### Design for unknown futures

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The need for objects that last longer

The need for humanity to lessen its impact on the ecologies we’re a part of is becoming increasingly clear. While there are many technically advanced solutions in the makings, one of the most straightforward ones is to simply use the objects we surround ourselves with longer. We can make them more durable and repairable but what happens when the needs of the user changes? How can we really know what needs the future will bring?

I’m searching for a design approach that embraces this unknown. A process where the designer doesn’t have to be the enlightened figure that knows everything in advance. Because if we accept the complexity of the social and ecological reality where our objects end up, we never can be. I want to make objects that can grow and change with the user. A fertile soil for future needs.

I’ve used the design process of three different objects to develop these thoughts. An open ended loom for the weaver Vega Määttä Siltberg, a table made with designer Julie Amira that is disassemblable without tools, and lastly a piece of furniture that changes function without moving parts.

The goal of this project is not to produce a solution to a specific problem or to create an object that communicates an idea as well as possible. Rather it’s the reverse. By the process of designing and building I’ve been able to explore the questions that my project is composed of. The thoughts expressed here come from this experience.
Fragile for the unknown

Rigid modularity

A while back I was working in an office building built sometime during the 80s or 90s. As organisations grow and change their needs from the building they are in change as well. This must have been something that the architects had thought about since the building was built with interior walls that were modular and could be moved and attached at regularly spaced intervals in rails in the ceiling. Because of this a single builder would be able to resize an office quickly either with the existing wall elements or by ordering new ones from a factory where they could be made efficiently. Saving cost and time.

However, as time went on the labour laws changed and a single person was no longer allowed to lift the weight of a wall module alone. The company that made new wall modules also went bankrupt so new modules had to be hand built one by one by skilled carpenters at a far higher cost. Lastly, the advent of computers in office work changed how big desks we want and need and so also the size intervals needed for different offices.

All together the correct assumption that the needs of the people in a building will change led the architects to design a building that was even more fragile to change than it would have been if they had just made the walls out of a regular construction of beams and drywall. They had planned for change but locked the users into only being able to adapt to the changes the architects could see while designing. Labour law for lifting heavy objects usually isn’t considered a part of the brief for an office building and neither is the economic viability of a factory or future disruptive technologies.

Complicated problems can be solved by thinking harder beforehand while in a complex world there has to be room for new insights to be made further down the line. We have to accept that we cannot plan for every possible future no matter how thorough research we do.

Big circles

There is great hope in the shift towards a circular economy to make human existence on this planet less strenuous on all other entities existing here. Renewable resources, materials from waste streams and new processes for recycling are all great things to strive for and the innovation in those fields can make a big difference. I do however fear that in many of the circles of the different butterfly diagrams drawn, we risk the same fate as the architects of the office building mentioned above.

One example is the company Renewcell that takes “cotton and other cellulose-rich textiles and transforms them into a new, biodegradable raw material” in their own newly developed process. The technology holds great potential in making the textile industry more circular and at the end of 2022 they delivered their first batch of pulp from their factory in Sundsvall.

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1 The butterfly diagram: visualising the circular economy Ellen Macarthur Foundation, 2023-05-31 https://ellenmacarthurfoundation.org/circular-economy-diagram
3 Renewcell, ‘Renewcell starts deliveries of Circulose® pulp from Renewcell 1 to customers’, 2023-01-26
But as is clearly visible in the circular diagram on their webpage, the industrial process of creating textile involves many steps and if any of those steps fail or change the circle is broken.

Renewcell creates a dissolving pulp that can be used like any other kind of virgin material at the next factory in the circle, which are the producers of fibres. After that another factory turns the fibres into yarns, thereafter another turns them into fabric and finally it gets shipped to a producer of textile products that can ship them to stores all around the world. To be able to fit into the existing value chain the pulp they produce must be up to a very specific standard. The process of breaking down and reconstituting the fibres involves chemicals that rely on yet another big chain of industrial processes and extractive practices. For the loop to be a loop at all there also has to be a link between the produced products back to renewcell. The textiles they use can’t have been mixed with other non cellulose material and even though all dyed fabrics are accepted water-resistant finishes and certain textile prints become a problem for entering the next loop. Then there are all the textiles that never make it to the recycling station at all.

