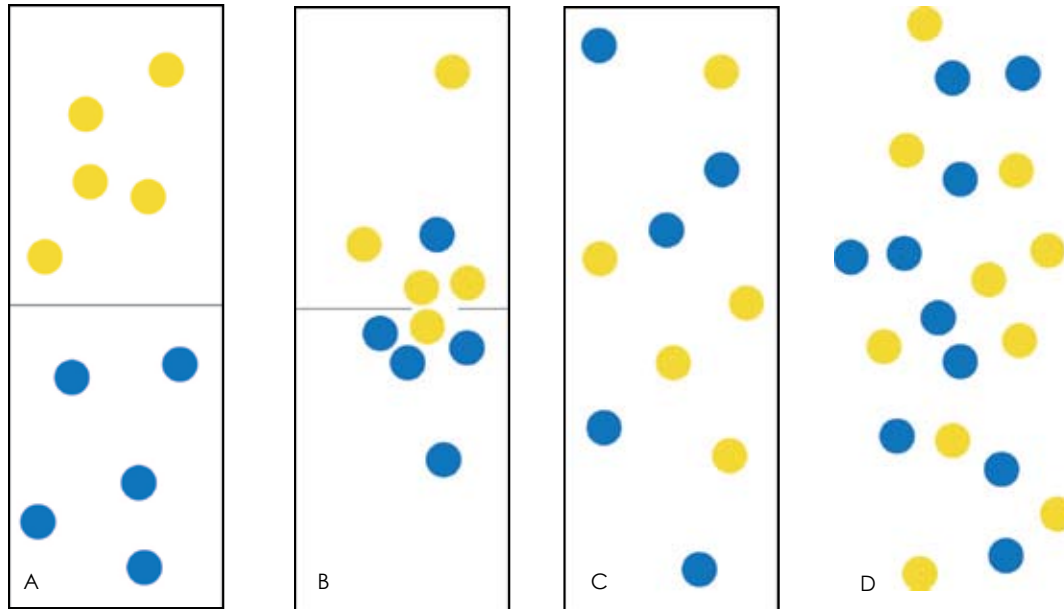


TOYO ITO  SENDAI MEDIATHEQUE
space, form, body and technique
a study by Josephine Ho



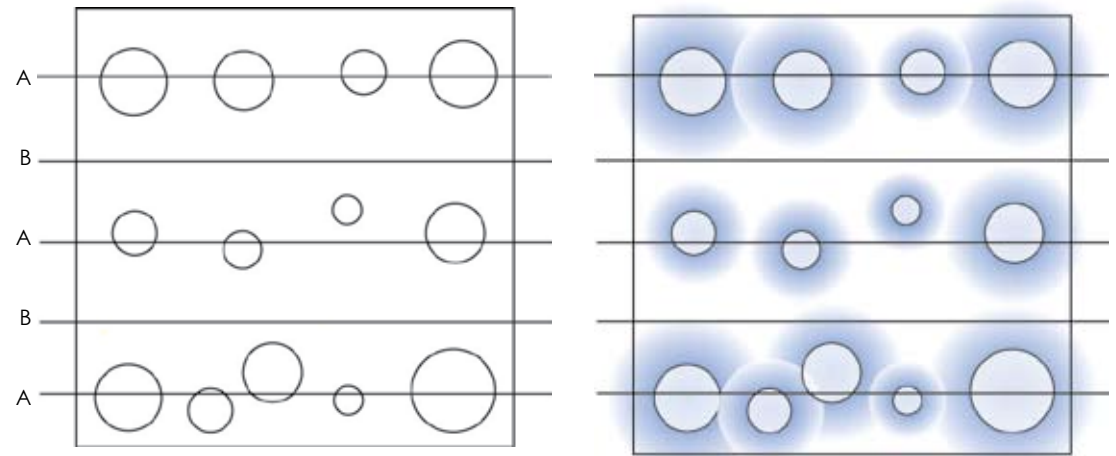
||| SPACE

_ Toyo Ito's Sendai Mediatheque is an example of a building that embraces the "multidimensionality, diversity, and uncertainty of living in a computerized world" (Witte, 2002) by acting as a nodal link that enables an oscillating relationship between people and information. Ito describes his idea of architecture as a type of fluidity, an expression of the general instability of the universe and of the transient nature of beings and things (Witte, 2002). This perception of the universe as transitory, is one of the cultural factors of Japan's affinity for the virtual world with its floating and ephemeral entities (Witte, 2002). It is in the Sendai Mediatheque, where Ito concentrates on three specific elements of plates (floors), tubes (columns), and skin (facade and exterior) to bring forth his cultural and architectural ideals.

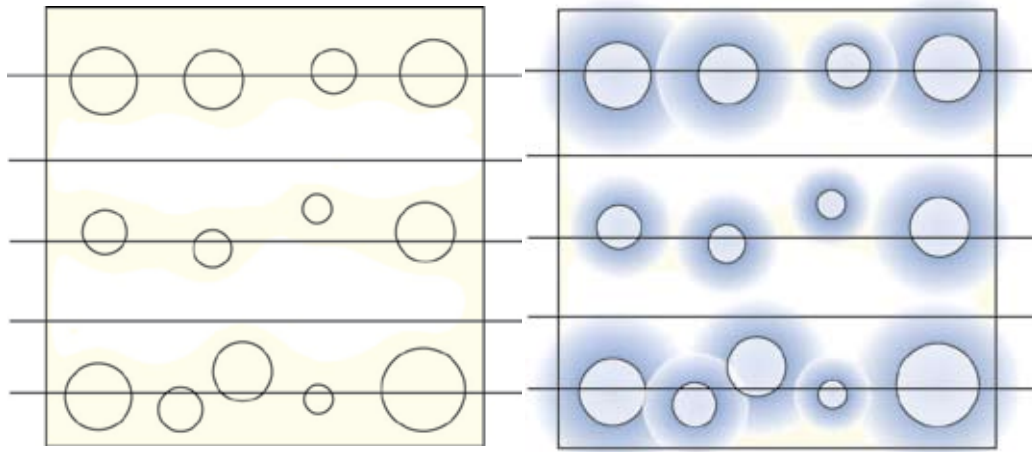


_ diagram | demonstrating the restrictive qualities in movement and space offered by:
 A) closed exterior and interior walls
 B) a closed exterior wall and a space in the interior wall
 C) a closed exterior wall
 D) no walls

_ It is important to state Ito's criticism towards the assumption of architecture as the formation of boundaries from the outside and inside world. As noted in Reyner Banham's "Space and Power" (1975), architecture has evolved to blend interior and exterior spaces as a joint relationship rather than separating the two. In conjunction with Banham, is Theo van Doesburg's "Towards a plastic architecture" (1970), where he stresses the necessity of architecture to be open with the elimination of interior and exterior boundaries. The Sendai Mediatheque reflects this blurring by recognizing that the "phenomenon of architecture must be conditioned by the unstable, fluctuating society of the information age." (Witte, 2002). In physicality, the facade is comprised of a double-paned glass screen with horizontal stripes, which create a subtle visual effect between the exterior and interior spaces (Sakamoto et al., 2003). The roof and west wall are covered in metal-louvered screens, while the north and east walls are covered with varying transparent materials of glass and metal on each floor (Sakamoto et al, 2003). This allows for an exposure of the inside to the outside and visibility from the outside to the inside. Since the building faces Jozenji-dori avenue, the transparency of the facade allows for viewers to recall the tubes within the building as a homage to the Zelkova trees, which line the avenue (Sakamoto et al. 2003).



