Artificial Intelligence for pro-active safety studies

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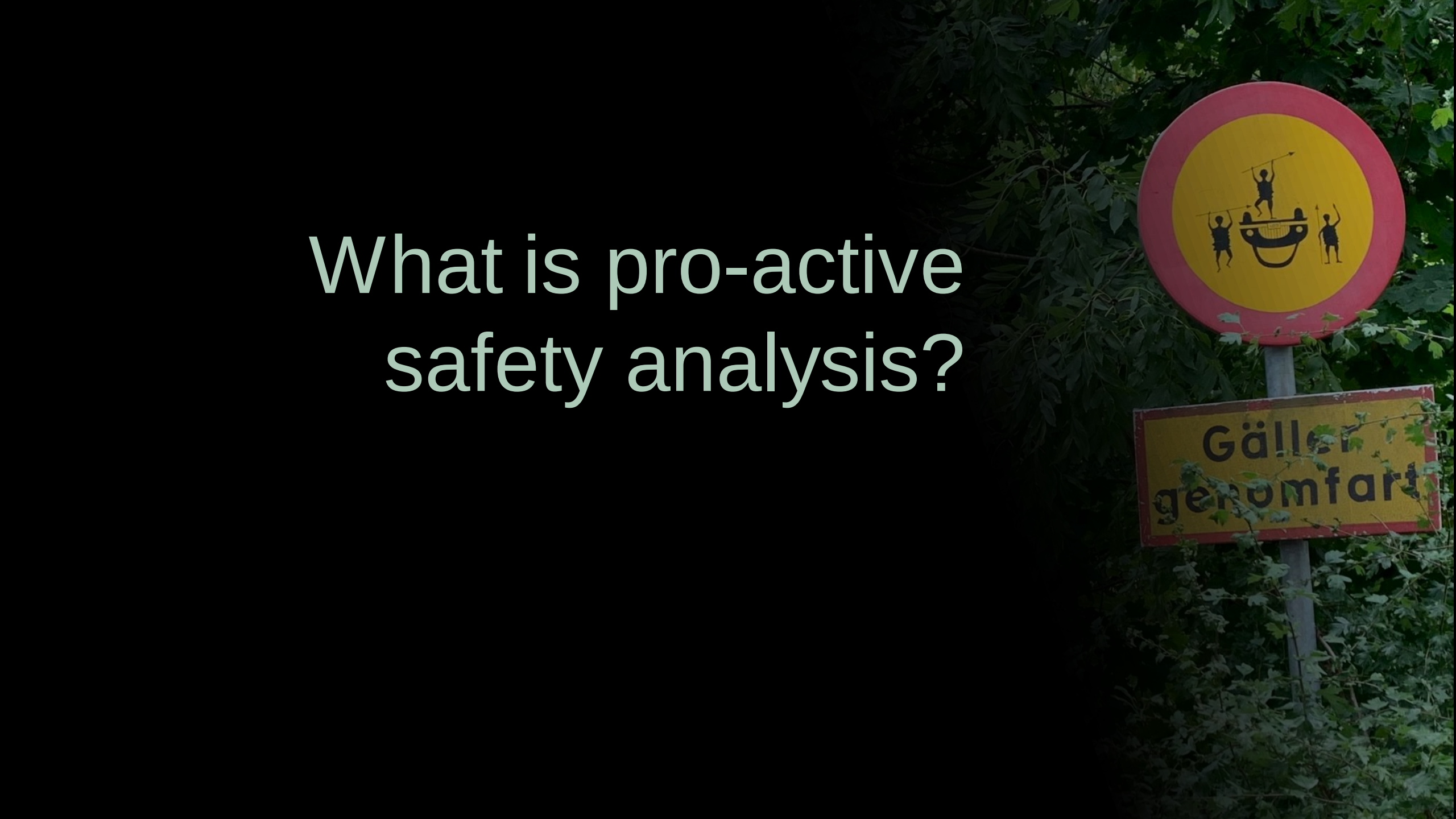
What is pro-active safety analysis?



