Chapter 1
Figures

	set	*Forte #*	*ICV*	*mm-vector*
A	{0,3,6}	3-10	<002001>	<36, 1245>
B	{0,3,6,9}	4-28	<004002>	<36, 1245>
C	{0,1,3,4,6,9}	6-27	<225222>	<3, 6, 1245>
D	{0,1,3,4,6,7,9,a}	8-28	<448444>	<36, 1245>

Figure 1.1 Ericksson's mm-vectors applied to four pcsets with strong ic3 prominence.

Cardinality of set class	Smallest 2C%V value	Largest 2C%V value
2	0	100
3	0	100
4	0	67
5	0	40
6	0	40
7	7	29
8	7	29
9	8	25
10	9	20
11	9	18
12	9	18

Figure 1.2 Range of possible values in Castrén's 2C%-vector for all cardinality SCs.

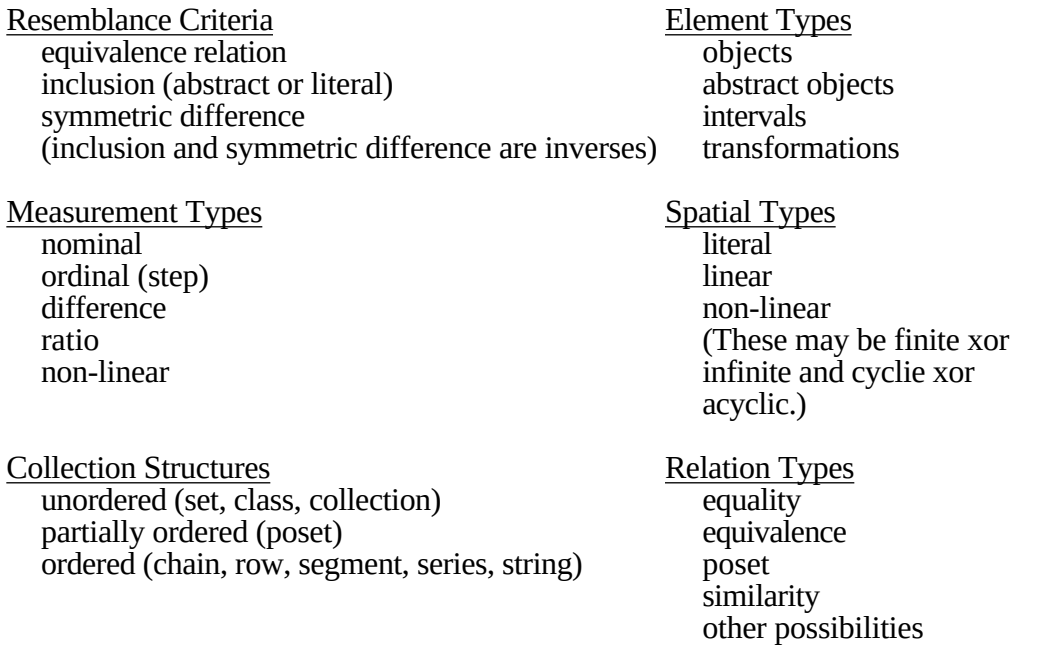


Figure 1.3 Hermann's figure 1.3: A Classification Scheme for Theories of Resemblance.[1]

[1]Hermann, 15.

Theorist	Similarity Function	Castrén	Hermann
Castrén	%REL$_n$	39-43	
Castrén	T%REL	96-100	
Castrén	RECREL	101-143	
Ericksson	Maxpoint series, mm vectors		93-102
Forte	R$_n$ and compound relations	43-47	21-24
Forte	K/Kh set complexes		25-33
Forte	Basic Interval Pattern (BIP)		33-39
Forte	Pcset Genera		102-110
Isaacson	IcVSIM	62-67	110-113
Kaplan	Ki Set Subcomplex		113-117
Lewin	EMB		44-48
Lewin	COV, SNDW, Entropy formula		78-88
Lewin	REL	89-96	89-92
Lewin	Interval Function		48-58
Lord	Similarity Function	61-62	68-69
Morris	SIM and ASIM	54-61	63-69
Rahn	Ak	73-75	72-75
Rahn	MEMB$_n$	75-80	
Rahn	TMEMB	80-84	
Rahn	ATMEMB	84-89	76-78
Regener	Partition Function		40-44
Regener/Lewin	Common-Note Function		58-63
Teitelbaum	Similarity Index	51-53	18-21

Figure 1.4 Summaries of published tools for determining similarity in Castrén's and Hermann's Dissertations.

Set complexes and subcomplexes		
Ericksson	Maxpoint series	Relation
Forte	K/Kh set complexes	Relation
Forte	Pcset Genera	Relation
Kaplan	Ki Set Subcomplex	Relation
ICV-based similarity relations		
Forte	R_1, R_2, R_0	Relation
Isaacson	IcVSIM	Measure
Lord	Similarity Function	Measure
Morris	SIM and ASIM	Measures
Rahn	Ak	Measure
Teitelbaum	Similarity Index	Measure
Subset-based similarity relations		
Castrén	$\%REL_n$	Measure
Castrén	T%REL	Measure
Castrén	RECREL	Measure
Forte	R_p	Relation
Lewin	REL	Measure
Rahn	$MEMB_n$	Measure
Rahn	TMEMB	Measure
Rahn	ATMEMB	Measure

Figure 1.5 Classification of similarity functions.

X	5-35	[02479]	<	0	3	2	1	4	0	>
Y	6-20	[014589]	<	3	0	3	6	3	0	>
DV(ICV(*X*), ICV(*Y*))			<	3	3	1	5	1	0	>

Figure 1.6 DV(ICV(5-34), ICV(6-z48))

X	5-35	[02479]	<	0	3	2	1	4	0	>
Y	6-20	[014589]	<	3	0	3	6	3	0	>
DV(ICV(*X*), ICV(*Y*))			<	0	3	0	0	1	0	>
DV(ICV(*Y*), ICV(*X*))			<	3	0	1	5	0	0	>

Figure 1.7 DV(ICV(5-35), ICV(6-20))

%2CV(*X*)	5-35	[02479]	<	0	30	20	10	40	0	>
%2CV(*Y*)	6-20	[014589]	<	20	0	20	40	20	0	>
DV(%2CV(*X*), %2CV(*Y*))			<	0	30	0	0	20	0	>
DV(%2CV(*Y*), %2CV(*X*))			<	20	0	0	30	0	0	>

#DV(%2CV(*X*), %2CV(*Y*)) + #DV(%2CV(*Y*), %2CV(*X*)) = 50 + 50 = 100

$\%REL_2$(5-34, 6-z48) = $\frac{100}{2}$ = **50**

Figure 1.8 $\%REL_2$(5-35, 6-20)

%2CV(*X*)	5-35	[02479]	<	0	30	20	10	40	0	>
%2CV(*Y*)	6-20	[014589]	<	20	0	20	40	20	0	>
DV(%2CV(*X*), %2CV(*Y*))			<	0	30	0	0	20	0	>
DV(%2CV(*Y*), %2CV(*X*))			<	20	0	0	30	0	0	>
WDV(%2CV(*X*), %2CV(*Y*))			<	0	60	0	0	40	0	>
WDV(%2CV(*Y*), %2CV(*X*))			<	40	0	0	60	0	0	>

Figure 1.9 The weighted difference vector: WDV(%2CV(5-35), %2CV(6-20))

Chapter 2
Figures

1 cycle:	(0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b)
2 cycles:	(0, 2, 4, 6, 8, a), (1, 3, 5, 7, 9, b)
3 cycles:	(0, 3, 6, 9), (1, 4, 7, a), (2, 5, 8, b)
4 cycles:	(0, 4, 8), (1, 5, 9), (2, 6, a), (3, 7, b)
5 cycle:	(0, 5, a, 3, 8, 1, 6, b, 4, 9, 2, 7)
6 cycles:	(0, 6), (1, 7), (2, 8), (3, 9), (4, a), (5, b)

Figure 2.1 Cyclic sets in twelve-pc space.

i	m	p	$\frac{p}{2}\ m$
1	1	12	6
2	2	6	6
3	3	4	6
4	4	3	4
5	1	12	6
6	6	2	6

Figure 2.2 Values of $\frac{p}{2}\ m$ *for all* m *and* p.

		$Min_{C, i}$ values						$Max_{C, i}$ values					
	Ics:	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
	0	0	0	0	0	0	0	0	0	0	0	0	0
C	**1**	0	0	0	0	0	0	0	0	0	0	0	0
a	**2**	0	0	0	0	0	0	1	1	1	1	1	1
r	**3**	0	0	0	0	0	0	2	2	2	3	2	1
d	**4**	0	0	0	0	0	0	3	3	4	3	3	2
i	**5**	0	0	0	1	0	0	4	4	4	4	4	2
n	**6**	0	0	0	2	0	0	5	6	5	6	5	3
a	**7**	2	2	2	3	2	1	6	6	6	6	6	3
l	**8**	4	4	4	4	4	2	7	7	8	7	7	4
i	**9**	6	6	6	6	6	3	8	8	8	9	8	4
t	**10**	8	8	8	8	8	4	9	9	9	9	9	5
y	**11**	10	10	10	10	10	5	10	10	10	10	10	5
	12	12	12	12	12	12	6	12	12	12	12	12	6

Figure 2.3 *Min(*c, i*) and max(*c, i*) values for all cardinalities (rows) and interval classes (columns).*

Ic1 cyclic set classes			Type	MC	**ic1**	ic2	ic3	ic4	ic5	ic6
#0	0-1	[ ]	F	1	**0**	0	0	0	0	0
#1	1-1	[0]	F	1	**0**	0	0	0	0	0
#2	2-1	[01]	F		**1**	0	0	0	0	0
#3	3-1	[012]	F		**2**	1	0	0	0	0
#4	4-1	[0123]	F		**3**	2	1	0	0	0
#5	5-1	[01234]	F		**4**	3	2	1	0	0
#6	6-1	[012345]	F		**5**	4	3	2	1	0
#7	7-1	[0123456]	F		**6**	5	4	3	2	1
#8	8-1	[01234567]	F		**7**	6	5	4	4	2
#9	9-1	[012345678]	F		**8**	7	6	6	6	3
#10	10-1	[0123456789]	F		**9**	8	7	8	8	4
#11	11-1	[0123456789a]	F	1	**10**	10	10	10	10	5
#12	12-1	[0123456789ab]	**C**	1	**12**	12	12	12	12	6

Ic2 cyclic set classes			Type	MC	ic1	**ic2**	ic3	ic4	ic5	ic6
#0	0-1	[ ]	F	1	0	**0**	0	0	0	0
#1	1-1	[0]	F	1	0	**0**	0	0	0	0
#2	2-2	[02]	F		0	**1**	0	0	0	0
#3	3-6	[024]	F		0	**2**	0	1	0	0
#4	4-21	[0246]	F		0	**3**	0	2	0	1
#5	5-33	[02468]	F	2	0	**4**	0	4	0	2
#6	6-35	[02468a]	**C**	2	0	**6**	0	6	0	3
#7	7-33	[012468a]	CF	2	2	**6**	2	6	2	3
#8	8-21	[0123468a]	CF		4	**7**	4	6	4	3
#9	9-6	[01234568a]	CF		6	**8**	6	7	6	3
#10	10-5	[012345678a]	CF		8	**9**	8	8	8	4
#11	11-1	[0123456789a]	CF	1	10	**10**	10	10	10	5
#12	12-1	[0123456789ab]	**C**	1	12	**12**	12	12	12	6

Ic3 cyclic set classes			Type	MC	ic1	ic2	**ic3**	ic4	ic5	ic6
#0	0-1	[ ]	F	1	0	0	**0**	0	0	0
#1	1-1	[0]	F	1	0	0	**0**	0	0	0
#2	2-3	[03]	F		0	0	**1**	0	0	0
#3	3-10	[036]	F	3	0	0	**2**	0	0	1
#4	4-28	[0369]	**C**	3	0	0	**4**	0	0	2
#5	5-31	[01369]	CF	3	1	1	**4**	1	1	2
#6	6-27	[013469]	CF		2	2	**5**	2	2	2
#7	7-31	[0134679]	CF	3	3	3	**6**	3	3	3
#8	8-28	[0134679a]	**C**	3	4	4	**8**	4	4	4
#9	9-10	[01234679a]	CF	3	6	6	**8**	6	6	4
#10	10-3	[012345679a]	CF		8	8	**9**	8	8	4
#11	11-1	[0123456789a]	CF	1	10	10	**10**	10	10	5
#12	12-1	[0123456789ab]	**C**	1	12	12	**12**	12	12	6

