1023-16-710 **Avraham Goldstein*** (avi@agolda.com), Mathematics Department of BMCC, 199 Chambers street, New York, NY 10007, and **Chokri Cherif** (ccherif@bmcc.cuny.edu), Mathematics Department of BMCC, 199 Chambers street, New York, NY 10007. *On distributive properties of operations with ideals in an algebra.* Preliminary report.

Let A be an algebra over a field F. We do not assume A to be commutative. A product $R \cdot L$ of a right ideal R of A with a left ideal L of A is the set of all sums of elements $x \cdot y$ where $x \in R$ and $y \in L$. Clearly, $R \cdot L$ is a subset of A and also is a subset of R and of L.

Let M, N be right ideals of A and P, K be left ideals of A. It's easy to show that

$$(M \cap N) \cdot P \subset (M \cdot P) \cap (N \cdot P)$$

$$(M \cap N) \cdot P \subset (M \cdot P) \cap (M \cdot K)$$

If A is the commutative algebra of all polynomials in variables x, y over F, $M = x \cdot A$, $N = y \cdot A$ and the ideal P is the set of all polynomials with no free term [their monomials are divisible by x or y] then $M \cap N = (x \cdot y) \cdot A$ and so $(M \cap N) \cdot P$ is the set of all polynomials such that their monomials are of total degree 3 or more so it does not contain $x \cdot y$ but $M \cdot P$ contains $x \cdot y$ and $N \cdot P$ contains $x \cdot y$ so $(M \cdot P) \cap (N \cdot P)$ contains $x \cdot y$. So in this case

$$(M \cap N) \cdot P \neq (M \cdot P) \cap (N \cdot P)$$

In this work we find a very general sufficient condition on A so that

$$(M \cap N) \cdot P = (M \cdot P) \cap (N \cdot P)$$

and

$$(M \cap N) \cdot P = (M \cdot P) \cap (M \cdot K)$$

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