Pro-active = BEFORE accidents happen

Unethical

Let’s wait for
more planes to crash…

Problems with accident data

Unethical

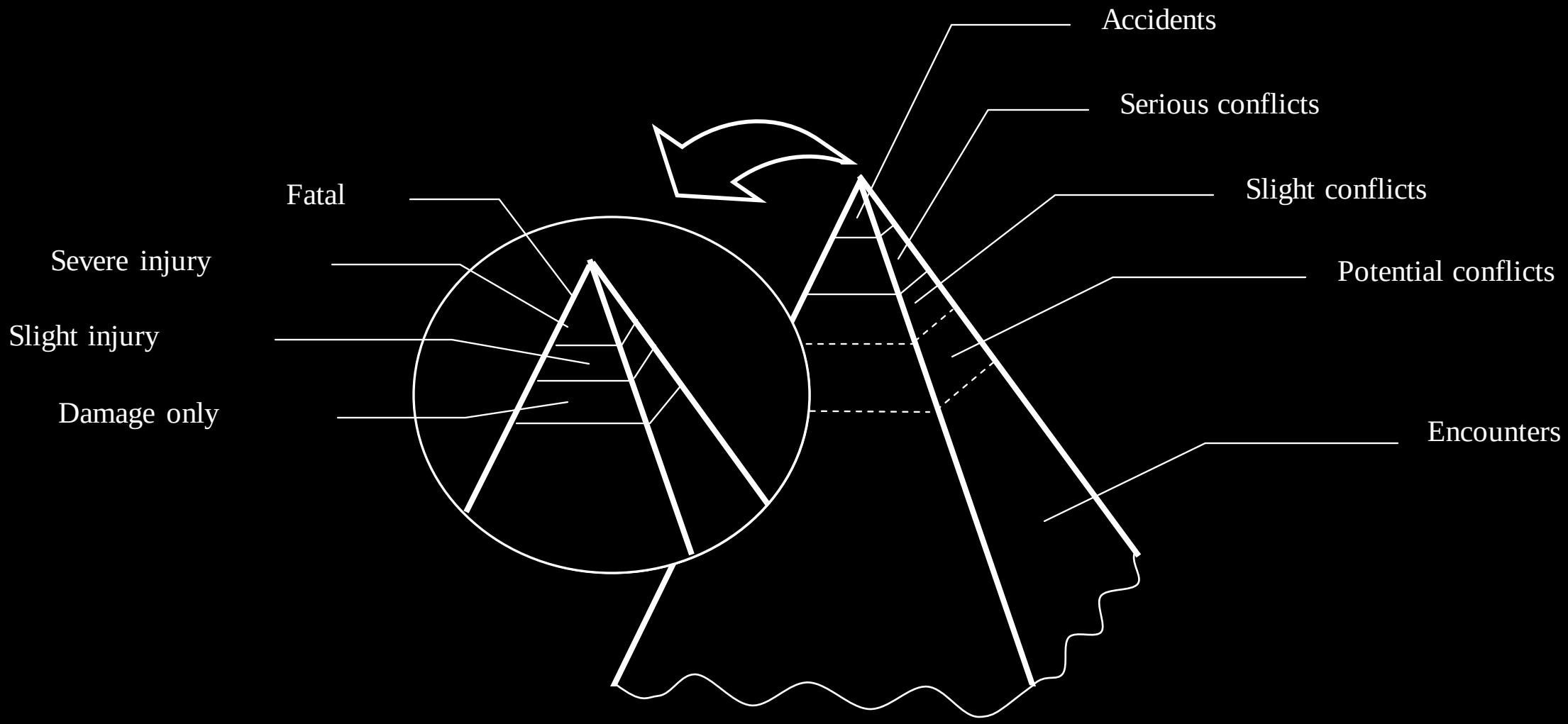
Few and random

Under-reporting

Scarce/biased information

Process?

