Simultaneous Visions

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Simultaneity is everywhere. Our sensual perception is simultaneous in many ways. Not only do we see, hear, smell and feel simultaneously, we see and hear with two ears and two eyes at the same time and we feel with an infinite number of receptors throughout the whole body. Even with one single sense we perceive different things simultaneously. We listen to people talking while at the same time we listen to the traffic. At the same time we carefully watch the street while we also look at the traffic signs. In the first picture you see all the areas that you usually have in sight while driving a car (figure 1.1). In the second picture are highlighted the windows that you directly look outside through (figure 1.2). In the third picture those areas are highlighted that you should also always keep in sight (figure 1.3). Not to forget that those areas are horizontally flipped. Not highlighted are even more areas of attention, say of a third order, that you should apparently take a look at, time, speed, fuel consumption and oil temperature.

While everyday life is full of diverse simultaneity, Computer Aided Design Animations usually are not. Dependant on difficulties with distortions and eye movement in perspective projections we got used to planar perspective projections that demand the viewer to look exclusively at the center. We also know that no viewer follows this rule so we usually limit the view angle to reduce distortion as far as possible. In general we get to see an angle of about sixty degrees which is far less than the one hundred and eighty degrees of only one of our eyes.

CAD and even more CAD animations seem to make us ignore all the simultaneity that we have got used to in our everyday life. This might be a reason why computer animations seem so strange and artificial to people that have not yet got used to it. The purpose of our contribution is the proposal to reconnect to simultaneity in CAD animations. Also because simultaneity in depictions is not new. Triptychs like St. Mary by Jan van Eyck were common in the medieval age and performed a more spatial experience (figure 2). Renè Magritte uses simultaneity in one single picture (figure 3). For the Woodstock movie Martin Scorcese composed a kind of animated triptych that operates on atmosphere rather than on space (figure 4).
Our experiment aims at examining both aspects in architectural animations, that is to make the viewer understand space and, most important, at the same time feel the atmosphere. Altogether it is about navigation and emotion. Navigation does not necessarily mean that the viewer has actually got the possibility to literally navigate. Far more important is that the viewer has the certitude of perceiving space as he would in reality, and not to be left with a sight area in a sixty degrees angle in front of himself not even being able to turn around. The viewer should have the illusion to have everything under control, a kind of hidden self-deception.

We experimented with both aspects, information and emotion, at the same time, simultaneously. But first of all some considerations about motion. In one of our recent projects for the architect Ulrich Coersmeier in Cologne we were asked to submit an offer for an animated visualization based on existing sketches of the facades.

To explain what the animation would look like, we created a simplified building block that we projected the sketches onto (figure 5). We intended this as an animation preview but it was regarded and used as a design tool for the further development (figure 6). This showed us, that depending on the kind of project, motion can lead to a completely different comprehension of the project that cannot be achieved with the usual visualisation tools.

When we started to handle with simultaneous visions we kept in mind these effects of simple movements and line drawings. Both methods have a relatively high impact, regarding the lack of high end visualization techniques. Not to forget that abstract representation is sometimes demanded, most probably to avoid further determination, as in a recent project for the architect Johannes Götz in Cologne (figure 7). On another animation project we solved the single frontal view restrictions mentioned above just because of the nature of the project, that is mainly the client the animation was made for, SAP software company. They preferred a fashionable fast moving appearance. So our clients, the designers of this fair's stand competition, asked for a wild fly-through showing different visions of the stand from different viewpoints rapidly one after each other (figures 8.1-8.5).
This is apparently not the usual way to represent architecture. But in this case it helped us to find a way of perceiving space almost simultaneously.

What we were trying in our experiments for simultaneous visions was to find a balance between ease and excitement. That means, we chose a contemplative slow movement through space giving the architecture enough room to talk about itself. The meaning of the presentation remains the architectural project, and definitively not the way of depiction. But we also tried to let the visual impression become interesting enough to keep the viewer's attendance. We did not reconstruct existing projects or even built architecture, but on the contrary created spaces that are directly suitable to what we want to show. Since we are in the early experimental phase, it seemed to us, that examining a phenomenon in its origins is easier to handle and to demonstrate in a sterile laboratory instead of out in the real world (figure 9). This is to be examined in a further phase. The first thoughts were about what kind of space would be suitable for the question what the viewer would profit from looking sideways? As easy as it seems, the greater the difference is between what you see in front and what you see on the side, the more exciting simultaneous visions are. And it seems to become even more exciting, when what you see in front does not let you guess what may be on the side (figure 10).
We now would like to show you the process of this development in a comparison of those senses, that we can address in a common multi media presentation with its elements moving picture and sound. Apparently sound already performs strongly as to emotions but even gives some little information about the usage of space. Regarding simultaneous visions, the usual single vision animation enriched with sound makes the demand for simultaneous visions even more urgent. Showing the sides finally reveals what you have guessed before, and this simple model came out to be our prototype of simultaneous visions that we stepwise transformed to achieve different impressions of space and emotion (figure 11).

First we changed the shape of the facade walls to adapt different outside scenarios. Cityscapes seem more likely to lay behind a glazing structure than behind a large transparent screen (figure 12). The implementation of real video material improves the spatial plausibility enormously just as anticipated (figure 13). The next step was to alter the topology of space. It changes a lot regarding the space, if there is one room and a facade or if there is a series of rooms one after each other, but it seems not to really change the atmosphere (figure 14).

So we think that the atmosphere is determined only by the architecture itself and the outside view and the sound of course,
but, and this seems to us to be one of the most interesting points of the whole experiment, the atmosphere seems not to be dependant on the complexity of the three visions or on the relation between these visions (figure 15). On the contrary, the three single visions seem to work nearly independently, one not caring about the other. In our sterile laboratory the effects that we aimed for seem to be completely independent of the depicted content. Simultaneous Visions seem to generally improve architectural presentations.

To find this out, we changed the strategy and experimented with very little more abstract space structures. Column structures create a spatial impression that reminds of architecture without really leading to a senseful usage of space (figure 16). And still the spatial information, and even more the emotional impact, work just as anticipated, even if it might just be the geometric visual attraction that covers the actual simplicity of the spatial concept.

We did not want to stay with interior spaces only, but wanted to get further in examining the independance of effect and content. We rebuilt a part of the Paris street topology, strongly simplified with unified heights and without details (figure 17). It seems not to work as intended, since atmospherically these extremely simplified building blocks do not actually feel like a city. From the information point of view, on the other side, simultaneous visions do indeed provide a far better overview and therefore orientation than an ordinary single eye level representation would.
To direct the approaches towards the usability of our experiment, we finally created a more building-like sequence to see, if a more complex situation would also profit from our approach. Parameters for this final example are: Space, (architecturally it is not really elaborated but it gives an idea of how a real project may look), light (this is an important factor, we left it out in the beginning, but here we wanted to try to improve the spatial atmosphere), sound (we interpret the usage of sound in animations as an additional parameter for understanding space, not as an exchangeable beautification method, therefore a piano that the music is played on appears at the end of the animation), and (finally to include an important movie parameter) the speed of the movement, that seems to have an important influence of the emotional perception, and that ensures the importance of the architecture itself, of course (figures 18.1-18.9). This final example is therefore intended as a mixture of principles and individuality.