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ASSISTIVE INTELLIGENCE:
REPLICATION AND MEDIATION OF MODERN

THESIS PREP
MADELINE ALVES + ERIN ZEARFOSS

|Fall 2022 | Syracuse University School of Architecture|
Advised by Mark Linder and Emily Pellicano | AI AG |

LETTER FROM THE EDITORS

ASSISTIVE INTELLIGENCE:
REPLICATION AND MEDIATION OF MODERN

This project explores AI technology developed for people who are blind (image to text: Meta) in collaboration with image producing (text to image: MidJourney + Dall-E) AIs to analyze and recreate existing architectural objects developed with the Bauhaus school. Through the image to text AI software developed by Facebook we are able to objectify images of architectural objects as they would be presented through visual identifiers to someone who could not see the image. The text description taken from this process allows us to use text to image AI to reimagine the initial object image. Using modeling techniques the new object image can be transformed into a 3D physical object that can be touched and held. This new experience derived from the recreated image is a product of the initial object image, yet distorts its visual qualities prioritizing its physicality as a more equal experience.

FRAMES OF REFERENCE + AUTHORSHIP

BAUHAUS

How are the models and frames of reference that guide the understanding of language in human intelligence similar or different from those that guide machine intelligence?
Do we still have authorship in AI assisted design? Can we control what AI produces by adjusting our frame of reference?

This project is an exploration of frames of reference that guide human authorship and how they influence machine output . "Reference frames are [used] to make predictions, create plans, and perform movements." (Hawkins 131). We guided our exploration under the principle that if we control who authored the frames of reference that the AI receives, then that would influence the output of the machine. However, we began to question to what degree we need to control the machine in order to have a valuable output –is human-intelligent authorship necessary for machine intelligence to function productively, or is machine intelligence enough of an author on its own? Through this exploration we began to understand machine and human intelligences as interdependent.

Our experiment is informed by authorship classes as reference frames for humans that in turn influence machine output. Machine intelligences are dependent on human frames of reference– "Neural networks cannot invent their own classes; they're only able to relate images they ingest to images that they've been trained on. Their training sets reveal the historical, geographical, racial, and socioeconomic positions of their trainers"(Paglen 162).

Although machine output is classless in itself, us, as humans, categorized our prompts based on classes of authors, allowing the machine output to be interpreted within and beyond those boundaries. In Phase I, we gathered descriptions referencing 3 well-known built projects. These descriptions formed the frame of reference for the machine. We examined how descriptions of

built projects, written by different authors, affect the AI (Midjourney)'s interpretation of architecture through text-to-image software. Using the outputs from Phase I as frames of reference as our base for the following phases, we explored human control and machine control. In Phase II we, the human facilitators, created composite phrases of the words that we determined to be the most reminiscent of each building from Phase I. The goal was to determine how much control humans could have over machine intelligence. In Phase III, we experimented with the degree of autonomy we gave the machine through image completion software. We noticed that as we decreased the crop area, giving the AI more autonomy, the outputs turned out to be images outside of our imagination. This process revealed to us the potential that exists with machine intelligence, but in order to take advantage of its capabilities, humans have to extend and devise "other" imaginations.

AI has transformed into an assistive technology that helps us, as humans, reach beyond what we would otherwise be capable of. In the context of architecture, AI can be an effective design tool as we shift our role from designer to curator. We have the ability to control AI, but it's most productive when we allow authorship to switch hands from humans to machines.

Madeline Alves, Kimberly Esquilin, + Pramita Mital
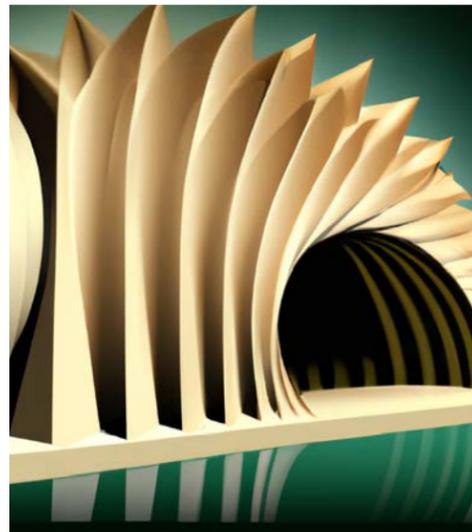
Not buying this won't help your financial situation a lot

CLAUDE

Designer: Mies Van der Rohe

Barcelona 65

thin silver metal framed armchair with a yellow stretched rattan cane seat and back suspended between the curved frame. rattan panels framed in shiny black. narrow black cushion on the top of the chairs arms. balanced on two legs that curve to touch the ground.

