Advanced Dynamics
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Module No # 10
Lecture No # 47
Introduction to Analytical Dynamics: Generalized Coordinates - II

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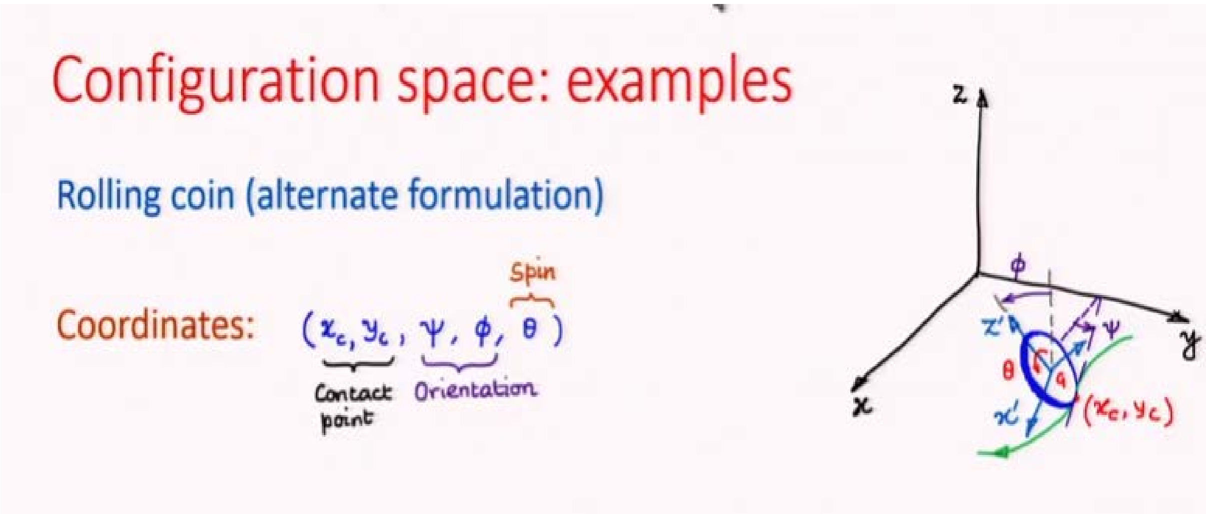

We are going to continue our discussion on generalized coordinates constraints generalized and the configuration that we had introduced in the last lecture we are going to look at these concepts once again and with examples. Just to recapitulate, the configuration space is the space with minimum number of coordinates in which a single point completely fixes the configuration of a dynamical system. The coordinates that are used in the configuration space are known as the generalized coordinates.

We revisit the rolling coin example and present an alternate formulation as discussed below.

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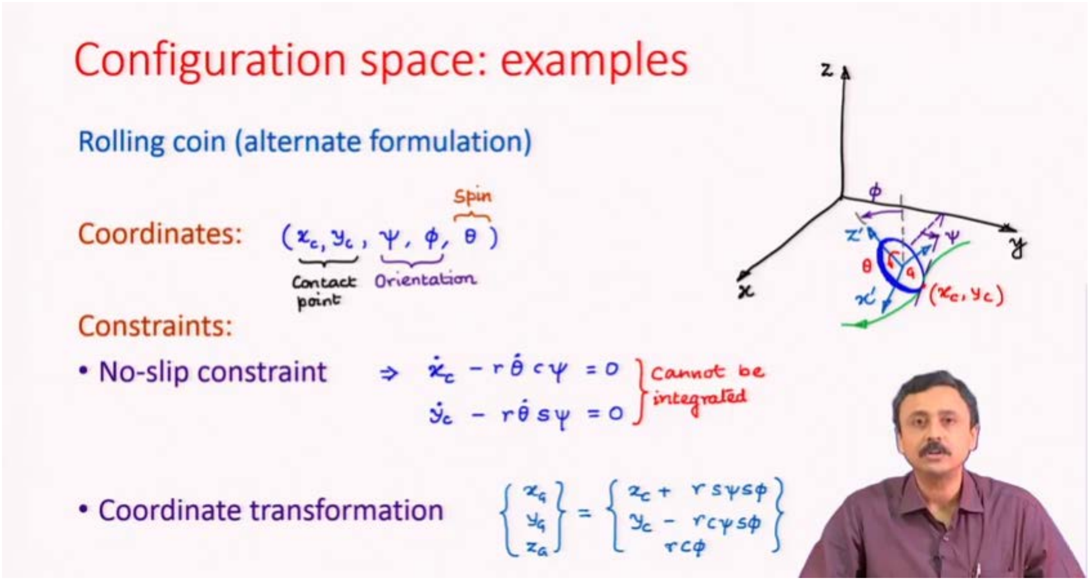

