

## The SAS System

### The LIFEREG Procedure

Model Information	
Data Set	WORK.SHORT
Dependent Variable	Log(Duration)
Censoring Variable	Event_kind
Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	2
Name of Distribution	Weibull
Log Likelihood	-121.9142333

Number of Observations Read	104
Number of Observations Used	104

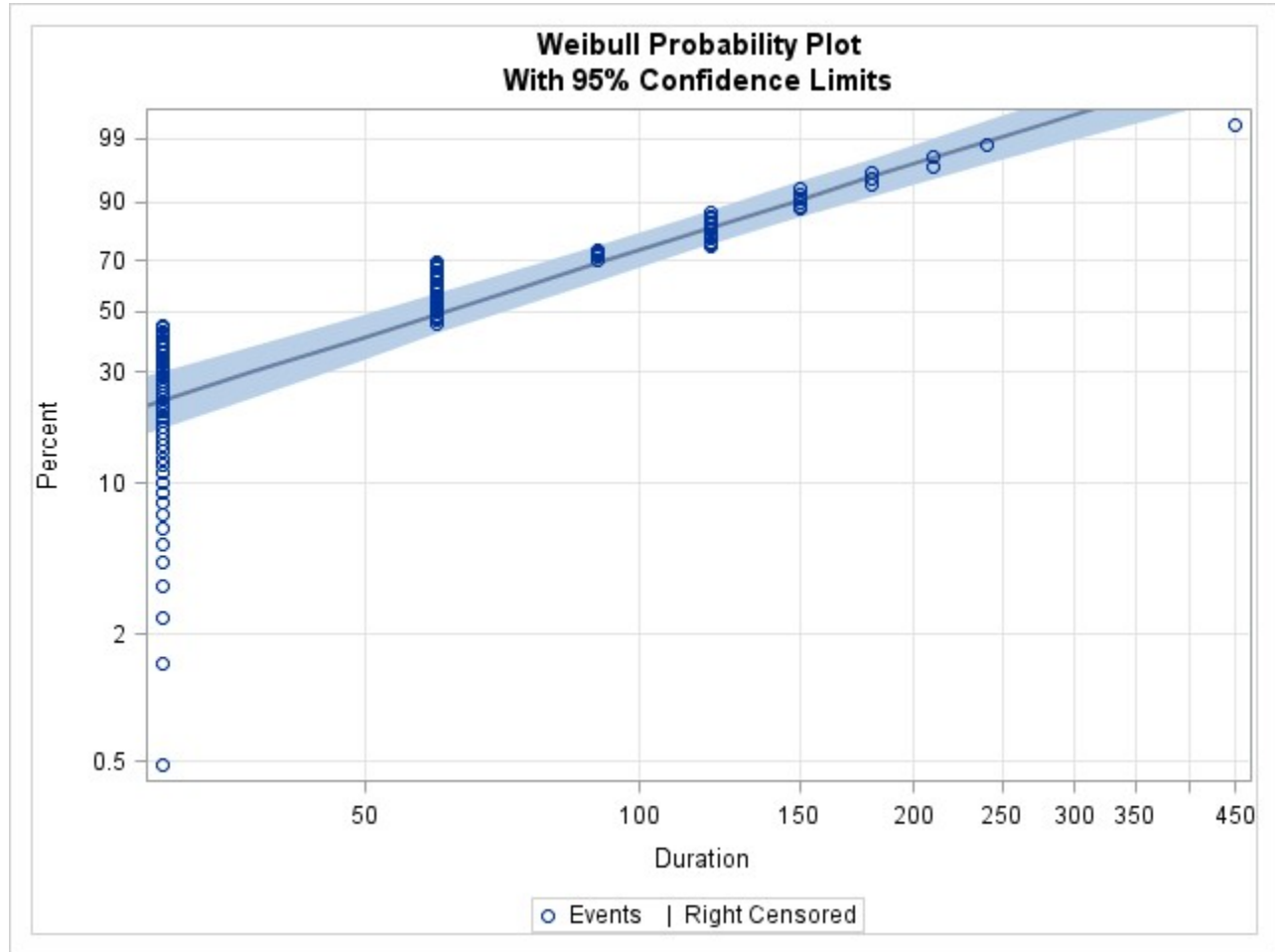
Fit Statistics	
-2 Log Likelihood	243.828
AIC (smaller is better)	247.828
AICC (smaller is better)	247.947
BIC (smaller is better)	253.117

Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1081.773
Weibull AIC (smaller is better)	1085.773
Weibull AICC (smaller is better)	1085.892
Weibull BIC (smaller is better)	1091.062

Algorithm converged.