REIMAGINED MATERIALITY
Aesthetically Artificial

A GOLD WATCH FACE ON A WHITE SURFACE

In using a similar texture mapping process as architects in creating renders, does that mean the ai

To test our hypothesis, we used a quote by Peter Zumthor, "At the point in time when (material) materials are assembled and erected, the architecture we have been looking for becomes (atmospheric description)". We selected this quote because of its potential to input different materials and atmospheric descriptions into prompt. Initially, we were frustrated that the machine was not producing what we envisioned, prompting us to believe the machine lacked imagination. Based on Trevors Paglen's Reading, we discovered that the AI was never "wrong" in its creations, and "developing visual strategies to defeat machine vision algorithms is a losing strategy".

The machine was doing what was asked, but we did not understand that it was using methods familiar to us through rendering and material mapping softwares, just differently. We are both detaching the material's visual qualities from its physical and structural qualities. However, the aesthetic qualities of a material are intrinsically tied to its physical form. So when we appropriate the visual nature of a material it loses its original understanding and creates a new aesthetic altogether. Similar to the idea that taking an image of something creates a new understanding of the subject frozen in time, proving Goodwins prediction that "typewriters are not cameras for writing but artificial neural networks might be".

With AI we can create non-materials for architecture that can be visually applied onto any form or surface. The AI is able to translate our inputs of everyday materials and apply them in varied scenarios and understandings to the machines' own elaboration of an architecture/building/house.

Because the AI understands material as the same basic unit of grouped pixels (that create patterns and textures), this allows us to assign new and unrelated physical characteristics to the visual nature of a material, a new aesthetic. In not allowing the physicality of material to restrict architecture we can begin to question the cultural, programmatic, and historical notion of traditional building materials. Materiality in architecture shifts to be understood as an image: fully accessible, editable, and duplicable.

This investigation is of interest to architects because this collaboration produces new textures that can expand the scope of "visual materials" utilized for buildings. These textures become a new way of expressing aesthetics and can be then manipulated, which furthers the use of texture mapping in the design process.

Chloe DeMarco, Julia Kubowoski, + Erin Zearfoss

GOLD SHINY METAL POT WITH A BOLTED HANDLE IN A SHARD SHAPE, CROSS LEGS, AND LIFT OFF LID WITH PIN. TOP IS GEOMETRIC AND FLAT. CIRCLES WITHIN CIRCLES.

£ 800

ART AS LIFE

STRAWBERRY
ARTIFICALLY AUTHENTIC
Madeline Alves + Erin Zearfoss
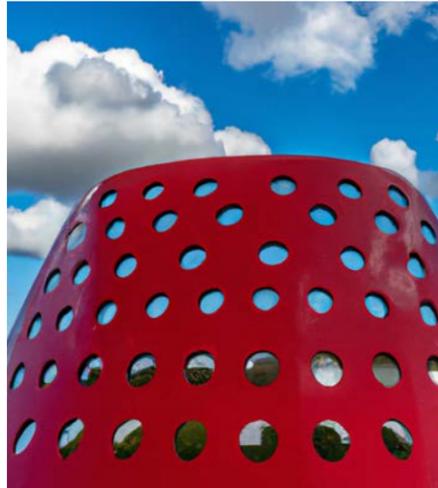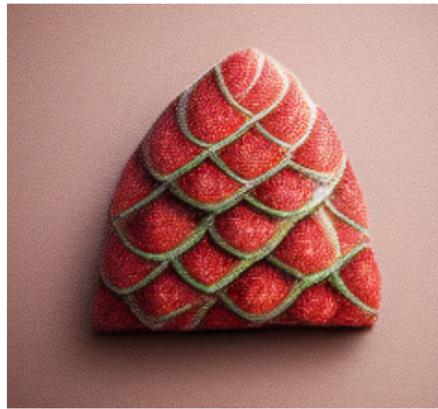
"ONCE WE RECOGNISE THERE ARE SOUNDS WE CAN'T HEAR, LIGHTS WE CAN'T SEE, AND THAT THERE ARE ALL SORTS OF ILLUSIONS AND MISAPPREHENSIONS, WE MIGHT EASILY ACCEPT THAT OUR VIEW OF REALITY IS NOT SO DIRECT, BUT MEDIATED. WE PRODUCE SOME KIND OF IMAGE OF REALITY WITHIN US, SO IT MIGHT BE CALLED REPRESENTATIONAL REAL-ISM."