Ic4 cyclic set classes			Type	MC	ic1	ic2	ic3	**ic4**	ic5	ic6
#0	0-1	[ ]	F	1	0	0	0	**0**	0	0
#1	1-1	[0]	F	1	0	0	0	**0**	0	0
#2	2-4	[04]	F		0	0	0	**1**	0	0
#3	3-12	[048]	**C**		0	0	0	**3**	0	0
#4	4-19	[0148]	CF		1	0	1	**3**	1	0
	4-24	[0248]	CF		0	2	0	**3**	0	1
#5	5-21	[01458]	CF		2	0	2	**4**	2	0
	5-33	[02468]	CF	2	0	4	0	**4**	0	2
#6	6-20	[014589]	**C**		3	0	3	**6**	3	0
	6-35	[02468a]	**C**	2	0	6	0	**6**	0	3
#7	7-21	[0124589]	CF		4	2	4	**6**	4	1
	7-33	[012468a]	CF	2	2	6	2	**6**	2	3
#8	8-19	[01245689]	CF		5	4	5	**7**	5	2
	8-24	[0124568a]	CF		4	6	4	**7**	4	3
#9	9-12	[01245689a]	**C**		6	6	6	**9**	6	3
#10	10-4	[012345689a]	CF		8	8	8	**9**	8	4
#11	11-1	[0123456789a]	CF	1	10	10	10	**10**	10	5
#12	12-1	[0123456789ab]	**C**	1	12	12	12	**12**	12	6

Ic5 cyclic set classes			Type	MC	ic1	ic2	ic3	ic4	**ic5**	ic6
#0	0-1	[ ]	F	1	0	0	0	0	**0**	0
#1	1-1	[0]	F	1	0	0	0	0	**0**	0
#2	2-5	[05]	F		0	0	0	0	**1**	0
#3	3-9	[027]	F		0	1	0	0	**2**	0
#4	4-23	[0257]	F		0	2	1	0	**3**	0
#5	5-35	[02479]	F		0	3	2	1	**4**	0
#6	6-32	[024579]	F		1	4	3	2	**5**	0
#7	7-35	[013568a]	F		2	5	4	3	**6**	1
#8	8-23	[0123578a]	F		4	6	5	4	**7**	2
#9	9-9	[01235678a]	F		6	7	6	6	**8**	3
#10	10-5	[012345789a]	F		8	8	8	8	**9**	4
#11	11-1	[0123456789a]	F	1	10	10	10	10	**10**	5
#12	12-1	[0123456789ab]	**C**	1	12	12	12	12	**12**	6

Ic6 cyclic set classes			Type	MC	ic1	ic2	ic3	ic4	ic5	**ic6**
#0	0-1	[ ]	F	1	0	0	0	0	0	**0**
#1	1-1	[0]	F	1	0	0	0	0	0	**0**
#2	2-6	[06]	**C**		0	0	0	0	0	**1**
#3	3-5	[016]	CF		1	0	0	0	1	**1**
	3-8	[026]	CF		0	1	0	1	0	**1**
	3-10	[036]	CF	3	0	0	2	0	0	**1**
#4	4-9	[0167]	**C**		2	0	0	0	2	**2**
	4-25	[0268]	**C**		0	2	0	2	0	**2**
	4-28	[0369]	**C**	3	0	0	4	0	0	**2**
#5	5-7	[01267]	CF		3	1	0	1	3	**2**
	5-19	[01367]	CF		2	1	2	1	2	**2**
	5-15	[01268]	CF		2	2	0	2	2	**2**
	5-28	[02368]	CF		1	2	2	2	1	**2**
	5-33	[02468]	CF	2	0	4	0	4	0	**2**
	5-31	[01369]	CF	3	1	1	4	1	1	**2**
#6	6-7	[012678]	**C**		4	2	0	2	4	**3**
	6-30	[013679]	**C**		2	2	4	2	2	**3**
	6-35	[02468a]	**C**	2	0	6	0	6	0	**3**
#7	7-7	[0123678]	CF		5	3	2	3	5	**3**
	7-15	[0124678]	CF		4	4	2	4	4	**3**
	7-19	[0123679]	CF		4	3	4	3	4	**3**
	7-31	[0134679]	CF	3	3	3	6	3	3	**3**
	7-28	[0135679]	CF		3	4	4	4	3	**3**
	7-33	[012468a]	CF	2	2	6	2	6	2	**3**
#8	8-9	[01236789]	**C**		6	4	4	4	6	**4**
	8-25	[0124678a]	**C**		4	6	4	6	4	**4**
	8-28	[0134679a]	**C**	3	4	4	8	4	4	**4**
#9	9-5	[012346789]	CF		7	6	6	6	7	**4**
	9-8	[01234678a]	CF		6	7	6	7	6	**4**
	9-10	[01234679a]	CF	3	6	6	8	6	6	**4**
#10	10-6	[012346789a]	**C**		8	8	8	8	8	**5**
#11	11-1	[0123456789a]	CF	1	10	10	10	10	10	**5**
#12	12-1	[0123456789ab]	**C**	1	12	12	12	12	12	**6**

Figure 2.4 Cyclic sets in 12 pc space.

n-SETS	INTERVAL CLASSES 1	2	3	4	5	6
1	Max			Min		Min
2	Min	Max	Min	Max	Min	Max
3			Max	Min		Max
4		(Min)		Max		(Min)
5				Min	Max	Min
6			(Min)	(Min)		Max

Figure 2.5 *Minimal and maximal ic content generated in all cardinalities by each* i-*set (rows =* i-*set type; columns = interval classes).*

Interval class vector range ($\max(c,i) - \min(c,i)$)

Cardinality	**1**	**2**	**3**	**4**	**5**	**6**
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	1	1	1	1	1	1
3	2	2	2	3	2	1
4	3	3	4	3	3	2
5	4	4	4	3	4	2
6	5	6	5	4	5	3
7	4	4	4	3	4	2
8	3	3	4	3	3	2
9	2	2	2	3	2	1
10	1	1	1	1	1	1
11	0	0	0	0	0	0
12	0	0	0	0	0	0

Figure 2.6 *Number of possible ic values for all set-class cardinalities*

$$\#\mathrm{SATV}(X) = \sum_{n=1}^{6} \left(\left| \mathrm{SATV_A}(X)_n - \mathrm{SATV_B}(X)_n \right| \right)$$

Figure 2.7 Formal definition of SATV cardinality (#SATV).

c	#SATV(*X*)
0 or 12	0
1 or 11	0
2 or 10	6
3 or 9	12
4 or 8	18
5 or 7	21
6	28

*Figure 2.8 Cardinality of SATV for all set-class cardinalities (*c*).*

$$\mathrm{SATSIM}(X, Y) = \frac{\sum_{n=1}^{6} \left(\left| \mathrm{SATV_A}(X)_n - \mathrm{SATV}_{row}(Y)_n \right| + \left| \mathrm{SATV_A}(Y)_n - \mathrm{SATV}_{row}(X)_n \right| \right)}{\sum_{n=1}^{6} \left(\left| \mathrm{SATV_A}(X)_n - \mathrm{SATV_B}(X)_n \right| + \left| \mathrm{SATV_A}(Y)_n - \mathrm{SATV_B}(Y)_n \right| \right)}$$

Where X_n and Y_n are the *n*-th entries in the SATVs of pcsets *X* and *Y* respectively and *row* is a function that decides which row of the SATV to use.

Function *row*:
If $\mathrm{SATV_A}(X_n)$ is a max-related value and $\mathrm{SATV_A}(Y_n)$ is also max-related value, then the function *row* returns row A ($\mathrm{SATV_A}(X_n)$ is compared to $\mathrm{SATV_A}(Y_n)$); otherwise, *row* returns row B ($\mathrm{SATV_A}(X_n)$ is compared to $\mathrm{SATV_B}(Y_n)$).

*Figure 2.9 Formal definition of function SATSIM(*X, Y*).*

X [012678]	<420243>	$SATV_A$:	<	-1	+2	+0	+0	-1	-0	>
		$SATV_B$:	<	+4	-4	-5	-4	+4	+3	>
Y [0369]	<004002>	$SATV_A$:	<	+0	+0	-0	+0	+0	-0	>
		$SATV_B$:	<	-3	-3	+4	-3	-3	+2	>

Step 1: Compare the vectors, creating a two-part difference vector:

$SATV_A(X) : SATV_{row}(Y)$ =	2	2	4	0	2	0	= 10
$SATV_A(Y) : SATV_{row}(X)$ =	4	2	5	0	4	0	= 15
Step 2: Add together the values in the difference vectors:							= **25**

Step 3: Add together all the numerical distances between $SATV_A$ and $SATV_B$ for each set:

$\#SATV_{A+B}(X)$ =	5	+	6	+	5	+	4	+	5	+	3	= 28
$\#SATV_{A+B}(Y)$ =	3	+	3	+	4	+	3	+	3	+	2	= 18
												= **46**

Step 4: Divide the sum from step 2 by the sum from step 3 to complete the SATSIM function:

SATSIM(*X*, *Y*) = 25/46 = **0.54**

*Figure 2.10 SATSIM(*X, Y*) comparison of [012678] and [0369].*

Set Classes (Complementary set classes shown together)		Forte #	SATV						
SATSIM group #1 (1/2/3/4/5/6-cyclic sets)									
X / $\overline{X}$	[ ] / [0123456789ab]	0/12-1	<	-0	-0	-0	-0	-0	-0 >
			<	+0	+0	+0	+0	+0	+0 >
Y / $\overline{Y}$	[0] / [0123456789a]	1/11-1	<	-0	-0	-0	-0	-0	-0 >
			<	+0	+0	+0	+0	+0	+0 >
SATSIM group #2 (4-cyclic sets)									
X / $\overline{X}$	[04] / [012345689a]	2/10-4	<	+0	+0	+0	-0	+0	+0 >
			<	-1	-1	-1	+1	-1	-1 >
Y / $\overline{Y}$	[048] / [01245689a]	3/9-12	<	+0	+0	+0	-0	+0	+0 >
			<	-2	-2	-2	+3,	-2,	-1 >
SATSIM group #3 (6-cyclic sets)									
X / $\overline{X}$	[016] / [012346789]	3/9-5	<	-1	+0	+0	+0	-1	-0 >
			<	+1	-2	-2	-3	+1	+1 >
Y / $\overline{Y}$	[0167] / [01236789]	4/8-9	<	-1	+0	+0	+0	-1	-0 >
			<	+2	-3	-4	-3	+2	+2 >
SATSIM group #4 (3/6-cyclic sets)									
X / $\overline{X}$	[036] / [01234679a]	3/9-10	<	+0	+0	-0	+0	+0	-0 >
			<	-2	-2	+2	-3	-2	+1 >
Y / $\overline{Y}$	[0369] / [0134679a]	4/8-28	<	+0	+0	-0	+0	+0	-0 >
			<	-3	-3	+4	-3	-3	+2 >
SATSIM group #5 (4-cyclic sets)									
X / $\overline{X}$	[01458] / [0124589]	5/7-21	<	-2	+0	-2	-0	-2	+0 >
			<	+2	-4	+2	+3	+2	-2 >
Y / $\overline{Y}$	[014589]	6-20	<	-2	+0	-2	-0	-2	+0 >
			<	+3	-6	+3	+4	+3	-3 >
SATSIM group #6 (2/4/6-cyclic sets)									
X / $\overline{X}$	[02468] / [012468a]	5/7-33	<	+0	-0	+0	-0	+0	-0 >
			<	-4	+4	-4	+3	-4	+2 >
Y / $\overline{Y}$	[02468a]	6-35	<	+0	-0	+0	-0	+0	-0 >
			<	-5	+6	-5	+4	-5	+3 >

Figure 2.11 Special SATSIM groups ($SATV_A$ Z-relations)

SATV(6-7)	< -1	+2	+0	+0	-1	-0	>
	< +4	-4	-5	-4	+4	+3	>
SATV(4-28)	< +0	+0	-0	+0	+0	-0	>
	< -3	-3	+4	-3	-3	+2	>
Diff. SATV(6-7, 4-28)	2, 4	2, 2	4, 5	0, 0	2,4	0, 0	= 25

SATSIM(6-7, 4-28) = 25 / 46 = **0.54**

*Figure 2.12 SATSIM(*X, Y*) comparison of [012678] and [0369] using the difference vector.*

SATV(2/10-4)	< +0	+0	+0	-0	+0	+0	>
	< -1	-1	-1	+1	-1	-1	>
SATV(6-27)	< +2	+2	-0	+0	+2	-1	>
	< -3	-4	+5	-4	-3	+2	>
SATV(6-30)	< +2	+2	-1	+0	+2	-0	>
	< -3	-4	+4	-4	-3	+3	>
Diff. SATV(2-4, 6-27)	2, 2	2, 2	5, 1	4, 1	2, 2	2, 0	= 25
Diff. SATV(2-4, 6-30)	2, 2	2, 2	4, 0	4, 1	2, 2	3, 1	= 25

SATSIM(2-4, 6-27) = 25 / 34 = **0.74**
SATSIM(2-4, 6-30) = 25 / 34 = **0.74**

Figure 2.13 Largest possible SATSIM relations.

