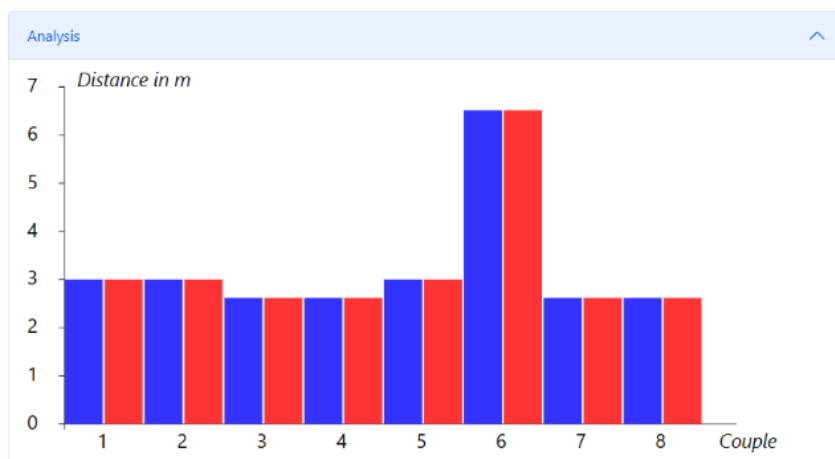


Fig. 20: Bar chart showing the path length of all dancers between patterns 48 and 49.

E1: That's good. You can see who has the longest routes.

E2: Who can grumble and who can't. No, it's fine.

IL: Later on, there is also a mode in which the entire choreography is analyzed, and the distances are added up. In your case, dancer 6 is unfortunately the one who has to move the most with 142 meters.

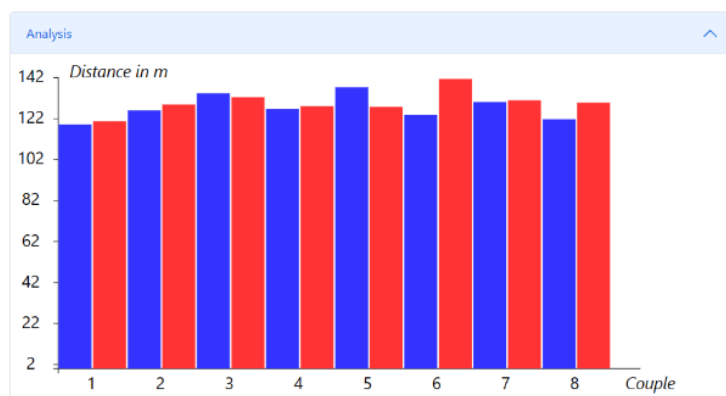


Fig. 21: Bar chart showing the path length of all dancers, totaled over all pattern transitions.

E2: Good. But that also includes the pattern change.

IL: You have to admit it. It's relatively fair. Okay. Do you have any suggestions or comments on what could be improved?

E2: No. I think that's already a leap upwards from what we have now. Once we're used to it, we'll come up with the next ideas.

IL: Ok. If you want, you can also get the positions as numeric values in this table here, in case anything is unclear.

Positions				
ID	Gentlemen		Ladies	
	Side	Depth	Side	Depth
1	1	-2	1	-2
2	-1	-2	-1	-2
3	0	1	0	1
4	0	-5	0	-5
5	-3	-2	-3	-2
6	3	-2	3	-2
7	0	-3	0	-3
8	0	-1	0	-1

Fig. 22: Table in which the positions of all dancers are shown.

E2: Yes, that's good.

IL: I have just been in this area. The button still says "Heatmap" on it, but it will probably be renamed to "General analysis" or something similar, where the analysis of the routes is also included. And one of my concerns was to take a look on how much do you actually use the dance floor? Here it is now visualized as a discrete heat map. It calculates for every 0.5-meter step on the dance floor, how often people stood on it during the choreography. It goes through all the patterns and counts the frequency. In this case, most people stood on the positions somewhere s -1 and -1, i.e. 12 times. You also have the option to change this to a continuous heatmap. This takes a short time for the calculation. Here you can see that in both areas, dancers are particularly often during the choreography and that the outer areas have been left relatively empty.

