

▼ 1 Investigating Hybrid Strategies for Systematic Literature Review

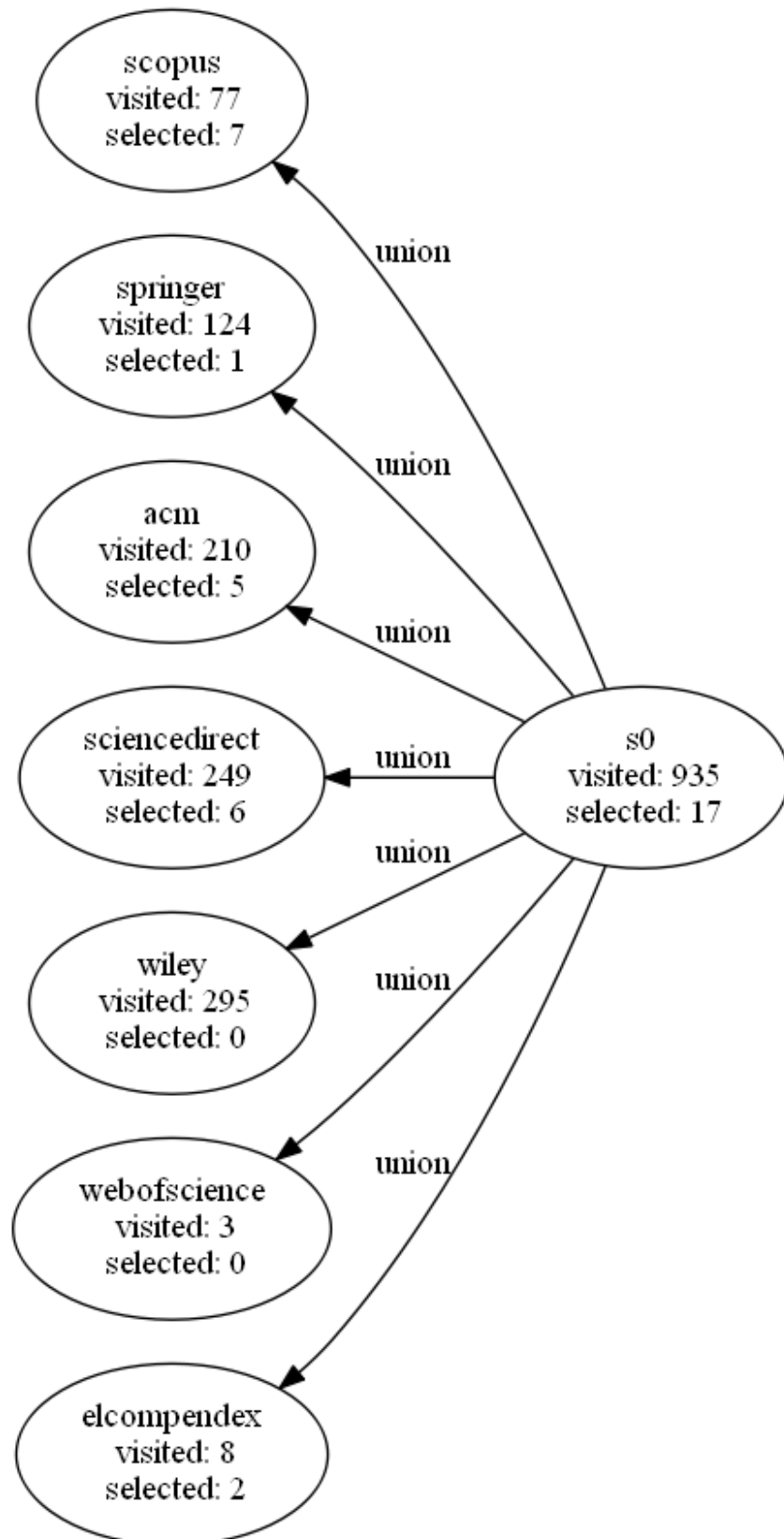
Experiment 2

▼ 2 Strategies

▼ 2.1 Strategy 1 - Database Search

Total de estudos primários reproduzidos = 16 do Seed Set + 4 encontrados durante o Snowballing = 20

