

# ON THE LOGIC OF PATTERN CUTTING

FOUNDATIONAL CUTS AND  
APPROXIMATIONS OF THE BODY

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# ABSTRACT

Fashion designers are presented with a range of different principles for pattern cutting and the interest in this area has grown rapidly over the past few years, both due to the publication of a number of works dealing with the subject in different ways and the fact that a growing number of designers emphasise cutting in their practices.

Although a range of principles and concepts for pattern cutting are presented from different perspectives, the main body of these systems, traditional as well as contemporary, are predominately based on a quantified approximation of the body. As a consequence, the connection of existing models for pattern construction to the dynamic expression of the body or the biomechanic function of the body is problematic.

This work explores and proposes an alternative model for pattern cutting that, unlike the existing models, takes as its point of origin the actual, variable body. As such, the research conducted here is basic research, aiming to identify fundamental principles in order to create alternative expression and functions. Instead of a static matrix of a non-moving body, the proposed model for cutting garments is based on a qualitative approximation of the body, visualised through balance lines and key biomechanic points. Based on some key principles found in the works by Geneviève Sevin-Doering, the proposed model for cutting is developed through concrete experiments by cutting and draping fabrics on live models.

The result of a proposed model is an alternative principle for dressmaking that challenges the fundamental relationship between dress, pattern making and the body, opening up for new expressions in dress and functional possibilities for wearing.

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# 1. FOREWORD

The research in this licentiate thesis explores cutting, or pattern cutting, as a way of creating expressions and functions. As a designer, my main focus has always been on the shape and cut of the garment and the research conducted in this thesis is an investigation into ideas I have come across while working with a private label, producing seasonal collections for a number of years.

Fashion design research conducted at the Swedish School of Textiles consists of practice-based design research that covers the basic relationship between, on the one hand, apparel design and, on the other, materials, techniques and expressions in relation to the body, defining basic concepts and theoretical models that may form the basis for broader practical design work. It is methodologically related to fundamental scientific research, in which theories are formulated based on practical experiments and experiences. Theories and methods form the basis of an exemplifying design work. In short, fashion design is developed as an academic subject through practical design work.

My research endeavour started out with practical work in various design studios in order for me to deepen my understanding of the ideas that had previously shaped me as a designer. I have worked with tailors in the bespoke tailoring company Bauer & Co in Stockholm, as a pattern cutter for Vivienne Westwood in London and I have also spent some time as an apprentice to the French costume designer Geneviève Sevin-Doering in Marseille. These work experiences mentioned relates to my basic training and background as a designer, starting with tailoring school and internship at the Westwood studio, combined with a fascination for the relationship between two-dimensional and three-dimensional forms. When I began my doctoral studies, I had a strong interest in cutting and shape, but lacked a clear idea of what the research would lead to. I believed that there were gaps in my background and thought that the best way to fill those gaps was by going out for a second round of practical experience. Working for Vivienne changed the basic conditions for my practice. Previously, much of my focus was placed on the pattern of the garment I was working on, as I worked with two-dimensional shapes that gave an expression when worn on a three-dimensional body. At the Westwood studio, everything was three-dimensional. During countless fittings I was told that, “it is all about the body, not about the dress or the pattern. What we are interested in is what the dress does with the body.” The advantages of putting the body at the centre of attention became even more apparent to me after meeting with Geneviève Sevin-Doering, for whom the pattern was highlighted not as a tool,

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but as a beautiful notation of the shape sculpted directly onto the body of the person intended to wear the garment.

If one places the point of focus on the expression of the body in combination with the way in which this expression is transformed by dressing it in fabric, a more reflective study of the body from a dressmaker's perspective may be meaningful to the development of new design methods.

## 2. CUTTING AT VIVENNE WESTWOOD

*Monday 8th November*

I spend my first day in the Westwood studio alternating between going through look books of the last ten collections and making some experiments with rectangular pieces of fabric on a half-scale dress stand. The other pattern cutters and I are awaiting instructions from Vivienne and Andreas of where to start work on the new collection; in the meantime, we play around with rectangular shapes as Vivienne has long favoured this cutting principle. Most of my try-outs go right into the bin after a second look, one or two of them may have some kind of potential, but I see the whole day as a warming-up session.

After lunch, Iris shows up with photos of some haute couture gowns from the fifties. Iris used to work fulltime for Vivienne cutting patterns and designing, but nowadays she only comes in for two or three weeks for every collection as a senior cutter and she is the one developing most of the new styles. I was later told that, “they parachute her in from Germany every now and then to give a boost of creativity to the team”. The first step towards finding the direction for the new collection turns out to be to recreate the dresses on the photos in toile fabric as close to the original as possible.

Iris starts working with a photo of a fifties Balenciaga evening dress. After studying the photograph for a while, she starts drawing lines on large pieces of calico and pins the pieces together as a first try-out. She alternates between draping on a tailor’s dummy, drawing lines on the fabric at the cutting table, and looking at the dress while she wears it herself in front of the mirror in the corner of the room. It is a physical act where she works just as much on her own body as on the artificial body of the dress stand. Taking a step back to inspect the garment from a different angle, adjusting the volume, back in front of the mirror, another adjustment and so on. Pattern paper is not used at this stage, everything is made straight on and out of the toile fabric. Later on, the dress will be taken apart and the shapes of the different pieces will be transferred onto paper templates for further work on the details of the dress. By the end of the day, she has a rough toile ready and Andreas comes by to have a look, making some further adjustments.

Another photo of Marlene Dietrich wearing a fifties dress goes to Jenny for her to recreate it with emphasis on the corset construction. The dress has a soft draping over the chest in a lightweight fabric, but Jenny is asked to use jersey fabric instead. She starts out working from a corset base used in

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an earlier collection, draping the jersey on top of the corset, which is fixed to a dress stand. I am a bit surprised by the classical look of the images that are to be the starting point for the collection. The haute couture style of the fifties is, at a first glance, far from the style of the previous collections I been studying today. I am soon to find out that what interested Vivienne and Iris in these dresses was not so much the style of the fifties as much more formal values: the volume a certain sleeve created and the perfect length or a certain line being very straight in a place where one normally would have expected it to be slightly curved. The design concept turns out to be the creation in itself. The shapes of the prototype garments in relation to the body of the fitting model develops into new shapes and expressions and the different methods of cutting and draping applied at different stages in the process allows for different kinds of expressions.

I am told I will work on a jacket from the last season, a short boxy one made of rectangular pieces, and that I am to make a new version of it, although this time in the style of a school blazer. The sample of the jacket is in the Conduit showroom and will be sent after. It arrives at ten past six and Sandra, who knows where the pattern is, has already left for the day, why I decide to have a go at it tomorrow morning.

### *Tuesday 9th November*

At the fitting in the evening, we try on the new toile I made during the day from the boxy jacket. Andreas states that it looks more like a pea coat than a blazer.

– Let's make it a pea coat instead.

It is decided I am to make a new prototype that is even longer and with the diagonal welt pockets a traditional pea coat would have. The school blazer idea is dismissed just as quickly as it was introduced. As the prototype reminded us of a pea coat when we looked at it, the course was immediately changed towards what we were seeing.

### *Wednesday 10th November*

For today's fitting I help Iris, who at the moment takes the position as fitting model to get into the new toile for the pea coat and to button it the right way. She puts her hands into the welt pockets and turns around so that we can see the coat from all angles. After a few moments of silence, Vivienne is the first to open her mouth.

– I could say something, but I am waiting for someone else to start.

I understand that this someone is probably me. Just as this strikes me, Vivienne looks at me.

– What do you think about it, Rickard? You must have an opinion on this.

I respond that I think the welts are in a good position and make for a nice silhouette when the hands in the pockets pull the fabric of the jacket forward. Before I manage to finish my sentence, Vivienne interrupts me.

– Those welts are way too small compared to everything else on this coat. We definitely need bigger welts. Can we pin on a larger one to see what size we need.

I go for a piece of fabric and press it into the shape of a bigger welt, which is pinned onto the coat. We have another look at it with Iris walking back and forth in the room, adjust the size once again and then finally everyone agrees that we have found the ideal position and size for this welt pocket on this jacket. Then, it is time for the belt at the back of the jacket and once again I am asked about my opinion. As I am not entirely accustomed to the rituals, I feel unsure of what to say about it, but I do understand that I need to motivate my work and explains that right now the belt has the same length as the back piece but I was considering making it even longer because the back part of the jacket drapes due to the square construction and maybe a longer belt would exaggerate that drape. I detach the belt at one end and pins it back on the coat to somehow visualize my thoughts. Vivienne's opinion about this is clear.

– To make that belt longer would be very selfish and unconscious, I would say.

Vivienne instead pins the belt shorter and we have another look at it. Now she seems more content but she immediately shifts focus to the buttons attaching the belt.

– Is that the best way to do it? Should the belt go into the side seam instead?

To determinate this, I am asked to unbutton the belt and instead pin the belt to make it look like it goes into the seam. When inspecting the result, however, all agree right away that the button fastening was a better way to do it.

– You see, Rickard, the reason I talk like this is that we have to see all the possible solutions. It's a matter of elimination. We have to try out all possibilities.



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The discussion involves both verbal communication and moving things around. Both aspects seem equally important. The discussion deals with the garments at a formal level. It is about lengths, proportions, silhouettes and how the body moves in the garments. Representational aspects seem to be of less importance at this stage. The logic of the decisions takes its arguments from what we visually see in front of us and how the garments interact with the body inside them. This also shows in the comments made by Iris when looking upon some of the other garments fitted.

– I like the idea of the circle in the front.

– What I am interested in with this top is that it is straight across the bust.

I find that very interesting.

It is the straightness of that specific line that makes the Marlene Dietrich top interesting to her and that line will turn out to be the focus of further development.

*Friday 26th November*

The fitting scheduled for yesterday was suddenly postponed until 3 o'clock today instead. The atmosphere in the cutting rooms gradually becomes tenser and both Jenny and Barbara seem to go into themselves the way lecturers might do when preparing prior to giving a speech. Lucca drops by my table and tells me that Vivienne wants to make a coat out of the Balenciaga dress Iris made the first version of and for which I have been making a pattern. Although Vivienne is very keen on this idea, Andreas do not think it is going to work out. Lucca tells me the fitting later on today will revolve around this coat and that maybe I should have a second look at it and see if I can come up with any new ideas.

When I have my lunch at the cutting table, Vivienne and Lucca turns up and I am asked if I can show Vivienne the toile of the Balenciaga dress. Vivienne tells me Andreas do not think this dress will work out as a coat since it is held together with a strap across the back and that he thinks that would not look right in a heavy coat fabric. Vivienne is relieved when I show her that the strap is not gathering that much and she brings the dress upstairs to try it on herself.

Jenny takes Maria's measurements, our fitting model, while I spread out the pattern pieces of the Balenciaga dress on my cutting table to refresh my memory of what the pattern was like before the fitting starts. Andreas is nowhere to be seen, only Vivienne turns up and have a look at the measurements Jenny has taken down.

– So she is neither long waisted, nor short waisted; she corresponds just perfectly to the measurements of a size 10, then.

We try on the three different versions of the dress. The one Iris originally made, the one with more volume in the sleeves and a higher collar, and the jacket version with long sleeves I made after Iris left.

– I still don't know whether I like it or not. We have to put on the dress we tried before again because I do not remember what it was like.

It turns out the fitting of this style is mainly about whether or not the wearer will be able to move her arm enough in the wide but very low cut sleeves. The sleeves open already at the waist and are gathered with a piece of elastic tape just above the elbow. The elasticity is needed for the wearer to be able move in these low cut sleeves. Vivienne asks Maria, the fitting model, whether she finds the sleeve acceptable or not. Maria knows even less than me about how to answer Vivienne. She says she personally would like to be able to raise her arms enough to adjust her hair, adding that she also thinks many women wouldn't mind this if they really loved the dress.

– That is the wrong answer; you cannot speak for anyone but yourself, Vivienne responds.

Vivienne likes both the dresses, but she is not sure about the long sleeve I made and asks me to make a coat version with a knitted underarm part of the sleeve that we will have a look at during the next fitting.

Next garment is a box shaped trench coat in heavy calico I made from a dress pattern that was used the previous season.

– What I have done with this garment is that I have added a lining at the yoke and the sleeves and put in buttons and buttonholes to transform it from a dress into a trench coat.

The trench coat is approved by Vivienne rather quickly, the fitting model walks back and forth in the room and puts her hands in the pockets and Vivienne nods.

– It looks good from the front, it looks nice from the back. Can you please turn your side against us, Maria. Yes, it looks good from the side as well.

Her attention then turns to a wrinkle that goes from the shoulder and downwards. Although the dress version had the same wrinkle, Iris did not mind it and, thus, neither did Vivienne. Now, the question is whether it works on the trench coat or not. I cut the shoulder seam open from the neck, across the shoulder gusset and halfway to the sleeve and the wrinkle disappears. At first, this seems to solve the problem; only then it appears that

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by cutting this seam open, the tension that held the box shaped shoulder in place was released, causing the shoulder to collapse backwards and the box shape to become less distinct. In the end, we decide that the trench coat is good as it is and that we are to proceed and make a sample in fabric. I hand the toile over to one of the machinists to close the cut I made in the coat, in case we need to see it later on again.

Vivienne asks to see the pea coat again and inexperienced as I am, I point out that at the last fitting we thought the positions of the pockets were good the way they were.

– I don't care what we said at the last fitting. What do we think of it today?

What is approved one day may be reconsidered the next, because the collection as a whole is growing at many different levels and the proportions or the position of a pocket do not relate only to the jacket and the body wearing it, but also to the choice of fabric and colours and to all the other garments in the collection.

The rectangular cut skirt Iris made, for which I later made the paper pattern, is tried on in a new toile version with hems and proper finishing. It is approved and the only change to be made is that the pockets are to be added in the side seams. I cut an opening in the side seams just below the gathering at the waist; Maria puts her hands in the openings and walks back and forth in the room.

– Right, now we know that we shall have pockets. Is the pocket opening the right size as it is now?

– Yes, Vivienne. I think the pockets are the right size.

– I think so, too. Should we simply make it a stitched in, loose pocket bag, then?

– Yes, I think so, a loose pocket bag attached to the waist seam. With all this fabric gathered in the waist I think that is the only reasonable way to do it.

– Yes, that's the only reasonable way to do that pocket, let's have a look at the next piece ...

*Monday 29th November*

I go back to the square skirt and add pockets, put in buttons so that one is also able to wear it as a dress and add reinforcement triangles in order to strengthen the weak points at the ends of the side vents. Since the dress is now fully approved by Vivienne, I have a closer look at the inside finishing and I struggle a bit with how to finish the seam allowance on the inside of the heavily gathered waistband. Jenny and I discuss it back and forth for a bit.

It would probably obstruct the gathering to just bind the seam allowance as it is. One way could be to add extra fabric to the waistband and then fold it over the seam allowance and stitch it in place.

– You can ask Sandra, she is very good on knowing what would work in production or not, says Jenny.

Finally, we agree on that the best thing to do probably is to add extra fabric both to the body of the skirt and to the waistband, five centimetres each, and then bind them together. Just as we are agreed, Sandra turns up and confirms that it is a good idea, from her point of view. She points out that it may also be able to support the volume created by the gathering. I spend the following hour changing the pattern of the waistband. It is a game of check, fold, look, draw a line, punch a hole, check, ask, try, redo and check again.

*Friday 3rd December*

I spend the hours before lunch altering the coat pattern and after lunch I cut it, this time in heavy calico. When I am half way through, Lucca drops by and tells me Vivienne wants to come and have a look at the coat in about an hour and a half. I am quite pleased to hear that because I need some kind of direction to take it further.

It is obvious from the very first moment that what I have done was not what Vivienne was hoping for.

– This sleeve does not look like the one on the dress. Can we see the dress first? What I like about the dress is the sleeves and the volume they create. I don't want you to just put in gussets randomly, you have to look closely at the dress and try to make the same thing for the coat. I would put the coat and the dress next to each other and see if I could figure out what to do. I am not a pattern cutter and I keep saying that, I will try to help you but sometimes what I see as the solution is not right, because my point of view is a different one. For example, the first time I made a jacket, I made the lining smaller because that seemed to make sense to me, Vivienne says.

I pin the original dress to the left side of the stand and the coat version to the right side and keep looking at them in order to try to figure out exactly what it is that causes the difference between them. Maybe if I put the gusset in further down the sleeve and not where the sleeve meets the body, where I have put it now, or maybe if I just cut away some fabric under the sleeve. I take a couple of pictures to remember what it looks like, do some quick sketches, and then leave the studio for the weekend.

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*Monday 6th December*

I put up the dress on one stand and the coat on another and look at them. I pull the dummy sleeves outwards and let them fall back to their natural positions and look again. I take out the gusset in the right hand sleeve of the coat and also decide to take away five centimetres of the sleeve width. Then, I stitch together the opening where the gusset was. Putting the coat back on the stand, I cut an opening for the gusset further down the sleeve, opposite to where Vivienne suggested. Here, a cut is hidden under the folds of the fabric and will allow the same amount of movement as in my earlier try-out.

Vivienne drops by with a half-scale stand for Barbara on which she has made a new version of the dress Barbara has been working on. I manage to get her attention for a few minutes.

– Rickard, I really don't have much time at the moment. She soon points out that I have cut the gusset opposite to where she suggested.

– Yes Vivienne, but I don't think putting in a gusset were you suggested will do the job here. By putting the gusset here, it will be hidden between the wrinkles of the fabric.

– I see, maybe this is the right place after all, but the gusset looks ugly and these points here are not right.

– I know, this is just the first version and I am now making a new version correcting these problems.

– Is the outer seam shaped here? I want this line to be straight and I do not like this gathering down here, it is not nice.

*Tuesday 7th December*

Andreas is silent for a long time during the fitting before he states:

– This skirt is so normal, I bet if we go downstairs in the archive we probably already have it there somewhere.

*Thursday 27th January*

Iris is working on a new skirt and I ask her what the brief was.

– To make something that was based on rectangles, with a lot of volume at the bottom and tight at the waist.

*Friday 28th January*

– I quite like it when it comes to the bottom like that, higher.

– Yes, and also what the hem does to it, now it becomes even more extreme.

– Can you please walk for us, Jenny?

– I think the volume in the hem is quite all right. It still does, move.

Iris looks on the skirt in silence.

– Can you walk again, Jenny?

– That's what we had before.

Iris pins up the hem another five centimetres and again asks Jenny to walk back and forth in the room.

– Not that bad in a way when it is standing out more in the hem like that. That is what the long dress does as well, not collapsing so much. But still bumping around ...

Jenny again walks back and forth in the cutting room.

– It certainly is much better now than it was before.

– It is nice that it gives room for the knees to move and that it is not bumping around that much anymore.

– And it is not creating all that volume in the hem anymore, which I quite like.

– It could be maybe a bit shorter here. Iris cuts off a couple of centimetres at the front of the skirt.

She stands back to have a look and again asks Jenny to walk up and down the cutting room floor.

– That's nice, actually.

– That's very nice.

– Can you please walk again?

– I think it's a bit better now. Let's take it off for now.

The atmosphere in the studio is different from what it was in November. In November we were trying things out, now we are doing it for real. This time it is serious. We are running late and as much as possible of the pattern must be sent to Italy straight away or else everything has to be sewn in studio and no one wants that. We are also working longer hours and I notice that my diary entries become shorter and denser in character.

*Tuesday 1st February*

– Why should we move that point lower? Because that's where the elbow is! And that makes a good silhouette. It's not because of anything with the pattern! I don't like funny patterns. I only want to make clothes for people to feel sexy in. Normal clothes are so much harder to make. It is not about the

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pattern, it is all about the body and what the garment does with the body. We have to get this coat and dress done. It's just a circle but some girls like it. Do you know why? Because their legs look beautiful in it.

*Thursday 3rd February*

– Making a lining like this is very hard, there is a lot to consider.

– Then you have to make it, Andreas, you are so good with such things.

– No, that will take me two hours, someone else has to do it.

I somehow know that someone is me ...

After a bit of pinning, checking, trying and sewing, I have a lining that I consider both functional and nice-looking. I show it to Johannes who is working at the table next to me.

– Sharp, he says.

*Friday 4th February*

Parallel to her work on the Gold label, Brigitte, the head of couture, works on the Red carpet collection, a capsule collection of cocktail dresses intended to be more accessible than the cutting edge Gold label. The Red carpet collection is, as are the other diffusion lines, built on old Gold label styles and Brigitte has just brought two massive heavy taffeta dresses out from the archive, one lilac and one yellow, in order to see if they can be used as a foundation for developing new styles. The dresses were originally made for the 1997 Viva la Bagatelle collection and are both made out of a single piece of fabric, long enough to be draped several times around the body, attached to a corset holding the dress together. They are hand stitched and appear to have been draped in the actual fabric directly onto the corset; hence, there are no patterns for them in the archives.

When Andreas sees the dresses hanging on the rail in Brigitte's room, they suddenly go in to the Gold label process instead of in the Red carpet collection and I am asked to recreate the lilac one in toile fabric by re-draping it exactly as it is, only this time there is to be a pattern made for it in order to make it reproducible. I start up at 3.30 and although at first I have my doubts if this is even doable, it turns out not to be all that complex after all, as it is only a matter of following a path someone else has already laid down. At 8 pm, I consider myself to have a decent version of the dress draped on the stand.

Andreas comes by and takes a look at the new version of the Viva la Bagatelle dress.

– So you are trying that one now.

– Yes, what was the idea?

– There is no idea; there is never an idea. As you know.

There is no clear idea here or, rather, the idea is an investigation. An investigation in shape, techniques and expressions. This is a shape with potential, let us use this shape. What if we take another material? What if we were to add five metres of fabric?

– Lucca, do you know what the theme of the collection is yet?

– It's a bit of everything. A mix of different times, there are some ethnical prints and some ... a bit like a patchwork, I mean the theme is not patchwork, so don't go on to make patchwork scarves ...

*Thursday 10th February*

Since I am running out of work, Brigitte hands me a sketch from Andreas of two possible new versions of the cartwheel dress Jenny has been making. He is asking for a version with a slimmer skirt than the original. I put together two different dresses, one with a skirt based on the full fabric width and a circle placed in the centre front and one with twice the width and circular shapes in the sides.

*Monday 14th February*

A misinterpretation of the sketch, re-cut.

Should be narrower at the bottom, but at least we have three dresses now.

Rips off another metre of calico and steams it.

And yet another one.

Fourth prototype now.

Tired.

Cuts out the pieces and then back to the machine again.

As it is now, this dress will never make it across the English Channel.

*Friday 18th February*

Mika, who is a freelancing pattern cutter, asks me if I also find it difficult to work with such vague instructions. At the Westwood studio, no one tells you clearly what to do, sketches exist but they are rare and most of the time they are done after the garment is finished and not before. The patternmakers are shape designers and are supposed to develop things further than instructed and independently come up with new possible paths to travel; what is tricky

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here is of course to know which path is the one running parallel to Vivienne's often unspoken direction. Mika compares with other studios she has been at where they were given more detailed sketches and where the studio manager had a clearer role in managing the work. Johannes then points out that an understanding of what Vivienne wants gradually emerges while working with her and also that depending on who the patternmakers are the new styles developed have quite different expressions.

### *Saturday 19th February*

Lucca asks me to re-drape the huge yellow taffeta dress Barbara started to work on earlier. Barbara is overloaded with work and Andreas liked what I did with the lilac taffeta dress.

### *Thursday 24th February*

One week left before the show. Right now, everything is a blur.

– Rickard, we have a new style in the collection. Do you remember the skirt Iris made? The square one that was gathered at the waist. We are going to make a miniskirt out of it now. In fake leather.

### *Friday 25th February*

I make a miniskirt of the long square skirt. Lucca and I rip the length of the original toile. First thirty-five centimetres, then another five, then another two, and finally one last centimetre before we are both satisfied. Lucca goes upstairs with it to show Vivienne.

Trying to drape the gold dress but is constantly interrupted by questions because several of the styles I have been working on are now being made in the studio.

Lilac dress in tulle. The train becomes three metres longer.

Fitting of the hot pants.

– You should know these things. You are a men's wear designer. It should be in your blood.

### *Saturday 26th February*

–Do you understand this dress?

–I think so.

–I think so, too.

### *Sunday 27th February*

– Don't cut anything for nothing.

– What do you mean?

– I don't know.

### *Monday 28th February*

Exhausted.

Struggles with completing the wrap dress.

Cuts a train for the tulle Balenciaga coat; the pieces are so big I have to work on the floor in the marketing office. That is not a problem as everyone working there have already left for the day many hours ago.

### *Tuesday 1st March*

Two more days of working before we have to leave for Paris and things are still being cut everywhere. I make the interlining for the wrap dress, cutting it directly in the skin coloured paper taffeta.

### *Wednesday 2nd March*

Three different dresses of mine are being stitched simultaneously by three different machinists in three different rooms. I alternate between the rooms to give the machinists instructions of how to put everything together. Eventually I find myself behind a sewing machine, stitching the skirt part of Barbara's last dress while the corset part is being assembled at the machine behind me.

### *Thursday 3rd March*

During the last couple of days, people from the studio left for the showroom in Paris at various times, each of them bringing a couple of the finished dresses. I am the last one to leave the studio and a taxi takes me to King's Cross station and the Eurostar train with the wedding dress in a bag under one arm and three other dresses in another bag under the other.

### *Friday 4th March, Paris*

Sitting on the floor backstage, I am levelling the different layers of tulle on the skirt part of the wedding dress. I cut, crawl two metres backwards, put my head at floor level to check where to make the next cut, and then crawl

## 2. CUTTING AT VIVENNE WESTWOOD

back to the dress again. Barbara assists me by pointing out new places to cut and holding the pieces straight so I won't accidentally make any messy cuts.

– When you are finished with the wedding dress, we need you to trim down the train on the black tulle dress as well, Brigitte tells me.

I end up cutting the collection until the very last hour before the show.

### 2.1 Conclusion: Perfect points and interesting lines

The discussions during the fittings in the Vivienne Westwood studio were both verbal and physical, i.e. moving things around. Both ways of communication seemed equally important. It dealt with the garments at a formal level, asking the most fundamental questions regarding its existence such as lengths, proportions, silhouettes and how the body moved in the garments.

Representational and associative aspects played a less important part, although sometimes decisions took an unexpected turn because a fitted prototype referred to something other than it was intended to do. For example, the school blazer became a pea coat, causing details referring to a pea coat to be added. The formal aspects of the bodily expressions were the ones stretching out towards new domains, whereas the representational ones were to relate the work to, sometimes in order to follow them although just as often to revolt against them.

I do not mean to say the collections did not include narrative elements, rather the opposite, as stories of different kinds often fuelled and directed Vivienne's interest, but when it came to making and evaluating the actual garments, the expression of the body itself came first. Many of the designs were experimental to such an extent that any other approach would not make sense as it would be difficult to find anything for them to refer to other than the fabric, the body and the shape they created. The working method was constant trials, as Vivienne explained, "we have to see all the possible solutions. It's a matter of elimination. We have to try out all possibilities."

