## How do metrics handle mismatched data?

Std Dev

descA	odoA	Drift eventA	and D	ifferer	eventB	odoB	descB	Odo A	Event A	Length	Diffe	rence	Event B	Odo B	Odo A	Event A	rpected Y_est	d Posit	Event B	Odo B
fitting at 90 de	123.31 144.23		-62.16 -62.05	0.11	fitting weld	185.47 206.28	fitting at 90 de	123.31 144.23		20.92	0.11	20.81	fitting weld	185.47 206.28	123.31 144.23				fitting weld	185.47 206.28
	189.38		-61.95	0.10	weld	251.33	agm #15, sta.	189.38	weld	45.15	0.10	45.05	weld	251.33 282.00		weld			weld	251.33
casing begin -		casing	-62.52	-0.57	casing		casing begin -	224.41	5008	35.03	-0.57	35.60	casing	286.93	224.41	- Care III G			casing	286.93
agm # 130, sta	228.91 234.45		-62.05	0.47	weld	296.50		228.91		45.07	-0.10	45.17	weld	296.50	228.91		243.34	8.89	weld	296.50
casing end - st	279.53 304.78		-61.97 -61.14	0.08		341.50 365.92	casing end - st	279.53 304.78	weld	45.08 80.37	0.08		weld casing	341.50 365.92	279.53 304.78	weld	288.10 312.40		weld	341.50 365.92
	324.62		-61.91	-0.77		386.53		324.62		45.09	0.06		weld	386.53	324.62		332.90		weld	386.53
:	5,141.97	weld	-57.89	:	weld	5,199.86	:	5,141.97	weld	:	•	:	weld	5,199.86	5,141.97	weld	5,121.46	-20.51	weld	5,199.86
bend left	5,177.37 5,187.24		-58.48 -57.77	-0.59 0.71		5,235.85 5,245.01	bend left	5,177.37 5,187.24		35.40 45.27	-0.59 0.12		bend weld	5,235.85 5,245.01	5,177.37 5,187.24		5,157.27 5,166.38		bend weld	5,235.85 5,245.01
	5,232.59	weld	-57.61	0.16	weld	5,290.20		5,232.59	weld	45.35	0.16	45.19	weld	5,290.20	5,232.59	weld	5,211.34	-21.25	weld	5,290.20
	5,277.84 5,322.99		-57.55 -57.53		weld weld	5,335.39 5,380.52		5,277.84 5,322.99		45.25 45.15	0.06		weld weld	5,335.39 5,380.52	5,277.84		5,256.29 5,301.19		weld weld	5,335.39 5,380.52
	5,368.30 5,413.55		-57.40 -57.35		weld weld	5,425.70 5,470.90		5,368.30 5,413.55		45.31 45.25	0.13 0.05		weld weld	5,425.70 5,470.90	5,368.30 5,413.55		5,346.14 5,391.11		weld weld	5,425.70 5,470.90
	5,458.75	weld	-57.36	-0.01	weld	5,516.11		5,458.75	weld	45.20	-0.01	45.21	weld	5,516.11	5,458.75	weld	5,436.08	-22.67	weld	5,516.11
	5,503.99 5,549.40		-57.31 -57.12		weld weld	5,561.30 5,606.52		5,503.99 5,549.40		45.24 45.41	0.05		weld weld	5,561.30 5,606.52	5,503.99 5,549.40		5,481.04 5,526.03		weld weld	5,561.30 5,606.52
bend right	5,594.59 5,625.34		-57.05 -56.27		weld bend	5,651.64 5.681.61	bend right	5,594.59 5,625.34		45.19 30.75	0.07 0.78		weld bend	5,651.64 5,681.61	5,594.59 5,625.34		5,570.92 5,600.73		weld bend	5,651.64 5,681.61
Zona ngm	5,639.82		-56.72		weld	5,696.54	Jona ngin	5,639.82		45.23	0.33	44.90	weld	5,696.54	5,639.82		5,615.59		weld	5,696.54
					weld	5,735.35 5,748.70	casing begin -						weld	5,735.35 5,748.70					weld	5,735.35 5,748.70
agm # 140, sta	5,670.97 5,678.40		-81.24	-24.52	agm	5,752.21	agm #16, sta.	5,670.97 5,678.40		31.15 38.58	14.29	16.86	agm	5,752.21	5,670.97 5,678.40		5,670.97	0.00	agm	5,752.21