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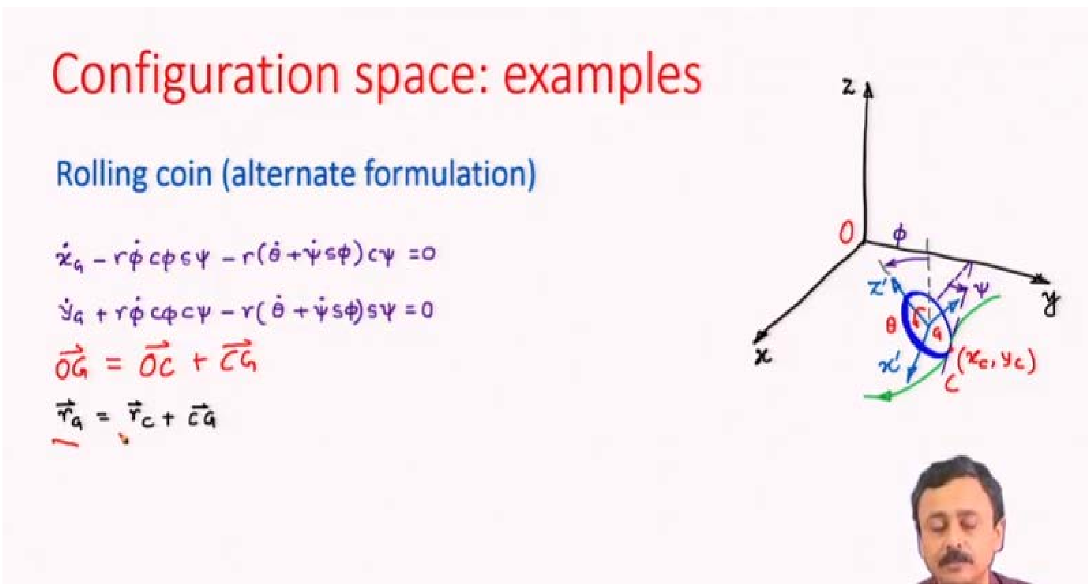

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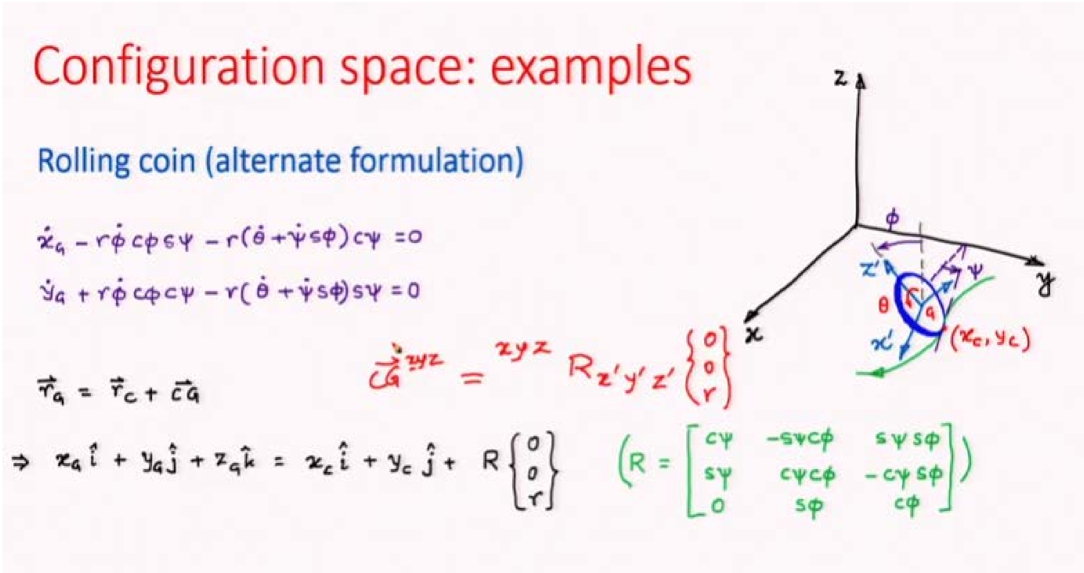