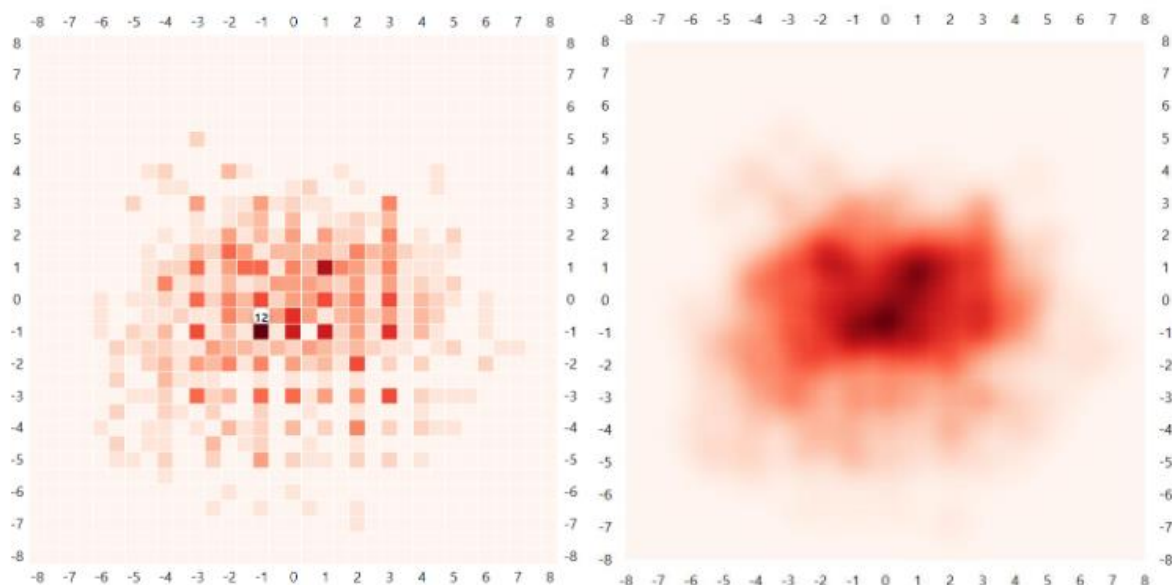


Fig. 23: Discrete heat map (left) and continuous heat map (right).

E2: I.e. the second function also tells me when people walk over this point and the first function only if points are defined on it? Have I understood that correctly?

IL: No. Not really. In both, it only counts if dancers were standing on it during in patterns.

E2: Ok. So, if the point is indicated on it, then it is displayed there.

IL: In theory, do you want it to be the same when people move over it?

E2: No. That was just my question, so that I know ... So, for us it is only important that if a point is defined on it, that it is also counted in there. Because running over it doesn't actually have much significance. I just wanted to know whether it is counted in the middle or not.

IL: It's just a different view, which honestly was mainly motivated by supervisor 1 as he found it more beautiful. I agree with you. It is more beautiful.

E2: Does it still load, or does it stay as it is?

IL: It stays that way.

E1: He doesn't like it any better.

E2: Did you have your glasses on? It's so blurred.

IL: It can be said that it is generally easier to recognize hotspots here because the other view is pretty scattered, as there are always outliers.

E2: What could actually help is that the x and y axes are also displayed when I hover over something. So that I know which meter it is. That could still help.

IL: I can definitely do that. Yes. That's a good suggestion.

E2: Yes, then you don't have to search: Is this now 1 or is it 1.5? That it's like when I move pairs. That the line with x and y is also displayed.

IL: Exactly. This one. You can definitely do that. Do you still need any kind of analysis tool to evaluate your choreography. Can you think of anything else?

E2: Have we ever evaluated our choreography? I mean, now we can. So, I think it's definitely good enough to start with.

IL: Okay. Let's take that as the status quo and if you can think of anything else...

E2: We will interrupt you.

IL: So far, we have only worked on this Crazy Fire choreography. We can also create a new choreography. We'll give it a name. And some kind of description could be given to it. Then you can set the number of couples. It's eight by default and that's the only thing that's supported so far. What would be the number of pairs it should support?