Integrating into the current chains of industrial manufacturing gives you great leverage on turning an unsustainable industry towards a better direction. It does however make you contingent on even more factors outside of your control. From global logistics chains and laws regarding chemical use to consumer trends and patterns.

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4 Renewcell, ‘Renewcell Feedstock specification - v11’ 2022-06-03  

5 We make fashion circular[Image],  
Striving for simpler solutions

I’m not trying to argue about whether or not technology heavy solutions, like the example above, have the capability to work or if they can be an important step forward. Rather, what I’m interested in is looking for the simplest solutions that have the ability to survive in a future with an unknown number of unknowns. I’ve composed the following short list to help me on the way there:

- **Rugged**
  Making the use phase of an object as long as possible is the most straightforward way of reducing the need for new resources. It has to resist as much stress as possible without reducing usability.

- **Repairable**
  When something inevitably fails it has to be repairable. Preferably on site and with minimum technical knowledge and tools.

- **Repurposable**
  When the use case the designer planned the object for isn’t needed anymore the object should afford the user to use it elsewhere. Either in its original form, reconfigured or in parts.

- **Biodegradable**
  When the objects eventually fall out of the planned loop the big loop of earth biosphere has to be able to take care and repurpose the materials.

Repurpose

For the purpose of this thesis I have chosen to focus on the repurposability of objects. In my designs I try to take all of the above into consideration but out of the four I think this is the least obvious both in what it is and how it can be applied as a tool in the design process.

It isn’t an uncommon scenario for a technology to become obsolete. It is even more common that a user’s needs change and thus the usefulness of the objects that person surrounds themselves with also change. This isn’t a problem that ruggedness or repairability can fix and there must be solutions other than grinding it down in an industrial recycling process or letting it rot out in nature. A second hand market for objects can indeed prolong the usefulness by allowing it to find a new home where its services are needed but even with a new user the core of the problem still persists. That nice looking shelf for CDs you bought 20 years ago might not be all that useful now and a wonderful handbuilt cabinet from a 100 years ago doesn’t fit into most people’s apartments these days.

There are already existing objects that fit into the category of being repurposable. Although it is a tricky set of features to pin down the following two categories help define it a bit further.

**Vernacular design**

We might not always notice them but we quite often come across objects that are designed by other people than designers and usually made out of parts scavenged from other objects. In the book *Low cost design* Daniele Pario Perra has collected images of such objects whose ingenuity is only trumped by their usefulness. From simple addons like tennis balls on the legs of chairs to socially complex like the self-initiated trash can that has become part of the city’s ordinary ones and is emptied regularly.⁶

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Tennis balls repurposed as chair mufflers and carpet savers.\textsuperscript{7}

Even though a designer has no possibility of planning for all these newfound purposes, in looking at the compilation of objects a few traits are recurring and these are the ones I wish to explore further in this thesis. The focus here is on material, joints and forms that encourage transformation by the user.

**Open ended affordance**

Another loosely knit category that can help shed light on this topic comes in the form of crates and the step stool from Ikea called Bekväm. When talking to people around me about this topic the Bekväm step stool has often come up. Of all the ikea furniture that fill the low and middle class homes of Sweden this step stool stands out by its shear versatility. Composed only by simple horizontal pieces of wood with legs and a handle to move it around with this object has found the most varied set of occupations. Always the first thing reached for when a light bulb needs changing. Two different levels for the growing child who wants to help out by the kitchen counter. Someone used a pair to support speakers. I myself borrowed one from my ex-girlfriend as a makeshift TV bench but even though neither the relationship nor the TV persisted the stool now serves double purpose as something small to sit on in my entrance while I tie my shoes and as steps needed for my at-home workout. This object doesn’t need to be ground down to a powder and put back together again to become new and useful. Not even folded or reassembled. You just have to move it to another location.

![Ikea Bekväm step stool\textsuperscript{8}](image)

The crate is a less specific object then the Ikea stool but shares many of the same features. The designer Jasper Morrison recalls when he moved into a new apartment and because of his temporary lack of furniture found an old crate for wine bottles that he used as a bedside table.

