Recovering a Grassmann space
from its point subset

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Removing a subspace from a projective space is not a new idea. A so called slit space (cf. [1], [2]) arises this way. It is quite simple to recover the deleted points and lines from what is left in this scenario. Parallelism probably suits best this task and every removed point, i.e. an improper point or a point at infinity, is identified with the corresponding direction of lines in quite natural way.

Now, one could have asked this question: how, if possible, to recover the ambient projective space from the complement of something else than a subspace. This problem is addressed and successfully solved in the first part of [3]. A wider class of structures than projective spaces are Grassmann spaces. So, another question could be if it is possible to recover the ambient Grassmann space from the complement of its arbitrary point subset. Under specific assumptions on the removed set of points we give a positive answer and this makes the main topic of our talk.

References

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