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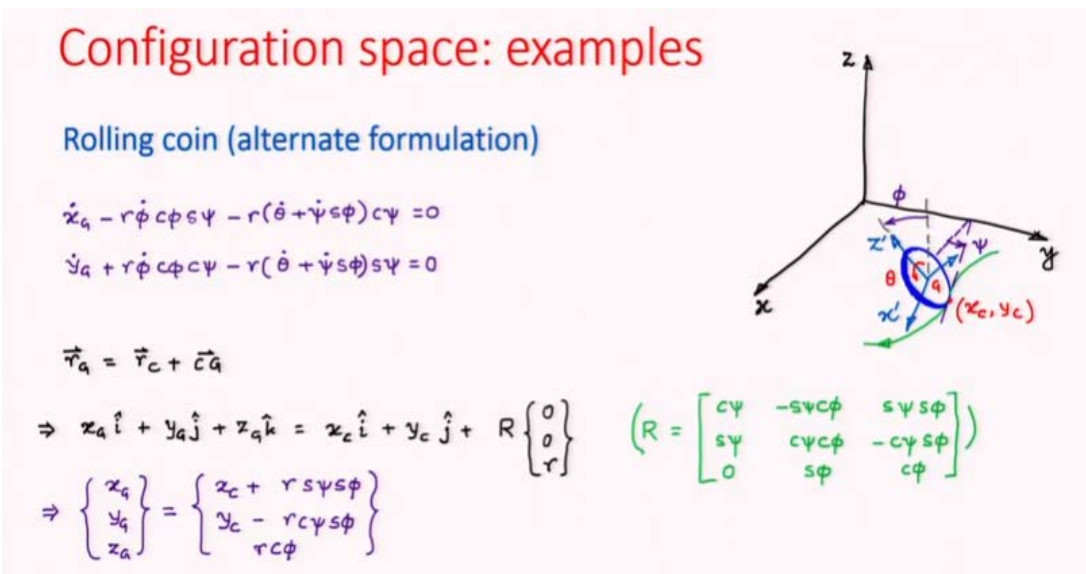

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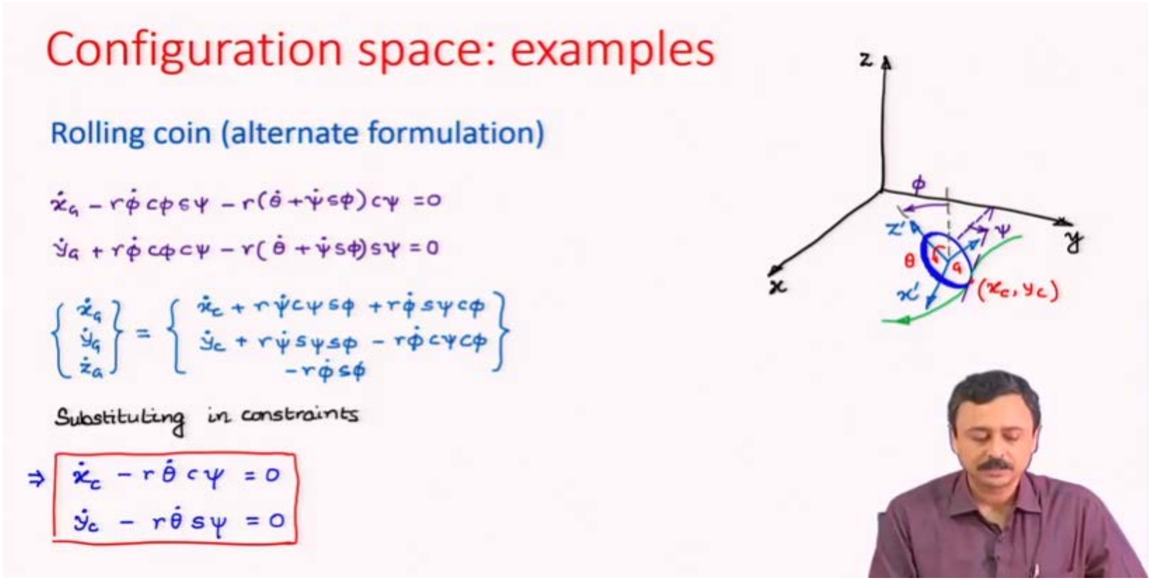

The 2 new constraint equations in our new choice of coordinates are presented in the above slide.

