

Contents

1	Introduction	1
1.1	Review on Declarative Semantics	1
1.2	Where Petri Net Theory Meets Logic Programming	5
2	Preliminaries	7
2.1	Logic Programs	7
2.2	Petri Nets	10
3	Normal Fixpoint Nets	17
3.1	Transformation Rules	19
3.2	Structure of Normal Fixpoint Nets	25
3.3	Semantics of Normal Fixpoint Nets	34
3.3.1	Stratified Normal Fixpoint Nets	40
3.3.2	Three-valued Semantics for all Normal Fixpoint Nets	48
3.4	Summary	76
4	Positive Disjunctive Fixpoint Nets	77
4.1	Transformation Rules	78
4.2	Structure of Positive Disjunctive Fixpoint Nets	82
4.3	Semantics of Positive Disjunctive Fixpoint Nets	86
4.4	Summary	111

5 Disjunctive Fixpoint Nets – An Informal Description	113
5.1 Disjunctive Fixpoint Nets	114
5.2 Constructive Semantics	125
5.3 Summary	128
6 Conclusion and Further Work	129
Bibliography	131
Index	137