casing begin -	5,691.37							5,691.37		12.97	-0.38	13.35	casing	5,748.70	5,691.37					
	5,700.47 5,723.57		-56.92 -56.85		weld weld	5,757.39 5,780.42		5,700.47 5,723.57		22.07	0.03		weld weld	5,757.39 5,780.42	5,700.47 5,723.57		5,676.22 5,699.59	-	weld weld	5,757.39 5,780.42
casing end - sta	5,749.22	casing	-57.01	-0.16	casing	5,806.23	casing end - st	5,749.22	casing	57.85	0.32	57.53	casing	5,806.23	5,749.22	casing	5,725.77	-23.45	casing	5,806.23
	5,748.23 5,774.62		-56.83 -56.78		weld weld	5,805.06 5,831.40		5,748.23 5,774.62		24.66	0.02		weld weld	5,805.06 5,831.40	5,748.23 5,774.62		5,724.58 5,751.30		weld weld	5,805.06 5,831.40
end left	5,803.41 5,815.94		-59.17 -56.74		bend weld	5,862.58 5,872.68	bend left	5,803.41 5,815.94		28.79 41.32	-2.39 0.04		bend weld	5,862.58 5,872.68	5,803.41 5,815.94		5,782.93 5,793.18		bend weld	5,862.58 5,872.68
	5,861.09	weld	-56.78	-0.04	weld	5,917.87		5,861.09	weld	45.15	-0.04	45.19	weld	5,917.87	5,861.09	weld	5,839.02	-22.07	weld	5,917.87
	5,906.36 5,951.66		-56.77 -56.72		weld weld	5,963.13 6,008.38		5,906.36 5,951.66		45.27 45.30	0.01		weld weld	5,963.13 6,008.38	5,906.36 5,951.66		5,884.93 5,930.84		weld weld	5,963.13 6,008.38
	5,996.96 6,024.95		-56.57 -56.51		weld weld	6,053.53 6,081.46		5,996.96 6,024.95		45.30 27.99	0.15 0.06		weld weld	6,053.53 6,081.46	5,996.96 6,024.95		5,976.64 6,004.97	-20.32 -19.98	weld	6,053.53 6,081.46
	6,070.26	weld	-56.32	0.19	weld	6,126.58		6,070.26	weld	45.31	0.19	45.12	weld	6,126.58	6,070.26	weld	6,050.74	-19.52	weld	6,126.58
	6,115.44 6,160.74		-56.14 -55.96		weld weld	6,171.58 6,216.70		6,115.44 6,160.74		45.18 45.30	0.18		weld weld	6,171.58 6,216.70	6,115.44		6,096.39 6,142.16		weld weld	6,171.58 6,216.70
	6,205.90 6,251.13		-55.87 -55.75		weld weld	6,261.77 6,306.88		6,205.90 6,251.13		45.16 45.23	0.09		weld weld	6,261.77 6,306.88	6,205.90 6,251.13		6,187.88 6,233.64	-18.02 -17.49		6,261.77 6,306.88
	6,296.29		-55.72	0.03	weld	6,352.01		6,296.29	weld	45.16	0.03	45.13	weld	6,352.01	6,296.29	weld	6,279.42	-16.87	weld	6,352.01
	6,341.55 6,386.81		-55.58 -55.44		weld weld	6,397.13 6,442.25		6,341.55 6,386.81		45.26 45.26	0.14		weld weld	6,397.13 6,442.25	6,341.55		6,325.19 6,370.96	-16.36 -15.85	weld weld	6,397.13 6,442.25
	6,432.09 6,465.14		-55.32 -55.25		weld weld	6,487.41 6,520.39		6,432.09 6,465.14		45.28 33.05	0.12 0.07		weld weld	6,487.41 6,520.39	6,432.09 6,465.14		6,416.77 6,450.23	-15.32 -14.91	weld weld	6,487.41 6,520.39
	6,508.52		-55.02		weld	6,563.54		6,508.52		43.38	0.23		weld	6,563.54	6,508.52		6,494.00	-14.52		6,563.54
	6,553.83 6,579.72		-54.78 -54.72		weld weld	6,608.61 6,634.44		6,553.83 6,579.72		45.31 25.89	0.24		weld weld	6,608.61 6,634.44	6,553.83 6,579.72		6,539.72 6,565.93	-14.11 -13.79	weld weld	6,608.61 6,634.44
	6,622.65 6,630.85		-54.61 -54.58		weld weld	6,677.26 6,685.43		6,622.65 6,630.85		42.93 8.20	0.11		weld weld	6,677.26 6,685.43	6,622.65 6,630.85		6,609.36 6,617.65	-13.29 -13.20	weld	6,677.26 6,685.43