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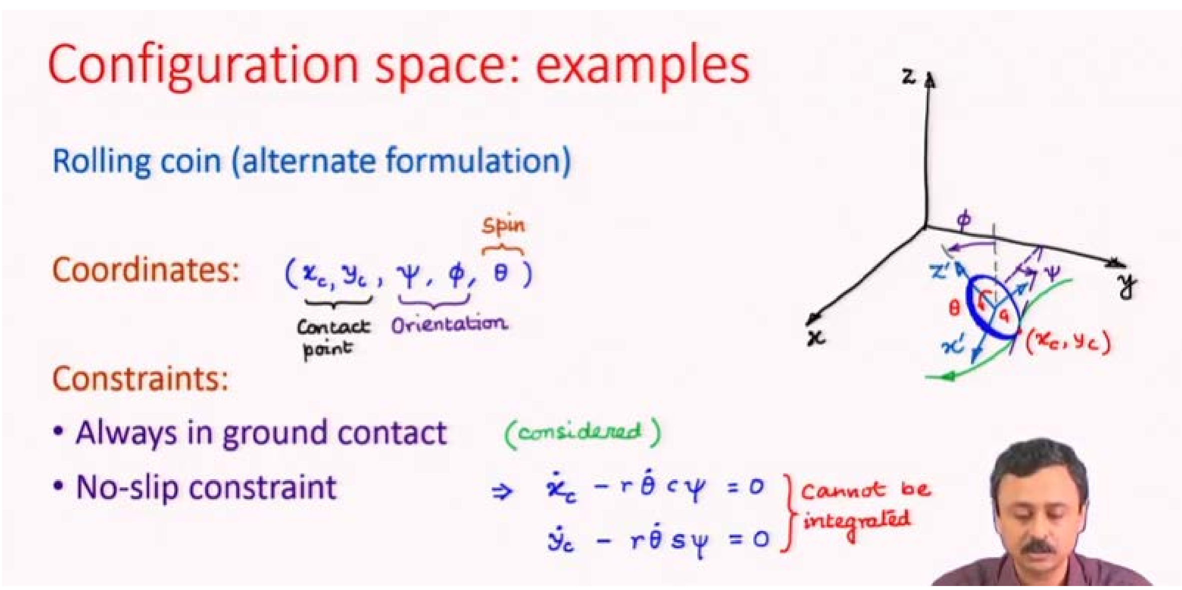

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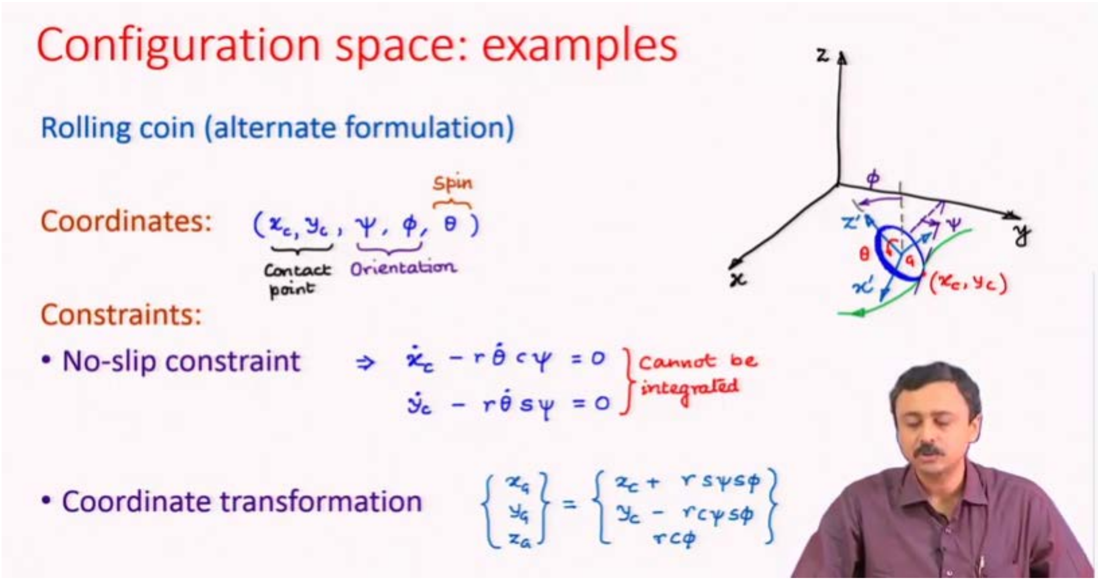