Create new choreo

×

Name

Titel der neuen Choreografie

Description

Beschreibung der neuen Choreografie

Number of couples

8

Name

Name des ersten Bilds

First pattern

Rectangle

Close

Create

Abb. 24: Menu to create a new choreography.

E2: Eight and six couples are most prominent.

E1: Seven could also be ... I'll say: six, seven and eight. The thing is simple, that you could work ahead in case someone drops out. That you could then cut down to seven and you can't do less. But the three.

B1: For performances perhaps with four pairs.

E1: One to eight. Because there won't be more than eight pairs. In other words, I would say one to eight would actually make sense.

E2: Because then we could be relatively ...

E1: But if you have three to eight. Because if you have a few, then it doesn't matter. Two is also irrelevant.

E2: Then you also have no pattern development. Three to eight.

E1: I also think three to eight.

IL: Ok. What you can't set yet is the size of the dance floor. So far, it's 16 by 16 meters. That will probably stay that way for the time being but are there potentially other sizes of dance floors that would be important.

E1: The invitations we receive from the tournaments currently say 14 to 16 meters, but I don't think that really makes much of a difference in the end.

E2: The point is: 16 by 16 meters is mandatory in the Bundesliga. If you have 16 by 16 meters as the basic setting, then you have covered all the areas that are danced in this way. For us, as far as I know correctly, it can be 14 by 14 meter. That could be, but I can also fit that into a 16 by 16 grid. Therefore, I would leave it at 16 by 16 meters as standard and that is fine.

E1: Exactly. You never actually run past the six-point.

IL: Ok. Then we already have the name of the choreography. We can also name the first pattern we want to create. And then you can choose from a lot of premade patterns. I copied them from the Crazy Fire choreography. I looked at frequent patterns and patterns that you mentioned in the last interview. At the moment, you can create a rectangle, two diamonds, two horizontal lines, two vertical lines or an arrow. Do you want some more?

E2: Double diagonal.

E1: No.

E2: We will use that again.

E1: We will never use it again!

IL: Ok. A double diagonal.

E1: We can select straight lines, don't we?

IL: Exactly, horizontal straight lines and vertical straight lines and a rectangle where the dancers stand in a kind of rectangle. Let's select the arrow now. I cannot describe what it looks like. At least I assume it's supposed to be an arrow.

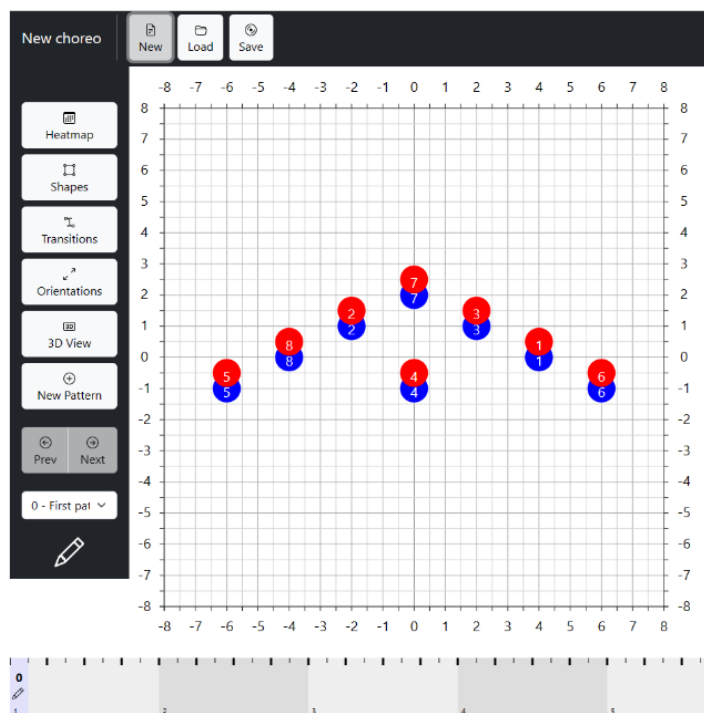


Fig. 25: New choreography with an arrow as the first pattern.

E1/E2: Yes.