Analysis of Maximum Likelihood Parameter Estimates						
Parameter	DF	Estimate	Standard Error	95% Confidence Limits	Chi-Square	Pr > ChiSq

<b>Intercept</b>	1	4.3830	0.0763	4.2334	4.5326	3296.60	<.0001
<b>Scale</b>	1	0.7321	0.0503	0.6398	0.8377		
<b>Weibull Scale</b>	1	80.0780	6.1130	68.9501	93.0019		
<b>Weibull Shape</b>	1	1.3660	0.0939	1.1938	1.5631		



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Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	2
Name of Distribution	Lognormal
Log Likelihood	-106.2449053

Number of Observations Read	104
Number of Observations Used	104

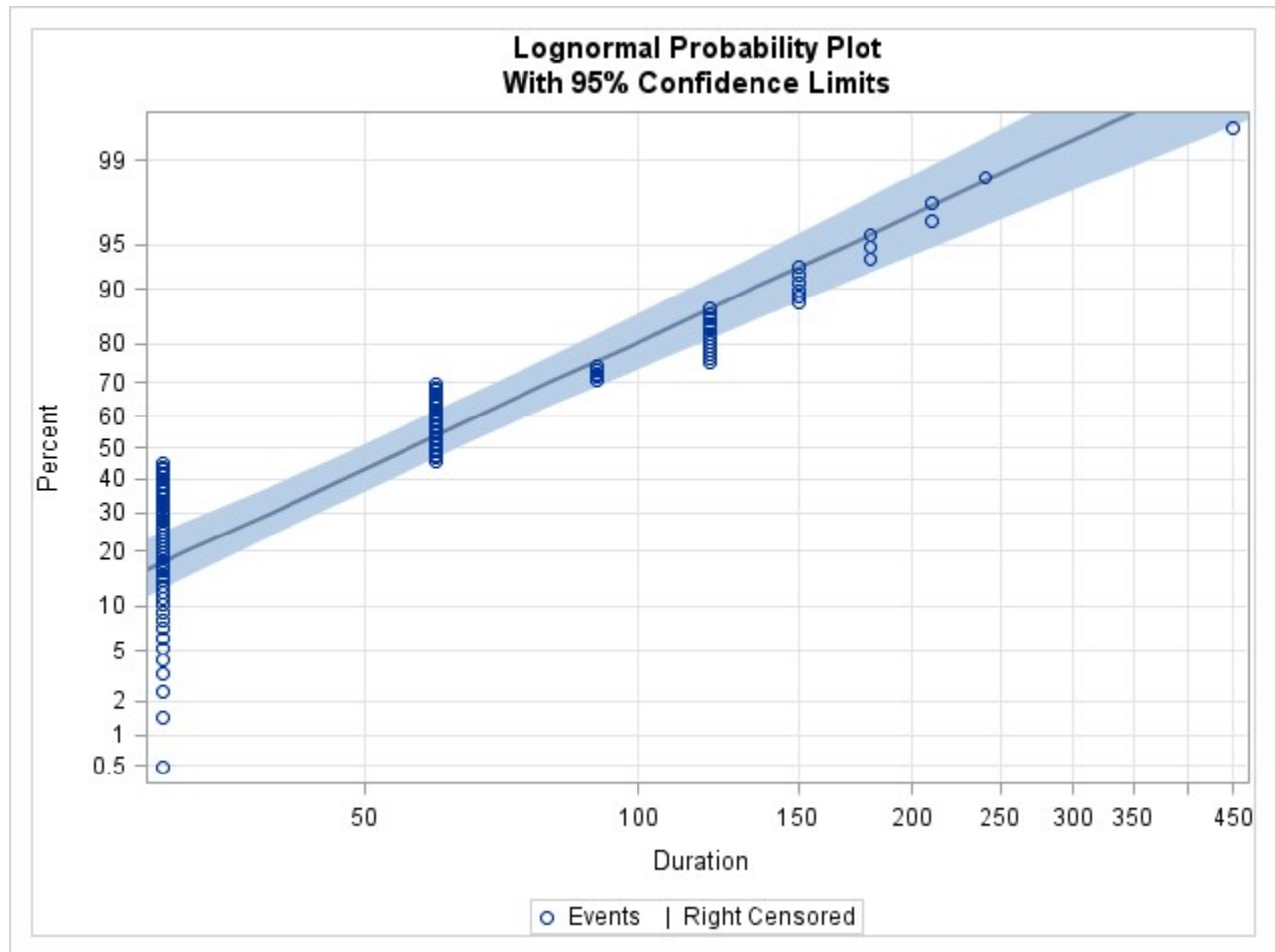
Fit Statistics	
-2 Log Likelihood	212.490
AIC (smaller is better)	216.490
AICC (smaller is better)	216.609
BIC (smaller is better)	221.779

Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1050.435
Lognormal AIC (smaller is better)	1054.435
Lognormal AICC (smaller is better)	1054.554
Lognormal BIC (smaller is better)	1059.724

Algorithm converged.

