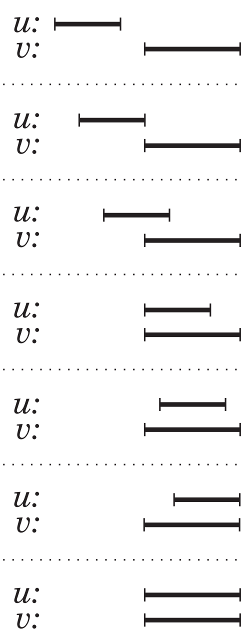
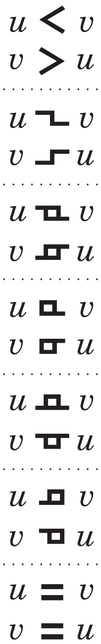
Table III.4: Basic interval relations and the conjunction diagram.
Symbols within the conjunction diagrams denote relations between interval endpoints.





Basic interval relation (conjunction diagram)	Symbols and names: here used	classic [Allen 1983]	
< < **<** <	u < v v > u	before after	< >
< < **=** <		meets met-by	m mi
< < **> <**		overlaps overlapped-by	o oi
= < > **<**		starts started-by	s si
> < > **<**		during contains	d di
> < > **=**		finishes finished-by	f fi
= < > **=**	u = v v = u	equal	=

The conjunction diagram, a b / c d — a shortcut for: rows $\underline{u}$, $\overline{u}$; columns $\underline{v}$, $\overline{v}$: a b / c d — depicts the formula: $\underline{u}$ a $\underline{v}$ and $\underline{u}$ **b** $\overline{v}$ and $\overline{u}$ c $\underline{v}$ and $\overline{u}$ **d** $\overline{v}$

bold – required; normal – follows from others; *empty* – no restriction

the interval definition (for thick intervals assumed here—from the inequality $\underline{u} < \overline{u}$) and transitivity of the ordering relation. Contrary to the initial claim by [Freksa 1992, p. 202] that all basic relations can be defined by at most two relations between the interval endpoints, two of them (the overlap relations) require the specification of at least three such relations.

All *AIR*s are unions of *BIR*s, and the set *AIR* is closed under union, intersection and composition of relations. There are some other useful subclasses of *AIR*s, wider than the *BIR* class. Two most important of them are:

***CIR*—Convex Interval Relations:** (82 relations), important in applications [van Beek & Cohen 1990, Vilain et al. 1990, Nökel 1991, Freksa 1992, Bettini 1994], and discussed in more details in Section III.3.3.

***PIR*—Pointisable Interval Relations:** (187 relations), a wider class than *CIR*, sharing with it some useful properties [van Beek & Cohen 1990, Bettini 1994], and discussed in Section III.3.4.

The sharp inclusions $BIR \subset CIR \subset PIR \subset AIR$ hold for these classes.