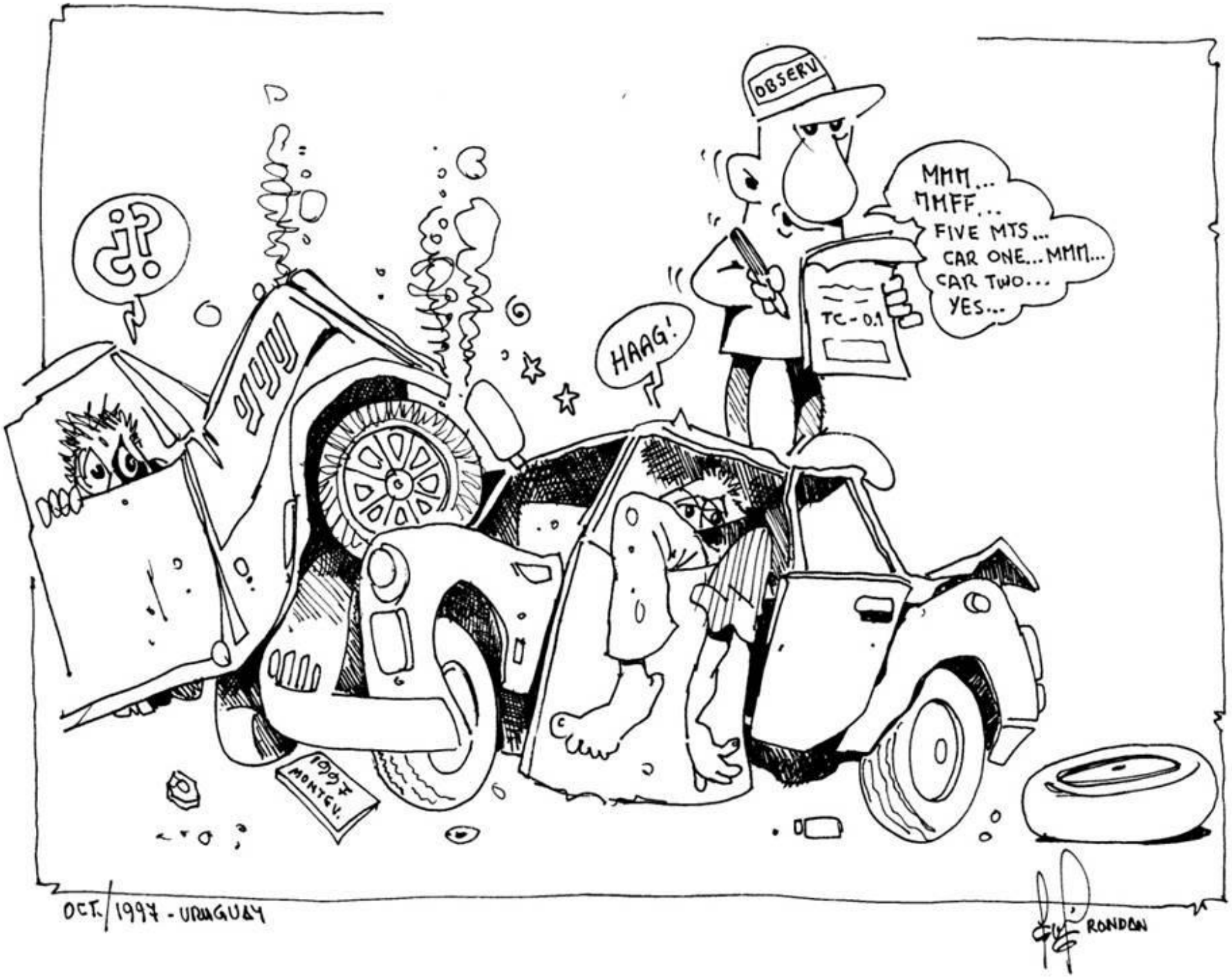
EV 43634


Accidents
Serious conflicts
Slight conflicts
Potential conflicts
Encounters
Fatal
Severe injury
Slight injury
Damage only

Hydén, 1987

2017-03-21 19:14:45

2017-03-22 08:13:16


OBSERV
MMM...
MMFF...
FIVE MTS...
CAR ONE... MMM...
CAR TWO...
YES...
TC-0.1
HAAG!
?!?
1997
MONTEV.
OCT./1997 - URUGUAY
RONDON

scout
micvision

SUCCESS

This isn't it.