\textit{“After using it for a year I realised it was accidentally a good design. The more I thought about it the more I realised it had qualities that other bedside tables didn’t have. A small footprint, a good height with enough area to keep what’s needed beside the bed, and an easy way to store books for reading in bed. When the British design company Established & Sons asked me for a project it was the first thing that came to mind.”}\textsuperscript{9}

That specific crate was designed to carry wine bottles. It had then been redesigned in the mind of the construction workers in his

\textsuperscript{7}Mardis Coers, \textit{Used tennis balls on classroom chair and desk legs - stock photo [image]}, https://mothership.sg/2016/10/10-times-tennis-balls-reinvent-themselves-to-serve-the-greater-good/ accessed 2023-05-31

\textsuperscript{8}Bekväm-koeksstege-pall-svart [image], https://www.ikea.com/se/sv/p/bekvam-koeksstege-pall-svart-40463852/ Access 2023-05-31

\textsuperscript{9}Jasper Morrison, Francesca Picchi - Domus 1046 - Insert full reference
apartment to carry bathroom tiles and when they left it there it was redesigned again into a bedside table. What this quote also highlights is the found property of the design. The shift into a bedside table was a spur of the moment and after that it took a year for even an accomplished designer like Morrison to realise the full potential hidden in the object.

It is a tricky task to put a finger on the exact properties that make certain objects have these possibilities more than others. But it seems like it needs to be high in the number of afforded actions and low in prescribed ones. Suggesting a lot but not insisting on anything in particular. Modular solutions can seem to be open ended but as the example above with the office building they might just make the prescriptions of the object more convoluted. For this kind of adaptability the simpler solutions seem to prevail.
What knowledge is needed

A common first step in many design processes is defining the problem at hand in a clear manner. But what process can we use to work with preparing for problems we don’t know? And is it even possible to capture how to work with these issues in a well defined method?

Cynefin

I first stumbled across the Cynefin framework in a lecture on resilience in IT architecture. At first I wasn’t completely convinced of its usefulness outside adding another bunch of buzzwords to the arsenal used in powerpoints by expensive consultants. But as I’ve talked to more and more people about the thoughts that make up this project I’ve realised that although not perfect it is still helpful in defining a difference between the complicated and the complex and in understanding in which of those domains a problem is in at the moment.

Created by Cynthia Kurtz and David Snowden around the turn of the new millenia the framework has been updated and refined in several iterations. As you can see in the graph above the framework outlines five domains for decision making. For the sake of this discussion I will focus on three of them.

The bottom right one is called Clear and is the domain of known knowns. Here we might place a problem like deciding if a bolt will hold for a specific load. There are standards for measuring this that are widely accepted and the knowledge gained from it can be generalised and used in all relevant situations.

The Complicated domain differs in that there isn’t a single best practice and one example of a problem that fits in this domain is building a bridge. Given the right information about the loads expected, the geological data, and so on, there are several good ways to proceed and after one is picked it’s more a matter of solving the right mathematical formulas and picking the right bolts etc.

It’s when we reach the Complex domain that the use of this framework becomes clearer. If we look at the example of building a bridge but instead ask ourselves questions like: What are the future needs for transportation in this region? Where should the bridge be placed to interact with other infrastructure in the area? What are the social implications of connecting these areas versus two other areas?

Even though knowledge from previous constructions will guide us, there are no two places and no two points in time for construction that are the same in all regards. There is no clear set of good practices so we need to probe and sense what’s going on in this specific context and come up with a new practice that works here. This is what they call an emergent practice. As this new practice emerges for this specific problem, tasks can be defined and split down into complicated parts and eventually the clear parts like finding the right bolts and so on. This gets visualised in the graph by a movement in a clockwise motion through the domains.

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In my view good designers and architects broadens the scope of the problems they work with to include the social and ecological context that their design will be in. In doing so you almost always move counter clockwise towards the complex domain.

The example of the office with the modular interior walls in the beginning of the thesis can be seen as an example of what happens when trying to solve a complex problem with a mindset for complicated problems. All too often we think the problems we’re facing are complicated ones and that if we just sit down and think long enough about a problem, in the comfort of our studio, we will find the best solution. But is the knowledge needed for these complex problems even attainable just by sitting down and thinking about them?