- architecture and object-oriented ontology | simon weir in conversation with graham harman

BAUHAUS
BAUHAUS
BAUHAUS

BAUHAUS
BAUHAUS
BAUHAUS

IKEA

ASSISTIVE INTELLIGENCE:
REPLICATION AND MEDIATION OF MODERN
Madeline Alves + Erin Zearfoss

The Bauhaus is relevant to current architecture on two fronts: education and industry. The two topics remain relevant to both the School of Architecture at Syracuse University and to the design industry today. Founded on the attempt to relate creativity and craftsmanship to industrial production, the bauhaus was developed during a time of educational reform and heighted manufacturing through mechanization (Oswalt 302). Both of these conditions can be found today, the impending transition between student lead thesis projects (class of 2023) to a guided research model (class of 2024 and onward) that students complete in their final year in the bachelor of architecture program at Syracuse University. And the societal demand for more personalized experiences made possible by advanced technology in production and the increased communication of information made possible by artificial intelligence.

In analyzing the Bauhaus school and reimagining objects produced through the school with artificial intelligence, we can contribute to new methods of representation within the architectural discipline. Additionally, we will prioritize technologies and processes developed for people with disabilities, specifically sight related, as a further critique on the architectural discipline's lack of consideration for users with disabilities. Seen in the Bauhaus school by their association with white supremacist ideals of humanity embodied in their designs through form, color, and utility. Traditionally, architecture is a visual discipline, perfected through drawings and defined by visual proportions and aesthetics. Yet, technology is allowing architecture to transition to a more mass oriented field, enabled by 3d modeling softwares (Rhino and Autodesk softwares) that do not require the plan to be the dominant instigator of design. This approach to design allows for spatial relationships to take place through experiential interaction that prioritize alternative senses such as sound and touch.

This project explores AI technology developed for people who are blind (image to text: Meta) in collaboration with image producing (text to image: MidJourney + Dall-E) AIs to analyze and recreate existing architectural objects developed with the Bauhaus school. Through the image to text AI software developed by Facebook we are able to objectify images of architectural objects as they would be presented through visual identifiers to someone who could not see the image. The text description taken from this process allows us to use text to image AI to reimagine the initial object image. Using modeling techniques the new object image can be transformed into a 3D physical object that can be touched and held. This new experience derived from the recreated image is a product of the initial object image, yet distorts its visual qualities prioritizing its physicality as a more equal experience.

KETTLE

1. We intend to pursue a minor research project to understand the Bauhaus as an institution of production. Understanding its ideological principles and formal ideals will allow us to regulate and manipulate the outputs we produce and the other institutions we wish to investigate, including artificial Intelligence.

In analyzing the Bauhaus school and reimagining objects it produced with artificial intelligence, we can contribute to new methods of representation within the architectural discipline. Traditionally, architecture is a visual discipline, perfected through drawings and defined by visual proportions and aesthetics. Yet, technology is allowing architecture to transition to a more mass-oriented field, enabled by 3d modeling softwares that does not require the plan to be the dominant instigator of design. Artificial intelligence as a new modern can exist through the recreation of past objects that prioritize auditory and tactile senses rather than visual in opposition to current and past architecture that is made to be seen.

ORIGINAL

BRASS, SILVER-PLATED INSIDE, EBONY, SILVER SIEVE INSERT

STONEWARE, CAST, SAND-COLORED BODY, LIGHT BEIGE GLAZE, DISCOLORED TO RUSTY BROWN AND LIGHT GREEN IN PLACES WHEN FIRED, GLAZE OF THE LID (FIRED SEPARATELY) LIGHT ORANGE THROUGHOUT WITH BROWN-RED SPOTS

