The Temporal Dynamics of Dividing Focal Attention

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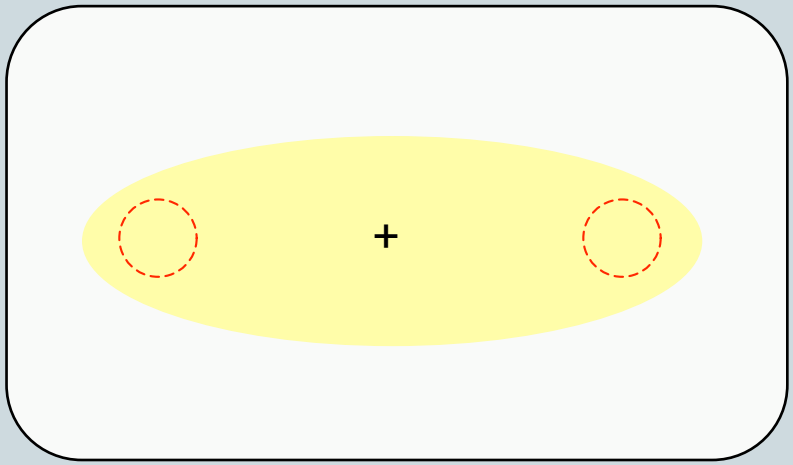
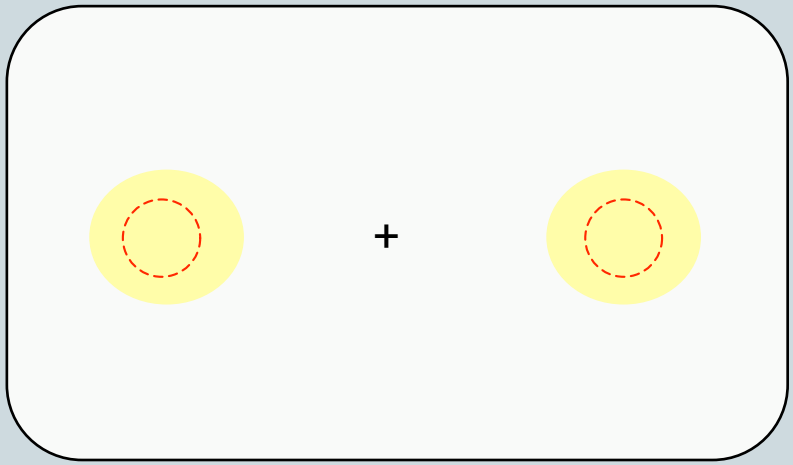
The nature of focal attention: Unitary or divided?





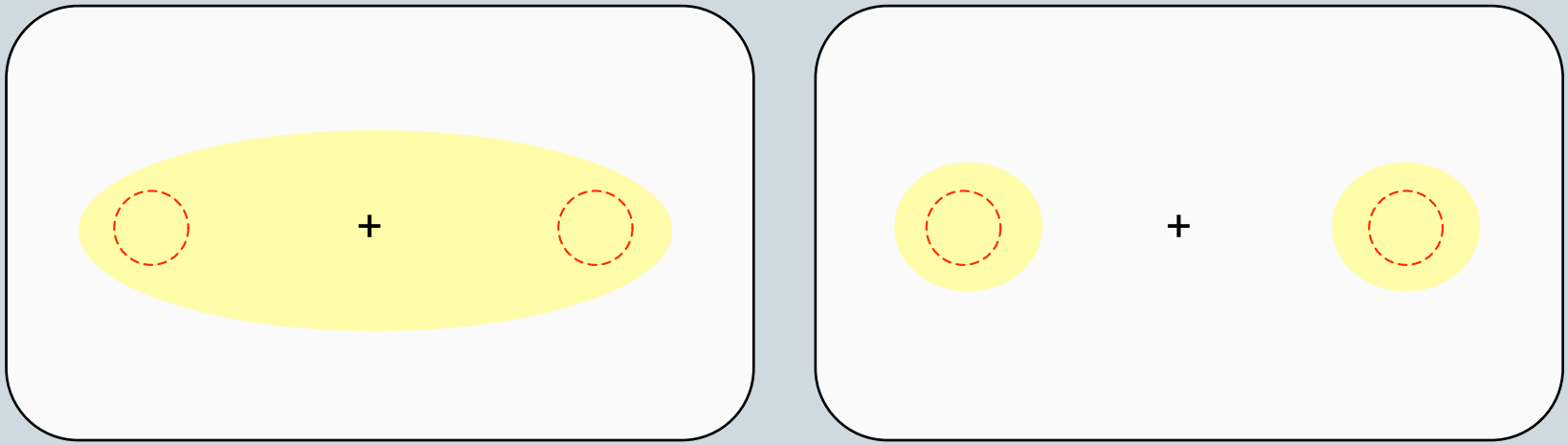
Single, unitary focus:

Ericksen & Yeh, 1985
Barriopedro & Botella, 2002;
Jonides, 1983
Benso et al., 1992

Divided, dual foci:

Müller et al., 2003
Kawahara & Yamada, 2006
Yamada & Kawahara, 2007
Adamo, Pun, & Pratt, 2008

The nature of focal attention: Unitary or divided?



