

A complete model would

explain the What, Where, When and How of Visual Word Recognition

WHAT

basic elements at play

HOW

the mechanisms to process them

WHERE

neural circuitry associated with this processing

WHEN

the time course of this processing

Carreiras (2013)

Different kind of models

Table 1. Major computational models of reading organised in terms of their primary focus^{a,b}

Model	Style	Task	Phenomena	Large lexicon
Models of visual word recognition				
IA [11,22]	IA	PI	Word-superiority effect	
Multiple read-out [3]	IA	PI, LD	Word-superiority effect	
SCM [2]	IA	LD, MP	Letter order	
BR [4–6]	Math/comp	LD, MP	Word frequency, letter order, RT distribution	✓
LTRS [8]	Math/comp	MP, PI	Letter order	
Overlap [66]	Math/comp	PI	Letter order	
Diffusion model [30]	Math/comp	LD	RT distribution, word frequency	
SERIOI [7]	Math/comp	LD, MP	Letter order	
Models of reading aloud				
CDP++ [13]	Localist/symbolic	RA	Reading aloud	✓
DRC [12]	IA	RA, LD	Reading aloud	
Triangle [24,25]	Distributed connectionist	RA	Reading aloud	
Sequence encoder [15]	Distributed connectionist	RA	Reading aloud	✓
Junction model [50]	Distributed connectionist	RA	Reading aloud	✓
Models of eye-movement control in reading				
E-Z reader [17,18]	Symbolic	R	Eye movements	
SWIFT [19]	Symbolic	R	Eye movements	
Model of morphology				
Amorphous discriminative learning [16]	Symbolic network	Self-paced reading, LD	Morphology	✓

^aThe table also indicates the modelling style or framework, the main task that the model simulates, the main phenomena that the model simulates (not exhaustive), and whether the model uses a realistically sized lexicon. Note that the review concentrates on ‘Models of visual word recognition’.

^bAbbreviations: Math/comp, mathematical or computational; LD, lexical decision; PI, perceptual identification; RA, reading aloud; MP, masked priming; R, natural reading.

Norris (2013)