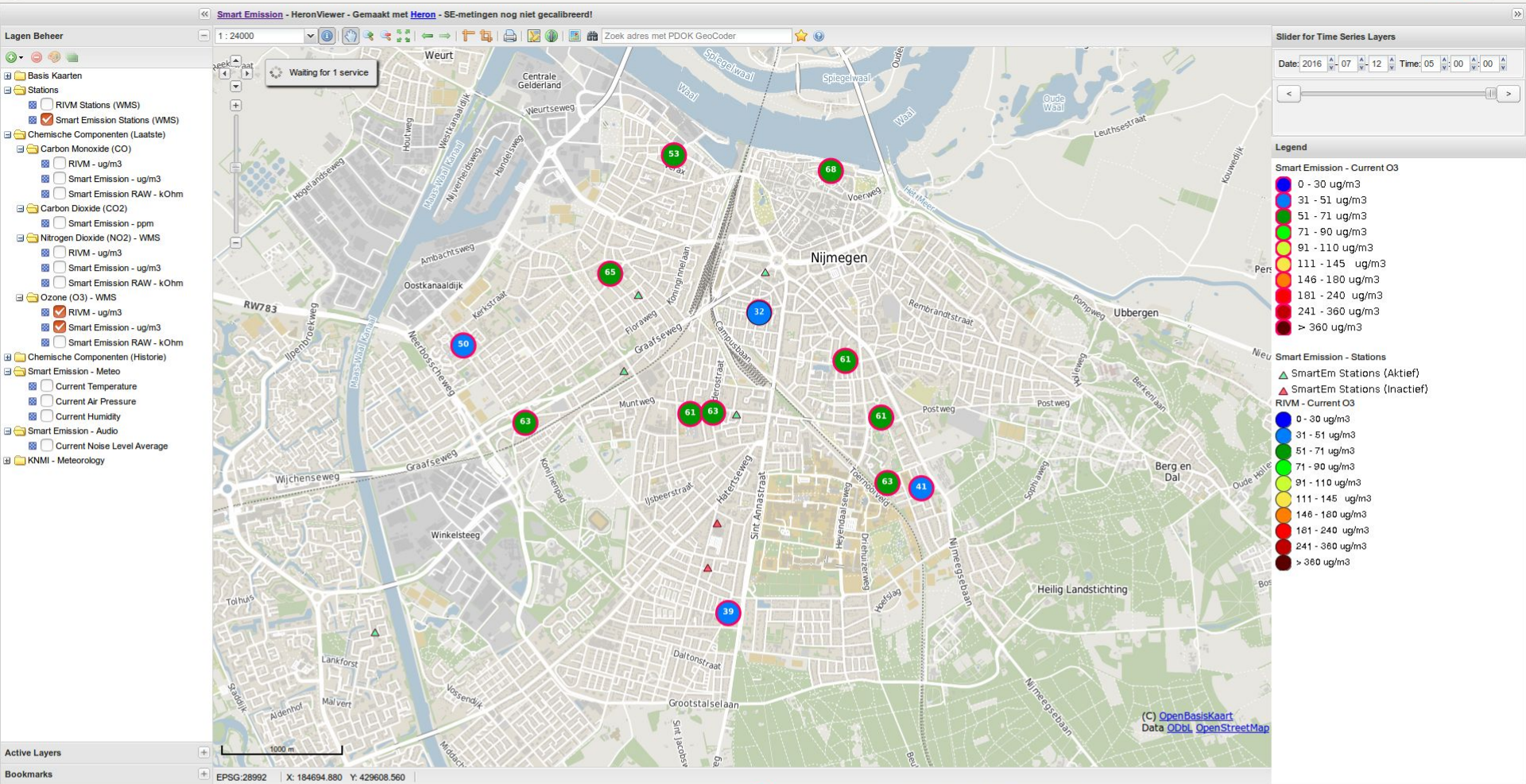


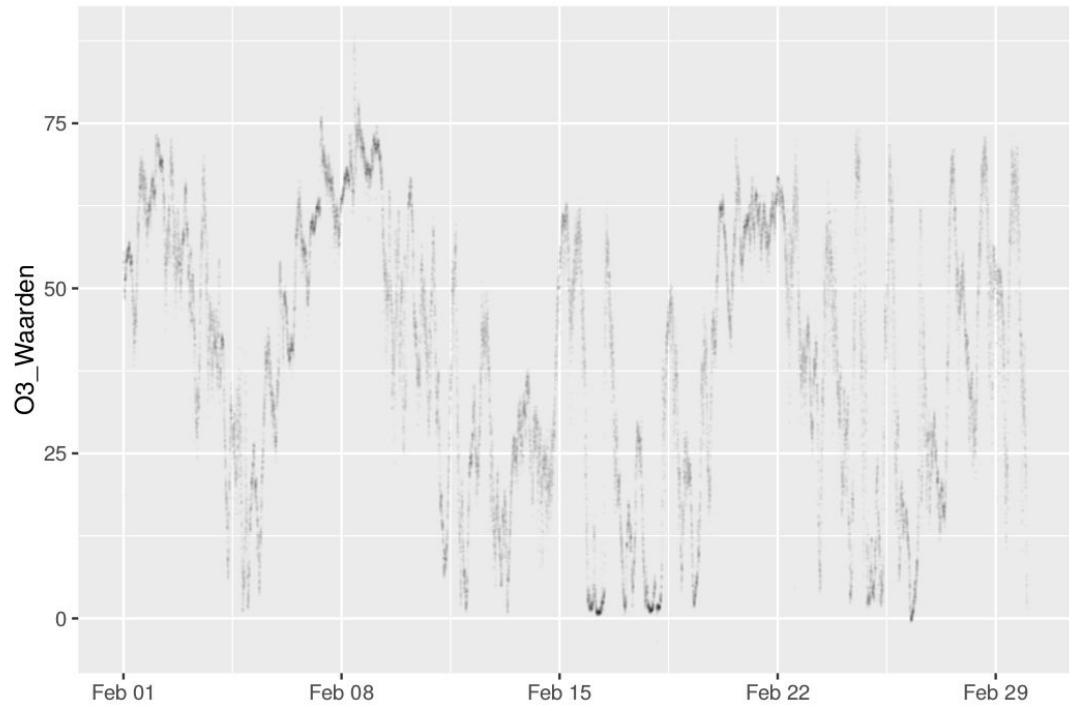
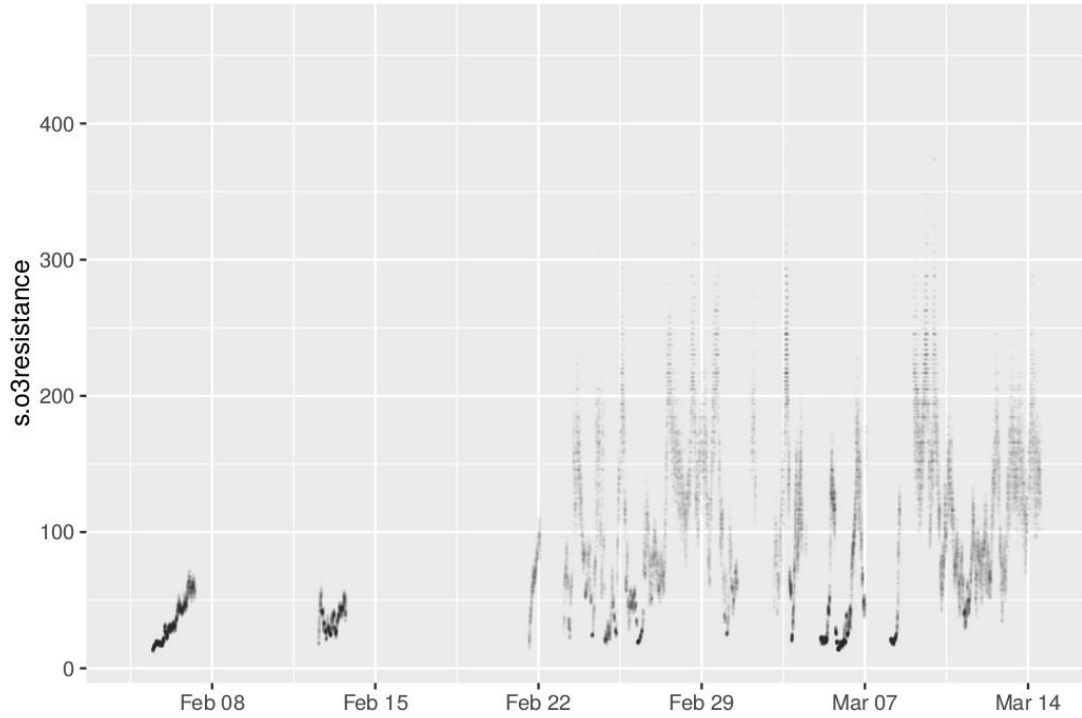
Smart emission

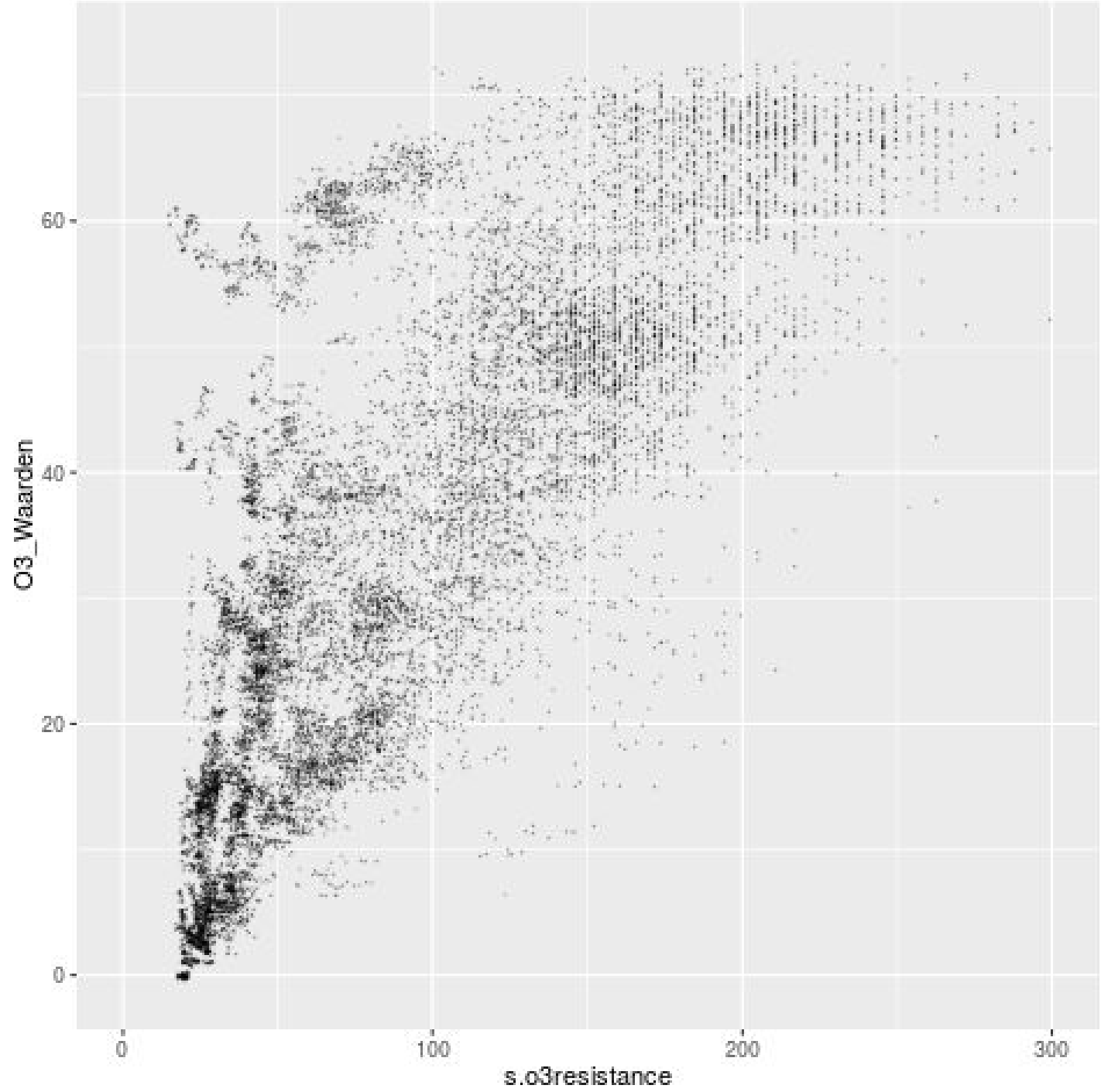
Gassensoren calibratie

Kunnen we goedkope sensors gebruiken om luchtkwaliteit te meten?









datetime
p.base.timer
p.co.heater.mode
p.co.heater.value
p.error.base.iqr.service.stopped
p.error.booting
p.error.configuration
p.error.memory
p.error.sensor
p.error.wifi.connection
p.no2.heater.mode
p.no2.heater.value
p.power.aux_power.input.active
p.power.charged
p.power.charging
p.power.co2.sensor.on
p.power.co.heater.on
p.power.energy.harvesting.standby
p.power.error
p.power.gauge.ok
p.power.h2s.sensor.on
p.power.harvest.input.active
p.power.mains.input.active
p.power.nh3.sensor.on
p.power.no2.heater.on
p.power.no.battery
p.power.o3.heater.on

p.power.pm.sensor.on
p.power.usb.input.active
p.session.up.time
p.total.up.time
p.unit.serial.number
p.unknown.17
p.unknown.18
p.unknown.19
s.accelero.x
s.accelero.y
s.accelero.z
s.barometer
s.co2
s.coresistance
s.humidity
s.latitude
s.light.sensor.blue
s.light.sensor.bottom
s.light.sensor.green
s.light.sensor.red
s.light.sensor.top
s.longitude
s.no2resistance
s.o3resistance
s.rain.backside.left
s.rain.backside.right
s.rain.frontside.left

s.rain.frontside.right
s.rgb.color
s.satinfo.dilution
s.satinfo.fix
s.satinfo.num
s.second.of.day
s.temperature.ambient
s.temperature.unit

Vorbewerkingen

- Sensordump omzetten naar gemeten gegevens
- Metingen met error verwijderen
- Vreemde metingen verwijderen
- Type's goed zetten
- Variabelen met weinig informatie verwijderen
- Interpoleren naar zelfde tijdseenheden
- Jose en RIVM data samenvoegen
- Rijen verwijderen die niet alle benodigde metingen bevatten
- Voortschrijdend gemiddelde