Different kinds of knowledge

“Texts can challenge us, make us look at the situated knowledge in new ways, it can summarise and give inspiration - but it can’t carry that knowledge.”

Professor of philosophy Jonna Bornemark argues in her book *Horisonten finns alltid kvar* that we in today’s society have lost the ability to reflect on knowledge other than what fits into the scientific definition of knowledge. The type of knowledge Aristotle calls episteme. This is the kind of knowledge that is generalizable to every situation and gives repeatable outcomes. It defines a best practice or a set of good practices. This kind of knowledge is extremely useful in the repetitive industrial processes of the modern age and this knowledge can be converted into algorithms and therefore its effectiveness can rise together with the modern day’s seemingly endless increase of computational power. But because of its limitation of only accepting knowledge that gives the same result in every situation it won’t help us solve complex problems.

From Aristotle we also get two definitions for practical knowledge that might get us closer to what’s needed to operate in a complex domain. Techné and phronesis. Techné is usually connected with craftsmanship and the knowledge of how to achieve a goal. It differs from episteme in that the way to reach that goal isn’t always the same nor possible to express explicitly. Just because you follow the same recipe as a professional chef doesn’t mean the end result will taste as good. The knowledge can be made into a manual but it will never take you all the way to the desired goal.

Phronesis on the other hand isn’t concerned with the goal at all, rather it focuses on the process and the changeable features of a specific situation. Since it’s knowledge that’s always specific to ever-changing situations it isn’t generalisable and hence can’t be converted into algorithms or even expressed by language. Bornemark argues that these other types of knowledge are seldom considered today and that makes us try to fit everything into the mould of scientific knowledge.

I would argue that these two types of practical knowledge are needed in the work with complex problems. Knowledge that transcends standardisation and is specific to the given situation.

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Navigating among the unknowns

My initial goal with this thesis work was to find a methodology to work with the unknowns in the future we design for rather than against them. As I’ve read more and put more thought into this, and most importantly the more I’ve spent designing and building, it has become increasingly clear that there will never be a definitive method, a best practice, for this.

To avoid becoming “armchair expert” designers we need to embrace the complexity of the problems at hand and the need to get our hands dirty in the non-linear process of solving them. To navigate in those complex environments we need to broaden our definitions of knowledge to include practical knowledge and wisdom to be able to find emergent practices that are specific to the task at hand but needs to be revised or discarded for the next.

So rather than looking for a method I’m searching for useful heuristics. Heuristics can be defined as:

“a simple procedure that helps find adequate, though often imperfect, answers to difficult questions. The word comes from the same root as eureka.”

The advantage of using heuristics is that by knowing that they aren’t perfect we are less likely to be fooled and to apply them without consideration. They are useful tools in a toolbox and we can use them to probe a new situation when needed and leave them when they are not. In describing these learnings I hope to be able to share a different way of looking at objects, where their use case can outlast the designed one.

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14 Daniel Kahneman, Thinking fast and slow (Månasälte, 2011), p 113
**Process**

Through the process of building, designing and thinking there has emerged a process of iteration where I try to be present in each stage and listen to what happens. In the sketching I do a lot of sketches without too much evaluation and then gather them all to see what new ideas have come up, what should be discarded and what should be moved forward with. Even ideas I consider bad beforehand quite often need to get put down on paper and usually still contain a kernel of a solution worth iterating on.

A lot of decisions were also made in the process of fabrication and the interaction with the material and machinery. I did a lot of small tests of individual parts which often made me reevaluate the whole and iterate on the design. After prototypes were made they could yet again be tested and evaluated before starting the cycle anew. This was done in four different probes in tandem and there has been a lot of cross pollination of ideas in between them. Even though they have different intended use cases any one of the objects wouldn’t have looked the same without insights learnt from the others.

Each of the four probes also had their own constraints which helped give the design process a positive friction that helped take them to places I might not have gone on my own. More on these in the next chapter.

