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Some Remarks on Weak O-minimality and Definable Completeness

We consider to what extent the role played by weakly o-minimal theories among all densely ordered theories is analogous to the role played by o-minimal theories among the definably complete densely ordered theories. In particular we ask whether certain results indicating that any sufficiently well-behaved definably complete theory is o-minimal or close to o-minimal may be generalized by dropping the assumption of definable completeness and weakening the conclusion from “o-minimal or close to o-minimal” to “weakly o-minimal or close to weakly o-minimal”. We show through example that this is not the case.