	6,638.85		-54.57		weld	6,693.42		6,638.85		8.00	0.01		weld	6,693.42	6,638.85		6,625.76		weld	6,693.42
pend left	6,669.32 6,678.56		-54.84 -54.40	-0.27 0.44	bend weld	6,724.16 6,732.96	bend left	6,669.32 6,678.56		30.47 39.71	-0.27 0.17		bend weld	6,724.16 6,732.96	6,669.32 6,678.56		6,656.94 6,665.87	-12.38 -12.69	bend weld	6,724.16 6,732.96
					misc	,	tool stopped	0.000.00		0.10			misc	6,768.82	0.000.00				misc	6,768.82
bend left	6,686.68 6,719.75		-53.98	0.42	weld	6,773.73		6,686.68 6,719.75		8.12 41.19	0.42	40.77	weld	6,773.73	6,686.68		6,707.22	-12.53	weld	6,773.73
wt change	6,719.77	' '	-52.39	1.59		6 774 15		6,719.77 6,721.76		0.02 2.01	1.59	0.42	weld	6,774.15	6,719.77 6,721.76	No. of Street, or other Persons and the Person	6,707.65	-14 11	weld	6,774.15
	6,721.76 6,758.22		-18.29			6,774.15 6,776.51		6,758.22		36.46	34.10		weld	6,776.51	6,758.22		6,710.04		weld	6,776.51
speed excursionspeed within t	6,771.28 6,790.64		-5.92 12.42		misc misc	-	tool started	6,771.28 6,790.64		13.06 32.42			misc misc	6,777.20 6,778.22	6,771.28 6,790.64				misc misc	6,777.20 6,778.22
	0,730.04				weld	6,809.11	speed excursiv	0,700.01		OZ. IZ			weld	6,809.11		IIIISC	6,743.11	]	weld	6,809.11
	6,799.29 6,840.45		-50.97 -50.92		weld weld	6,850.26 6,891.37		6,799.29 6,840.45		41.07 41.16	-0.08 0.05		weld weld	6,850.26 6,891.37	6,799.29		6,784.86 6,826.56		weld weld	6,850.26 6,891.37
speed excursion	6,842.73					0,031.37		6,842.73	misc						6,842.73	misc				
wt change	6,843.47 6,843.49		-50.89	0.03	weld	6,894.36		6,843.47 6,843.49		3.02 0.02	0.03	2.99	weld	6,894.36	6,843.47		6,829.59	-13.88	weld	6,894.36
	6,889.24 6,935.15	weld	-50.10 -49.52		weld weld	6,939.34 6,984.67		6,889.24 6,935.15		45.77 45.91	0.79		weld weld	6,939.34 6,984.67	6,889.24 6,935.15	weld	6,875.22 6,921.21		weld weld	6,939.34 6,984.67
	6,980.36		-49.18		weld	7,029.54		6,980.36		45.21	0.34		weld	7,029.54	6,980.36		6,966.72		weld	7,029.54
pend left	7,025.61 7,055.80		-48.95 -50.94		weld bend	7,074.56 7,106.74	bend left	7,025.61 7,055.80		45.25 30.19	0.23 -1.99		weld bend	7,074.56 7,106.74	7,025.61 7,055.80		7,012.39 7,045.04	-13.22 -10.76	weld bend	7,074.56 7,106.74
pend left	7,068.84	weld	-48.66 -47.66	2.28	weld bend	7,117.50 7,127.84		7,068.84 7,080.18		43.23 11.34	0.29		weld	7,117.50 7,127.84	7,068.84 7,080.18		7,055.95 7,066.44	-12.89 -13.74	weld bend	7,117.50 7,127.84
. s., a rott	7,114.03	weld	-48.57	-0.91	weld	7,162.60	SSING TOTAL	7,114.03	weld	45.19	0.09	45.10	weld	7,162.60	7,114.03	weld	7,101.70	-12.33	weld	7,162.60
	7,159.27 7,204.59		-48.44 -48.22		weld weld	7,207.71 7,252.81		7,159.27 7,204.59		45.24 45.32	0.13		weld weld	7,207.71 7,252.81	7,159.27		7,147.46 7,193.21	-11.81 -11.38	weld weld	7,207.71 7,252.81