Liberation Sans 10 B I U T A

A1 fx Σ = s.barometer

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	s.barometer	s.coresistance	s.humidity	s.no2resistance	s.o3resistance	s.temperature.ambient	s.temperature.unit	secs	O3_Waarden	NO2_Waarden	CO_Waarden		
2	991.87	385.488	59.206	27.545	17.268	8.062	21.625	1455281197	44.022	26.2285	NA		
3	991.89	402.328	58.799	28.021	17.206	8.25	21.75	1455281208	43.868	26.124	NA		
4	991.88	398.907	58.595	28.37	18.142	8	21.75	1455281235	43.365	26.25	NA		
5	991.87	418.825	58.802	30.075	17.584	8	21.75	1455281263	42.7396666667	26.698	NA		
6	991.9	452.116	58.895	29.997	17.975	7.812	22	1455281274	42.494	26.874	NA		
7	991.92	430.696	58.507	32.053	18.553	7.687	21.875	1455281285	42.3033333333	26.9375	NA		
8	991.87	396.48	58.016	31.708	18.449	7.562	21.875	1455281296	42.1786666667	26.866	NA		
9	991.85	456.523	58.319	30.311	18.414	7.562	21.937	1455281307	42.054	26.7945	NA		
10	991.82	458.742	59.37	32.316	17.713	7.375	21.875	1455281318	41.9293333333	26.723	NA		
11	991.91	402.819	58.672	32.14	18.553	7.5	21.937	1455281329	41.8046666667	26.6515	NA		
12	991.9	399.394	58.211	31.623	18.553	7.562	22.062	1455281340	41.68	26.58	NA		
13	991.86	434.373	58.933	33.408	19.088	7.437	22.187	1455281351	41.691	26.4058333333	NA		
14	991.86	377.54	58.127	31.88	18.176	7.562	22.25	1455281362	41.702	26.2316666667	NA		
15	991.89	373.393	58.526	31.623	17.843	7.562	22.312	1455281373	41.713	26.0575	NA		
16	991.91	425.496	58.994	30.232	19.496	7.5	22.437	1455281384	41.724	25.8833333333	NA		
17	991.9	429.651	58.921	33.978	18.553	7.437	22.5	1455281395	41.735	25.7091666667	NA		
18	991.86	400.37	59.543	34.866	18.553	7.437	22.375	1455281406	41.966	25.496	NA		
19	991.94	406.271	59.785	33.501	19.161	7.687	22.562	1455281417	42.3803333333	25.2503333333	NA		
20	991.91	382.666	59.916	34.967	18.588	7.562	22.687	1455281468	43.9333333333	24.5446666667	NA		
21	991.93	434.9	58.879	34.967	18.176	7.562	22.562	1455281472	43.9	24.672	NA		
22	991.98	454.865	58.361	34.765	19.161	7.437	22.625	1455281483	43.8083333333	25.0221666667	NA		
23	991.96	429.651	58.384	36.55	18.871	7.75	22.687	1455281585	42.12	25.0983333333	NA		
24	991.93	421.379	58.718	35.481	18.693	7.5	22.5	1455281714	40.2546666667	28.0736666667	NA		
25	992.03	428.089	62.906	43.467	21.323	6	20.437	1455281725	40.2583333333	29.5458333333	NA		
26	991.95	421.379	62.963	46.828	20.437	5.875	20.062	1455281736	40.262	31.018	NA		
27	991.95	420.355	63.958	45.986	21.903	5.812	19.875	1455281746	40.2653333333	32.3563333333	NA		
28	992.01	423.948	64.653	47.876	22.947	5.812	19.625	1455281757	40.269	33.8285	NA		
29	991.97	442.352	64.76	47.698	20.643	5.562	19.312	1455281767	40.3178333333	34.1413333333	NA		
30	992	457.077	64.898	50.495	21.949	5.437	19	1455281778	40.393	34.002	NA		
31	992.03	445.584	64.722	49.53	21.106	5.437	18.687	1455281789	40.4681666667	33.8626666667	NA		
32	991.97	415.273	65.347	51.7	22.848	5.5	18.75	1455281800	40.5433333333	33.7233333333	NA		
33	991.99	415.273	66.595	50.495	22.227	5.437	18.875	1455281811	40.6185	33.584	NA		
34	991.96	452.116	66.522	52.957	22.8	5.375	18.875	1455281822	40.6953333333	33.336	NA		
35	991.95	449.383	66.276	52.532	22.087	5.25	18.687	1455281833	40.7796666667	32.599	NA		
36	991.91	413.76	66.307	56.362	23.5	5.187	18.687	1455281859	40.979	30.857	NA		
37	991.99	390.232	66.292	53.389	22.848	5.187	18.562	1455281862	41.002	30.656	NA		

train

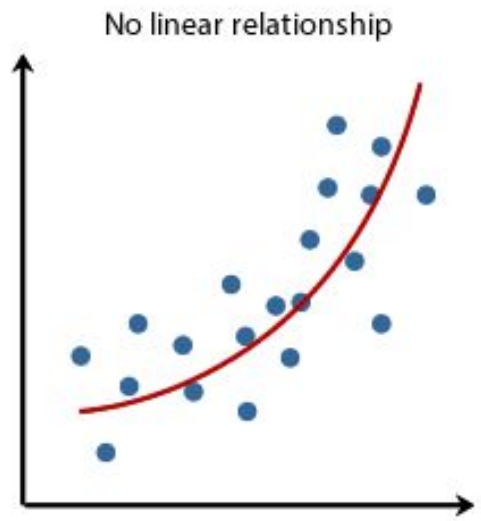
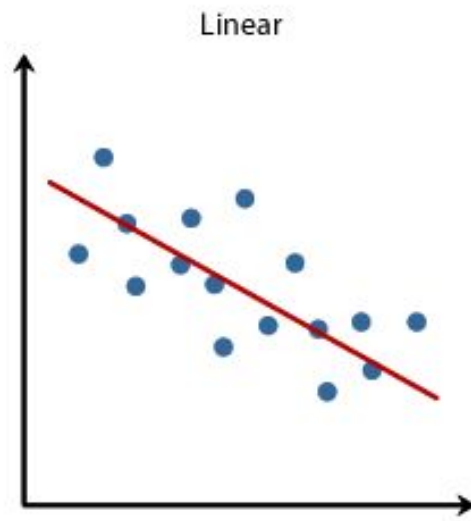
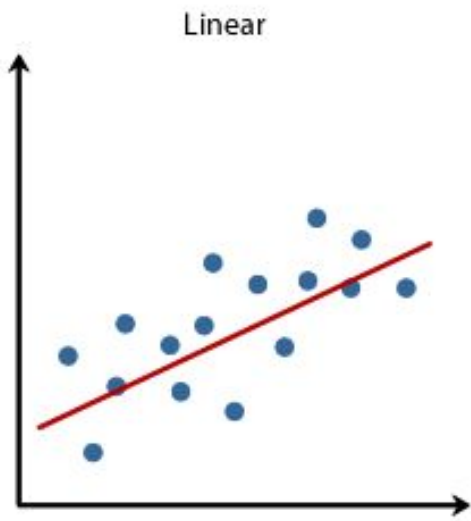
Sheet 1 of 1 Default I.L. Sum=0 90%

Application toolbar with icons for undo, redo, save, print, copy, paste, and other standard spreadsheet functions.

A1 fx = s.barometer

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	s.barometer	s.coeresistance	s.humidity	s.no2resistance	s.o3resistance	s.temperature_ambient	s.temperature_unit	secs	O3_Waarden	NO2_Waarden	CO_Waarden		
2	991.87	385.488	59.206	27.545	17.268	8.062	21.625	145528119	44.022	26.2285	NA		
3	991.89	402.328	58.799	28.021	17.206	8.25	21.75	145528120	43.868	26.124	NA		
4	991.88	398.907	58.595	28.37	18.142	8	21.75	145528123	43.365	26.25	NA		
5	991.87	418.825	58.802	30.075	17.584	8	21.75	145528126	42.739666667	26.698	NA		
6	991.9	452.116	58.895	29.997	17.975	7.812	22	145528127	42.494	26.874	NA		
7	991.92	430.696	58.507	32.053	18.553	7.687	21.875	145528128	42.303333333	26.9375	NA		
8	991.87	396.48	58.016	31.708	18.449	7.562	21.875	145528129	42.178666667	26.866	NA		
9	991.85	456.523	58.319	30.311	18.414	7.562	21.937	145528130	42.054	26.7945	NA		
10	991.82	458.742	59.37	32.316	17.713	7.375	21.875	145528131	41.929333333	26.723	NA		
11	991.91	402.819	58.672	32.14	18.553	7.5	21.937	145528132	41.804666667	26.6515	NA		
12	991.9	399.394	58.211	31.623	18.553	7.562	22.062	145528134	41.68	26.58	NA		
13	991.86	434.373	58.933	33.408	19.088	7.437	22.187	145528135	41.691	26.405833333	NA		
14	991.86	377.54	58.127	31.88	18.176	7.562	22.25	145528136	41.702	26.231666667	NA		
15	991.89	373.393	58.526	31.623	17.843	7.562	22.312	145528137	41.713	26.0575	NA		
16	991.91	425.496	58.994	30.232	19.496	7.5	22.437	145528138	41.724	25.883333333	NA		
17	991.9	429.651	58.921	33.978	18.553	7.437	22.5	145528139	41.735	25.709166667	NA		
18	991.86	400.37	59.543	34.866	18.553	7.437	22.375	145528140	41.966	25.496	NA		
19	991.94	406.271	59.785	33.501	19.161	7.687	22.562	145528141	42.380333333	25.250333333	NA		
20	991.91	382.666	59.916	34.967	18.588	7.562	22.687	145528146	43.933333333	24.544666667	NA		
21	991.93	434.9	58.879	34.967	18.176	7.562	22.562	145528147	43.9	24.672	NA		
22	991.98	454.865	58.361	34.765	19.161	7.437	22.625	145528148	43.808333333	25.022166667	NA		
23	991.96	429.651	58.384	36.55	18.871	7.75	22.687	145528158	42.12	25.098333333	NA		
24	991.93	421.379	58.718	35.481	18.693	7.5	22.5	145528171	40.254666667	28.073666667	NA		
25	992.03	428.089	62.906	43.467	21.323	6	20.437	145528172	40.258333333	29.545833333	NA		
26	991.95	421.379	62.963	46.828	20.437	5.875	20.062	145528173	40.262	31.018	NA		
27	991.95	420.355	63.958	45.986	21.903	5.812	19.875	145528174	40.265333333	32.356333333	NA		
28	992.01	423.948	64.653	47.876	22.947	5.812	19.625	145528175	40.269	33.8285	NA		
29	991.97	442.352	64.76	47.698	20.643	5.562	19.312	145528176	40.317833333	34.141333333	NA		
30	992	457.077	64.898	50.495	21.949	5.437	19	145528177	40.393	34.002	NA		
31	992.03	445.584	64.722	49.53	21.106	5.437	18.687	145528178	40.468166667	33.862666667	NA		
32	991.97	415.273	65.347	51.7	22.848	5.5	18.75	145528180	40.543333333	33.723333333	NA		
33	991.99	415.273	66.595	50.495	22.227	5.437	18.875	145528181	40.6185	33.584	NA		
34	991.96	452.116	66.522	52.957	22.8	5.375	18.875	145528182	40.695333333	33.336	NA		
35	991.95	449.383	66.276	52.532	22.087	5.25	18.687	145528183	40.779666667	32.599	NA		
36	991.91	413.76	66.307	56.362	23.5	5.187	18.687	145528185	40.979	30.857	NA		
37	991.99	390.232	66.292	53.389	22.848	5.187	18.562	145528186	41.002	30.656	NA		

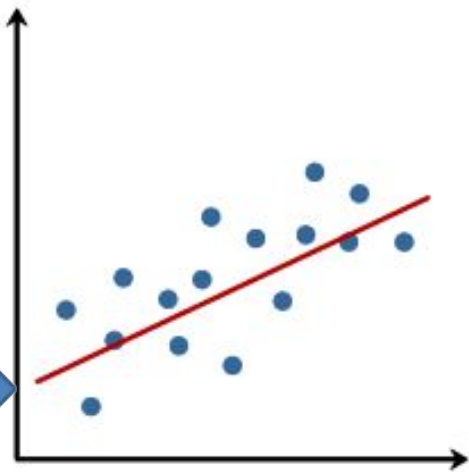
Lineaire regressie



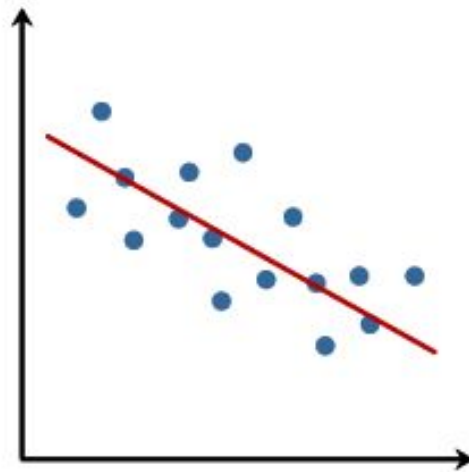
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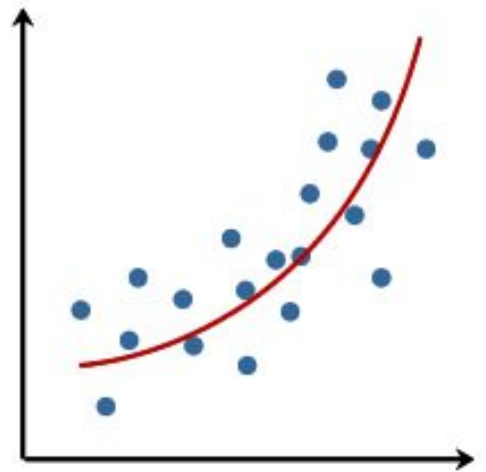
Linear