Provenance Graph - Strategy 1 - Database Search

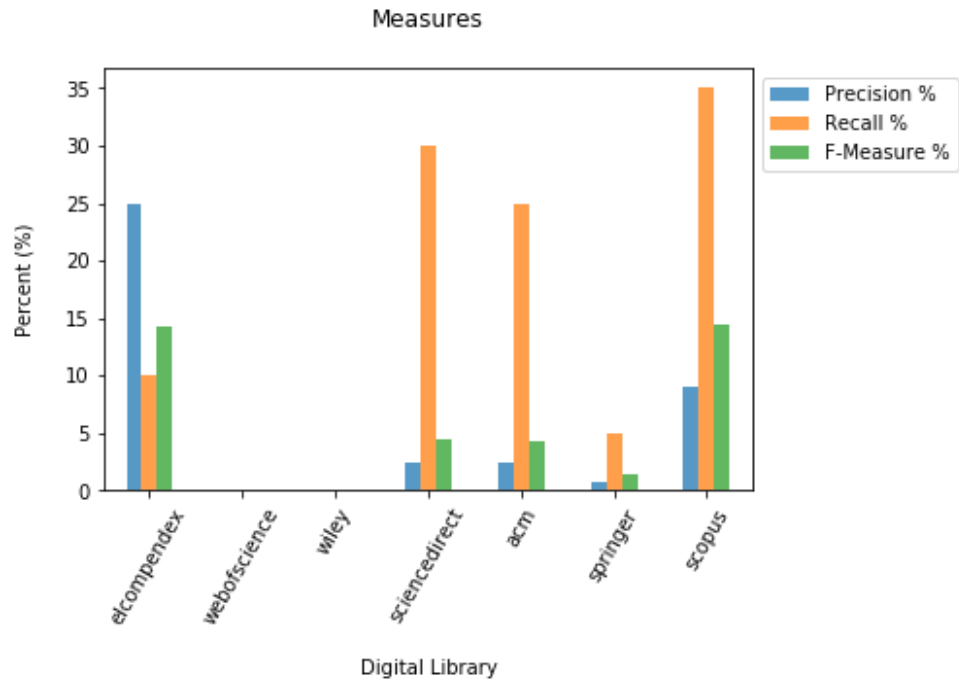


Report Strategy 1 - Database Search

Out[10]:

Digital Library	Precision %	Recall %	F-Measure %
elcompindex	25	10	14.3
webofscience	0	0	0
wiley	0	0	0
sciencedirect	2.4	30	4.5
acm	2.4	25	4.3
springer	0.8	5	1.4
scopus	9.1	35	14.4

Bar Chart Strategy 1



Report Strategy 1 Measures (Accumulated)

Out[13]:

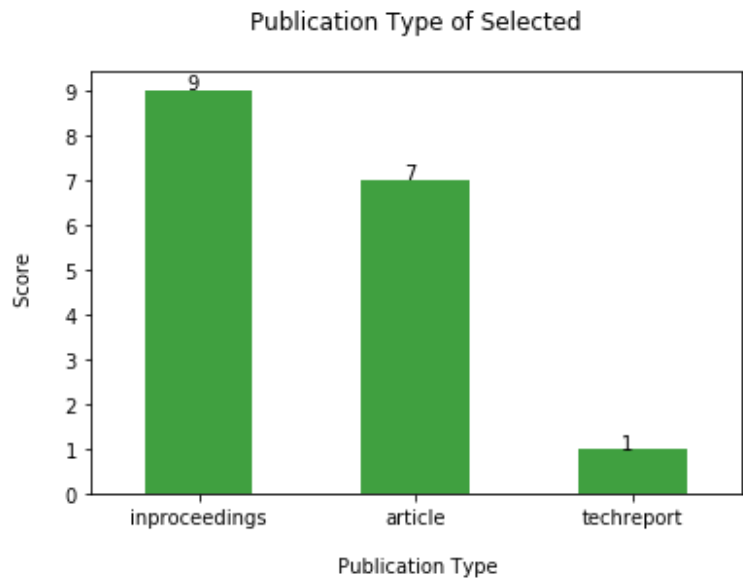
Precision %	Recall %	F-Measure %	Visited	Selected
1.8	85	3.6	935	17

Report Strategy 1 - Excel and Duplicated Included

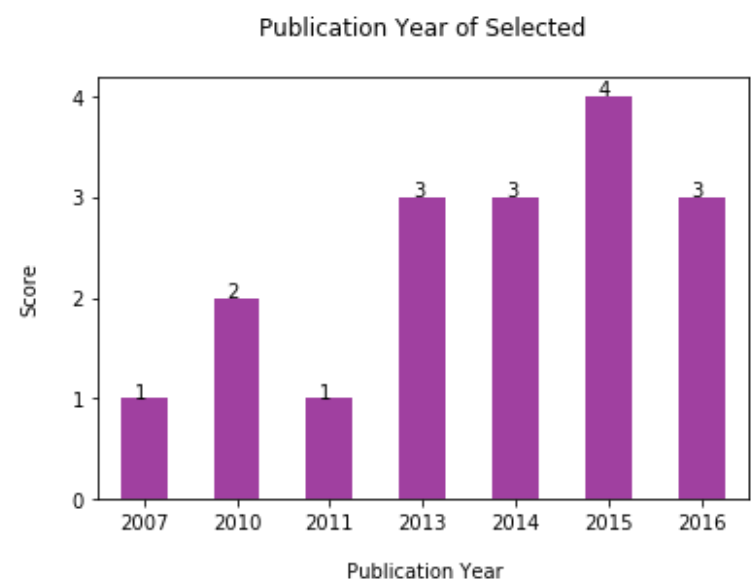
Out[14]:

Digital Library	Visited	Selected	Excel	Excel Selected	Duplicated	Final Selected
elcompindex	8	2	0	0	0	0
webofscience	3	0	0	0	0	0
wiley	295	0	0	0	0	0
sciencedirect	249	6	0	0	0	2
acm	210	5	0	0	0	3
springer	124	1	0	0	0	0
scopus	77	7	0	0	0	2

