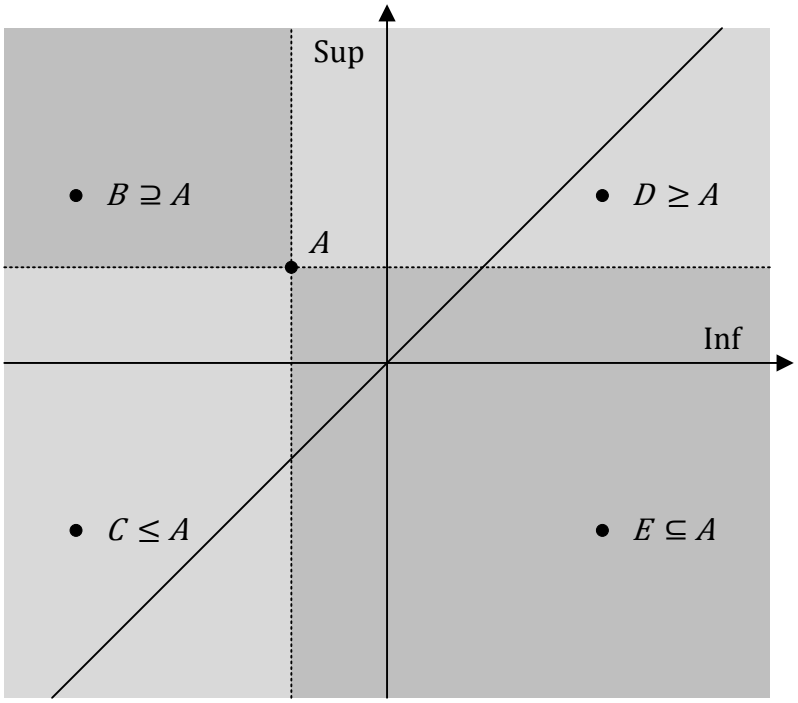

Figure 1: Complementary Partial Orders

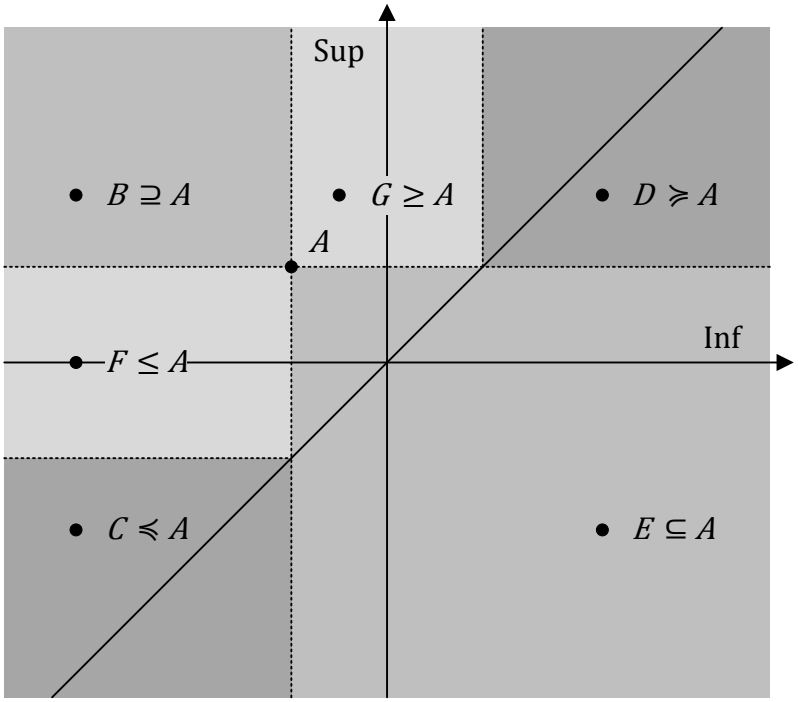

Figure 2: Family of Comparison Relations

Elementary Relation	Description	IEEE 1788 (proposed)
$A = B$	"A equals B"	$a1 = b1$ and $a2 = b2$
$A \subseteq B$	"A is a subset of B"	$a1 \geq b1$ and $a2 \leq b2$
$A \leq B$	"A is less or equal to B"	$a1 \leq b1$ and $a2 \leq b2$
$A \preccurlyeq B$	"A precedes or is equal to B"	$a2 \leq b1$
$A \subset B$	"A is interior to B"	$a1 > b1$ and $a2 < b2$
$A < B$	"A is strictly less than B"	$a1 < b1$ and $a2 < b2$
$A \prec B$	"A precedes B"	$a2 < b1$

Table 1: Elementary Relations (proposed)

Relation	Fortran 95	Elementary Relations
isDisjoint(A,B)	$b2 < a1$ or $a2 < b1$	$A \prec B$ or $B \prec A$
isInterior(A,B)	$b1 < a1$ and $a2 < b1$	$A \subset B$
isProperSubset(A,B)	$b1 \leq a1$ and $a2 < b2$ or $b1 < a1$ and $a2 \leq b2$	$A \subseteq B$ and not ($A = B$)
isSubset(A,B)	$b1 \leq a1$ and $a2 \leq b2$	$A \subseteq B$
setIsLess(A,B)	$a1 < b1$ and $a2 < b2$	$A < B$
setIsLessOrEqual(A,B)	$a1 \leq b1$ and $a2 \leq b2$	$A \leq B$
setIsEqual(A,B)	$a1 = b1$ and $a2 = b2$	$A = B$
certainlyIsLess(A,B)	$a2 < b1$	$A \prec B$
certainlyIsLessOrEqual(A,B)	$a2 \leq b1$	$A \preccurlyeq B$
certainlyIsEqual(A,B)	$b2 \leq a1$ and $a2 \leq b1$	$A \preccurlyeq B$ and $B \preccurlyeq A$
possiblyIsLess(A,B)	$a1 < b2$	not ($B \preccurlyeq A$)
possiblyIsLessOrEqual(A,B)	$a1 \leq b2$	not ($B \prec A$)
possiblyIsEqual(A,B)	$a1 \leq b2$ and $b1 \leq a2$	not ($A \prec B$ or $B \prec A$)

Table 2: Fortran 95 Relations as Elementary Relations