§5. Ordered semigroup strings with restrictions

Let G be a nonnegative ordered additive abelian semigroup, let o be a nonnegative integer, and let $u \in G$.

We define

$$G(o = u) = \{i \in G(o): abs(i) = u\}$$

$$G(o \geq u) = \{i \in G(o): abs(i) \geq u\}$$

$$G(o > u) = \{i \in G(o): abs(i) > u\}$$

$$G(o < u) = \{i \in G(o): abs(i) < u\}$$

$$G(o \leq u) = \{i \in G(o): abs(i) \leq u\}.$$

Given any $P \in \{=, \geq, >, <, \leq\}$ and any string-restriction t, we define

$$G(oPu,t) = G(oPu) \cap G(o,t)$$

and for any string-restriction k we define

$$G(oPu,t,k) = G(oPu) \cap G(o,t,k).$$