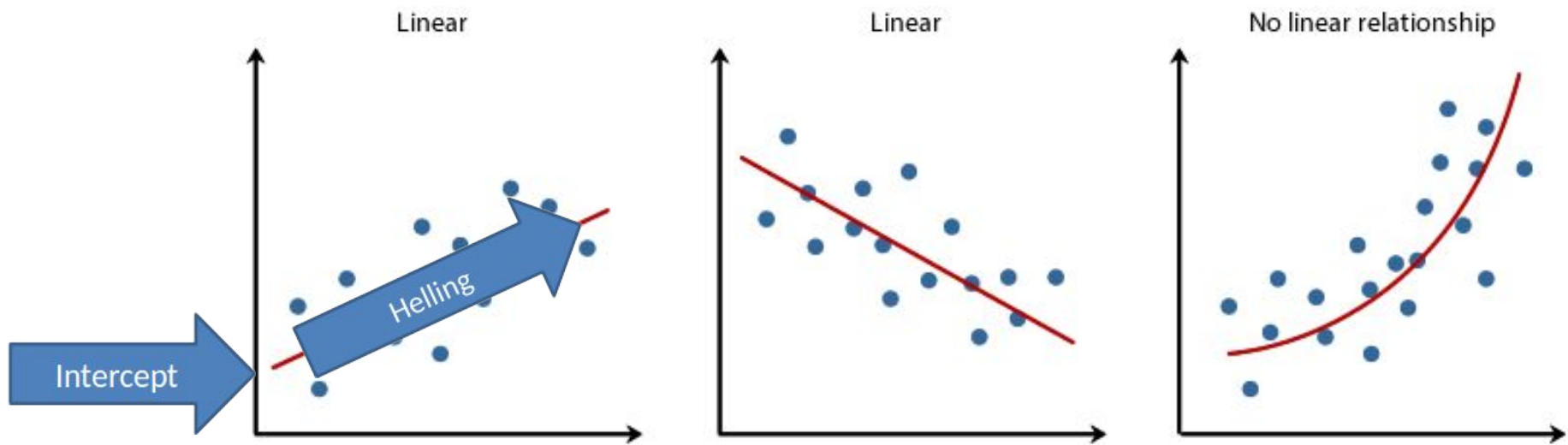
Linear



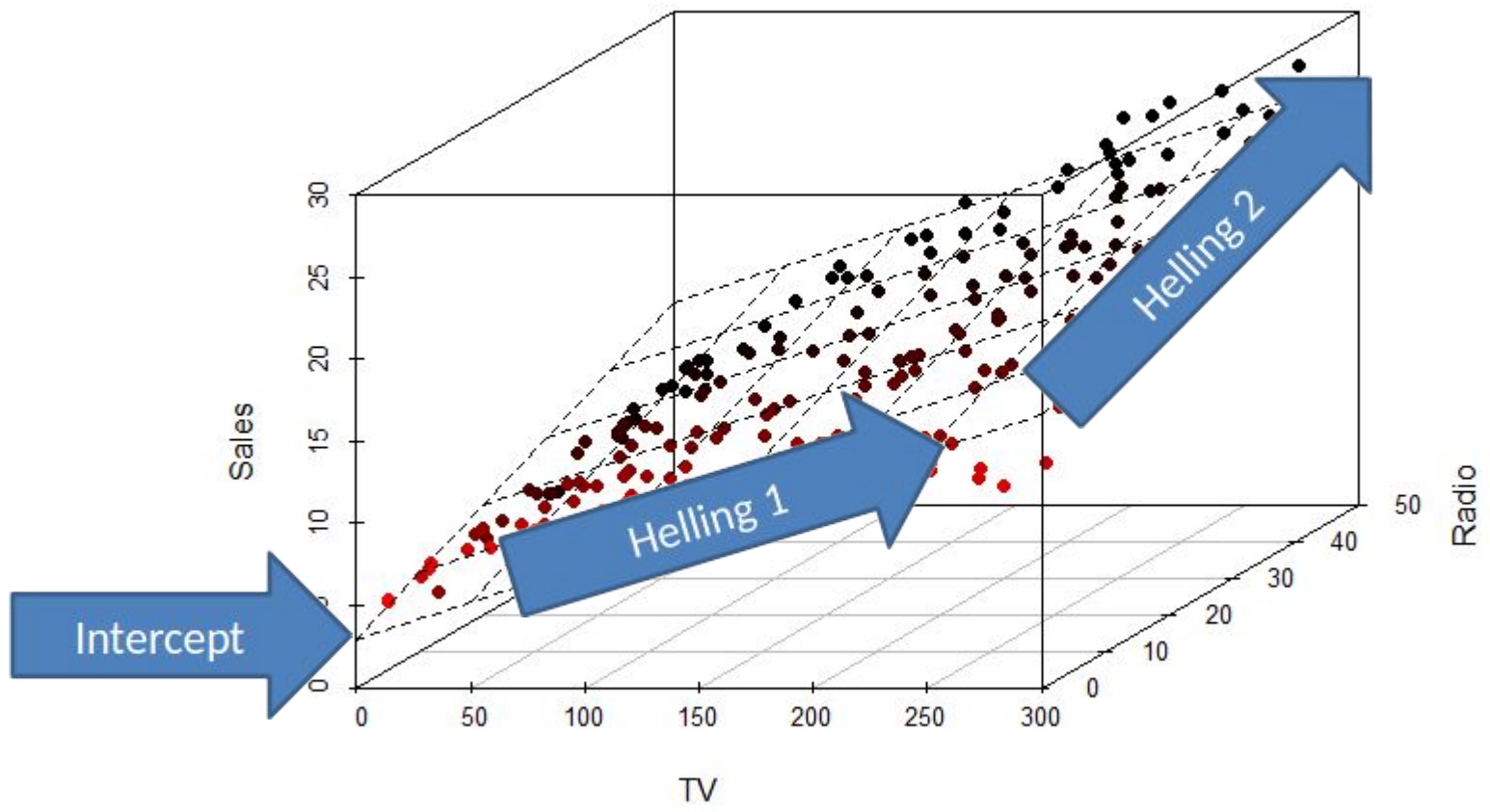
No linear relationship

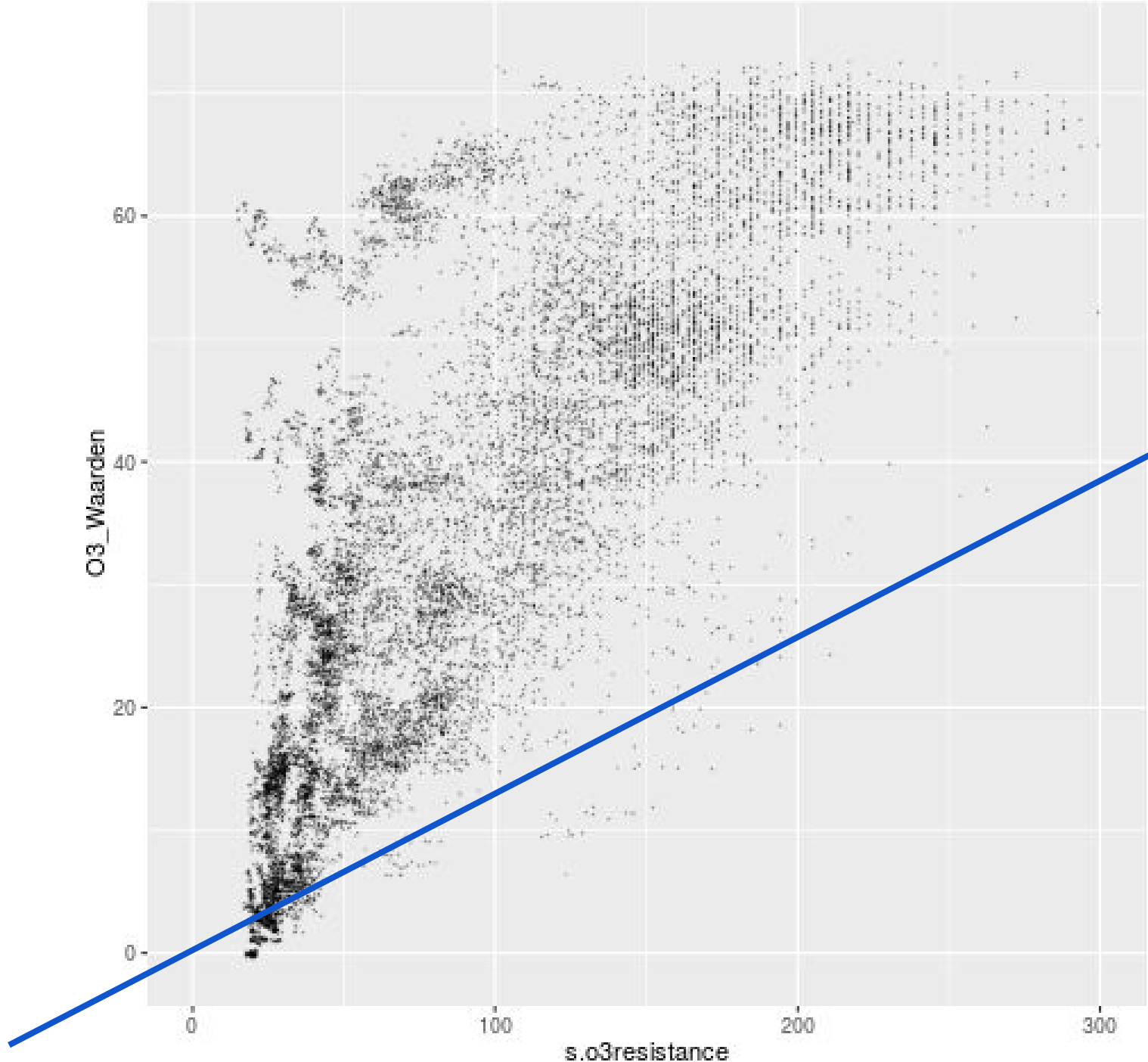


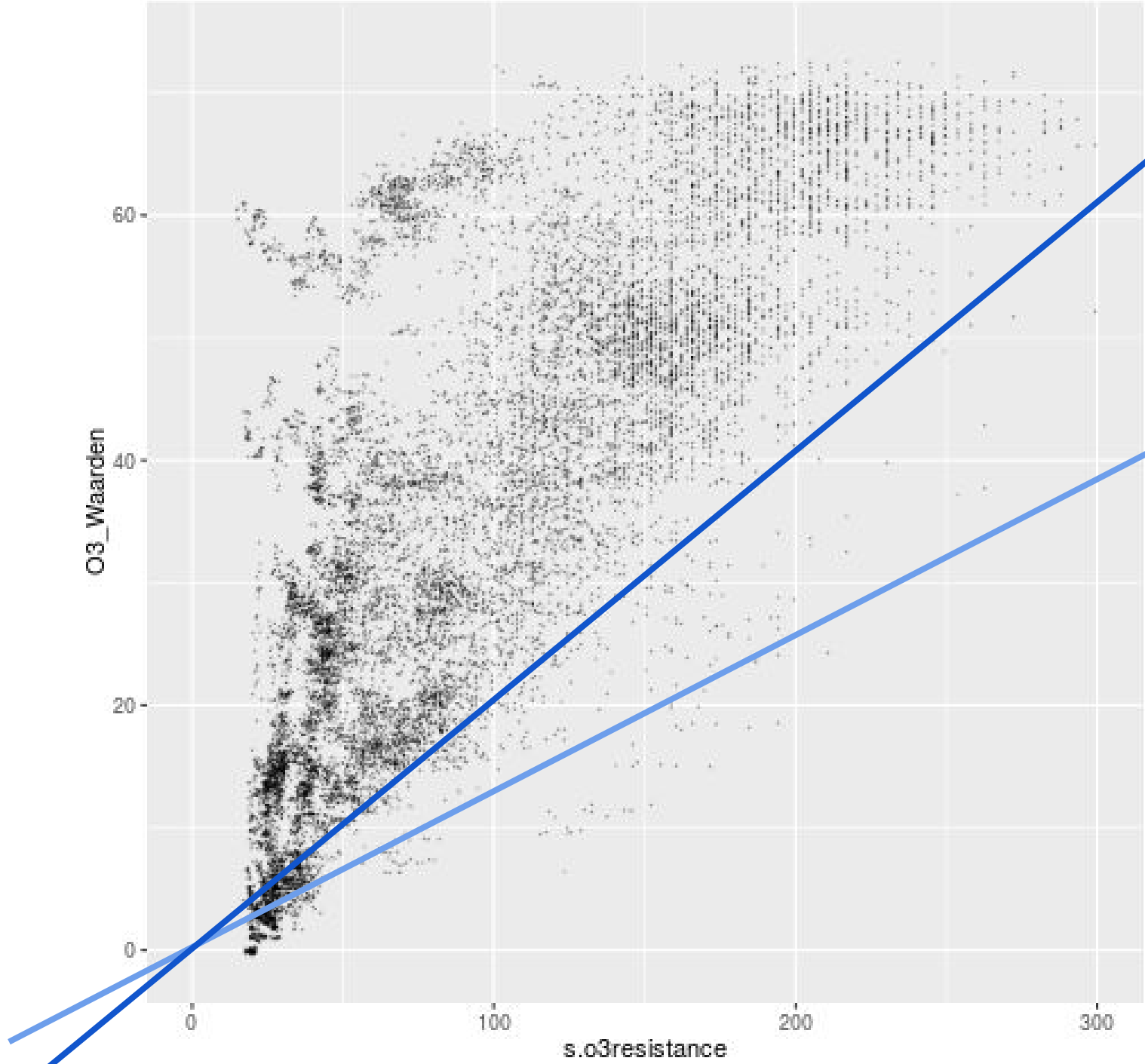
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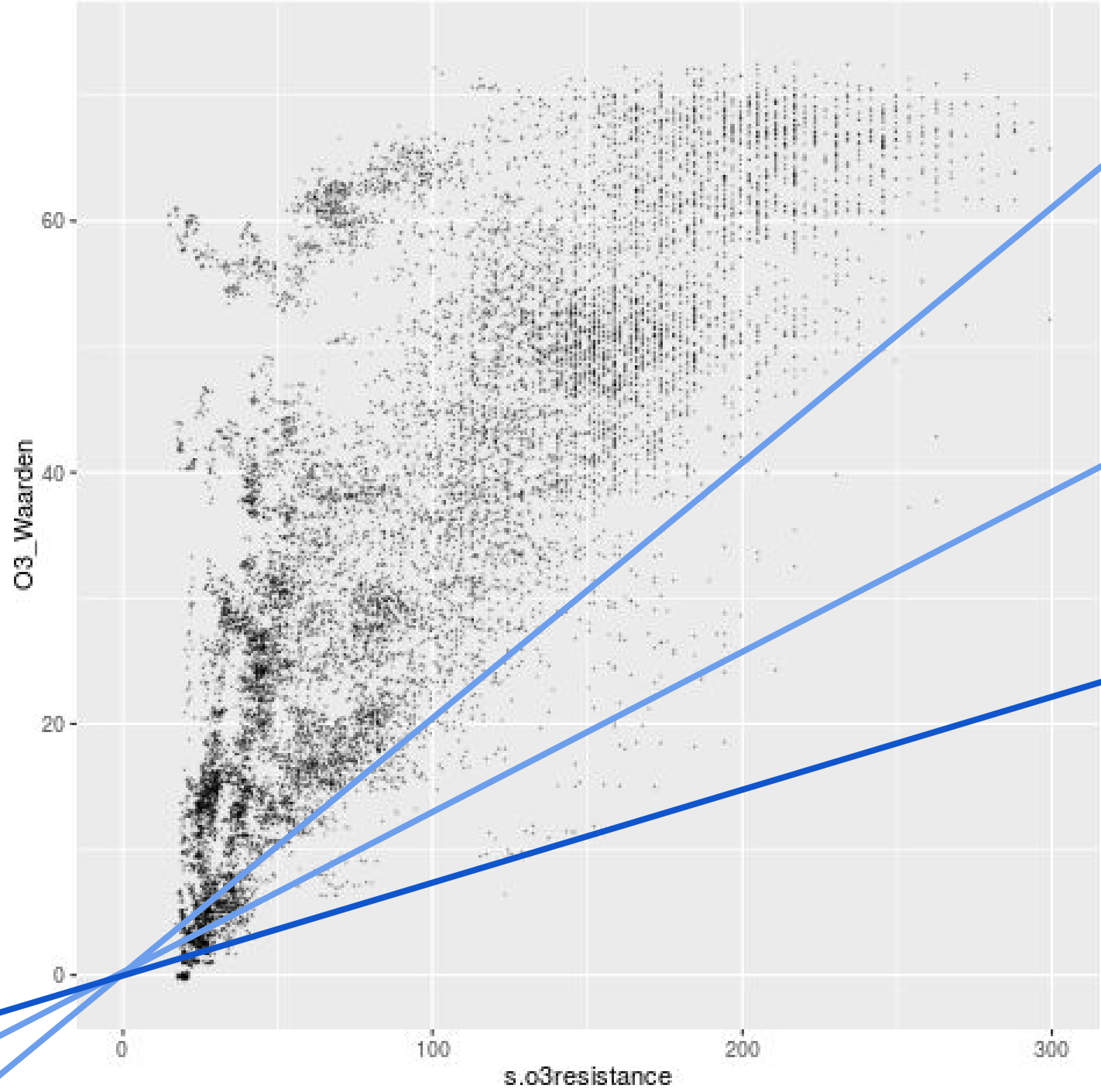