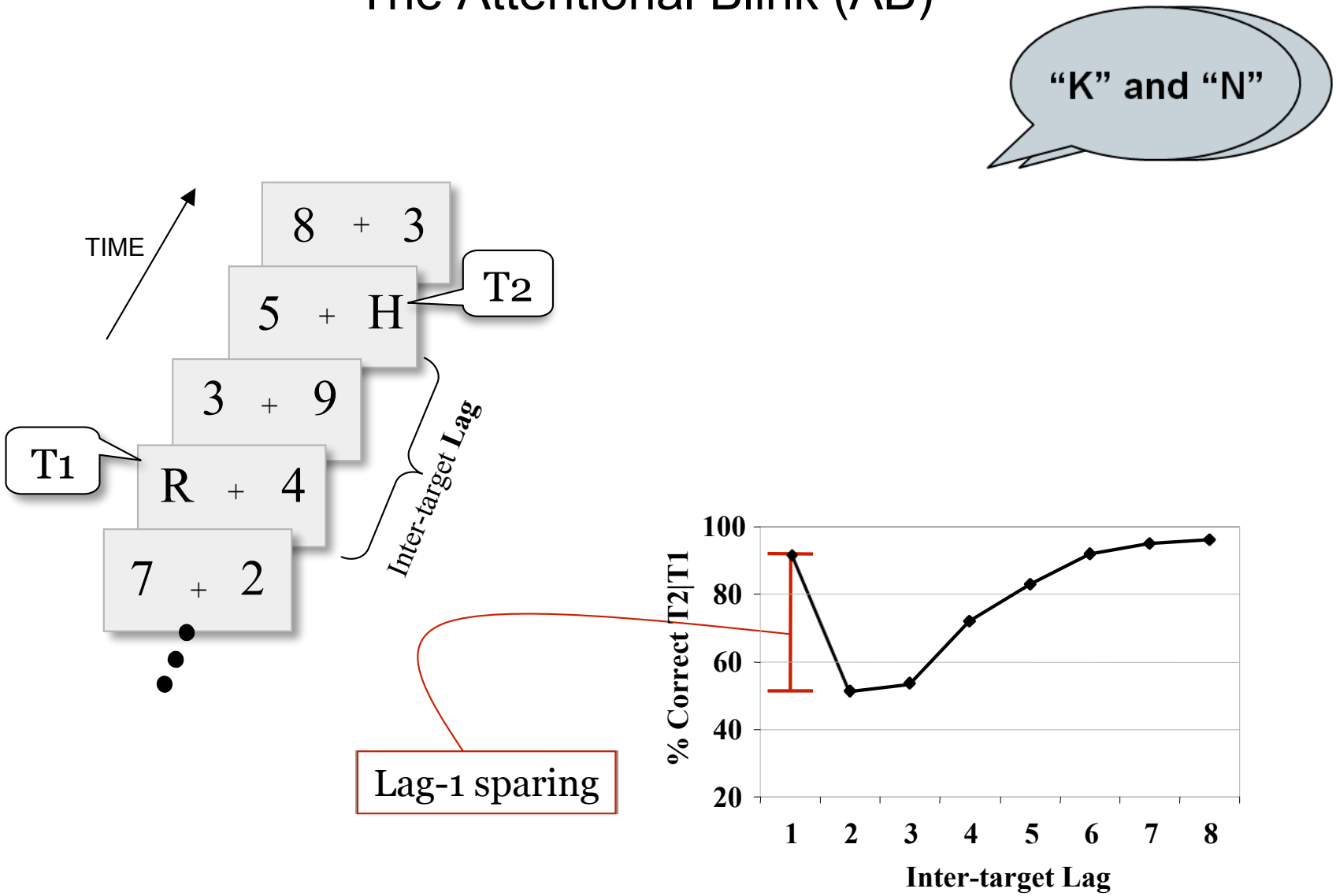
Can either mode be employed, depending on task demands?

Is it possible to morph from one mode to the other during a task?

How long does the morphing take?

Is there a default mode of attentional deployment?

