

Insight & Beyond: Lecture 8: Insight, Chapter 5. “Space and Time.” Part II

[0:00]

- Public spaces and Public Reference Frames.
- Spatial/architectural meanings *are* the interrelationships – or as Lonergan puts it, they are the *orderings* of places and times (via insights).
- In *Meaning in Western Architecture*, Christian Norberg-Schultz discusses how architecture conserves and communicates existential meanings.
- Architecture helps structure and make meaningful our experiences of places and times by situating them within a comprehensive meaningful order.
- The character of a place (its *genus loci*) arises from its relationship to more comprehensive order.
- *Perceptual* space varies continuously and from individual to individual.
- But *understanding* gives intelligibility to existential space (*ordering* of extensions of durations) and creates stability and orientation.
- Settlements are places made meaningful by shared understandings – vs. perceptions that cannot be shared.

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- Different epochs and cultures of architecture each had their own fundamental building tasks, according to Norberg-Schultz.
- Societies render space meaningful by ordering it in certain ways, particularly in their great public works.
- For example, Egyptian tombs and temples embody constancy and stasis over time.
 - Omnipresence of sun and unchanging world processes (Nile).
 - Pyramids are stable forms, situated along the funeral paths. Parallels and perpendiculars of paths reflect the path of the sun and the Nile.

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- The medieval gothic cathedral embodied a different building task, that of the pilgrimage, a path towards a transcendent divinity.
- In Norberg-Schultz's discussion of the settlement around the city, we see how a public reference frame is built up out of insights, that is, how public space is structured around the cathedral, and how different functions in the social life were given their specially structured places.

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- There are different kinds of public time as well as of kinds of public space, organized by insights of relationships – experienced durations in relation to especially meaningful times.
- The question of relation to origin holds for time just as it does for space.
- When we ask, “When did that happen?” or “What time is it?”, we're asking “in relation to what?”
- Time is both continuous and discontinuous: the problem of sleep points to discontinuity in our experience.
- We anticipate certain relations upon awaking; we situate ourselves to both our immediate surroundings and to the more abstract ones that give it meaning.

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- The ordering of time can be linear or cyclical.
- Different orderings of seasons – indeed different seasons – in different cultures.
- A cyclical sense of time is found in our myths, our experience of the seasons, and our annual celebrations.

- The birth of Christ was seen as the rebirth of time, and linked to the winter solstice (the rebirth of the sun).

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- Student observation on life in an island environment without seasons, and the static sense of time.
- Discussion of how natural environmental and climatological differences do set a certain context within which various human meanings of space and time can emerge.

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- What if time is ordered as linear, rather than cyclical? Does time deviate from linearity, can it take a crooked path?
- Time is not prestructured and predetermined; we organize it through public reference frames having their own origins and endpoints.
- Western model of time is linear, marked by deadlines and speed. But where are we headed?

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- Finally, Lonergan deals extensively with Special Reference Frames.
- There is a distinction between the concrete and the abstract intelligibility of space.
- This can lead us to ask whether cultural, public space is the 'real space', or is Absolute Space, the space of physics the real space.
- Scientific, physical space does not represent the only 'true' intelligibility of space and time.
- Reality of cultural spaces depends in part on the authenticity of the peoples who constitute those spaces.
- What is the correct intelligibility of the actual physical space and time – an open question.

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- Special reference frames are a departure from both personal and public spaces.
- Under the aegis of the "Canon of Complete Explanation" – scientifically ordered, and are based upon an explanatory approach to space and time.
- Problem of how to order extensions and explanations that do not privilege any particular origin or particular observer
- We ask, "Where is *everything*?" or "when did *everything* happen?"
- Problem of special reference frames is how to organize around some origin—without privileging any particular one.

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- Lonergan identified a certain problem that is peculiar to physics.
- Science takes an explanatory approach to space and time: they are structured abstractly, where this means in relation to one another = abstract intelligibility of Space and Time
- How are extensions and durations related to one another, not just to me
- Similarly, physics aims to give an explanatory account of motion, that is, to set forth its classical correlations among the parts of that motion.
- Yet physics faces the problem of seeking an explanatory understanding of motion, if motion is always relative to an observer?
- Newton tried to avoid this issue by assuming the existence of a time, space, and motion were all absolute, rather than relative.
- Relative time measured according to some specially chosen motion (e.g., of sun, seasons, etc.)

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- Einstein was dissatisfied with the Newtonian explanation space and time.
- In particular, he objected to the fact that different equations existed for the same phenomenon of light propagation; either the Biot-Savart Law or Faraday's Law were applied, depending on the circumstances.
- Einstein sought correlations that were invariant (technically, co-variant) despite changing or transforming of reference frames.

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- Special reference frames and explanations of motions require naming every point.
- A Cartesian coordinate system that can assign a name to every possible point.
- What happens when we change from one reference frame to another, i.e. from one origin to another? Explanatory classical correlations cannot change their form when we change origins.
- How can we be sure that we can order every space by the Cartesian grid?
- The invariance of classical correlations means that these correlations are unaffected by a change in origins.
- How do classical reference frames relate to one another in the context of seeking classical invariant correlations?

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- How do we know we can order every point by means of a Cartesian grid?
- It's not clear that we can organize spaces in that way.
- Geometrical considerations not only allow us to draw a grid but also to talk about how we translate from one reference frame to another.
- Inversely, knowing how things transform will tell us what kind of geometry we actually have.

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- Einstein insisted that classical correlations are invariant, and that changing your origins should not have any effect on the invariant layer.
- He claimed that the transformations being used were wrong, because they assumed that space and time were independent.
- Space and time are actually interdependent.

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- A thought experiment: measuring the length of a moving bus is difficult because the spatial measures would have to be taken simultaneously
- Yet simultaneity is not absolute; but dependent on one's state of motion.
- We assume that a certain of understanding of Space and Time is not only the true but the only possible one.
- The absolute is not resident in absolute space and time.
- Newton 's absolute space privileges a certain reference frame. Einstein removes this privileged frame.
- The proper relatedness of space and time is required to explain certain physical events.

End of Part II.