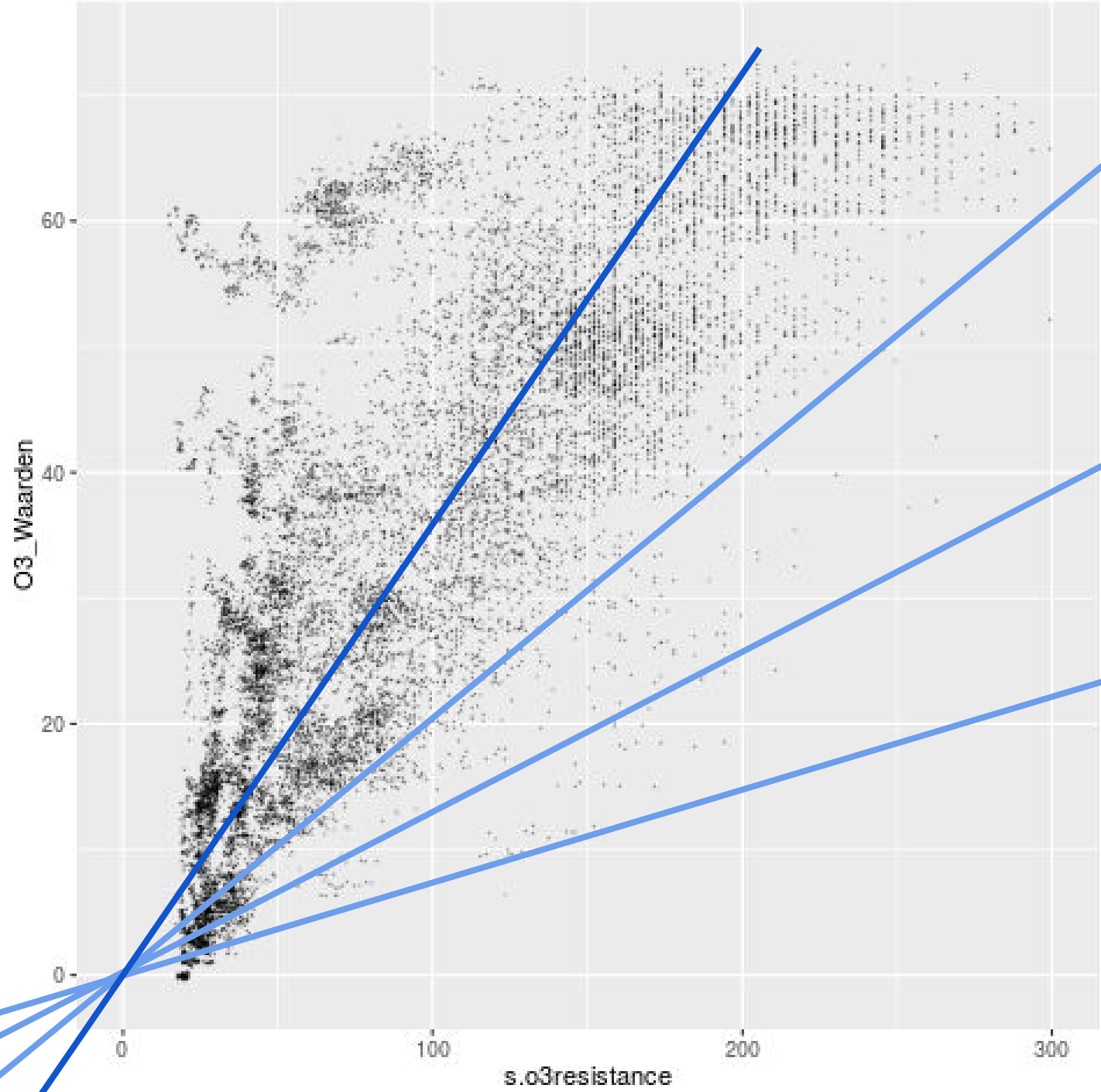
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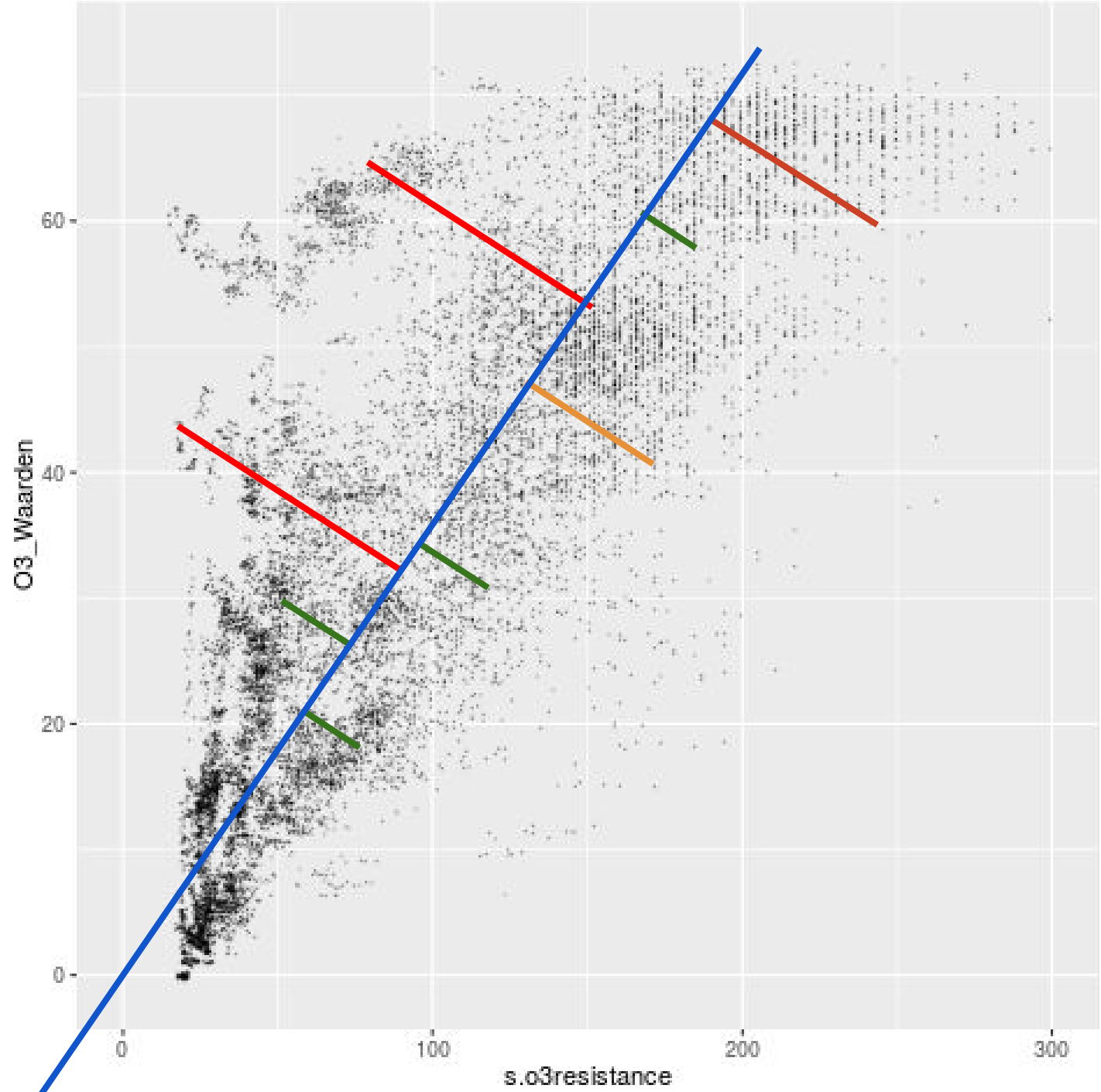