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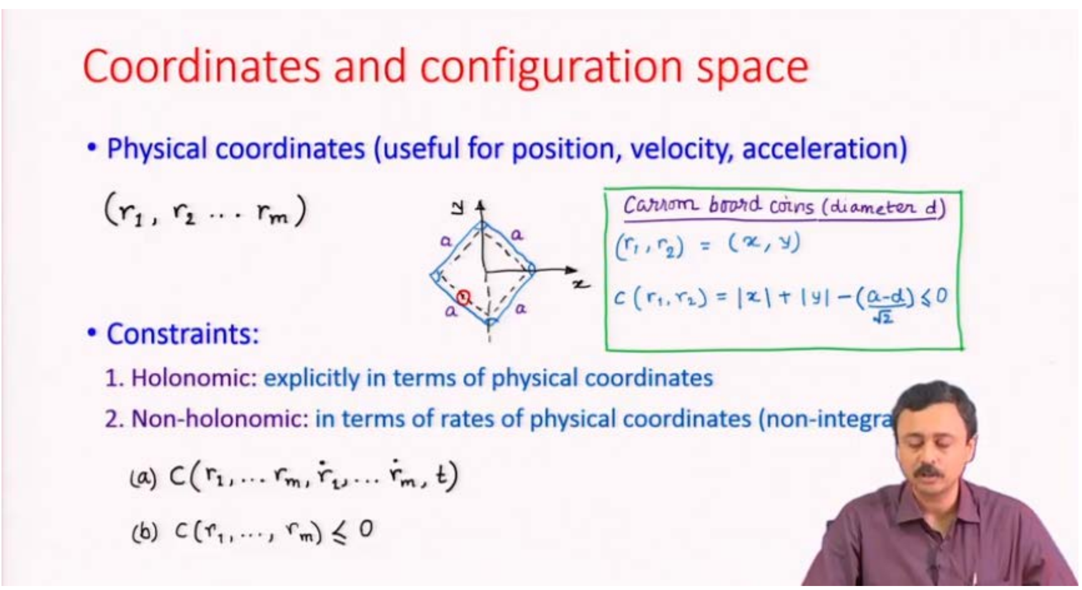

Now we move into a more detailed discussions on coordinates and configuration space. Various types of constraints are discussed in the slide above.

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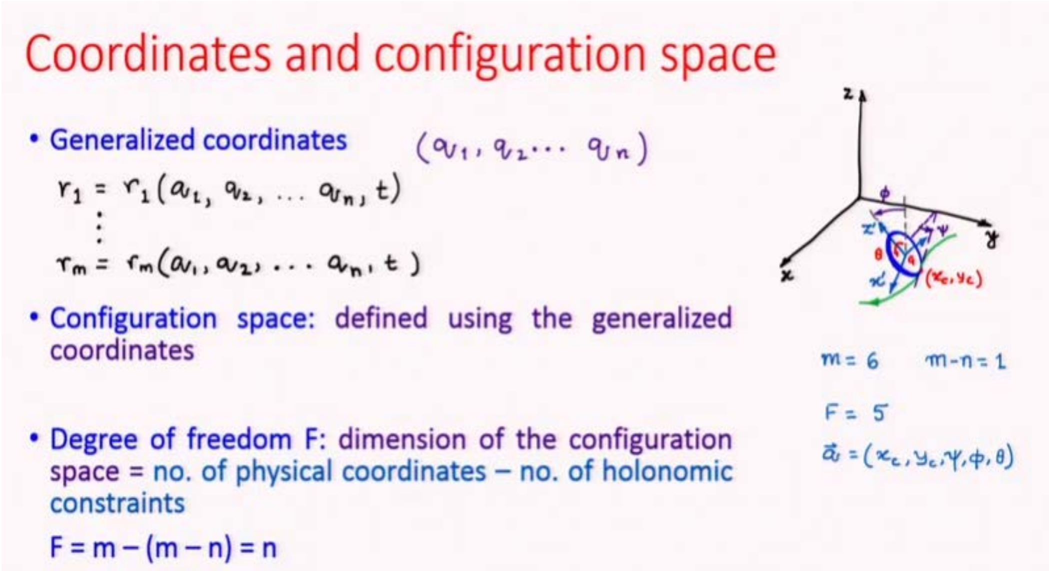