The Attentional Blink (AB)



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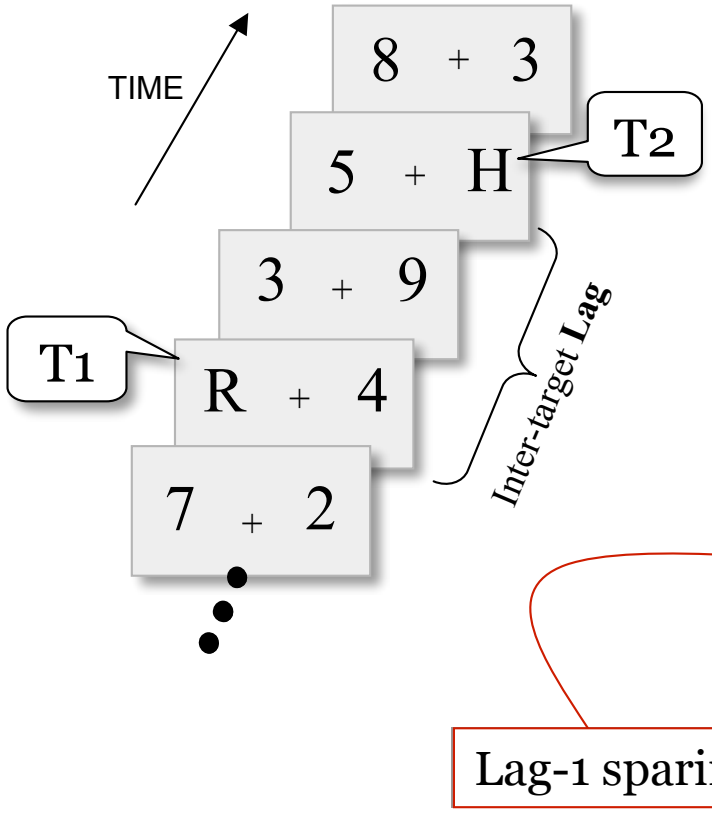
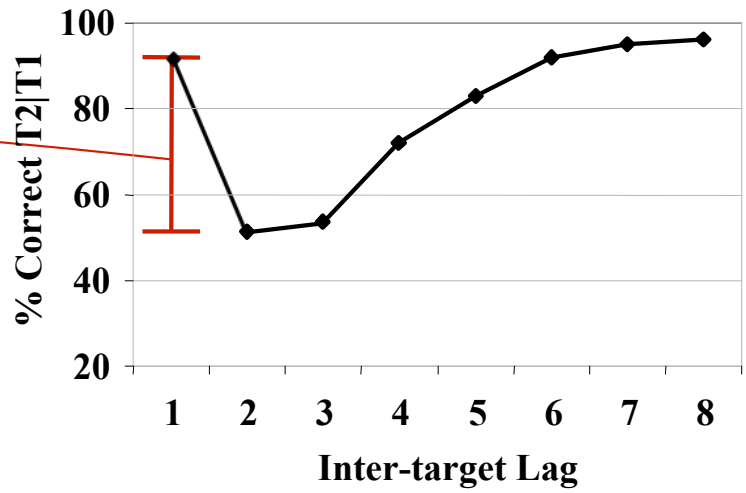


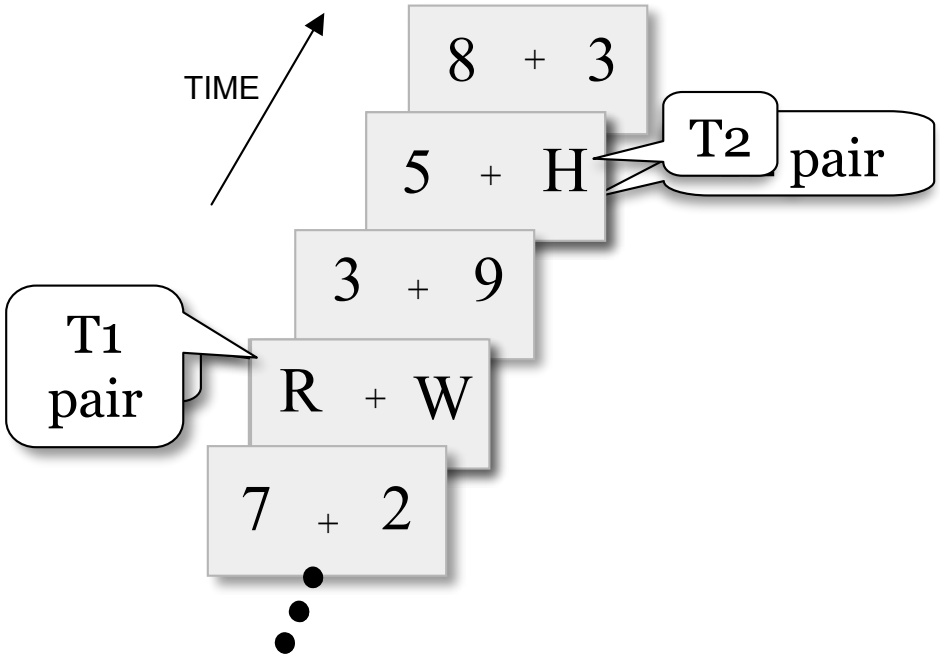
Lag-1 sparing only occurs if T2 falls within the focus of attention.

Hence, we can use the incidence of Lag-1 sparing to probe whether a spatial location falls within the focus of attention or not.



