



[†] The context sensitive languages do not contain ϵ and therefore are never equal to Σ^* .
 The context sensitive languages are the non-deterministic linear bound automaton languages—{ ϵ }. It is not known whether the deterministic linear bounded automaton languages are equal to the non-deterministic lba languages or are a proper subset.

Figure E-I-1: Inclusion relations of the classes of formal languages

Class of languages	Operation				
	U	\cap	comple- mentation	\bullet	$*$
Regular	yes	yes	yes	yes	yes
Det. pda	no	yes	no	no	yes
Context free	yes	no	yes	yes	yes
Context sensitive	yes	yes	?	yes	yes
Recursive	yes	yes	yes	yes	yes
Recursively enumerable	yes	yes	no	yes	yes

The context sensitive languages do not contain ϵ and therefore are never equal to Σ^* .

[‡] This case is trivially decidable (the answer is always no) because the context sensitive languages do not contain ϵ .

Table E-I-2: Summary of decidability properties of classes of formal languages