TODAY IN PARLIAMENT

2017-05-16 10:50:45
frame: 500
car 0

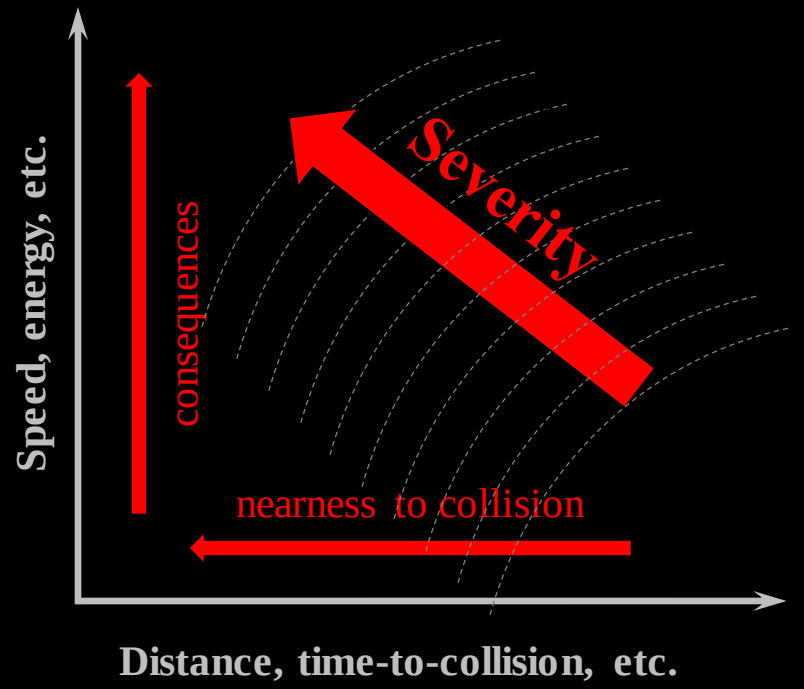
car 0
John Ericssons väg
John Ericssons väg
John Ericssons väg
John Ericssons väg

Concept of ‘severity’

Nearness-to-collision?

Consequences **IF** a collision?

BOTH? How to ‘weigh’ together?



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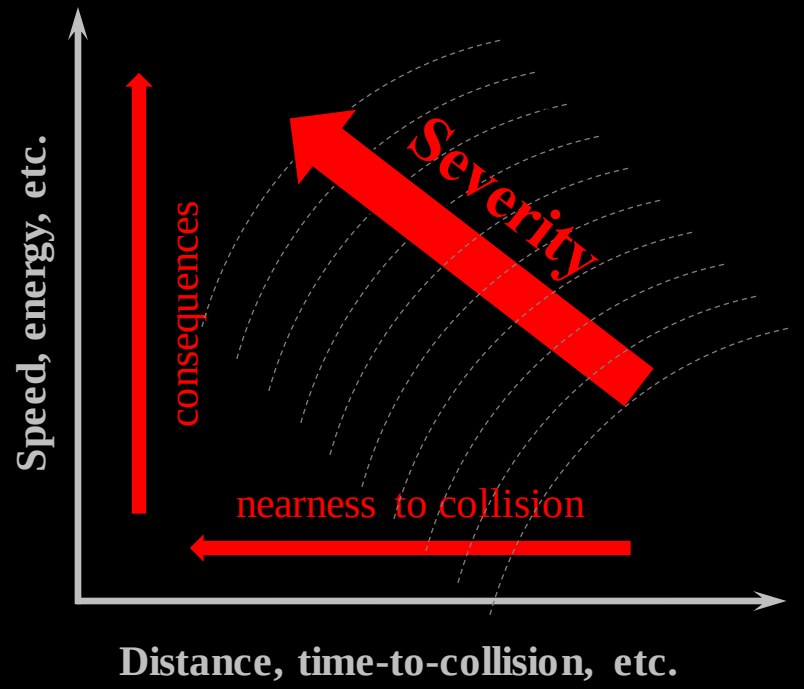
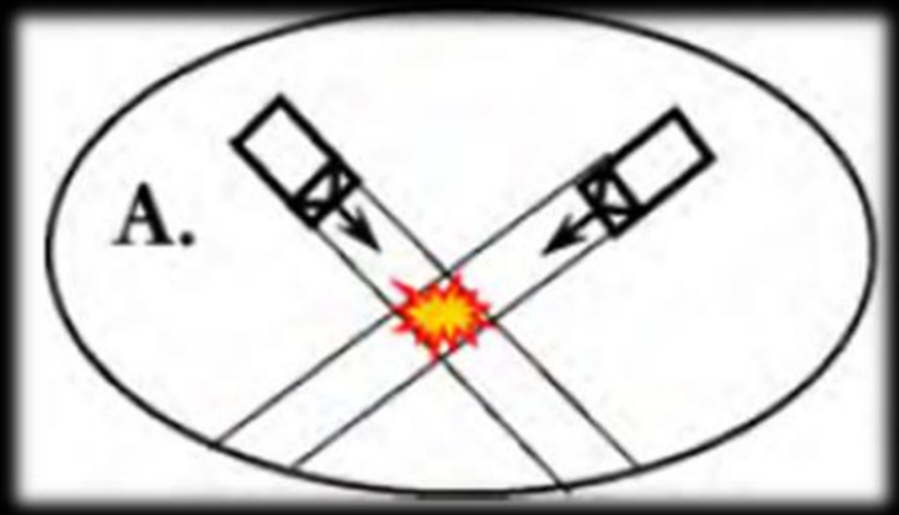


from Vision Zero perspective:

Nearness-to-severe injury

Frequently used indicator types

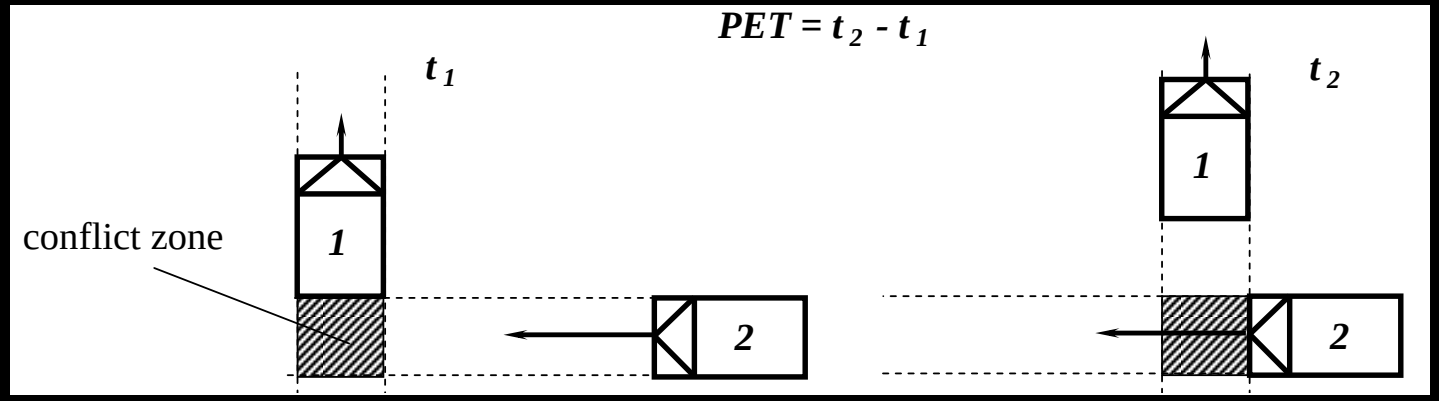
Time-to-collision (TTC)



Frequently used indicator types

Time-to-collision (TTC)

Time gap (PET)