Analysis of Maximum Likelihood Parameter Estimates					
			Standard		

Parameter	DF	Estimate	Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept	1	4.0286	0.0659	3.8994	4.1578	3736.58	<.0001
Scale	1	0.6721	0.0466	0.5867	0.7699		



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Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	2
Name of Distribution	LLogistic
Log Likelihood	-109.3453131

Number of Observations Read	104
Number of Observations Used	104

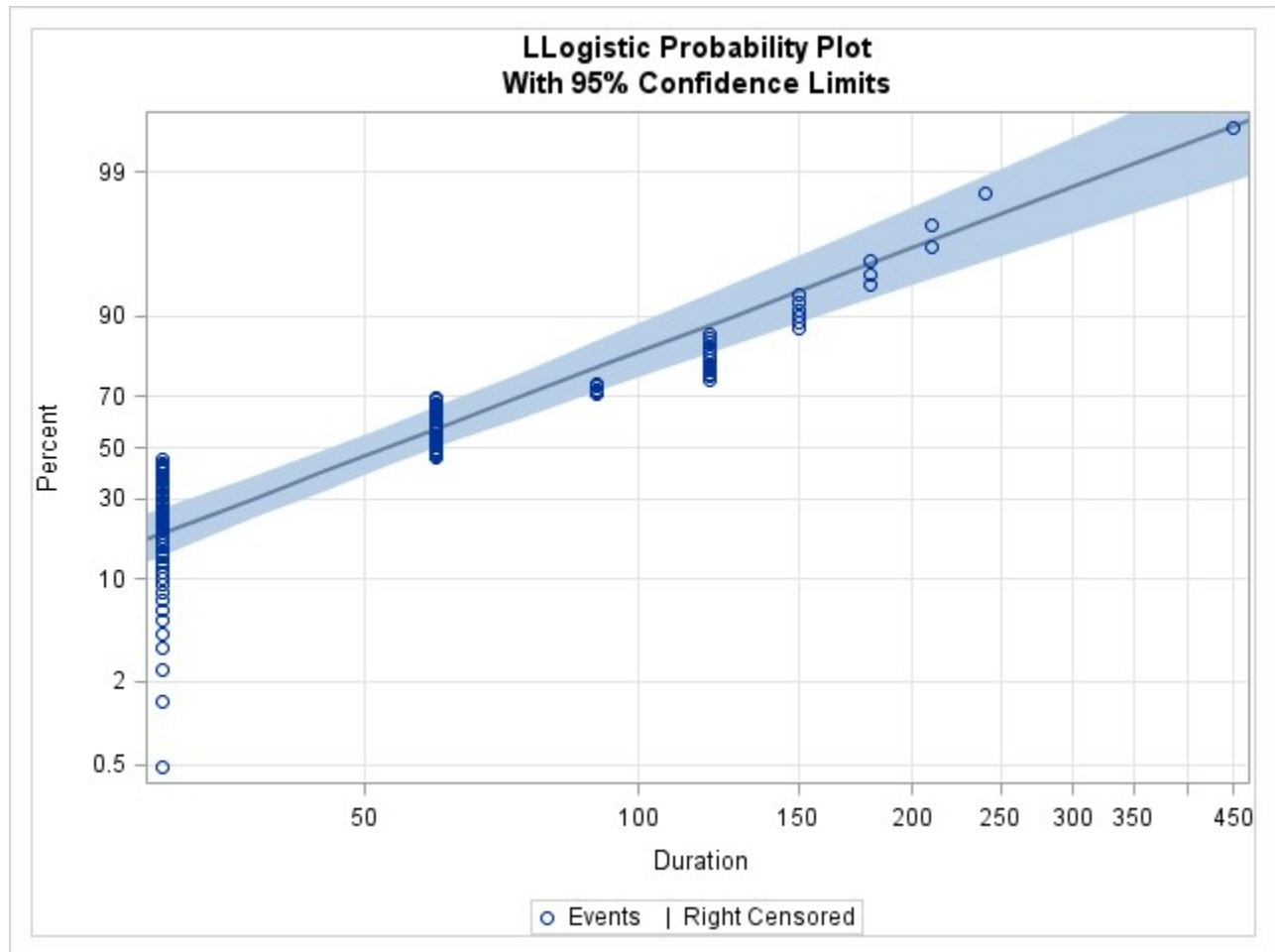
Fit Statistics	
-2 Log Likelihood	218.691
AIC (smaller is better)	222.691
AICC (smaller is better)	222.809
BIC (smaller is better)	227.979

Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1056.636
LLogistic AIC (smaller is better)	1060.636
LLogistic AICC (smaller is better)	1060.754
LLogistic BIC (smaller is better)	1065.924

Algorithm converged.

Analysis of Maximum Likelihood Parameter Estimates					
			Standard		

Parameter	DF	Estimate	Error	95% Confidence Limits		Chi-Square	Pr > ChiSq
Intercept	1	3.9688	0.0698	3.8320	4.1057	3230.54	<.0001
Scale	1	0.3989	0.0318	0.3413	0.4663		



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Censoring Variable	Event_kind
Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	1
Name of Distribution	Gamma
Log Likelihood	-119.5209846

Number of Observations Read	104
Number of Observations Used	104

Fit Statistics	
-2 Log Likelihood	239.042
AIC (smaller is better)	241.042
AICC (smaller is better)	241.081
BIC (smaller is better)	243.686