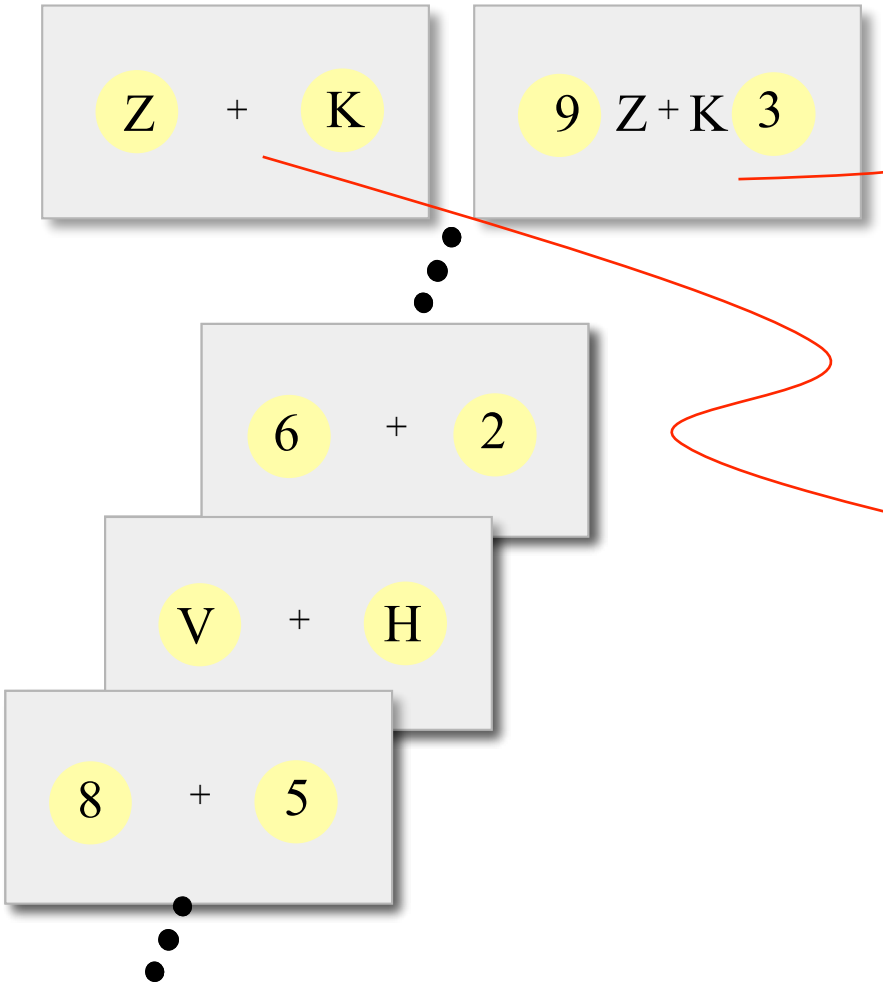
The Attentional Blink (AB)

Our paradigm:

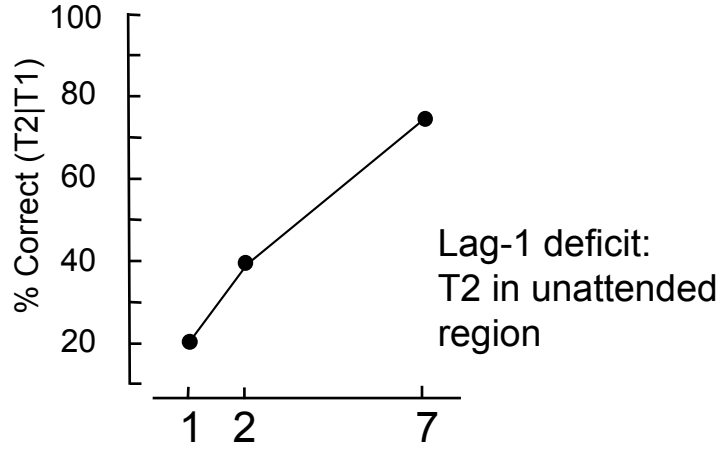


T1-pair always in-stream

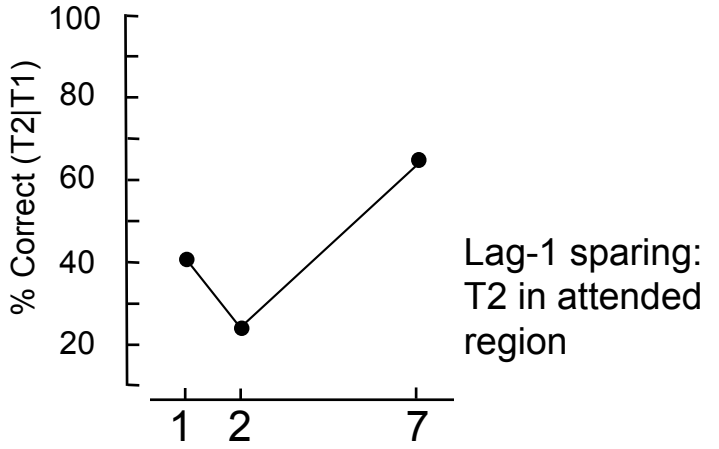
Divided, dual-foci mode



Predictions:



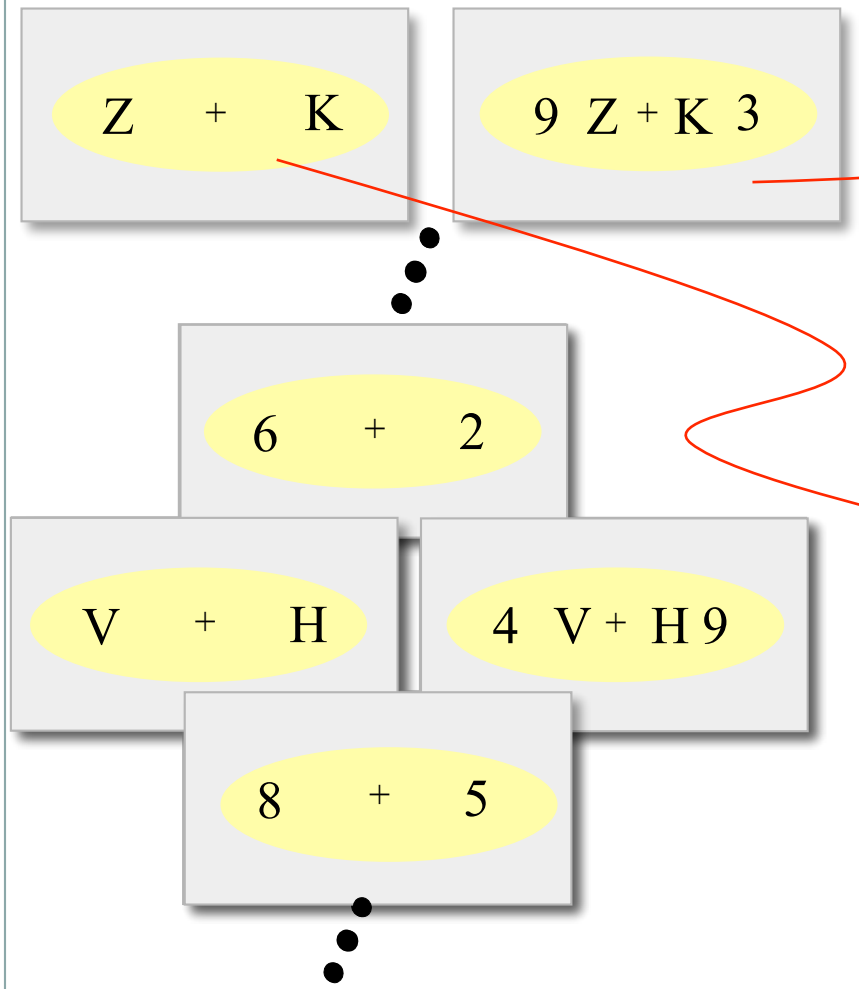
Lag-1 deficit:
T2 in unattended region



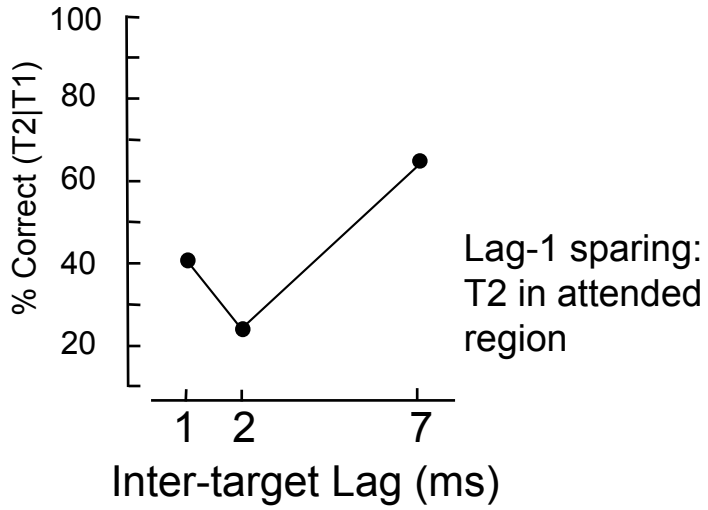
Lag-1 sparing:
T2 in attended region

T1-pair unpredictable

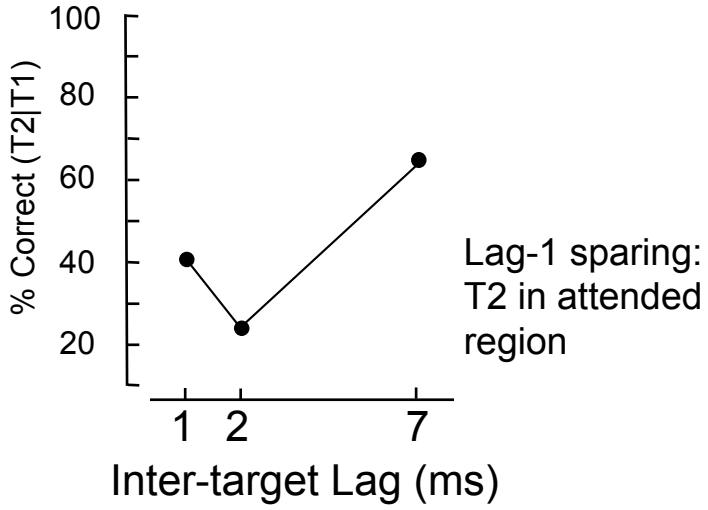
Unitary, single-focus



Predictions:



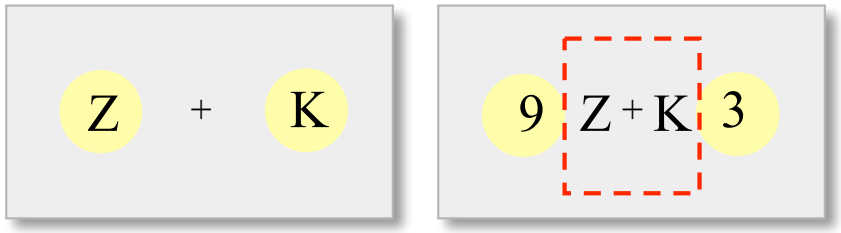
Lag-1 sparing: T2 in attended region



Lag-1 sparing: T2 in attended region

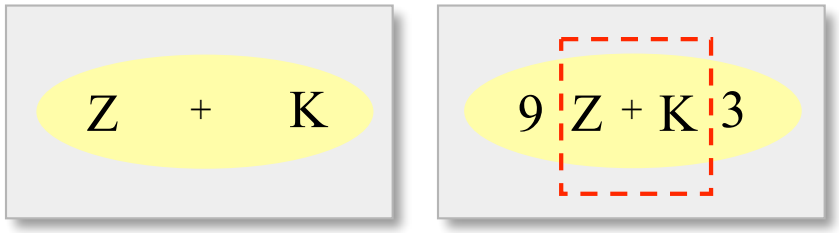
T1-pair always in-stream

Divided mode



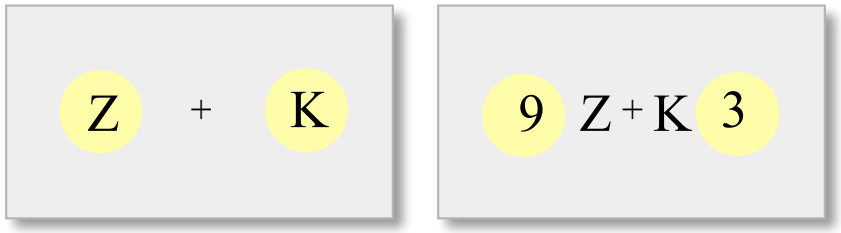
T1-pair unpredictable

Unitary mode



T1-pair always in-stream

Divided mode