The logic of the decisions was extracted from what we visually saw in front of us and how the garments interacted with the body inside them. This also showed in the comments made by Iris when looking on some of the garments fitted.

– I like the idea of the circle in the front.

– What I am interested in with this top is that it is straight across the bust. I find that very interesting.

It was the straightness of that specific line that made the top interesting to Iris and that line would become the focus of further developments and experiments. What evoked that interest was what the line did to the expression of the body and this interest then led to a more technical investigation

## 2. CUTTING AT VIVENNE WESTWOOD

into how to construct such a straight line running across the bust and also trying out of different shapes in various combinations and in different materials, eventually returning to the line on the body and the new expressions this investigation possibly resulted in.

At first, Vivienne's comment about me being "selfish and unconscious" when I suggested a longer belt puzzled me (Nov 10th). What made her consider the suggestion of making a longer belt that would hang down an unconscious act and what makes an act of design a selfish one?

I gradually understood that the decisions taken during these fittings were somehow founded on a logic based in a certain kind of aesthetics. This logic was based on the function of the dress, the balance of the composition and Vivienne's never ending desire to challenge conventions.

A similar logic is described by Yamamoto (2010:112) as finding the point of rapture, the perfect point for a single button or the perfect length and position of a belt. At every fitting of a garment, the garment was rigorously examined on the fitting model, every detail questioned, buttons moved back and forth, length decreased centimetre by centimetre; all in order to find the perfect point or length. In the words of Yamamoto, it is an act of concentrated seeing, of focused looking that is the fuel for creative work (Yamamoto, 2010:61).

Hence, a belt would not be added if there was no need for a belt. That need may be a merely functional one, but it rarely is. The function of expressiveness and utility was not separated even though the utilization aspects differed depending on what type of garments we worked with. For the pea coat, e.g. the belt was added first as a reference detail although once it was in place, according to this logic, there was no reason for it if it did not function as a belt, i.e. pulling something together. The only reason then for making a belt longer would be simply because I could, which would constitute a selfish and unconscious act.

As I understood this, it was easier for me to see the design work as less of a personal matter and more about understanding and adopting this logic of creation. The work built on an interest in visual lines and shapes and how these transformed the expression of the body. The fabric and the human form constituted the guide to discovering new expressions. (Yamamoto, 2010:67) The construction, or cutting, became a concept in itself or as Andreas put it: "There is no idea; there is never an idea. As you know."

The starting points were different from design to design: sometimes a

profound study of a photograph of an old couture dress with a focus on a certain quality, such as the shape a certain sleeve created or a hemline highlighting the legs in a flattering way. Sometimes, the work started out from experiments with shapes such as rectangular pieces combined on the body in various ways to create new dresses.

The centre of attention was always, however, the body that we were dressing. Whatever the starting point of a new design, the first step was always to put together a wearable prototype for it to be studied on a living body. First then it could be evaluated how a certain neckline highlighted the collarbone or how the volume of the skirt in movement contrasted against the legs. Iris, the senior cutter, approached this pragmatically by working just as much on her own body in front of the mirror as on the dress-stand or on the cutting table while creating.

Thus, even if the work starts out from a historical pattern, a garment from the archive and its pattern, or experiments with geometrical shapes, what Andreas stated is true: "It is not about the pattern, it is all about the body and what the garments does with the body."

# 3. BACK- GROUND: SYSTEMS OF PATTERN CUTTING

Putting the body at the centre of attention may sound obvious when talking about and working with the creation of garments. However, most of the methods of and techniques in pattern cutting presented in the educational literature merely deals with the shapes of patterns, how to alter patterns in order to achieve a certain familiar garment, or how two-dimensional shapes can be turned into three-dimensional ones, which may then be used to create garments. Others clarify methods for draping garments on tailor's dummies and how to turn these creations into reproducible patterns. This is essential knowledge for anyone who aims to use cutting as a method for fashion design, although the story neither starts, nor ends with the pattern but instead with the body being dressed.

## 3.1 Ancient wraps and rectangles

Ancient ways of dressing involved no or very little cutting. Wrap clothing such as the Indian sari, the Roman toga, or the Arabic hajk were rectangular woven pieces of fabric that remained undefined in shape until dressed, recreated each time they were worn. More about this way of dressing will be related below.

The ancient wraps and drapes developed into garments cut from rectangular pieces of fabric. The basic principles are the same e.g. for a Japanese kimono, a European chemise, or an Arabic djellaba. The rectangular, cut fabric hangs from the shoulders with an opening cut for the head and has smaller rectangular pieces attached to the sides of the fabric, forming the sleeves (Tilke, 1990).

Pieces are rarely shaped and when the fabric is cut, it is primarily done in straight lines; the use of darts to shape the garment after the body is rarely ever seen in these garments. The cloth is cut apart, although not cut into shapes following the form of the body due to the high value of the labour intense weaving process. In this way, very little or no fabric is wasted in the making of the garments. The garments are not tightly fitted to the body and the individual fit, if there is one, was usually achieved by the use of e.g. belts gathering the fabric towards the body. The pieces making up the garments are nonfigurative in relation to the body and, hence, need to dress the body in order to be defined. In itself, the rectangular piece of fabric of the sleeve may just as well be used to cover the leg (Tilke, 1990; Burnham, 1997; Broby-Johansen, 1953; Hamre, 1978).



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The geometry in this principle of cutting is to be distinguished from later geometrical approaches to cutting that combines geometrical shapes of different kinds to find new three-dimensional expressions. Historically, each piece of fabric relates to the body and folds around it, while later adopters of geometrical exercises in pattern cutting, such as Nakamichi (2005), Roberts (2008) and Sato (2011) among others, builds a shape and applies it to the body in order to find new expressions. The first method works its way from the body out using rectangles, because of the limitations of fabric width, and the other method experiments with geometry and the relation between two-dimensional and three-dimensional shapes and then applies it to both dress and body.

Hamre (1978) states that wrap clothing, ponchos and mantles developed into to djellabas, tunics and kaftans and also consequently shows different propositional positions of where to join the fabric by seams. Wrap clothing developed as fabrics were joined with seams at the shoulders, leaving an opening at the front, the poncho developed into a garment pulled over the head with seams joining the fabric along the sides of the body, and the mantle developed into a garment where the fabric is wrapped over the shoulders, open at the front and then joined along the sides the same way as the kimono. Hamre (1978) attempts to reintroduce the practice of rectangular cutting and clarifies the connection between early wrap clothing and rectangular cut garments. She falls short, however, as she does not connect the garment to the body inside it and hence she misses the methodological connection between the two distinct ways of dressing. Instead of taking the wrapped fabric hanging from the shoulders or the waist, already in place in its three-dimensional form around the body, as her foundation when defining the size and proportion of the rectangular pieces, Hamre turns to the depicted flatness of the garments and proposes that one can either lay down on a piece of fabric and draw lines around the contours of one's body or, similar to the drafting of modern patterns, measure the body and add extra fabric depending on the desired fit in order to draft flat, rectangular pieces after the measurements.

Although it points towards the mistake, the main problem of this anachronism is, however, not the fact that the measuring tape was not invented at the time these garments were introduced but that both the ancient wraps and the rectangular cuts take their points of departure in a living body and lengths and widths are decided upon the body. These garments do not use

patterns, neither as tools for creation or in the form of notes, as the form of the garment is either communicated by dressing (wraps) or is clear from looking at an existing or flat depicted garment (rectangles).

In modern times, the principles of rectangular cutting has been further developed into everyday wear as is exemplified by Tsui (2008) and has been adopted by many designers, e.g. Yamamoto, Romeo Gigli (Debo, 2003), Vionnet, (Kirke, 1998), Kawakubo (Fukai et al 2010) and Westwood (Wilcox, 2005), just to mention a few.

### 3.2 Tailoring – Flat pattern cutting

Pattern making per se originate in the Middle Ages, when tailors began cutting pieces of fabric shaped after the anatomical shapes of the body. Up until then, most garments consisted of some form of rectangular pieces of fabric which were draped on the body in one way or the other.

This way of cutting garments, i.e. starting out from flat, shaped pieces, have been developed in Europe over the last five hundred years. Tailoring and fit as we know it today developed gradually. Different systems for reproducing and theories of how to reproduce known styles to fit different body types were developed and with the industrialization, mathematical systems for size grading were introduced. Western tailoring has had a huge impact on dressmaking worldwide and the almost universally dominating flat pattern cutting methods taught today derive from it. A pattern of a tailored sleeve tells us about an arm and a front body piece about the chest. The paradox is that this is also where the separation of the garment from the body begins.

When cutting becomes anatomical and pattern pieces are shaped after the body, it becomes possible to cut garments without a body present. Craftsmen learn to read the body into the shaped pieces they are working with. One can work with an abstraction of the body, a template, and by altering the pattern new types of garments are created. Instead of working with the fabric and the body, the cutter works with the pattern. This opens up for new possibilities and refinements in cutting but also introduces an aspect of alienation to the work, a risk that the awareness of the body is lost in the act of cutting because there is no need for the body to be present.

Consequently, the introduction of the pattern establishes a type of notation which causes methods of cutting to be documented which in turn leads

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to knowledge being shared and spread in trade journals, etc. This change in method opens up for developments in the field of cutting which lead toward greater accuracy and allow more complicated cuts to be made and, thus, the reproduction of such cuts.

### 3.2.1 Drafting systems

Drafting a flat pattern in the absence of the body of the intended wearer raises the demands for accuracy of the drafting method. There are numerous mathematical systems that work with the measurements of the body in order to assist in drafting a foundational pattern that can later be transformed into any kind of garment. The measurements of a body abstract the spatial moving body into a series of numbers. From these numbers, a diagram of guidelines is drawn on a flat surface and pattern pieces are drafted within this matrix. Some systems generate a basic block following the shape of the body, i.e. a representation of the body, which is then meant to be altered into specific styles (Aldrich, 2004, 1997; MacDonald, 2010; Öberg, 1999), while other systems are designed for the drawing of patterns of pre-defined garments (Doyle, 2005; Friendship, 2008).

The working order often follows the order in which measurements are taken. The centre back neck point is a common starting point both in measuring the body and in drafting patterns. This is logical because this is the initial point of balance for garments resting on the shoulders. It is common to measure chest width, waist width, seat width, shoulder width, length of the front and the back and the width and the length of the arms. These measurements are used as a base for the matrix that is drawn up, within which the pattern is shaped.

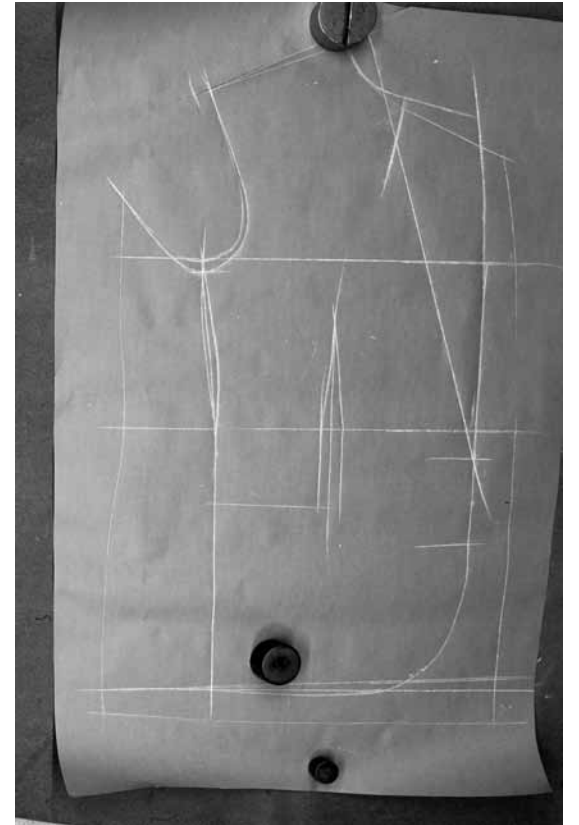
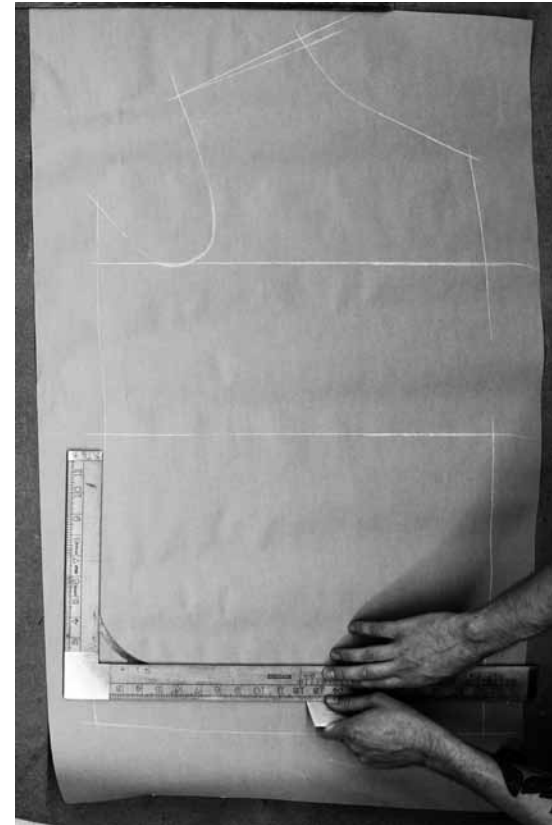
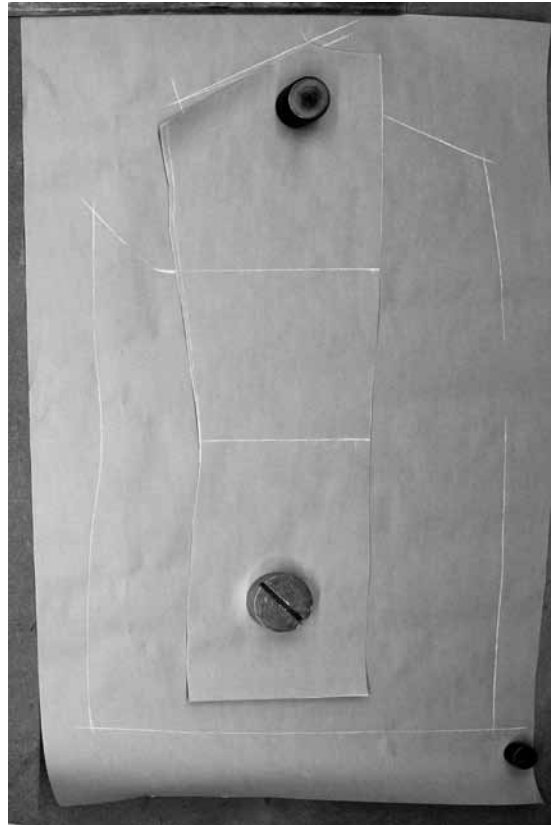
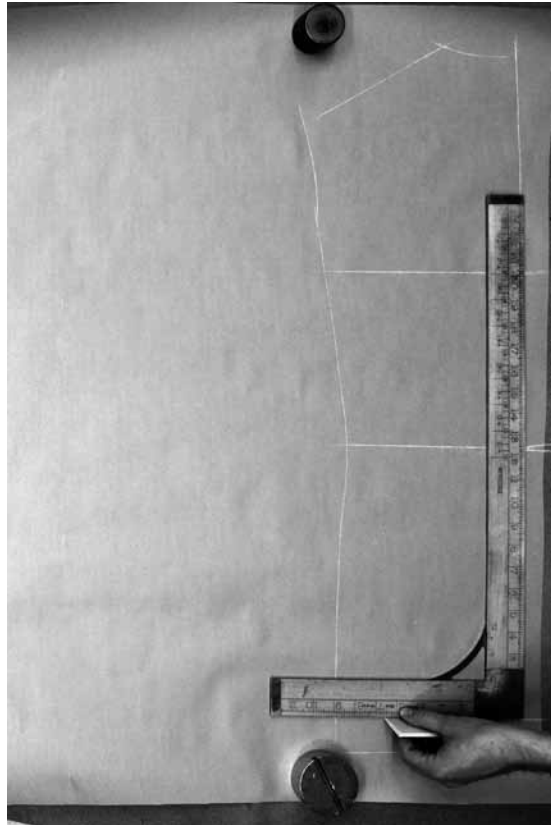
The general character of these systems is not experimental, although they embody the developed understanding of everyday work in the cutting room. They are a mathematical extraction of a spatial knowledge systematized in order to be reproducible for someone without this experience.

This mathematical take on cutting, i.e. using a matrix drawn after the body measurements, shows one way of perceiving the body. Drafting systems using vertical and horizontal lines connected in straight angles in this way imply a certain view of the body, which is not necessarily based on the body although it is applied to it for practical reasons.

The same kind of matrix is often applied on the dress-stand to be used as foundation while draping, why contemporary draping as described by Mee (1987) and Duburg (2008) is based on the same approximation of the body as is used in flat construction. Thus, despite the fact that working in two dimensions on the table or in three dimensions on the dress-stand is often presented as two different approaches to garment construction, they are based on the same logic and theory.

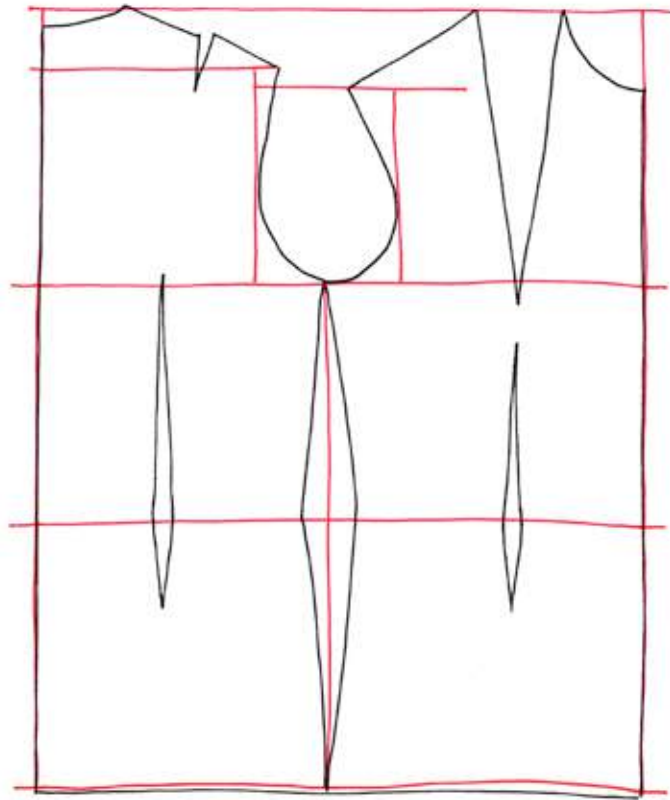
The impact of the straight vertical and horizontal lines of the tailoring matrix can be seen in the development of grading systems and in the common understanding that the grain line of the fabric normally runs vertically or horizontally while cutting garments.

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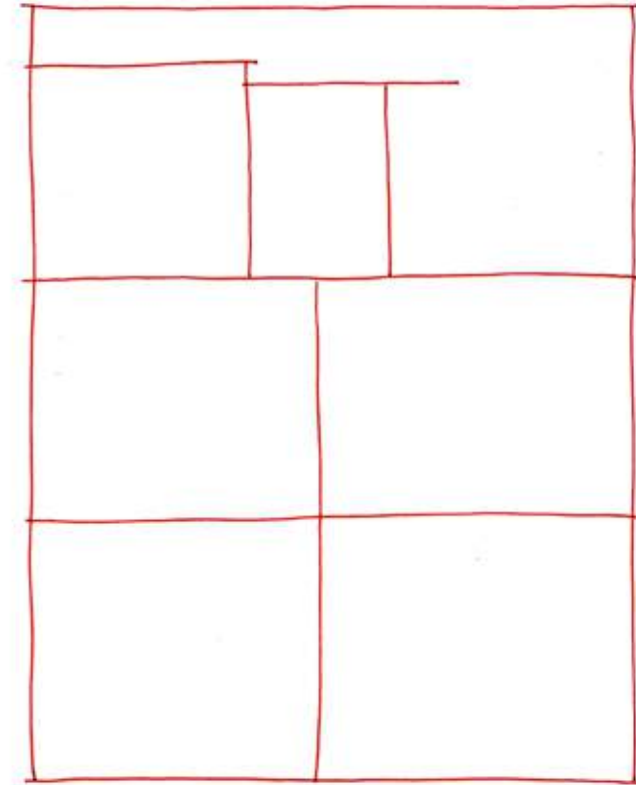


Patten drafting of a tailored jacket at Bauer tailors in Stockholm.

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Draft of a women's basic block pattern.

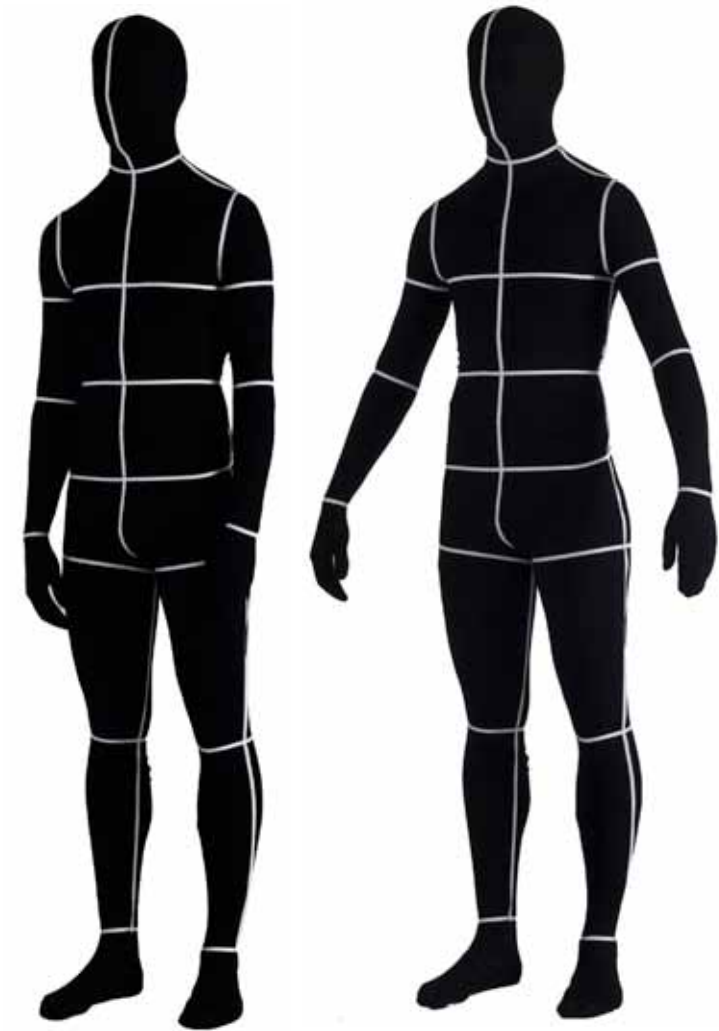


The tailoring matrix.

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The tailoring matrix applied on a dress stand.



The tailoring matrix applied on a body.

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### 3.2.2 Block pattern manipulation – abstracting the body

The block pattern tradition encapsulates the shape of the body and transforms it into basic patterns blocks. Hence, the body is abstracted, taken apart and turned into flat, graspable parts such as the top front, top back, the sleeve, etc. These parts are then joined together to create a layer following the shape of the body like a second skin. Depending on whether one aims for tightly or loosely fitted garments, this layer is constructed with different amounts of volume added to it. The blocks representing the body become the object one is working with instead of working with an actual body: only when the garment is sewn together, the body is brought back into the process of creation.

What is shown by Aldrich (2004), MacDonald (2010) and Öberg (1999) among others, is how to alter a block pattern into something else, something depicted and already known, e.g. how to change the standard block sleeve into a raglan sleeve. These instructions can be useful when speed is required to develop variations of already existing designs and may also be a method for creating new shapes and forms, as two-dimensional lines and surfaces are joined together to create three-dimensional forms.

Aldrich (1980) claims that the body remains constant and therefore argues that the pattern blocks representing the body are a good starting point for cutting garments. “Pattern cutting by this method is a means of achieving a shape around the body so that, although the body and therefore the body blocks remain constant, there is no limit to the ideas that can be followed through into workable designs.” The problem with this argumentation is that the body does not remain constant. It is changeable, varying and inconstant by all means. The body is a moving variable (Burnham 1997) that is constantly shifting its physical appearance and it is also contextually moved around.

Lucy Orta (2010) describes the participating artists and designers in the British Craft Councils exhibition *Block party*, showing contemporary craft inspired by the art of the tailor, as “They are advocates of the craft and masters of the art of block manipulation: they are explorers who wish to experiment and invent new ways to assemble pattern shapes, not to create garments but to manipulate shape to realise new forms.” This points toward a problematic assumption, namely that the cutter is dealing first and foremost with the pattern in itself and only secondly with the garment and the body he/she is dressing. Another risk when working with block patterns and transformations

done “off” the body is that they may result in a rigid, static creation which is not made for a living, moving body but for a static one. The most important moment will then always be the fittings, to fit the garments on a living body. First then the work can be properly looked upon and evaluated .

### 3.2.3 Alteration as the tool

If we look upon fashion design as an act of further developing new bodily expressions, i.e. inventing new types of garments, the techniques and methods for altering flat patterns may be considered productive, useful and practical ways of developing new shapes and expressions. It may even be used, as is shown by Nakamichi (2005, 2007) and Sato (2011), as a method to find and develop entirely new shapes. It is, however, questionable if starting out from block patterns depicting the body ought to be proposed as the principal working method as this will, in a way, force one to invent the wheel every time.

Reverse engineering or knock-offs, i.e. taking the pattern of an already existing garment, is a simple task for most garments if one is equipped with a tracing wheel. There is no need to unpick the garment and in a couple of hours one has a working pattern to alter and has swiftly come one step further in the process of the aesthetical evaluation.

To copy the work of earlier masters or contemporary competitors is a natural way to learn and find one’s own artistic voice. These works may become the foundation for development, deconstruction and reconstruction. I would distinguish this evaluation and ability to see the potential of new developments of pieces of existing work, whether they are historical, one’s own work, or someone else’s creations, as a most important skill for a fashion designer.

Using block pattern transformation to recreate historical or contemporary design may be an easy and efficient way of working, but possibly a methodologically discrepant one. If the copying process is not performed well but instead filtered through a ready-made block pattern, the actual essence of a garment, i.e. how the garment interacts and changes the expression of the body, might be lost and the details transferred will be the ones that would matter to the work of a stylist moving known parameters around, i.e. losing the opportunity for a possible development of the shape and the bodily

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expression.