pend right	7,240.85 7,249.75		-48.67 -48.07		bend weld	7,289.52 7,297.82	bend right	7,240.85 7,249.75		36.26 45.16	-0.45 0.15		bend weld	7,289.52 7,297.82	7,240.85 7,249.75		7,230.45 7,238.87		bend weld	7,289.52 7,297.82
pend right	7,249.73		-48.77		bend	,	bend right	7,285.96		36.21	-0.70		bend	7,334.73	7,285.96		7,276.32		bend	7,334.73
	7,295.12 7,340.33		-47.86 -47.83		weld weld	7,342.98 7,388.16		7,295.12 7,340.33		45.37 45.21	0.21		weld weld	7,342.98 7,388.16	7,295.12		7,284.69 7,330.52		weld weld	7,342.98 7,388.16
	7,385.65		-47.64 -47.47	0.19 0.17	weld	7,433.29		7,385.65 7,430.90		45.32 45.25	0.19 0.17		weld weld	7,433.29 7,478.37	7,385.65 7,430.90		7,376.30 7,422.03		weld weld	7,433.29 7,478.37
	7,430.90 7,476.21		-47.47		weld weld	7,478.37 7,523.44		7,430.90		45.25	0.17		weld	7,478.37	7,430.90		7,422.03		weld	7,478.37
peed within t	7,521.20 7,521.49		-47.16	0.07	weld	7,568.65		7,521.20 7,521.49		44.99 45.28	0.07	45.21	weld	7,568.65	7,521.20 7,521.49		7,513.61	-7.88	weld	7,568.65
	7,566.78	weld	-47.09	0.07	weld	7,613.87		7,566.78	weld	45.29	0.07	45.22	weld	7,613.87	7,566.78 7,611.99	weld	7,559.48	-7.30	weld	7,613.87 7,658.99
	7,611.99 7,657.27		-47.00 -46.77		weld	7,658.99 7,704.04		7,611.99 7,657.27	weld	45.21 45.28	0.23	45.05	weld	7,658.99 7,704.04	7,657.27	weld	7,605.25 7,650.95	-6.32	weld	7,658.99
	7,702.51 7,747.85		-46.75 -46.61	0.02 0.14	weld weld	7,749.26 7,794.46		7,702.51 7,747.85		45.24 45.34	0.02 0.14		weld weld	7,749.26 7,794.46	7,702.51 7,747.85		7,696.83 7,742.68		weld weld	7,749.26 7,794.46
	, ,				weld	7,839.51						45.05	weld	7,839.51					weld	7,839.51
pend right	7,784.99 7,793.10		-86.67 -91.26	-40.06 -4.59	bend weld	7,871.66 7,884.36	bend right	7,784.99 7,793.10		37.14 45.25	0.39		bend weld	7,871.66 7,884.36	7,784.99		7,821.00 7,833.88		bend weld	7,871.66 7,884.36
	7,838.25		-91.22		weld	7,929.47		7,838.25		45.15	0.05		weld	7,929.47	7,838.25		7,879.64		weld	7,929.47
	7,883.39 7,928.42		-91.21 -91.26	-0.04	110.0	7,974.60 8,019.68		7,883.39 7,928.42		45.13 45.03	-0.04		weld weld	7,974.60 8,019.68	7,883.39		7,925.41 7,971.14		weld weld	7,974.60 8,019.68
nend viele	7,973.68		-91.01	0.25	weld	8,064.69		7,973.68 8,009.70		45.26 36.01	0.25	45.02	weld	8,064.69	7,973.68 8,009.70		8,016.81	43.12	weld	8,064.69
bend right	8,009.70 8,018.78							8,009.70 8,018.78		36.01 45.10					8,009.70 8,018.78					
	8,060.69		-45.80	45.20	11 51 5	8,106.49		8,060.69		41.90	0.11		weld	8,106.49	8,060.69		8,059.21		weld	8,106.49
easing begin - s	8,073.38 8,105.86		-45.80 -45.57		casing weld	8,119.18 8,151.44	casing begin -	8,073.38 8,105.86	- C	12.69 45.18	0.01		casing weld	8,119.18 8,151.44	8,073.38 8,105.86		8,072.08 8,104.80		casing weld	8,119.18 8,151.44
gm # 150, sta.	8,141.18	agm	-46.12				agm #17, sta. 2	8,141.18	agm	35.31	-0.54	35.86		8,187.29	8,141.18		8,141.18	0.00	agm	8,187.29
asing end - sta	8,142.21	casing	-45.46	0.66	casing	8,187.67	casing end - sta	8,142.21	casing	68.83	0.34	68.49	casing	8,187.67	8,142.21	casing			casing	8,187.67