IL: If you can think of any more patterns, just let me know. It is hardly any effort to incorporate them.

E2: Good. What might be cool would be if I could build a draft like this myself, so that I dancers the points the way I want them. Theoretically there are also arrows with a double point, because then I have four people on each diagonal. I could build that myself, because I know that it often happens in the choreography. And that I can use it up again. That would perhaps be another idea that could be included.

IL: I'll show you something like this because something similar already exists. Not quite like you said, that I have such a self-defined set. When we create new patterns, we can choose whether it's one of the standard patterns or one that already exists in the choreography. Of course, that's not quite your idea, but it has existed so far. So, if I take that now, I'll have this arrow twice. Should I add something so that you can name the pattern and save it in this stack of predefined patterns?

E2: I don't think it would be a bad idea. Because if I have 50 patterns later and I want to copy pattern 3, then I have to search for it in the list first. That's why it might not be a bad idea to build a kind of draft myself. That I say: This is my basic framework and I move it to where I need it. That wouldn't be bad.

IL: Okay. That's definitely possible. Once we have created a choreography like this, we can also save it. At the moment, it simply downloads the file to your computer. And download means something like: I save it in my file system. But that should be self-explanatory. We have tried to make it look like Word, PowerPoint or other standard programs that you use. Then we have two last major areas: Firstly, we talked a bit more about 3D views last time and how they could potentially be useful if it's not just stickmans and geometric figures. I have also included one here so that you can display the choreography in 3D. I'll show the pattern from above so you can perhaps recognize it better. And so that you don't just have the stickmans there, you can now define poses. The standard example was always pattern 36, where all the dancers had to raise their arms.

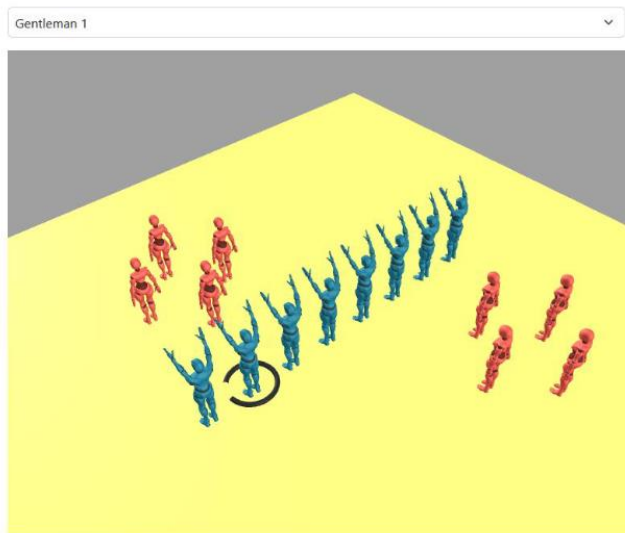


Fig. 26: 3D view of pattern 36. All men were given an extra pose in which they raise their arms. Dancer 1 was selected (and is marked with a torus).

E2: A little later, but that doesn't matter.

IL: And this is now possible. In the view on the right, we have an avatar on which we can define new poses. Sorry you can't see it. Now we can raise both arms and then assign it to one dancer or all of them.



S

Fig. 27: User interface with which you can define new poses and then assign them to the dancers in Fig. 26.

E2: Okay. Cool.

IL: You can also choose a dancer if you don't want it to be like this. He is now marked here by this torus and then we give him a different animation, e.g. an idle animation. Now it's back to normal. And the poses that you have can be saved with a name.

E2: Cool.

IL: This is also a feature where we don't know how useful it can be in the end. What would you say about its usefulness so far?

E1: I like it.

E2: Is it also possible to watch this on a mobile phone? Because let me put it this way. For the coach it's ok. I think it wouldn't be bad for the dancers either if they could theoretically be able to call it up.

IL: Would you say it's especially important for the dancers?

E2: I could imagine that.

E1: It's actually important for both of them.

E2: Exactly, yes.

E1: For the dancers too. For the trainer: he also has it with him during training and in front of him. Of course, they could also take a laptop with them. That's not an issue, because you can directly change the choreography. That wouldn't be bad either. But for the dancers just to watch.