Frequently used indicator types

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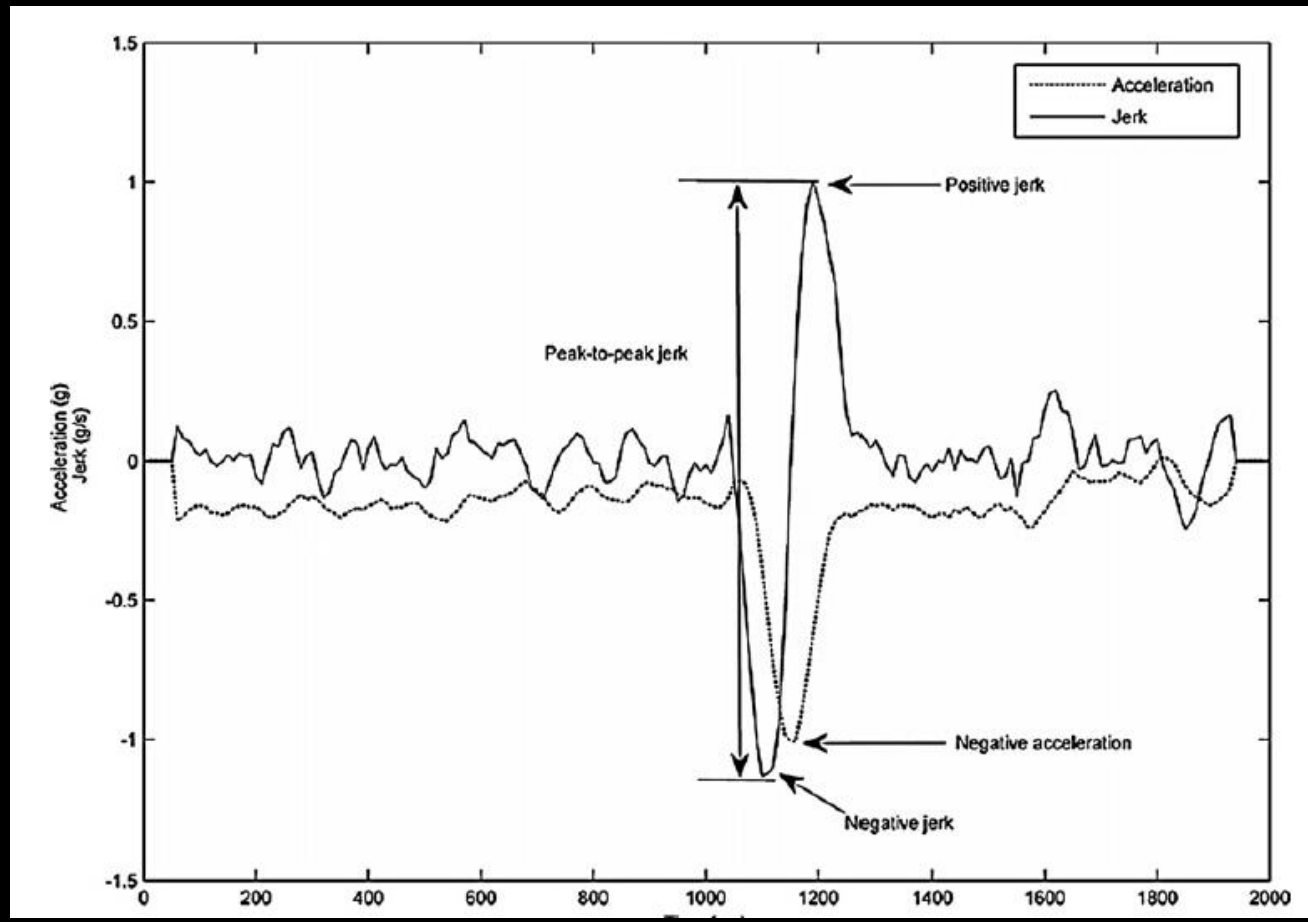
Time gap (PET)