SATV(5/7-4)	< -1	-2	-2	+0	+1	-1	>
	< +3	+2	+2	-3	-3	+1	>
SATV(6-2)	< -1	-2	-2	+0	+1	+1	>
	< +4	+4	+3	-4	4	-2	>
Diff. SATV(5-4, 6-2)	0, 0	0, 0	0, 0	0, 0	0, 0	1, 0	=

SATSIM(5-4, 6-2) = 1 / 49 = **0.02**

SATV(5/7-29)	< +1	-2	-2	+0	-1	-1	>
	< -3	+2	+2	-3	+3	+1	>
SATV(6-33)	< +1	-2	-2	+0	-1	+1>	
	< -4	+4	+3	-4	+4	-2	>
Diff. SATV(5-29, 6-33)	0, 0	0, 0	0, 0	0, 0	0, 0	1, 0	=

SATSIM(5-29, 6-33) = 1 / 49 = **0.02**

Figure 2.14 Smallest possible (non-zero) SATSIM relations.

	#2/#10									
#2/#10	*0.000* 0.333 0.278	0.333 2								
#3/#9	0.000 0.056 0.318	0.500 10	*0.000* 0.167 0.312	0.500 4						
#4/#8	0.125 0.125 0.414	0.583 12	0.000 0.033 0.345	0.567 18	0.000 0.111 0.288	0.556 6				
#5/#7	0.222 0.222 0.504	0.704 14	0.061 0.061 0.363	0.636 18	0.051 0.051 0.299	0.590 22	0.000 0.095 0.250	0.571 7		
#6	0.265 0.265 0.575	0.735 15	0.100 0.100 0.421	0.700 23	0.087 0.087 0.339	0.609 24	0.000 0.020 0.253	0.653 32	0.000 0.071 0.214	0.643 10

Key to figures in value group matrix:

v	*w*
x	
y	*z*

v = smallest SATSIM number
w = largest SATSIM number
x = smallest non-zero SATSIM number
y = average SATSIM value
z = number of distinct SATSIM values

Figure 2.15 SATSIM value group matrix

Step 1. Create a min-adjusted ic vector (MAV):

$$MAV(X)_i = ICV(X)_i - \min(c, i)$$

for all i I.

Each ic i place in the MAV of X is derived by subtracting the minimal amount of ic content in any set of cardinality X (c) from the respective ICV(X) argument.

For example, one would perform the following steps to arrive at the MAV of set class [012678]:

ICV([012678])	=	<	4	2	0	2	4	3 >
min(6, *i*)	=		0	0	0	2	0	0
MAV([012678])	=	<	4	2	0	0	4	3 >

Step 2. Divide the values in the min-adjusted vector (MAV) by the min-adjusted maximal values of any set of #X:

$$PSATV(X)_i = \frac{MAV(X)_i}{\max(c, i) - \min(c, i)}$$

for all i I.

For example, one would perform the following steps to arrive at the PSATV of set class [012678]:

MAV[012678]	=	<	4	2	0	0	4	3	>
max(6, *i*)	=		5	6	5	6	5	3	
min(6, *i*)	=		0	0	0	2	0	0	
max(6, *i*) - min(6, *i*)	=		5	6	5	4	5	3	
PSATV[012678]	=	<	4/5	2/6	0/5	0/6	4/5	3/3	>
		<	0.80	0.33	0.00	0.00	0.80	1.00	>

Figure 2.16 Demonstration of PSATV of SC 6-7 [012678].

5-z36 [01247]										7-z36 [0123568]								
ICV(5-z36)	<	2	2	2	1	2	1	>		ICV(7-z36)	<	4	4	4	3	4	2	>
min(5, *i*)		0	0	0	1	0	0			min(7, *i*)		2	2	2	3	2	1	
MAV(5-z36)	<	2	2	2	0	2	1	>	=	MAV(7-z36)	<	2	2	2	0	2	1	>

Figure 2.17 Min-adjusted ic vectors (MAV) for two complementary set classes.

Set Classes (Complementary set classes shown together)		Forte #	PSATV
PSATSIM group #1 (4-cyclic sets)			
X / $\underline{X}$	[04] / [012345689a]	2/10-4	< 0.00 0.00 0.00 1.00 0.00 0.00 >
Y / $\overline{Y}$	[048] / [01245689a]	3/9-12	< 0.00 0.00 0.00 1.00 0.00 0.00 >
PSATSIM group #2 (3/6-cyclic sets)			
X / $\underline{X}$	[036] / [01234679a]	3/9-10	< 0.00 0.00 1.00 0.00 0.00 1.00 >
Y / $\overline{Y}$	[0369] / [0134679a]	4/8-28	< 0.00 0.00 1.00 0.00 0.00 1.00 >
PSATSIM group #3 (2/4/6-cyclic sets)			
X / $\underline{X}$	[02468] / [012468a]	5/7-35	< 0.00 1.00 0.00 1.00 0.00 1.00 >
Y / $\overline{Y}$	[02468a]	6-35	< 0.00 1.00 0.00 1.00 0.00 1.00 >

Figure 2.18 Special PSATSIM groups (PSATSIM Z-relations).

PSATV[036]: <0.00, 0.00, 1.00, 0.00, 0.00, 1.00> #PSATV[036] = 2.00
PSATV[048]: <0.00, 0.00, 0.00, 1.00, 0.00, 0.00> #PSATV[048] = 1.00

Figure 2.19 PSATV[036] and PSATV[048].

X [012678] <420243> PSATV: < 0.80 0.33 0.00 0.00 0.80 1.00 >

Y [0369] <004002> PSATV: < 0.00 0.00 1.00 0.00 0.00 1.00 >

Step 1: Compare the vectors, creating a difference vector
PSATV(*X*) : PSATV(*Y*) = 0.80 0.33 1.00 0.00 0.80 0.00

Step 2: Add together the values in the difference vectors: **= 2.93**

Step 3: Divide the sum from step 2 by the number 6 (potential PSATSIM diffV cardinality)to complete the PSATSIM function:
PSATSIM(*X*, *Y*) = 2.93/6.00 = **0.49**

*Figure 2.20 PSATSIM(*X, Y*) comparison of [012678] and [0369].*

$$\text{PSATSIM}(X, Y) = \frac{\sum_{n=1}^{6} \left(\left| \text{PSATV}(X)_n - \text{PSATV}(Y)_n \right| \right)}{6}$$

*Figure 2.21 Formal definition of PSATSIM(*X, Y*) measure.*

	#2/#10									
#2/#10	*0.000* 0.333 0.278	0.333 2								
#3/#9	0.000 0.056 0.335	0.500 16	*0.000* 0.139 0.321	0.583 17						
#4/#8	0.153 0.153 0.390	0.556 25	0.000 0.056 0.345	0.611 64	0.000 0.097 0.294	0.583 40				
#5/#7	0.208 0.208 0.450	0.667 35	0.125 0.125 0.364	0.625 43	0.056 0.056 0.309	0.597 76	0.000 0.083 0.259	0.625 50		
#6	0.244 0.244 0.471	0.667 74	0.156 0.156 0.385	0.661 143	0.092 0.092 0.322	0.633 242	0.000 0.031 0.267	0.689 248	0.000 0.061 0.219	0.689 153

Figure 2.22 PSATSIM value group matrix.

PSATV(5/7-7)	<	0.75	0.25	0.00	0.00	0.75	1.00	>
PSATV(6-7)	<	0.80	0.33	0.00	0.00	0.80	1.00	>
Diff. PSATV(5/7-7, 6-7)		0.05	0.08	0.00	0.00	0.05	0.00	= 0.18

PSATSIM = 0.18 / 6.00 = **0.03**

Figure 2.23 Closest non-equivalent PSATSIM SCs.

PSATV(6-35 or 5/7-33)	<	0.00	1.00	0.00	1.00	0.00	1.00	>	
PSATV(6-1)	<	1.00	0.67	0.60	0.00	0.20	0.00	>	
PSATV(6-8)	<	0.60	0.67	0.60	0.00	0.60	0.00	>	
PSATV(6-32)	<	0.20	0.67	0.60	0.00	1.00	0.00	>	
Diff. PSATV(6-35, 6-1)		1.00	0.33	0.60	1.00	0.20	1.00	=	4.13
Diff. PSATV(6-35, 6-8)		0.60	0.33	0.60	1.00	0.60	1.00	=	4.13
Diff. PSATV(6-35, 6-32)		0.20	0.33	0.60	1.00	1.00	1.00	=	4.13

PSATSIM = 4.13 / 6.00 = **0.69**

Figure 2.24 Farthest PSATSIM relations.

Step 1: Begin with the PSATV of the SC (6-7 in this case):
PSATV[012678] = < 0.80 0.33 0.00 0.00 0.80 1.00 >

Step 2: Add together the values in PSATV[012678] to arrive at the vector cardinality:
#PSATV[012678] = 2.93

Step 3: Divide each place in PSATV[012678] by #PSATV[012678] (2.93):
PSAT%V[012678] = < 0.27 0.11 0.00 0.00 0.27 0.34 >

Figure 2.25 PSAT%V([012678]) demonstration.

$$\text{PSAT\%V}(X)_n = \frac{\text{PSATV}(X)_n}{\#\text{PSATV}(X)}$$

for all n N.

*Figure 2.26 Formal definition of PSAT%V(*X*).*

PSATV[036]:	<	0.00	0.00	1.00	0.00	0.00	1.00	>
PSATV[048]:	<	0.00	0.00	0.00	1.00	0.00	0.00	>
PSAT%V[036]	<	0.00	0.00	0.50	0.00	0.00	0.50	>
PSAT%V[048]:	<	0.00	0.00	0.00	1.00	0.00	0.00	>

Figure 2.27 SAT%Vs and PSAT%Vs of SCs [036] and [048].

Cardinality	Smallest PSAT%V value	Largest PSAT%V value
2/10	0.00	1.00
3/9	0.00	1.00
4/8	0.00	0.52
5/7	0.00	0.44
6	0.00	0.41

Figure 2.28 Smallest and largest possible PSAT%V values in each cardinality.

