

The Human Factor - Working with Users

Signal Detection Theory

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Signal Detection Theory

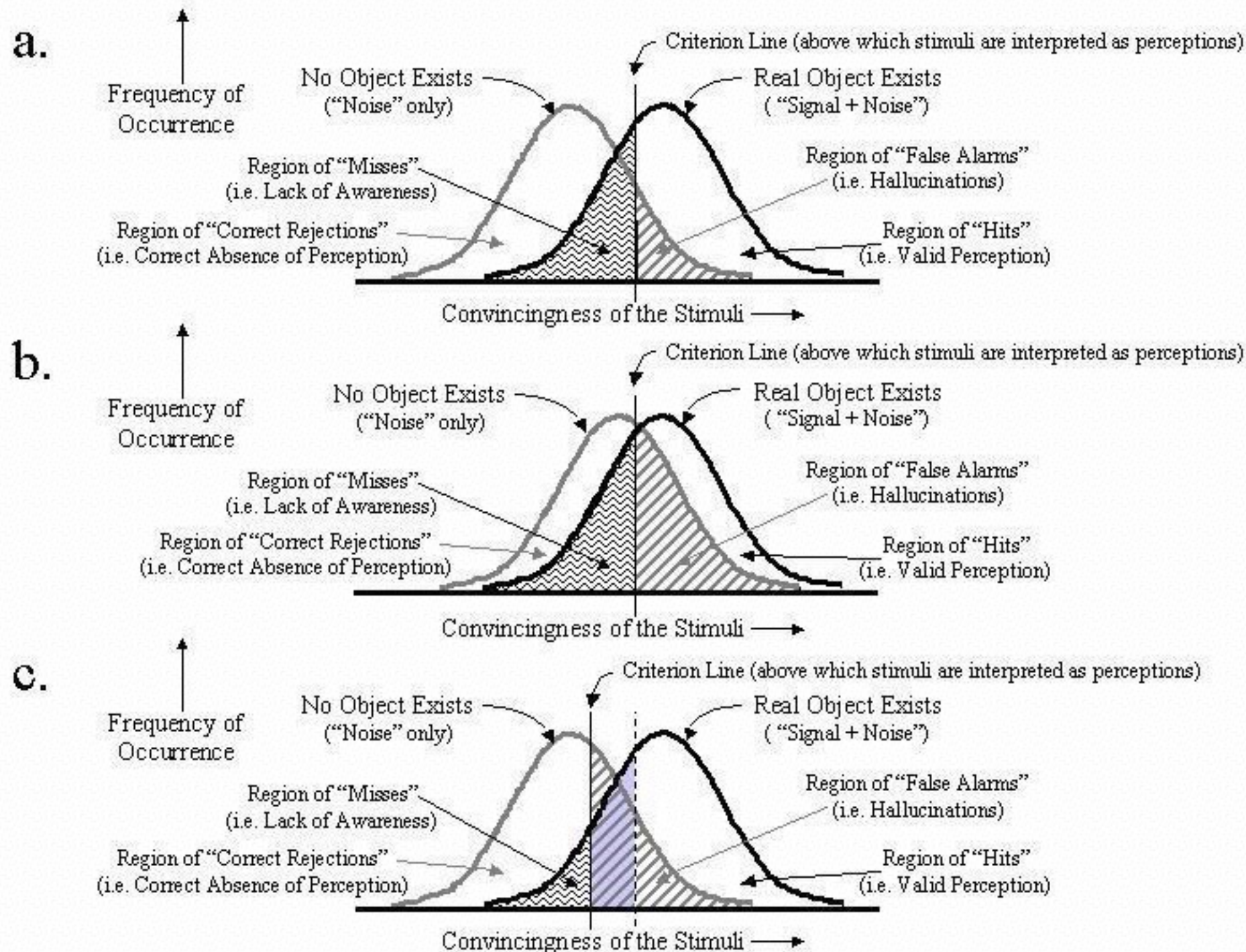
- ❖ How do we tell the difference between a signal and noise?
- ❖ Signal perceived to be present vs. Signal actually present
 - ❖ Hit: correct detection
 - ❖ Rejection: correct rejection
 - ❖ False alarm: perception of signal when none present
 - ❖ Miss: signal present, but not perceived

Example: Giving an Alert

- ❖ Signal is perceived to be present:
the user thinks that an alert has been given
- ❖ Signal is present:
an alert has been given
- ❖ False alarm:
user reacts to an alert when there is no reason to do so
- ❖ Miss:
user fails to notice an alert

Hint: Think red lights at a pedestrian crossing. Users can be pedestrians, cyclists, or car drivers

Example: Hallucinations



Thresholds for Noticing

these presume

- no other stimuli present
- perceptual abilities of a 20 year old

Sight

Candle flame,
50km away

Sound

Tick of a watch,
6m away

Taste

1g salt in 500L
water

Smell

1 drop perfume in
3 room flat

Touch

bee wing falling on
cheek from 1 cm

Seeing Groups

Separate elements are seen as a single group if they

- are close together
- move together
- share a shape or colour
- form a shape, such as a line, that is simple, stable, and optimal
- are in a region with symmetrical boundaries