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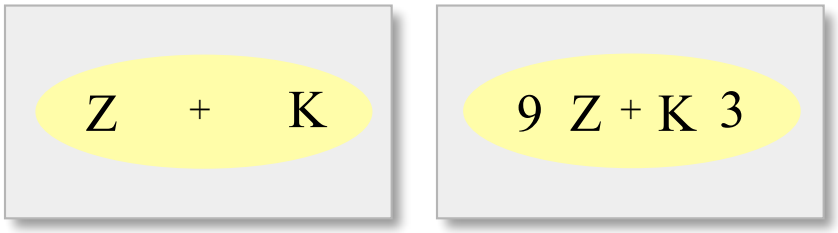
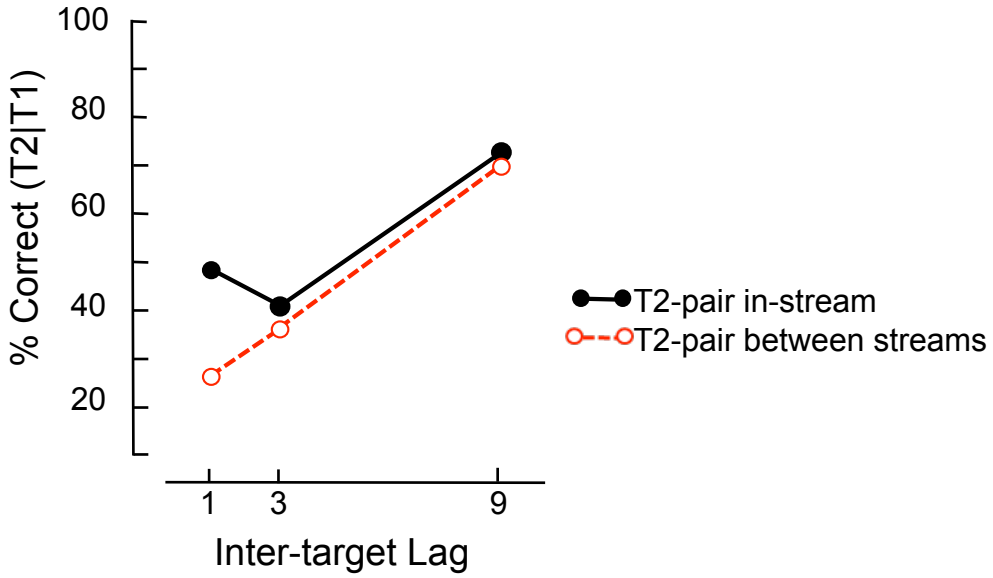
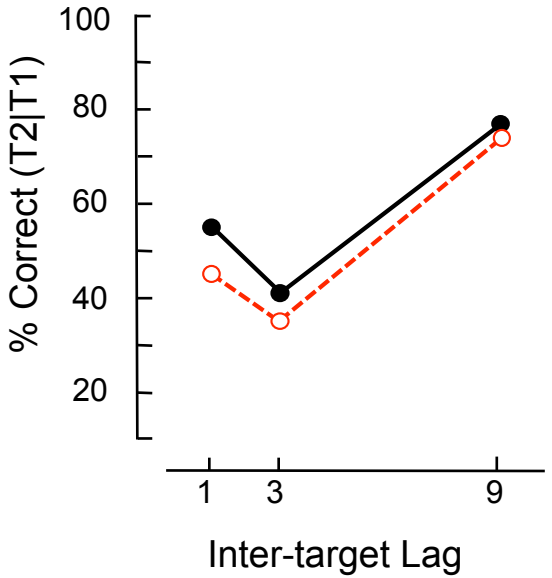
Unitary mode

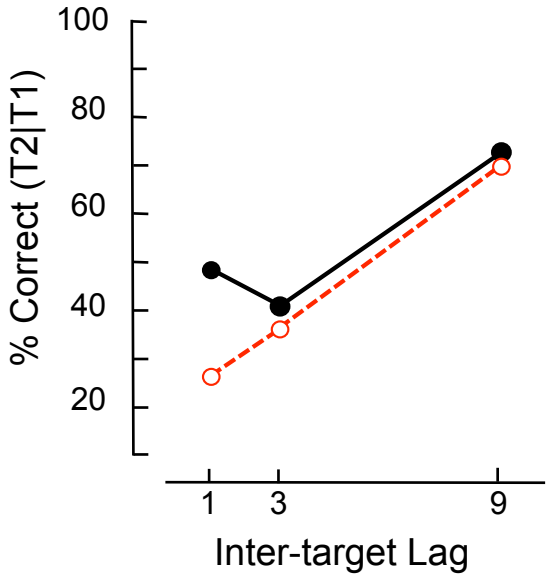






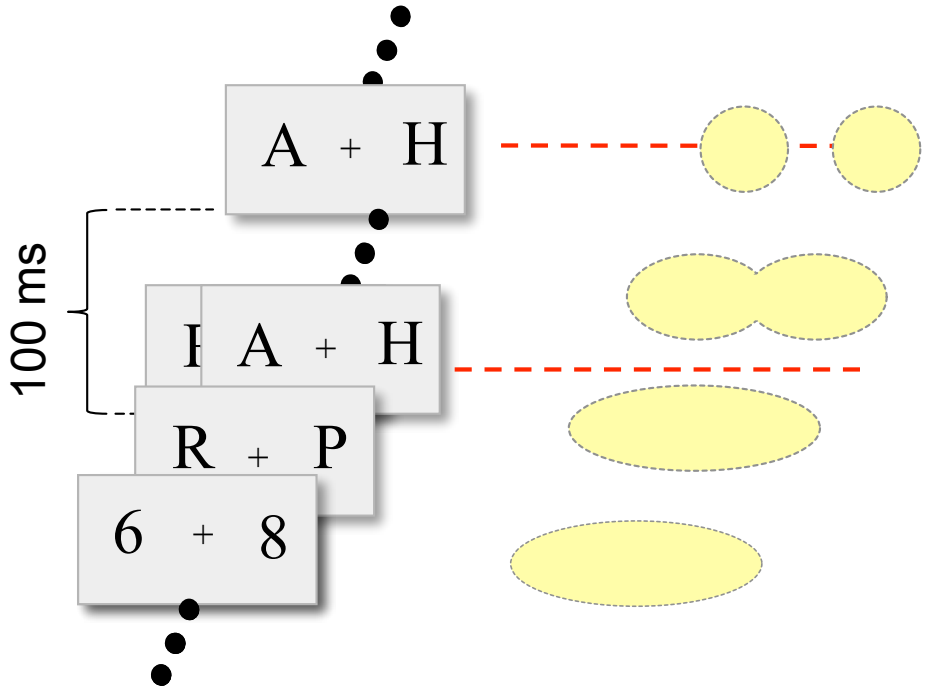
T1-pair always in-stream

Divided mode



What if the focus of attention is initially unitary, but divides over time?