X [012678] <420243> PSAT%V: < 0.27 0.11 0.00 0.00 0.27 0.34 >

Y [0369] <004002> PSAT%V: < 0.00 0.00 0.50 0.00 0.00 0.50 >

Step 1: Compare the vectors, creating a difference vector
PSAT%V(*X*) : PSAT%V(*Y*) = 0.27 0.11 0.50 0.00 0.27 0.16

Step 2: Add together the values in the difference vectors: = **1.31**

*Step 3: Divide the sum from step 2 by the number 2 (#PSAT%V(*X*) + #PSAT%V(*Y*)) to complete the PSAT%SIM function:*
PSAT%SIM(*X*, *Y*) = 1.31/2.00 = **0.66**

*Figure 2.29 PSAT%SIM(*X, Y*) comparison of [012678] and [0369].*

$$\text{PSAT\%SIM}(X, Y) = \frac{\sum_{n=1}^{6} \left(\left| \text{PSAT\%V}(X)_n - \text{PSAT\%V}(Y)_n \right| \right)}{2}$$

*Figure 2.30 Formal definition of PSAT%SIM(*X, Y*) measure.*

	#2/#10									
	0.000	1.000								
#2/#10	1.000									
	0.833	2	**#3/#9**							
	0.000	1.000	*0.000*	1.000						
#3/#9	0.250		0.333							
	0.833	13	0.648	15	**#4/#8**					
	0.478	1.000	0.000	1.000	0.000	0.870				
#4/#8	0.478		0.071		0.148					
	0.833	31	0.607	95	0.443	88	**#5/#7**			
	0.556	1.000	0.111	1.000	0.073	0.800	0.000	0.667		
#5/#7	0.556		0.111		0.073		0.094			
	0.833	52	0.595	128	0.413	413	0.314	221	**#6**	
	0.595	1.000	0.153	1.000	0.053	0.786	0.000	0.730	0.000	0.730
#6	0.595		0.153		0.053		0.023		0.068	
	0.833	87	0.596	197	0.401	536	0.301	663	0.244	387

Figure 2.31 PSAT%SIM value group matrix.

#2 : #2
2-1[01]: 2-2[02], 2-3[03], 2-4[04], 2-5[05], 2-6[06]
2-2[02]: 2-1[01], 2-3[03], 2-4[04], 2-5[05], 2-6[06]
2-3[03]: 2-1[01], 2-2[02], 2-4[04], 2-5[05], 2-6[06]
2-4[04]: 2-1[01], 2-2[02], 2-3[03], 2-5[05], 2-6[06]
2-5[05]: 2-1[01], 2-2[02], 2-3[03], 2-4[04], 2-6[06]
2-6[06]: 2-1[01], 2-2[02], 2-3[03], 2-4[04], 2-5[05]

#2 : #3
2-1[01]: 3-6[024], 3-7[025], 3-8[026], 3-10[036], 3-9[027], 3-11[037], 3-12[048]
2-2[02]: 3-3[014], 3-4[015], 3-5[016], 3-10[036], 3-11[037], 3-12[048]
2-3[03]: 3-6[024], 3-4[015], 3-5[016], 3-8[026], 3-9[027], 3-12[048]
2-4[04]: 3-1[012], 3-2[013], 3-7[025], 3-5[016], 3-10[036], 3-9[027], 3-12[048]
2-5[05]: 3-1[012], 3-2[013], 3-3[014], 3-6[024], 3-8[026], 3-10[036], 3-12[048]
2-6[06]: 3-1[012], 3-2[013], 3-3[014], 3-4[015], 3-6[024], 3-7[025], 3-9[027], 3-11[037], 3-12[048]

#2 : #4
2-1[01]: 4-21[0246], 4-22[0247], 4-23[0257], 4-24[0248], 4-27[0258], 4-26[0358], 4-25[0268], 4-28[0369]
2-2[02]: 4-7[0145], 4-8[0156], 4-18[0147], 4-17[0347], 4-9[0167], 4-19[0148], 4-20[0158], 4-28[0369]
2-3[03]: 4-5[0126], 4-21[0246], 4-8[0156], 4-6[0127], [0157], 4-9[0167], 4-24[0248], 4-25[0268]
2-4[04]: 4-1[0123], 4-10[0235], 4-13[0136], 4-6[0127], 4-23[0257], 4-9[0167], 4-28[0369]
2-5[05]: 4-1[0123], 4-2[0124], 4-3[0134], 4-12[0236], 4-21[0246], 4-24[0248], 4-25[0268], 4-28[0369]
2-6[06]: 4-1[0123], 4-2[0124], 4-3[0134], 4-4[0125], 4-11[0135], 4-10[0235], 4-7[0145],
4-14[0237], 4-22[0247], 4-17[0347], 4-23[0257], 4-19[0148], 4-20[0158], 4-26[0358]

#2 : #5
2-1[01]: 5-33[02468], 5-34[02469], 5-35[02479]
2-2[02]: 5-21[01458], 5-22[01478]
2-3[03]: 5-7[01267], 5-15[01268], 5-33[02468]
2-4[04]: 5-1[01234], 5-2[01235], 5-4[01236], 5-10[01346], 5-z12[01356], 5-5[01237], 5-z36[01247], 5-14[01257], 5-23[02357], 5-7[01267], 5-19[01367], 5-25[02358], 5-29[01368], 5-31[01369], 5-35[02479]
2-5[05]: 5-1[01234], 5-8[02346], 5-33[02468]
2-6[06]: 5-1[01234], 5-2[01235], 5-3[01245], 5-11[02347], 5-23[02357], 5-z17[01348], 5-27[01358], 5-21[01458], 5-z37[03458], 5-35[02479]

#2 : #6
2-1[01]: 6-35[02468a]
2-2[02]: 6-20[014589]
2-3[03]: 6-7[012678], 6-35[02468a]
2-4[04]: 6-1[012345], 6-2[012346], 6-z3[012356], 6-z36[012347], 6-9[012357], 6-z11[012457], 6-8[023457], 6-5[012367], 6-z12[012467], 6-z13[013467], 6-z6[012567], 6-z40[012358], 6-z41[012368], 6-z25[013568], 6-z23[023568], 6-z38[012378], 6-18[012578], 6-7[012678], 6-z42[012369], 6-27[013469], 6-z45[023469], 6-z47[012479], 6-33[023579], 6-32[024579], 6-30[013679], 6-z29[023679], 6-z50[014679]
2-5[05]: 6-35[02468a]
2-6[06]: 6-1[012345], [023457], [013458], [024579], 6-20[014589]

#3 : #3
3-1[012]: 3-10[036], 3-11[037], 3-12[048]
3-2[013]: 3-12[048]
3-3[014]: 3-9[027]
3-6[024]: 3-5[016], 3-10[036]
3-4[015]: 3-10[036]
3-7[025]: 3-12[048]
3-5[016]: 3-6[024], 3-12[048]
3-10[036]: 3-1[012], 3-6[024], 3-4[015], 3-9[027], 3-12[048]
3-9[027]: 3-3[014], 3-10[036], 3-12[048]
3-11[037]: 3-1[012]
3-12[048]: 3-1[012], 3-2[013], 3-7[025], 3-5[016], 3-10[036], 3-9[027]

#3 : #4
3-1[012]: 4-28[0369]
3-6[024]: 4-9[0167], 4-28[0369]
3-4[015]: 4-28[0369]
3-9[027]: 4-28[0369]
3-12[048]: 4-1[0123], 4-10[0235], 4-13[0136], 4-6[0127], 4-23[0257], 4-9[0167], 4-28[0369]

#3 : #5
3-12[048]: 5-1[01234], 5-2[01235], 5-4[01236], 5-10[01346], 5-z12[01356], 5-5[01237], 5-z36[01247], 5-14[01257], 5-23[02357], 5-7[01267], 5-19[01367], 5-25[02358], 5-29[01368], 5-31[01369], 5-35[02479]

#3 : #6
3-12[048]: 6-1[012345], 6-2[012346], 6-z3[012356], 6-z36[012347], 6-9[012357], 6-z11[012457], 6-8[023457], 6-5[012367], 6-z12[012467], 6-z13[013467], 6-z6[012567], 6-z40[012358], 6-z41[012368], 6-z25[013568], 6-z23[023568], 6-z38[012378], 6-18[012578], 6-7[012678], 6-z42[012369], 6-27[013469], 6-z45[023469], 6-z47[012479], 6-33[023579], 6-32[024579], 6-30[013679], 6-z29[023679], 6-z50[014679]

*Figure 2.32 PSAT%SIM(*X, Y*) maximal dissimilarities (PSAT%SIM values of 1.00).*

Forte# (3-)	1	2	3	4	5	6	7	8	9	10	11	12
$SATV_{3A}$(6-7)	< -2	+0	+0	-2	-0	+0	+0	+4	-2	+0	+0	+0 >
$SATV_{3B}$(6-7)	< +2	-6	-6	+4	+8	-6	-6	-8	+2	-4	-6	-2 >

Figure 2.33 $SATV_3$(6-7) [012678].

Forte# (3-)	1	2	3	4	5	6	7	8	9	10	11	12
$SATV_{3A}$(5-1)	< -0	-0	-1	+0	+0	+1	+0	+0	+0	+0	+0	+0 >
$SATV_{3B}$(5-1)	< +3	+4	+2	-3	-5	-2	-4	-6	-3	-4	-3	-1 >

Forte# (3-)	1	2	3	4	5	6	7	8	9	10	11	12
$SATV_{3A}$(7-1)	< -0	-0	-1	-3	+0	-3	+3	+0	+0	+0	+0	+0 >
$SATV_{3B}$(7-1)	< +5	+7	+6	+4	-7	+3	-4	-10	-5	-4	-7	-2 >

Figure 2.34 $SATV_3$s of complementary SCs 5-1 [01234] and 7-1 [0123456].

```
Forte# (2-)      1  2  3  4  5  6
SATV2A(10-3)  < +0 +0 -0 +0 +0 +0 >
SATV2B(10-3)  < -1 -1 +1 -1 -1 -1 >

Forte# (3-)      1  2  3  4  5  6  7  8  9 10 11 12
SATV3A(10-3)  < +0 -0 -0 +0 +0 +0 -0 +0 +0 -0 -0 +0 >
SATV3B(10-3)  < -2 +2 +2 -2 -4 -2 +2 -4 -2 +2 +2 -1 >

Forte# (4-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
SATV4A(10-3)  < +1 -2 -0 -2 +0 +0 -1 +0 +0 -0 -2 -0 -0 -2 +0 +0 -0 -0 +2 -1 +0 -2 +1 +0 +0
SATV4B(10-3)  < -2 +2 +2 +2 -4 -2 +1 -2 -2 +2 +2 +4 +4 +2 -2 -4 +2 +4 -4 +1 -3 +2 -2 -3 -2

Forte# (4-)     26 27 28 29
SATV4A(10-3)    -0 -0 -0 +0 >
SATV4B(10-3)    +2 +4 +1 -2 >

Forte# (5-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
SATV5A(10-3)  < -2 -2 -2 -2 +0 +0 +0 -1 +0 -0 -0 -0 +0 +0 +0 -0 -1 -0 +2 +0 -4 -1 -2 +0 -0
SATV5B(10-3)  < +2 +4 +4 +2 -4 -4 -8 +2 -4 +4 +4 +1 -4 -4 -4 +4 +2 +2 -4 -4 +4 +2 +4 -4 +4

Forte# (5-)     26 27 28 29 30 31 32 33 34 35 36 37 38
SATV5A(10-3)    -2 -2 +2 -2 +0 -0 -0 +0 -1 -2 -0 -1 -0 >
SATV5B(10-3)    +2 +4 -4 +2 -4 +6 +4 -4 +2 +2 +2 +2 +2 >

Forte# (6-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
SATV6A(10-3)  < -2 -2 -2 +0 +0 +0 +0 -1 +0 -0 -0 +0 -0 -2 -2 +0 +0 +0 -2 -1 +2 +0 -0 -0 -2
SATV6B(10-3)  < +3 +4 +2 -2 -4 -3 -3 +3 -4 +2 +2 -4 +2 +6 +2 -4 -4 -4 +4 +1 -4 -6 +2 +2 +2

Forte# (6-)     26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
SATV6A(10-3)    +0 -0 -0 -0 -2 -2 -2 -2 +2 +0 -2 +0 +0 -0 -0 +0 -0 +0 -2 -0 -0 -2 +0 -0 -0 >
SATV6B(10-3)    -2 +6 +2 +2 +2 +2 +3 +4 -4 -1 +2 -2 -3 +2 +2 -4 +2 -4 +4 +2 +2 +2 -2 +2 +2 >

Forte# (7-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
SATV7A(10-3)  < -2 -2 -2 -2 +0 +0 +0 -1 +0 -0 -0 -0 +0 +0 +0 -0 -1 -0 +2 +0 -4 -1 -2 +0 -0
SATV7B(10-3)  < +2 +4 +4 +2 -4 -4 -8 +2 -4 +4 +4 +1 -4 -4 -4 +4 +2 +2 -4 -4 +4 +2 +4 -4 +4

Forte# (7-)     26 27 28 29 30 31 32 33 34 35 36 37 38
SATV7A(10-3)    -2 -2 +2 -2 +0 -0 -0 +0 -1 -2 -0 -1 -0 >
SATV7B(10-3)    +2 +4 -4 +2 -4 +6 +4 -4 +2 +2 +2 +2 +2 >

Forte# (8-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
SATV8A(10-3)  < +1 -2 -0 -2 +0 +0 -1 +0 +0 -0 -2 -0 -0 -2 +0 +0 -0 -0 +2 -1 +0 -2 +1 +0 +0
SATV8B(10-3)  < -2 +2 +2 +2 -4 -2 +1 -2 -2 +2 +2 +4 +4 +2 -2 -4 +2 +4 -4 +1 -3 +2 -2 -3 -2

Forte# (8-)     26 27 28 29
SATV8A(10-3)    -0 -0 -0 +0 >
SATV8B(10-3)    +2 +4 +1 -2 >

Forte# (9-)      1  2  3  4  5  6  7  8  9 10 11 12
SATV9A(10-3)  < +0 -0 -0 +0 +0 +0 -0 +0 +0 -0 -0 +0 >
SATV9B(10-3)  < -2 +2 +2 -2 -4 -2 +2 -4 -2 +2 +2 -1 >

Forte# (10-)     1  2  3  4  5  6
SATV2A(10-3)  < +0 +0 -0 +0 +0 +0 >
SATV2B(10-3)  < -1 -1 +1 -1 -1 -1 >
```