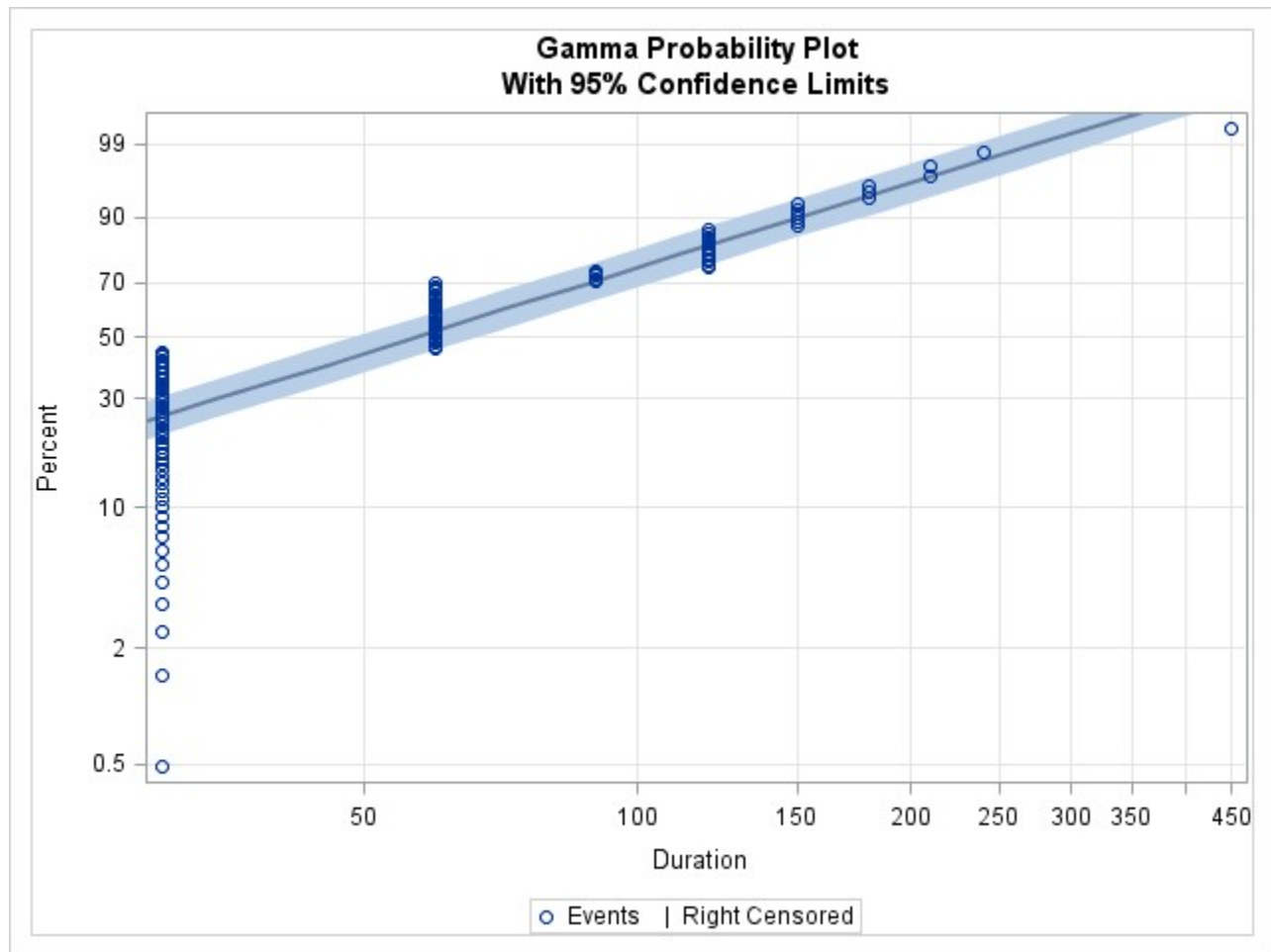
Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1076.987
Gamma AIC (smaller is better)	1078.987
Gamma AICC (smaller is better)	1079.026
Gamma BIC (smaller is better)	1081.631

Algorithm converged.

Analysis of Maximum Likelihood Parameter Estimates						
Parameter	DF	Estimate	Standard Error	95% Confidence Limits	Chi-Square	Pr > ChiSq

<b>Intercept</b>	1	4.2823	0.0795	4.1264	4.4381	2899.60	<.0001
<b>Scale</b>	0	0.8110	0.0000	0.8110	0.8110		
<b>Shape</b>	0	0.8110	0.0000	0.8110	0.8110		

Lagrange Multiplier Statistics		
Parameter	Chi-Square	Pr > ChiSq
<b>Scale</b>	2.8307	0.0925
<b>Shape</b>	30.1033	<.0001





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Dependent Variable	Log(Duration)
Censoring Variable	Event_kind
Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	8
Name of Distribution	Weibull
Log Likelihood	-109.8841399

Number of Observations Read	104
Number of Observations Used	104

Fit Statistics	
-2 Log Likelihood	219.768
AIC (smaller is better)	235.768
AICC (smaller is better)	237.284
BIC (smaller is better)	256.923