The goal of this was to create objects that themselves could survive more than one iteration of use cases. Just as the aforementioned objects that are transformed through vernacular design or objects that change use cases depending on the need of the user. Rather than being multi-use they try to become a fertile soil for the user to create a new use case from. That when the inevitable change happens they’ll be able to transform as needed.
Four probes

Occasional furniture

The expression *occasional furniture* means furniture that can be put to use as the occasion demands.\(^\text{15}\) In this probe I’ve taken inspiration from the above-mentioned IKEA Bekväm stool and from ubiquitous objects like the crate. Objects that adapt to numerous situations not by an advanced modular design or by “smart” sensor enabled technology but by their sheer simplicity. Objects that afford a lot only with surfaces on different heights and in different configurations.

The manufacturing of this furniture is made in collaboration with Stomeverket. They are a newly started company that build kitchens and other fixed joinery out of cross laminated timber with a focus on long lasting and sustainable products. I’ve had the opportunity to use the leftovers from their production together with their CNC driven production line to these objects. This helps me not only to be able to try out how these objects interact in real life situations but also, by the constraint of a specific production line in my design process, I have introduced some friction that I hope improves the quality of the knowledge gained.


Loom

To complement the first category I also wanted to design a highly specialised object and see what I would find in that process. Since I have a history of building looms I was asked by weaver Vega Määttä Siltberg to build a frame loom for a public weaving workshop she will be organising and I decided that this was a good match for my thesis. The project is made together with the organisation På Sergels torg who are a collaboration of Stockholm municipality and the property owners in the area around Sergels Torg plaza in central Stockholm.

Apart from being an object with a highly specific use case it was also a positive constraint to have a client to work with. This more closely reflects a scenario outside of school and gives another chance to learn something else from this design process as compared to the other probes.
Disassemble table

The third probe is a collaboration with my classmate Julie Amira. Her project is about repairability and since a lot of our thoughts are overlapping and since she also is building multiple objects we thought we would collaborate on one of them. The constraint of working together with another designer both shaped this probe and also gave new insights I wouldn't have found on my own.

What we decided on designing was primarily a construction method for furniture that allows disassembly and reassembly without any tools. We implemented this method in a built object each and they differ slightly to align it to the focus of each of our project. Julie built a desk for a home setting and I built a table that can be folded to save space.

Here the collaborative part of it also helped shape the project and the knowledge gained from it.

Noisy surface

The last probe is an investigation into patternmaking by compressing wood with an industrial robotic arm. With long use, wear on the surface of an object is inevitable. Instead of trying to make the surface as hard and scratch resistant as possible I use this method to explore how we can embrace this kind of ware. With a random pattern that conceals any new dents and scratches. Giving the objects a head start to become patinated.
What I’ve learnt

Reversed Enzo Mari

“A project for making easy-to-assemble furniture using rough boards and nails. An elementary technique to teach anyone to look at present production with a critical eye.”16

The quote above is from the Italian designer Enzo Mari’s 1974 publication *Autoprogettazione*. It contained a series of designs for furniture that was meant to be buildable by anyone with supplies from a common hardware store and the goal was to question the mindset of mass produced furniture in his time.

One of the ideas that emerged when I started building and designing with circularity in mind and with inspiration from vernacular design was to continue on Mari’s ideas by reversing it. How can we design objects that can be bought fully functional but be disassembled into building materials? Where each part still has value without the whole.

The probe where this got most clearly expressed is the loom. I made the

construction with wood of as uniform size as possible. A grid with 22mm x 22mm and 22mm x 44mm wooden slats. The joints are both made to be flexible for future changes and the overlapping slats work even if they aren’t cut to exact length or thickness. All held together with nuts and bolts instead of wooden screws to enable assembly and disassembly multiple times.

To accommodate for the shearing forces I’ve added diagonal ties of metal wire between the bolts. This could also have been done with a simple board of wood with four holes that covers all four bolts but this would lock the dimensions of the joint and also make the whole construction heavier.

I would also argue that the metal wire, just as the slats and the bolts, are still very usable as construction material in any other construction that future users might be inclined to make when the need for this loom has disappeared.

In the two furniture I haven’t gone as far but I stayed clear of using glue as much as possible. In the occasional furniture I’ve made the screws a visible part of the design to communicate the disassemblability of it and in the table I’ve tried to make all the parts as simple as possible to be as useful as possible in most situations.