Figure 2.35 Complete SATV of SC 10-3 [012345679a].

```
Forte# (2-)      1  2  3  4  5  6
SATV2A(6-z37) < -1 -3 +2 +1 +2 +1 >
SATV2B(6-z37) < +4 +3 -3 -3 -3 -2 >

Forte# (3-)      1  2  3  4  5  6  7  8  9 10 11 12
SATV3A(6-z37) < -1 -2 +2 +2 +2 +1 +0 +2 +1 +0 +2 -1 >
SATV3B(6-z37) < +3 +4 -4 -4 -6 -5 -6 -10-3 -4 -4 +1 >

Forte# (4-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22
SATV4A(6-z37) < -1 -2 -1 +0 -2 -1 +0 +0 +0 +0 +0 +0 +0 -0 +0 +0 +0 +0 +2 +0 +0 +0
SATV4B(6-z37) < +2 +2 +1 -2 +2 +1 -3 -2 -2 -2 -2 -2 -2 +2 -2 -4 -3 -2 -4 -3 -6 -4

Forte# (4-)     23 24 25 26 27 28 29
SATV4A(6-z37)   +0 +1 +0 +0 +0 +0 -0 >
SATV4B(6-z37)   -3 -5 -3 -2 -2 -1 +2 >

Forte# (5-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22
SATV5A(6-z37) < -1 +0 +0 +0 -0 +0 +0 +0 +0 +0 +0 +0 -0 +0 +0 +0 -0 +0 +0 +0 +0 +0
SATV5B(6-z37) < +1 -2 -2 -2 +2 -2 -4 -1 -2 -2 -2 -1 +2 -2 -2 -2 +1 -2 -2 -2 -6 -1

Forte# (5-)     23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
SATV5A(6-z37)   +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 >
SATV5B(6-z37)   -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -6 -1 -2 -2 -1 -2 >
```

*Figure 2.36 SATV*n*(6-z37 [012348]) for* n *= 2 through 5.*

```
Forte# (2-)      1  2  3  4  5  6
SATV2A(6-z4)  < -1 -3 +2 +1 +2 +1 >
SATV2B(6-z4)  < +4 +3 -3 -3 -3 -2 >

Forte# (3-)      1  2  3  4  5  6  7  8  9 10 11 12
SATV3A(6-z4)  < -2 +2 -2 -2 +2 +2 +2 +2 +0 +0 +0 +0 >
SATV3B(6-z4)  < +2 -4 +4 +4 -6 -4 -4 -10-4 -4 -6 -2 >

Forte# (4-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22
SATV4A(6-z4)  < +0 -2 -1 -0 -2 +0 -1 -1 +0 +0 -0 +0 +0 +0 -0 +0 +0 +0 +0 +0 +1 +0
SATV4B(6-z4)  < -3 +2 +1 +2 +2 -2 +2 +1 -2 -2 +2 -2 -2 -2 +2 -4 -3 -2 -6 -3 -5 -4

Forte# (4-)     23 24 25 26 27 28 29
SATV4A(6-z4)    +0 +0 +0 +0 +0 +0 +0 >
SATV4B(6-z4)    -3 -6 -3 -2 -2 -1 -2 >

Forte# (5-)      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22
SATV5A(6-z4)  < +0 +0 -0 +0 +0 -0 +0 +0 -0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0
SATV5B(6-z4)  < -2 -2 +2 -2 -2 +2 -4 -1 +2 -2 -2 -1 -2 -2 -2 -2 -1 -2 -2 -2 -6 -1

Forte# (5-)     23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
SATV5A(6-z4)    +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 +0 >
SATV5B(6-z4)    -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -6 -1 -2 -2 -1 -2 >
```

*Figure 2.37 SATV*n*(6-z4 [012456]) for* n *= 2 through 5.*

$SATV_3$(6-z37)	<	-1	-2	+2	+2	+2	+1	+0	+2	+1	+0	+2	-1	>
	<	+3	+4	-4	-4	-6	-5	-6	-10	-3	-4	-4	+1	>
$SATV_3$(6-z4)	<	-2	+2	-2	-2	+2	+2	+2	+2	+0	+0	+0	+0	>
	<	+2	-4	+4	+4	-6	-4	-4	-10	-4	-4	-6	-2	>
Diff. $SATV_3$(6-z4, 6-z37)		1,1	2,2	2,2	2,2	0,0	1,1	2,2	0,0	1,1	0,0	2,2	1,1	

$\sum$ Diff. $SATV_3$(6-z4, 6-z37) = 28

#$SATV_3$(6-z4) = 70; #$SATV_3$(6-z37) = 70 (see figure 2.39)

$SATSIM_3$(6-z4, 6-z37) = 28 / 140 = **0.20**

Figure 2.38 $SATSIM_3$(6-z4, 6-z37).

	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	6	12	18	21	28	21	18	12	6	0	0
3	0	0	0	12	29	42	70	74	77	61	27	0	0
4	0	0	0	0	29	45	83	114	164	142	87	0	0
5	0	0	0	0	0	38	80	107	185	208	160	0	0
6	0	0	0	0	0	0	50	73	145	213	178	0	0
7	0	0	0	0	0	0	0	38	82	134	160	0	0
8	0	0	0	0	0	0	0	0	29	50	87	0	0
9	0	0	0	0	0	0	0	0	0	12	27	0	0
10	0	0	0	0	0	0	0	0	0	0	6	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 2.39 Cardinalities of Saturation Vectors ($SATV_n$) for all cardinalities of supersets (columns) and subsets (rows).

	#3															
	0.000	0.500														
#3	0.167															
	0.312	4	**#4**													
	0.000	0.567	*0.000*	0.383												
#4	0.033		0.085													
	0.345	18	0.243	9	**#5**											
	0.061	0.636	0.064	0.473	*0.000*	0.370										
#5	0.061		0.064		0.111											
	0.363	18	0.287	44	0.227	16	**#6**									
	0.100	0.700	0.069	0.524	0.000	0.484	*0.000*	0.368								
#6	0.100		0.069		0.062		0.084									
	0.421	23	0.347	58	0.265	103	0.201	36	**#7**							
	0.061	0.636	0.141	0.563	0.132	0.502	0.080	0.432	*0.000*	0.396						
#7	0.061		0.141		0.132		0.080		0.118							
	0.363	18	0.382	56	0.335	98	0.266	173	0.240	50	**#8**					
	0.000	0.567	0.155	0.613	0.215	0.548	0.125	0.488	0.028	0.480	*0.000*	0.465				
#8	0.033		0.155		0.215		0.125		0.028		0.095					
	0.345	18	0.397	58	0.426	96	0.355	178	0.300	240	0.257	81	**#9**			
	0.000	0.500	0.192	0.575	0.226	0.557	0.197	0.577	0.177	0.549	0.119	0.528	*0.000*	0.568		
#9	0.167		0.192		0.226		0.197		0.177		0.119		0.190			
	0.312	4	0.390	42	0.429	80	0.416	157	0.391	169	0.342	172	0.311	32	**#10**	
	0.000	0.500	0.188	0.550	0.219	0.618	0.305	0.608	0.272	0.591	0.212	0.585	0.156	0.556	*0.000*	0.533
#10	0.056		0.188		0.219		0.305		0.272		0.212		0.156		0.380	
	0.318	10	0.394	25	0.432	56	0.452	105	0.441	103	0.432	96	0.418	42	0.377	10

Figure 2.40 TSATSIM value group matrix.

	#3															
	0.000	0.500														
#3	0.167															
	0.312	4	**#4**													
	0.000	0.567	*0.000*	0.416												
#4	0.033		0.069													
	0.345	18	0.252	13	**#5**											
	0.061	0.636	0.061	0.493	*0.000*	0.407										
#5	0.061		0.061		0.092											
	0.363	18	0.289	234	0.232	32	**#6**									
	0.100	0.700	0.074	0.541	0.000	0.517	*0.000*	0.417								
#6	0.100		0.074		0.059		0.082									
	0.421	23	0.345	294	0.263	904	0.204	136	**#7**							
	0.061	0.636	0.129	0.567	0.096	0.525	0.082	0.471	*0.000*	0.418						
#7	0.061		0.129		0.096		0.082		0.108							
	0.363	18	0.356	283	0.314	623	0.263	1049	0.237	229	**#8**					
	0.000	0.567	0.104	0.594	0.176	0.552	0.166	0.517	0.054	0.497	*0.000*	0.462				
#8	0.033		0.104		0.176		0.166		0.054		0.083					
	0.345	18	0.361	145	0.382	605	0.348	837	0.295	628	0.255	189	**#9**			
	0.000	0.500	0.139	0.556	0.206	0.575	0.213	0.595	0.163	0.560	0.125	0.529	*0.000*	0.533		
#9	0.167		0.139		0.206		0.213		0.163		0.125		0.191			
	0.312	4	0.375	82	0.400	251	0.403	354	0.376	264	0.337	213	0.306	41	**#10**	
	0.000	0.500	0.170	0.560	0.235	0.636	0.301	0.637	0.274	0.612	0.215	0.583	0.132	0.539	*0.000*	0.525
#10	0.056		0.170		0.235		0.301		0.274		0.215		0.132		0.386	
	0.318	10	0.400	34	0.448	130	0.476	185	0.455	138	0.435	113	0.408	48	0.374	12

Figure 2.41 AvgSATSIMn value group matrix.

```
CycFrag(X, 1): (0123456789ab)
CycFrag(X, 2): (02468a) (13579b)
CycFrag(X, 3): (0369) (147a) (258b)
CycFrag(X, 4): (048) (159) (26a) (37b)
CycFrag(X, 5): (05a3816b4927)
CycFrag(X, 6): (06) (17) (28) (39) (4a) (5b)
```

Figure 2.42 Cyclic fragmentation of each ic cycle where X *= 12-1 [0123456789ab].*

```
CycFrag(X, 1): (01234---8---)
CycFrag(X, 2): (024-8-) (13----)
CycFrag(X, 3): (03--) (14--) (2-8-)
CycFrag(X, 4): (048) (1--) (2--) (3--)
CycFrag(X, 5): (0--381--4-2-)
CycFrag(X, 6): (0-) (1-) (28) (3-) (4-) (--)
```

Figure 2.43 Cyclic fragmentation of each ic cycle where X *= 6-z37 [012348].*

$Part_1$(6-z37): <51>
$Part_2$(6-z37): <321>
$Part_3$(6-z37): <2211>
$Part_4$(6-z37): <3111>
$Part_5$(6-z37): <3111>
$Part_6$(6-z37): <21111>

Figure 2.44 $Part_i(X)$ where X *= 6-z37 [012348]*

```
ICCycV(6-z37): <<4000> <2100> <110> <3000> <2000> <100000>>
```

Figure 2.45 Ic cycle vector of SC 6-z37 [012348]

i-cycle	*p*	*m*	$m \frac{p}{3}$	
1	2	1	$1 \cdot \frac{12}{3}$	= **4**
2	6	2	$2 \cdot \frac{6}{3}$	= **4**
3	4	3	$3 \cdot \frac{4}{3}$	= **3**
4	3	4	$4 \cdot \frac{3}{3}$	= **4**
5	6	1	$1 \cdot \frac{12}{3}$	= **4**
6	2	6	$6 \cdot \frac{2}{3}$	= **6**

Figure 2.46 Calculation of the number of arguments in each ICCycV internal vector.

```
CycFrag(X, 1): (012-456-----)
CycFrag(X, 2): (0246--) (1-5---)
CycFrag(X, 3): (0-6-) (14--) (25--)
CycFrag(X, 4): (04-) (15-) (26-) (---)
CycFrag(X, 5): (05---16-4-2-)
CycFrag(X, 6): (06) (1-) (2-) (--) (4-) (5-)

ICCycV(6-z4):  <<2200> <3000> <110> <1110> <1100> <100000>>
```

Figure 2.47 Cyclic fragmentation and ic cycle vector of SC 6-z4 [012456].