FIREPROOF GLASS WITH "SINTRAX" FILTER, BLACK LACQUERED HOOK-SHAPED WOODEN HANDLE, NICKEL-PLATED BRASS BRACKET, NATURAL

STONEWARE, RED-BROWN SHARDS, CAST AND MOUNTED, MATT BLACK INSIDE, LIGHT GRAY GLAZE OUTSIDE, BRONZE BOW WRAPPED WITH WICKER

STONEWARE, RED-BROWN BODY, CAST, REWORKED AND MOUNTED ON THE DISC, LIGHT GRAY GLAZE

BAUHAUS ONLINE ARCHIVE DESCRIPTION:

GOLD SHINY METAL POT WITH A BOLTED HANDLE IN A SHARD SHAPE, CROSS LEGS, AND LIFT OFF LID WITH PIN. TOP IS GEOMETRIC AND FLAT. CIRCLES WITHIN CIRCLES.

YELLOW SPECKLED CERAMICS WITH A BOWL LIKE FLUSH TOP. SPOUT STEMS FROM THE LEFT SIDE OF THE POT. THE SPOUT HAS A GREEN GLARE. THE TOP HAS A SMALL RE-MOVABLE LID WITH A CONCAVE BUTTON. THERE ARE RECT-ANGULAR HOLDERS FOR THE HANDLE BUT NO HANDLE.

TWO GLASS BOTTLES MIRRORED OVER EACH OTHER. THE BOTTOM HAS A HANDLE THAT LOOKS LIKE A VALVE. BETWEEN THE BOTTLES IS A CORK CONNECTION TO ALLOW FOR PRESSURE TO MOVE BETWEEN THE ATTACHED LIDS.

WHITE POT PAINTED OVER A RUSTY BOWL LIKE BOTTOM WITH A SEPARATION LINE TO THE TOP. THE SPOUT IS RECTANGULAR AND ON THE LEFT SIDE OF THE POT. THE LID IS VERY SMALL IN COMPARISON. THE HANDLE IS LOOPED THROUGH THE METAL WITH A WOVEN BASKET-LIKE COATING.

OVULAR SHAPED CERAMIC KETTLE WITH A STUBBY ATTACHED NOSE. SMALL LID WITH A BURNT EDGE. HANDLE IN A D SHAPE ATTACHED TO THE RIGHT SIDE OF THE TALL GRAY CERAMIC POT. RIDGED AND SPECKLED GRAY PAINTED CERAMIC.

OUR DESCRIPTIONS

A GOLD WATCH FACE ON A WHITE SURFACE

A YELLOW TEAPOT ON A WHITE SURFACE

A GLASS OBJECT WITH A HANDLE ON A WHITE SURFACE

A VINTAGE TEA KETTLE ON A WHITE SURFACE

A WHITE AND BROWN PITCHER ON A WHITE SURFACE

FACEBOOK

CHAIR

2. We plan to create our own catalog of original Bauhaus objects and originally inauthentic Bauhaus objects based on set formal principles and early 1900's theories of production. This catalog will equally display original and artificial Bauhaus works within the categories of kettles, chairs, and lamps.

In making this catalog, we hope to create a coexistence of the originally inauthentic and authentic. Thus we can explore ideas of how these objects could be commodified and presented to potential users. The objects become customizable through variation and modification, derived from both artificial intelligence and bauhaus intelligence, to make them truly unique. Through association our objects commodify the prestige and status of owning original "Bauhaus" work. While simultaneously being bauhaus and not bauhaus due to the AI prioritization of qualitative aspects of experience which are derived from and distorted based on the bauhaus original. Leading us to be interested in the commodification and accessibility of "high design" through the use of catalog and the design of objects in tandem with production and assembly methods (Terence Conran and IKEA).

ORIGINAL

TUBULAR STEEL FRAME, CHROMED, WITH 2 PARTS FOR THE LOWER FRAME AND 2 PARTS FOR THE SEAT FRAME, WOODEN FRAME CONNECTED WITH PAN HEAD SLOTTED SCREWS AT THE BACK AND WITH HEXAGONAL HEAD SCREWS AT THE FRONT, BLACK IRON YARN FABRIC

PADAUK SOLID ON BEECH VENEER, SOLID MAPLE, FLAT AND SPRING PADS ON BEECH FRAME, NICKEL-PLATED SLOTTED SCREWS WITH ROUND HEAD