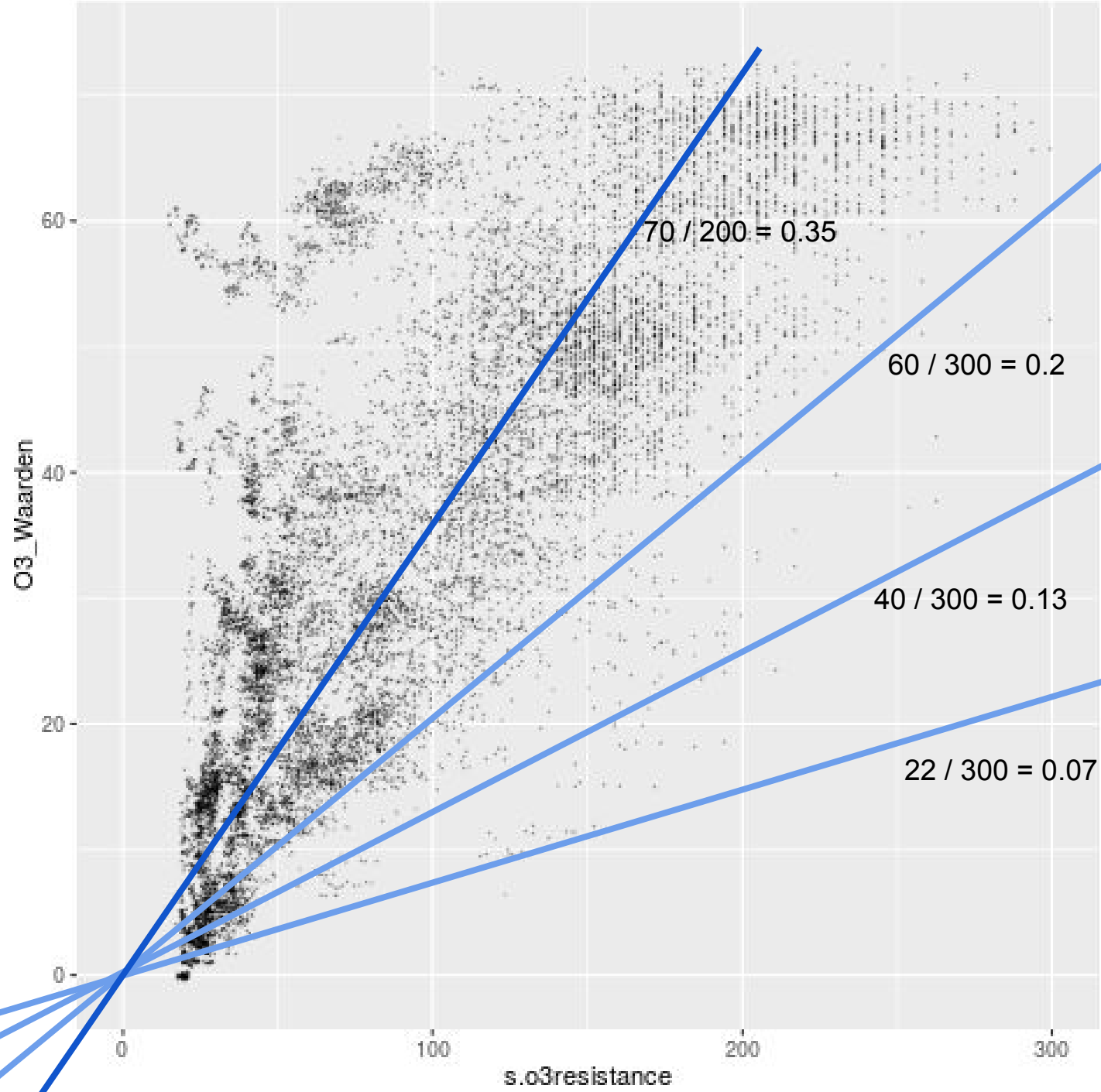


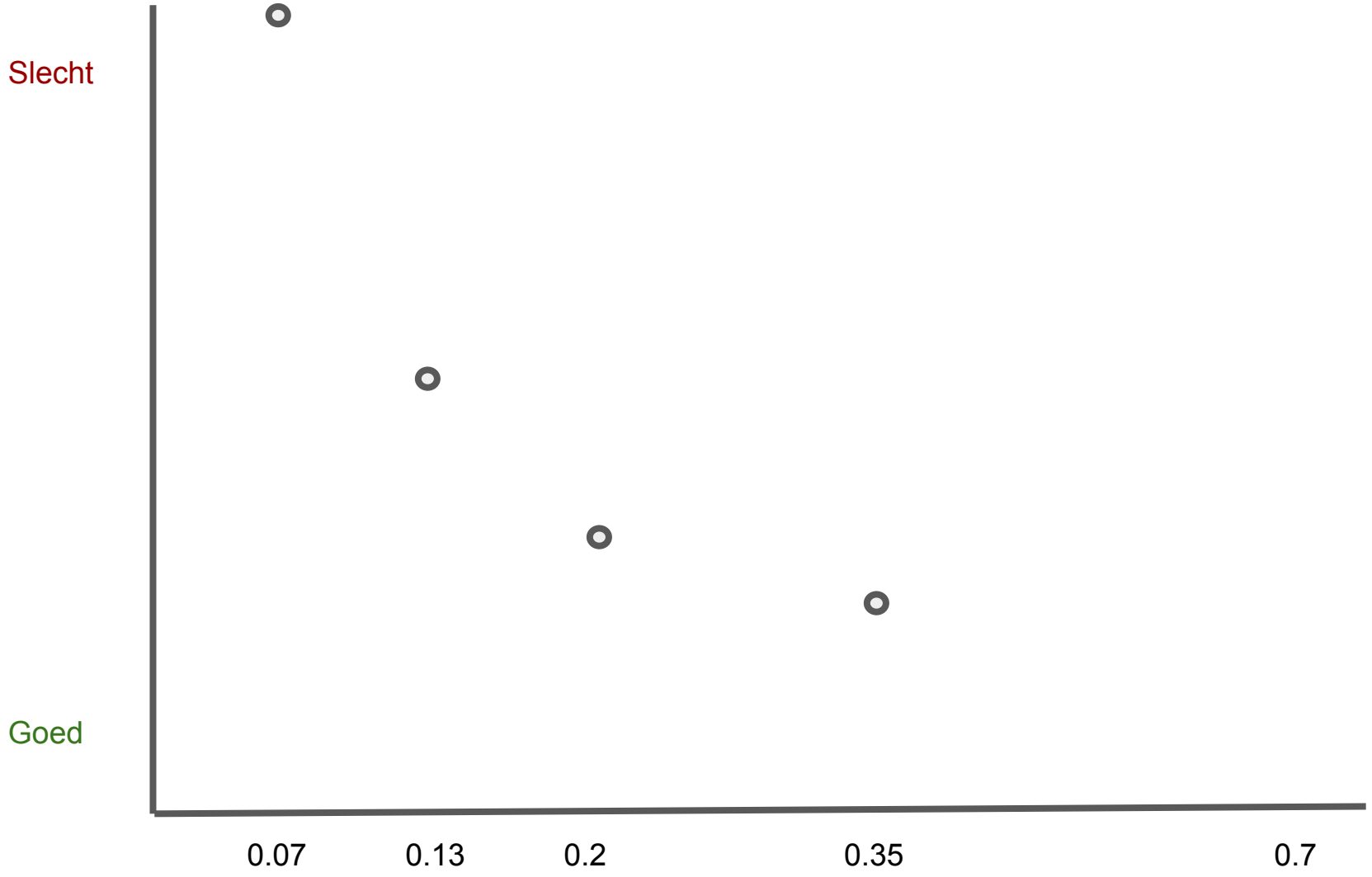


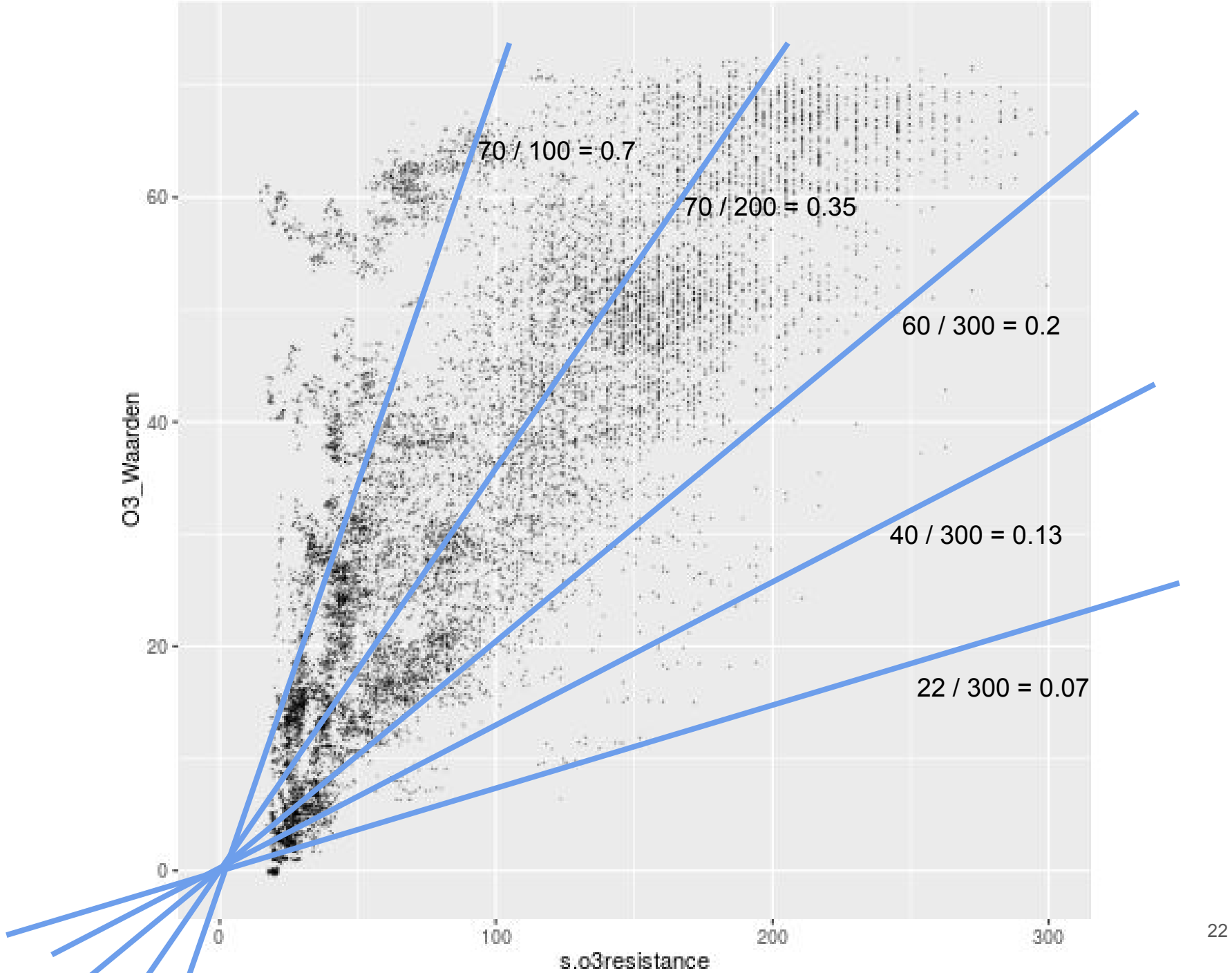


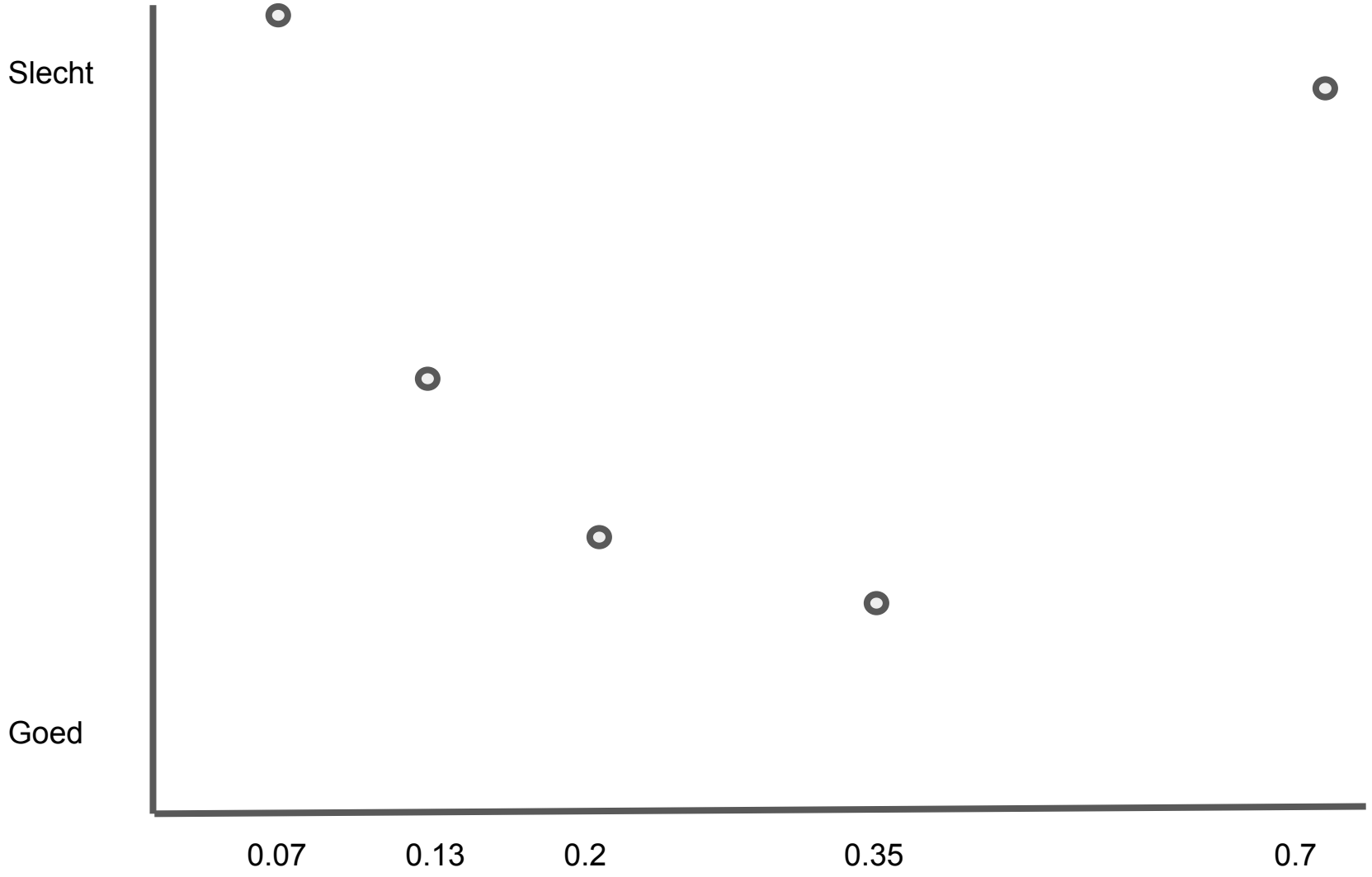


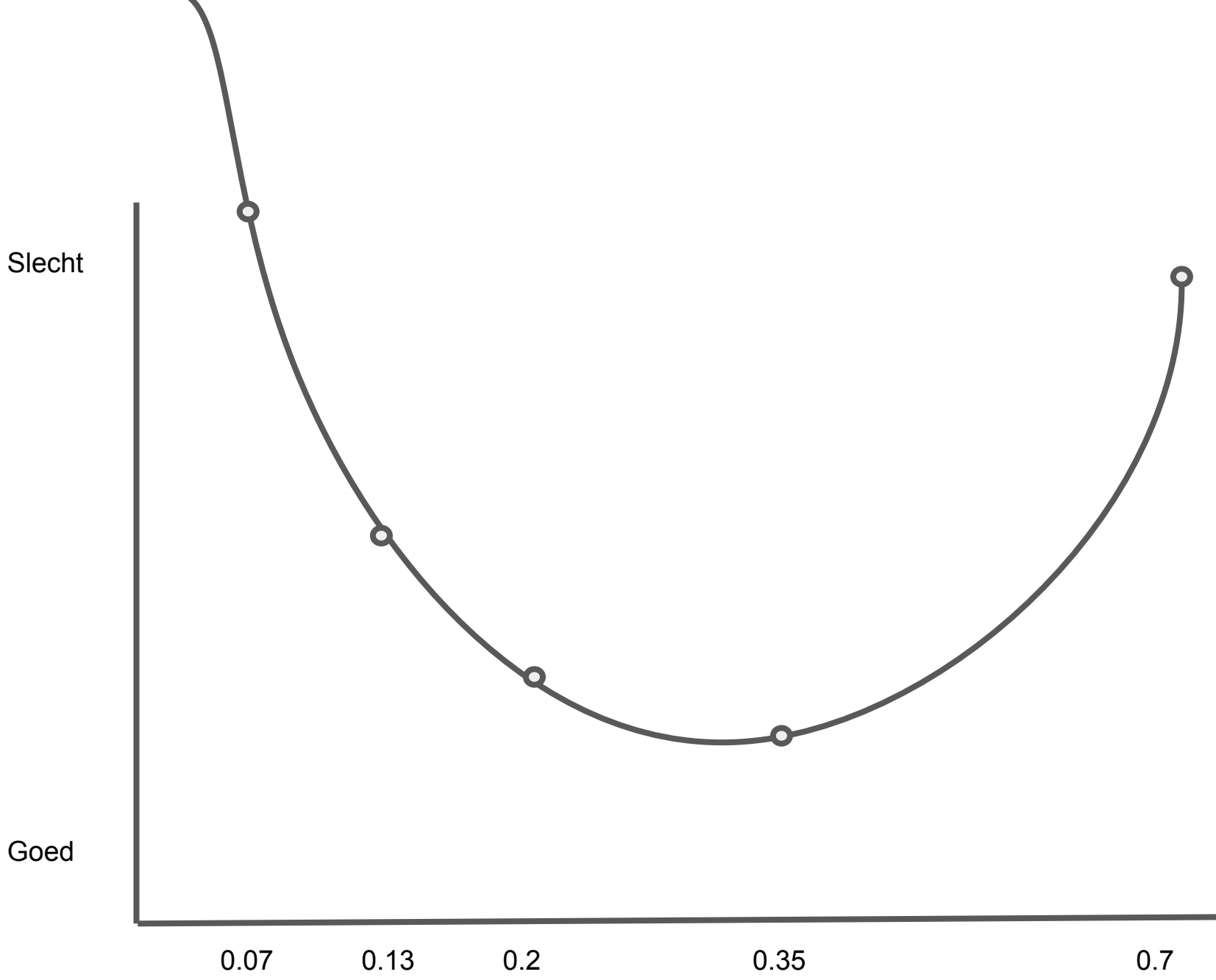


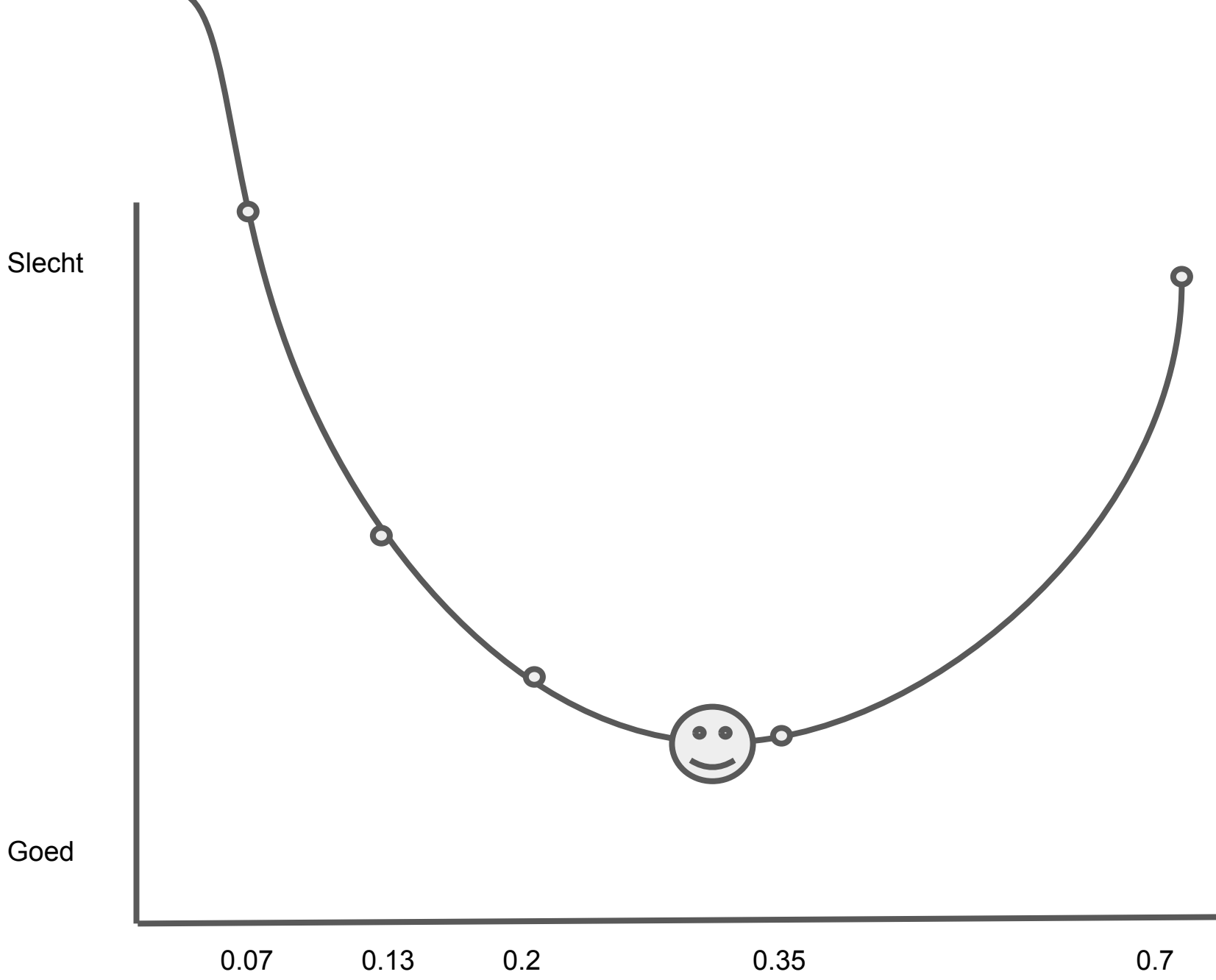