The function WEIGHT is sent an integer value n (the ICCycV value) and a real number constant (in C, real numbers are called "double"). The function returns a real number. Curly brackets are used like begin and end statements in BASIC, Pascal, and many other programming languages. The symbol "=" is used to assign the variable to the left of it the value to the right of it. The symbol "==" is used to check whether the value to left is equal to the value to right (statements which check equality or inequality return Boolean values).

```
double weight(int n, double constant)      The function is passed the
                                           ICCycV_in value and the real
                                           number weighting constant. It
                                           will return a real number.
{
    int x = 0;                             Temporary variables x and y
    int y = 0;                             are reset to 0.
    repeat
    {                                      begin a loop
        x = x + 1;                         increment x by 1
        x = x * constant;                  multiply x by the real number
                                           constant
        y = y + 1;                         increment y (this keeps track of
                                           the iterations)
    }                                      end the loop when y == n
    until (y == n);
}
return x;
```

Figure 2.48 Function WEIGHT expressed as a function in C.

```
constant = 1.2          values passed to function WEIGHT
n = 4
x = 0;
y = 0;

repeat
{
    x = x + 1;          x = 1
    x = x * constant;   x = 1 * 1.2 = 1.2
    y = y + 1;          y = 1
}
until (y == n);         y ≠ n (so we continue)

{
    x = x + 1;          x = 1.2 + 1 = 2.2
    x = x * constant;   x = 2.2 * 1.2 = 2.64
    y = y + 1;          y = 1 + 1 = 2
}
until (y == n);         y ≠ n (so we continue)

{
    x = x + 1;          x = 2.64 + 1 = 3.64
    x = x * constant;   x = 3.64 * 1.2 = 4.37
    y = y + 1;          y = 2 + 1 = 3
}
until (y == n);         y ≠ n (so we continue)

{
    x = x + 1;          x = 4.37 + 1 = 5.37
    x = x * constant;   x = 5.37 * 1.2 = 6.44
    y = y + 1;          y = 3 + 1 = 4
}
until (y == n);         y == n (so we return the value in x)

return x;                return the value 6.44
```

Figure 2.49 Function WEIGHT demonstrated with the constant value 1.2 and the ICCycV value 4.

WEIGHT(0) = 0.00	WEIGHT(7) = 15.50
WEIGHT(1) = 1.20	WEIGHT(8) = 19.80
WEIGHT(2) = 2.64	WEIGHT(9) = 24.96
WEIGHT(3) = 4.37	WEIGHT(10) = 31.15
WEIGHT(4) = 6.44	WEIGHT(11) = 38.58
WEIGHT(5) = 8.93	WEIGHT(12) = 47.50
WEIGHT(6) = 11.92	

Figure 2.50 Values returned by function WEIGHT where the constant is 1.2.

```
ICCycV(6-z37): <<4000> <2100> <110> <3000> <2000> <100000>>

WICCV1(6-z37)  = WEIGHT(4) = 6.44
WICCV2(6-z37)  = WEIGHT(2) + WEIGHT(1) = 3.84
WICCV3(6-z37)  = WEIGHT(1) + WEIGHT(1) = 2.40
WICCV4(6-z37)  = WEIGHT(3) = 4.37
WICCV5(6-z37)  = WEIGHT(2) = 2.64
WICCV6(6-z37)  = WEIGHT(1) = 1.20
WICCV(6-z37) = <6.44, 3.84, 2.40, 4.37, 2.64, 1.20>
```

```
ICCycV(6-z4):  <<2200> <3000> <110> <1110> <1100> <100000>>

WICCV1(6-z4)   = WEIGHT(2) + WEIGHT(2) = 5.28
WICCV2(6-z4)   = WEIGHT(3) = 4.37
WICCV3(6-z4)   = WEIGHT(1) + WEIGHT(1) = 2.40
WICCV4(6-z4)   = WEIGHT(1) + WEIGHT(1) + WEIGHT(1) = 3.60
WICCV5(6-z4)   = WEIGHT(1) + WEIGHT(1) = 2.40
WICCV6(6-z4)   = WEIGHT(1) = 1.20
WICCV(6-z4)  = <5.28, 4.37, 2.40, 3.60, 2.40, 1.20>
```

Figure 2.51 WICCV(6-z37) [021348] and WICCV(6-z4) [012456] where the constant for WEIGHT is 1.2.

		Minimal possible weighted ic cycle vector values					
		1	**2**	**3**	**4**	**5**	**6**
	0	0	0	0	0	0	0
C	**1**	0	0	0	0	0	0
a	**2**	0	0	0	0	0	0
r	**3**	0	0	0	0	0	0
d	**4**	0	0	0	0	0	0
i	**5**	0	0	0	1.2	0	0
n	**6**	0	0	0	2.4	0	0
a	**7**	2.4	2.4	2.64	3.6	2.4	1.2
l	**8**	4.8	4.8	5.28	4.8	4.8	2.4
i	**9**	7.92	8.84	7.92	7.97	7.92	3.6
t	**10**	12.88	12.88	11.72	11.14	12.88	4.8
y	**11**	31.15	18.36	15.52	14.30	31.15	6.0
	12	47.50	23.84	19.32	17.47	47.50	7.2

		Maximal possible weighted ic cycle vector values					
		1	**2**	**3**	**4**	**5**	**6**
	0	0	0	0	0	0	0
C	**1**	0	0	0	0	0	0
a	**2**	1.2	1.2	1.2	1.2	1.2	1.2
r	**3**	2.64	2.64	2.64	4.37	2.64	1.2
d	**4**	4.37	4.37	6.44	4.37	4.37	2.4
i	**5**	6.44	6.44	6.44	5.57	6.44	2.4
n	**6**	8.93	11.92	7.64	8.74	8.93	3.6
a	**7**	11.92	11.92	9.08	8.74	11.92	3.6
l	**8**	15.50	13.12	12.88	9.94	15.50	4.8
i	**9**	19.80	14.56	12.88	13.10	19.80	4.8
t	**10**	24.96	16.29	14.08	13.10	24.96	6.0
y	**11**	31.15	18.36	15.52	14.30	31.15	6.0
	12	47.50	23.84	19.32	17.47	47.50	7.2

*Figure 2.52 Cmin(*w, c, i*) and cmax(*w, c, i*) values for all cardinalities (rows) and interval classes (columns) where* w = *1.2.*

WICCV(6-z37) = < 6.44, 3.84, 2.40, 4.37, 2.64, 1.20 >

cmax(1.2, 6, 1...6) = 0 0 0 2.4 0 0
cmin(1.2, 6, 1...6) = 8.93 11.92 7.64 8.74 8.93 3.6

$CSATV_A$(6-z37) < -2.49, +3.84, +2.40, +1.97, +2.64, +1.20 >
$CSATV_B$(6-z37) < +6.44, -8.08, -5.24, -4.37, -6.29, -2.40 >

Figure 2.53 Generation of CSATV(6-z37) [012348] where w = *1.2.*

Set Classes		Forte #	CSATV						
CSATSIM group #1	(1/2/3/4/5/6-cyclic sets) (CSATV$_{(A)}$ Z-quadruple)								
A	[ ]	0-1	< -0.00	-0.00	-0.00	-0.00	-0.00	-0.00	>
			<+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	>
B	[0]	0-1	< -0.00	-0.00	-0.00	-0.00	-0.00	-0.00	>
			<+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	>
C	[0123456789a]	11-1	< -0.00	-0.00	-0.00	-0.00	-0.00	-0.00	>
			<+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	>
D	[0123456789ab]	12-1	< -0.00	-0.00	-0.00	-0.00	-0.00	-0.00	>
			<+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	>
CSATSIM group #2	(4-cyclic sets) (CSATV$_A$ Z-pair)								
A	[04]	2-4	<+0.00	+0.00	+0.00	-0.00	+0.00	+0.00	>
			< -1.20	-1.20	-1.20	+1.20	-1.20	-1.20	>
B	[048]	3-12	<+0.00	+0.00	+0.00	-0.00	+0.00	+0.00	>
			< -2.64	-2.64	-2.64	+4.37	-2.64	-1.20	>
CSATSIM group #3	(3/6-cyclic sets) (CSATV$_A$ Z-triple)								
A	[036]	3-10	<+0.00	+0.00	-0.00	+0.00	+0.00	-0.00	>
			< -2.64	-2.64	+2.64	-4.37	-2.64	+1.20	>
B	[0369]	4-28	<+0.00	+0.00	-0.00	+0.00	+0.00	-0.00	>
			< -4.37	-4.37	+6.44	-4.37	-4.37	+2.40	>
C	[0134679a]	8-28	<+0.00	+0.00	-0.00	+0.00	+0.00	-0.00	>
			<-10.70	-8.32	+7.60	-5.14	-10.70	+2.40	>
CSATSIM group #4	(3/6-cyclic sets) (CSATV$_A$ Z-double)								
A	[01369]	5-31	<+1.20	+1.20	-0.00	+0.00	+1.20	-0.00	>
			< -5.24	-5.24	+6.44	-4.37	-5.24	+2.40	>
B	[0134679]	7-31	<+1.20	+1.20	-0.00	+0.00	+1.20	-0.00	>
			< -8.32	-8.32	+6.44	-5.14	-8.32	+2.40	>
CSATSIM group #5	(2/4/6-cyclic sets) (CSATV$_A$ Z-pair)								
A	[02468]	5-33	<+0.00	-0.00	+0.00	-0.00	+0.00	-0.00	>
			< -6.44	+6.44	-6.44	+4.37	-6.44	+2.40	>
B	[02468a]	6-35	<+0.00	-0.00	+0.00	-0.00	+0.00	-0.00	>
			< -8.93	+11.92	-7.64	+6.34	-8.93	+3.60	>

Figure 2.54 Special CSATSIM groups (CSATV$_A$ Z-relations).

$$\text{CSATSIM}(X, Y) = \frac{\sum_{n=1}^{6} \left(\left|\text{CSATV}_{\text{A}}(X)_n - \text{CSATV}_{row(Y)_n}\right| + \left|\text{CSATV}_{\text{A}}(Y)_n - \text{CSATV}_{row(X)_n}\right| \right)}{\sum_{n=1}^{6} \left(\left|\text{CSATV}_{\text{A}}(X)_n - \text{CSATV}_{\text{B}}(X)_n\right| + \left|\text{CSATV}_{\text{A}}(Y)_n - \text{CSATV}_{\text{B}}(Y)_n\right| \right)}$$

Where X_n and Y_n are the *n*-th entries in the CSATVs of pcsets *X* and *Y* respectively and *row* is a function that decides which row of the CSATV to use.

Function *row*:
If $\text{CSATV}_{\text{A}}(X)_n$ is a max-related value and $\text{CSATV}_{\text{A}}(Y)_n$ is also max-related value, then the function *row* returns row A ($\text{CSATV}_{\text{A}}(X)_n$ is compared to $\text{CSATV}_{\text{A}}(Y)_n$); otherwise, *row* returns row B ($\text{CSATV}_{\text{A}}(X)_n$ is compared to $\text{CSATV}_{\text{B}}(Y)_n$).

