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S-unit equations and Masser's *ABC* conjecture in algebraic number fields

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Abstract. Let K be an algebraic number field, and S a finite set of places on K which contains all infinite places. In terms of S, the best known upper bound for the heights of the solutions of the S-unit equation (2.1) over K is given in Győry [21]; see also (2.4) in Section 2 below. In Section 4, we apply this bound to derive the best Masser's type ABC inequalities to date towards Masser's ABC conjecture over K; cf. Theorems 1 and 2. Independently, using a different approach, Scoones [31] proves in fact the same theorems but in a slightly weaker form, over the Hilbert class field of K and not over K. See also the Remarks in Section 1.

In the opposite direction, in Section 5, we deduce from the effective version of Masser's ABC conjecture over K a significant, but conditional and not completely explicit improvement of the bound (2.4).

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