Evasive action



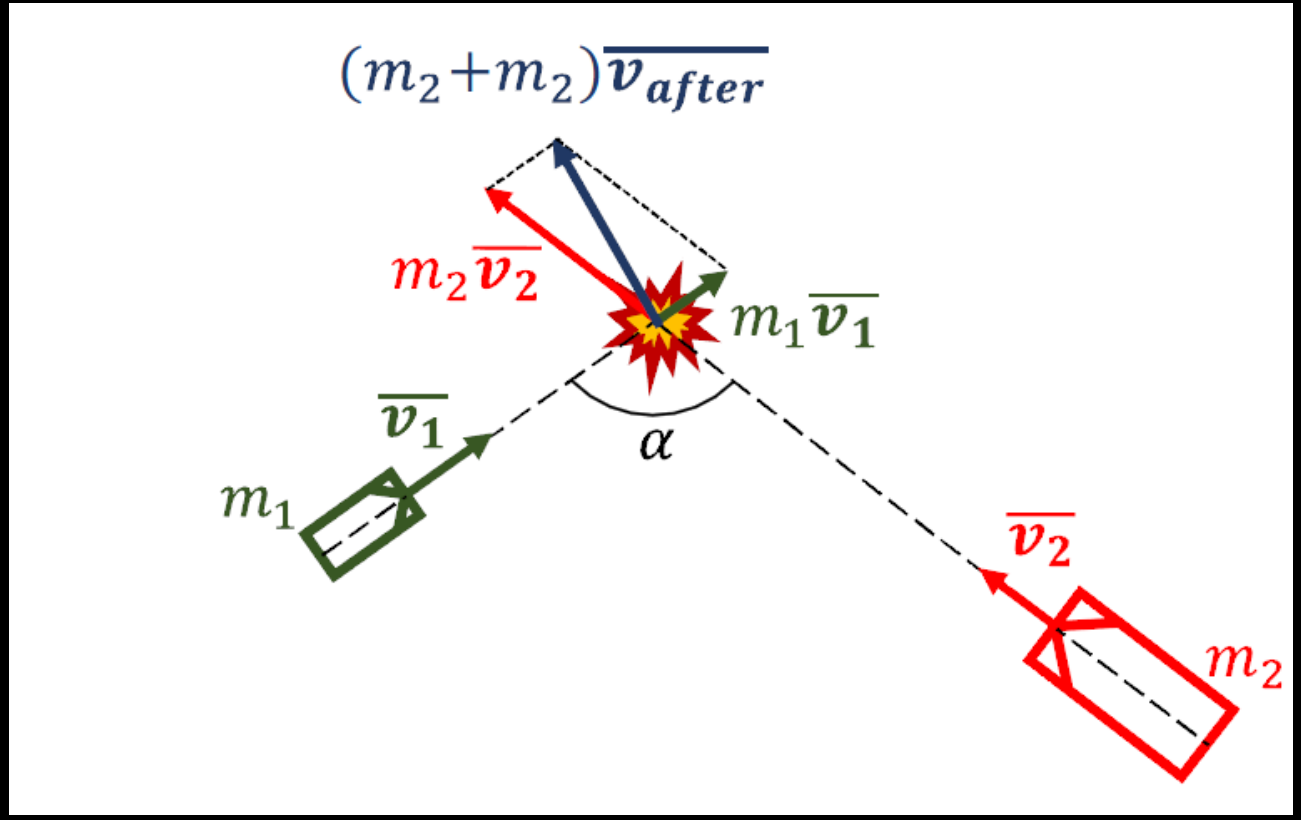
Frequently used indicator types

Time-to-collision (TTC)

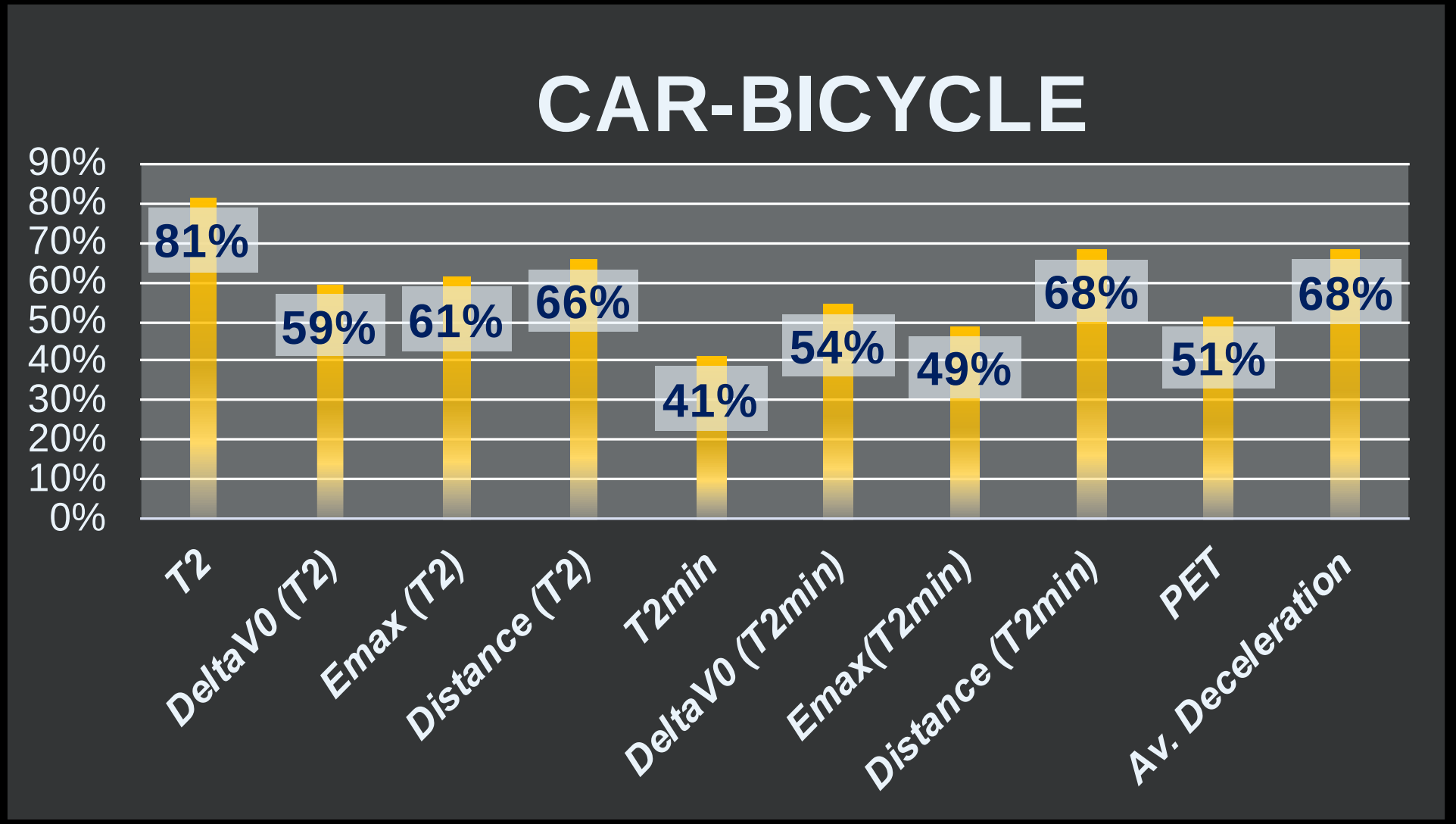
Time gap (PET)