SOA = 70 ms

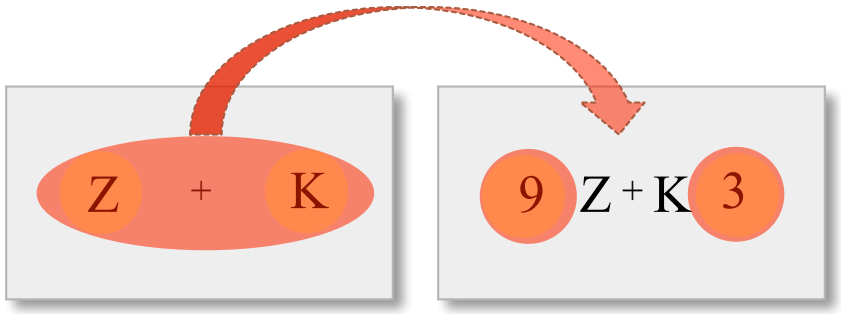


At 70 ms SOA, attention may still be unitary

At 100 ms SOA, attention may already be divided

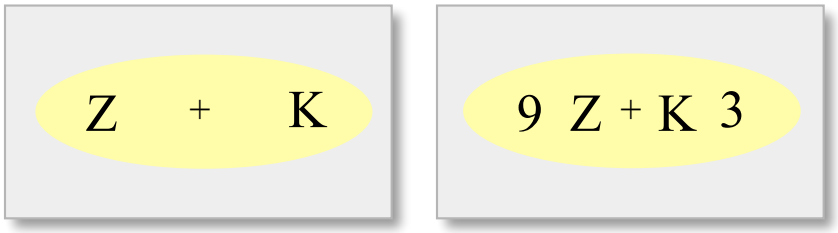
T1-pair always in-stream

Divided mode



T1-pair unpredictable

Unitary mode

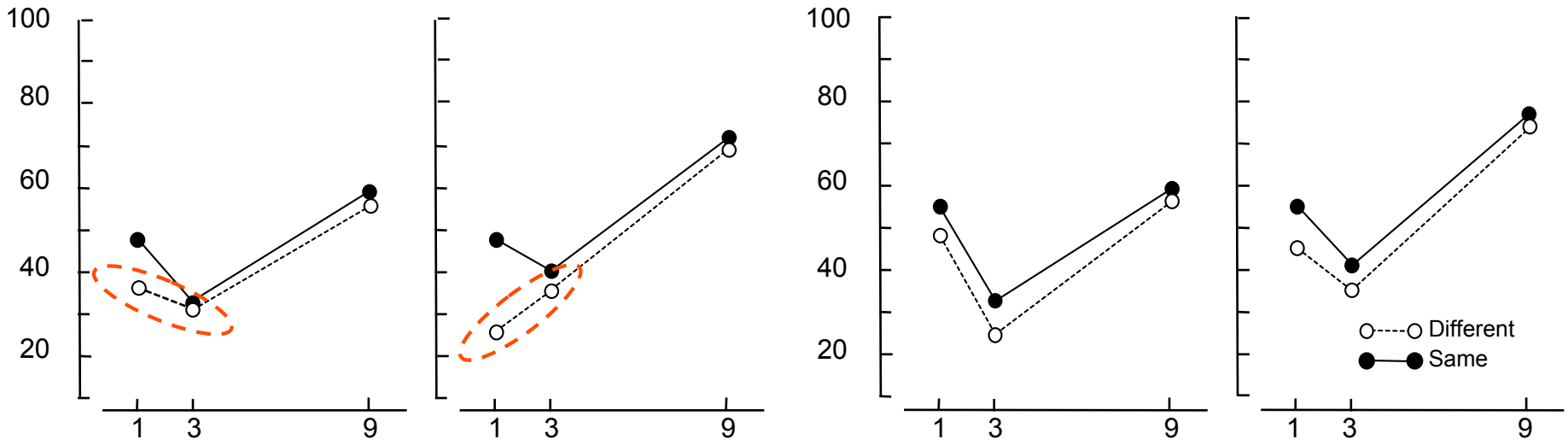


SOA = 70 ms

SOA = 100 ms

SOA = 70 ms

SOA = 100 ms



Thank you!

Whether a unitary or a divided focus is employed depends on *task demands*.

The focus of attention can morph from unitary to divided within 100 ms.

The "default" mode may be unitary.

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Michael Smith Foundation for Health Research