Törnquist and Weiss showed that uniformly definable (actually, Σ^1_2) versions of statements equivalent to CH turn out to be equivalent to $\mathbb{R} \subseteq L$.

In the present paper, Steila continues this study by showing that algebraic equivalents to CH proposed by Erdős & Kakutani [MR0008136], Zoli [MR2284620], and Erdős & Komjáth [MR1043714], respectively, have definable versions equivalent to the statement that all reals are constructible. These definable versions are as follows:

1. There is a countable partition of $\mathbb{R}$ into uniformly Σ^1_2 definable, rationally independent subsets.

2. The set of transcendental reals is the union of countably many, uniformly Σ^1_2 definable, algebraically independent subsets.

3. There exists a Σ^1_2 coloring of the plane with countably many colors with no monochromatic right-angled triangle.

Among the main tools used in the paper are Theorem 1.2 from Törnquist and Weiss [MR3436359], the assumption of a Δ^1_2-strong well-ordering in type ω_1 of the reals, and for the third item, definable versions of results by Schmerl [MR1608502] on polynomial avoidance.