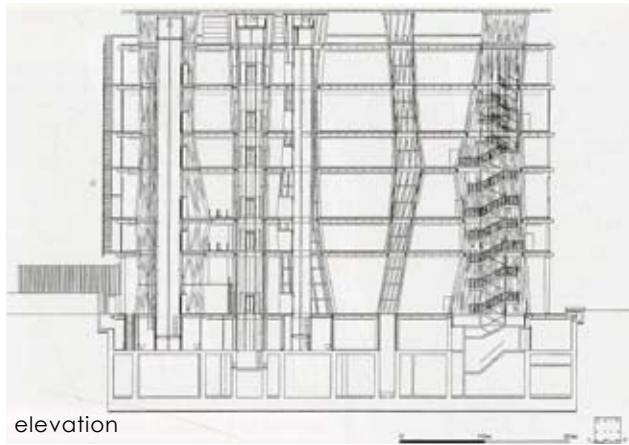
_ The oscillating effect of visuals, people, and information is exactly what Ito desires for this building to do: To dismantle the organization principles of traditional facilities that usually constitute for conclusive functions (Sakamoto et al., 2003). For example, the act of reading books would simulate a library, and the act of appreciating art would simulate a museum (Sakamoto et al., 2003). The Sendai Mediatheque has four distinct working zones, the public gallery, library, film and media center, and an information center. Ito eliminates the barriers which culturally and physically encase these four activities by firstly acknowledging that information is, and cannot be contained, therefore it is impossible to place it within a spatial barriers. Thus, Ito developed an ABABA rhythm within each floor, using the circular nature of the tubes, A, as forces of energy that repel and the suspended zones of space between the tubes, B, as pressure spaces to move towards other tubes that are further away (Witte, 2002). Thus, the relationships between the role of the structure, materials, surfaces, programs, and spaces allow for an interchangeability and migration of people (Witte 2002). There is no prescribed path or series of experiences. Rather, each person's path of experiences is strictly dependent on their desire or need.



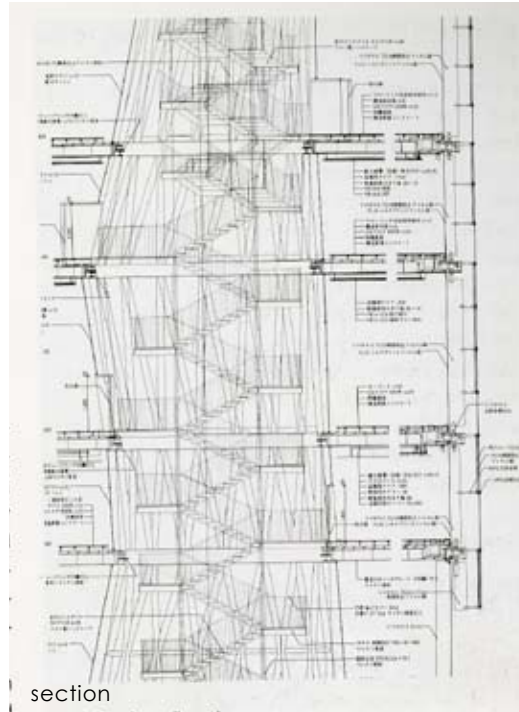
_ diagram | each tube projects a circular energy outwards and at their outer rings of energy, it propels the interstitial energy towards opposing tubes of energy creating dynamic movement and space energies

_ Each person's desire shapes their relationship with the Sendai Mediatheque, therefore the building itself has no particular role other than being the space where the sharing, learning, and transferring of information takes place. "In this nodal facility, 'collection' becomes 'connection'." (Sakamoto et al, 2003). This connection can be connected to four readings. The first being Martin Hiedegger's "Building Dwelling Thinking" (1992) and Christian Norberg-Schulz's "The Phenomenon of Place" (1996). In these two readings, both authors stress the relation between man's need for dwelling in a space, locale, and place. Since the Sendai Mediatheque was erected for the soul purpose to connect people to information, space, locale and place become set parameters for this connection to take place or to dwell within. Thus, the genius loci, or the spirit of the place, is dependent upon the dwelling of the people to connect to information. Secondly, similar to the ideas presented in Henri Lefebvre's "The Production of Space" (1968), and Tom McDonough's "Situationist Space" (2004), the idea of navigation by memory or feeling and the integration of workplaces and dwelling, is the

haecceity of the Sendai Mediatheque. Without any particular walls to delineate particular activities within the space, each person is compelled to venture where they desire to go, destroying the traditional Cartesian grid for spaces and sequencing of events and experiences. Like the Naked City map, each person's trajectory and their desire to discover in this particular space is completely variable and dependent on each user, resulting in a very particular and unique experience. "The spatial experience is not unlike walking through the woods. The presence of trees creates different spaces among which people can choose where to do whatever, in much the same way as humans since ancient times have made places to live within the flux of nature." (Sakamoto et al., 2003).

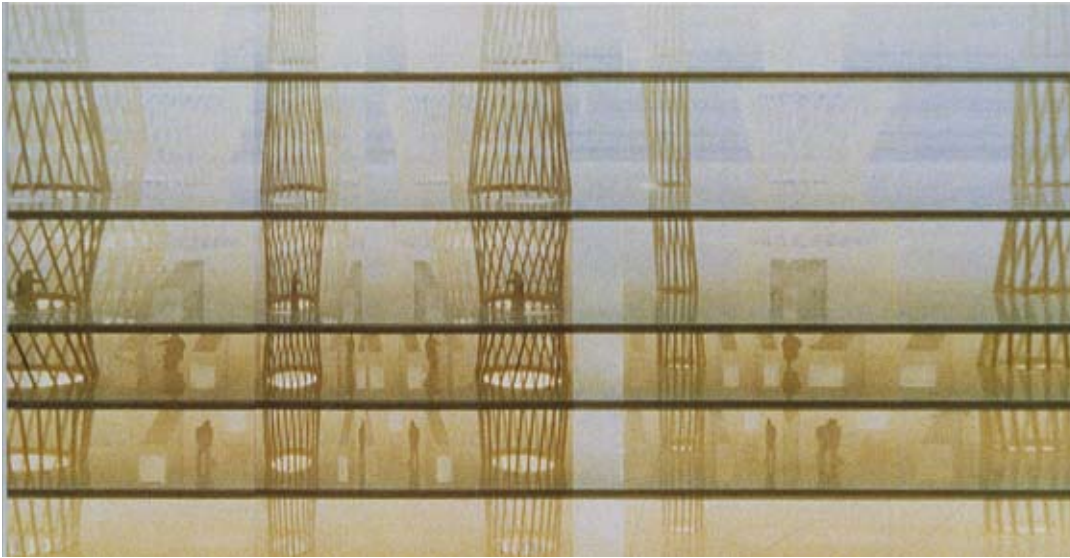


elevation



section

_ To further the discussion of space, the idea of smooth and striated space brought forth by Gilles Deleuze and Felix Guattari and their "1400: The Smooth and the Striated" discussion, is an interesting concept to use for a comparison to the Sendai Mediatheque. In order to successfully discuss the Sendai Mediatheque, two explanations must be made. Firstly, the building is 50m x 50m x 30m, a large cube where each floor is held up by differing sized tubes. Their placement and size is dependent on the need to transfer loads into irregularly placed columns (Sakamoto et al, 2003). In a sectional view, the volume of the building is exposed with its tubes and seven floors. Secondly, the notion of smooth and striated space is based upon the notion of duality, where smooth and striated spaces are not in opposition, but rather in a mixture or blending, where one space can revert, create, or render the other space. To understand this concept in motion in the Sendai Mediatheque, the starting point would be the initial conception of the building. As noted before, information is not contained, therefore, it is impossible to place it within spaces of specific activities. Thus, this notion of information is a smooth space idea, where it advances in concordance to the nature of research and scientific discovery. Rather than to compartmentalize information, the Sendai Mediatheque acts as a node or conduit of information. This act of electing to be the node within information begins to construct a particular location and specified physical space for this trafficking of information to take place, thus it acts as a striated space. Also, the four programs designated to this building become a type of boundary or set condition for the building. However, as mentioned above, the four programs become an integrated experience when people are introduced into the building. The desire to learn and share information governs the internal workings of a people driven body in the building. Thus, the continuous duality of striated and smooth space can be understood by the idea, structure, and people.



_ diagram | while the Sendai Mediatheque allows for the blurred distinction between interior and exterior spaces, its physical transparent qualities raises a discussion about the militarization of space when all actions done by the inhabitants of the building are easily seen and monitored.



_ Finally, the physical openness of the Sendai Mediatheque brings up a conversation about the militarization of space. From Michel Foucault's "Means of Correct Training + Panopticism" (1975), Paul Virilio's "Total Accident" (2002), and "Endocolonization and the State-as-Destiny" (1997), the problems of surveillance, discipline, and control were in any part, related to the original intention of the Sendai Mediatheque. However, it is quite clear that the ability to see exterior to interior, interior to exterior, and interior to interior, the fashion of surveillance is quite apparent. Ito's intention to make the building spacious and enable users to move through the space as they wish, becomes surveillance from person to person, and person to information. From this action, information can be learned from the people who enter the Sendai Mediatheque for information.