Bar Chart Publications Type - Strategy 1

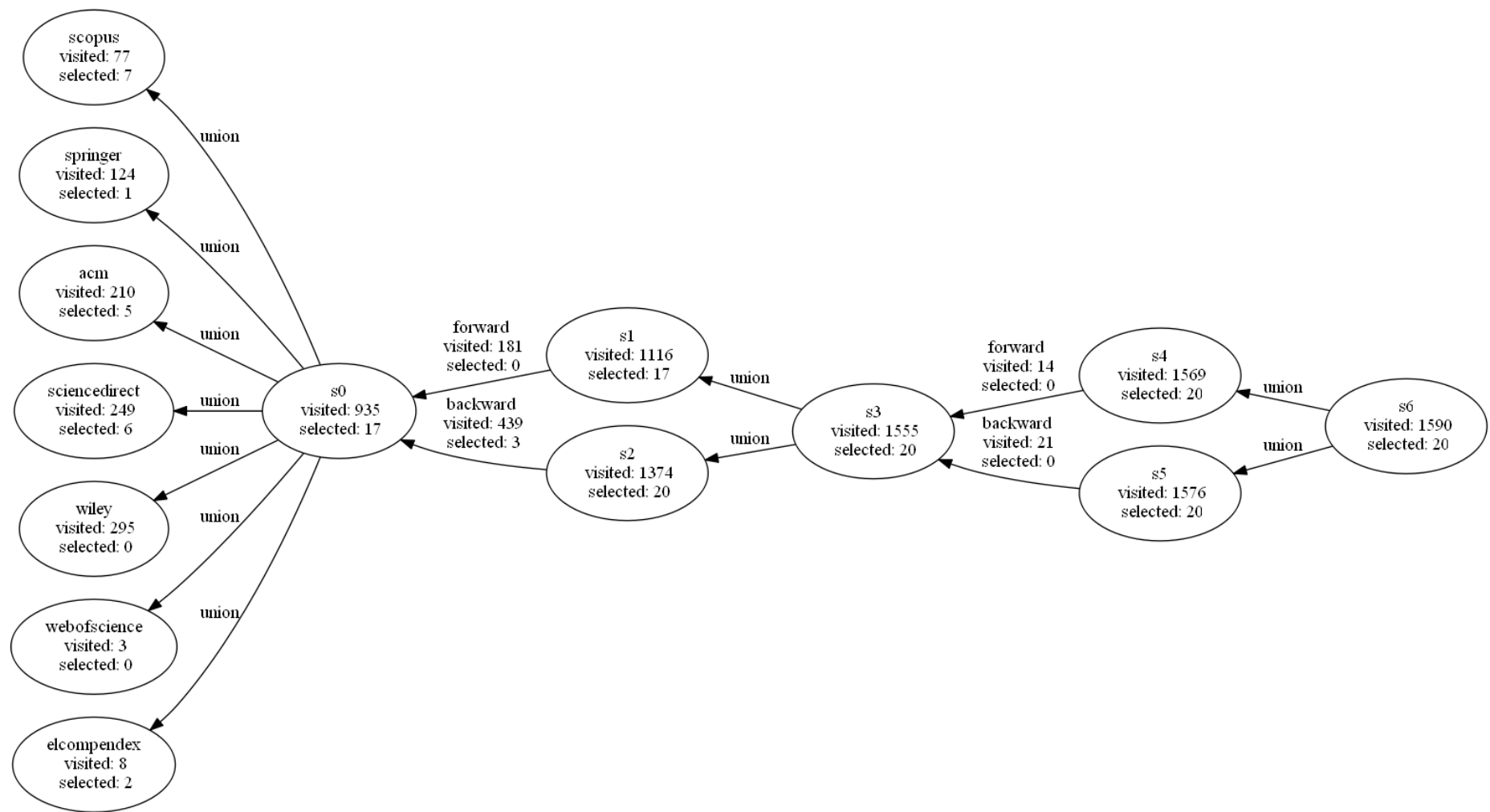


Bar Chart Publications Year - Strategy 1



2.2 Strategy 2 - Database Search + Snowballing (Guideline Wohlin)

Provenance Graph - Strategy 2 - Database Search + Snowballing (Guideline Wohlin)



Report Strategy 2 - Database Search + Snowballing (Guideline Wohlin)

Out[19]:

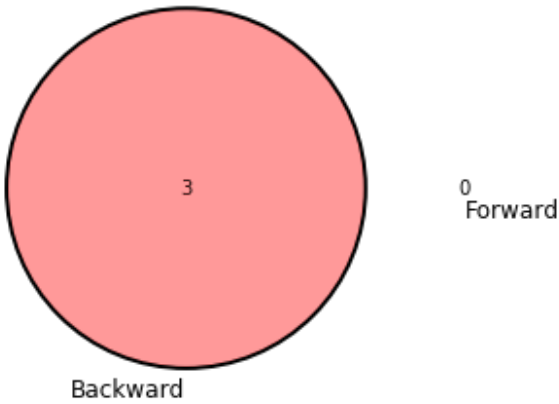
Digital Library/State	Precision%	Recall%	FMeasure%	Operation	Accumulated Precision%	Accumulated Recall%	Accumulated F_Measure%	Delta Visited	Visited	Delta Related	Related
elcompendex	25	10	14.3	-	25	10	14.3	8	8	2	2
webofscience	0	0	0	-	0	0	0	3	3	0	0
wiley	0	0	0	-	0	0	0	295	295	0	0
sciencedirect	2.4	30	4.5	-	2.4	30	4.5	249	249	6	6
acm	2.4	25	4.3	-	2.4	25	4.3	210	210	5	5
springer	0.8	5	1.4	-	0.8	5	1.4	124	124	1	1
scopus	9.1	35	14.4	-	9.1	35	14.4	77	77	7	7
s0	nan	0	0	union	1.8	85	3.6	0	935	0	17
s2	0.7	15	1.3	backward	1.5	100	2.9	439	1374	3	20
s1	0	0	0	forward	1.5	85	3	181	1116	0	17
s3	nan	0	0	union	1.3	100	2.5	0	1555	0	20
s5	0	0	0	backward	1.3	100	2.5	21	1576	0	20
s4	0	0	0	forward	1.3	100	2.5	14	1569	0	20
s6	nan	0	0	union	1.3	100	2.5	0	1590	0	20

Report Strategy 2 - Measures (Accumulated)

Out[20]:

Precision %	Recall %	F-Measure %	Visited	Selected
1.3	100	2.5	1590	20

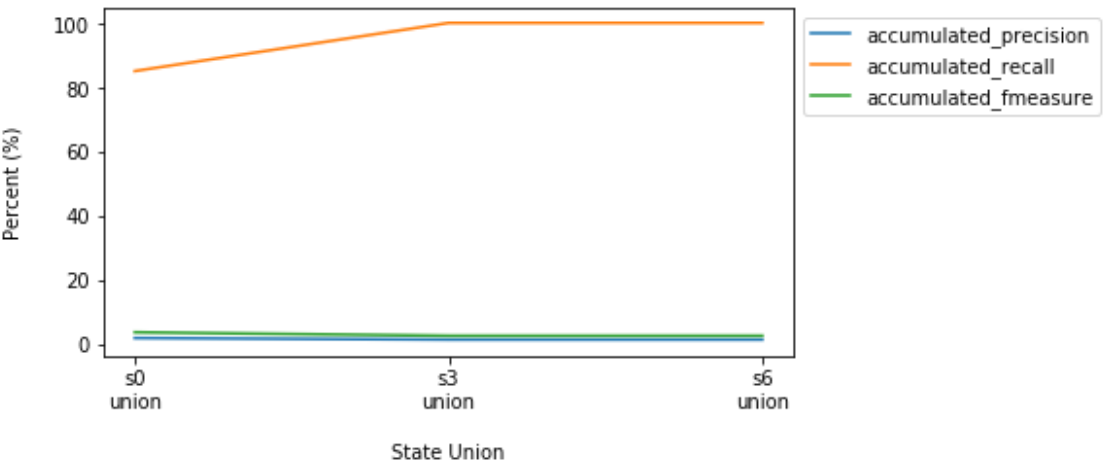
Diagrama de Venn - Strategy 2



Report Diagrama de Venn

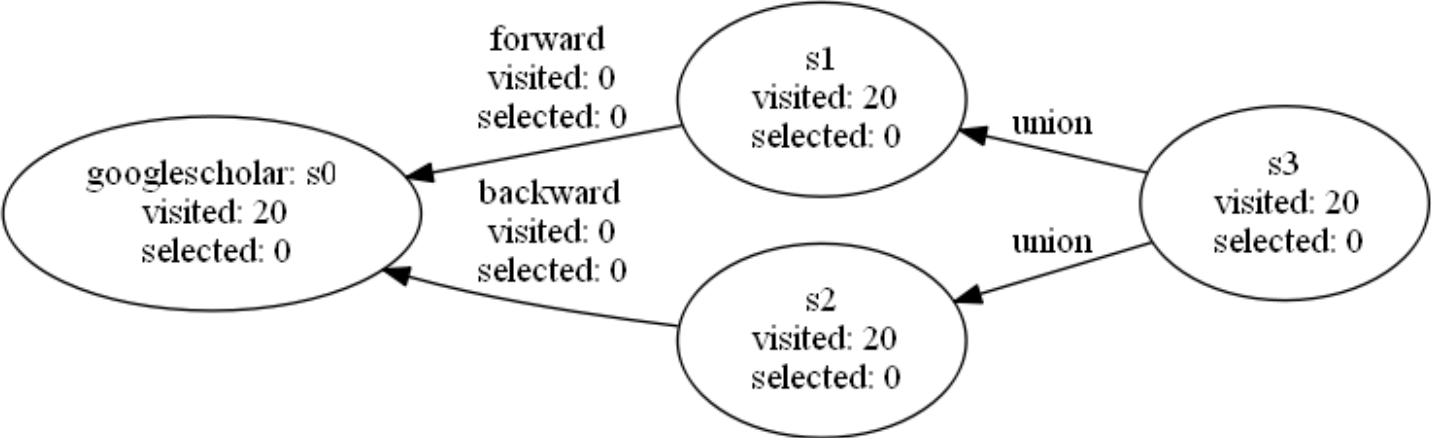
Backward ['saddington2012a', 'barton2009a', 'eloranta2013a']
Forward []