Such locked position of manipulating block patterns depicting bodies, possibly in order to create what has been sketched beforehand on a flat surface with references to other garments and an anxious and retrograde view on originality versus copying (altering a block pattern into a sketch of a new version of a trench coat is in really no more original than altering the pattern of an existing coat into a new one), might conduce to a lack of historical awareness and understanding instead of encouraging development and progress.

#### 3.2.4 Perception of fit

If one measures the body and drafts a basic pattern to represent the body after these measurements, one will consequently become predisposed toward fit. This fuels a perception that a well-fitted garment is one that follows the shape of the wearer's body, creating a minimal amount of creases while still allowing the body to move about comfortably. This way of understanding fit is, however, as one-dimensional as identifying the quality of a garment solely through the concept of how long you can wear it before it falls apart.

In addition to look upon fit and volume from a functional point of view, putting forward varying amounts of suggested volume for different types of garments, one needs to see how a certain volume and size of a garment affects the body wearing it. The concept of fit needs to include the notion of how the garment transforms the expression of the body, covering parts of it while revealing and accentuating other parts.



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An elaboration with fit. Same shirt in 6 different scales.



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### 3.2.5 Designing with patterns

Over the past few years, recent development of the traditional methods of block manipulations has been publicized in various forms. Roberts (2008) explains his practice as designing with patterns instead of creating a pattern for a design, which is a point of view well describing the methodological approach of a number of contemporary cutters .

Two categories can be defined within this movement: one emulates draping through block manipulations (Nakamichi 2005, 2007; Sato, 2011) and the other experiments with pattern pieces or other shapes in order to come up with new, unexpected shapes (Roberts, 2008; Gwilt & Rissanen, 2011; McQuillan, 2011)

The first category, creating shapes and expressions that would normally be associated with draping, includes the Pattern Magic series by Nakamichi (2005, 2007) and Transformational Reconstruction by Sato (2011). Both Nakamichi and Sato compare their cutting practice with solving a puzzle, which clarifies their view on cutting as a practice where the core is the pattern itself: through manipulation of the puzzle pieces, one can achieve another kind of image. Nakamichi states that she is often inspired by fashion of the past and as she tries to recreate them, she often ends up creating new designs (2005:61). This is done by manipulation of basic blocks. By doing so, both Nakamichi and Sato explain a way of achieving a draped expression through block manipulations which formulates a method easily accessible to anyone familiar with the principles of block manipulation. It may, however, lead to methodological discrepancies, the consequence of which is that instead of creating draped expressions following the shape and movement of the body, one instead ends up in unworkable creations made for a static body.

The second category includes Julian Roberts's (2008) Subtraction Cutting method and the contemporary zero-waste cutting movement promoted by among others Timo Rissanen (Gwilt & Rissanen, 2011) and Holly McQuillan (2011). Roberts's work can be compared with action painting or gestural abstraction, where the artist is painting spontaneously, smashing the paint towards the canvas instead of applying it carefully. In action painting, the physical work itself is, as the pattern is to Roberts, often pointed out as an essential aspect of the finished work. The zero-waste cutters, on the other hand, use the limitation that they are not allowed to waste any fabric

to force themselves to change the shape of their block patterns (or other shapes) into new, unknown paths.

The name Subtraction Cutting derives from a principle where pieces are cut away from a tube of fabric and where the holes are then stitched together in various ways, shaping the fabric. Here, the pattern pieces will represent what is cut away instead of what is left to be stitched together, making up the garment. Roberts, however, presents Subtraction Cutting more as a general approach to cutting and design, stating that: "Subtraction cutting is DESIGNING WITH PATTERNS, rather than creating patterns for designs." He uses his body for measurements when dealing with his patterns and takes a sound step away from numbers, rules and measurements, claiming that space and balance is what cutting really is about. He opens up for mistakes as possible starting points for future successes, in a sound way contrasting himself to many dry, rule addicted authors on cutting techniques. Several of these techniques or techniques similar have been used by practicing fashion designers prior to being published by Roberts, but they have seldom been explained.

Roberts is the first to mention that to him, the pattern has been the main interest and that his designs often have been dominated by his interest in the pattern itself. While explaining his method, the body is depicted simply as arrows illustrating the way it passes through a garment or construction. Methodologically, it is clear that the cutting activity starts in the pattern. Roberts points out that in the fashion industry, the activity of pattern cutting is often seen as hierarchically beneath the activity of design. However one of the reasons why the cutters are often seen as being below the designers in this hierarchy may be that the pattern and its possibilities are from the cutters point of view given priority to the body itself and its relationship to the garments. If the cutter is also a trained body watcher, i.e. someone who works with the body and its expressions when creating garments, he or she may receive higher status in the fashion hierarchy.

Timo Rissanen (Gwilt & Rissanen, 2011) is equally focused on the pattern and its possibilities, and argues, during an attempt to find ways of making fashion more sustainable, for a shift towards a zero-waste cutting practice in which what is normally cut away in production should instead be used for extra seam allowances, larger hems and reinforcement pieces, allowing the garments to go through alterations in the future and providing them with a longer lifespan. Both ancient wrapping techniques and rectangular cutting

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can be viewed as zero waste cutting methods, where the fabric is used to dress the body without the use of a premade pattern. The contemporary zero-waste movement, however, uses block patterns as tools for achieving zero-waste and this combination of traditions outlines a new design method where pattern blocks are transformed into new shapes in order to fit onto the chosen fabric. Consequently, the garments become shaped in a manner one otherwise would not have thought of (McQuillan, 2010). McQuillan (Gwilt & Rissanen, 2011) describes this as, “zero-waste design is design practice that embraces uncertainty,” because while moving lines around on the layout plan, the outcome in three-dimensional space may be difficult to predict.

A common denominator between these cutters are that they emphasize the pattern itself as a tool for creation. By experimentation and transformation of patterns, either through blocks or other shapes, they find new shapes and ways of designing for the body. The problem that sometimes occurs, as is pointed out by Roberts (2008), is that the garments may end up as walking patterns, which has little to do with the body wearing it. There is a risk that when using the pattern as design tool that the work will end up being about funny patterns and that one may forget what I would argue should be the core of dressmaking, the expression of the body.

### 3.3 Draping

Until recently, little of practical use has been published on the art of draping beyond introductions of the basics, leaving the craft to become a skill passed on from master to apprentice, just like tailoring. However, as there is a growing interest in this working method, a number of titles are now available on the subject. Mee (1987), Jaffe (2005/2012), Joseph-Armstrong (2008/2010) and Amaden-Crawford (2012) all illustrate the working process with drawings. Some of these illustrations are clearer than others, but generally it is difficult to understand the significance of the soft fabric dressing the body and the consequences of e.g. pulling it too tight or of letting out too much are difficult to follow. Duburg (2008) and Di Marco (2010) illustrate with photos, which makes it easier to understand and actually see what happens with the fabric when it is folded, gathered or put on the bias. Common to them all is that there are no photos of any fittings of the created garments on a living body: they all hold on to the static dress-stand for their creations.

The best and clearest description available of the work process of traditional draping or *moulage* (Fr. for ‘moulding’) is the one by Duburg (2008). By showing the process systematically in clear and instructive photos, she provides a technical and hands-on illustration of how to proceed in order to create garments on the dress stand. The working order in traditional draping normally starts from the front of the stand and around the body, goes on to add a collar and finally sleeves. One works on the right hand side of the stand if aiming to arrive at a symmetrical garment, pinning the fabric onto the dress-stand and then modelling the garment piece by piece on the dress-stand. However, Duburg only touches upon more intricate cuts, such as when cutting the body and sleeve in one and the application of gussets to allow for movement of the arm. For such a cut to be made correctly, the arm of the mannequin needs to be moved around and the garment should preferably be finished on a living, moving body.

In the preface to her book, Duburg (2008) states that, “a mastery of the basic principle of pattern drawing and workmanship is necessary before commencing with draping.” Duburg argues, as do Mee and Purdy (1987), that, “working on the flat in two dimensions is a far simpler concept to master, and once mastered will give the students the insight which allow them to visualize the same pattern in three-dimensions.” Although I will not object to the statements of Duburg and Mee, I will, however, argue that it may well be the other way around. To learn draping may be a natural way of understanding the basic principles behind what a pattern really is and why pattern pieces are drawn the way they normally are. While working on a mannequin or, in a best case scenario, directly on a moving body, the rules taught in pattern cutting classes would immediately make sense and many of them would actually not be needed because with three-dimensional modelling, things such as e.g. how wide a dart needs to be or the amount of ease to put into a shoulder seam will come naturally.

Draping is a well-tried and practiced working method that has been used in haute couture for more than a hundred years although, as pointed out by Yamamoto (2010:96), it has methodological connections to ancient wrapping techniques. “People associate draping with haute couture, but in truth the concept has implications that extend much further. It originates with the practice of wrapping the body in cloth, as was done in ancient Greece and Rome. The very foundations of draping can be found in the way they wrapped fabric around the body such that it flowed naturally.”

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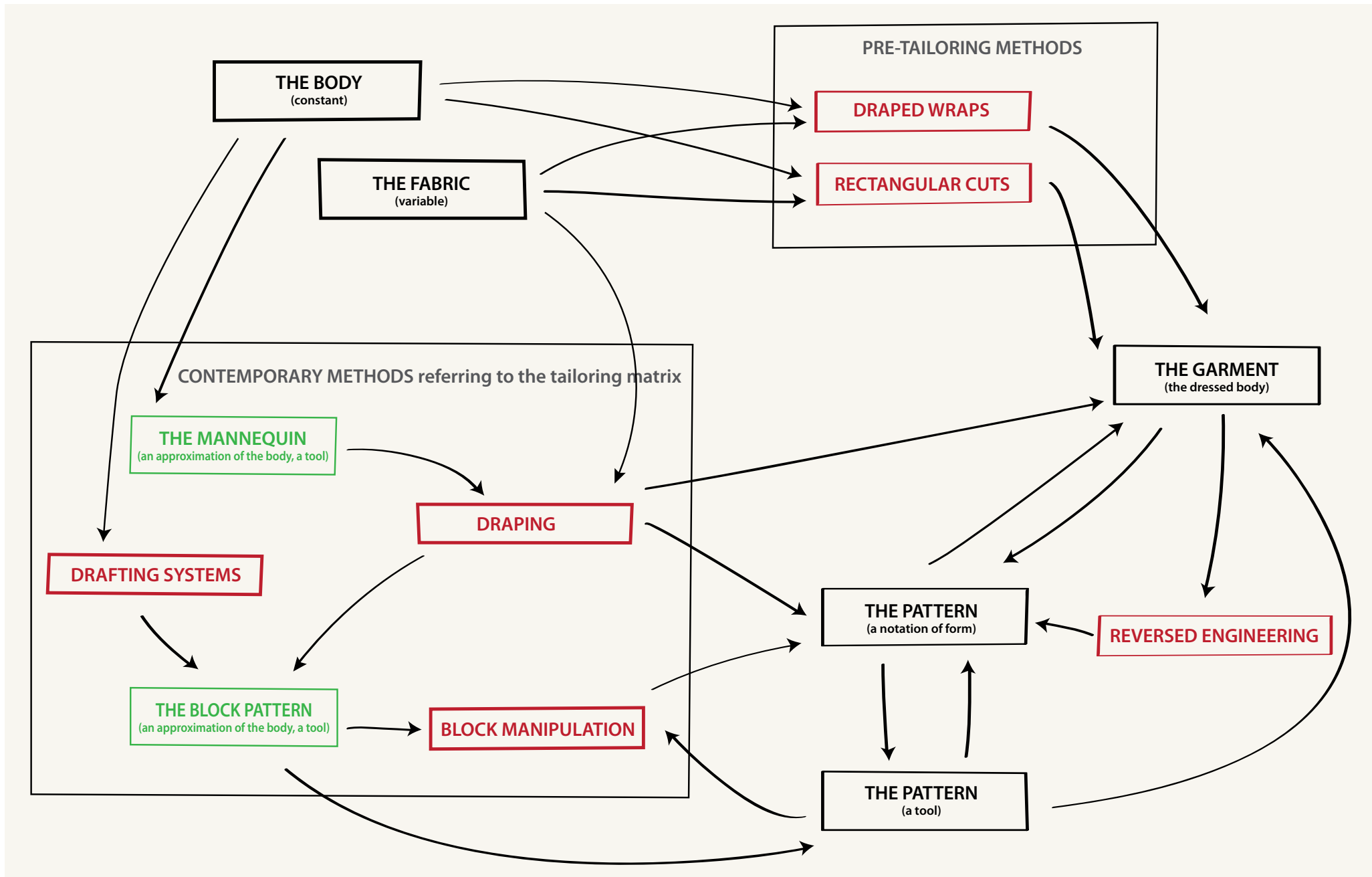
Draping as a method shares its foundation with the ancient techniques of wrapping in that it uses the fabric directly to create shapes around the body. Contemporary draping methods are, however, distinctively different from ancient wrapping techniques in several ways. What then is the fundamental difference between the ancient practice of wrapping the body in fabric and contemporary draping methods?

One obvious difference is that, in most cases, the living body (although not necessarily) has been replaced by a static dress-stand. The second apparent difference is that the fabric is cut into pieces which are first pinned, then stitched together. Neither of these two conditions are however to be considered general conditions and the fundamental difference is found elsewhere.

Duburg (2008) and Mee (1987) do point toward this fundamental difference between the ancient practice of draping and the contemporary one: the contemporary one is based on the same perception of the body as the drafting systems for flat construction are. While introducing the general principles of draping, a mannequin is decorated with tapes marking a circle around the neck and one circle around each arm hole. The centre front and the centre back of the stand are also marked with tape. Furthermore, lines are attached horizontally along the seat, the waist, the chest and a line going across from the centre front to the armhole. These lines are the ones where a body is normally measured when a drafting a flat pattern with a mathematical methods. There are lines simulating a shoulder seam from the neck out to the armhole and lines marking the sides of the stand as a side seam. As a consequence, contemporary draping uses the same perception of the body as has been defined by tailors developing drafting systems after measurements of the body (the tailoring matrix). Draping/moulage reintroduces the body into the practice of cutting but, partly due to primarily working on a fixed dress-stand and partly because it uses the same perception of the body as flat construction does, it has the same tendency to create rigidity as cutting from block patterns does.



### 3. BACKGROUND



### 3. BACKGROUND

#### 3.4 Conclusion: What is pattern cutting?

When dealing with cutting garments for a body, the question of how to view the pattern becomes crucial. Is it to be seen as a representation of the body (Alrich, 2004), a tool or the starting point for designing (Roberts, 2008), a catalyst between fabric and garment (Debo, 2003), or is it just to be seen as a notation of a shape?

Clothing is made for the body as Debo (2003) argues or as Andreas Kronthaler already expressed above: “It is not about the pattern, it is all about the body and what the garments does with the body.” (p.23) This ought to be the fundamental starting point which needs to be present when dealing with pattern cutting techniques and methods. Debo addresses the problem of exhibiting fashion in a museum context, where bodies are replaced by mannequins and garments are shown out of their original contexts, a problem which is also present in the design studio.

In most cases, fashion designers will not, for practical reasons work directly on a human body while cutting a garment. The body is replaced by a dress-stand – an artificial mannequin – if working in a draping tradition, where the garment is modelled in three dimensions. If working in a tradition of flat cutting on the table, the body is replaced by a rectangular matrix based on measurements taken from a body or a block pattern which can be seen as a two-dimensional plan of a shell following the shape of the body.

Different pattern cutting methods are based on different approximations of the body, models that do not represent the body exactly but close enough to be useful for cutting work. These approximations intend to simplify cutting and the design process and are used to make predictions of the result easier.

For ancient wraps, an approximation was not needed because the body was present during the creation as the garment was wrapped upon the actual body of the person intended to wear it. However, directions of how the fabric drapes around the body may be extracted as theory for these garments.

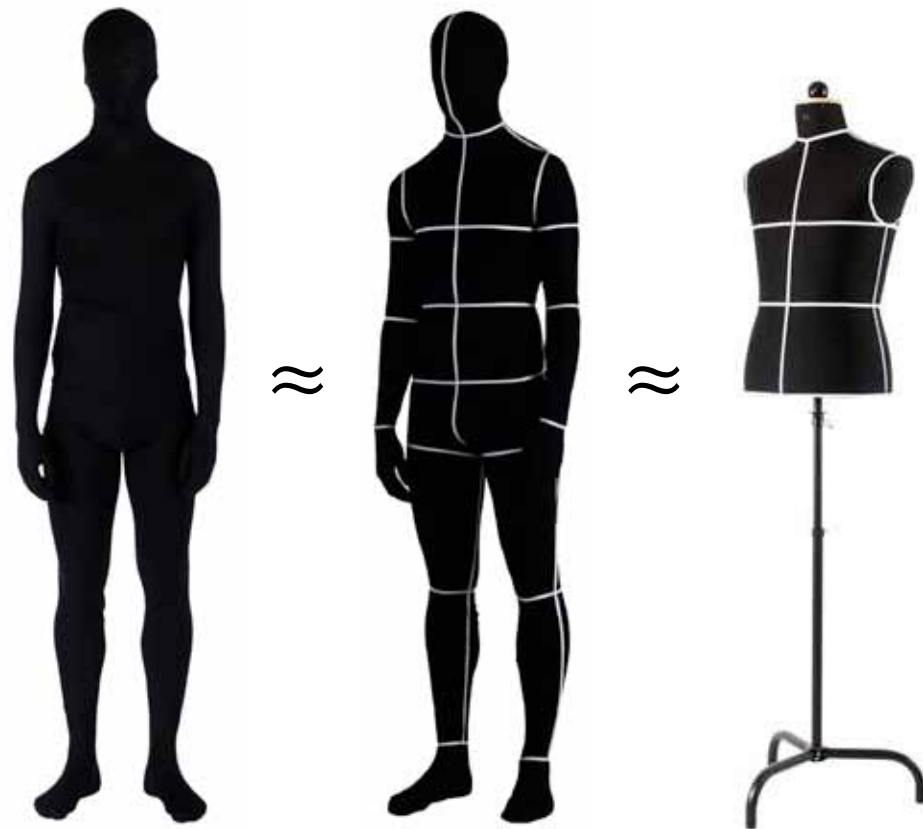
Neither did historical garments made from rectangular cut fabrics hanging from the shoulders use patterns. Hence, abstractions or approximations of the body other than for adjustments of the width of the fabric according to the size of the garment and the body intended to wear it was not developed.

For drafting and flat construction, the tailoring matrix and the basic block patterns are the approximations developed and used. These approximations then come to define the cutting of a modern dress with its shoulder seams



Reconstruction of an Arabic Hajk with directions of dressing extracted.

### 3. BACKGROUND



and side seams and this approximation effects the view on the use of grain direction, and the development of grading principles.

For draping, plain dress-stands or dress-stands marked with the lines of the tailoring matrix became the approximation. The absence of arms, head and lower body is noticeable in many garments designed on dress-stands (Thornquist, 2012). The horizontal and vertical lines, often marked on the stands, confirm that draping uses the same perception of the body as flat construction does.

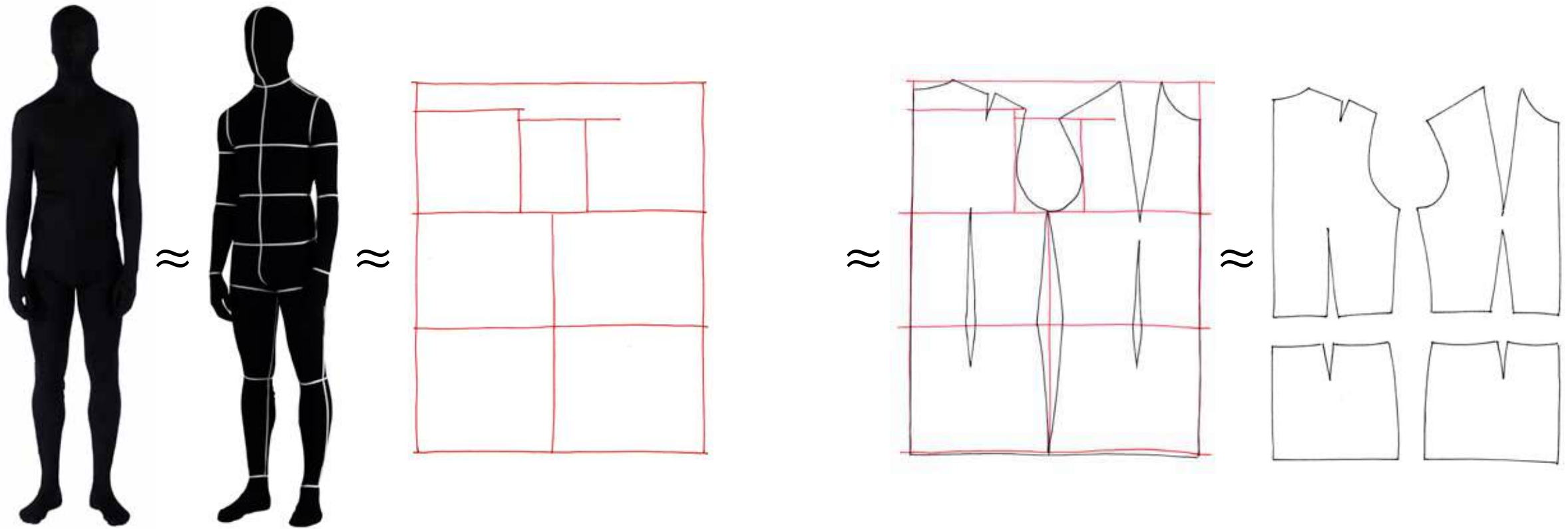
When the two-dimensional pattern is the starting point for creation and lines and shapes are joined together into three-dimensional garments, the pattern can become an effective tool for creating new shapes (Aldrich, 2004). Cutting from blocks and designing with the pattern has been promoted as a design method in a number of published titles. The methods have been labelled with different names, such as metric pattern cutting (Aldrich, 2004), Pattern Magic (Nakamichi, 2010), Subtraction Cutting (Roberts, 2008), Transformational Reconstruction (Sato, 2011) and they all have in common that they start out from two-dimensional blocks or shapes and, using a jigsaw puzzle approach to designing, they construct their garments in three-dimensional space.

Arguably, pattern making ought to concern first and foremost the body, secondly the dress, and finally the pattern. The block pattern is merely an abstraction of the body and using this as the foundation for cutting tends to bring one away from the core of dressmaking, i.e. the body. My experience is that flat pattern cutting is not, as claimed by Duburg (2008) and Mee (1987), a simpler concept to master compared to the concept of modelling garments in toile on the dress-stand.

If cutting a fairly simple standard garment, it may be easier and faster to manipulate blocks on the table. This is a safe way of working because it starts out in a shape that is well-tried and someone else has already evaluated how it works together with a body, the balance is pre-set and has been rationalized. On the other hand, the patterns of standard garments are out there, available as open source code for any one equipped with a tracing wheel and some basic technical skills. No need to reinvent the wheel.

If, on the other hand, the aim is to use cutting as a creative method for exploring and developing new shapes or if the garment that is to be developed is not available, it is less abstract to go into three-dimensional draping right from the start. This is also a natural way of learning how patterns

### 3. BACKGROUND



are normally shaped when taking the toiles apart. In this way, the pattern becomes a notation of the form created and the focus can be turned toward what the garment does to the body instead of what the pattern looks like. However, both contemporary flat cutting and draping on the stand are based on the same quantitative approximation of the body as are the drafting systems, the tailoring matrix.

Looking at the above systems of pattern cutting it is clear that the dynamics of the body is easily lost when the pattern is viewed as a tool for designing. In order to rid ourselves from this static approach to the body, we need to develop a new, more dynamic model of the body as a base for pattern cutting. Such an approach may be based on how the moving body interacts with fabric while dressed in it. This will call for a new approximation of the

body derived from qualitative measures of the body, instead of quantitative ones, in order to open up for new unseen aesthetic values, functional as well as expressional.

# 4. TOWARDS ANOTHER PERCEPTION OF THE BODY

## 4.1 Revisiting, ancient wraps

If we return to ancient wraps, we will find another way of relating dress to the body as compared to the above mentioned contemporary draping techniques. Ancient ways of dressing, e.g. the toga, sari or kiton, all depend on the body they are draped around or as Broby-Johansen (1953:47) puts it: “without the body those garments lose their meaning and becomes just a piece of fabric.” There is no representation of the body in these garments when body is separated from garment. The body is needed to create the garment, the wearer folds it in position on himself/herself and it exists in symbiosis with the body. The actual existence of the garment depends on the body it is draped around.

Broby-Johansen (1953) clearly demonstrates the folding techniques of different ancient civilizations through drawings where various lengths of fabric are folded around a silhouette of a human body. These drawings are systematically displayed step by step in sections starting with a silhouette of a nude body that is gradually dressed as it is wrapped in an Indian sari, a Greece toga, or an Egyptian shanty. Since the body is just as central as the rectangular piece of fabric in creating these garments, it would be impossible to illustrate these folding techniques without including a body to fold the fabric around.

Furthermore, Broby-Johansen (1953:2) points out that if we would know anything about clothes, we must first discover what they conceal, the body, and then observe them in use. This is clear for ancient drapes as only the rectangular piece used to make a sari is not enough to understand the sari: the body cannot be left out. This is essential for the understanding of any kind of garment: the garment in itself is not enough, neither are the garment and its pattern. Without the body, the garment can neither be entirely understood, nor fulfilled. Yamamoto (2010:68) notes: “Clothing is, ultimately, made to be worn. It is complete only at the instant it is donned by a living human being.”

What Broby-Johansen and Yamamoto points out goes for the understanding or completing of dress but also for the creation of dress. The living human, the body underneath, is a fundamental starting point and an ever present constant if one aims to develop new types of bodily expressions. This is also noted by dress historian Dorothy Burnham (1997:2), who studies the impact of different weaving techniques on the way different cultures dress: “The body with its need for movement is a variable constant in the develop-



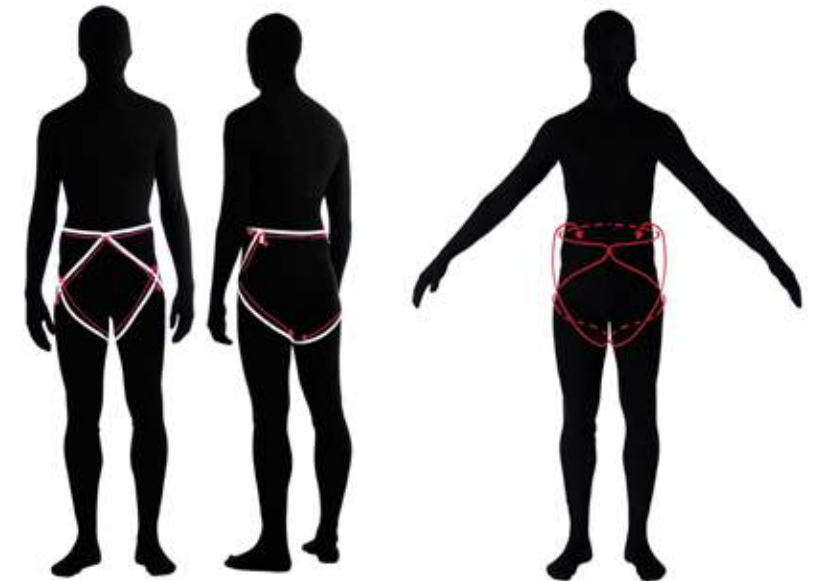
## 4. TOWARDS ANOTHER PERCEPTION OF THE BODY

ment of clothing.” This is true for the development seen from a historical perspective and it is equally essential in present day design contexts.