_ However, the Sendai Mediatheque is a building that offers a space that encourages the exchange of information. It may be a site that can be easily pinned as a space for surveillance and security, but its original intention cannot be overlooked. Toyo Ito's desire for a fluidity between human interaction and architecture becomes a blur when it is manifested in the Sendai Mediatheque.

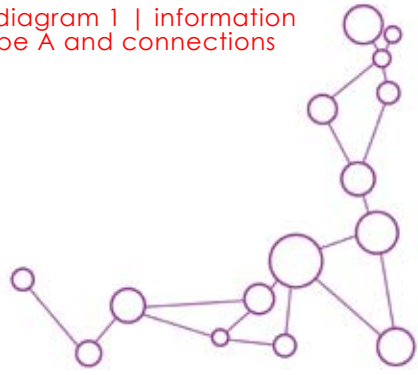
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_ Upon first glance at Toyo Ito's Sendai Mediatheque, one may wonder about the simplistic 50m x 50m 30m cube that encases a complex construction of 13 independent steel-ribbed shafts and 7 steel-ribbed slabs. Not only does it simply encase an elaborate network of construction feats, but how does the form itself convey the Sendai Mediatheque's primary objective: a multifunctional facility comprised of a gallery, library, visual media center, and information center that responds to and facilitates an age of continuously changing information. As quaintly put, "the Sendai Mediatheque will gather, preserve, exhibit, and present various forms of media without being bound to form or type. This public facility for the 21st century will, through its various functions and services, be able to support the cultural and educational activities of its users". (Sendai Mediatheque, 2002). Ito's vision for the Sendai Mediatheque was not about creating a form that encapsulated a moment in time, but rather acknowledged a form that could serve as a node of trafficking information that transcended time.

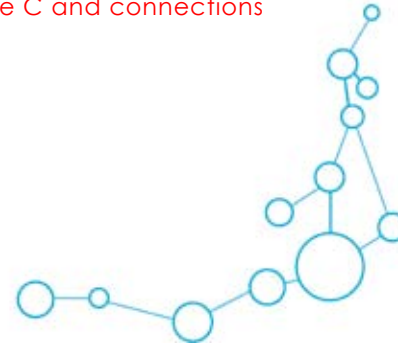
_ diagram 1 | information type A and connections



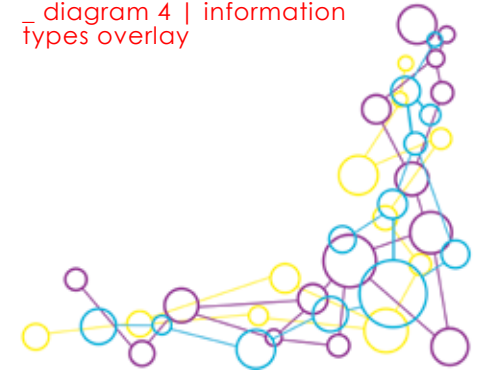
_ diagram 2 | information type B and connections



_ diagram 3 | information type C and connections

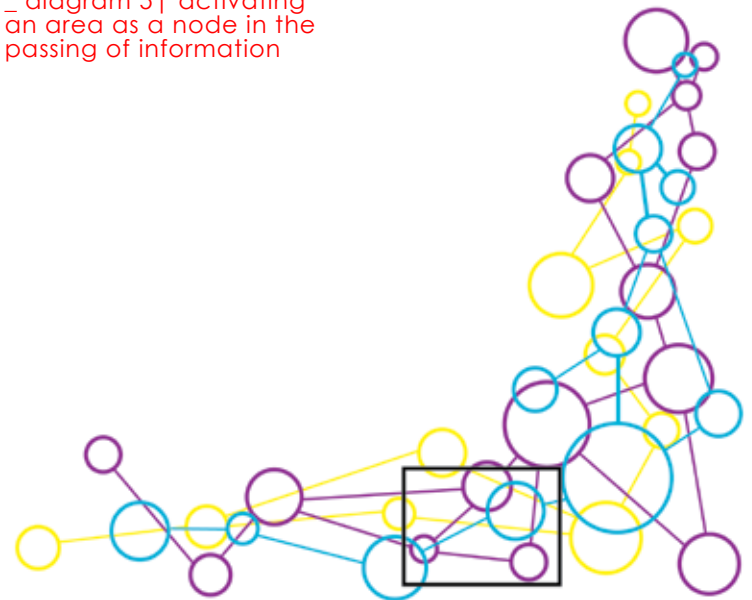


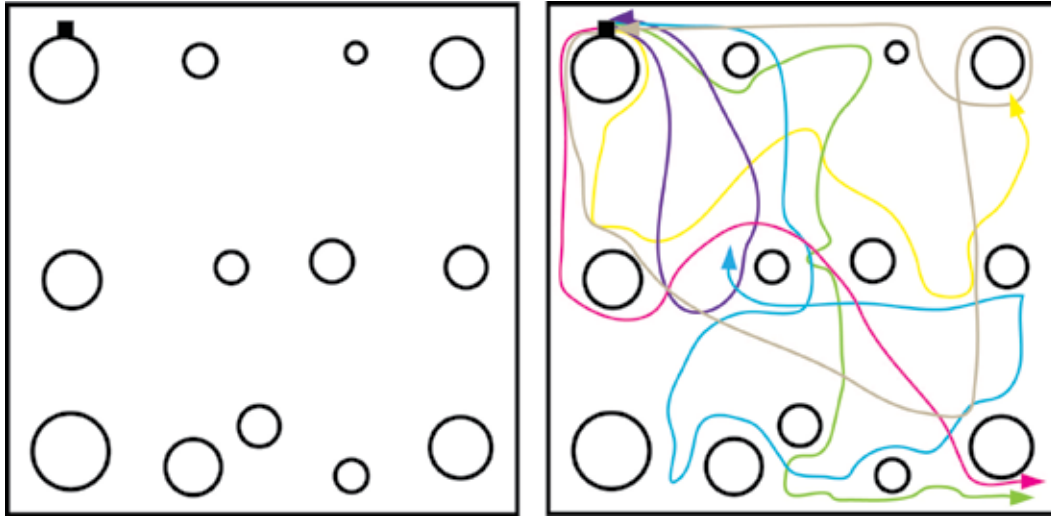
_ diagram 4 | information types overlay



_ Information is in constant flux and the body of knowledge continues to expand on a daily basis. Information can only be attained through a process of discovery and relationships between parts. Therefore, information cannot be classified as a particular type of information over any span of time. This notion can be realised in the Sendai Mediatheque. Even though Ito's design began its conception in 1995, and was not completed in physicality until August 2000, the form given to the Sendai Mediatheque transcends time. Its form cannot be affixed to a certain period in time, therefore the Sendai Mediatheque transcends time, where its function becomes the factor affected by time. In E. Grosz's "In-Between: The Natural in Architecture + Culture" (2001), he discusses an in-between space where identity is compromised for change, and therefore is vulnerable to the future. Within this space, identity is formed through the response of politics, culture, and architecture over a continuum of time. **The Sendai Mediatheque is a unique response to this in-between space because of its nature as a nodal link for trafficking information. Rather than provide a form that represented a prescribed identifier, such as a library, Ito wanted a building that could be a facilitator in any transient moment of sharing information** (Witte, 2002; Sakamoto et al., 2003). The city of Sendai prides itself as an academic city ridden with multiple universities and research institutions (City of Sendai, 1995-2009). Thus, it would be illogical to create an architecture that would stunt the continual growth of knowledge and research.

_ diagram 5 | activating an area as a node in the passing of information



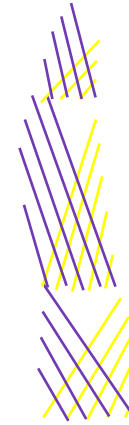
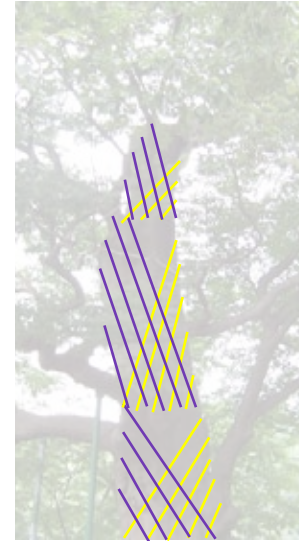


_ diagram | the placement of the trunks provide a space that allows people to freely interact and meander through the space without any inhibitions.