E2: Exactly, just to look at it.

IL: On mobile devices, the right-hand section does not appear anyway. I can change something there again. You can only scroll through it with the camera and look at it from different angles. So far, it hasn't been included in mobile versions either, because we didn't know how much it would be used and what the users' devices look like. This is still a computationally intensive visualization. We have already talked about how it could be optimized. But I can definitely incorporate it and then we'll just see how well it works.

E2: I don't think it would be a bad idea to change it. Whether I have the points or that, yes. But that I can simply see as a dancer in which position, I should be in on the beat. I don't think that's a bad thing.

IL: Do you need some kind of grid here again in the 3D view so that I can see where I am standing?

E2: The grid?

IL: Exactly, yes. Because so far, it's just a surface. Should it still be visible? Should I show it in a different way? Or would you say it's enough if they can only see the poses?

E1: I mean, you can actually look at the grid in the other view, but I don't know how complicated it is to put the grid over it again.

IL: Not entirely uncomplicated.

E2: I don't think the grid is of much interest. I even think that when the grid is in that it's a bit irritating when I look at the whole thing, e.g. when lines overlap.

E1: And it's actually just a gimmick. When they know: This is how I stand. There's my head. There's my body. They can already see that with the little dots. That's enough for the dancers.

E2: I wouldn't put a grid over it now.

IL: If you change the rotation of the dancers...

E2: Then they also rotate in 3D.

IL: Exactly. We also thought that would make sense. You don't have to do so much work so much with it if you don't want to. There's another way.

E2: Perfect. Then you can only adjust the arm position ... or turn the head. If I didn't want to look to the side, but at a 45-degree angle, then it would adjust that too, wouldn't it? Ok, because then theoretically you only have to adjust the arms.

IL: I have a list of body parts here. Would you say the arms are enough? Do you even need the elbows?

E2: Do we even have bent arms?

E1: I don't think we need to go into that much detail.

E2: What might help would be if I had the choice of left arm, right arm, and both arms. Then I wouldn't have to move them both individually. And left leg, right leg, and both legs. That might help.

IL: Sounds good. Yes. Then we've ticked off this mode too. We were in edit mode the whole time. In view mode, there are still a few specific features. I'll go to another pattern. The first special feature is that when you hover over dancers, horizontal lines, vertical lines and also diagonals are displayed. At the moment, four dancers are always required for a diagonal to be recognized. Would you say that there are there also diagonals with only 3 dancers that need to be drawn?

E2: Go to the beginning of the second rumba. It comes quickly after the first. There the sixes and the threes should form a diagonal. In theory.

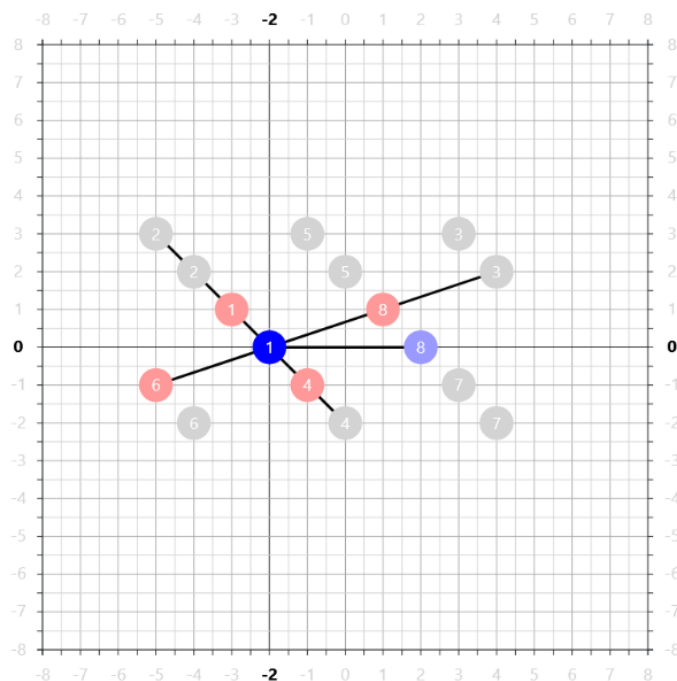


Fig. 28: Marking relevant neighbors in view mode. The mouse hovers dancer 1. Not all diagonals are meaningful (here from dancer 6 to the grayed-out dancer 3)

IL: Ok. Does this happen often? Because this can of course lead to many false positives being recognized. That's why I set the threshold value to 4. Here it recognizes this diagonal and this diagonal and would not recognize them here, because otherwise it would recognize a lot of false positives in other patterns.