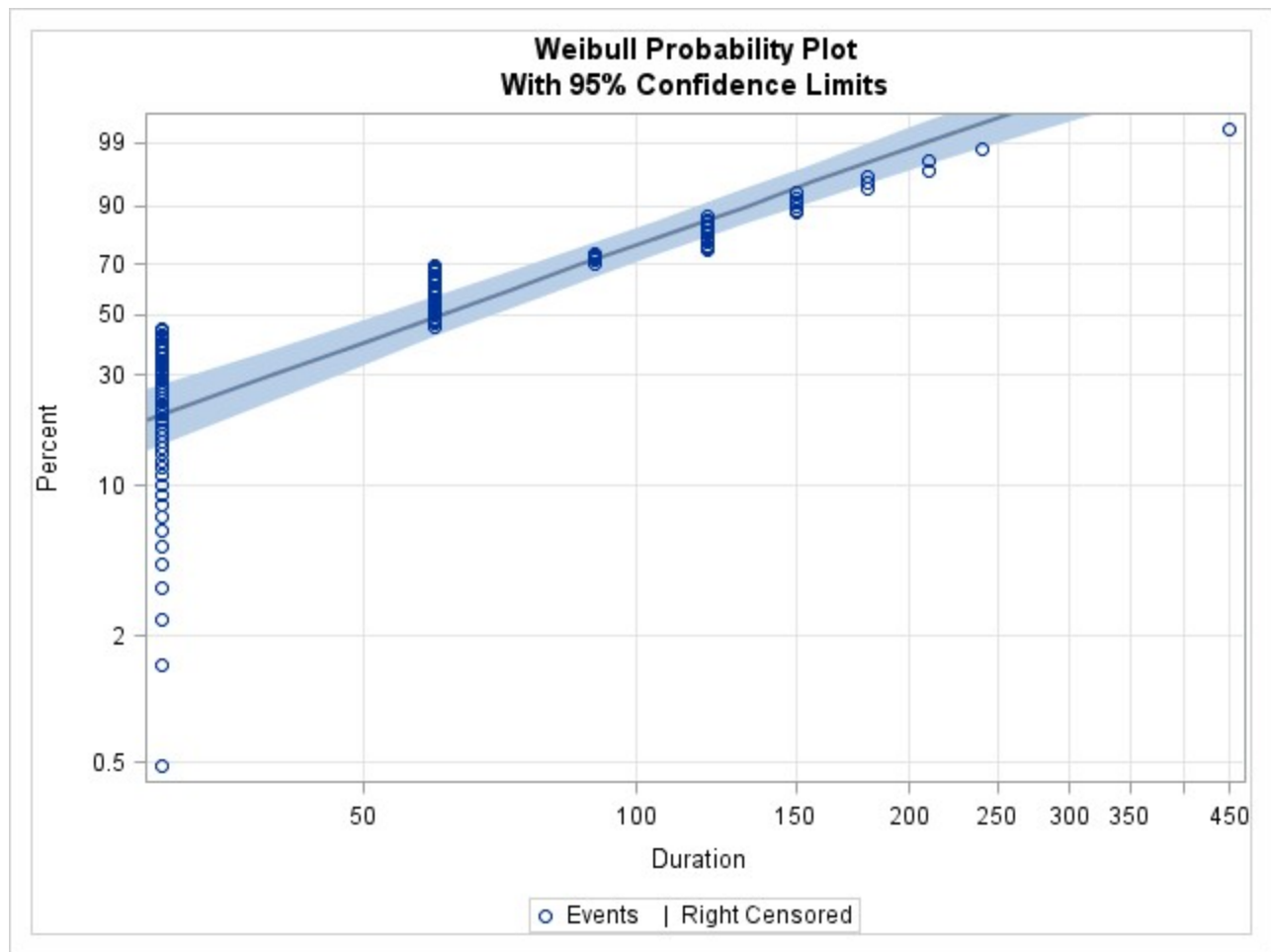
Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1057.713
Weibull AIC (smaller is better)	1073.713
Weibull AICC (smaller is better)	1075.229
Weibull BIC (smaller is better)	1094.868

Algorithm converged.

Type III Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq

<b>LaborForce</b>	1	0.0183	0.8924
<b>Employment</b>	1	0.2281	0.6329
<b>CPI_U</b>	1	1.6711	0.1961
<b>Ave_Temperature</b>	1	0.1495	0.6990
<b>Ave_Heating_Degree_D</b>	1	0.1247	0.7240
<b>Ave_Cooling_Degree_D</b>	1	0.2642	0.6072

<b>Analysis of Maximum Likelihood Parameter Estimates</b>							
<b>Parameter</b>	<b>DF</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>95% Confidence Limits</b>		<b>Chi-Square</b>	<b>Pr &gt; ChiSq</b>
<b>Intercept</b>	1	5.5886	12.1214	-18.1689	29.3461	0.21	0.6448
<b>LaborForce</b>	1	0.0000	0.0000	-0.0000	0.0000	0.02	0.8924
<b>Employment</b>	1	-0.0000	0.0000	-0.0000	0.0000	0.23	0.6329
<b>CPI_U</b>	1	-0.0196	0.0152	-0.0494	0.0101	1.67	0.1961
<b>Ave_Temperature</b>	1	0.0697	0.1801	-0.2834	0.4227	0.15	0.6990
<b>Ave_Heating_Degree_D</b>	1	0.0653	0.1849	-0.2972	0.4278	0.12	0.7240
<b>Ave_Cooling_Degree_D</b>	1	-0.0977	0.1901	-0.4703	0.2749	0.26	0.6072
<b>Scale</b>	1	0.6465	0.0451	0.5640	0.7412		
<b>Weibull Shape</b>	1	1.5467	0.1078	1.3492	1.7732		



