(D1) If $A = B + C$, then $C = A \overset{D}{-} B$.

(D2) $(A \overset{D}{-} B) + B \supset A$.

(D3) If $B \subset A$, then $0 \in A \overset{D}{-} B$.

(D4) $(A \overset{D}{-} B) = -(B \overset{D}{-} A)$

(D5) $A \overset{D}{-} C \subset (A \overset{D}{-} B) + (B \overset{D}{-} C)$.

In the proofs we use a new technique which is based on the properties given in the following lemma.

Let X be a Hausdorff topological vector space, A be closed convex, B bounded subset of X. Then for every bounded subset M we have

$$\overline{A + M} = \bigcap_{C \in \mathcal{E}_{A,B}} \overline{B + C + M}.$$

We also give connections between Minkowski subtraction and the union of upper differences.

Let X be a Hausdorff topological vector space, A be closed convex, B bounded subset of X. Then $A \dot{-} B = \bigcap \mathcal{E}_{A,B}$ where $A \dot{-} B = \{x \in X | B + x \subset A\}$.

We show that in the case of normed spaces the Demyanov difference coincides with classical definitions of Demyanov subtraction.

COMPLETENESS IN MINKOWSKI-RÅDSTRÖM-HÖRMANDER SPACES

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A Minkowski-Rådström-Hörmander space $\widetilde{X}$ is a quotient space over the family $\mathcal{B}(X)$ of all nonempty bounded closed convex subsets of a Banach space X. We prove in that a metric d_{BP} (Bartels-Pallaschke metric) is the strongest of all complete metrics in the cone $\mathcal{B}(X)$ and Hausdorff metric d_H is the coarsest of them. Our results follow from for more general case of a quotient space over an abstract convex cone S with complete metric d. We also extend a definition of Demyanov's difference (related to Clarke's subdifferential) of finite dimensional convex sets $A \overset{D}{-} B$ to infinite dimensional Banach space X and we prove in that Demyanov's metric generated by such extension, is complete.

References

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THE PROBLEM OF PROCESS CREATION IN PARALLEL ALGORITMS

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In recent two decades, application of parallel algorithms for solving computational and controlling problems have been increased speedy. The main idea in inventing of parallel computers and in designing of parallel algorithm was developing of executing power of system in n-fold by using of n-microprocessors or chips. Nowadays we can find many actual problems which are solved in parallel structures. But there is an important moment here about the problem if can we divide all mathematical and computational problems into several sections in any sizes for parallel computing? Of course no! It should be attended that, every parallel algorithm executes by several parallel processes which are creating bye that algorithm. Each process can be executed by one physical processor if there are enough numbers of micro processors in our parallel computer. Since when a parallel algorithm creates a process for solving a part of large scale problem, spend a determine time for doing it. Therefore, attending to computational aspects and also needed time of execution of operations exists in that process, we should divide the problem into several parts and also do data partitioning according to process creation time. Unfortunately, in many books and articles there isn't any attention on this problem. It should be selected suitable and optimal size for partitioning. For example, in the program for adding numbers of other similar algorithms giving each adding operation to one process which the time for creation and termination of that is more than its execution will not suitable selection. Else, the execution time of serial algorithm for the same problem will be less than parallel variant. But in large scale computational problems this strategy can be implemented and it will be optimal. In this situation we can use technique of process grouping. Here also it should be attended that for achieving more effectiveness in the parallel algorithm, the size of group must be optimal.