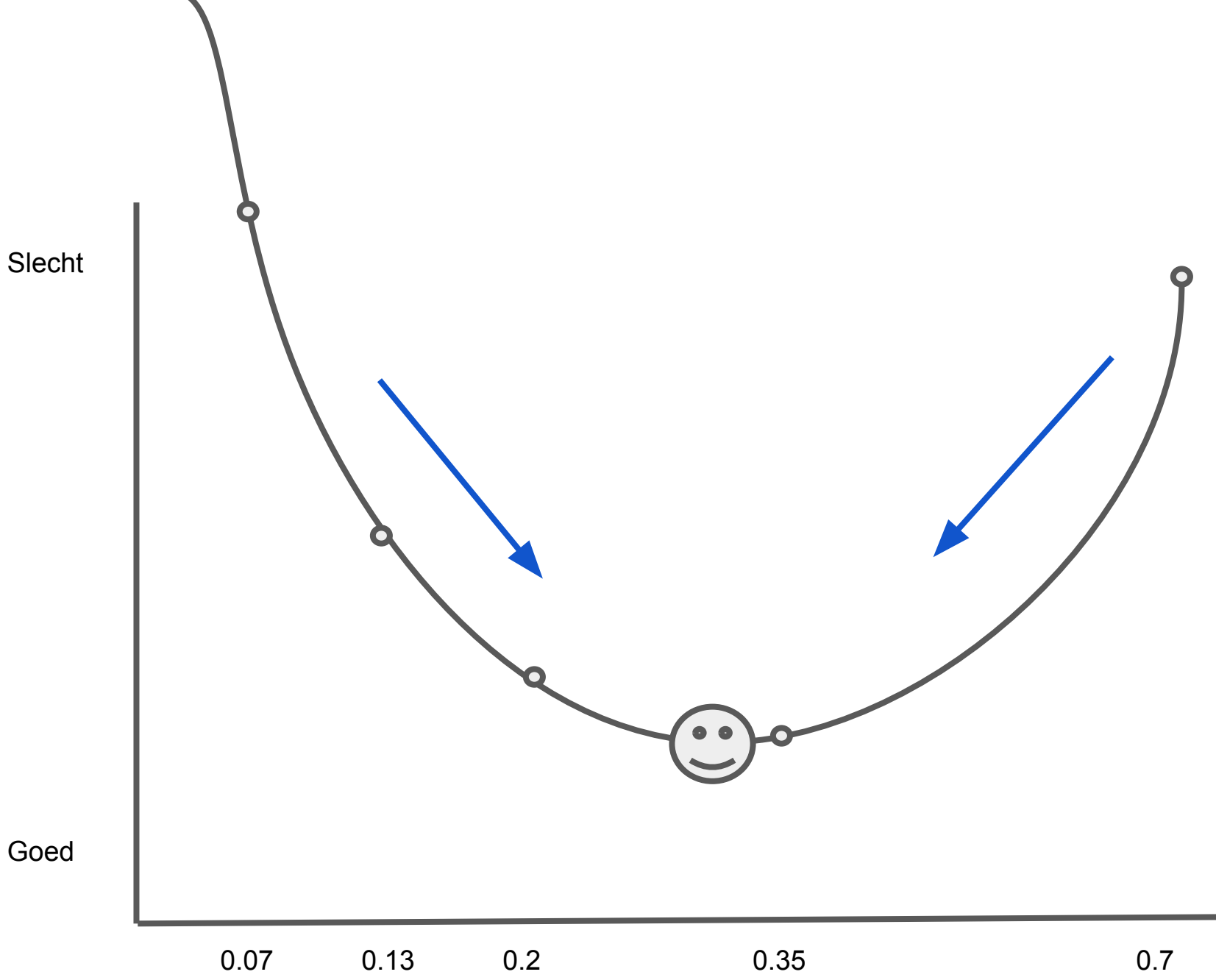




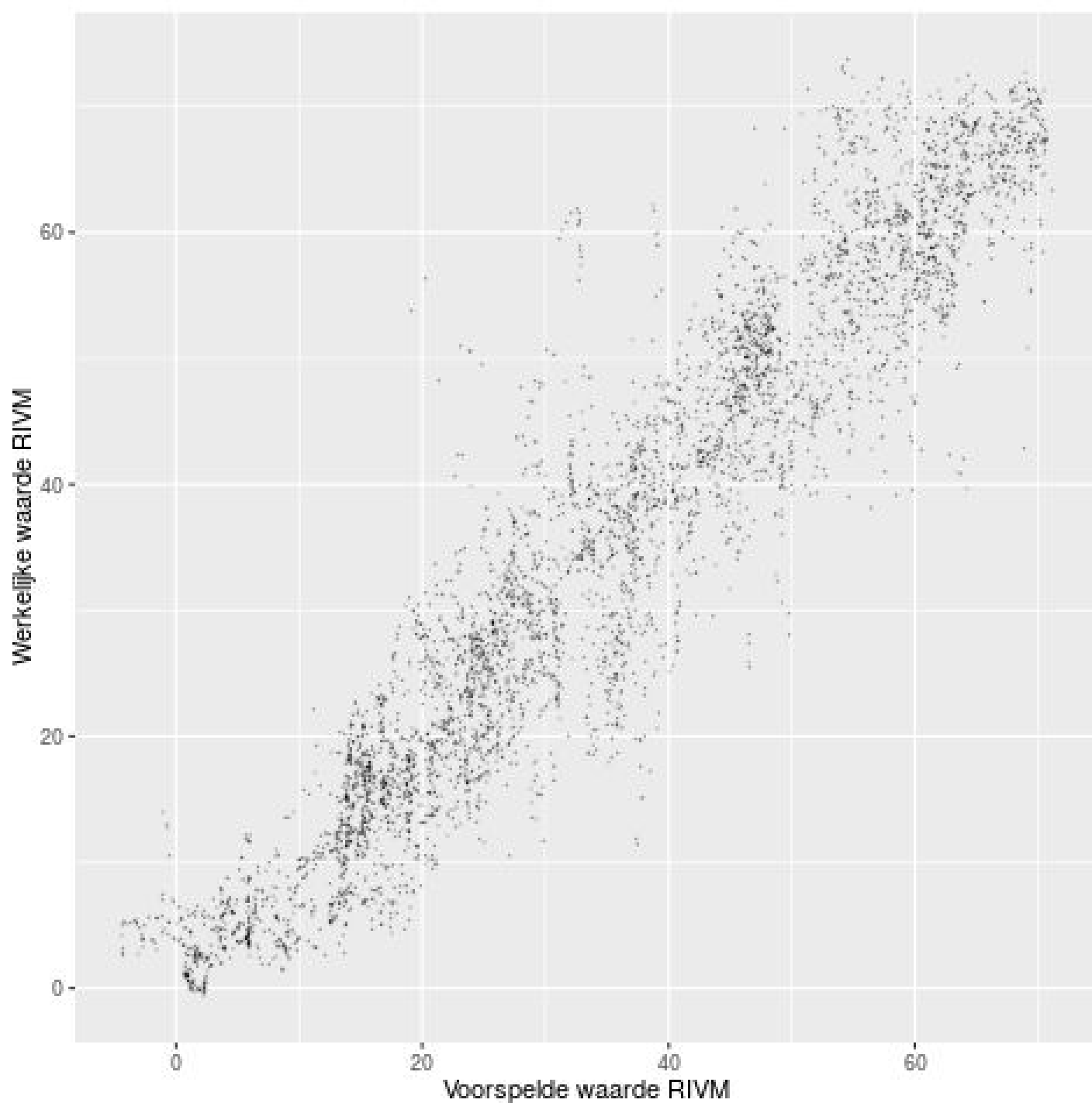




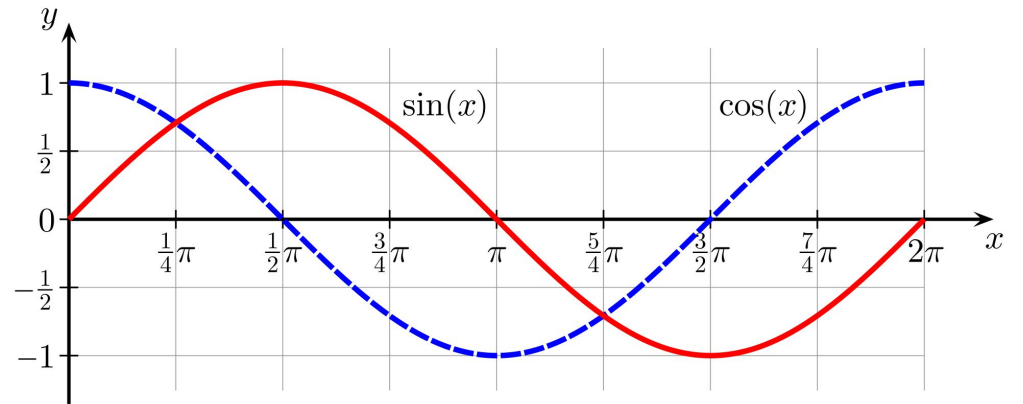
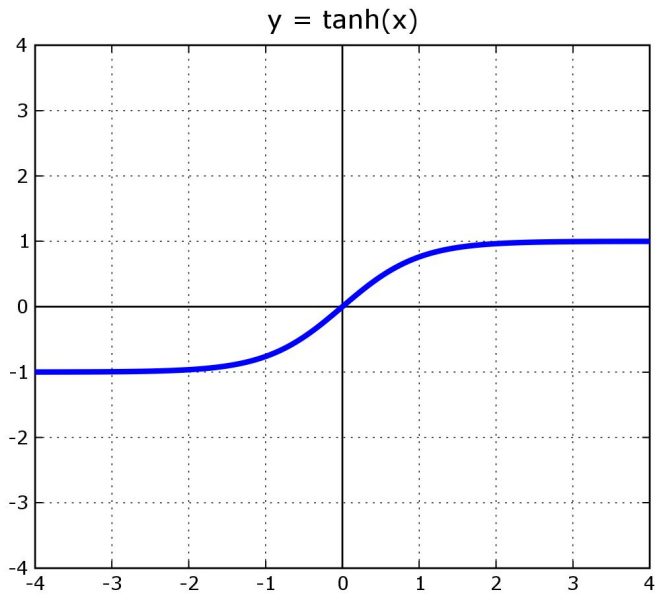
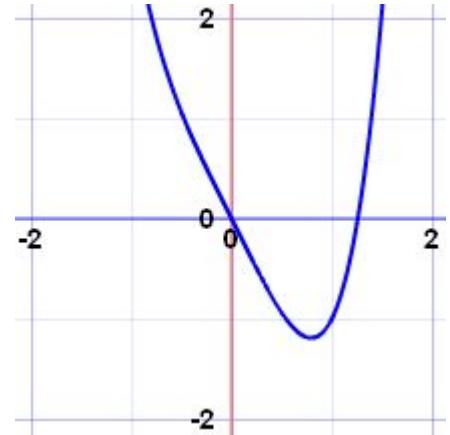
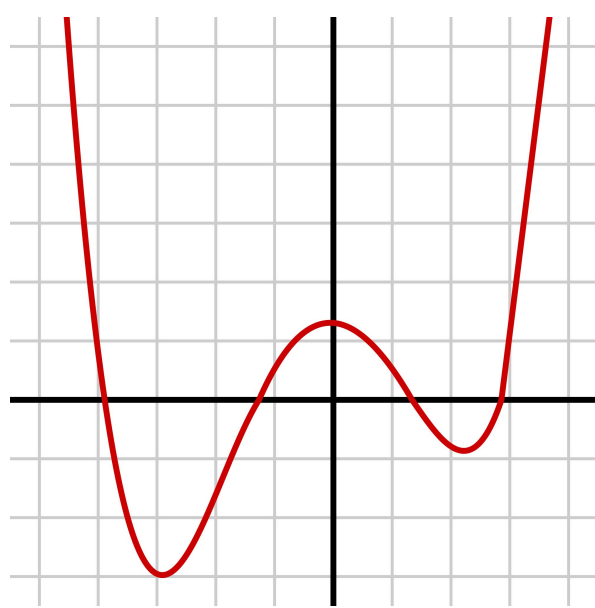