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Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	8
Name of Distribution	Lognormal
Log Likelihood	-96.27117929

Number of Observations Read	104
Number of Observations Used	104

Fit Statistics	
-2 Log Likelihood	192.542
AIC (smaller is better)	208.542
AICC (smaller is better)	210.058
BIC (smaller is better)	229.697

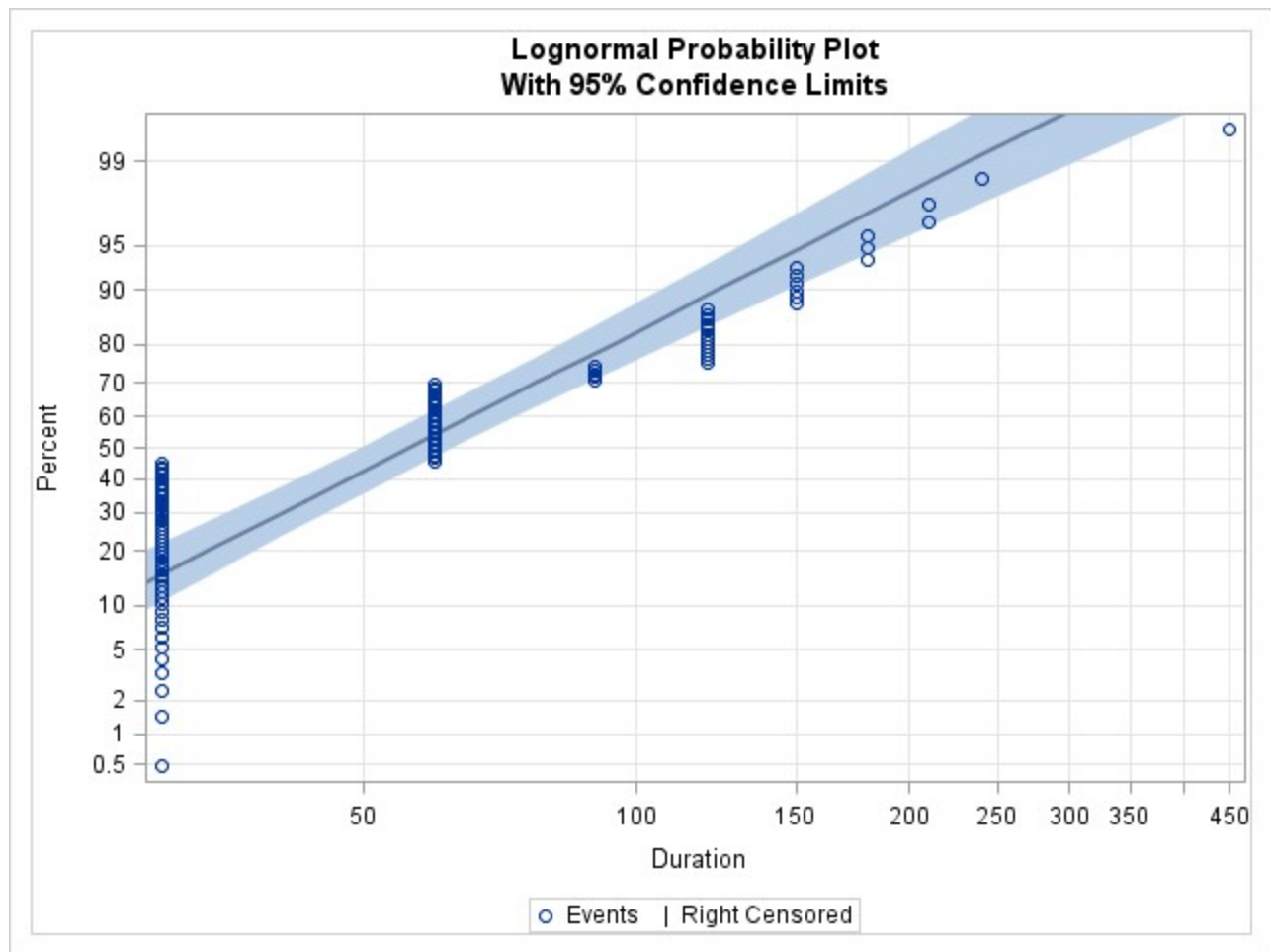
Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1030.487
Lognormal AIC (smaller is better)	1046.487
Lognormal AICC (smaller is better)	1048.003
Lognormal BIC (smaller is better)	1067.642

Algorithm converged.

