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two simple facts about well-founded relations

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Owner	yesitis (13730)
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Author	yesitis (13730)
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The following are two simple facts about well-founded relation R on X :

1. For each $x \in X$, $x \not R x$. (See the entry R-minimal element.)
2. The requirement for symmetry is absent, i.e., for each $x, y \in X$, either $x R y$ or $y R x$, but not both.

Justifications for these two facts are simple. For 1, consider the subclass $\{x\}$. Then $\{x\}$ has an R – minimal element, which can only be x itself. For 2, consider $\{x, y\}$. It has an R – minimal element, which is either x or y , not both.

Fact 1 is provided here for easy reference. Keeping these two facts in mind is helpful when dealing with (proving) basic theorems about the relation.