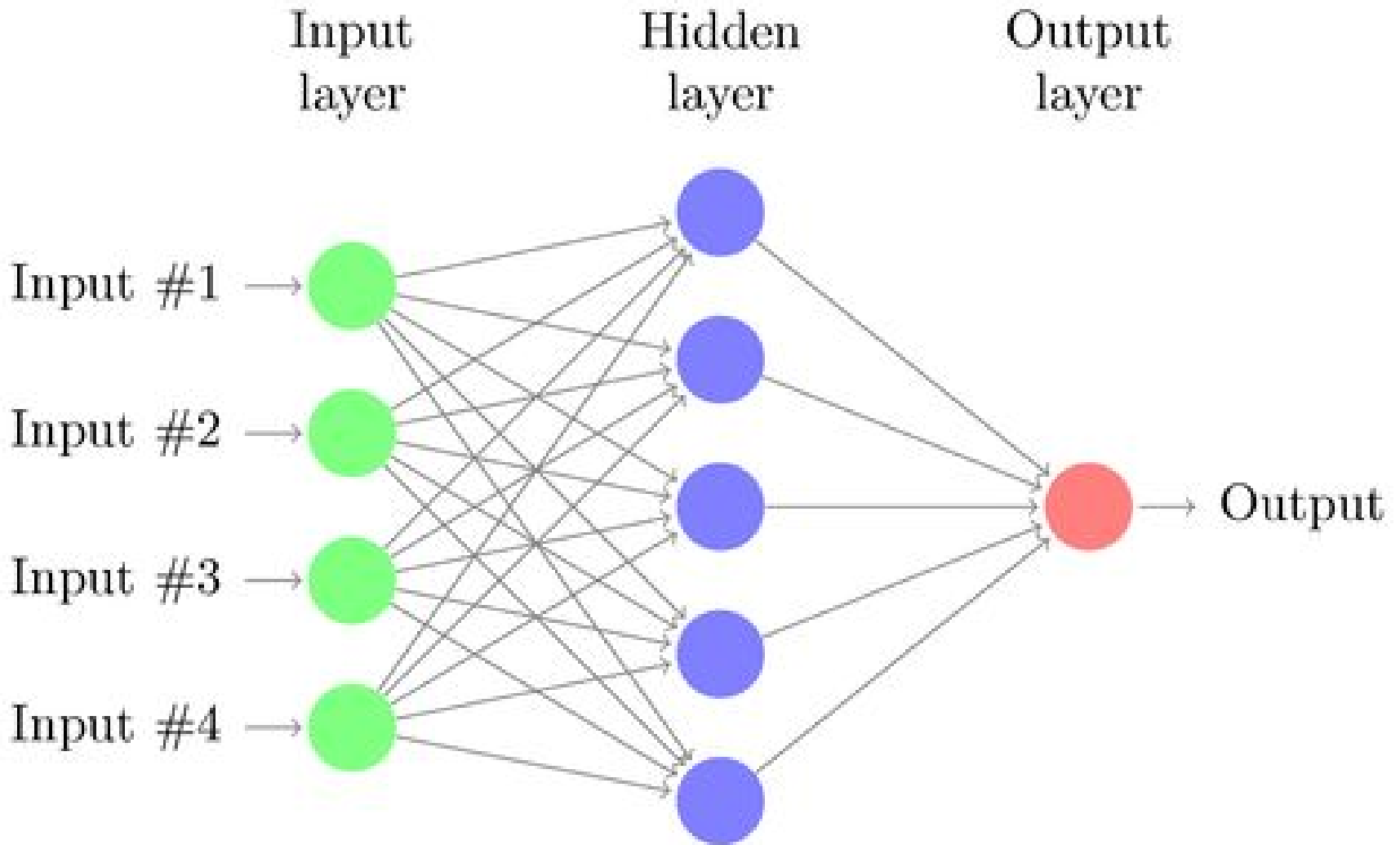


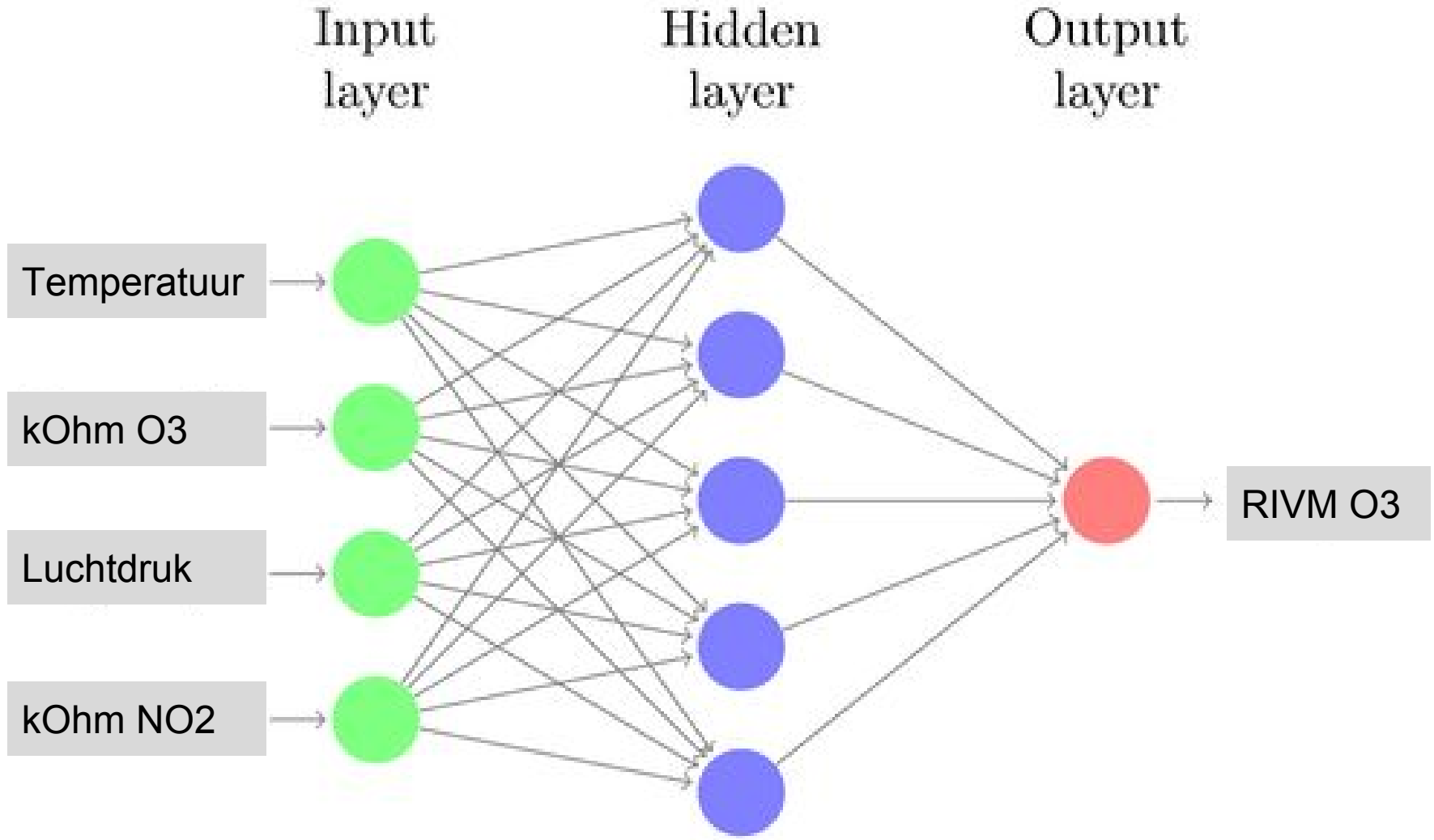
$$\begin{aligned}
O_3 = & 89.1177 \\
& + 0.03420626 * s.coresistance * \log(s.o_3resistance) \\
& - 0.008836714 * s.light.sensor.bottom \\
& - 0.02934928 * s.coresistance * s.temperature.ambient \\
& - 1.439367 * s.temperature.ambient * \log(s.coresistance) \\
& + 1.26521 * \log(s.coresistance) * \sqrt{s.coresistance} \\
& - 0.000343098 * s.coresistance * s.no_2resistance \\
& + 0.02761877 * s.no_2resistance * \log(s.o_3resistance) \\
& - 0.0002260495 * s.barometer * s.coresistance \\
& + 0.0699428 * s.humidity \\
& + 0.008435412 * s.temperature.unit * \sqrt{s.no_2resistance}
\end{aligned}$$