3.86

Std Dev

13.93

<- Ref Point 1

<- Rows removed for brevity

Correct Sequence 1

Odo A	Event A	Len A	∆Len	Len B	Event B	Odo B
5,639.82	weld	45.23	0.33	44.90	weld	5,696.54
5,670.97	agm	31.15				
5,678.40	weld	38.58	-0.23	38.81	weld	5,735.35
5,691.37	casing	12.97	-0.38	13.35	casing	5,748.70
				16.86	agm	5,752.21
5,700.47	weld	22.07	0.03	22.04	weld	5,757.39

This is "Aagm"

Drift flags it.

Length flags it.

The interpolation is wrong

Its matches don't agree w/ the formed ones

its matches are wrong

Marks AGM as correct - but it is wrong

Incorrectly marks other welds as incorrect

Consider...

This example employs outside knowledge

Interp. has no intrinsic idea of "truth"

It would miss if forming from scratch

In practice, the EstErr column is unknown

Correct Sequence 2

Odo A	Event A	Len A	∆Len	Len B	Event B	Odo B
6,630.85	weld	8.20	0.03	8.17	weld	6,685.43
6,638.85	weld	8.00	0.01	7.99	weld	6,693.42
6,669.32	bend	30.47	-0.27	30.74	bend	6,724.16
6,678.56	weld	39.71	0.17	39.54	weld	6,732.96
6,686.68	bend	8.12				
		tool stoppe	ed	35.86	misc	6,768.82
		reported to	wice ->	40.77	weld	6,773.73
6,719.75	weld	41.19	0.00	41.19	weld	6,774.15
6,719.77	pipe					
6,721.76	weld	2.01	-0.35	2.36	weld	6,776.51
				0.69	misc	6,777.20
				1.71	misc	6,778.22
6,758.22	weld	36.46	3.86	32.60	weld	6,809.11
6,771.28	misc		^^^ 4-foot	discrepancy	/	
6,790.64	misc					
6,799.29	weld	41.07	-0.08	41.15	weld	6,850.26

This is "reconfig?"

Drift sees this.

Joint length sees this.

Interpolation sees this.

Interpolation sees that within 6-inches of the tool stopping it reported the same weld, twice weld 6,773.73 and 6,774.15 are the exact same weld!!

Correct Sequence 3

7,784.99	bend				
7,793.10	weld	7,792.46	0.64	weld	7,839.51
				bend	7,871.66
7,838.25	weld	7,837.52	0.73	weld	7,884.36
7,883.39	weld	7,882.85	0.54	weld	7,929.47
7,928.42	weld	7,928.19	0.23	weld	7,974.60
7,973.68	weld	7,973.48	0.20	weld	8,019.68
8,009.70	bend				
8,018.78	weld	8,018.71	0.07	weld	8,064.69
8,060.69	weld	8,060.70	0.02	weld	8,106.49

This is "misalignment"

Drift reports where they begin and end.

Length doesn't see them.

Interpolation sees them.