FRAME MADE OF BEECH WOOD SLATS PAINTED WHITE, SEAT AND BACKREST MADE OF PLYWOOD PAINTED DOVE GRAY

CHROME-PLATED TUBULAR STEEL FRAME, 3 PARTS WITH VISIBLE PLUG CONNECTIONS, WOVEN SEAT AND BACKREST MADE OF RATTAN IN A BLACK BENTWOOD FRAME, BEECH WOOD COVERINGS STAINED BLACK AND HIGHLY POLISHED ON THE ARMRESTS

CHROME-PLATED TUBULAR STEEL FRAME, 6 PARTS, YELLOW CANVAS COVER, BEECH WOOD ARMRESTS PAINTED BLACK, RUBBER HOSE CUSHIONS FOR THE SEAT FRAME

BAUHAUS ONLINE ARCHIVE DESCRIPTION:

THIN SILVER METAL FRAMED ARMCHAIR WITH A BLACK STRETCHED LEATHER SEAT AND BACK SUSPENDED BETWEEN THE CURVED FRAME. NARROW BLACK CUSHION ON THE TOP OF THE CHAIRS ARMS. BALANCED ON TWO LEGS THAT CURVE TO TOUCH THE GROUND.

ARMCHAIR SUSPENDED BETWEEN TWO DARK WOOD SQUARE FRAMES. LIGHT GOLDEN WOOD STRUCTURE HELD TOGETHER BY EXPOSED SMALL METAL BOLTS. SEAT AND BACK CUSHIONS COVERED IN TEXTURED GRAY CLOTH.

ANGULAR UNCOMFORTABLE WOOD CHAIR. CHAIR LEGS, FRAME, AND BACK MADE OF CREAM COLORED PAINTED WOOD WITH DISTRESSED TEXTURE OF PAINT CHIPPING OFF. SEAT AND BACK MADE LARGE OF THIN BLACK PAINTED WOOD SURFACES JOINED AT AN ANGLE.

THIN SILVER METAL FRAMED ARMCHAIR WITH A YELLOW STRETCHED RATTAN CANE SEAT AND BACK SUSPENDED BETWEEN THE CURVED FRAME. RATTAN PANELS FRAMED IN SHINY BLACK. NARROW BLACK CUSHION ON THE TOP OF THE CHAIRS ARMS. BALANCED ON TWO LEGS THAT CURVE TO TOUCH THE GROUND.

THIN SILVER METAL FRAMED ARMCHAIR WITH A SINGLE PANEL OF YELLOW FABRIC SUSPENDED BETWEEN THE CURVED FRAME OF THE BACK AND SEAT. NARROW BLACK CUSHION ON THE TOP OF THE CHAIRS ARMS. BALANCED ON TWO LEGS THAT CURVE TO TOUCH THE GROUND.

OUR DESCRIPTIONS

A BLACK CHAIR ON A WHITE SURFACE

A WOODEN CHAIR WITH RED CUSHIONS ON A WHITE SURFACE FURNITURE

A WOODEN STOOL ON A WHITE SURFACE

A CHAIR ON A WHITE SURFACE. FURTNITURE.

YELLOW CHAIR ON A WHITE SURFACE. FURNITURE.

FACEBOOK

LAMP

3. This catalog will serve as a catalyst for our 3d production process. This multi AI process further modifies the original image through both image to text and text to image softwares. As a result we can produce a truly individual Bauhaus object that can be experienced tactically through a tangible object and auditorily with its unique AI description.

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ORIGINAL

BRASS MATT NICKEL-PLATED, OPAL GLASS, UNDERSIDE SEMI-TRANSPARENT

ARM AND REFLECTOR MADE OF BRONZE, FOOT MADE OF SHEET BRONZE OVER SHEET STEEL PLATE, ALL PARTS PAINTED WITH REDDISH-BRONZE-COLORED TRANSPARENT PAINT, INSIDE OF THE REFLECTOR COATED WITH ALUMINUM BRONZE

CHROME-PLATED BRASS ARM, NICKEL-PLATED BRASS JOINTS, SHEET STEEL REFLECTOR PAINTED GREY, PAINTED ALUMINUM BRONZE ON THE INSIDE, CAST IRON BASE AND PAINTED GRAY OVER SHEET STEEL BASE PLATE

CAST IRON BASE, TUBULAR STEEL ARM, SHEET STEEL REFLECTOR, EACH PAINTED BLACK-BROWN, NICKEL-PLATED SOCKET SCREW, PLASTIC ROTARY SWITCH ON THE REFLECTOR