The craft or design work required in these types of garments are found in the weaving, dyeing and, possibly, in the embroidery of the fabric. The shape the garments created was, however, eventually created by the wearer himself/herself. As pointed out by Burnham (1997), the techniques used to fold and shape the fabric and where on the body it was placed differed between cultures and ages due to the varying maximum width of the weaving technique utilized. The wrapped garments did, however, rest on and begin either from the shoulders or from the waist.

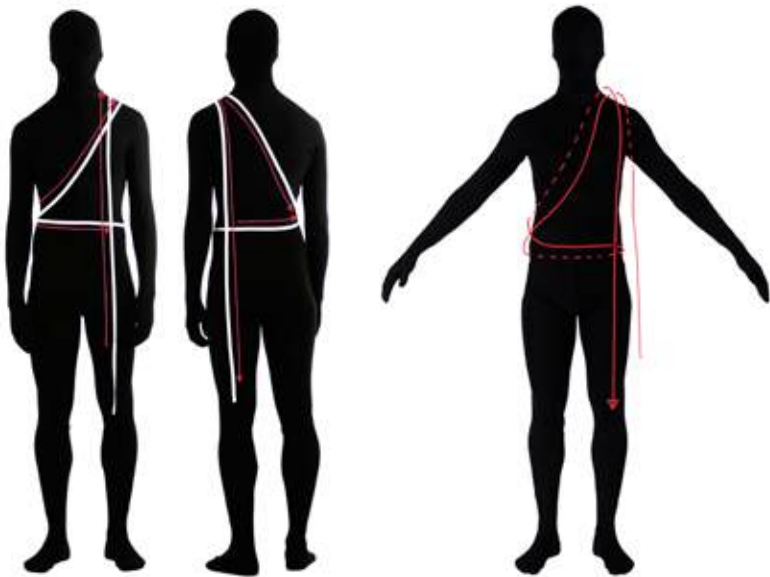
The folding techniques where a rectangular piece of fabric is wrapped around the body do not include any actual cutting, in the meaning of cutting into something, but clarifies the core of what cutting for a human body is about – the body – and it also tells us about basic principles of dress, how fabric naturally wraps around and flows from the body: this way of letting the fabric show the way is, as Yamamoto (2010:96) points out, the foundation for modern draping techniques later developed within the haute couture.

If the pattern is nothing but the uncut fabric, the body ought to be included when explaining how a garment is put together. Later in history, when the pattern could be communicated in its own right, the body can be left out and, consequently, it often is.

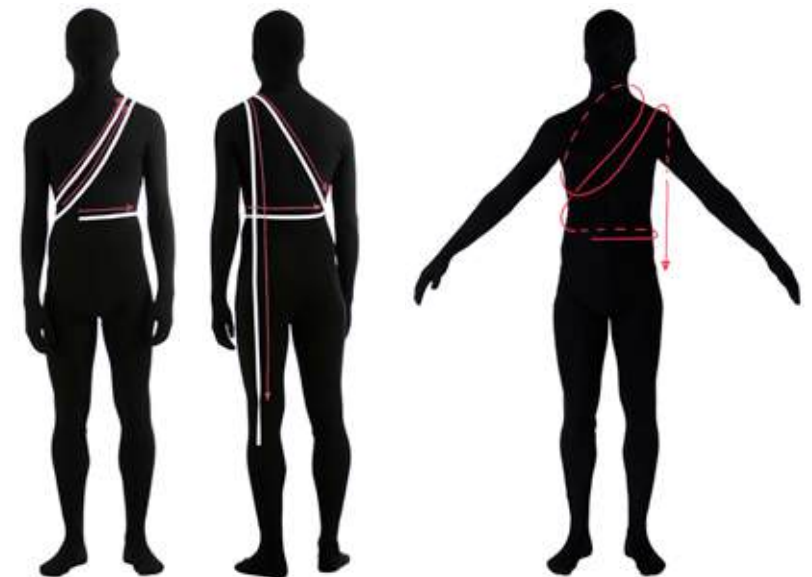


Reconstruction of an Indian Dhoti with directions of dressing extracted.

#### 4. TOWARDS ANOTHER PERCEPTION OF THE BODY



Reconstruction of an Arabic Hajk with directions of dressing extracted.



Reconstruction of an Indian Sari with directions of dressing extracted.

## 4. TOWARDS ANOTHER PERCEPTION OF THE BODY

### 4.2 Geneviève Sevin-Doering, a pre-tailoring perception of the body

In relation to ancient wraps, Geneviève Sevin-Doering, a French costume designer, explored these ideas further. Since the seventies, she has systematically developed a cutting method where the garment is sculpted from a single piece of fabric upon the body. Her work is based on studies of pre-tailoring garment making, i.e. how the garment was cut before the Middle Ages in Europe and much later in large parts of the world (Tilke, 1990), before the introduction of drafting systems, basic templates and mannequins. Based on these studies, she developed a method where the aesthetic balance of the expression and the physical balance of the garment in relation to the body directly give shape.

I have long been fascinated by her work and in December 2011, I visited her in her studio in Marseille. Although she is over 80 years old and has been blind for several years, she explained and demonstrated her philosophy and working method for me during two weeks. I was given free access to her garments and pattern archives and was invited to work in her studio together with her daughter and son-in-law. For me, meeting Geneviève was something of a third-degree insight, where the first degree was my training in classical tailoring and the second my work with Vivienne Westwood in London.

#### *Marseille 5th December 2011*

I am 45 minutes early to the appointment with Geneviève Sevin-Doering in her combined atelier and home. I wanted to be sure to find the way and check out the surroundings. The atelier is situated on the southern side of the harbour basin of Marseille in an old rebuilt boathouse. From the outside, the only sign of the costume maker's presence is the name Sevin-Doering next to one of the doorbells among the other residents of the house. To kill the three quarters of an hour, I go for a walk along the harbour looking at the sailing boats which are still in the water in early December.

At 3.30 I am back at 18, rue Neuve Sainte Catherine and ring the doorbell. The atelier is situated on the first floor and a red door facing the stairs has SEVIN-DOERING written in capital letters across it. Geneviève's daughter Mireille, with who I have been in contact, opens the door and invites me

in. At first I am surprised by the dim light in the big room until I realise that this it makes perfect sense as Geneviève has been blind for several years. The first thing I see is a table on which several books are spread out, greeting visitors with knowledge, and behind that a big wooden dinner table. The large room is packed with boxes, old dress-stands, antique wooden dolls, dress bags with archived costumes, plackets showing cutting plans, and garments hanging everywhere. The whole atelier is like a cabinet of curiosity, encapsulating the life and work of the Sevin-Doering couple. The floor of rear part of the room is slightly elevated, like a small stage, where, I will later learn, the actual cutting takes place on the floor. Out from among the shadows on this stage comes Geneviève herself, finding her way through the room with a cane.

I am shown her portfolio, presenting her work from the sixties until today. Geneviève describes it as B.C. and A.D., i.e. before and after she started to work according to her *coupe en un seul morceau* principle.

When making the costumes for *Roi Lear* in 1965, a heavy hand-woven mantle was finalised the very last minute before the opening night. To make it stay in position, Geneviève had to add straps going from the front corner of the mantle, a point near the front scye turn, and backward and down, attaching the mantle to keep it from falling off. That was when she realised that dressmaking is all about balance and that it naturally starts from the shoulders. This was the starting point for a new way for her to look upon dressmaking and the initiating moment for the development of her *coupe en un seul morceau* method, in which the key parameters are balance and movement.

– The shoulder seam is an abnormality, look at the dresses of these ancient civilizations, there are no shoulder seams, here the garment starts from the top and goes downwards. The fabric always falls towards the earth. 20th century clothing often goes downwards and up which is bizarre.

– The *mouflage* is too rigid. It does not consider the moving body.

#### *Marseille 6th December 2011*

– You must work from the inside and out, not from the outside in.

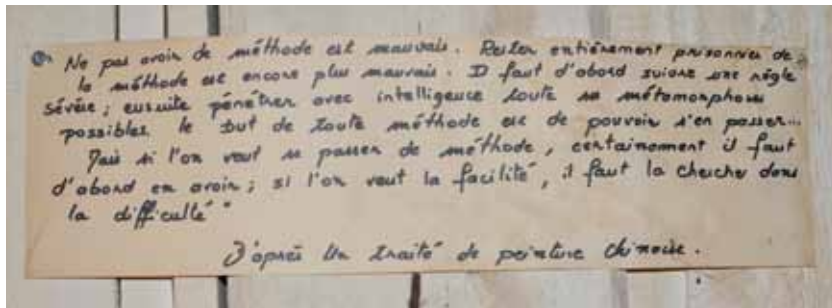
– Your tailoring background restrains you. You must swim in the ocean instead of in the pool.

– Be bold, it is easier to simplify than to magnify.

## 4. TOWARDS ANOTHER PERCEPTION OF THE BODY

There is no clear logic, according to Sevin-Doering (2007), if one starts in the actual body, to split pieces at e.g. the top of the shoulder or along the sides. Quite the opposite: the shoulders are one of the natural points where garments rest on the body and from where it is being pulled downwards by gravity.

That Geneviève's work was based on another approximation of the body than the one I had been presented with in tailoring school was clear. Here, the starting point was the fabric and the body and block patterns or dress-stands marked with straight lines were nowhere to be seen. The garments were sculptured upon the person it was intended for while he/she moved around in the atelier. How this approximation differed from quantitative ones was, however, neither verbalised nor visualised other than through the garments and the patterns bearing marks of another view on dressmaking.



"Not having the method is bad. Remain entirely imprisoned by the method is even worse. One needs to first follow a strict rule; then one needs to intelligently explore all its possible variations, the aim of any method is to do without it. But if one wants to go beyond the method, certainly one must first have it; if one wants simplicity, it must be sought in the difficulty."

Note on the wall in the atelier of Geneviève Sevin-Doering



Mantle for Roi Lear 1965, note the string in front of the sleeve being attached to the back of the mantle providing physical balance to the garment. Compare to the line addressing the balance on page 128.

#### 4. TOWARDS ANOTHER PERCEPTION OF THE BODY



Some of Geneviève Sevin-Doerings pattern work, top left pattern is for the dress to the left.

#### 4. TOWARDS ANOTHER PERCEPTION OF THE BODY



Trying on a coat in the Sevin-Doering atelier.



Geneviève Sevin-Doering altering the pattern of a coat, compare to the applied example of the jacket.







## 4. TOWARDS ANOTHER PERCEPTION OF THE BODY

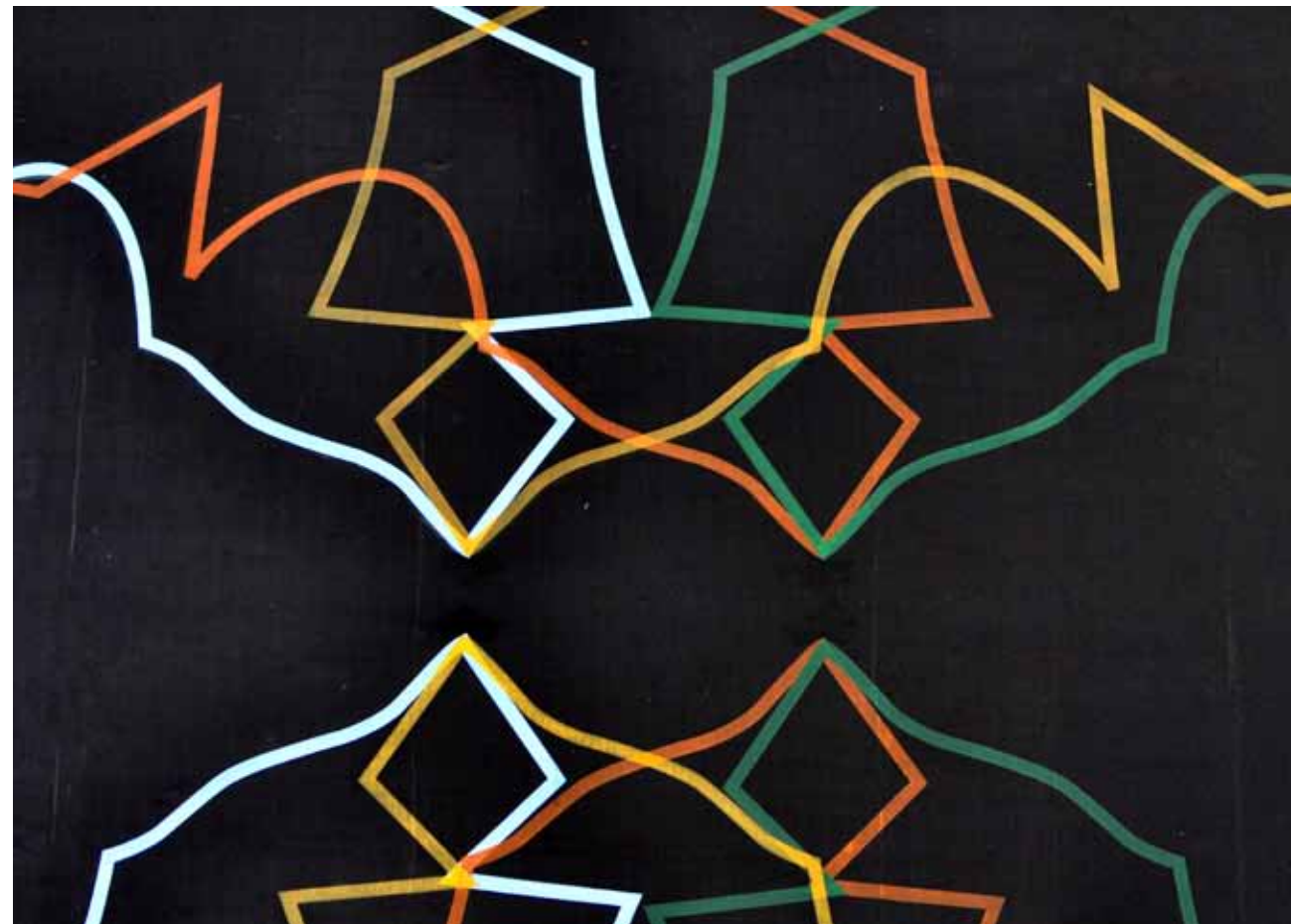
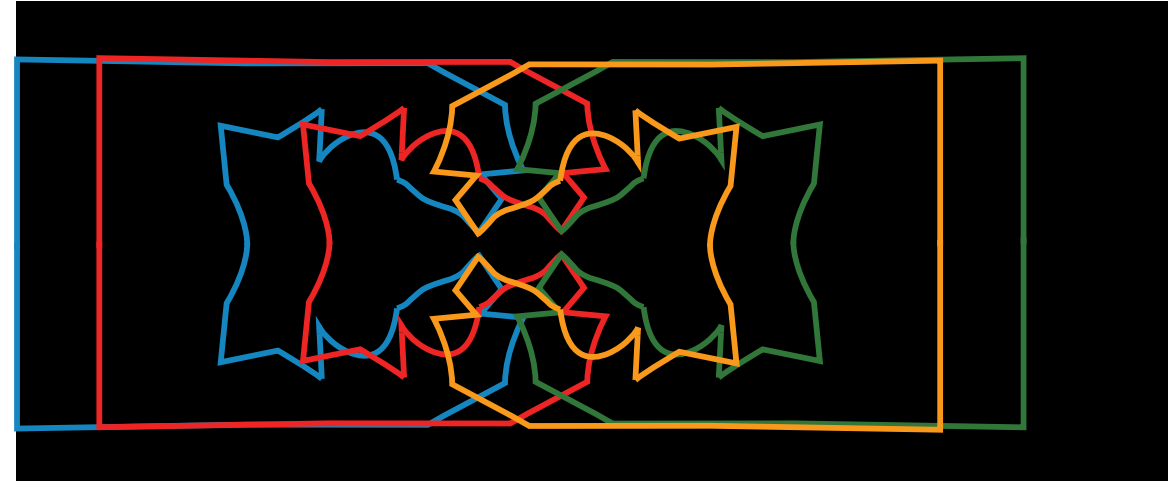


### 4.3 The misunderstanding of the one-piece pattern

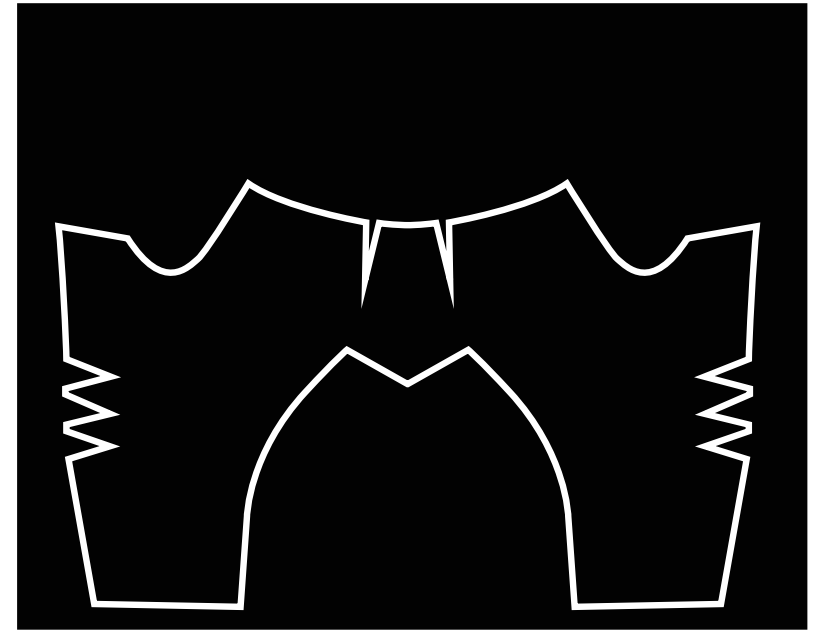
Before meeting Geneviève, I had only encountered her pattern work through books (Debo, 2003; Trebbi, 2010) and on her web page (Sevin-Doering, 2004) and the idea of cutting garments from a single piece of fabric thrilled me and the shapes of the patterns were equally appealing to me. From 2009 to 2011, while producing collections under my own name, I elaborated on the Geneviève patterns in a way similar to that of the “designing with patterns” cutters work. I printed and enlarged them, tried to figure out how they were supposed to come together and from this I developed styles for my collections. From some of these one-piece styles print designs was developed and a project was carried out together with Andreas Eklöf in May 2011 in which the garments were not cut, but stitching lines were printed on the fabric and then the parts of the fabric that normally would have been cut away were left as parts of the garment.

This project can be viewed as a further development of the zero-waste cutting concept and an example of merging shape creation with print design. However, it was not until meeting Geneviève in person in December 2011 that it became clear that dealing with the *coupe en un seul morceau* principle in this way was a complete misunderstanding of the concept since I was working primarily with the patterns and not with the body. As such this project does not bring the thesis further but is to be seen as a general example of a design project.

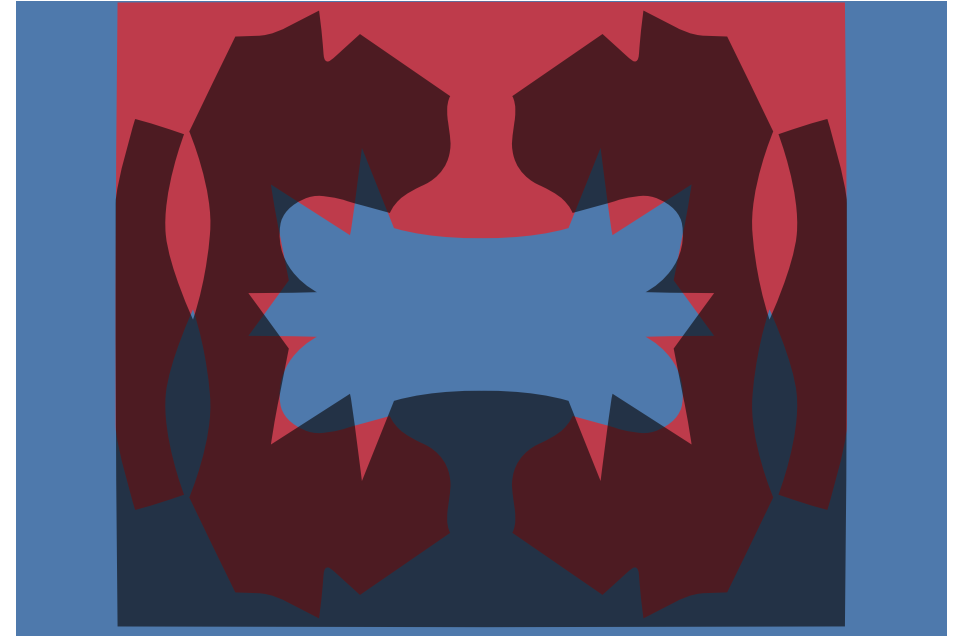
4. TOWARDS ANOTHER PERCEPTION OF THE BODY



4. TOWARDS ANOTHER PERCEPTION OF THE BODY



4. TOWARDS ANOTHER PERCEPTION OF THE BODY



# 5. METHOD

As I was looking at previous work in garment construction conducted at the Vivienne Westwood studio and different reconstructive studies of the pattern works by Geneviève Sevin-Doering, a hypothesis for an alternative model for pattern construction took form. Considering the way the fabric in the different constructions interacted with the human body while creating the dress, dressing and wearing them, an alternative relationship between body and dress appeared. From this point forward, the aim of my research endeavour was to develop new models for garment construction that enabled new artistic expressions and design functions for dress.

The first part of the work, to understand the problem of research and to form the hypothesis of an alternative pattern cutting system, was framed through reverse engineering and design recovery of Geneviève Sevin-Doering's work and methods. As Chikofsky (1990) explains, reverse engineering is a process of analysing a system to create representations of the system at a higher level of abstraction, aiming to bring about new development. Design-recovery may then be understood as a subset to reverse engineering where recovery means reproducing all of the information required for a person to fully understand what a system (or a design program) does, how it does it, why it does it, and so forth, as is explained by Biggerstaff (1989). By quoting principle parts of Sevin-Doering's work, different representative types of dress was recreated on a live body using the same working method she had instructed me in. In this way, I managed to abstract and understand the key principles of her work that formed the initial hypothesis.

With a hypothesis formed, the second part of the work was conducted through concrete physical experimentation. Instead of tendencies to follow preconceived ideas about the order of things and dogmas such as professional fashion design trends concerning pattern construction or academic teachings in pattern making, the fundamental form – the theory – was approximated from a series of experiments performed through observations, in a similar way to that proposed by Sir Francis Bacon (1620/1990) in his “new method”.

From this perspective, experimentation and the analysis of experiments is also a fundamental tool in practice-based design research, with the aim to suggest change and development through new foundational definitions and theoretical propositions within the field of art itself (Hallnäs, 2010). First, the experiments arbitrated between competing theories while being the tools to develop and validate new methods and models for new expres-

## 5. METHOD

sions and functions. Secondly, they formed a base of accumulated data from which to generalise and abstract the theoretical principles through inductive reasoning.

The design of the experiments is based on three variables: body, material and form. The first two variables are independent, selected or manipulated by myself. The body is exchanged between different experiments and the material is manipulated in different ways through cutting. The third variable, form, is the dependent variable and is affected by the changes in and manipulations of the first two variables, body and material.

With this design of the experiments, the cutting and modelling of the fabric on the body becomes the experimental base for the observation of key points and break-lines from which the key axioms are derived: gravity lines, movement and balance.

# 6. A QUALITATIVE LOGIC

Instead of taking the grammar of modern dress with its standard block patterns drawn from the tailoring matrix or the dress-stand used within draping as reference points for shape creation, let us look upon the body itself. How does fabric behave on the body? Where does it want to go? How does it fall? What happens to the fabric when the body moves?

If we look upon the body this way, we will find guidelines and directions on the body where the fabric naturally falls and wants to go in order not to fall off the body and not to restrain the movements of the body. The way the fabric falls and where it “breaks” or folds also highlights certain points, often along the lines, toward which another kind of foundational cuts can be directed. The principle difference between conventional draping and this qualitative logic, which I denote foundational cuts, is that the “break-lines” that occur in traditional draping are here not just beautiful lines which exist because of how a fabric hangs when it is draped based on the traditional grid. Instead, these marginalised, “beautiful” break-lines are in themselves part of the fundamental structure – grid – of a more dynamic approximation of the body.

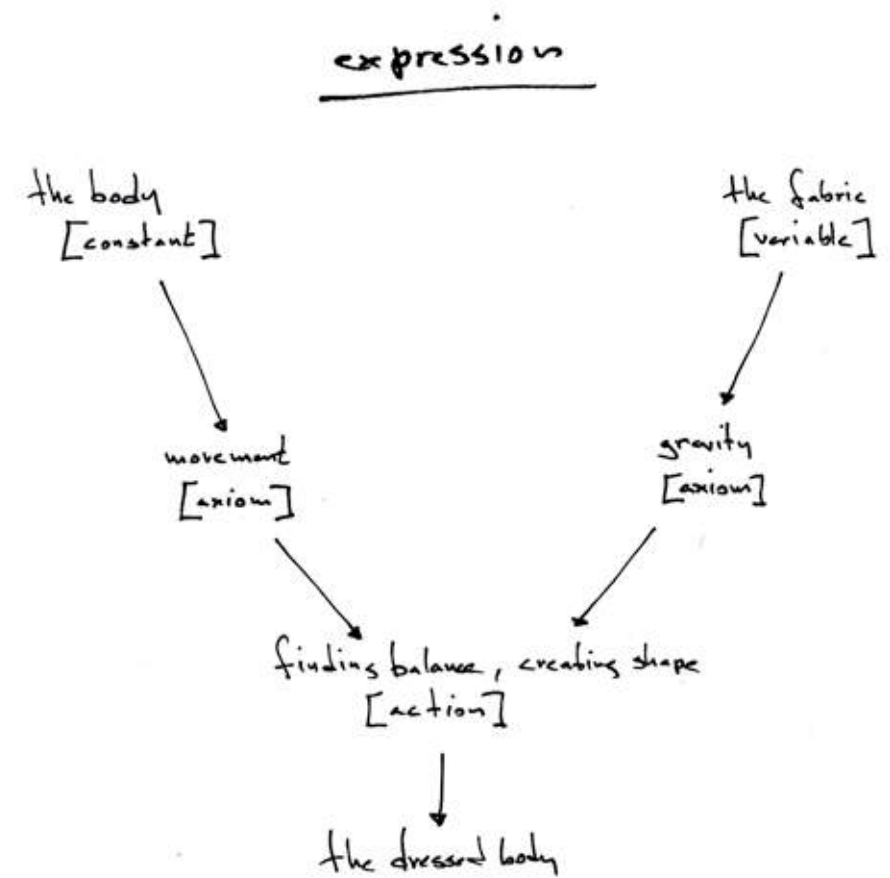
The following examples show a number of garments modelled from a single piece of fabric in the manner developed by Geneviève Sevin-Doering, although the number of pattern pieces composing the garments is of less importance. The one-piece principle may be compared to a beautiful proof in mathematics or the shortest equation explaining an experiment. The proof could be written differently, in just one part or in any number of pieces, but that would only make the principle less clear.