FORM

_ Within this complex of information collecting and sharing, Ito designed the Sendai Mediatheque as a location for an individual to pursue their desire to obtain knowledge (Witte, 2002). Foucault's "28 March 1979" (2004) discusses this capitalist approach to any system, where the system progresses and flourishes through each individual's own personal gain. There must be no governing body over this capitalist system, otherwise the system becomes stale. Thus, the capitalist drive is the individual's desire to acquire and share knowledge at the Sendai Mediatheque (Witte, 2002). Rather than designating rooms for particular functions, Ito maximized the idea of nature with the trunk-like steel-ribbed shafts as a natural area for individuals to freely roam around the Mediatheque on their own (Sakamoto et al., 2003). This free space can also be attributed to Wood's "Anarachitecture: Architecture is a Political Act" (1992) where he discusses how the idea of architecture no longer deals with the masses of people, but rather the individual. Similar to Foucault, Wood also speaks of the body free from politics, where the individual decides what he will do in a space provided (Wood, 1992). The Sendai Mediatheque encourages this notion of allowing the individual to proceed within the building and use it to his own advantage. **Although this free space has no prescribed notion of inhabitation or goals, it is precise in its spatiality, dimensionality, and materiality. On each floor of the Sendai Mediatheque, no specific walls are constructed to delineate rooms. Instead, Ito uses furniture and the trunks present on each floor to facilitate movement between object and person** (Sakamoto et al., 2003). Each trunk is made separately for each floor, but the trunk that spans the thickness of the floor slab is treated with the same pattern as the trunk visible on each floor to give the idea that the steel-ribbed shaft continuously extends throughout the height of the building (Sakamoto et al., 2003). Wood also describes the freespace as a capable entity on its own if the inhabitants within are confident in one's own thoughts and actions (Wood, 1992). As a result, the individual becomes the future of the nation-state. This is an interesting statement since knowledge is key in furthering advancement into the future, particularly in the city of academia. The Sendai Mediatheque is not about providing an agenda of education; instead, it is a place where it encourages innovation through the sharing and learning of information. It is the node, therefore a facilitator in the learning, sharing, and advancing of information. As a form, the Sendai Mediatheque contains this action of a facilitator and therefore, upholds the space of the individual.

_ diagram | the trunks of the Sendai Mediatheque imitate the Zelkova trees from both the base thickness and circumference of a tree and the striations along the main trunk; these striations become the members that create the column trunks.



_ Being the academic city of Japan, the relationship between the individual and information is a very important feature of the Japanese (Witte, 2002). In addition to being the academic city, Sendai is also known as a the "City of Trees", a city in harmony with nature (City of Sendai, 1995-2009). The native Zelkova trees line several streets and parks within the city, making this particular species of tree a very important feature to the city. These two features of Sendai offer up two series of relationships that convene at the Sendai Mediatheque. These relationships can be related to Tafuri's "Critique of Architectural ideology" (1969) where 1) the idea of the aggregate and the multiplicity of the aggregate creates a larger configuration; and 2) that architecture is no loner about an object, but rather a process or a series of experiences. These relationships can also be connected to the idea of the traditional city as the locus of study of social and technological fragments presented in Vidler's "The Third Typology" (1996), and the idea of nature becoming the inspiration for new relationships between natural and constructed systems in Weinstock's "Metabolism and Morphology" (2008).



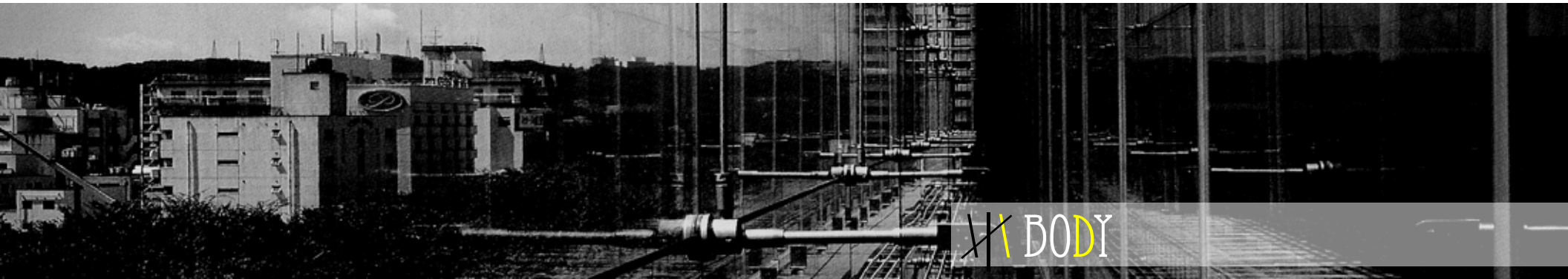
FORM

_ As mentioned above, Sendai is a city known for its research and harmony with nature. These are all fragments that make up the identity of Sendai. Although these fragments may not seem relatable, Vidler discusses how the re-arrangement and relationship of flows between these fragments constitute a particular identity. In Sendai, the city has mastered its co-existence with nature and technology by merging the two fragments together. This opens up a new relationship between the natural and constructed environment. Weinstock encourages this relationship to take place by understanding natural flows of metabolism, performance and behaviors as inputs to design so that form is a result of understanding these relationships (Weinstock, 2008). In relation to Tafuri, Ito takes into consideration the existence of the Zelkova trees, and also the gravity one feels when one is near or under a single or group of trees (Sakamoto et al., 2003). He takes the feeling of exploration and hovering near the base of a tree as the idea for each of the steel-ribbed shafts that run through all the floors (Sakamoto et al., 2003). **On each floor, each trunk is aggregated and twisted upward in a different spot and is of a differing width on each floor, allowing for variations in space** (Witte, 2002; Sakamoto et al., 2003). In terms of the series of relationships of information, Ito refers to the communication networks of information as something fluid, similarly to water streams, and as an artificial nature (Sakamoto et al., 2003). It cannot be contained, only found, and therefore no particular form can directly encapsulate a moment in fluid information. Ito wanted the Sendai Mediatheque to be a place made of places, not rooms, where each individual co-exists with the furniture and tubes, reminiscent of natural streams and forests (Sakamoto et al., 2003).

_ So how does a simple cube encompass such complex relationships between natural, technological, informational, and constructional aspects? Rather than representing the complexities present, Ito created a node; a gathering space for people to congregate or seek information, and carry on the rest of their day; a transient space. There was no intention for creating a spot for people to dwell and ponder about current events for the day. People go to the Sendai Mediatheque with a purpose for learning. In Venturi's "Complexity and Contradiction in Architecture" (1966) article, he provides an insight towards the commonly misunderstood term of simplicity to a richness in simplicity. Simplification should not be about reduction to a single function or strip away multiple meanings. Rather, it should be a recognition of the complexities and discover a unity that can share a particular moment between all experiences. By simply activating a node in the city of Sendai, the simple cube structure to contain the action of acquiring and sharing information is more than enough to sustain the purpose of the Sendai Mediatheque.

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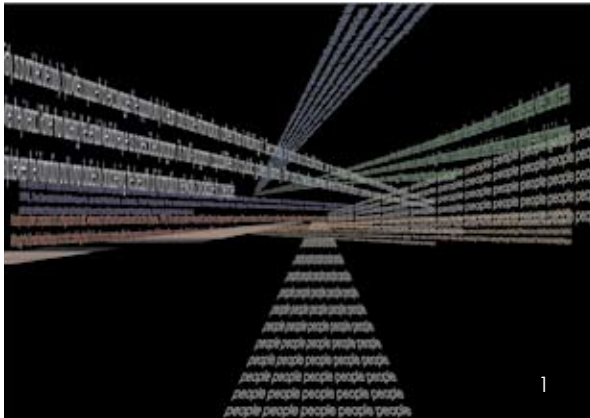
|| BODY

_ A body is a system comprised of a configuration of cells, where each cell has its own role and function (Hayles, 1999). It is not a system where its function is dependent upon the number of cells, but rather the relationship inherent to each organization of cells. The body is in constant motion, forever in flux; never static. Although the Sendai Mediatheque is a static building itself, its function as a node within the massive system of information, enables it to behave as a different type of body of architecture. It is a body enabling the flows of the body of information and the bodies of humans. In better words, the Sendai Mediatheque as a unique building that encompasses three related body typologies; information, architecture, and human. Toyo Ito designed for the main function of the Sendai Mediatheque to be the node that allows for people to learn and share information, thus, it is important to note here that the body of information is the main driver behind the functioning of the Sendai Mediatheque (Witte, 1992).