E2: Some of them are now greyed out. They're always the ones who are next in line, aren't they?

IL: The idea was that I always pre-calculate the people that the dancers can orientate themselves to. The ones on the left and right. And because you said that diagonals often cause problems, we also included those. Should we mark more people?

E1: They're not supposed to work with the program. It's just an aid for them. I want them to move their legs and stand properly. I don't think you have to do that too much, because otherwise they'll

end up looking on their mobile phones instead of moving their feet. At some point that becomes simply too much.

E2: I think that would mainly be a help for the coach. Although I could imagine that it ... I don't know if it's feasible. Because I always orientate myself to whoever is in front at the moment. If the pattern is moving backwards and everyone is facing backwards, then the person standing at the back is on the left... if I, as a dancer, am looking backwards at that moment. The person standing in front of me on the left is the one who sets the scene. But not the next one, but the one at the very front of the diagonal. In this case, if we move to the back, it would be the woman in the foursome who indicates the diagonal and I try to position myself according to her. If the man in the foursome is outside but the rest are back inside, then I have a diagonal again. But if everyone follows the next person, it can automatically become a curve.

E1: I think it would be sufficient to write this in the comments. However, it would be good if you could also see the comments on your mobile phone.

IL: You can see them.

E2: Is the drop-down at the bottom of the mobile phone still there?

IL: Yes.

E1: Because in there the information about the foot on the current position is contained.

IL: Because we are slowly running out of time, here are two more small functions. I'll go back to the first pattern. I think you mentioned last time that it would be good if you could rotate the pattern if you weren't standing at the top of the hall looking down. It is now possible to rotate this pattern. This time in four directions and my first question would be: is it too much? Do you really only need the front and back or are the side views potentially useful too?

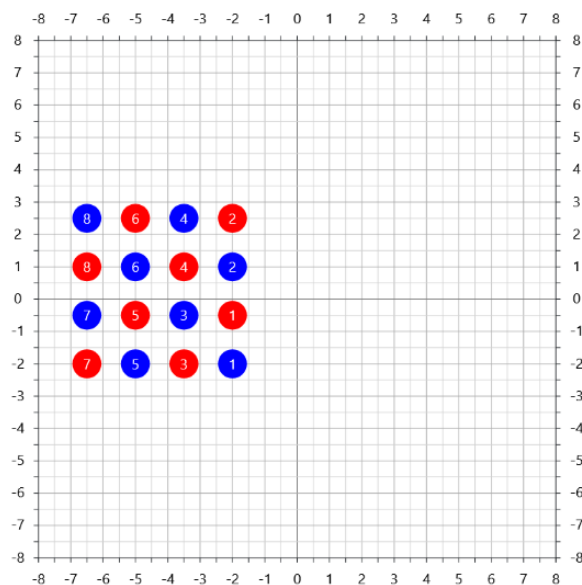


Fig. 29: Pattern from Fig. 2 (after 90 degrees clockwise rotation).

E1: I don't think it does any harm if they are there. Normally, however, we only use front and back views.

IL: Ok. Now I'll give you a little task. If I rotate the pattern like this. Would you know where you stand as a trainer.

E1: Yes, that's true.

E2: Anti-clockwise by 90 degrees.

IL: Ok, good. Because I wasn't sure whether it was confusing whether you were running anti-clockwise or clockwise, as I got a bit confused during programming.

E2: I think so, yes.

IL: But now that you have grasped it relatively quickly, I would say that it works.

E2: What you could theoretically visualize it... You could say... say, this is our point as a trainer. That you put a little black arrow here. On the zero. That you simply say: That's where the trainer is standing and that's how the pattern must be at this moment. That would simply be another idea to mark where you are standing at that moment. That might make sense.