The principle outlined in the following sections radically differs from manipulating block patterns. Here, the pattern is first and foremost a notation and secondly a tool. It shares similarities to draping and uses the same principles of pinning, cutting and marking as described by Duburg (2008). It is, however, based on another logic than draping, another way of understanding the relationship between the body and the fabric, in which the traditional tailoring matrix is left out and instead proposes an alternative way of looking upon the body in order to change its expression (the dressed body).

As such, this qualitative logic proposes an alternative model for pattern making. A simple but radically different framework for understanding the body in garment making. Thus, it is also a practice that emphasizes the expression and movement of the body rather than the pattern, originating

## 6. A QUALITATIVE LOGIC

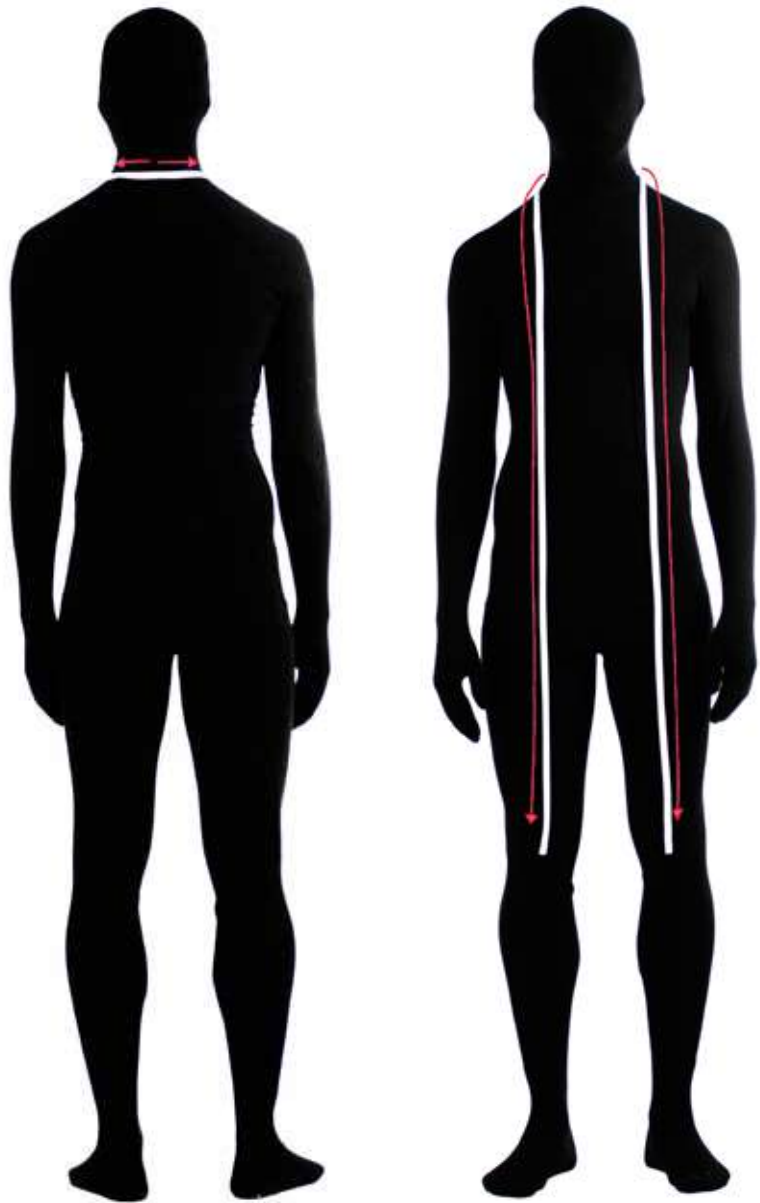
from the actual break-lines of the body instead of from the mathematical post-construction of the tailoring matrix. It is a system of qualitative measurements created in order to explain and achieve what cannot be accessed through quantitative measurements.



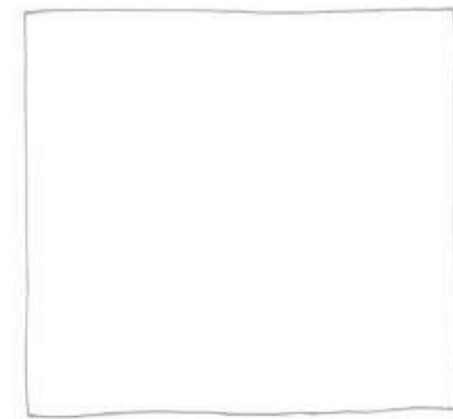


## 6. A QUALITATIVE LOGIC

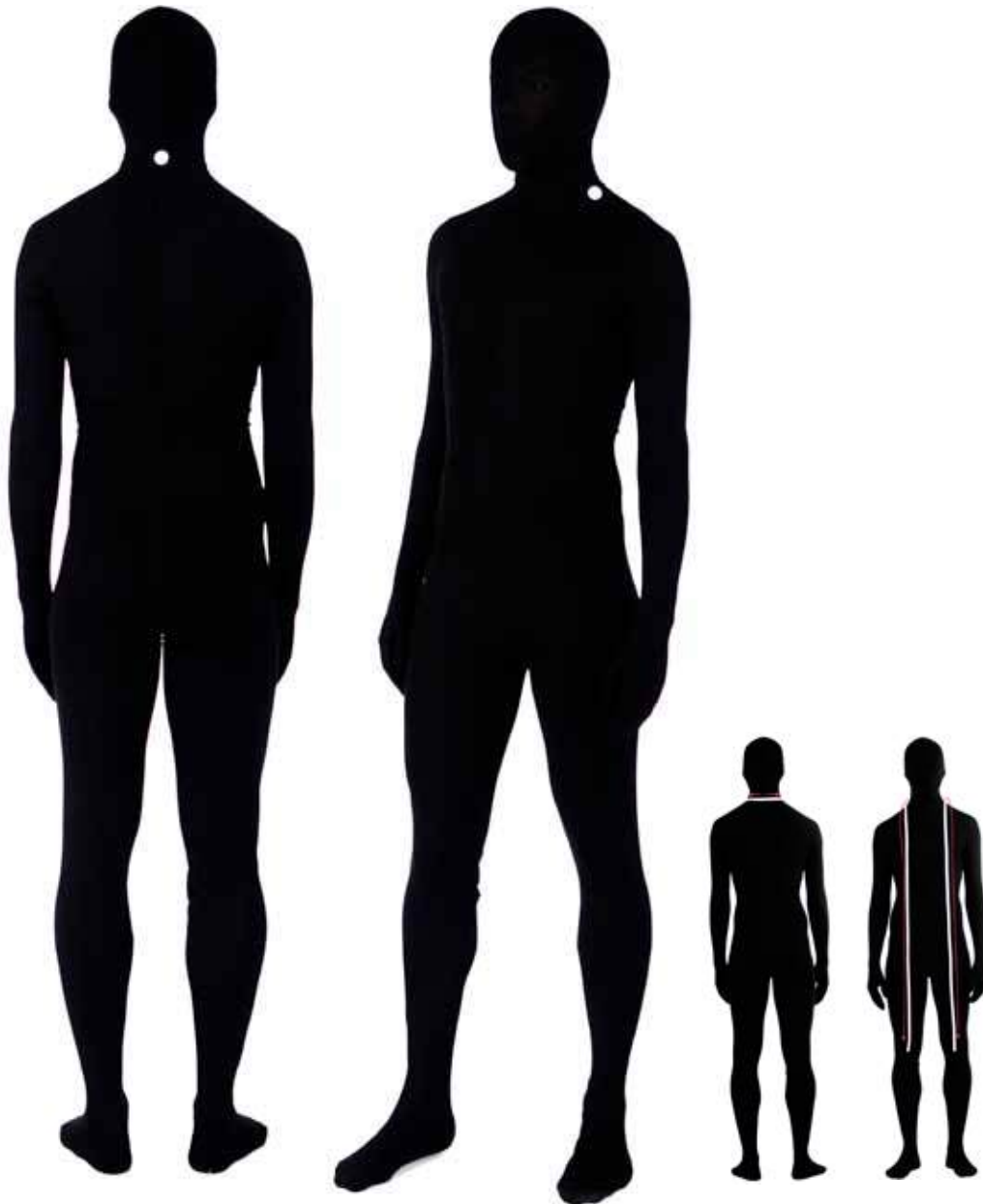
### 6.1 Basic principle, shoulders I



The basic direction  
for dressing from the  
shoulders.

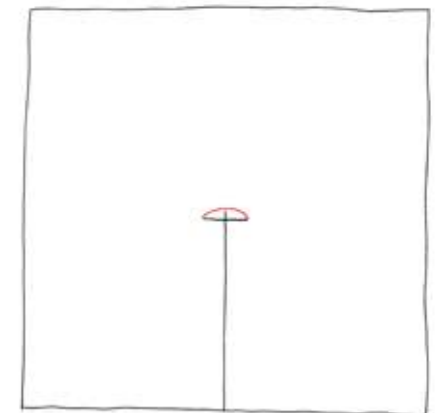
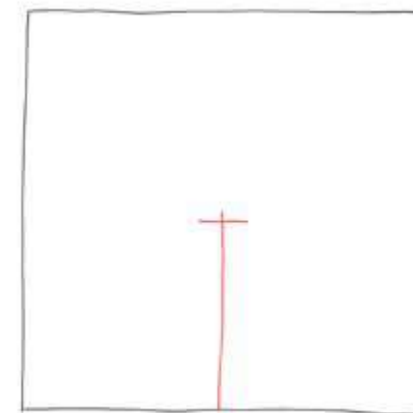


6.2 Basic principle, shoulders II



This first cut (in red) addresses the points on the previous page, the centre back of the neck and the side of the neck. This is done before the fabric is placed over the shoulders.

The fabric is placed over the shoulders and draped smoothly. Then, the back of the neck is shaped (in red) after the body, as is indicated below.



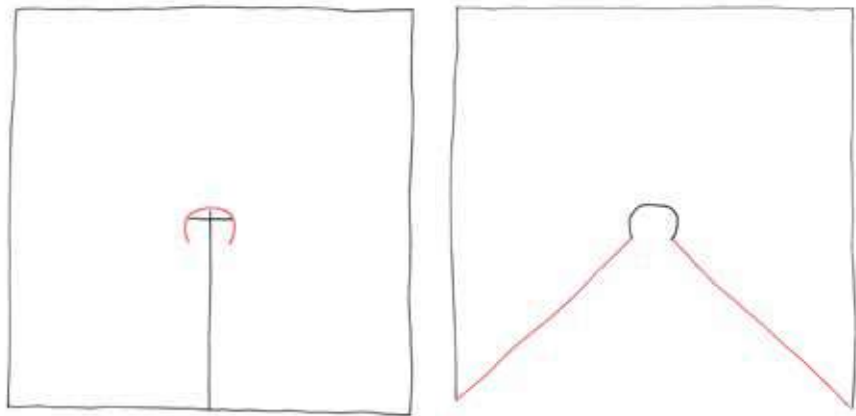
## 6. A QUALITATIVE LOGIC



The smooth drape continues forward over the shoulders and down over the chest. In this example, the fabric is draped after the shape of the shoulders.

Finding the shape of the neck hole with small cuts and then refine the line. This is done first on one side of the body, then the fabric is taken off and the shape is duplicated to the other side.

Finally, the front line is cut vertically on the body at the centre front. The angle of this cut is determined by the shape and angle of the shoulders, but also depending on if the fabric is draped tight and smooth over the shoulders, as in this example, or if a more generous width has been applied. If so, the angle of this cut would point more downwards.



## 6. A QUALITATIVE LOGIC

### 6.3 Basic principle, waist



The basic direction for dressing from the waist.



A rectangular piece of fabric is smoothly wrapped around the hips as illustrated above. Since the body normally is wider over the hips than around the waist the fabric will bend downwards towards the front of the body.



The desired waist line is marked with a fabric tape.



## 6. A QUALITATIVE LOGIC



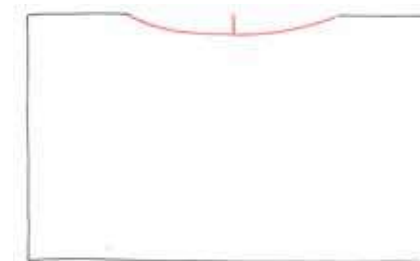
The fabrics will crease above the waist. A vertical cut is made in the fabric at the centre back down to the waistline tape, addressing the point at the centre back waist, to release this tension before shaping the waistline.

From the centre back, a cut along the waistline tape on one side of the body toward the front is made. The fabric is taken off and the cut is mirrored. The fabric is then draped around the body once again and pinned together at the centre front.

This foundational cut directs the starting point for garments modelled from the waist or the hips.

The depth of the vertical cut at the centre back and the shape of the waist cut will differ depending on the shape of the body it is modelled on. In this example the cut is six centimetres deep. The centre back cut can also be made deeper and the waistline more curved in order to achieve a generous fit around the seat.

From the centre front waist, the fabric is pinned together and a vertical cut downwards defines the shape.



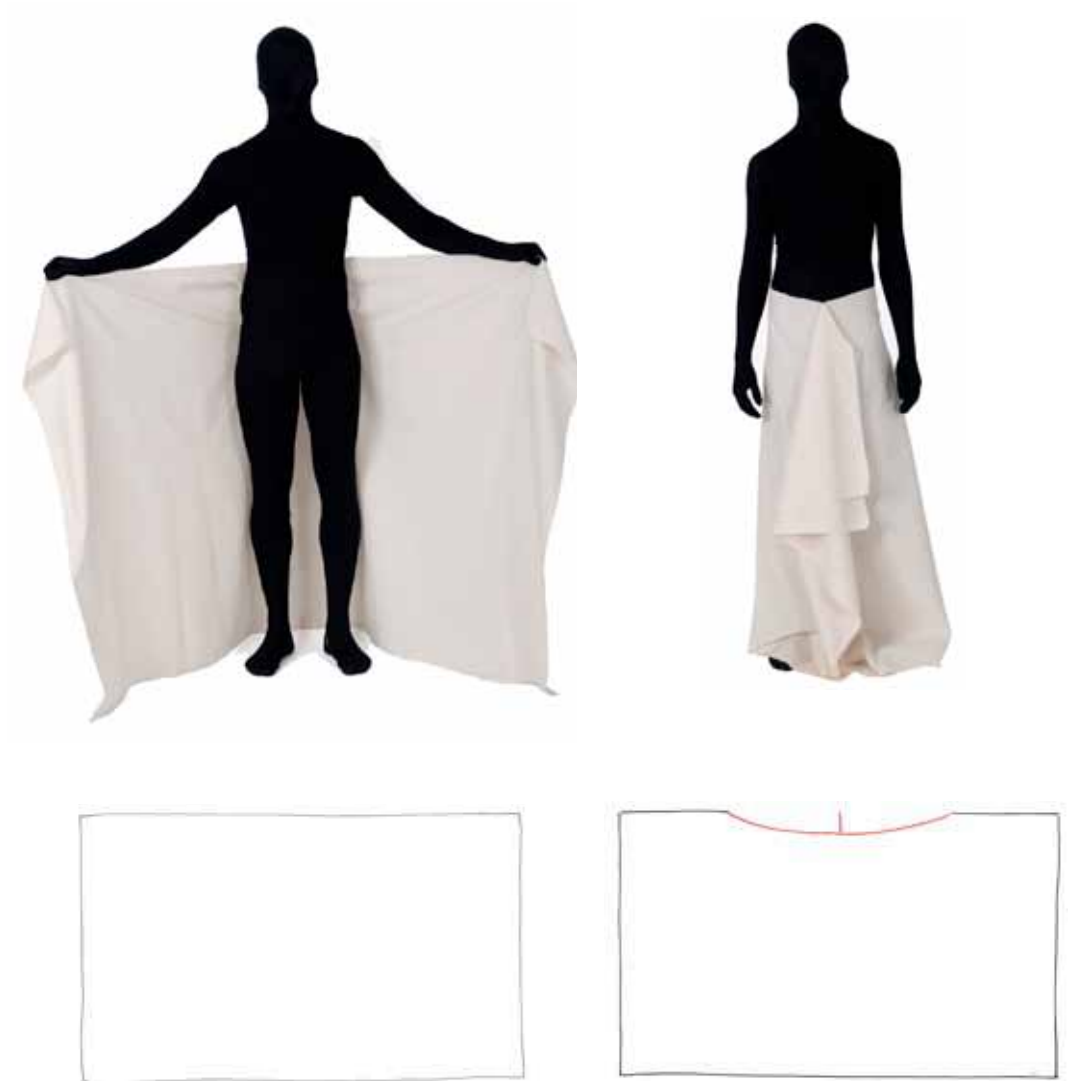


The basic direction for dressing the legs from the waist.

### 6.4 Basic principle, legs

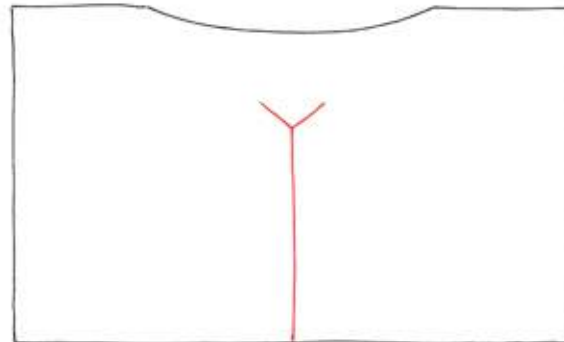
The starting point is the same as for the waist. A rectangular piece of fabric is smoothly wrapped around the hips. Because the body normally is wider over the hips than around the waist, the fabric will bend downwards toward the front of the body.

A vertical cut is made in the fabric at the centre back down to the waist, addressing the point at the centre back waist, before shaping the waistline, in the same manner as in the waist example. The centre front is pinned in position down to where the crotch is supposed to turn in between the legs.





The fabric breaks at two points on the seat. A cut shaped like a Y at the center back addresses these two points.



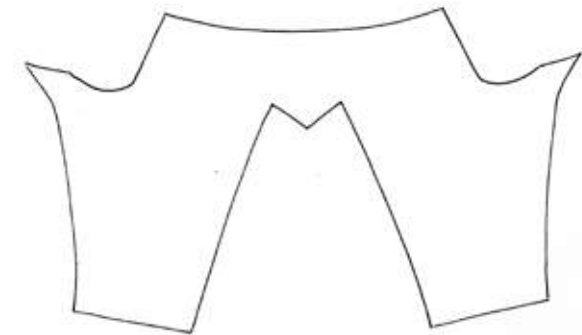
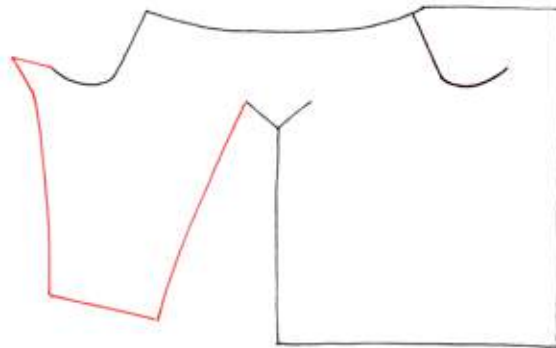
A cut downward at the centre front turns outwards, as is illustrated, and forms the crotch. The depth and shape of this cut depends on the desired height of the crotch and the width of the legs. It is not easy to do this right and it usually needs a bit of practice. One needs to make a cut, then pull it back between the legs to meet the lowest point of the centre back (the middle of the Y) and inspect the result from all angles. The vertical position at the end of this cut will determine the balance of the legs and must be given full attention.



## 6. A QUALITATIVE LOGIC



When the desired position of the crotch cut is found, it is pinned back between the legs to meet the centre of the Y cut as is shown above. One of the legs is now shaped and pinned in position, trimmed down and marked. In this example, the seam goes straight down from the end of the Y cut. The fabric is removed from the body and this cut is mirrored to the other leg.



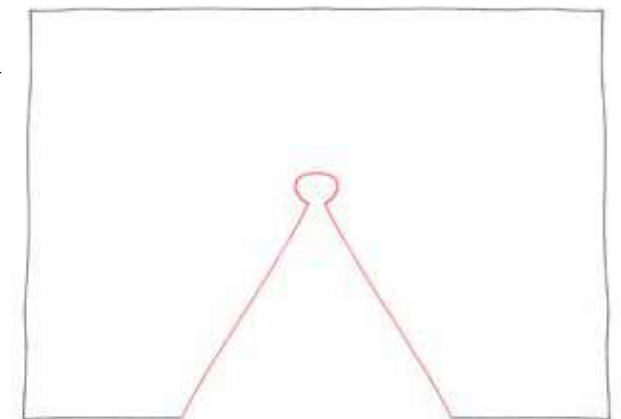


## 6. A QUALITATIVE LOGIC

### 6.5 Basic principle, torso and arms



The starting point is the same as in the shoulder example. In this example the angle of the front cut is smaller than in the shoulder example giving more space and a slight draped from the shoulders.

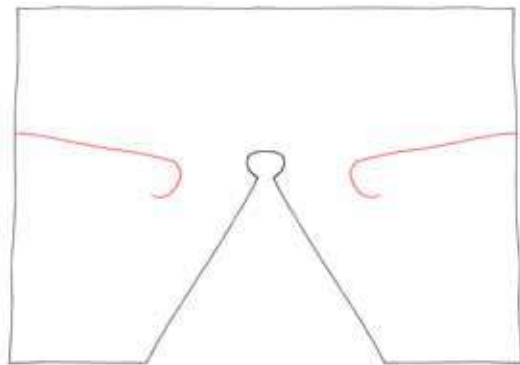


## 6. A QUALITATIVE LOGIC



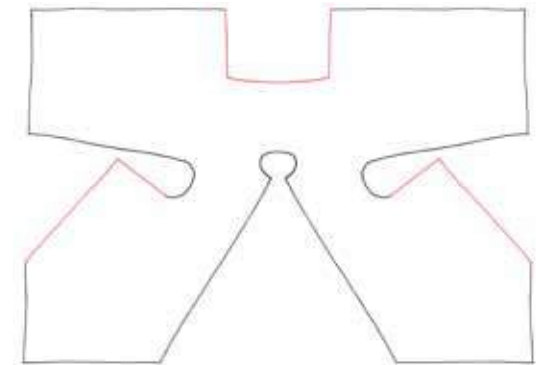
In this example, the foundational cut for the arm is made along the arm and turns downwards, passing through the scye point and in under the armhole where it meets the fabric at the back of the body.

This cut is then mirrored to the other side of the garment.

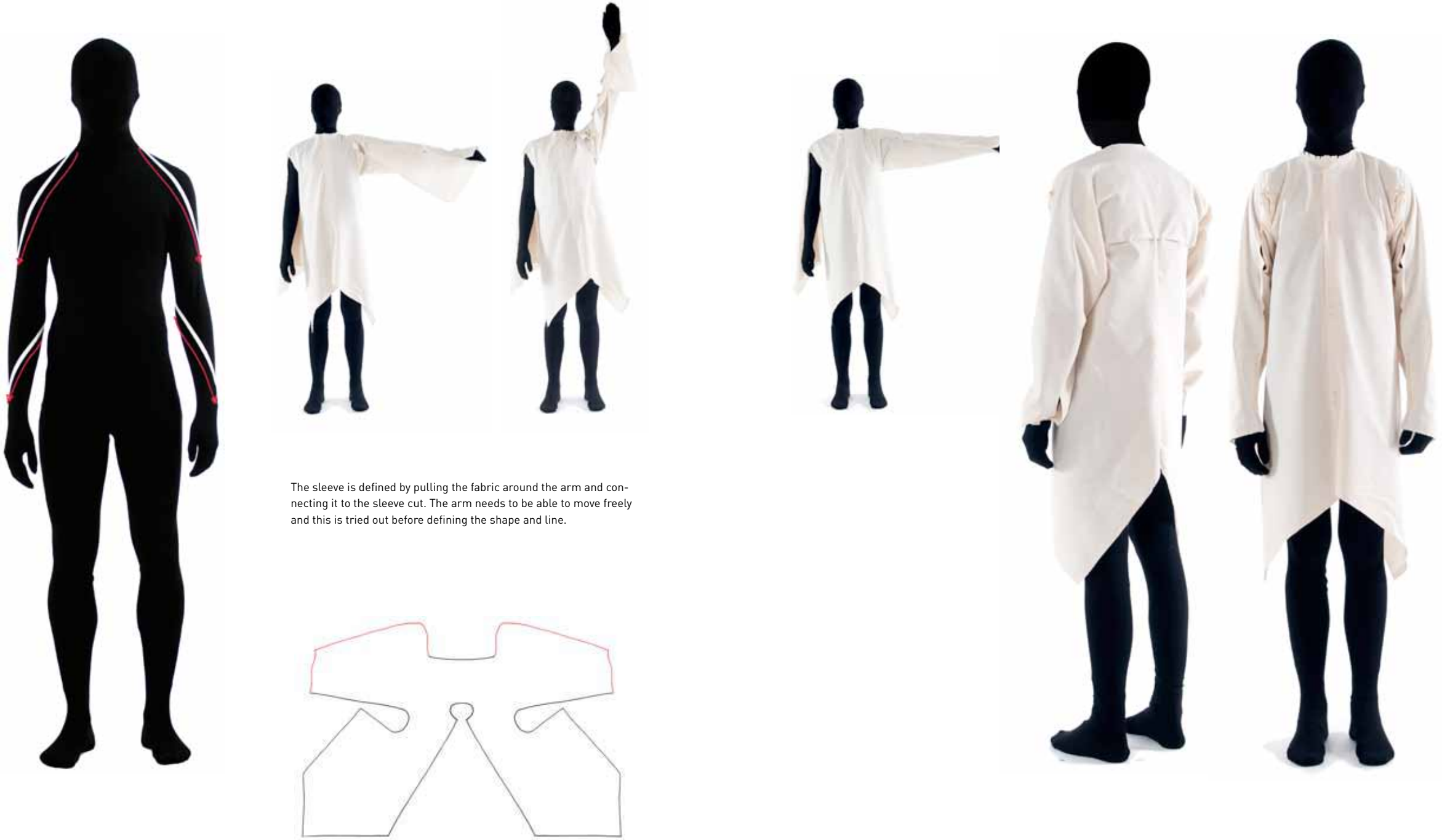


The fabric at the back is temporarily pulled upwards and the fabric from the front is pulled backwards under the arms and connected at the centre back. Seams are then defined and surplus fabric is cut away. This refers to the directions shown to the left.

