If „ · " l. c. „ + " or „ · " c. „ + " then

$\{(\forall x)(\exists y, z)\, x = yz = y + z\} \rightarrow$ „ · " = „ + ".

C. Let $(\forall x)\, \varphi(x)$ is a right associative element in $(S, \cdot)$. From

(10) $(\forall x, y)\, x \cdot \varphi y = x \varphi(y)$,

it follows „ · " l. a. „ ·φ". Converselly, if $(S, \cdot)$ has an identity e, from „ · " l. a. „ + " it follows „ + " = „ ·φ ", where $(\forall x)\, \varphi(x) = e + x$ is a right associative element in $(S, \cdot)$.

More generally, let „ o " be a binary operation on S such that

(11) $(\forall u, x, y)\, ux \circ y = x \circ y$.

If

(12) $(\forall x, y)\, x + y = x(x \circ y)$,

then „ · " l. a. „ + ". Converselly, if $(S, \cdot)$ is a right reducible groupoid and „ · " l. a. „ + " then there exists a binary operation „ o " such that (11) and (12) are satisfied.

D. Let $(S, \cdot)$ be a semigroup.

If the binary operation „ o " satisfies the relation

(13) $(\forall u, v, x, y)\, ux \circ y = x \circ yv = xy$,

and „ + " is defined by

(14) $(\forall x, y)\, x + y = x(x \circ y)\, y$,

then „ · " l. a. „ + ", „ + " l. a. „ · ", and $(S, +)$ is a semigroup. If both „ $\circ_1$ " and „ $\circ_2$ " satisfy (13) and „ $+_1$ ", „ $+_2$ " are theirs corresponding operations by (14), then „ $+_1$ " l. a. „ $+_2$ " and „ $+_2$ " l. a. „ $+_1$ ". Converselly, if the semigroup $(S, \cdot)$ is reducible both left and right, from „ · " l. a. „ + ", „ + " l. a. „ · " it follows that there exists an operation „ o " such that (13) and (14) are satisfied.

If „ o " is a constant a, i. e. $(\forall x, y)\, x \circ y = a$, (13) is satisfied; hence it follows „ · " l. a. „ $\dot{a}$ " and „ $\dot{a}$ " l. a. „ · ", where

(15) $(\forall x, y)\, x \,\dot{a}\, y = x a y$.

Converselly, let the semigroup $(S, \cdot)$ has an identity e. From „ · " l. a. „ + ", and „ + " l. a. „ · " it follows „ + " = „ $\dot{a}$ ", where $e + e = a$. In this case we have

$\{[$„ · " l. a. „ + ", „ + " l. a. „ · "$] \rightleftarrows [$„ $\dot{a}$ " l. a. „ + ", „ + " l. a. „ $\dot{a}$ "$]\} \rightleftarrows$

$\rightleftarrows \{(\forall x)(\exists y)\, x = aya\} \rightleftarrows \{(\exists a)\, aa' = a'a = e\} \rightleftarrows$

$\rightleftarrows$ {The semigroups $(S, \cdot)$ and $(S, \dot{a})$ are isomorphic}.