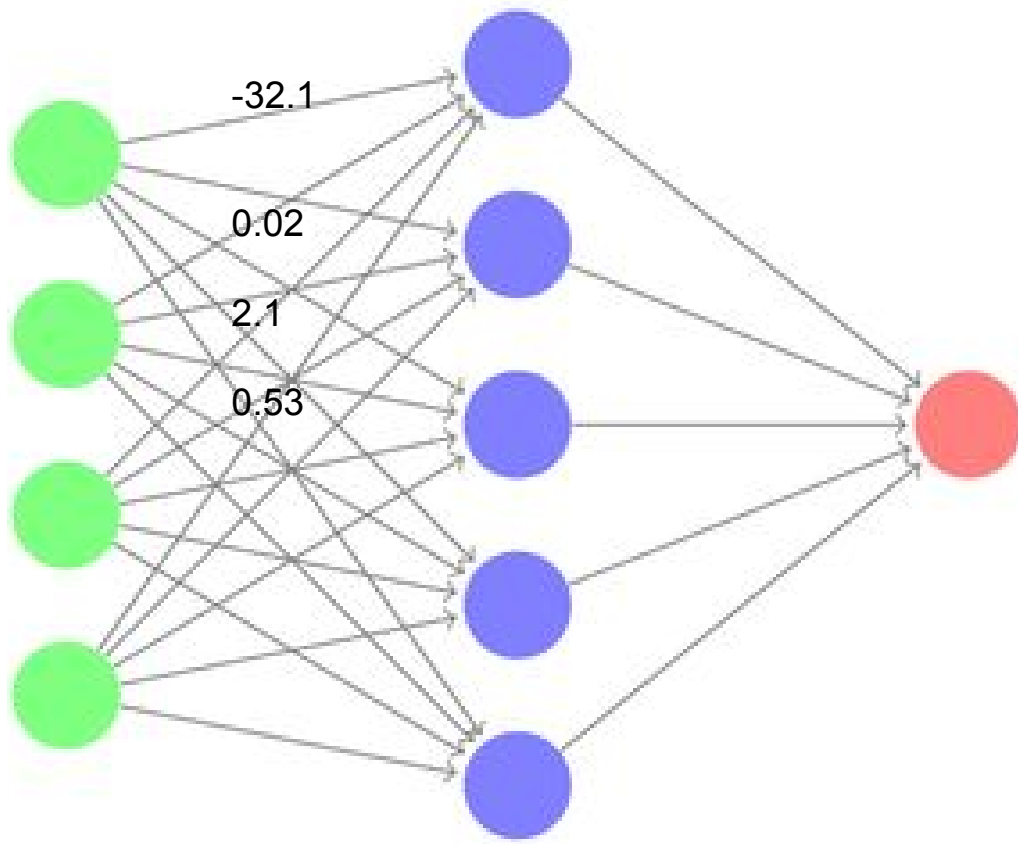


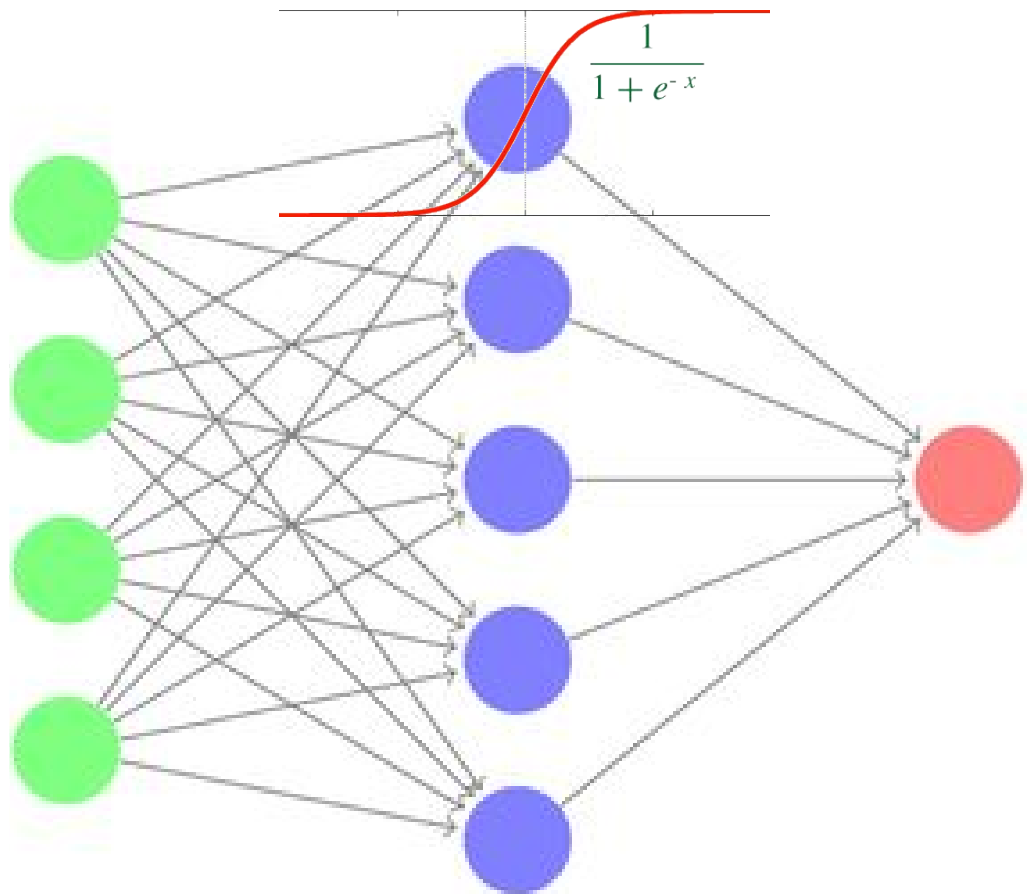
Artificial neural networks

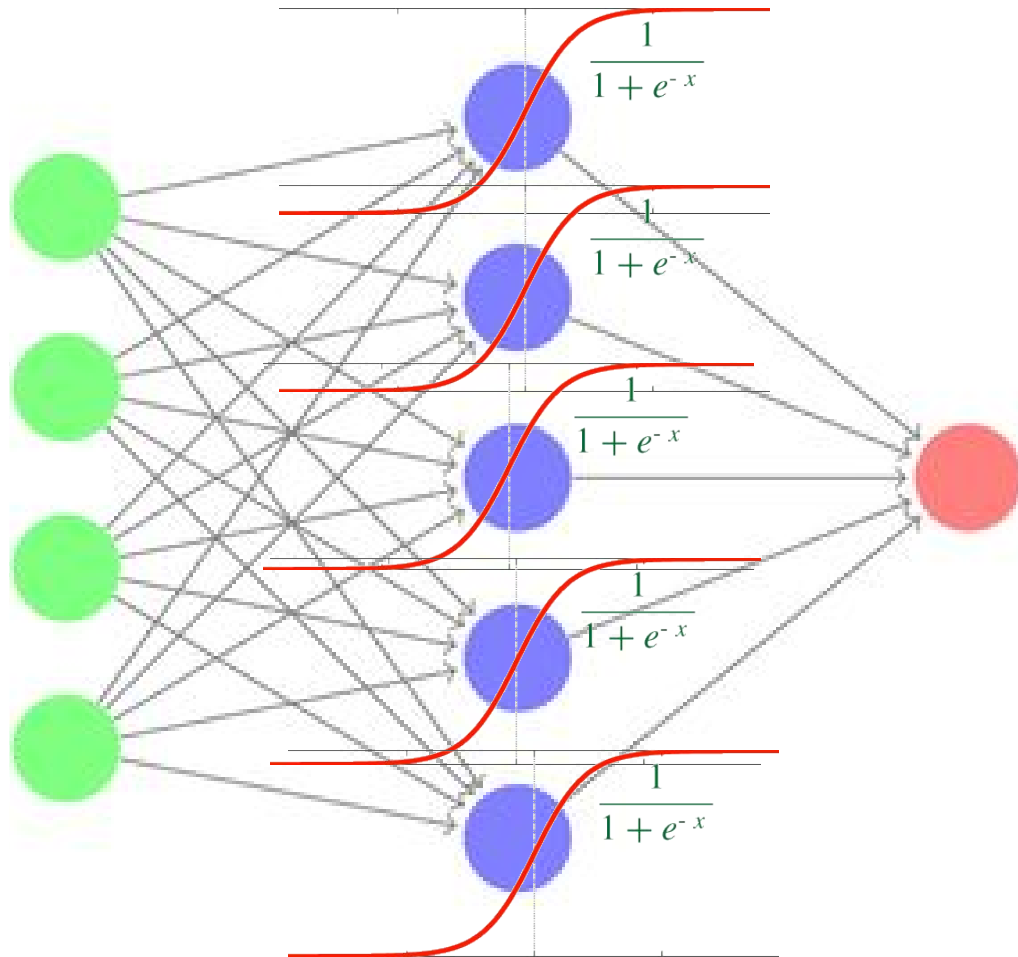


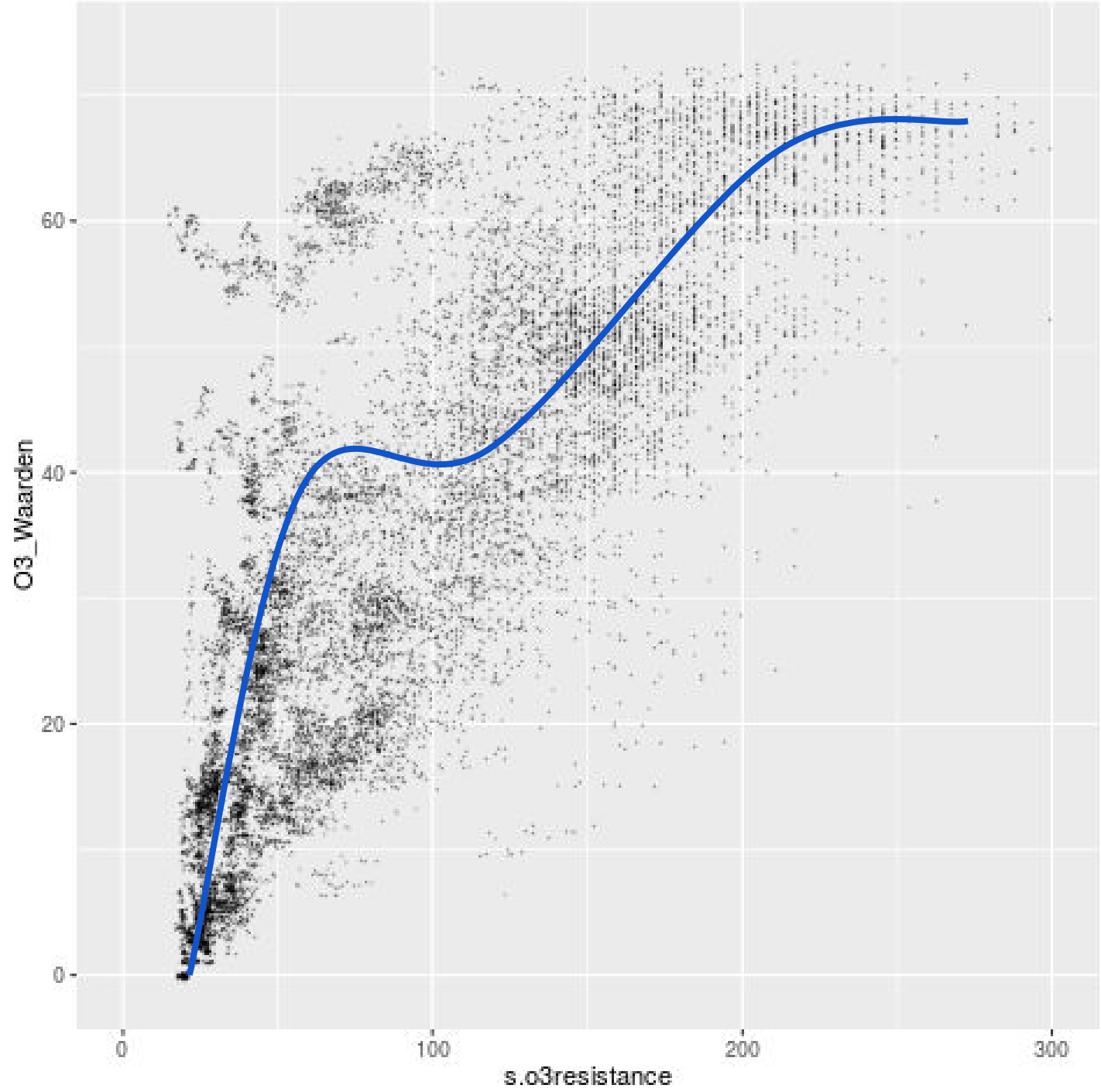


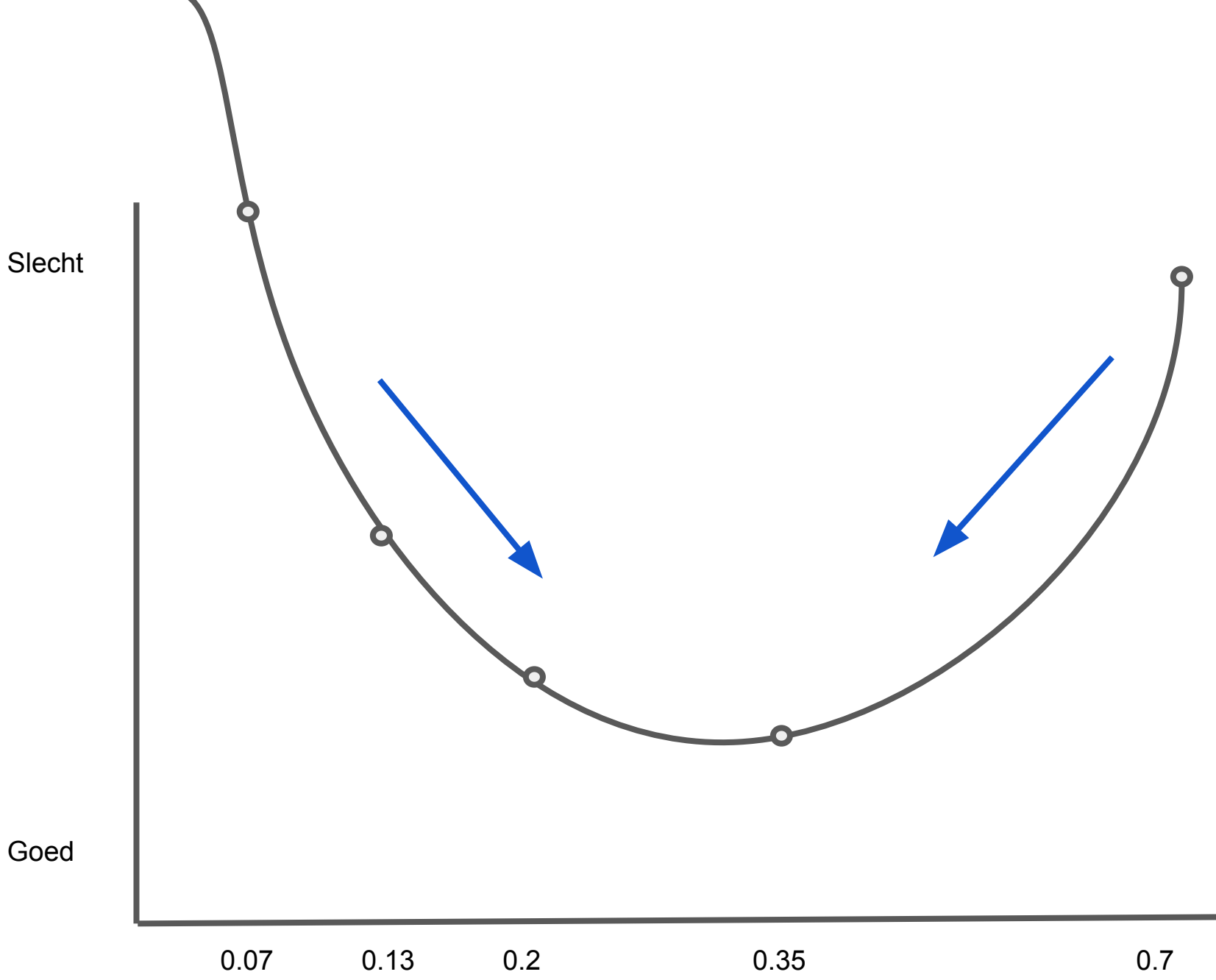






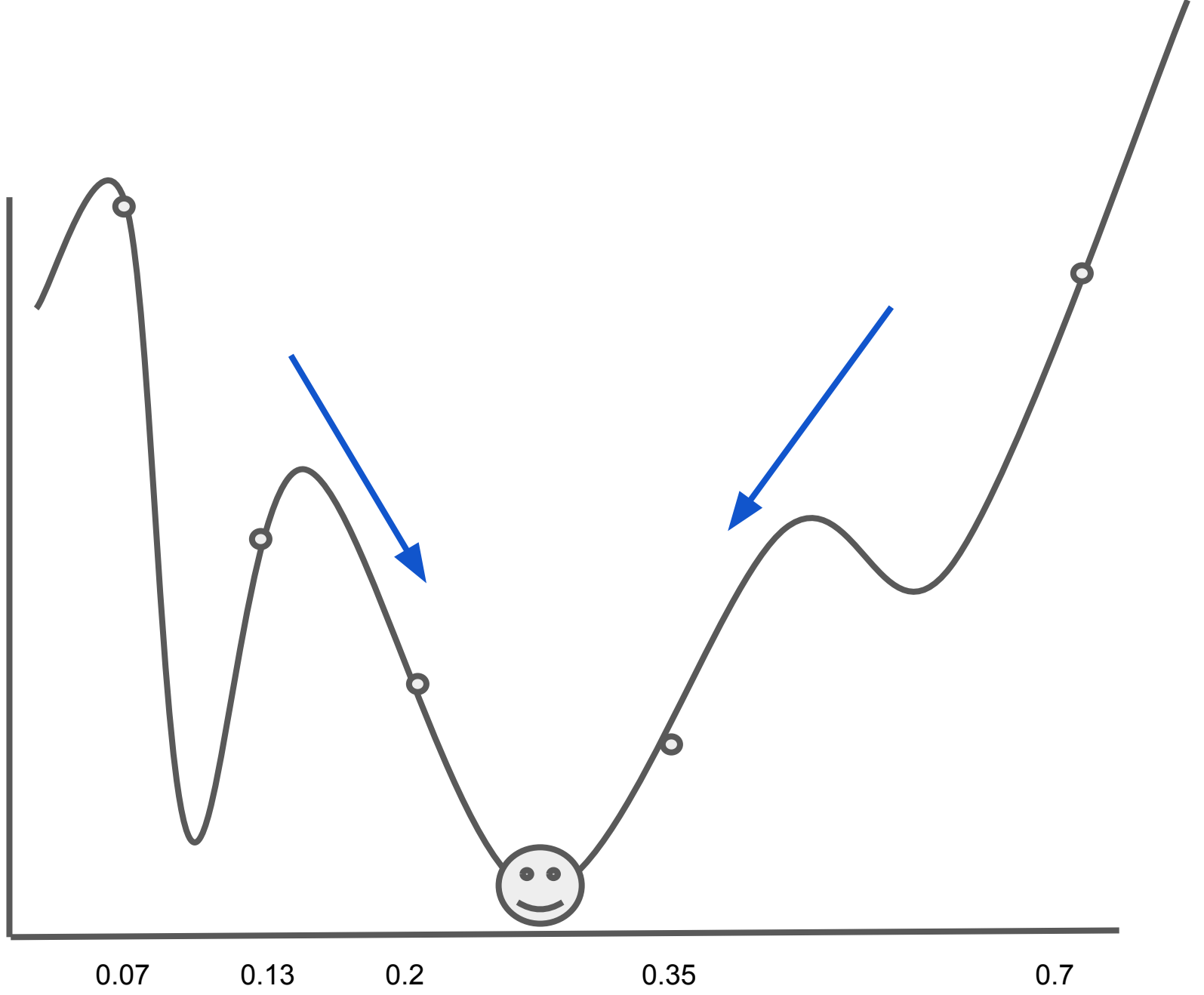




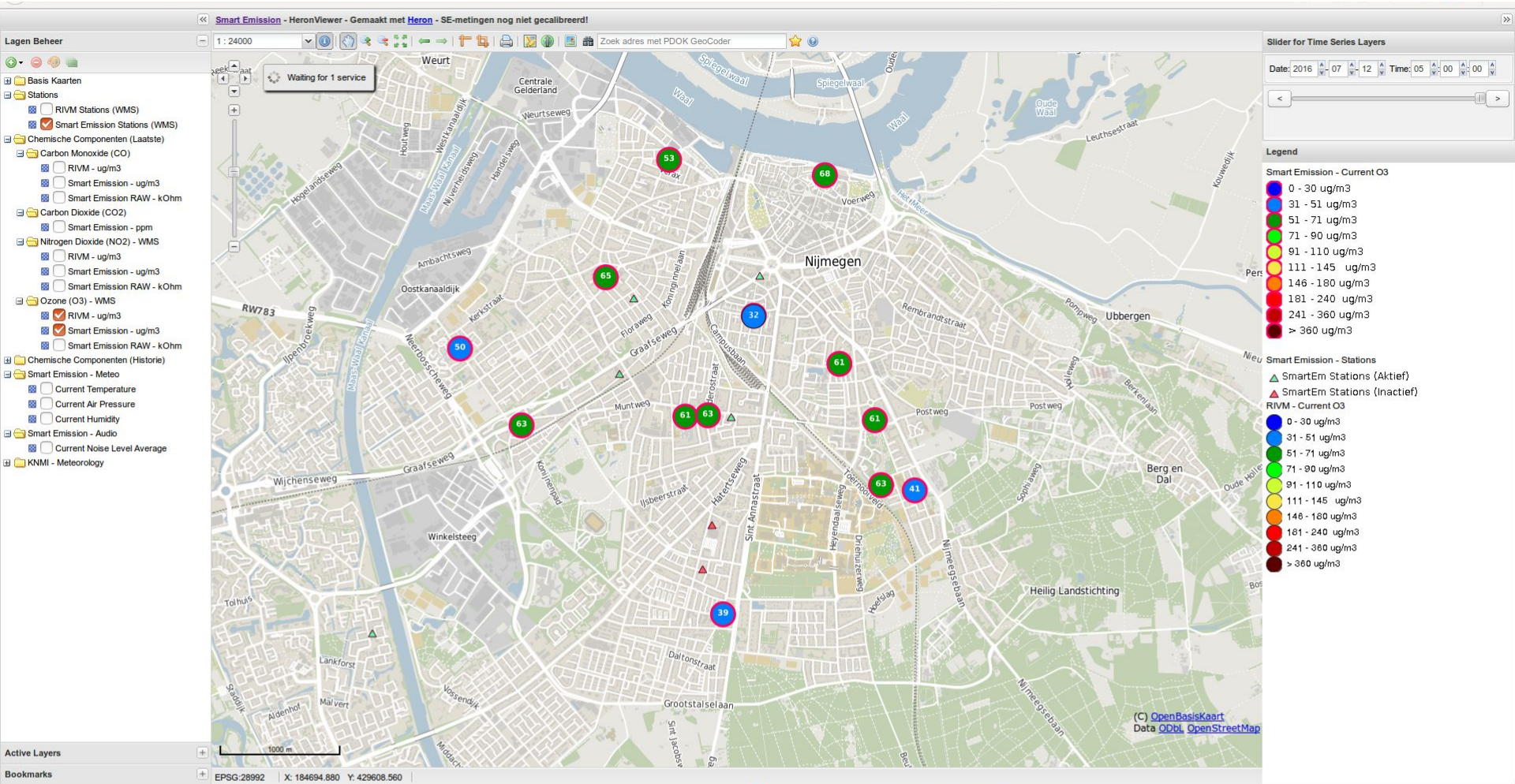


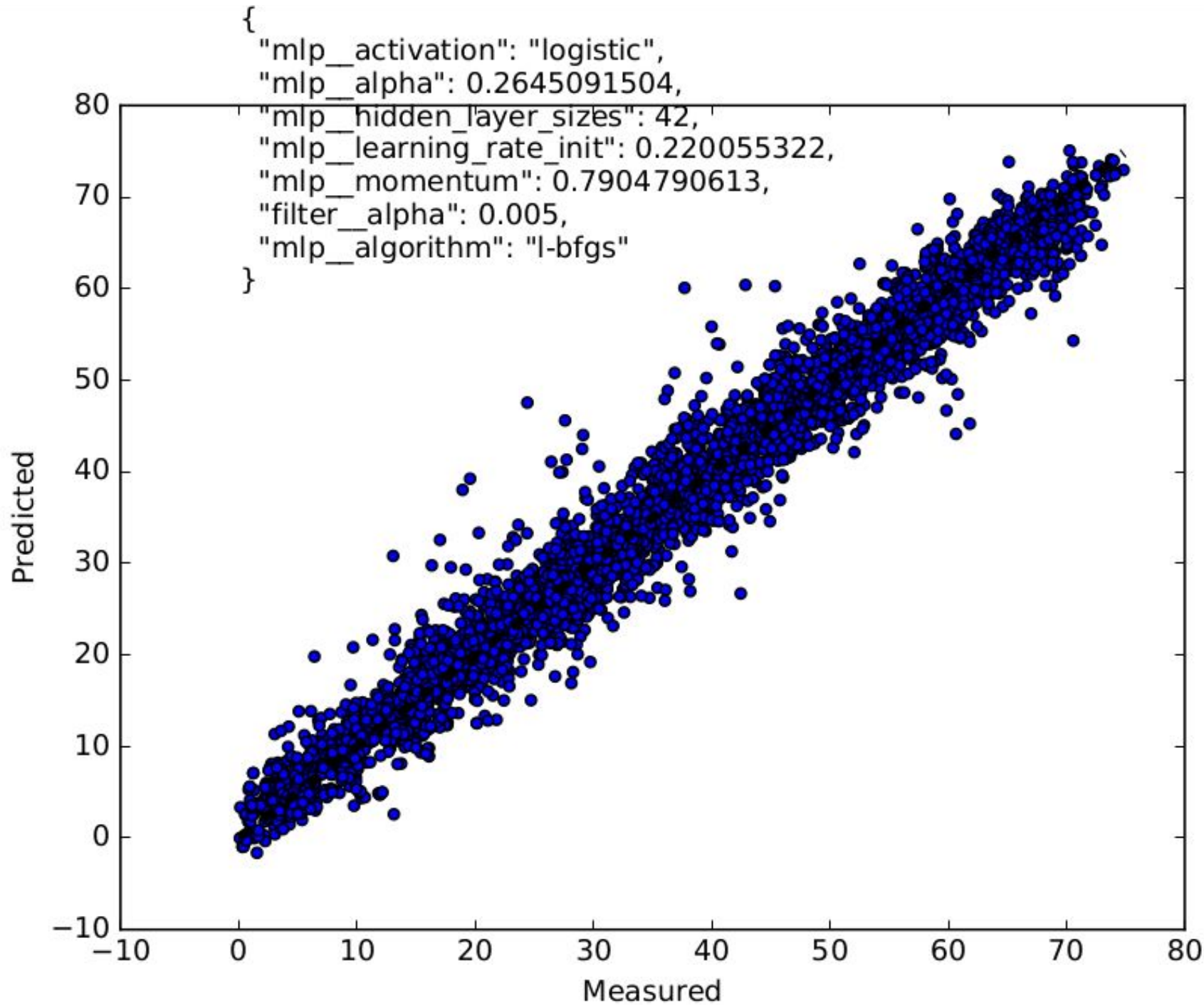
Slecht

Goed



Werkt dat?





Dat wil ik ook

[Python](#)

[Pandas](#)

[Scikit-learn](#)

- [MLPRegressor](#)
- [RandomizedSearchCV](#)