Type III Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq

<b>LaborForce</b>	1	0.0033	0.9541
<b>Employment</b>	1	0.0138	0.9063
<b>CPI_U</b>	1	1.8921	0.1690
<b>Ave_Temperature</b>	1	0.7627	0.3825
<b>Ave_Heating_Degree_D</b>	1	0.6057	0.4364
<b>Ave_Cooling_Degree_D</b>	1	1.1414	0.2854

<b>Analysis of Maximum Likelihood Parameter Estimates</b>							
<b>Parameter</b>	<b>DF</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>95% Confidence Limits</b>		<b>Chi-Square</b>	<b>Pr &gt; ChiSq</b>
<b>Intercept</b>	1	1.0042	9.5567	-17.7265	19.7350	0.01	0.9163
<b>LaborForce</b>	1	-0.0000	0.0000	-0.0000	0.0000	0.00	0.9541
<b>Employment</b>	1	-0.0000	0.0000	-0.0000	0.0000	0.01	0.9063
<b>CPI_U</b>	1	-0.0174	0.0126	-0.0421	0.0074	1.89	0.1690
<b>Ave_Temperature</b>	1	0.1284	0.1470	-0.1597	0.4164	0.76	0.3825
<b>Ave_Heating_Degree_D</b>	1	0.1176	0.1512	-0.1786	0.4139	0.61	0.4364
<b>Ave_Cooling_Degree_D</b>	1	-0.1659	0.1553	-0.4702	0.1384	1.14	0.2854
<b>Scale</b>	1	0.6106	0.0423	0.5330	0.6995		



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Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	8
Name of Distribution	LLogistic
Log Likelihood	-98.14499608

Number of Observations Read	104
Number of Observations Used	104

Fit Statistics	
-2 Log Likelihood	196.290
AIC (smaller is better)	212.290
AICC (smaller is better)	213.806
BIC (smaller is better)	233.445

Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1034.235
LLogistic AIC (smaller is better)	1050.235
LLogistic AICC (smaller is better)	1051.751
LLogistic BIC (smaller is better)	1071.390

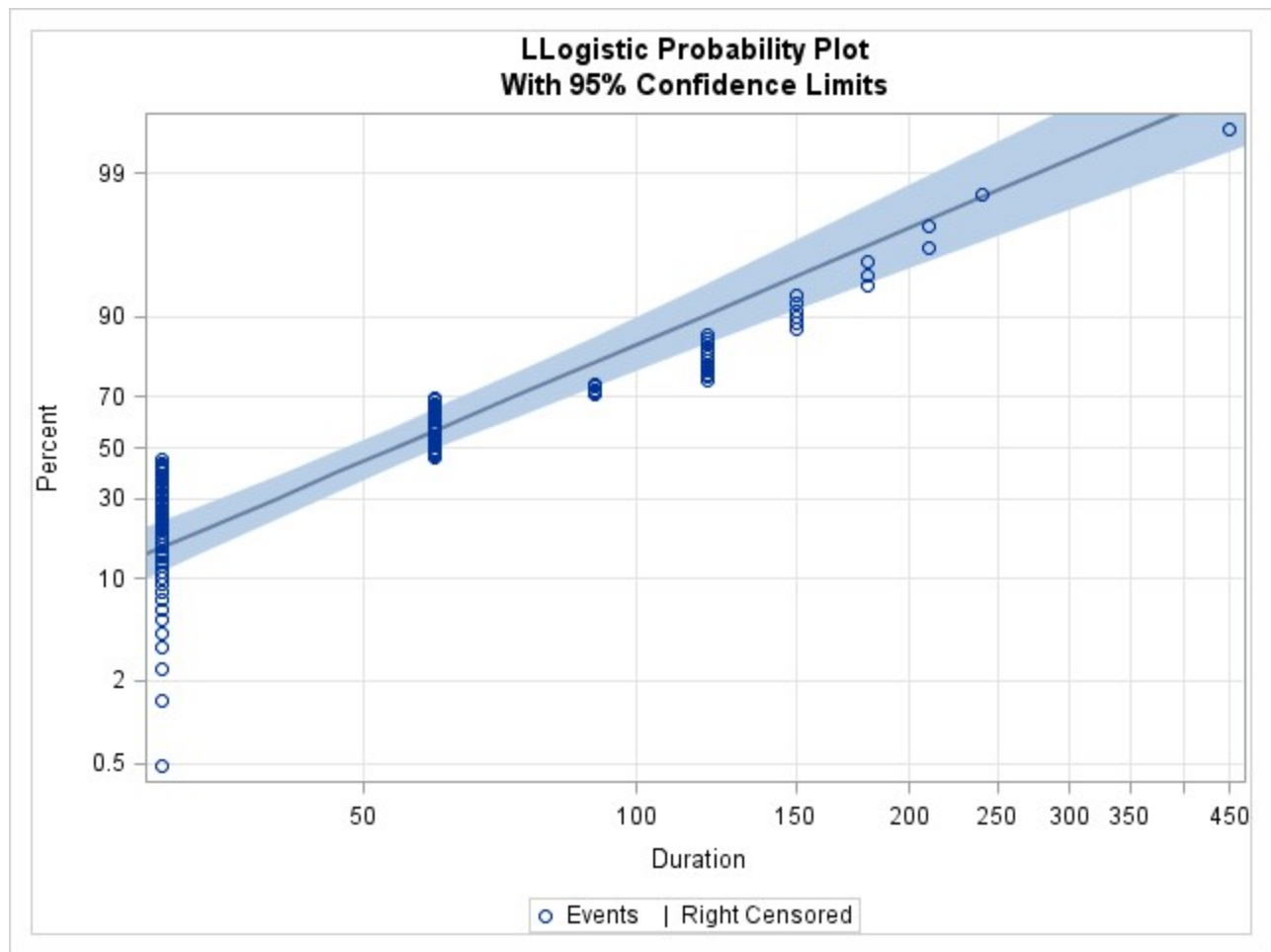
Algorithm converged.