_ The notion of a body is a complex system comprised of relationships. Communication between these relationships allow the body to function based on feedback loops both internally and externally (Hayles, 1999). The Sendai Mediatheque is, as architecture, a body, that requires the external input of information to allow the Sendai Mediatheque to function, and the body of humans (body in terms of their logical minds rather than physical being) to act as the internal feedback and external output. All these factors must work in conjunction with one another in order for the Sendai Mediatheque to properly function. In "The Building in Pain: The Body and Architecture In Post-Modern Culture" (1990), Anthony Vidler writes about the importance of communication between information that allows for a building to behave similarly to an organism. Since architecture and humans are treated as separate body entities, then the architecture functions as an organism, and requires the interaction between itself and the body organism of humans to survive (Vidler, 1990).

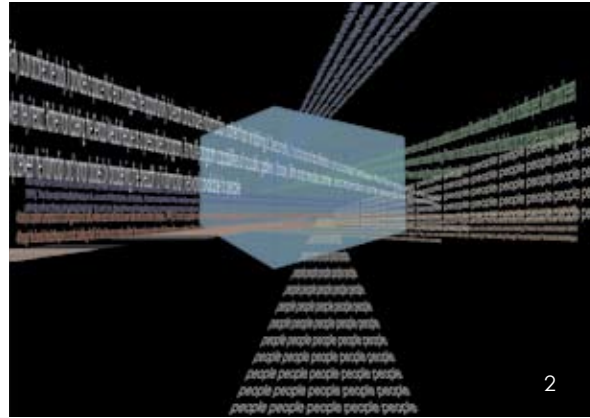
_ In relation to Vidler is Filippo Marinetti's "The Foundation and Manifesto of Futurism" (1908), where he writes about how something should have the essence of speed: "...simply be the dynamic sensation itself, (made eternal)." A body is never static, and is constantly changing and reacting along its own pace. The body of information that the Sendai Mediatheque latches onto, is expanding and traveling at an incredible pace. Although Marinetti describes that everything is rapidly changing, and that everything created should be made to capture that essence, Toyo Ito recognised that designing a building that tried to capture this essence of speed of information was pointless (Marinetti, 1908; Sakamoto, 2003). Rather, Ito designed the Sendai Mediatheque as a node that could translate information to the human body, therefore capturing the essence of networking rather than the essence of speed (Witte, 2002).

_ Information is the essence of the Electronic Age, where technology of computers have advanced knowledge and the rate of information sharing unlike any other age. Information as a body is temporal and is, in a way, an invisible traffic system. Balakian's Breton and the Surrealist Mind - The Influences of Freud and Hegel (1970) runs along the same path in describing surrealism as both "dream and reality". The information body can be paralleled as a dream like existence where it flows at an incredible speed, where it cannot be seen, only experienced. The reality would be paralleled to the human body. Balakian refers to how one cannot understand a sensory feeling if there is no understood reason behind the feeling nor can one make sense of a logical meaning if there is no physical or emotional experience of an object. Thus, how can information have any meaning if there is no human mind to accept, understand, and challenge information? Similarly, how does the Sendai Mediatheque function as a node if there is no human body to make sense of the information body that is passing through the architecture? The Sendai Mediatheque requires both bodies in order for its architectural body to properly function; it allows for dream/information and reality/human to connect.



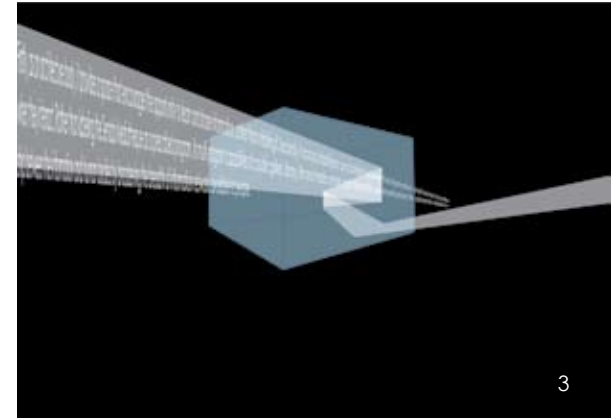
1

_ 3D view of people and information flows



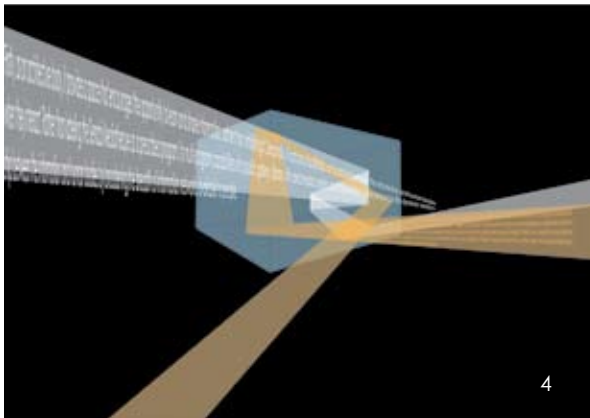
2

_ the Sendai Mediatheque acts as a node among an intersection of flows



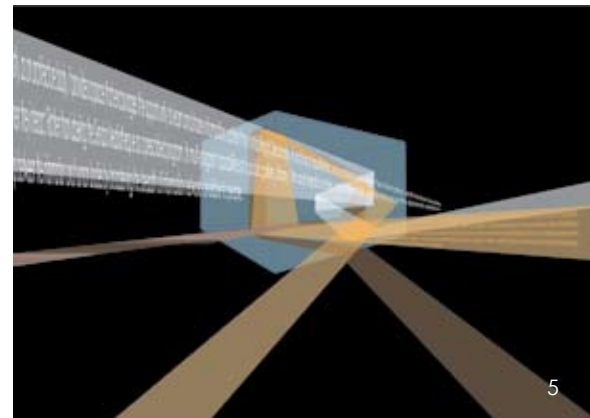
3

_ information surges into the Mediatheque and is circulated within



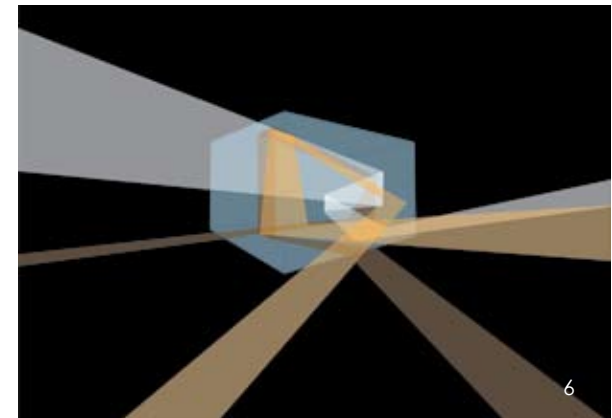
4

_ more information intersects with the Mediatheque and is also circulated within



5

_ as people (brown trajectory) enters the Mediatheque, they circulate within the space and absorb the information circulation within