In the next step, the fabric hanging from the arm will be pulled forward and upward in order to create a sleeve.

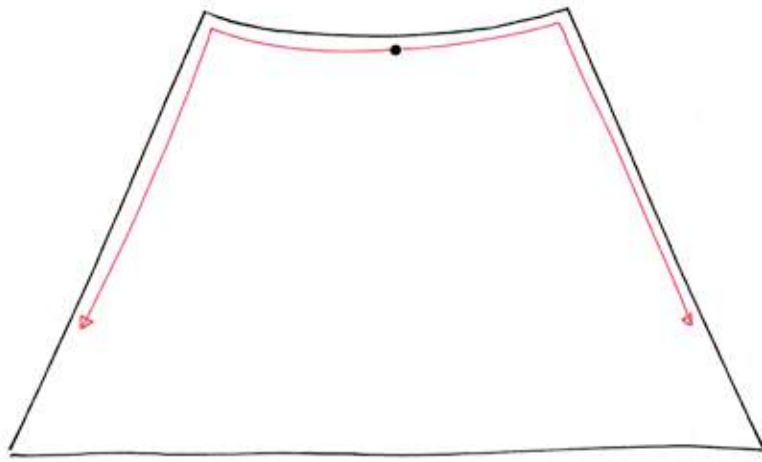


## 6. A QUALITATIVE LOGIC



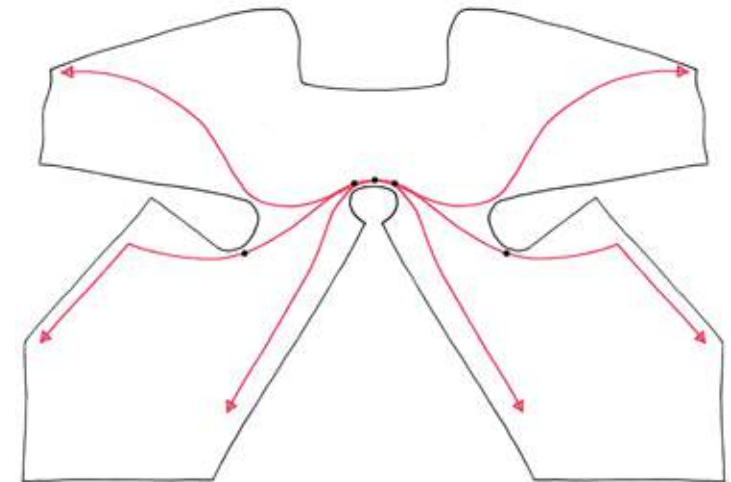
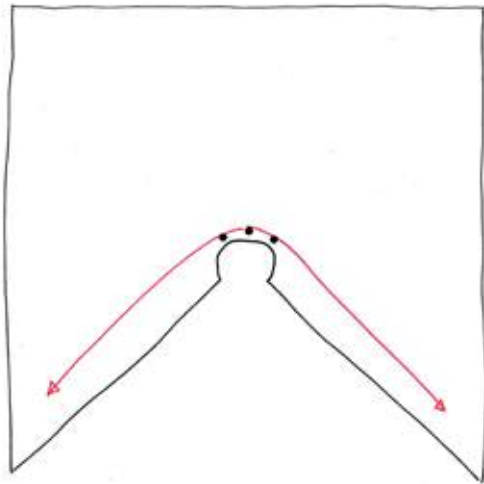
## 6. A QUALITATIVE LOGIC

### 6.6 Basic principles – directions and points upon patterns

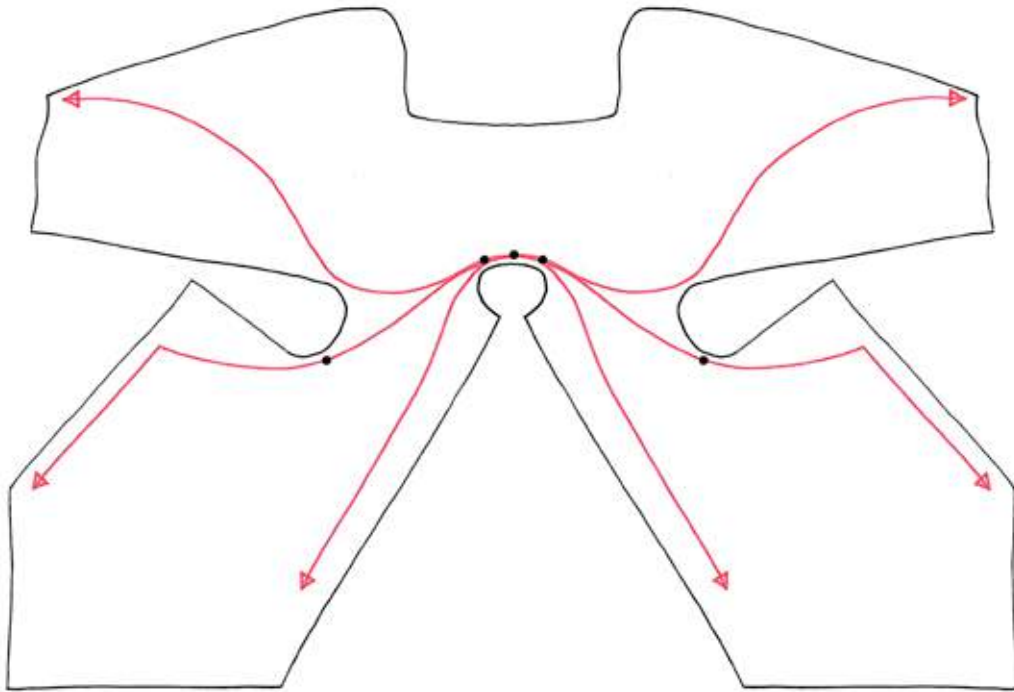


To further clarify the balance and gravity lines they are here drawn out on the pattern pieces from the basic examples.

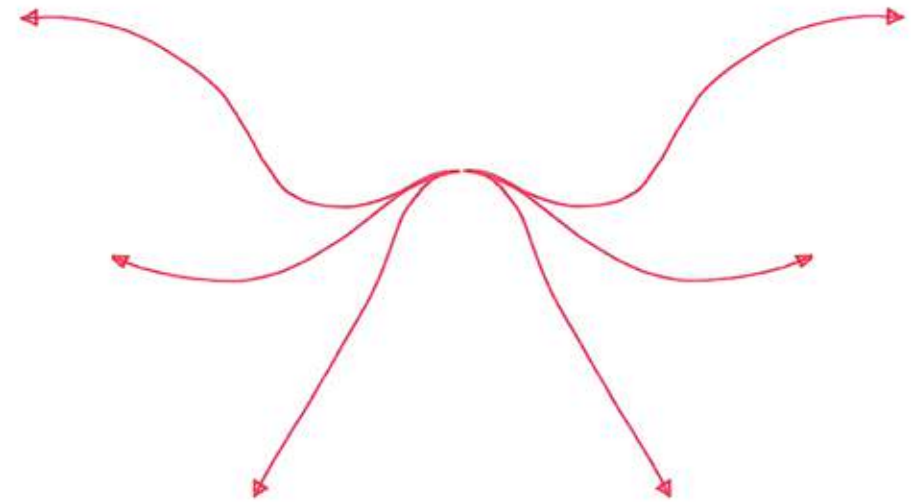
## 6. A QUALITATIVE LOGIC



## 6. A QUALITATIVE LOGIC



Pattern of basic principle, torso and arms with directions and points.



The suggested alternative matrix base on a qualitative approximation of the body. Compare to page 41.

### 6.7 Directions

The lines and points from the examples together forms an approximation of the body.

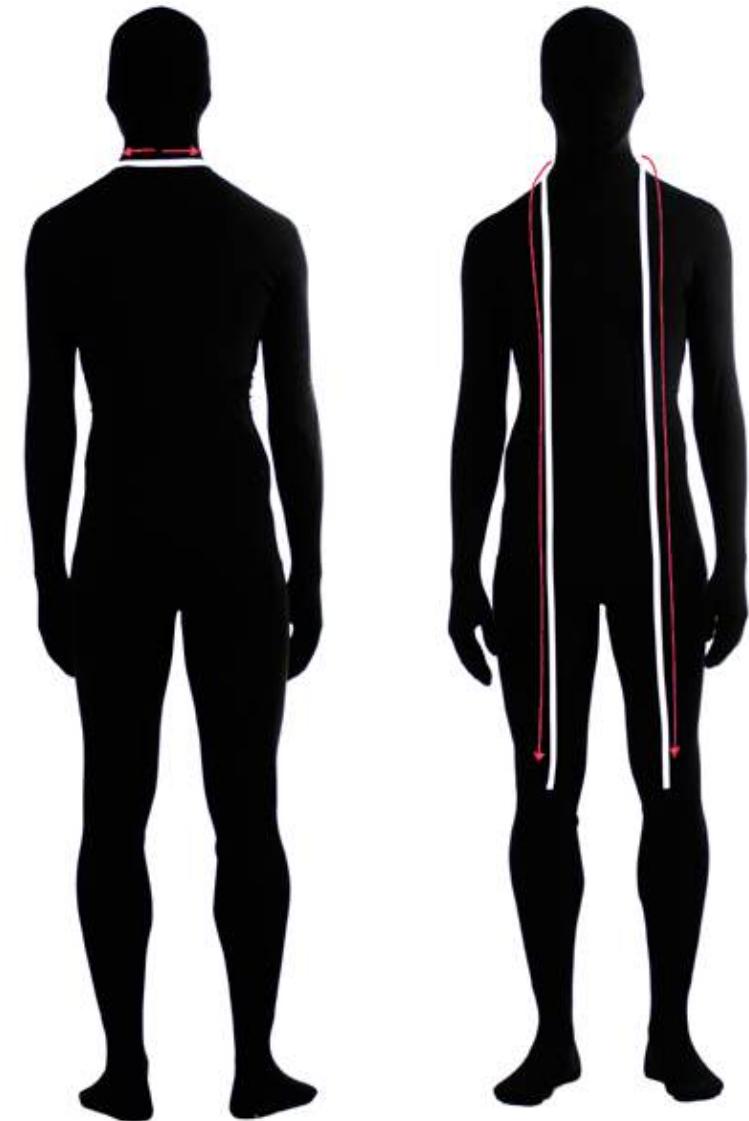
The examples involve a male body, but the principle would be the same for a female body. It is a general theory to be used for individually fitted garments as well as development of garments to be made in standard sizes.

The lines presented here is not to be seen as a suggested lines for seams, but as directions on the body where:

1. Gravity pulls the fabric
2. Fabric tends to fall/drape when the body moves.
3. Fabric needs to go to create a physical balance in order not to fall off the body

This theory of lines and points derives from experiments and experience of cutting a garment out of a single piece of fabric resting either from the shoulders or from the waist of a human body.

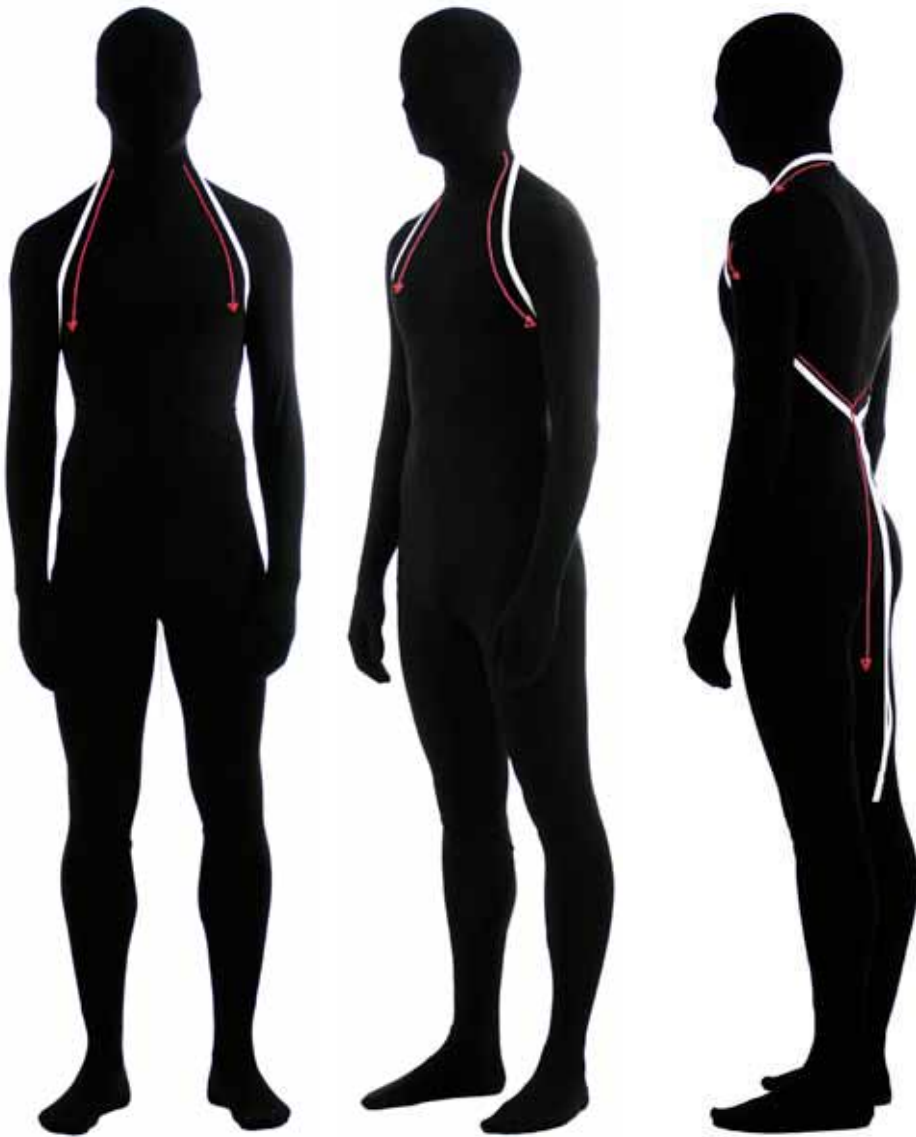
The figure to the right shows the most basic line, the direction from the centre back of the neck over the shoulder and down over the chest. This is how a piece of fabric naturally hangs if placed over the shoulders. Gravity pulls downwards, giving the line a direction starting at the centre back of the neck, going forward and down.



The line starts from a point at the centre back of the neck. This is also where tailors starts both when measuring their costumers and when drafting the pattern for a jacket on paper.

The direction goes from the centre back downwards over the shoulders and down over the chest.

## 6. A QUALITATIVE LOGIC



This line starts at the centre back of the neck, over the shoulders and back underneath the arms to a point at the centre back waist.

At the back the line connects to itself at the centre back waist and continues downwards.

This line addresses the balance needed for a garment to stay in the desired position on a moving body. If the lines on the previous page illustrated a fabric hanging over the shoulder, pulled downwards by gravity, these lines impart information about a fabric shaping a form around the body that allows movement without causing the fabric to fall off the body.

The line again starts at the centre back of the neck and moves forward and down over the shoulder, then it turns under the arm and connects to itself at the centre back of the waist.

This line can easily be recognized in garments that such as coats, shirts and jackets, all of which rest on the shoulders and open at the front. The theory of how the balance works is, however, rarely mentioned when teaching how to cut these garments. To arrive at the desired balance, one needs to start from the top, working one's way down along this line to the lowest point of the garment.



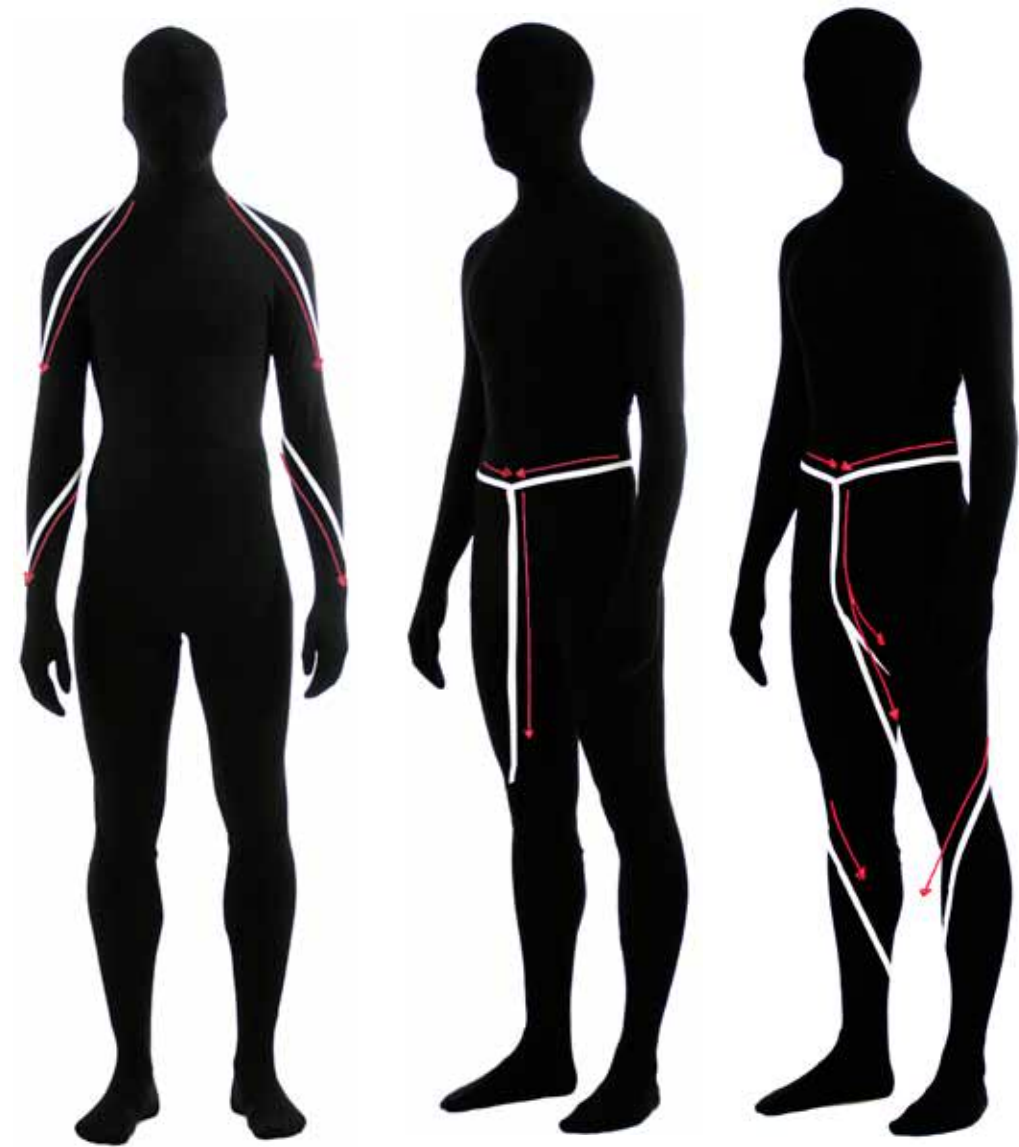
## 6. A QUALITATIVE LOGIC

For both the legs and the arms, movement is of great importance. Whether making a tightly cut sleeve or a wider one, the arm needs to be able to move freely. Different techniques give different expression and functions. The lines shown here are basic guidelines and can be applied for different kinds of sleeve constructions.

The lines for the arms start at the centre back of the neck, goes over the shoulder and twist around the arms as is shown in this figure. It is not the exact position of the line that is important, but the fact that it twists and goes under the arm from the back forwards and over the arm.

Most garments hang either from the shoulders or from the hips. Similar to the line of the neck and shoulders, the line of the waist starts at the centre back and goes forward, slightly downwards and connects to itself at the centre front, from where it goes downwards.

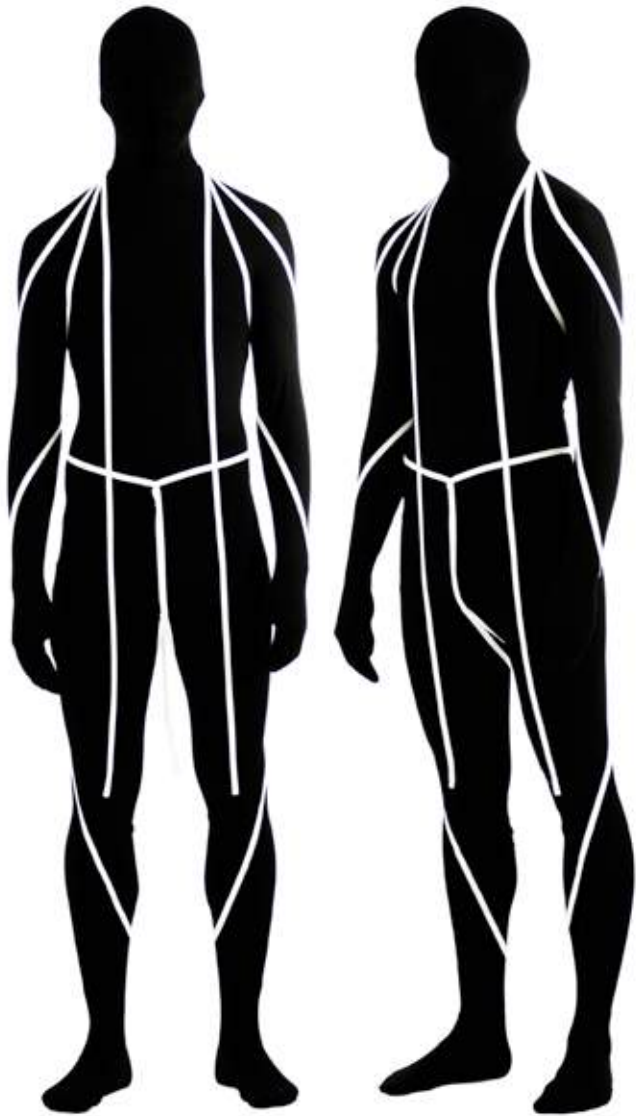
If cutting for the legs (trousers), the line goes backwards between the legs, twisting around them, instead of going straight down at the centre front.



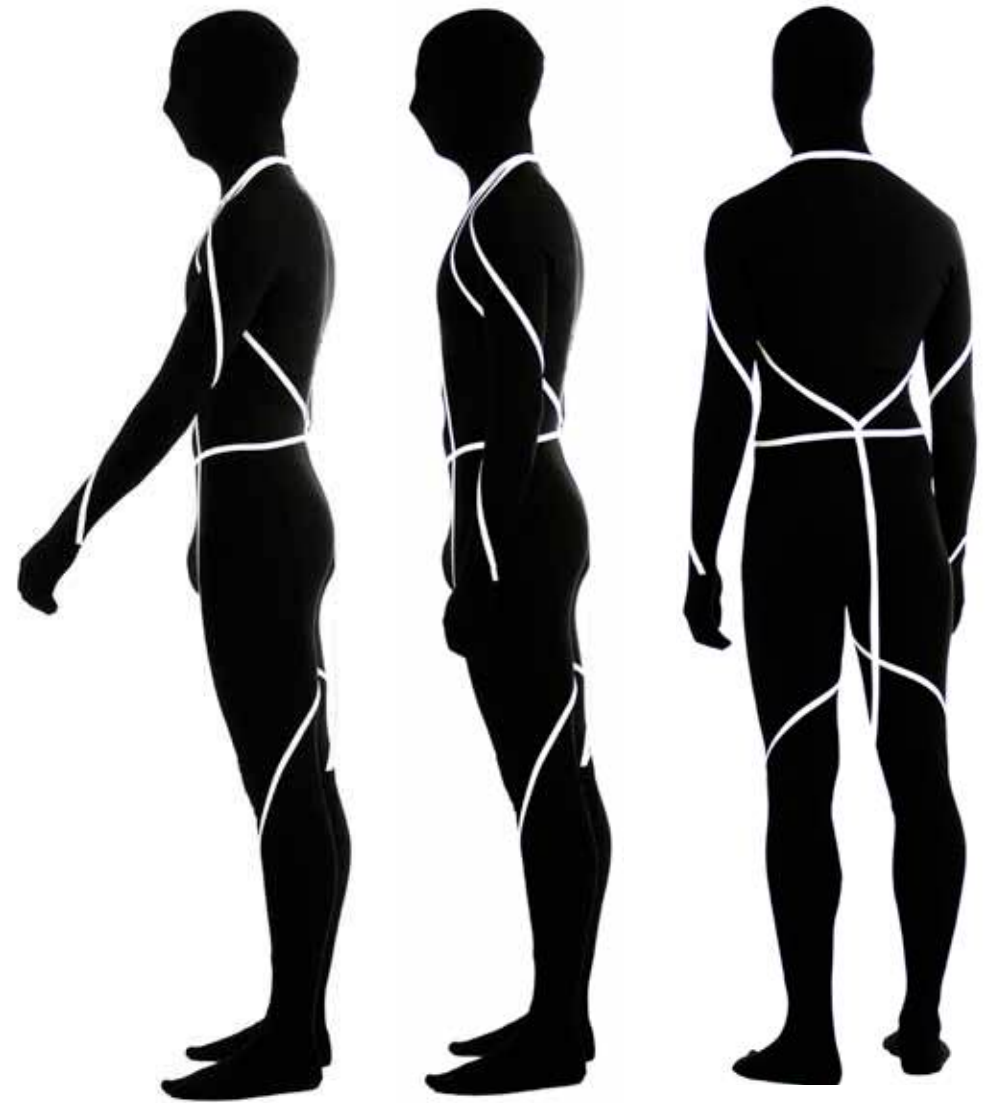
Starting at the centre back neck, going over the shoulder and then twists back around the arm and forwards at the inside of the arm.