Accumulated Measures - Strategy 2



2.3 Strategy 3 - Informal Search (Google Scholar) + Snowballing (Guideline Wohlin)

Provenance Graph - Strategy 3 - Informal Search (Google Scholar) + Snowballing (Guideline Wohlin)



Report Strategy 3 - Informal Search (Google Scholar) + Snowballing (Guideline Wohlin)

Out[26]:

Scholar=s0 /State	Precision%	Recall%	FMeasure%	Operation	Accumulated Precision%	Accumulated Recall%	Accumulated F_Measure%	Delta Visited	Visited	Delta Related	Related
googlescholar: s0	0	0	0	-	0	0	0	20	20	0	0
s2	nan	0	0	backward	0	0	0	0	20	0	0
s1	nan	0	0	forward	0	0	0	0	20	0	0
s3	nan	0	0	union	0	0	0	0	20	0	0

Report Strategy 3 - Measures (Accumulated)

Out[27]:

Precision %	Recall %	F-Measure %	Visited	Selected
0	0	0	20	0

C:\ProgramData\Anaconda3\lib\site-packages\matplotlib_venn_venn2.py:50: UserWarning: Both circles have zero area
warnings.warn("Both circles have zero area")

Diagrama de Venn - Strategy 3

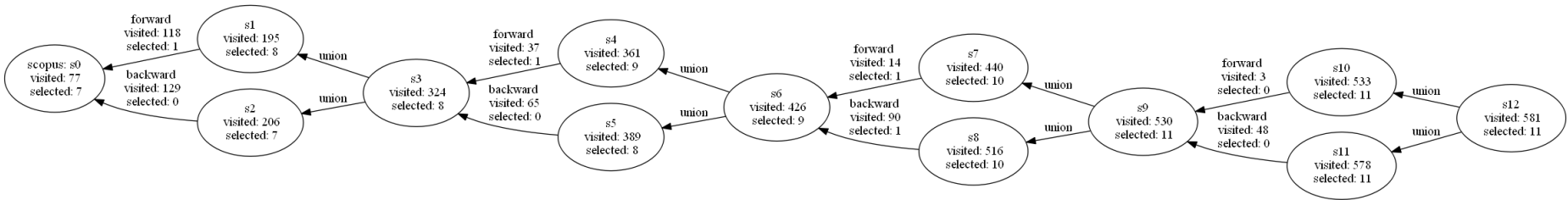
Backward⁰ Forward

Report Diagrama de Venn

Backward []
Forward []

2.4 Strategy 4 - Scopus + Snowballing (Guideline Wohlin)

Provenance Graph - Strategy 4 - Scopus + Snowballing (Guideline Wohlin)



Report Strategy 4 - Scopus + Snowballing (Guideline Wohlin)

Out[32]:

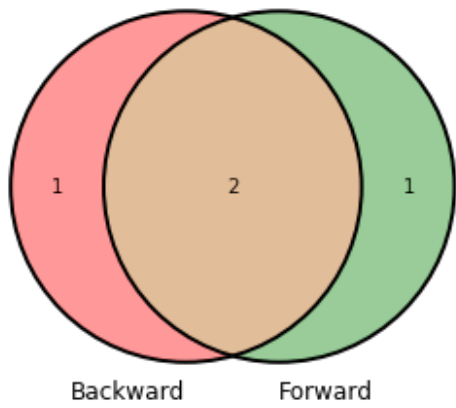
Scopus=s0 /State	Precision%	Recall%	FMeasure%	Operation	Accumulated Precision%	Accumulated Recall%	Accumulated F_Measure%	Delta Visited	Visited	Delta Related	Related
scopus: s0	9.1	35	14.4	-	9.1	35	14.4	77	77	7	7
s2	0	0	0	backward	3.4	35	6.2	129	206	0	7
s1	0.8	5	1.4	forward	4.1	40	7.4	118	195	1	8
s3	nan	0	0	union	2.5	40	4.7	0	324	0	8
s5	0	0	0	backward	2.1	40	3.9	65	389	0	8
s4	2.7	5	3.5	forward	2.5	45	4.7	37	361	1	9
s6	nan	0	0	union	2.1	45	4	0	426	0	9
s8	1.1	5	1.8	backward	1.9	50	3.7	90	516	1	10
s7	7.1	5	5.9	forward	2.3	50	4.3	14	440	1	10
s9	nan	0	0	union	2.1	55	4	0	530	0	11
s11	0	0	0	backward	1.9	55	3.7	48	578	0	11
s10	0	0	0	forward	2.1	55	4	3	533	0	11
s12	nan	0	0	union	1.9	55	3.7	0	581	0	11

Report Strategy 4 - Measures (Accumulated)

Out[33]:

Precision %	Recall %	F-Measure %	Visited	Selected
1.9	55	3.7	581	11

Diagrama de Venn - Strategy 4

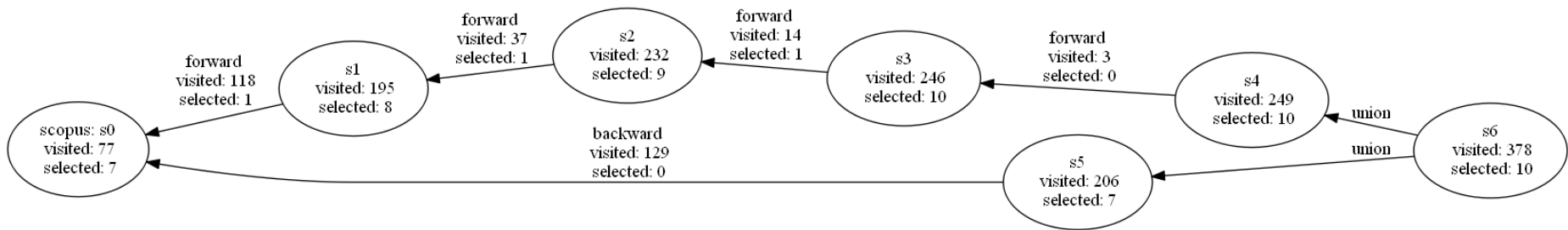


Report Diagrama de Venn

Backward ['vlietland2015a', 'saddington2012a', 'waardenburg2013a']
Forward ['vlietland2015a', 'waardenburg2013a', 'vlietland2016a']

▼ 2.5 Strategy 5 - Scopus + Snowballing (Short Paper)

Provenance Graph - Strategy 5 - Scopus + Snowballing (Short Paper)



Report Strategy 5 - Scopus + Snowballing (Short Paper)

Out[38]:

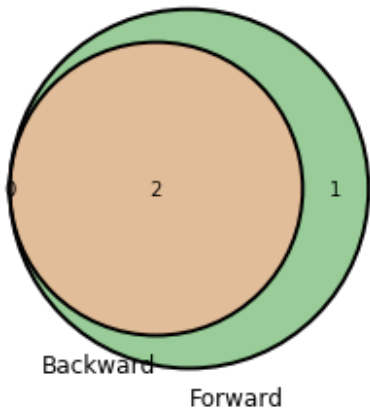
Scopus=s0 /State	Precision%	Recall%	FMeasure%	Operation	Accumulated Precision%	Accumulated Recall%	Accumulated F_Measure%	Delta Visited	Visited	Delta Related	Related
s1	0.8	5	1.4	forward	4.1	40	7.4	118	195	1	8
s2	2.7	5	3.5	forward	3.9	45	7.1	37	232	1	9
scopus: s0	9.1	35	14.4	-	9.1	35	14.4	77	77	7	7
s3	7.1	5	5.9	forward	4.1	50	7.5	14	246	1	10
s5	0	0	0	backward	3.4	35	6.2	129	206	0	7
s4	0	0	0	forward	4	50	7.4	3	249	0	10
s6	nan	0	0	union	2.6	50	5	0	378	0	10

Report Strategy 5 - Measures (Accumulated)

Out[39]:

Precision %	Recall %	F-Measure %	Visited	Selected
2.6	50	5	378	10

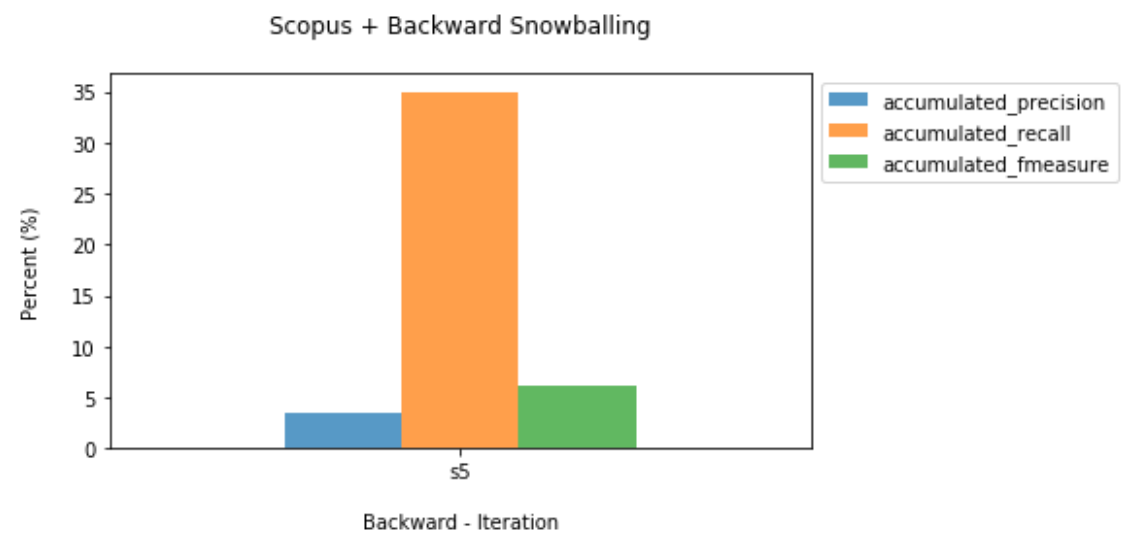
Diagrama de Venn - Strategy 5



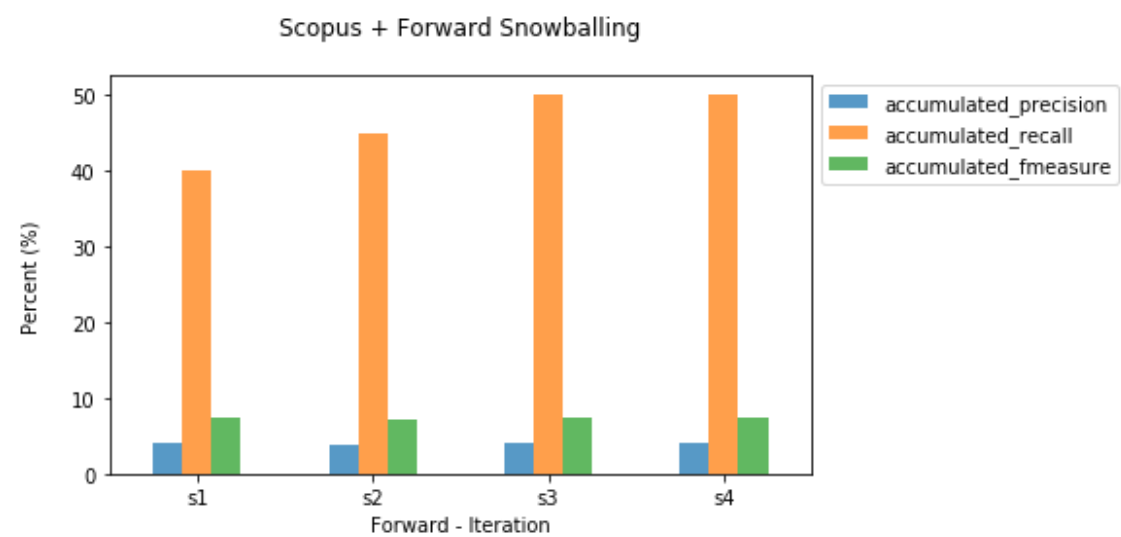
Report Diagrama de Venn

Backward ['vlietland2015a', 'waardenburg2013a']
Forward ['vlietland2015a', 'waardenburg2013a', 'vlietland2016a']

Bar Chart Strategy 5

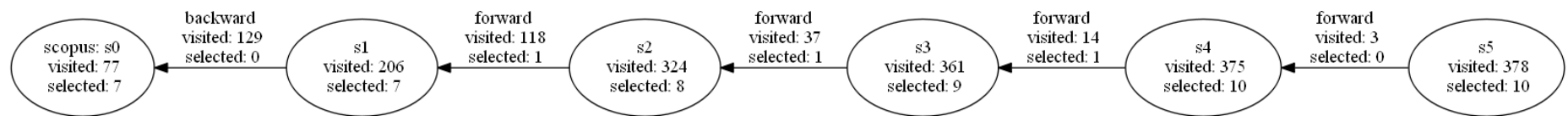


Bar Chart Strategy 5



▼ 2.6 Strategy 6 - Scopus + Snowballing (JF BF)

Provenance Graph - Strategy 6 - Scopus + Snowballing (JF BF)



Report Strategy 6 - Scopus + Snowballing (JF BF)

Out[46]:

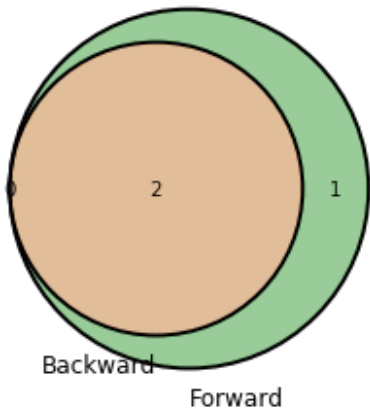
Scopus=s0 /State	Precision%	Recall%	FMeasure%	Operation	Accumulated Precision%	Accumulated Recall%	Accumulated F_Measure%	Delta Visited	Visited	Delta Related	Related
scopus: s0	9.1	35	14.4	-	9.1	35	14.4	77	77	7	7
s1	0	0	0	backward	3.4	35	6.2	129	206	0	7
s2	0.8	5	1.4	forward	2.5	40	4.7	118	324	1	8
s3	2.7	5	3.5	forward	2.5	45	4.7	37	361	1	9
s4	7.1	5	5.9	forward	2.7	50	5.1	14	375	1	10
s5	0	0	0	forward	2.6	50	5	3	378	0	10

Report Strategy 6 - Measures (Accumulated)

Out[47]:

Precision %	Recall %	F-Measure %	Visited	Selected
2.6	50	5	378	10

Diagrama de Venn - Strategy 6



Report Diagrama de Venn

Backward ['vlietland2015a', 'waardenburg2013a']
Forward ['vlietland2015a', 'waardenburg2013a', 'vlietland2016a']

▼ 2.7 Strategy 7 - Scopus + Snowballing (JF FB)

Provenance Graph - Strategy 7 - Scopus + Snowballing (JF FB)



Report Strategy 7 - Scopus + Snowballing (JF FB)

Out[52]:

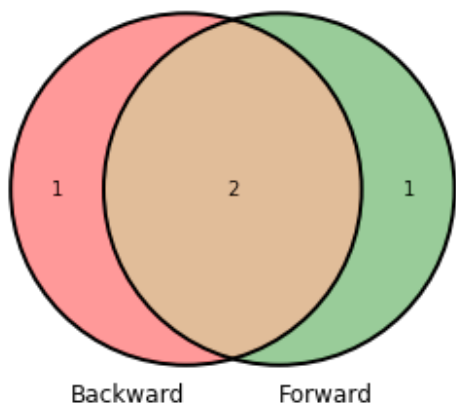
Scopus=s0 /State	Precision%	Recall%	FMeasure%	Operation	Accumulated Precision%	Accumulated Recall%	Accumulated F_Measure%	Delta Visited	Visited	Delta Related	Related
scopus: s0	9.1	35	14.4	-	9.1	35	14.4	77	77	7	7
s1	0.8	5	1.4	forward	4.1	40	7.4	118	195	1	8
s2	2.7	5	3.5	forward	3.9	45	7.1	37	232	1	9
s3	7.1	5	5.9	forward	4.1	50	7.5	14	246	1	10
s4	0	0	0	forward	4	50	7.4	3	249	0	10
s5	0.3	5	0.6	backward	1.9	55	3.7	331	580	1	11
s6	0	0	0	backward	1.9	55	3.7	1	581	0	11

Report Strategy 7 - Measures (Accumulated)

Out[53]:

Precision %	Recall %	F-Measure %	Visited	Selected
1.9	55	3.7	581	11

Diagrama de Venn - Strategy 7



Report Diagrama de Venn

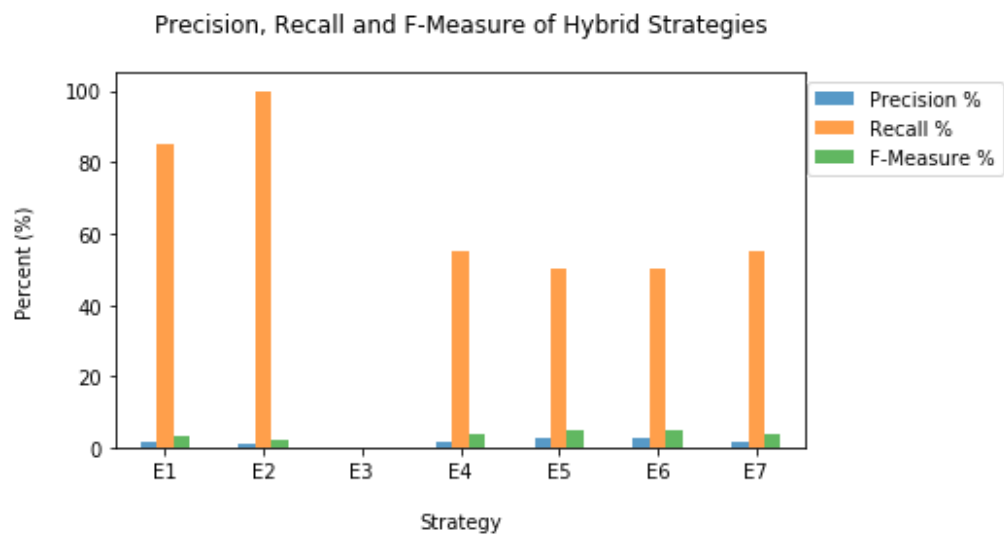
Backward ['vlietland2015a', 'saddington2012a', 'waardenburg2013a']
Forward ['vlietland2015a', 'waardenburg2013a', 'vlietland2016a']

▼ 3 Analyses

Out[57]:

Strategy	Precision %	Recall %	F-Measure %	Visited	Related	Final Selected
E1	1.8	85	3.6	935	17	7
E2	1.3	100	2.5	1590	20	8
E3	0	0	0	20	0	0
E4	1.9	55	3.7	581	11	4
E5	2.6	50	5	378	10	3
E6	2.6	50	5	378	10	3
E7	1.9	55	3.7	581	11	4

Bar Chart Strategies



▼ 4 Research Questions

RQ1) Which of the digital libraries used in the published SLR is more efficient?

Out[61]:

Digital Library	Precision %	Recall %	F-Measure %
elcompendex	25	10	14.3
webofscience	0	0	0
wiley	0	0	0
sciencedirect	2.4	30	4.5
acm	2.4	25	4.3
springer	0.8	5	1.4
scopus	9.1	35	14.4

RQ2) Which of the hybrid strategies is more efficient?

Out[62]:

Strategy	Precision %	Recall %	F-Measure %
E2	1.3	100	2.5
E3	0	0	0
E4	1.9	55	3.7
E5	2.6	50	5
E6	2.6	50	5
E7	1.9	55	3.7

RQ3) Which of the strategies is more efficient?

Out[63]:

Strategy	Precision %	Recall %	F-Measure %
E1	1.8	85	3.6
E2	1.3	100	2.5
E3	0	0	0
E4	1.9	55	3.7
E5	2.6	50	5
E6	2.6	50	5
E7	1.9	55	3.7

RQ4) How many selected articles does the digital library find through the direct search for the title of the article?

Out[64]:

Digital Library	Recall %
scopus	95
springer	10
wiley	0
sciencedirect	30
acm	25
webofscience	55
elcompendex	95