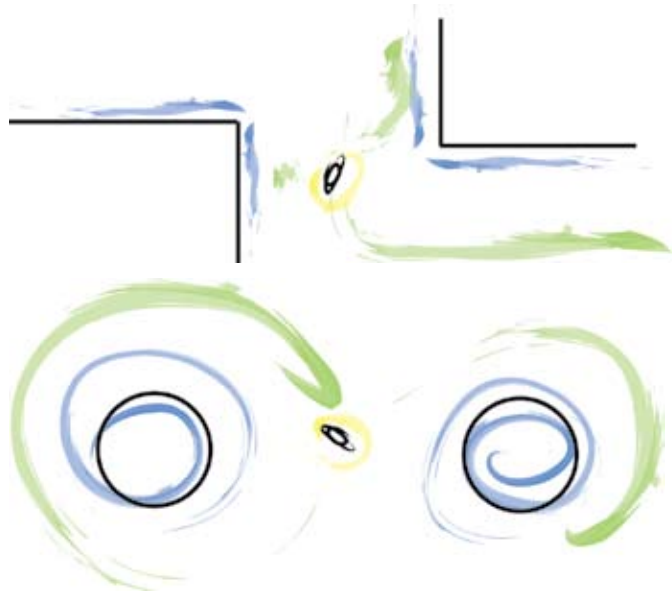
6

_ both people and information continue forth past the Mediatheque, continuing in a different trajectory



7

_ this is a continual process



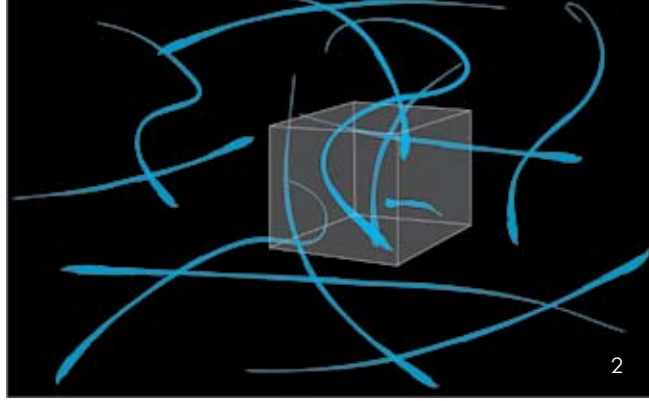
_ diagram | the circular shape of the trunks allow for a much more fluid movement in space rather than the rigid and limited energies of movement offered from square corners and walls

_ Merleau-Ponty's "The Synthesis of One's Own Body" (1962) can be directly related to Balakian, Marinetti, and Hayles by furthering the notion of the body in constant motion with the idea of the oscillating connection between perception of space and perception of the thing. As previously mentioned, the human body is needed in order for the information body and architecture body to have meaning. The act of processing information is another type of relationship between the information and human bodies. This other dynamic relationship is perception. It is not simply an act of absorbing information, but the rationalizing of information by the human body. In conjunction with Merleau-Ponty, this relationship is an experience, where it is through experience that one is able to understand the body itself and its relation to space as being of space (Merleau-Ponty, 1962). The Sendai Mediatheque assists the experience of the human body with information in two ways. Firstly, as an architecture body, it provides a space that encourages the opportunity to learn and share information, rather than inhibiting it. Secondly, it acts as a facilitator, or a catalyst between the information and human bodies when they interact. Rather than labeling the Sendai Mediatheque as a prescribed program, its multi-program capabilities of a public gallery, library, film and media center, and information center enhances the dynamic relationship between the information and human bodies by broadening the breadth of information networks available to people.

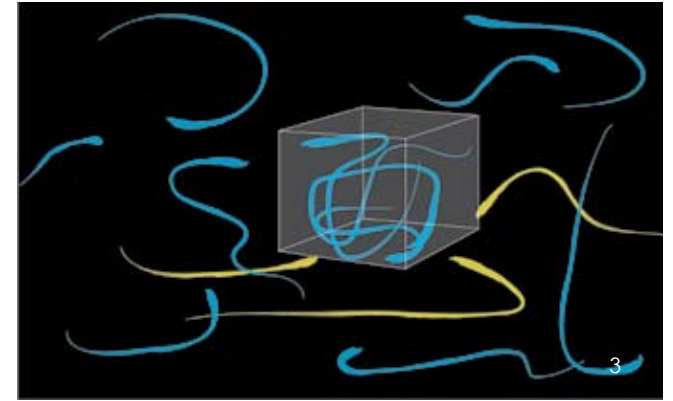
_ The Sendai Mediatheque as a body is an interesting case when compared to the information and human bodies. Neither of the latter can be visually seen, only the architecture body. It has already been stated that Ito designed the Sendai Mediatheque to capture the essence of attaining and understanding information. This makes for an interesting comparison to both Balakian and Peter Eisenman articles. Balakian writes about architecture as capturing the essence of the sensory world into a fixed construction of concrete, where it requires an architect to project him or herself "into the concrete existence of the object." (1970). Peter Eisenman' writes about how the Electronic Age has had no bearing upon architecture in his "Vision's Unfolding: Architecture in the Age of Electronic Media" (1996). Eisenman states that the only way for architecture to become affected is to disrupt the viewer's position from the rooted placement on a flat ground with a roof held up by four walls (Eisenman, 1996). The Sendai Mediatheque is quite literally a flat ground plane with four walls and a roof, but it is not the physicality of the building that is capturing the essence of information processing. It is the act of both information and human bodies going to and through the Sendai Mediatheque that allows for the concrete architecture to transcend its physicality and become a node that allows for this transaction of information. However, it can be argued that the Sendai Mediatheque is still an architectural building that is unaffected by the Electronic Age with its literal construction, but it is important to remember that Ito recognized the incapability to capture a building that could represent the transitory passing of information and therefore consciously made a decision to make the Sendai Mediatheque act as a node. (Witte, 2002; Sakamoto, 2003).



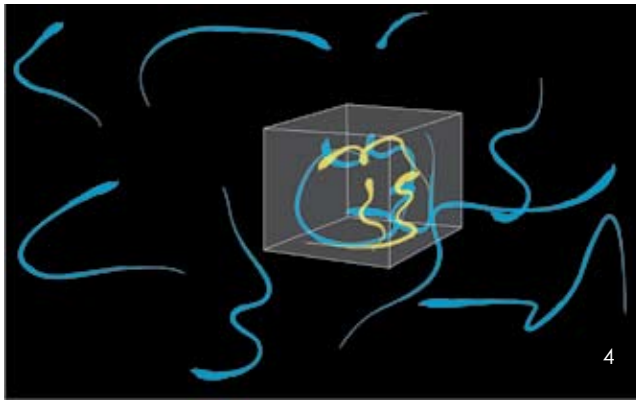
_ streams of information in virtual space (blue)



_ the Sendai Mediatheque nests among the virtual space of information and information pours into the building



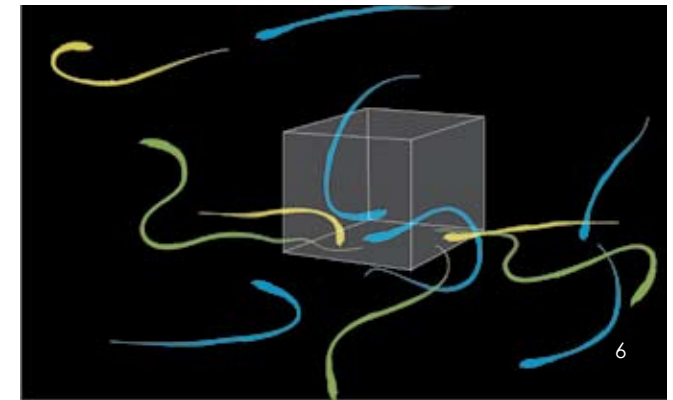
_ as information circulates within, people (yellow) enter the building with the intention of attaining information



_ information and people circulate within the Mediatheque



_ people attain information, which is symbolized by the combination of colors



_ as people (green) leave, and new people (yellow) enter the building, more information (blue) is constantly entering.