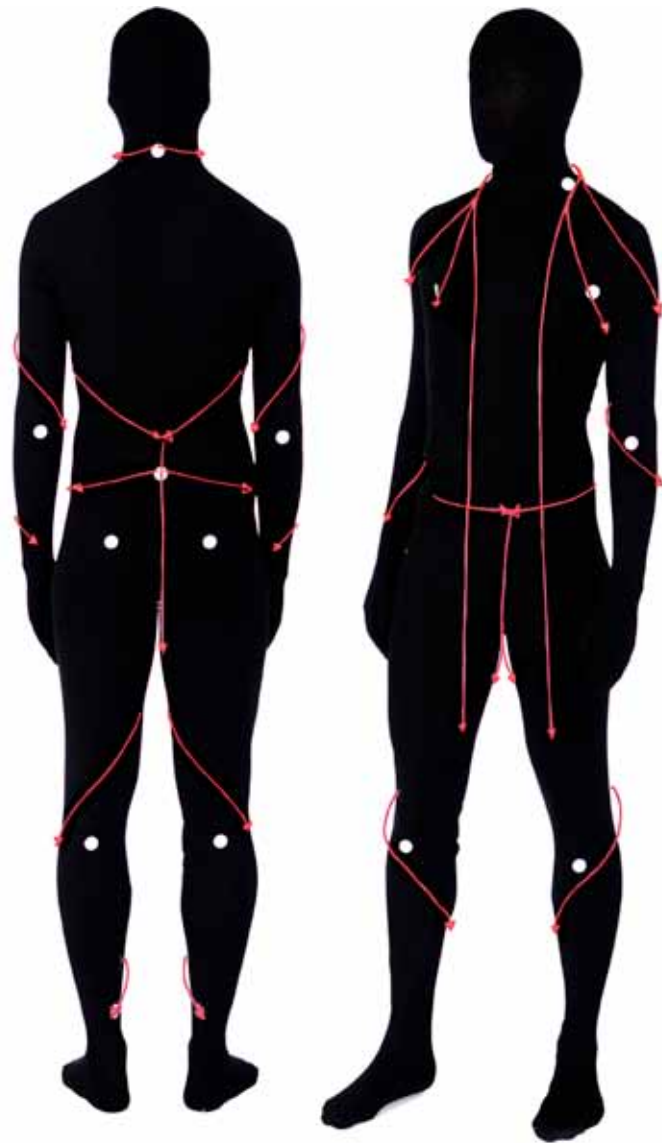
This line starts at the centre back of the waist or slightly below and goes forward slightly downwards to the centre front. The second version is for garments with legs and then the line goes in between the legs and turns around them.

## 6. A QUALITATIVE LOGIC



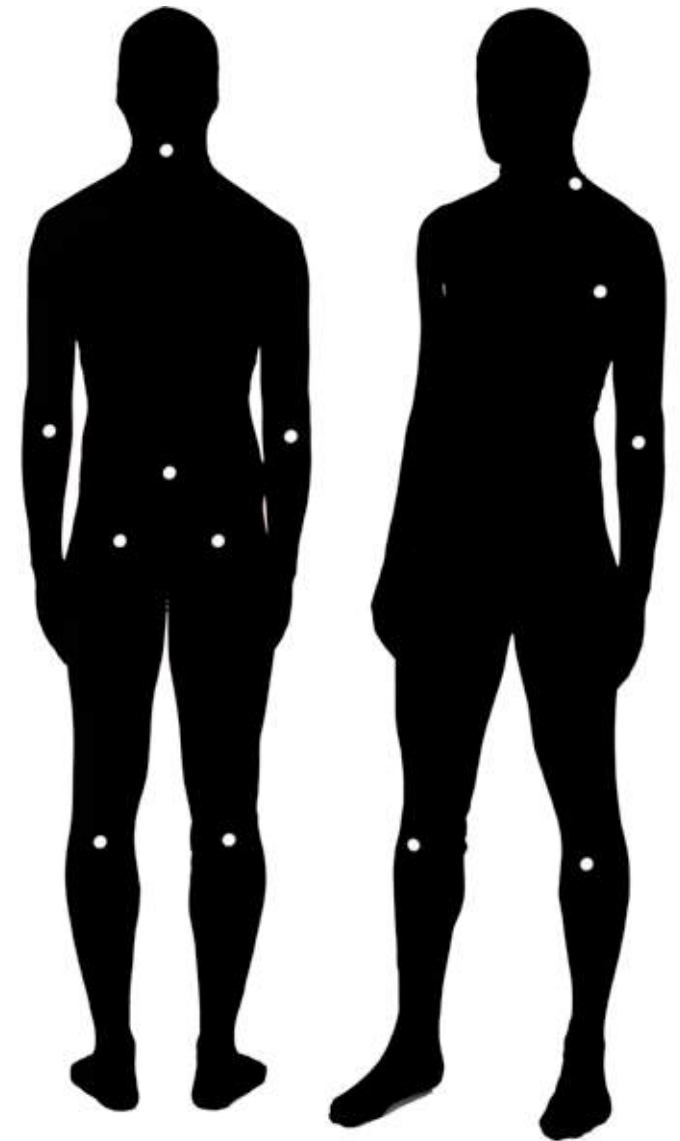
The proposed alternative grid from different angles.





### 6.8 Points

If the lines refer to directions of the fabric these points refer to directions of the cuts. In the examples cuts are made into a piece of fabric placed upon a body in order to shape the fabric into a garment. The points are the places upon the body towards where these cuts are directed.



## 6. A QUALITATIVE LOGIC

### 6.9 Applied examples

For the exhibition “Mörk kostym”, I was invited to present a statement of what a future dark suit may look like. The following three applied examples, the shirt, the trousers and the jacket, were made for this exhibition. “Mörk kostym 2012” aspires to both challenge and preserve the art of tailoring. It challenges tailoring methodologically through its construction and proposes an alternative view of the body, while it also preserves tailoring by utilizing traditional tailoring methods. This work was carried out together with the tailors at Bauer & Co, Stockholm.





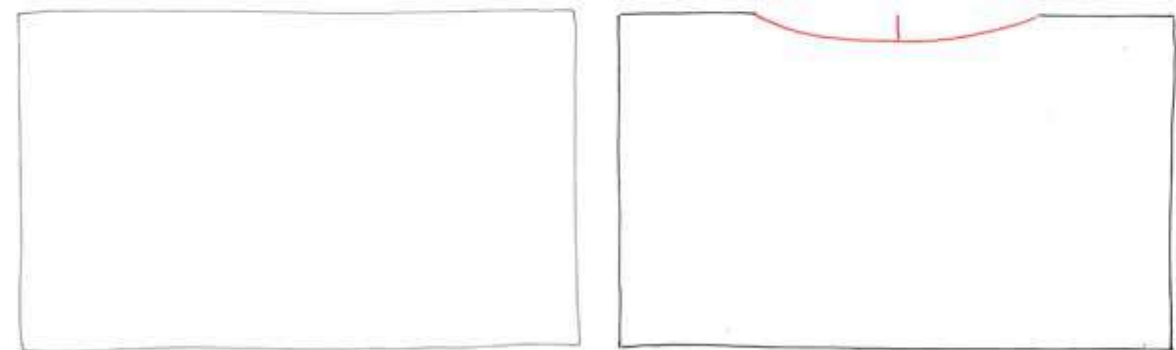




### 6.10 Applied example, trousers

The starting point is the same as for the waist and for the basic principle for legs. A rectangular piece of fabric is smoothly wrapped around the hips. Since the body normally is wider over the hips than around the waist the fabric will bend downwards towards the front of the body.

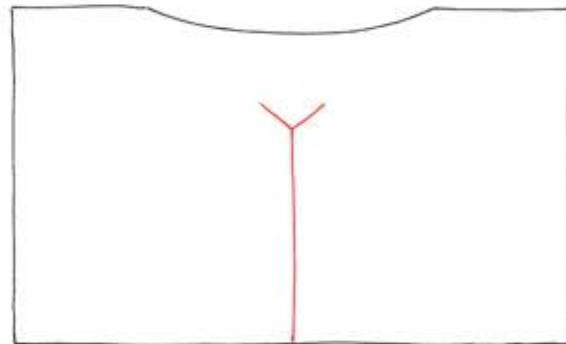
A vertical cut is made in the fabric at the centre back down to the waist, addressing the point at the centre back waist, before shaping the waist line, in the same manner as in the waist example. The centre front is pinned in position down to where the crotch is supposed to turn in between the legs.



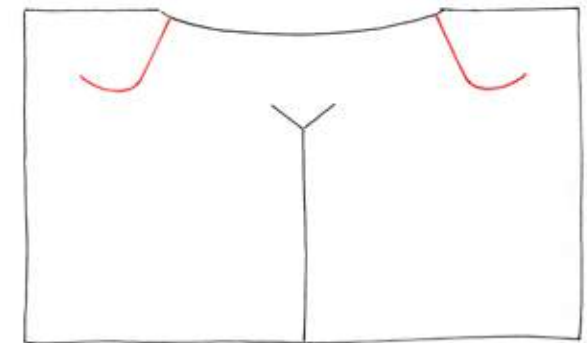




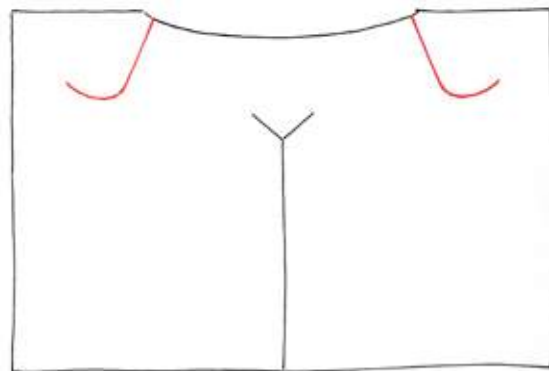
The fabric breaks at two points on the seat. A cut shaped like a Y at the center back addresses these two points.



A cut downward at the centre front turns outwards a illustrated to form the crotch. The depth and shape of this cut depends on the desired height of the crotch and the width of the legs. To get this right is not easy and usually needs a bit of practice. One needs to make a cut, then pull it back between the legs to meet the lowest centre back point (the middle of the Y) and inspect the result from all angles. The vertical position of the end of this cut will determine the balance of the legs and must be given full attention.

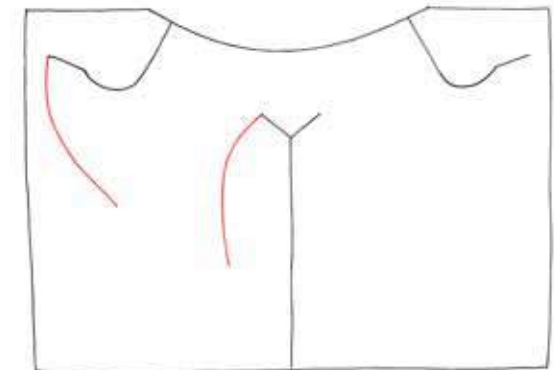


## 6. A QUALITATIVE LOGIC



When the desired position of the crotch cut is found, it is pinned back between the legs to meet the centre of the Y cut as is shown above.

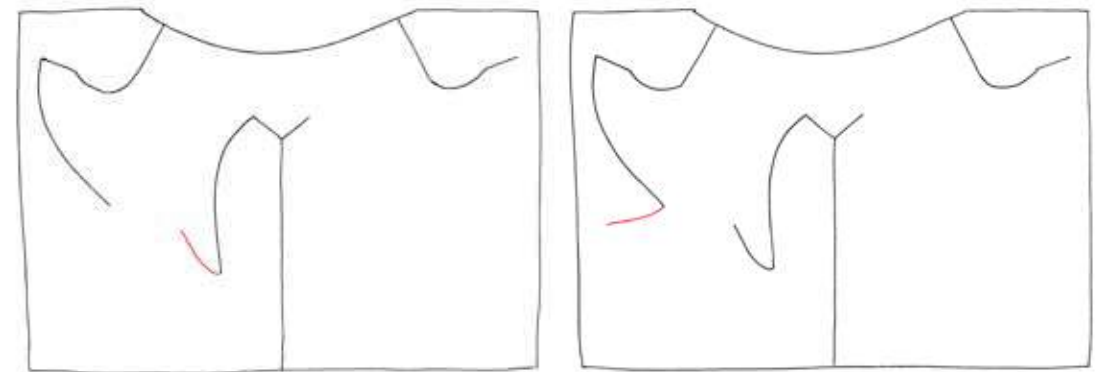
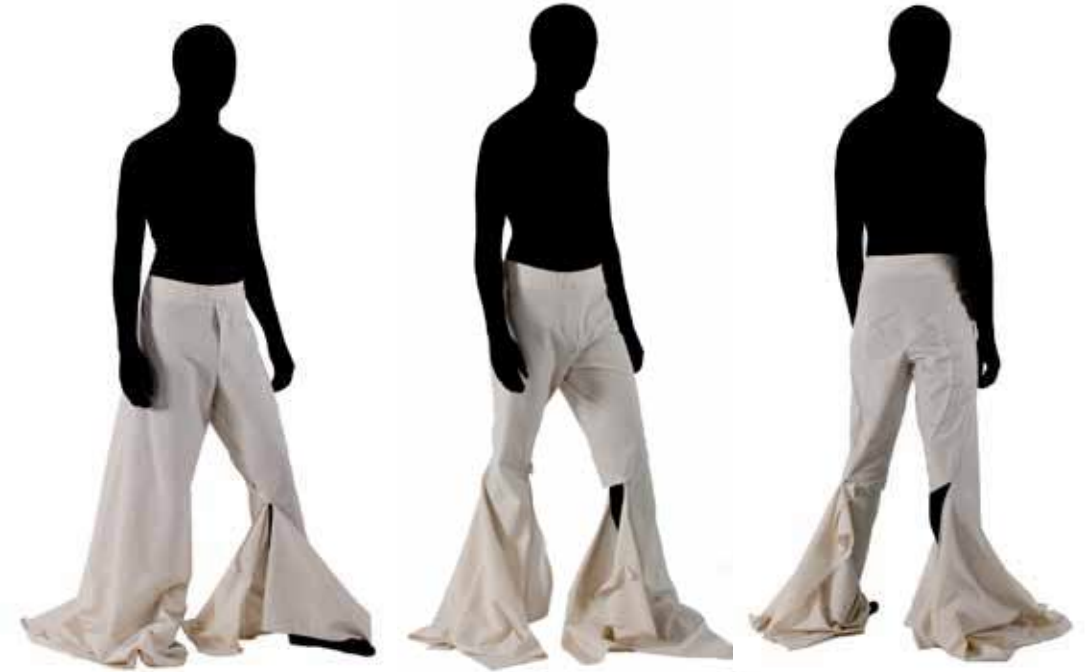
The trousers are during the process taken of and the cuts from one leg is mirrored to the other.



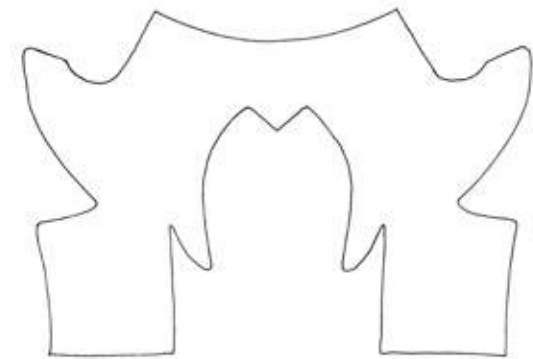
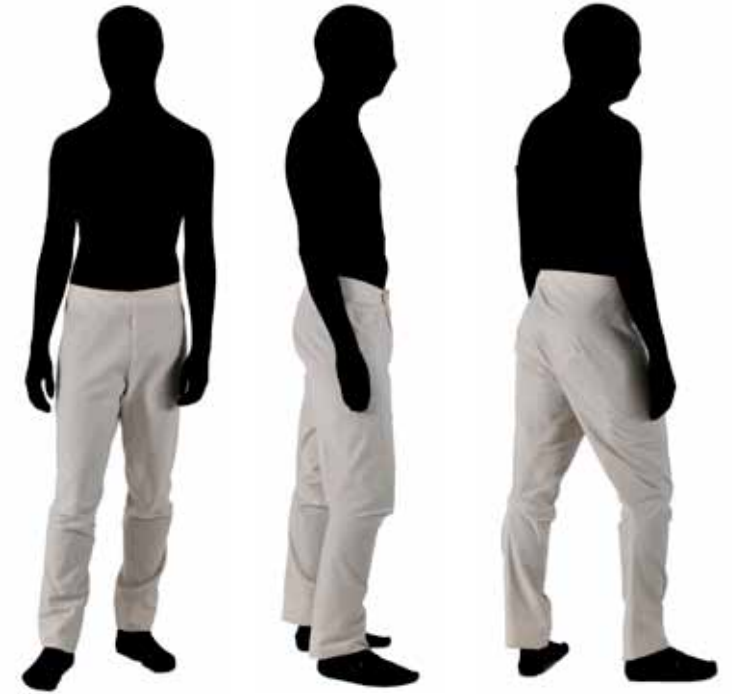
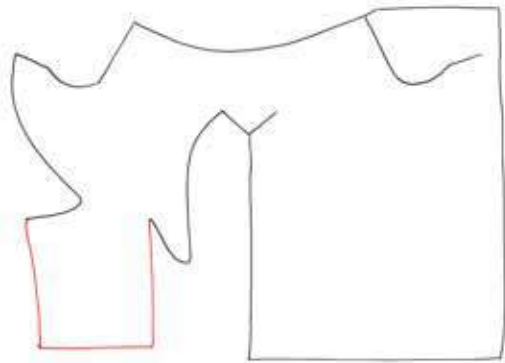


These trousers are cut with a slightly bend knee. In order to achieve this shaped leg a cut needs to be directed towards a point a the front of the knee and one cut towards the back of the knee.

The fabric is step by step draped around the leg creating the desired bend shape.

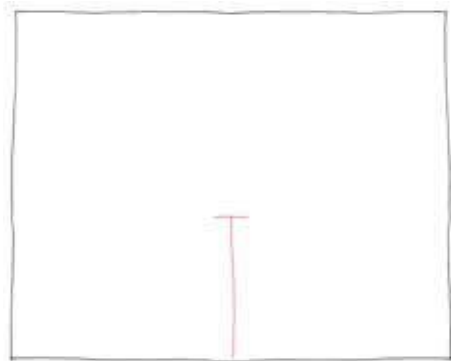


## 6. A QUALITATIVE LOGIC

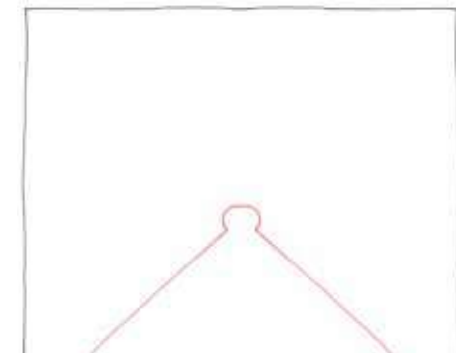


## 6. A QUALITATIVE LOGIC

### 6.11 Applied example, shirt



The shirt starts out in the same manner as the basic principle for shoulders. When the front edge is defined it is pressed and folded inwards and the front is pinned together.



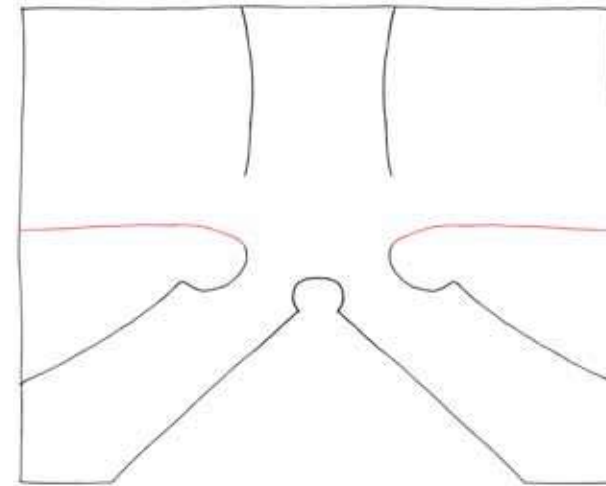
## 6. A QUALITATIVE LOGIC



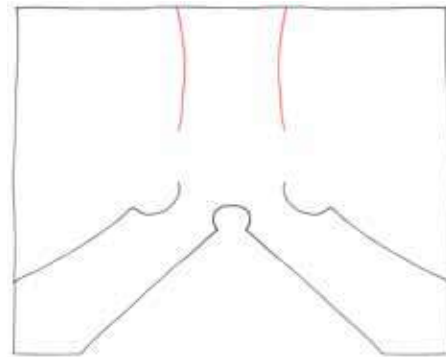
A vertical cut from the bottom and up then turns forwards shaping the scye. The front piece is then pinned together with the back piece defining the balance of the garment.



## 6. A QUALITATIVE LOGIC



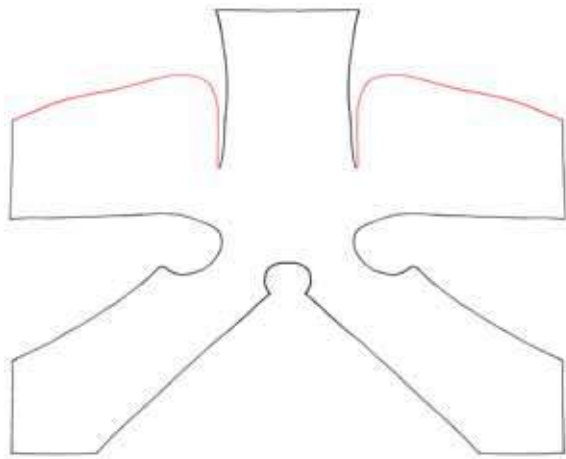
From the hand towards the shoulder this cuts start at the back of the hand where the vent opening is supposed to be and meets the earlier scye cut.



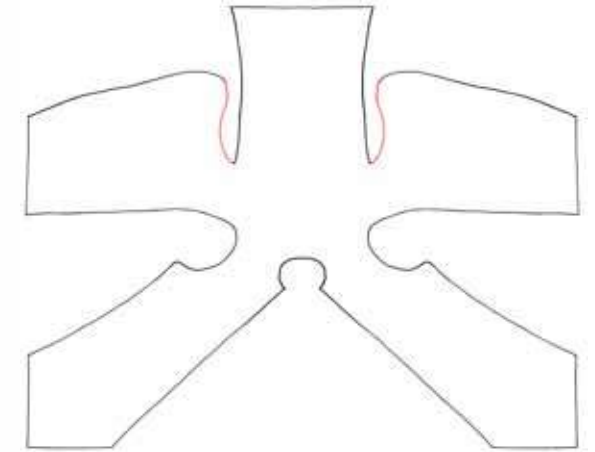
The back is defined and a cut from the bottom and up is done along the pinned edge of the front piece. These cuts are mirrored and pinned back together shaping the torso of the shirt.



## 6. A QUALITATIVE LOGIC



The fabric forming the sleeve is then pulled forwards under the arm and draped in position along the previously shaped scye cut.



The sleeve setting is shaped along the scye as shown below in order for the sleeve to hang smoother.

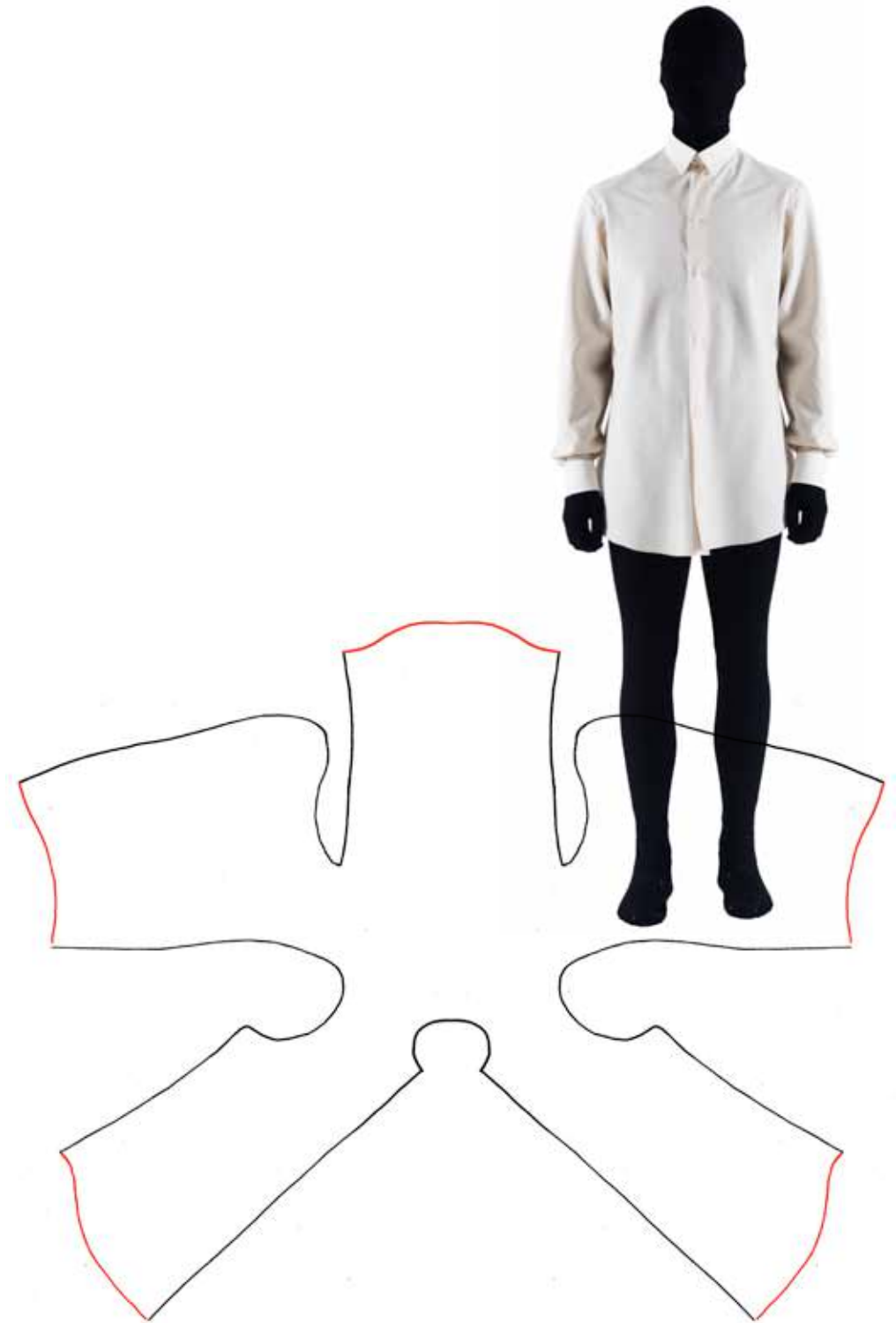




## 6. A QUALITATIVE LOGIC

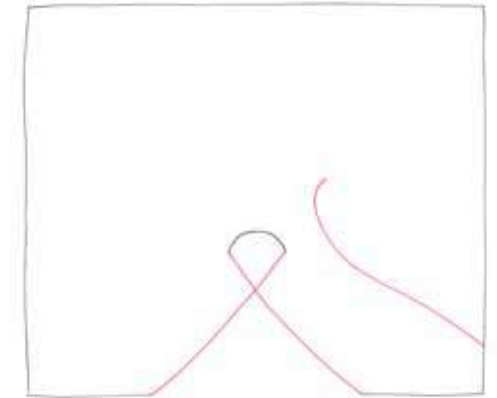
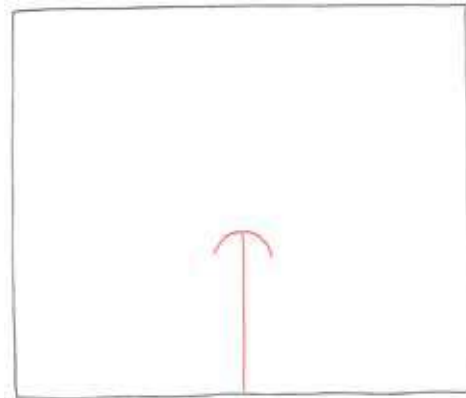


Finally the bottom edge is shaped and the sleeve length is cut and collar and cuffs are added.