NICKEL-PLATED BRASS TUBE ARM, BLACK-PAINTED BRASS TUBE BASE, NICKEL-PLATED BRASS KNURLED SCREW, NICKEL-PLATED ALUMINUM REFLECTOR TOP, MOVABLE CAP (NEW PRODUCT) PAINTED BLACK ALUMINUM

BAUHAUS ONLINE ARCHIVE DESCRIPTION:

SILVER METAL SINGLE PENDANT LIGHT HUNG FROM THE CEILING. MOUNTED FROM A CYLINDRICAL BASE THE LIGHT HANGS AT THE END OF A SHORT METAL ROD. THE WHITE OPAQUE GLASS SHADE IS SUPPORTED BY A STOUT WIDE SILVER METAL CYLINDER AT THE END OF THE ROD. SMALL BLACK SCREWS SECURE THE GLASS SHADE TO THE CYLINDER.

DARK BRONZE SHINY METAL DESK LAMP. SUPPORTED VERTICALLY BY A THIN CIRCULAR ROD ON AN ADJUSTABLE HINGE. DOMED LAMP SHADE ATTACHED TO A CYLINDER MOUNTED ON THE ROD WITH A HINGE. WIDE FLAT SCULPTED TERRACED BASE WITH SMALL VERTICAL POWER SWITCH IN THE CENTER.

LIGHT GRAY PAINTED METAL DESK LAMP. SUPPORTED VERTICALLY BY A THIN CIRCULAR SILVER METAL ROD ON AN ADJUSTABLE HINGE. DOMED LAMP SHADE ATTACHED TO A CYLINDER MOUNTED ON THE ROD WITH A HINGE. WIDE FLAT SCULPTED TERRACED BASE WITH SMALL VERTICAL POWER SWITCH IN THE CENTER.

MATTE BLACK PAINTED METAL DESK LAMP. SUPPORTED VERTICALLY BY A THIN CIRCULAR ROD ON AN ADJUSTABLE HINGE. DOMED LAMP SHADE ATTACHED TO A CYLINDER WITH SWITCH, MOUNTED ON THE ROD WITH A HINGE. WIDE FLAT SCULPTED TERRACED BASE.

DESK LAMP IS SUPPORTED BY A THIN BLACK METAL BASE IN A HOLLOW CIRCLE. SHINY SILVER METAL ROD SUPPORTS A BACK FLARED LAMP SHADE AND BLACK TWISTY SWITCH.

OUR DESCRIPTIONS

PHOTOCONTAINING A CORKSCREW

NO PHOTODESCRIPTION AVAILABLE

A SILVER LAMP WITH A BLACK CORD ON A WHITE SURFACE

A BLACK LAMP ON A WHITE SURFACE

METAL OBJECT ON A WHITE SURFACE. STETHOSCOPE.

FACEBOOK

18   19
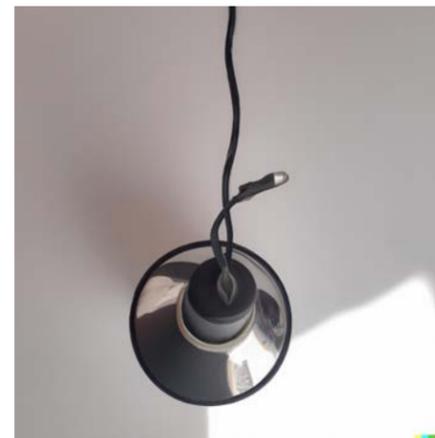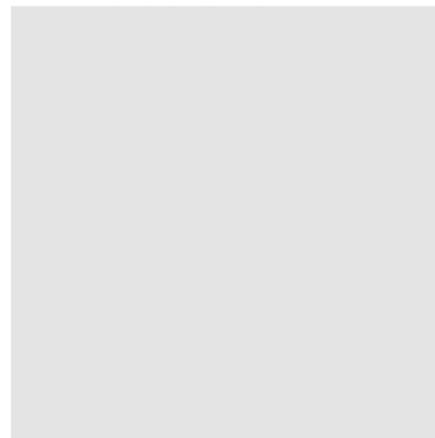
bauhaus
NOW

a wooden chair with red cushions on a white surface