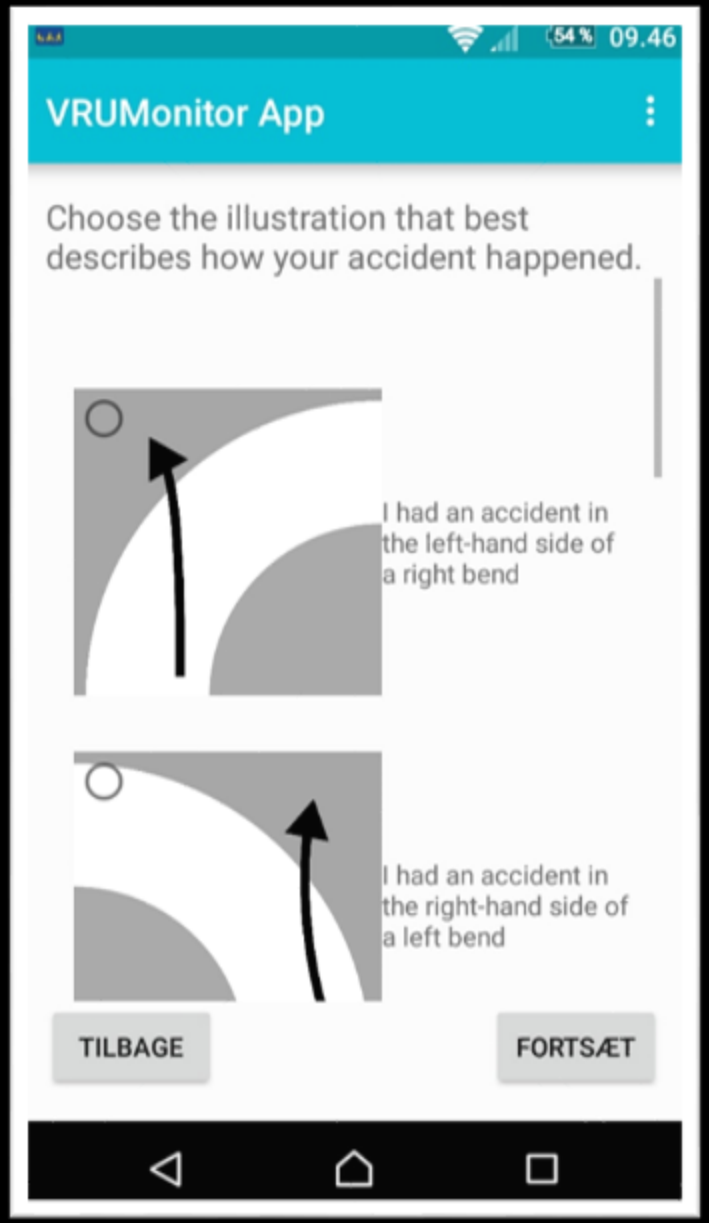
Evasive action

Energy/momentum



Yet, humans are much better…




54 % 09.46
VRUMonitor App
Choose the illustration that best describes how your accident happened.
I had an accident in the left-hand side of a right bend
I had an accident in the right-hand side of a left bend
TILBAGE
FORTSÆT