## 6. A QUALITATIVE LOGIC

### 6.12 Applied example, jacket



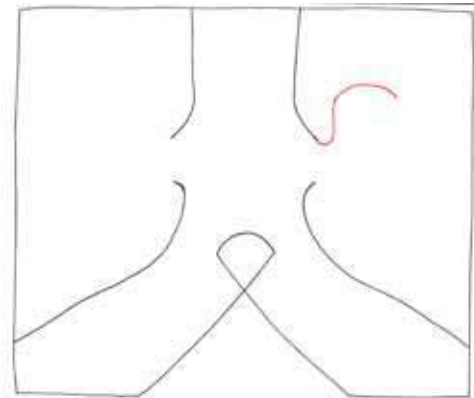
The jacket starts out in the same manner as the basic principle for shoulders. The front edge is defined and a lapel is roughly shaped.

The scye is shaped over the shoulder and the side seam is leaning backwards toward a side vent.

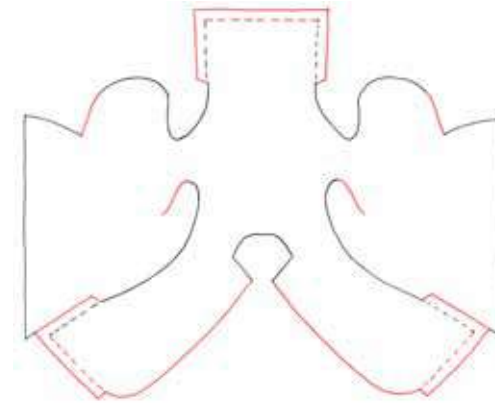
## 6. A QUALITATIVE LOGIC



The front is pinned together with the back and a cut from the bottom upwards reaches towards the point at the front of the scye.



The fabric forming the sleeve is then pulled forwards under the arm and draped in position along the previously shaped scye cut.



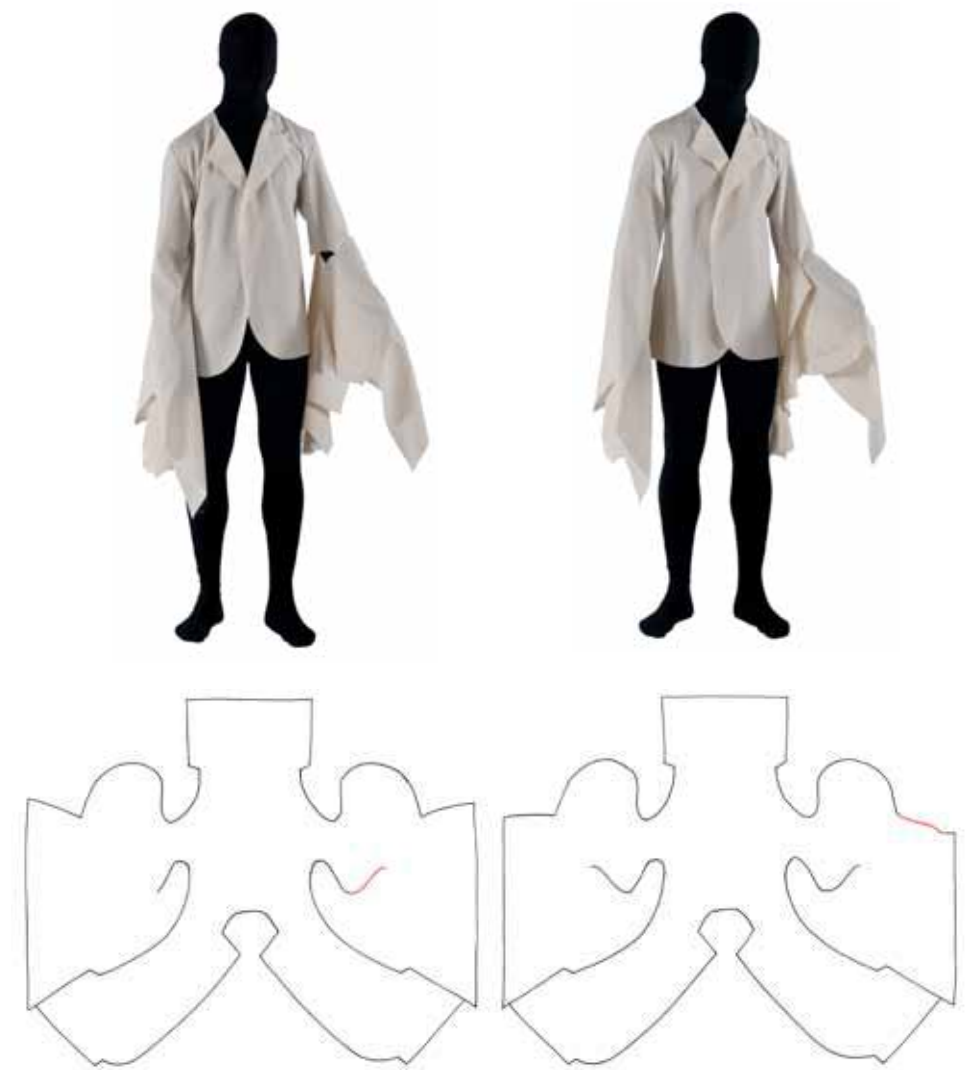
The jacket are cut with a slightly bend sleeve. In order to achieve this shaped sleeve a cut needs to be directed towards a point at the front of the elbow and one cut towards the back of the elbow.

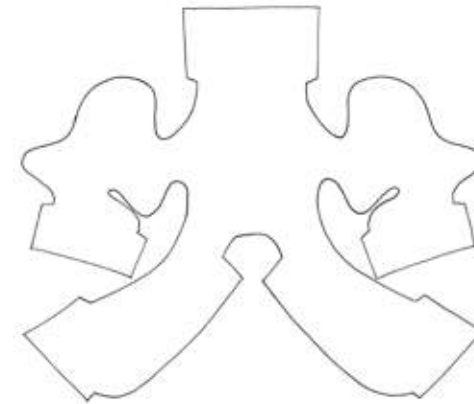
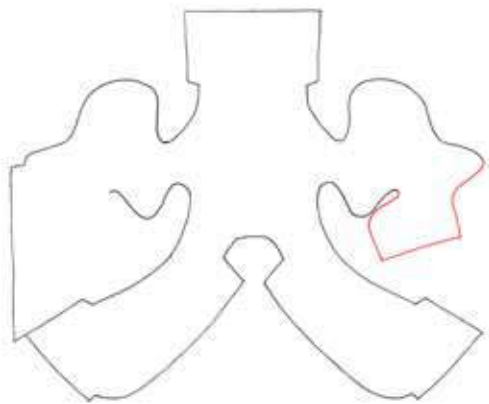


## 6. A QUALITATIVE LOGIC



The fabric is step by step draped around the arm creating the desired bend shape.



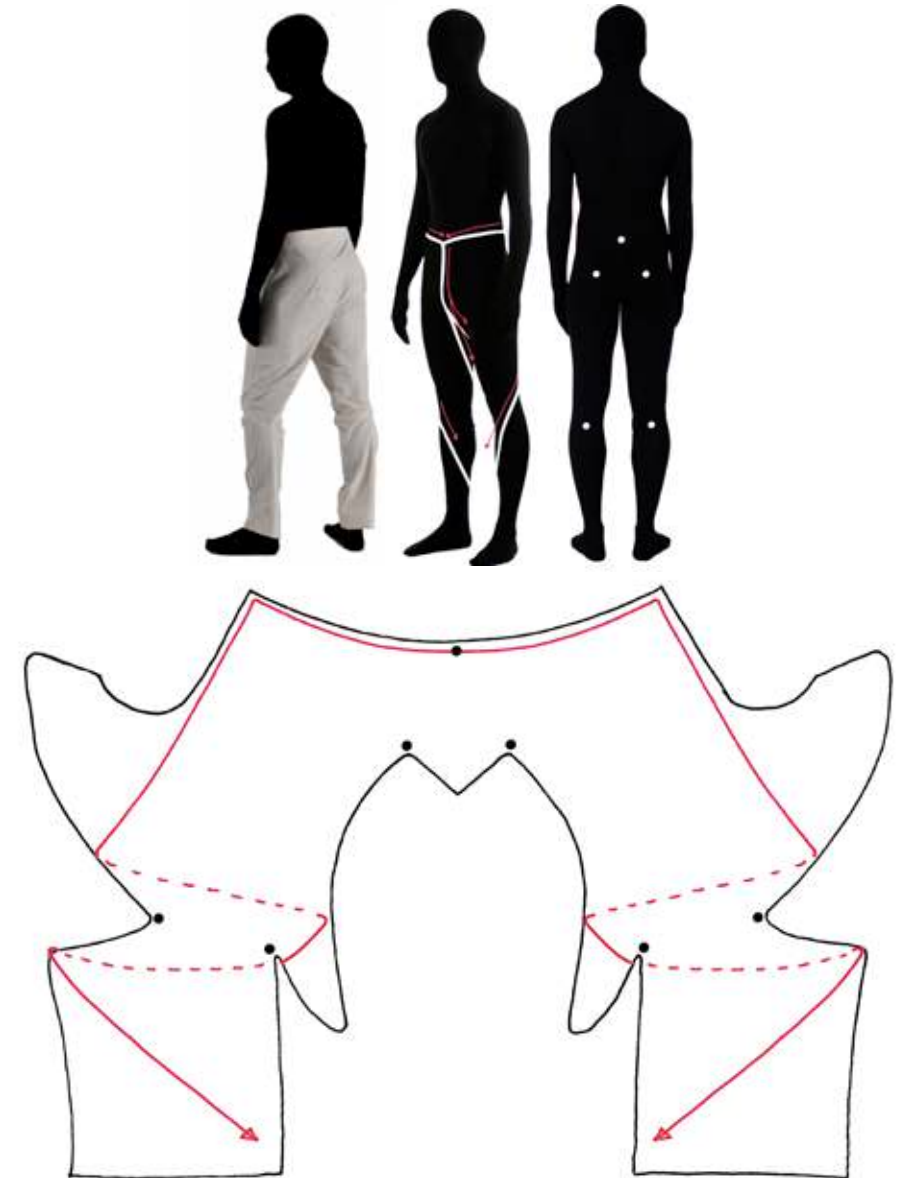


Finally, a cut towards the back of the arm defining the position of the vent.

## 6. A QUALITATIVE LOGIC

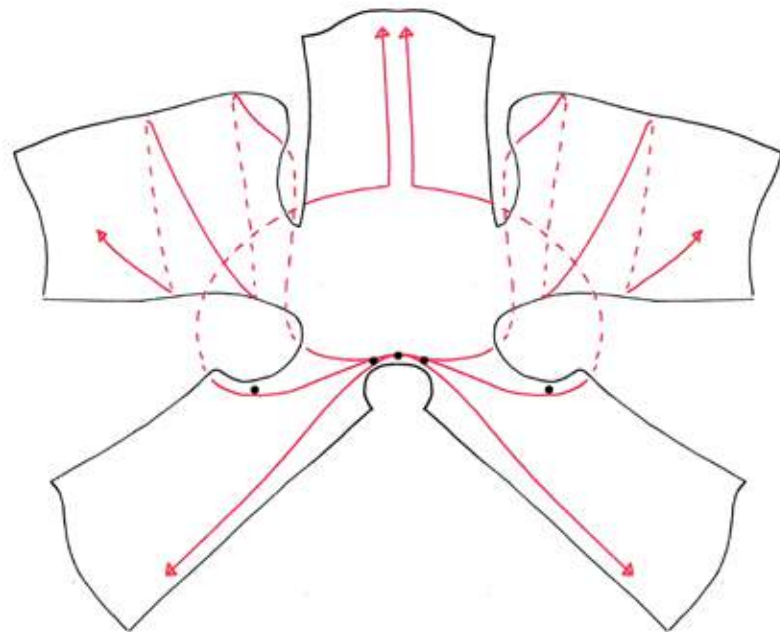
### 6.13 Applied examples – directions and points upon patterns

As for the basic examples the lines can also be traced on the patterns of the applied examples. When the balance lines are applied to the pattern pieces, it is clear that the basic examples and the applied examples differ in precision. The applied examples, having a more exact design result, are less clear from a theoretical point of view whereas the basic examples, being less defined as design objects, are more exact and show the theoretical result more clearly. The theory (lines and points) is traceable also in the applied examples, although they visualize it less clearly.

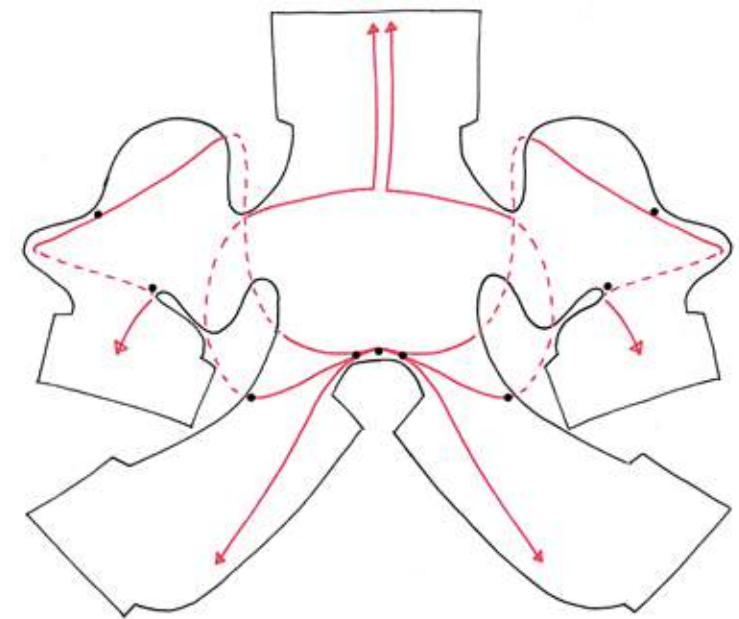


Directions and points on the pattern of the trousers.

## 6. A QUALITATIVE LOGIC



Directions and points on the patten of the shirt.



Directions and points on the patten of the jacket.



### 6.14 Foundational cuts

The foundations for cutting are here made up of a number of cuts into a piece of fabric placed over the shoulder or hanging from the waist, denoted the foundational cuts. These cuts are directed by the drape of the fabric (gravity) in relation to the anatomy of the body (balance and movement) and the act of cutting is a search for a new expressions of the body. . These three parameters are commonly taken into consideration at the fitting of a garment or a toile.

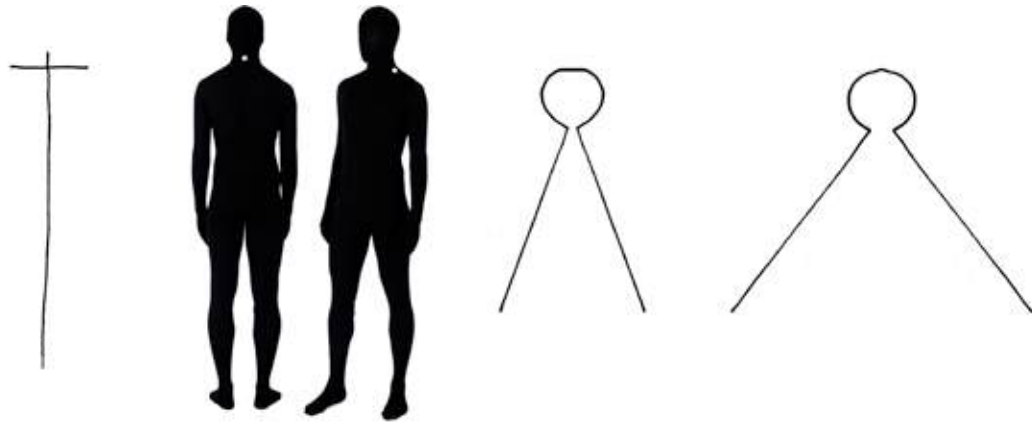
– How does it fall? Is the balance good? Can we see it from the side? Can you please give us a walk?

If the pattern is drawn from ready-made blocks, one has to rely on the balance of the blocks one is altering and mentally visualising the body within the pattern pieces. Gravity and the moving body are present only through the experience of recognising well-known pattern shapes and what they may do or not do together with a body.

While draping gravity is a most present axiom, the fabric pieces are often pinned in position on the dress-stand, partly abolishing the parameters of gravity and balance. The dress-stand, as the rigid artificial body it is, does not move and garments modelled on a stand without the presence of a living body risk ending up as artefacts rather than garments made for a living body. By practical means, it is of course difficult to always work and shape garments on a living person and then the dress-stand is a most useful complementary tool. What is important when modelling on the dress-stand is constantly shifting between modelling on the stand and a living body during the work process.

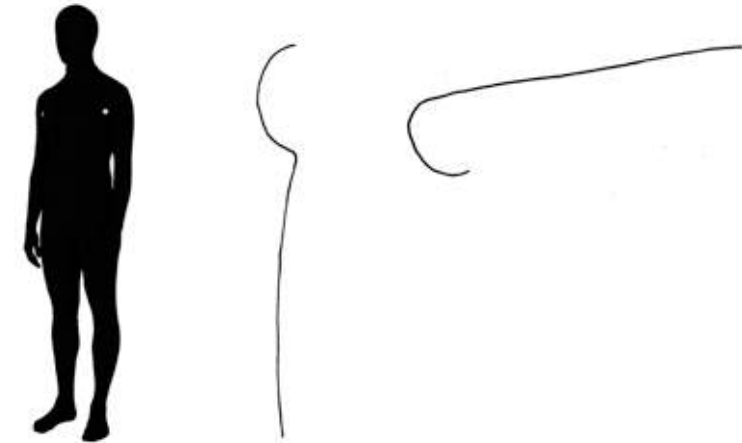
The foundational cuts presented here are to be seen in comparison to conventional draping and flat cutting, in which the foundational act is measuring the body and further shaping darts, shoulder seams and side seams.

## 6. A QUALITATIVE LOGIC

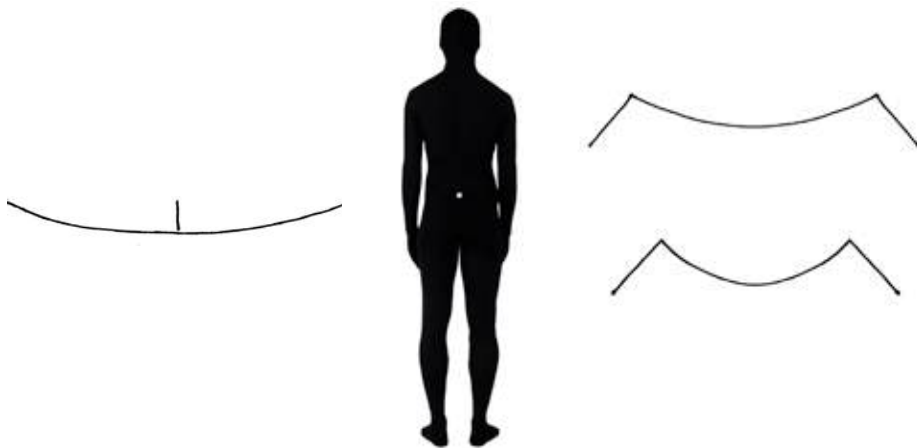


The first foundational cut directs a point at the centre back of the neck and one at the side of the neck. It allows one to place a piece of fabric over the shoulder to start modelling the garment.

The shape of the neckline and the angle of the centre front cut direct both the balance and the shape and volume of the garment around the shoulder area.

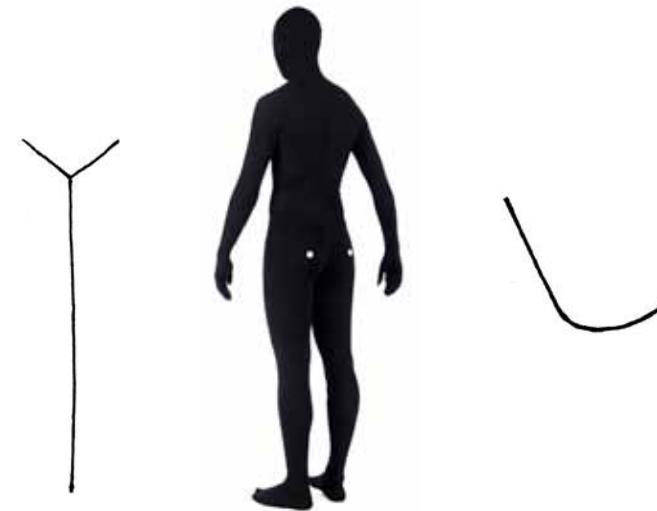


The scye cut can take different shapes of which two examples are presented here. The first one starts vertically and bends around the front scye, passing the scye point, and the second one starts at the end of the arm and bends downwards passing the scye point. This cut creates the foundation for the sleeve and its setting.



The second foundational cut directs a point at the centre back of the waist and defines where and how the garment hangs from the waist or hips.

The shape of the waistline cut gives the volume and shape of the garment. The more curved the line, the less tight it will be around the seat.



The Y cut opens up for legs to be cut from a piece of fabric hanging from the hips and addresses the widest point at each side of the seat. The J-shaped crotch-cut defines the height of the rise and the width of the upper parts of the legs.

# 7. DISCUSSION

As a first part of my research endeavour, the work presented in this licentiate thesis introduces and demonstrates an alternative theory of pattern making for new possible expressions of body and dress. It builds on the principle of foundational cuts, which is an alternative quantitative logic to that of the traditional quantified grid.

This framework is to be seen as a general theory and may form, just as the traditional tailoring matrix does, the foundation for any kind of dress, standardized or customized to a certain body. The examples so far are made on a male body, mainly due to my design background, further work will contain examples and experiments also on a female body in order to show the generality of the theory but also to investigate if the theory then needs to be modified.

The applied examples in this thesis (the shirt, the jacket and the trousers) are new takes on classic 20th century garments. First, they serve to validate the function of the proposed theory of foundational cuts. Each example proves, in itself and together, that the theory works. Simply put, it is possible to apply the theory to garment making. For the experimental designer they might not show to much of a different expression. However, for the men's tailor they exemplify a radically different take on classic men's wear.

Secondly, there is a pedagogic point to make traditional garments, showing the potential of serving the same dish but with a different taste, however there is also a point in more examples reaching further out from traditional forms in order to show the potential of this framework for developing unknown paths. When the balance lines are applied to the pattern pieces, it is clear that the basic examples and the applied examples differ in precision. The applied examples, having a more exact design result, are less clear from a theoretical point of view whereas the basic examples, being less defined as design objects, are more exact and show the theoretical result more clearly.

The theory (lines and points) is traceable also in the applied examples, although they visualize the theory less clearly. Further examples made in congruence with the theory need to be created and presented in order to clarify and develop the theory further with less consideration of representational aspects of garment stereotypes.

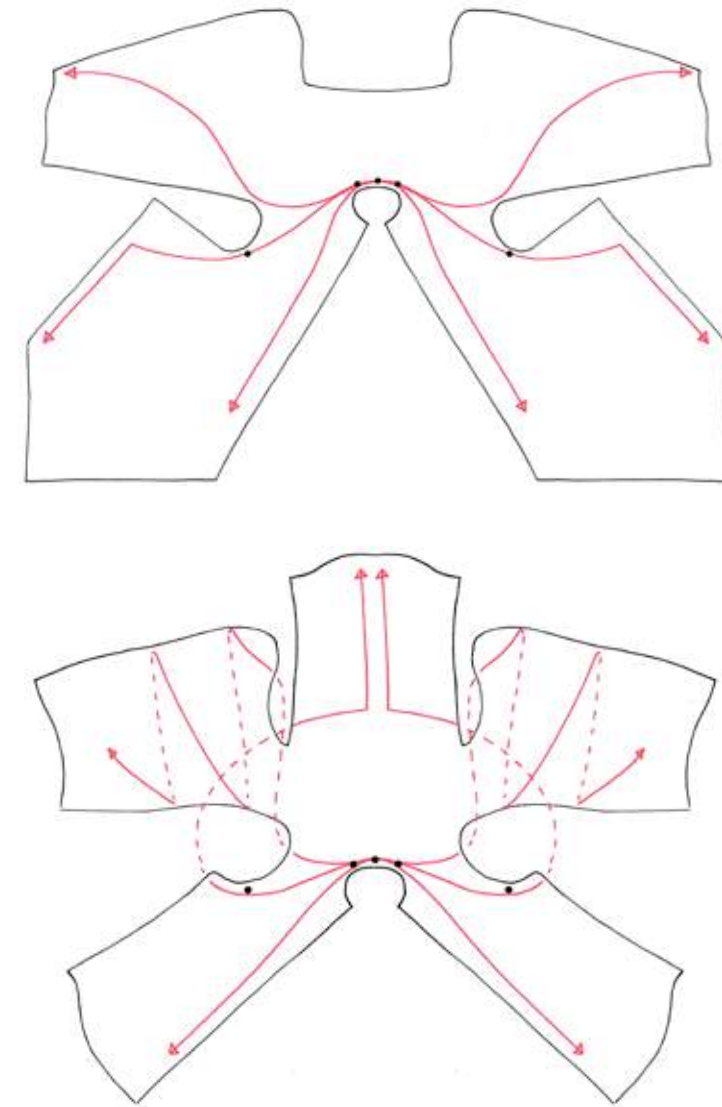
Each individual designer has his/her own actions and handwriting and two designers working with the same brief are not likely to arrive at the same result even if they are taught the same working methods. However, different working methods do open up for different expressions and functionalities

## 6. DISCUSSION

and this theory enables new expressions in dress and increased functional possibilities for wearing.

In addition to presenting an alternative approximation of the body this system also experiments with the conventional utilization of fabric grain while cutting garments. While wrapping the fabric around the body the grain does instead of running straight vertical or being on a 45 degree bias it varies over the garment and this effects the garments expression and function. What this leads to and how to take advantage of this intends to be further examined in the PhD thesis. Further, since it is not the principal of cutting in one piece but the quantitative approximation of the body that is the core of the thesis, examples in several parts needs to be added.

Question that rise after formulating this theory of garment making naturally touch upon its expressive and functional possibilities and limitations. While the applied examples serve to validate the basic expression and function of the theory of foundational cuts, the question still remains to what extent this theory is significant? What new expressions may one make with it? What new functions will it contribute? Does it mean a refinement of the approximation? And what happens when the theory is introduced in pedagogical settings, such as workshops and courses? I aim to explore questions such as these in my forthcoming PhD thesis.



Patterns with directions for a basic principal example vs. an applied example.

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