IL: Yes, we had also considered drawing a little man there, even though we lacked the space, but the arrow ...

E2: I think a small arrow at the zero is the simplest thing.

B2: Often you also use an eye or something like that.

E2: Or like this. Yes.

IL: I need to see how well it scales on small screens. And then the last one. That was also something that motivated supervisor 1. You can start animations. If you are currently at pattern 0 and you want to show your dancers a sequence of five frames, you can start a kind of animation that is aligned with the previously defined transitions. So far, we have only had straight lines. That's why they just shifted.

E2: Yes, that is pretty good.

IL: Should this be expanded even further? Do you have any ideas how we could improve this feature?

E2: I don't think so. That's exactly what we need at the moment. That the dancers understand what they have to dance.

E1: Yes.

IL: Is it potentially also important to have the body rotation adjusted or is the position sufficient?

E2: In principle, the body directions are given to me in every pattern, aren't they?

IL: Yes.

E2: Perhaps it wouldn't be a bad idea to display the rotations as well.

IL: I just don't know whether you're dancing figures and spinning around while you're doing it, so it would no longer make sense anyway.

E2: That can happen, of course. But the point is ... we still need that info that we are supposed to be at a certain place at a certain time and I think it would be cool to see: Ok. I have to stand diagonally with my head forwards I don't think that would be bad at all.

IL: Yes, it wouldn't be technically easy, but I could definitely think about it.

E2: Exactly. If it is possible, that would still be an optimization option, but we can already see a pattern development in the current state.

IL: Okay. We are now done with my topics. I have to check whether I have further questions. Yes, that looks good. The last one: What about the orientations here: Does the head follow the body, or does the body follow the head? What is more important to you and what do you define first?

E2: Mainly the body direction first.

E1: I would say so too. The body direction. The body is the more important thing and then the head. Okay, so the way it is right now. That when I rotate the body, the head automatically follows.

E2: Yes.

IL: That's right. So I am done with my topics and would like to finish by saying: Do you have any comments that you would like to make or any questions?

E1: I'm really looking forward to work with it.

IL: That's already very good.

E2: I actually have two more points. One would be that I can password-protect the edit mode. I.e. that the dancers have no possibility to do any editing.

E1: Only selected persons are allowed to work on it.

E2: That would be one point. The other point is when I set up a pattern and I place a diagonal for example ... Then it doesn't necessarily have to be 45 degrees, but it can also be rotated by 30 degrees. What I'm trying to say is that if I have an image in Word then the image can also be rotated ... whether I can then also rotate the diagonal in certain degrees without touching the individual points.

IL: Okay. Let's say I have a line of four dancers and I'm going to say ...

E2: Rotation always around the foremost dancer.

IL: Which one would that be in this case?

E2: In this case, that would be ... what view do we have? This is the dancer's view. In that case, the 1 and the 2 would be the foremost.

IL: Okay. In other words, if I say I'm changing the rotation, that's how it changes.

E2: Exactly.

IL: Okay. Then it probably makes the most sense to simply select the dancer and say: This is the dancer you want to rotate around.

E2: That would still be a good function. Because we don't always stand at a 45-degree angle. We may have a flatter or a steeper diagonal. Of course, you can also place all dancers manually. That's not an issue, but that would be another optimization that could be added.

IL: This is not always easy because I cannot mark diagonals with my selection tool. I don't know whether this is still possible as part of my bachelor's thesis, but I could think about the extent to which it is possible to implement this. Perhaps with a kind of polygon lasso.

E2: Or if I would simply click on the four bottom ones using the control and select them.

IL: Or that. Yes.

E2: Control and then left click on the bottom four. Then I have the bottom diagonal. That would be a variant.

B2: Like when you select several objects and then offer the rotation.

E2: Exactly.

IL: That's definitely a good suggestion. I like it too. Anything else?

E1: I think it's good. Looks good.

E2: I also like it very, very much.

IL: Perfect. Then I'd like to thank you again. We needed exactly one hour.

B1: Very good time management.

IL: And then I look forward to see you again on the third appointment, where you can try out the program.

E1: Yes.

E2: Very good.