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Threshold for next use case

It was first when I allowed myself to more freely explore a form first that I found a way out. By trying to make the object more abstract and with a less clear affordance I aimed at making something that would attract the attention of the user. Evoke a bit of confusion and hopefully an interest to explore what the object really is.

Since what I’m hoping to achieve here is something that happens outside of my control as a designer, it was necessary to make an extended user test. I made two prototypes and lent them out for two weeks to get feedback. I gave limited instructions but told them that it was a piece of furniture and I wanted them to explore how they would use it, where it would end up in their home and to send pictures and videos. To make the results more diverse I lent one of them to a family with children living in a large house and another to a couple in a smaller apartment with two cats.

The images and videos I got back together with the feedback from interviews did show that the furniture moved around quite a bit and different usages were explored in the first period of the use phase and then later it found a spot in their homes where it stayed. The different sides did lend to different use cases but it was quite clear that one side was a preferred side up over the others which would be something I would reevaluate if doing another iteration.

Thinking of the usefulness of individual parts is all well and good but how does this relate to the vast majority of people who rather not handle a screwdriver, not to mention any type of power tool? This is where objects like the IKEA step stool intrigue me. What if the next use case is enabled only by moving the object to a new context.

The occasional furniture explored this by trying to find a size and height of surfaces that would afford a lot of different use cases. By turning the object and having another side face up even more possible scenarios are revealed. The first sketches and prototypes I made of this became very boxy and stiff and I was never really satisfied with their shape.
Standards

When designing for repairability it’s important not only that it’s possible to disassemble an object but also that the tools needed are readily available. Sleek and minimal designs quite often need special fixtures and fasteners and this can not only inhibit the possibility for most people to disassemble and repair but also make the individual parts less likely to be useful in future vernacular designs. Bolts and screws have been around for hundreds of years and will probably continue to be useful for a long time to come. Especially if they are of a standard size and type.

Randomness

According to legend the ancient Greek Mithridates ingested small controlled amounts of poison to slowly make him immune and survive future attempts to take his life. Controlled amounts of randomness, of the unknown, can be used in the design process to make the object resistant to future unknowns.

This took shape most clearly in the surface treatment with compression of the wood on the loom and wine stains on the table. As explained in the earlier section called Noisy surfaces I used parametric design tools to create a pattern of lines at random locations and with random curvature with the hopes that they will conceal any future dents on the wood. The idea of staining the table top with wine came from the same thoughts but in a very low tech way. No matter what kind of surface treatment you have on a wooden tabletop you will eventually get stains so rather than using chemicals to seal the surface we can try to work with the processes of staining. Preparing the surface for the ware that is to come.

Another way of thinking of randomness is in the functionality of an object. As I mentioned above I made the occasional furniture more abstract in hope of opening up possibilities for the user to insert their own needs and potential use cases. Adding affordances with a bit of chance to open up the unplanned. This is a hard thing to design successfully and even though I think my gut feelings for how abstract and how unprogrammed I would make the furniture did help, the true test is user studies and iterations.

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27 Nassim Taleb, Antifragile (Penguin books, 2012), p 36
Simpler solutions

In the 2010s there was a surge in products with the “smart” epithet in their name. This usually consisted in that they had some kind of extended feature set by an integration of microprocessors and quite often an internet or bluetooth connection. This added complexity has made them very fragile and the fast rate of change in technical standards and requirements of connected devices has made this set of objects go obsolete at a record pace. Although this differs from what happens to plain old furniture there is still something to be said for keeping it dumb. Adding a metal hinge might add functionality and usability in the short term but it is another possible point of failure or at least another need for maintenance.

In the occasional furniture I explored adding functionality while still not having any moving parts to keep it as simple and “dumb” as possible. In the table the added complexity of the brief me and Julie gave ourselves of making it repairable without tools made it harder to keep it as simple as possible. We still tried keeping it simple both for the end user and not making the joints too complex. By utilising the same kind of rope both for attaching the legs and for the folding mechanism that mechanism became very simplified and a design that if it breaks could easily be mended with a wide variety of ropes and strings.