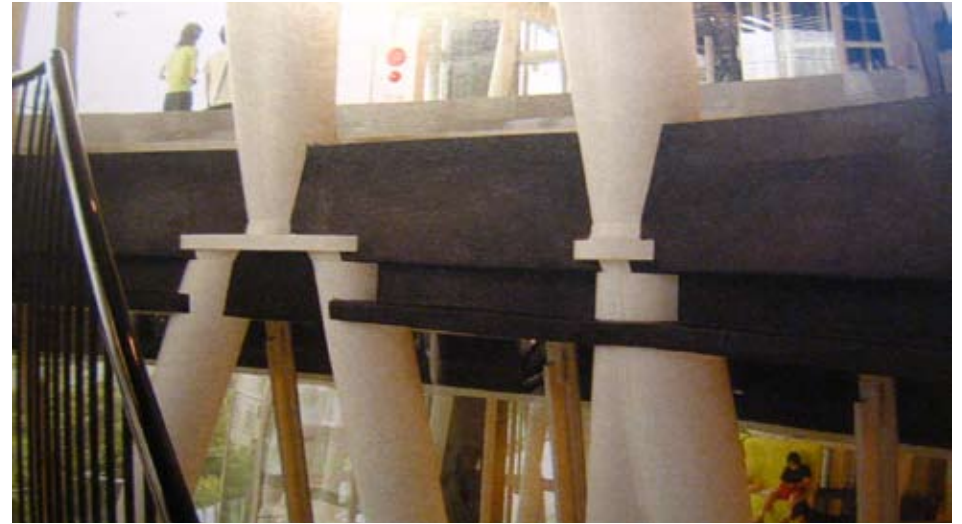
_ Toyo Ito realized the Sendai Mediatheque as an architectural body that could facilitate the dynamic relationship between the bodies of information and humans. As a building, it provides a place and the technology to allow for the human body to physically and digitally attain information. Although this action could be done at any facility, the Sendai Mediatheque provides the information in a different manner than other institutions. It encourages the exploration of the space and information within the building. Without the building, the experience of exploration and learning cannot be realized. This can also be said about the information body. It is transparent, but the Sendai Mediatheque provides a vessel for this information to be realized and be consumed by the human body.

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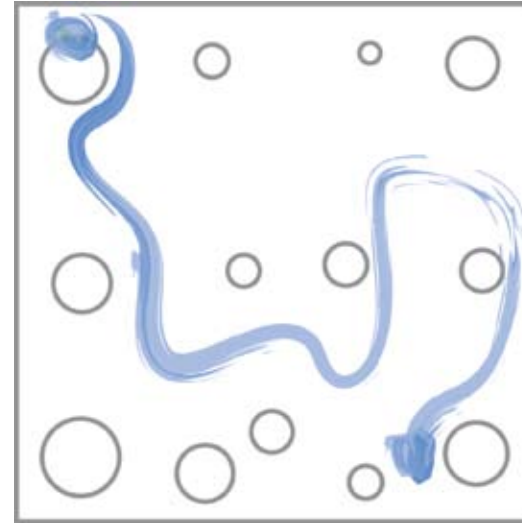
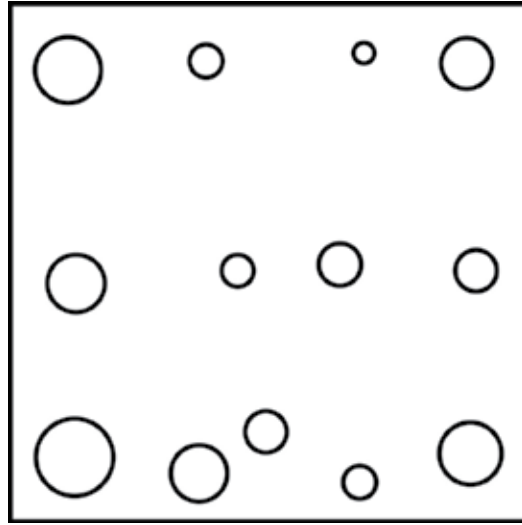
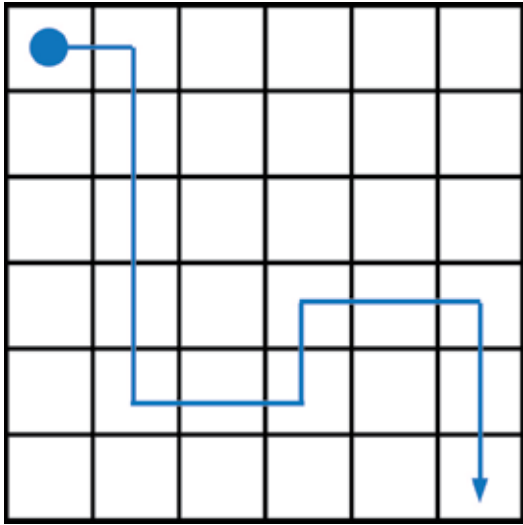
_ The previous sections have discussed the Sendai Mediatheque as architecture existing in a technology age where information is the dominant driver. It has the ability to resist time bound fashions of architecture by simply acting as a node among the multiple paths of information, and allowing people to shape the use of the building. However, it is the concept of the tree like columns in the Sendai Mediatheque that allows for the physical capability for people to utilize the building. New architecture no longer obeys the restrictive qualities of the Cartesian grid and begins to challenge the simple functions of floor, wall, and roof by discovering tectonic relationships between all three functions (Balmond, 1998; Frampton, 1996). The Sendai Mediatheque challenged these basic functions of “floor, beam, column, [and] foundation” (Witte, 2002) as Ito envisioned the multistory Mediatheque to incorporate flat floor slabs as the functioning beams to the supporting tubes, which will individually act as cantilevers, and in turn rely on the flat floor slab foundation for stability.



_ the tree columns in between each floor plate appear to be continuously moving upward through the building

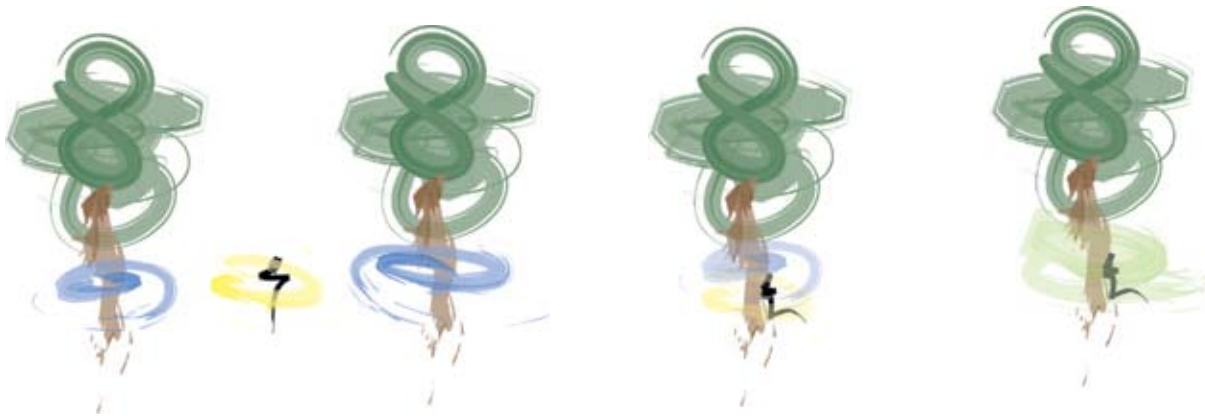
_ Before delving into the conceptual discussion surrounding tectonic and assemblies, it is important to understand the basic construction of the two foundational construction parts of the Sendai Mediatheque. The first understanding of the physical manifestation of the Sendai Mediatheque will be the thin floor slabs. To be specific, the floor slabs are "40 cm deep [of steel], with internal ribs following the lines of stress" approximately spaced 1 meter apart, and 7 centimeters of concrete poured on top (Witte, 2002). The Sendai Mediatheque is precedent for spanning a thin plate over 20 meters supported with pin joints and using less than the calculated amount of 70 centimeters of depth to support live loads (Witte, 2002). Thus, the choice of steel as the plate material allowed for resistance to bending (both compression and tension) forces and enabling for loads to transfer to the columns via pin-jointed connections (Witte, 2002). The areas of greater span between the column cantilevers required the hollowed ribbing of the mid-sections, which lead to less material weight to cantilever (Witte, 2002). As Witte mentions, "The most efficient way of carrying loads within a plate simply supported on a number of columns is to follow the main lines of stress between those columns."

_ The second understanding would be the Zelkova tree inspired columns. The initial hope was to construct the columns to their full 8 floor height offsite, but it would be impossible to transport to the site and more impossible to load the floor plates. As a result, each column was cut into pieces along each floor plate (Sakamoto, 2003). The 104 pieces of the columns ranging from 2 - 9 meter diameter offered the chance to accommodate a couple of complications and allowed a new possibility. As above, each column connection to the floor slab is a "loose" fixture where only a bolt, without driving a screw, is welded at the end, so it is placed onto the ring beam (Sakamoto, 2003). This loose connection deterred out-of-plane deformation and tension caused from welding. As noted before, there are 13 columns acting as cantilevers. The four largest columns are placed in the corners to literally carry the most importance of resisting vertical loads from the floor slabs and horizontal loads brought forth by winds and earthquakes (Witte, 2002). Ito wanted these lattice columns to be as transparent and slender as possible. Since the columns are cantilevers, the most greatest compression and bending moment are greatest at the base, therefore each column is thickest at the base. However, the slender members (made of hollow steel tubes) of each column allow for the transparent look and visually appear lighter. The basement level was the only level that required the columns to be completely welded to allow for seismic loads.