It is important to realize that holonomic constraints decide the degree of freedom of a system, while non-holonomic constraints do not.

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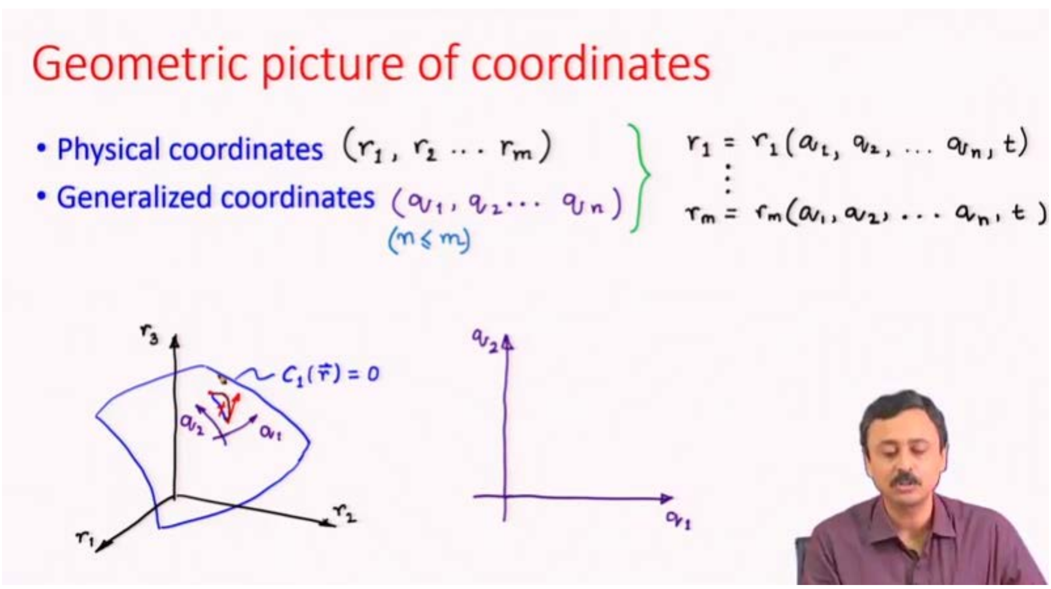

We picturize the physical coordinates and generalized coordinates as shown above.

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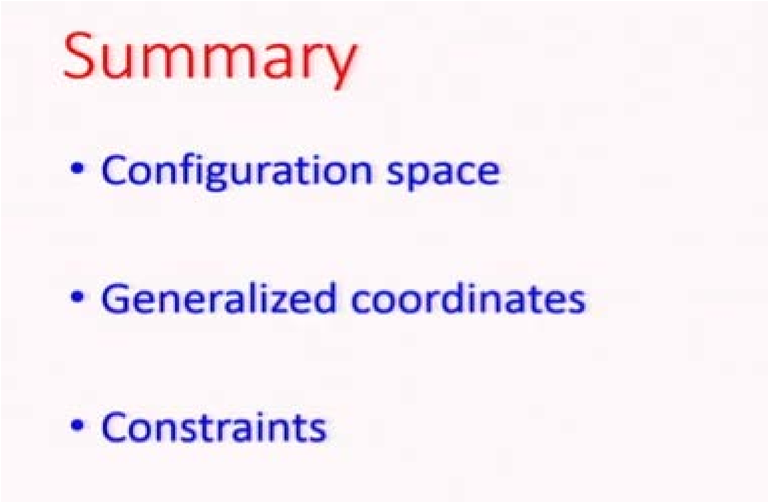

The summary is presented above.