*Figure 2.55 Formal definition of function CSATSIM(*X, Y*).*

	#2											
	0.000	0.333										
#2	0.333											
	0.278	2	**#3**									
	0.000	0.547	*0.000*	0.509								
#3	0.103		0.149									
	0.359	18	0.295	19	**#4**							
	0.107	0.574	0.000	0.561	0.000	0.557						
#4	0.107		0.082		0.091							
	0.413	51	0.297	157	0.258	81	**#5**					
	0.231	0.730	0.148	0.638	0.062	0.582	*0.000*	0.567				
#5	0.231		0.148		0.062		0.015					
	0.520	102	0.368	204	0.287	406	0.232	176	**#6**			
	0.226	0.795	0.206	0.733	0.080	0.634	0.000	0.650	*0.000*	0.640		
#6	0.226		0.206		0.080		0.066		0.010			
	0.579	195	0.431	324	0.351	757	0.254	1067	0.201	477	**#7**	
	0.217	0.779	0.123	0.660	0.099	0.629	0.000	0.581	0.011	0.617	*0.000*	0.524
#7	0.217		0.123		0.099		0.013		0.011		0.011	
	0.540	156	0.399	272	0.327	606	0.250	768	0.232	1148	0.227	418
	0.069	0.727	0.000	0.673	0.000	0.601	0.058	0.579	0.040	0.580	0.056	0.552
#8	0.069		0.154		0.042		0.058		0.040		0.056	
	0.502	128	0.382	237	0.328	557	0.278	702	0.271	979	0.256	727
	0.116	0.688	0.056	0.670	0.055	0.668	0.048	0.584	0.125	0.593	0.042	0.615
#9	0.116		0.056		0.055		0.048		0.125		0.042	
	0.450	56	0.348	102	0.345	245	0.313	320	0.312	408	0.294	335
	0.021	0.743	0.066	0.657	0.119	0.647	0.157	0.696	0.133	0.703	0.155	0.745
#10	0.021		0.066		0.119		0.157		0.133		0.155	
	0.441	30	0.379	49	0.386	130	0.364	170	0.375	209	0.368	175

	#8					
#8	*0.000*	0.543				
	0.028					
	0.258	299	**#9**			
#9	0.043	0.583	*0.000*	0.543		
	0.043		0.147			
	0.296	269	0.292	48	**#10**	
#10	0.111	0.686	0.064	0.669	*0.000*	0.705
	0.111		0.064		0.210	
	0.366	138	0.346	53	0.359	13

Figure 2.56 CSATSIM value group matrix (where WEIGHT = 1.2).

$$\text{PCSATV}_i(X) = \frac{\text{WICCV}_i(X) - \text{cmin}(w, c, i)}{\text{cmax}(w, c, i) - \text{cmin}(w, c, i)}$$

for all $i \in I$.

Figure 2.57 Formal derivation of each i *in Proportional CSATV(*X*)*

Chapter 3
Figures

Labels	SC		ICV
A	5-23	[02357]	<132130>
B	6-z39	[023458]	<333321>
C	6-8	[023457]	<343230>
D	5-14	[01257]	<221131>
E	7-35	[013568a]	<254361>
F	8-13	[01234679]	<556453>
G	8-22	[0123568a]	<465562>
H	7-23	[0234579]	<354351>
I	7-11	[0134568]	<444441>
J	7-8	[0234568]	<454422>

Figure 3.1 Set classes in Stravinsky, Three Pieces for Clarinet Solo, *mvt. 1.*

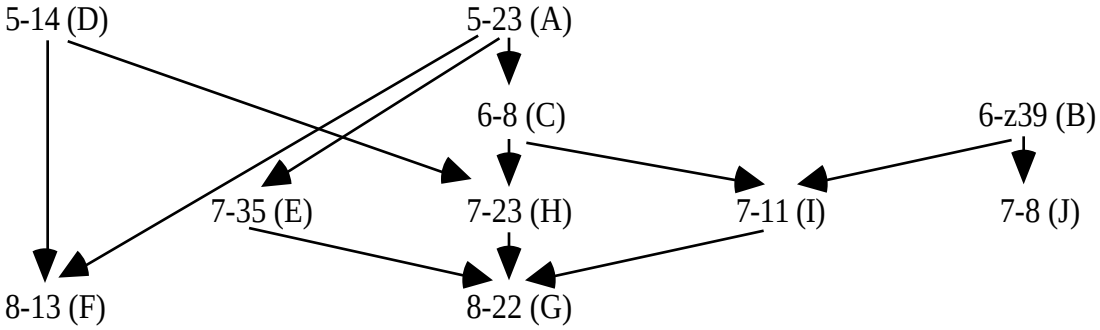


Figure 3.2 Abstract superset/subset relations among Stravinsky SCs.

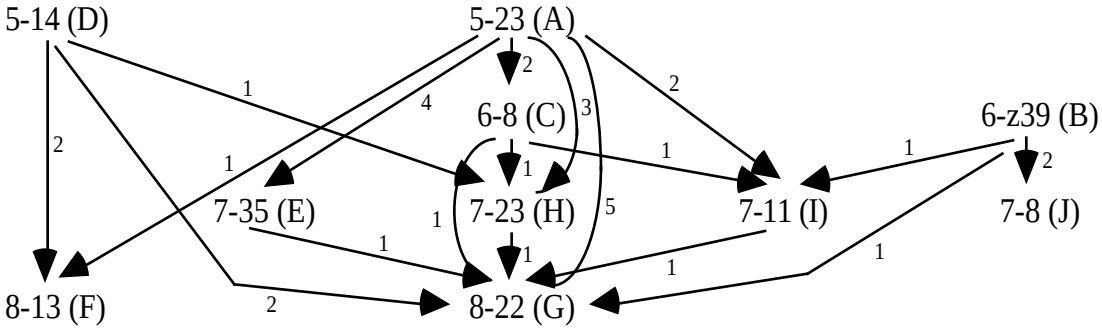


Figure 3.3 EMB(X, Y) values among Stravinsky SCs.

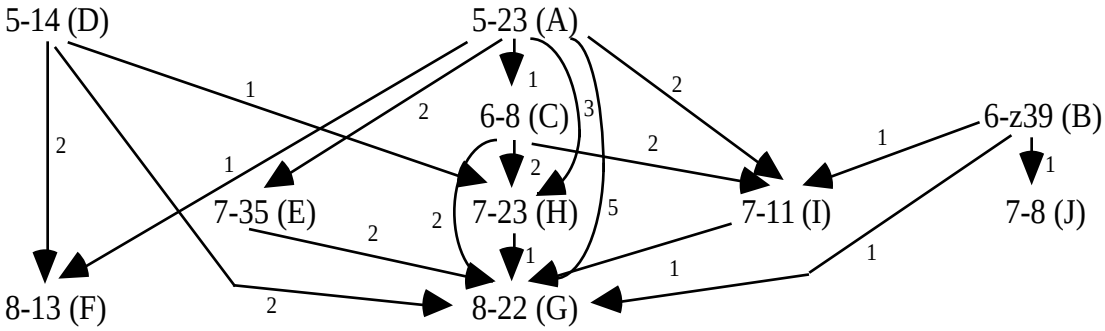


Figure 3.4 COV(X, Y) values among Stravinsky SCs.

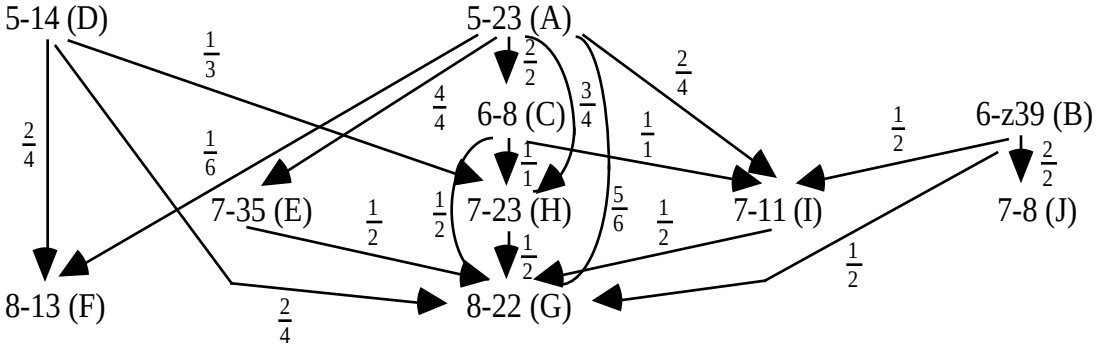


*Figure 3.5 Proportional SATEMB(X, Y) values among Stravinsky SCs. Values are expressed as fractions where the numerator = EMB(*X, Y*) and the denominator represents the maximum number of* X *embedded in any set of #*Y.

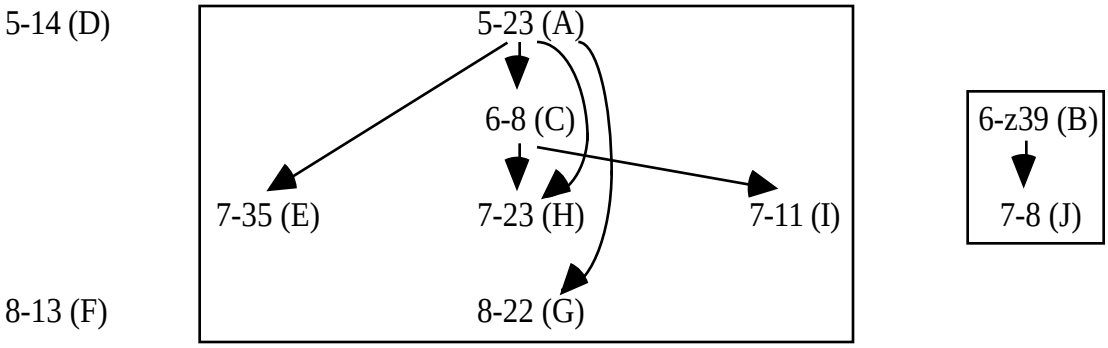


Figure 3.6 Maximal or near-maximal proportional SATEMB values among Stravinsky SCs.

	A									
A	0.000	**B**								
B	0.280	0.000	**C**							
C	0.200	0.133	0.000	**D**						
D	0.200	0.280	0.280	0.000	**E**					
E	0.355	0.222	0.222	0.355	0.000	**F**				
F	0.474	0.302	0.302	0.474	0.184	0.000	**G**			
G	0.474	0.302	0.302	0.474	0.143	0.107	0.000	**H**		
H	0.355	0.167	0.167	0.355	0.048	0.143	0.143	0.000	**I**	
I	0.355	0.167	0.167	0.355	0.143	0.143	0.143	0.095	0.000	**J**
J	0.419	0.167	0.222	0.419	0.190	0.143	0.143	0.143	0.095	0.000

Average ASIM value between different SCs: 0.243
(Maximum similarity = 0.000)

Figure 3.7 ASIM comparison matrix for Stravinsky SCs.

0.048	E	H	0.143	G	J	0.222	C	E	0.355	D	E
0.095	H	I	0.143	H	J	0.222	C	J	0.355	D	H
0.095	I	J	0.167	B	H	0.280	A	B	0.355	D	I
0.107	F	G	0.167	B	I	0.280	B	D	0.419	A	J
0.133	B	C	0.167	B	J	0.280	C	D	0.419	D	J
0.143	E	G	0.167	C	H	0.302	B	F	0.474	A	F
0.143	E	I	0.167	C	I	0.302	B	G	0.474	A	G
0.143	F	H	0.184	E	F	0.302	C	F	0.474	D	F
0.143	F	I	0.190	E	J	0.302	C	G	0.474	D	G
0.143	F	J	0.200	A	C	0.355	A	E			
0.143	G	H	0.200	A	D	0.355	A	H			
0.143	G	I	0.222	B	E	0.355	A	I			

Figure 3.8 ASIM values for Stravinsky SCs, sorted from most to least similar.