Biodegradable

The last point on this list is something that has gone through all of the probes. If we take the idea of embracing the unknown uses to its limits we need to consider how our design will be used by non-humans. We cannot guarantee that what we put into this world will always be in the hands of humans and nowmather how well planned our circles in a circular economy gets we will always have some loss that ventures out into the non human world. While the objects I’ve made might get used by some ingenuous vertebrate I’ve rather chosen to focus on the larger set of microbes, fungi and other critters that help break down and reuse matter in nature. Basically I’ve tried to the greatest extent to use materials that are biodegradable.

A full analysis of materials biodegradability and the effect of their residues would on its own be a topic bigger than this thesis. Biodegradability is not a binary and toxicity is always a matter of dosage. I have however taken care to choose natural materials which to my knowledge has the least negative impact on most environments.

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Using wood as a base material was an easy first step. I’ve stayed away from plastic and used steel that is not stainless so it too can be broken down in nature over time. The ropes are cotton and dyed with organic pigment. The wood coatings I’ve used have been hard wax oil, boiled linseed oil, ecological paint from Auro and of course wine, which all are biological and non-petroleum based. The wood glue used for the table top is standard white glue (Polyvinyl acetate) which from my tutoring with Mikael Lindström, professor in Fibre and Polymer Technology, was confirmed to also be biodegradable.
Discussion – Conclusion

I knew from the start that this was a very broad topic to take on for a master thesis and that it would potentially be tricky to manifest it in any type of physical form. Therefore I think it was a good choice to start early with building and not wait on formulating a perfect brief for myself before I started designing and building. To let the practical knowledge that comes from the process seep into the theoretical part of formulating both the question and the answer I was working with. It also helped me to make physical objects for a concrete task. Both to clarify for myself and to be able to communicate to others.

However, taking this theoretical standpoint as a starting point made me build things I otherwise wouldn’t have and to see opportunities in the design process I otherwise would have missed. Likewise I can really see how the different probes informed each other. Working with the robot arm made me explore ways to make patterns from processes of wear and this made it natural to think of staining the table with wine in a similar manner. This was a decision that came late in the process but has by far been the one which caught the most attention during the exhibition. This was usually the entrypoint I used for explaining my project to the people who visited the exhibition. Another testament to the value of letting the processes guide you.

This project has been a search for a design approach that embraces the unknown and the unplanned. Expressing this through a list of learnings was the best way I’ve found to communicate my findings in this project. Even though I don’t claim my learnings in any way to be groundbreaking I do feel like summarising it like that misses quite a bit of not only what I’ve learnt, but also what I’ll take with me from this experience. What I have been scratching the surface of is something closer to a mindset rather than a set of heuristics to follow. I already feel like
Appendix

I would say that I generally only got good feedback in the different presentations during this project. The critics and teachers seemed to have understood what my goal was and how I was working with it. Even though I’m not a fan of harsh criticism I have to confess I would have liked a bit more pushback from the critics. Whether or not it would be something I agree on, it might make me reframe how I think, or at least how I present my project.

It could of course be because this project has so many sides that it’s not easy to come up with a clear point to make during the feedback session of a presentation. If I manage to make it more concise I might have gotten clearer feedback. I have quite knowingly created this project to be exploring rather than solving problems which does lead me to not make as clear of a standpoint in any question. I did however hope that would lead to a conversation rather than a discussion with the critic, where we all together talk about these questions and explore their weaknesses and potential benefits.

During the exhibition I enjoyed talking to the visitors and I’m glad for all the interest and positive response I got. I was very happy to be one of the projects from Konstfack’s spring exhibition that got mentioned in the newspaper Dagens Nyheter but I was even more happy that the journalist managed to put the core of my project into only a few sentences and after only talking to me for a few minutes.

I’m also pleased that I managed to take on the whole space I was given and set the tone of it to match my project. Rather than just putting what I had built on display I tried to make it feel like these objects were part of a more domestic environment to make them feel closer to reality. I did notice that this made less people hesitate on touching the things I exhibited and for me that was also just something positive.

This was also something I got good criticism of and even Margarita, who seemed to be able to point out things to improve in most exhibitions, had almost only positive things to say. Overall I’m very pleased with how this project turned out and the feedback I’ve gotten from it.