CORRECTION TO "SOME APPLICATIONS OF NEVANLINNA THEORY TO MATHEMATICAL LOGIC: IDENTITIES OF EXPONENTIAL FUNCTIONS"

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In Corollary 5.3 of [2], which gives a completeness theorem for sin and cos over the complex numbers, we inadvertently left out the axiom $\sin(-1 \cdot x) = -1 \cdot \sin(x)$. This is needed in the proof which is sketched out, at the place where one tries to express sin and cos in terms of EXP, as is needed to prove the identity $t = (t^\#)^*$ for each term t. The correct result should read:

COROLLARY 5.3. *If s and t are any two terms in Σ^* and $t \equiv s$, then the identity $t = s$ is provable from the axioms*

$$x + (y + z) = (x + y) + z, \qquad x(yz) = (xy)z,$$
$$x + y = y + x, \qquad xy = yx,$$
$$x + 0 = x, \qquad 1 \cdot x = x,$$
$$x(y + z) = xy + xz, \qquad 0 \cdot x = 0,$$
$$\sin(x + y) = \sin(x)\cos(y) + \cos(x)\sin(y),$$
$$\sin(-1 \cdot x) = -1 \cdot \sin(x)$$

together with all axioms giving the facts of addition, multiplication, sin *and* cos *for constants from* **C***.*

The need for this added identity was discovered and clarified in discussions with L. van den Dries, who has proved the corresponding completeness theorem for sin and cos over the real numbers [1].

REFERENCES

1. Lou van den Dries, *A completeness theorem for trigonometric identities and various results on exponential functions*, Proc. Amer. Math. Soc. **96** (1986), 345–352.
2. C. Ward Henson and Lee A. Rubel, *Some applications of Nevanlinna theory to mathematical logic: Identities of exponential functions*, Trans. Amer. Math. Soc. **282** (1984), 1–32.

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