Type III Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq

<b>LaborForce</b>	1	0.0861	0.7692
<b>Employment</b>	1	0.0406	0.8403
<b>CPI_U</b>	1	1.8922	0.1690
<b>Ave_Temperature</b>	1	1.4641	0.2263
<b>Ave_Heating_Degree_D</b>	1	1.1483	0.2839
<b>Ave_Cooling_Degree_D</b>	1	2.0796	0.1493

<b>Analysis of Maximum Likelihood Parameter Estimates</b>							
<b>Parameter</b>	<b>DF</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>95% Confidence Limits</b>		<b>Chi-Square</b>	<b>Pr &gt; ChiSq</b>
<b>Intercept</b>	1	-0.5870	9.0903	-18.4037	17.2297	0.00	0.9485
<b>LaborForce</b>	1	-0.0000	0.0000	-0.0000	0.0000	0.09	0.7692
<b>Employment</b>	1	0.0000	0.0000	-0.0000	0.0000	0.04	0.8403
<b>CPI_U</b>	1	-0.0188	0.0136	-0.0455	0.0080	1.89	0.1690
<b>Ave_Temperature</b>	1	0.1692	0.1399	-0.1049	0.4434	1.46	0.2263
<b>Ave_Heating_Degree_D</b>	1	0.1538	0.1436	-0.1275	0.4352	1.15	0.2839
<b>Ave_Cooling_Degree_D</b>	1	-0.2139	0.1484	-0.5047	0.0768	2.08	0.1493
<b>Scale</b>	1	0.3546	0.0286	0.3028	0.4153		





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Censoring Variable	Event_kind
Censoring Value(s)	0
Number of Observations	104
Noncensored Values	104
Right Censored Values	0
Left Censored Values	0
Interval Censored Values	0
Number of Parameters	7
Name of Distribution	Gamma
Log Likelihood	-111.3631482

Number of Observations Read	104
Number of Observations Used	104

Fit Statistics	
-2 Log Likelihood	222.726
AIC (smaller is better)	236.726
AICC (smaller is better)	237.893
BIC (smaller is better)	255.237

Fit Statistics (Unlogged Response)	
-2 Log Likelihood	1060.671
Gamma AIC (smaller is better)	1074.671
Gamma AICC (smaller is better)	1075.838
Gamma BIC (smaller is better)	1093.182

Algorithm converged.

Type III Analysis of Effects			
Effect	DF	Wald Chi-Square	Pr > ChiSq

<b>LaborForce</b>	1	0.0019	0.9652
<b>Employment</b>	1	0.0862	0.7690
<b>CPI_U</b>	1	1.0883	0.2969
<b>Ave_Temperature</b>	1	0.2149	0.6430
<b>Ave_Heating_Degree_D</b>	1	0.1754	0.6753
<b>Ave_Cooling_Degree_D</b>	1	0.3484	0.5550

<b>Analysis of Maximum Likelihood Parameter Estimates</b>							
<b>Parameter</b>	<b>DF</b>	<b>Estimate</b>	<b>Standard Error</b>	<b>95% Confidence Limits</b>		<b>Chi-Square</b>	<b>Pr &gt; ChiSq</b>
<b>Intercept</b>	1	3.8184	13.8743	-23.3747	31.0115	0.08	0.7832
<b>LaborForce</b>	1	0.0000	0.0000	-0.0000	0.0000	0.00	0.9652
<b>Employment</b>	1	-0.0000	0.0000	-0.0000	0.0000	0.09	0.7690
<b>CPI_U</b>	1	-0.0189	0.0181	-0.0544	0.0166	1.09	0.2969
<b>Ave_Temperature</b>	1	0.0966	0.2083	-0.3118	0.5049	0.21	0.6430
<b>Ave_Heating_Degree_D</b>	1	0.0896	0.2140	-0.3298	0.5090	0.18	0.6753
<b>Ave_Cooling_Degree_D</b>	1	-0.1299	0.2200	-0.5611	0.3014	0.35	0.5550
<b>Scale</b>	0	0.8110	0.0000	0.8110	0.8110		
<b>Shape</b>	0	0.8110	0.0000	0.8110	0.8110		

<b>Lagrange Multiplier Statistics</b>		
<b>Parameter</b>	<b>Chi-Square</b>	<b>Pr &gt; ChiSq</b>
<b>Scale</b>	15.4815	<.0001
<b>Shape</b>	20.6441	<.0001

