Given a reduction system $\to$ with term size $|\ |$

(A): $\exists$ binary relation $\Rightarrow \subseteq \Lambda^2$ and translation $* : \Lambda \to \Lambda$:

1. If $M \to N$ then $M \Rightarrow N$.
2. If $M \Rightarrow N$ then $M \twoheadrightarrow N$.
3. If $M \Rightarrow N$ then $N \Rightarrow M^*$.

(B): $\exists$ monotonic functions $f, g : \mathbb{N} \to \mathbb{N}$:
If $M \Rightarrow N$ then $M \to^{l} N$ with $l \leq g(|M|)$ and $|N| \leq f(|M|)$, where f and g are respectively in the p-th and q-th levels of the Grzegorczyk hierarchy.

Theorem (Quantitative Church–Rosser Theorem)

If $M \overset{l}{\longleftarrow}\!\overset{r}{\longrightarrow} N$ then there exists a term P such that $M \to^{m} P^{k*}$ and $N \to^{n} P^{k*}$ where $k \leq \min\{l, r\}$,

1. $m \leq \sum_{i=0}^{r-1} g(f^{(i)}(|M|))$, $\quad n \leq \sum_{i=0}^{l-1} g(f^{(i)}(|N|))$, and
2. m, n are bounded by functions in the level of $\max\{p+1, q\} \geq 2$ of the Grzegorczyk hierarchy.