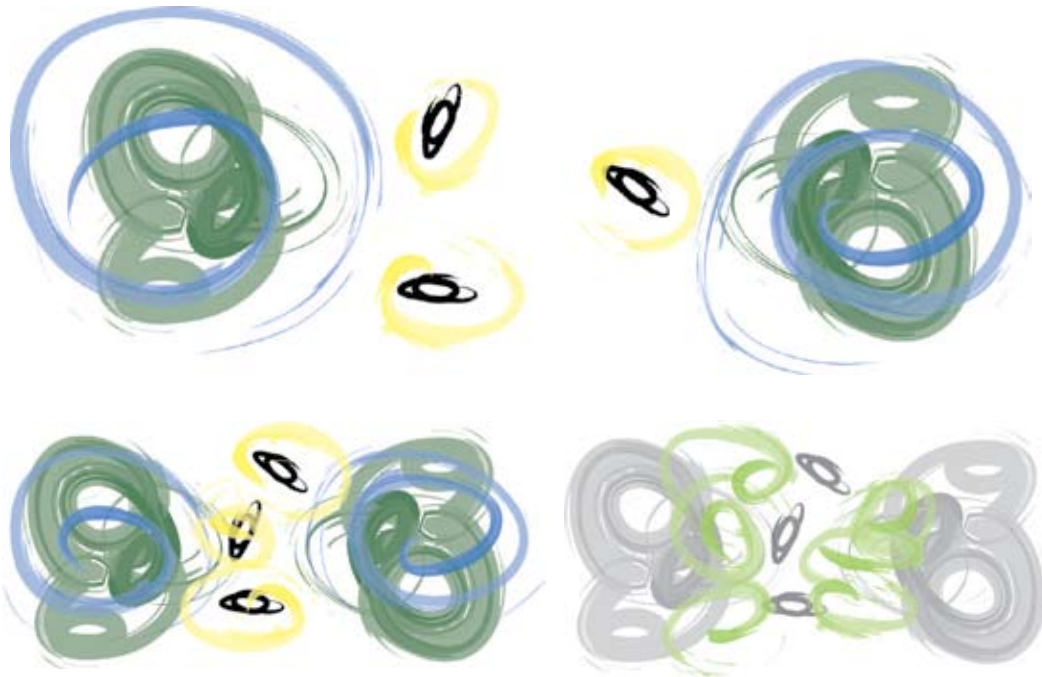


_ diagram | the Cartesian grid allows for very rigid movement within space. the circular trunks of the Sendai Mediatheque, however, allow for opportunities of exploration and obliterates pre-determined paths.

_ Now that the physical components have been discussed, it is easier to bring forth the relationships founded through the physicality of the Sendai Mediatheque of tectonics an assembly. Both Balmond and Frampton were introduced earlier providing insight towards how new architecture and tectonics shed light onto relationships and internal logics. In conjunction with internal logics is the actual assemblage of the Sendai Mediatheque. Here assemblage does not simply mean the putting together of parts, but rather the territories and identity created by a body brought together by a means of complex relationships (Wise, 2005). Balmond mentions how new architecture breaks free of the Cartesian grid by means of space and movement. **Although the Sendai Mediatheque has lucid evidence of a floor and roof condition, the trunks (aka the columns) are not seen as columns and behave very differently from traditional walls.** The form of the ribbed columns are a direct influence from the Zelkova trees present on the Jozenji-dori avenue from which the Sendai Mediatheque resides (Sakamoto, 2003). **Rather than dictating movement within a space, Ito utilized a familiar relationship between humans and trees where people are naturally drawn to either the base of a tree to rest or respect a certain distance from the base of a tree when traversing through a forest (Sakamoto, 2003).** This enables two relationships. The first being that both the trunks and humans in the space claim particular territories, but also begin to share territories. As such, space is being claimed, unclaimed, shared, and abandoned, in a continuous motion, allowing user and time to pause, reflect, travel, and react. The second relationship is the internal logic of the tree-like columns to structurally uphold the building provides varying movement patterns for each floor. This enables the studying of movement patterns and allows floor plans to change depending on the volume and pattern of people. This action runs parallel with Balmond's comments on "interlock and overlap" where connections between parts develop a feedback loop, allowing a flexibility in the building for exploration, both familiar and new paths. Frampton further solidifies this idea by mentioning the internal logic as the governance in the generation and interaction between the tectonic pieces and its joint. A clear description for the logic dictating the trunks and floor slabs.



_ diagram | there is a particular distance of energy or territory that trees (blue) and a human (yellow) exhibit in space. these energies can either maintain a specific distance with each other, or compel both energies to come together and mix (green), forming a new territory of space.

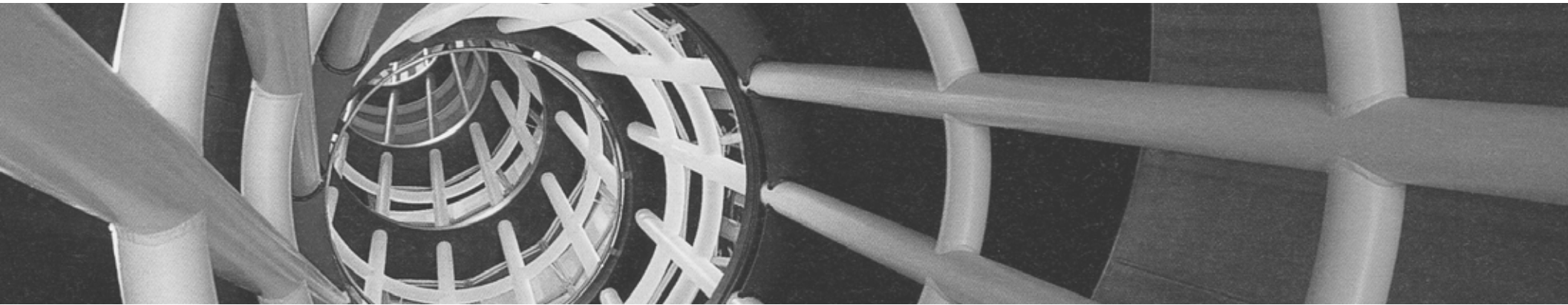


_ diagram | [plan view] similar to the diagram above, both humans (yellow) and trees (blue) exhibit particular energies. however, this diagram portrays the proximity of spaces and amount of movement available when two sources of energies come within close proximity of each other. eventually, these energies will mix (green) and the space becomes shared.



_ There is a clear relationship between building and user, which can only be concurred with Kevin Kelly's Coevolution (1994), He writes how coevolution is one entity, where both systems mirror each other. Although each system within this entity has its own agenda, the changes made are influencing and furthering evolution between itself and the other (Kelly, 1994). In the case of the Sendai Mediatheque, there is a coevolution system occurring between the building and the people. Information is the main driver that accounts for the construction of the building, and the main reason why people are drawn to use the building. Information is in constant flux, and therefore has a direct influence upon the Sendai Mediatheque. In this system, the activities in the Sendai Mediatheque are never static; there is an interaction of teaching and learning that occurs. Without information, there would be no need to attain knowledge. Without a building to function as an information provider, people cannot connect with information. Without people, both information and building are meaningless. Thus, the Sendai Mediatheque is a system among two other systems that function separately but are closely connected with each other for existence.

_ It is apparent that both structural and conceptual logic were working intimately of each other when fabricating the Sendai Mediatheque. However, it was not precise work that allowed this building to function successfully, but the ability to adapt and respond to complications present in both logics that allowed the Sendai Mediatheque to advance further and be completed with better results. Architecture should not be about capturing a specific moment in time, but rather be attuned with time. It should be about recognizing relationships and incorporating itself amidst varying relationships.



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