Figure 3.9 SC pairs that yield ASIM values ≤ 0.107. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

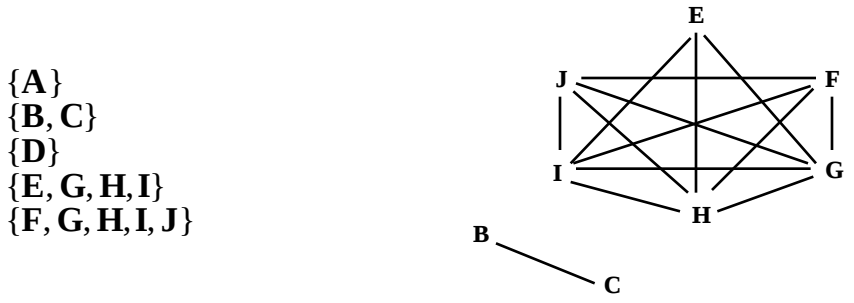


Figure 3.10 SC pairs that yield ASIM values ≤ 0.15. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

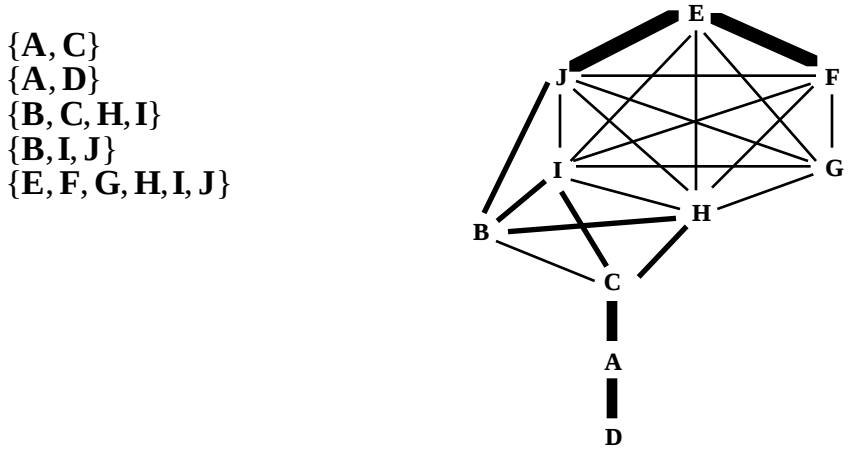


Figure 3.11 Transitive tuples of closely ASIM-related SCs where the cutoffs are 0.15 (thinnest lines), 0.167 (medium lines), and 0.2 (thickest lines).

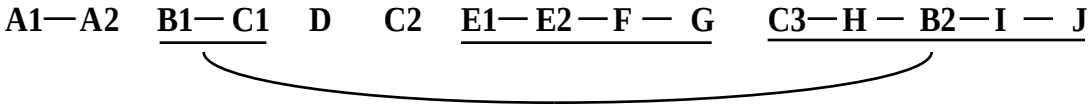


Figure 3.12 Temporal arrangement of the SC's in Stravinsky. Lines indicate ASIM relationships ≤ 0.2.

A	is related to:	**C**, **D**
B		**C**, **H**, **I**, **J**
C		**A**, **B**, **H**, **I**
D		**A**
E		**F**, **G**, **H**, **I**, **J**
F		**E**, **G**, **H**, **I**, **J**
G		**E**, **F**, **H**, **I**, **J**
H		**B**, **C**, **E**, **F**, **G**, **I**, **J**
I		**B**, **C**, **E**, **F**, **G**, **H**, **J**
J		**B**, **E**, **F**, **G**, **H**, **I**

Figure 3.13 ASIM-relations ≤ 0.2 in Stravinsky.

	A									
A	0.000	**B**								
B	1.067	0.000	**C**							
C	0.689	0.816	0.000	**D**						
D	0.816	1.067	1.067	0.000	**E**					
E	0.687	1.633	1.155	1.344	0.000	**F**				
F	0.816	0.687	0.687	1.000	1.344	0.000	**G**			
G	0.577	1.067	0.687	1.155	0.687	1.000	0.000	**H**		
H	0.373	1.155	0.577	1.067	0.577	0.898	0.373	0.000	**I**	
I	0.898	0.577	0.577	1.067	1.291	0.687	0.687	0.816	0.000	**J**
J	1.344	0.577	1.000	1.462	1.915	1.067	1.344	1.414	1.000	0.000

Average IcVSIM value between different SCs: 0.951
(Maximum similarity = 0.000)

Figure 3.14 IcVSIM comparison matrix for Stravinsky SCs.

0.373	A	H	0.687	E	G	1.000	F	G	1.291	E	I
0.373	G	H	0.687	F	I	1.000	I	J	1.344	A	J
0.577	A	G	0.687	G	I	1.067	A	B	1.344	D	E
0.577	B	I	0.689	A	C	1.067	B	D	1.344	E	F
0.577	B	J	0.816	A	D	1.067	B	G	1.344	G	J
0.577	C	H	0.816	A	F	1.067	C	D	1.414	H	J
0.577	C	I	0.816	B	C	1.067	D	H	1.462	D	J
0.577	E	H	0.816	H	I	1.067	D	I	1.633	B	E
0.687	A	E	0.898	A	I	1.067	F	J	1.915	E	J
0.687	B	F	0.898	F	H	1.155	B	H			
0.687	C	F	1.000	C	J	1.155	C	E			
0.687	C	G	1.000	D	F	1.155	D	G			

Figure 3.15 IcVSIM values for Stravinsky SCs, sorted from most to least similar.

Figure 3.16 SC pairs that yield IcVSIM values ≤ 0.373. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **G**, **H**}
{**B**, **I**}
{**B**, **J**}
{**C**, **H**}
{**C**, **I**}
{**H**, **E**}
{**D**}
{**F**}

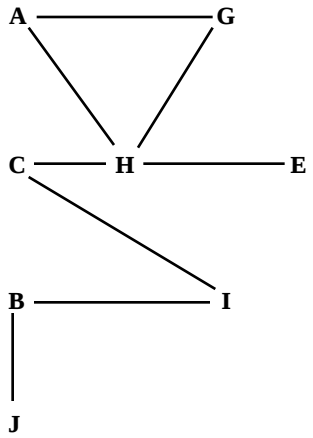


Figure 3.17 SC pairs that yield IcVSIM values ≤ 0.577. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **C**, **G**, **H**}
{**A**, **E**, **G**, **H**}
{**B**, **F**, **I**}
{**B**, **J**}
{**C**, **F**, **I**}
{**C**, **G**, **I**}
{**D**}

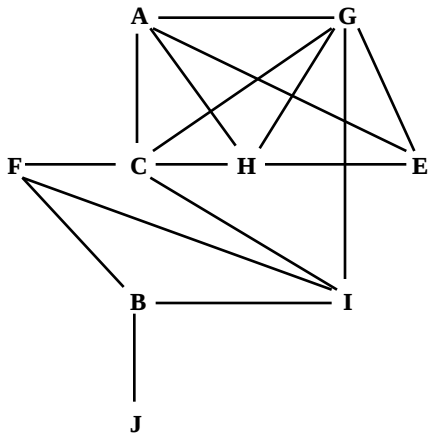


Figure 3.18 SC pairs that yield IcVSIM values ≤ 0.689. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **C**, **F**, **H**}
{**A**, **C**, **G**, **H**, **I**}
{**A**, **D**}
{**A**, **E**, **G**, **H**}
{**B**, **C**, **F**, **I**}
{**B**, **J**}

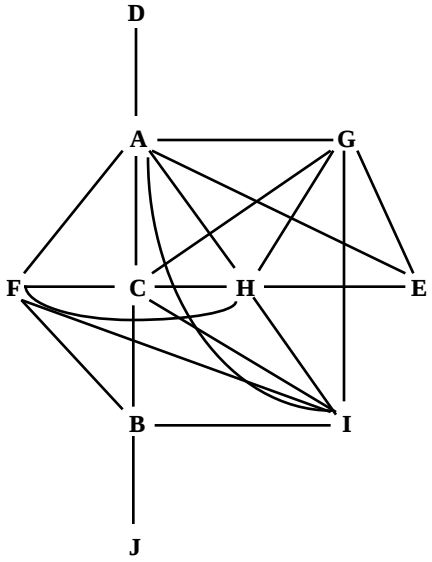


Figure 3.19 SC pairs that yield IcVSIM values ≤ 0.898. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

A1—A2 B1—C1 D C2 E1—E2 F G — C3—H B2—I J

Figure 3.20 Temporal arrangement of the SC's in Stravinsky. Lines indicate IcVSIM relationships ≤ 0.898.

A	is related to:	**C**, **D**, **E**, **F**, **G**, **H**
B		**C**, **F**, **I**, **J**
C		**A**, **B**, **F**, **G**, **H**, **I**
D		**A**
E		**A**, **G**, **H**
F		**A**, **B**, **C**, **H**, **I**
G		**A**, **C**, **E**, **H**, **I**
H		**A**, **C**, **E**, **F**, **G**, **I**
I		**A**, **B**, **C**, **F**, **G**, **H**
J		**B**

Figure 3.21 IcVSIM-relations ≤ 0.898 in Stravinsky.

	A									
A	0.000	**B**								
B	0.286	0.000	**C**							
C	0.143	0.143	0.000	**D**						
D	0.190	0.224	0.163	0.000	**E**					
E	0.095	0.367	0.224	0.286	0.000	**F**				
F	0.205	0.217	0.217	0.179	0.308	0.000	**G**			
G	0.154	0.326	0.283	0.231	0.154	0.333	0.000	**H**		
H	0.000	0.286	0.143	0.190	0.095	0.205	0.154	0.000	**I**	
I	0.190	0.102	0.041	0.190	0.286	0.179	0.231	0.190	0.000	**J**
J	0.286	0.184	0.245	0.286	0.381	0.205	0.308	0.286	0.190	0.000

Average SATSIM2 value between different SCs: 0.213
(Maximum similarity = 0.000)

Figure 3.22 SATSIM2 comparison matrix for Stravinsky SCs.

0.000 A H	0.179 D F	0.217 B F	0.286 D J
0.041 C I	0.179 F I	0.217 C F	0.286 E I
0.095 A E	0.184 B J	0.224 B D	0.286 H J
0.095 E H	0.190 A D	0.224 C E	0.308 E F
0.102 B I	0.190 A I	0.231 D G	0.308 G J
0.143 A C	0.190 D H	0.231 G I	0.326 B G
0.143 B C	0.190 D I	0.245 C J	0.333 F G
0.143 C H	0.190 H I	0.283 C G	0.367 B E
0.154 A G	0.190 I J	0.286 A B	0.381 E J
0.154 E G	0.205 A F	0.286 A J	
0.154 G H	0.205 F H	0.286 B H	
0.163 C D	0.205 F J	0.286 D E	

Figure 3.23 SATSIM(2) values for Stravinsky SCs, sorted from most to least similar.

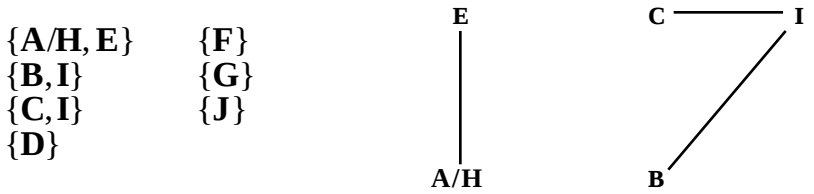


Figure 3.24 SC pairs that yield SATSIM2 values ≤ 0.102. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

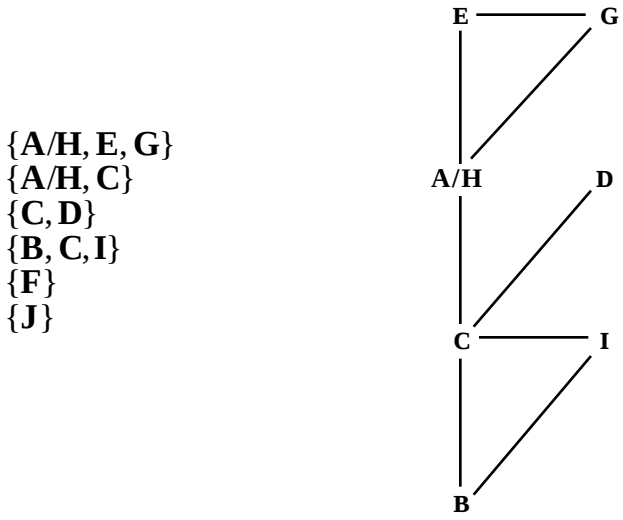


Figure 3.25 SC pairs that yield SATSIM2 values ≤ 0.163. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A/H**, **D**, **C**, **I**}
{**A/H**, **E**, **G**}
{**B**, **C**, **I**}
{**B**, **I**, **J**}
{**D**, **F**, **I**}

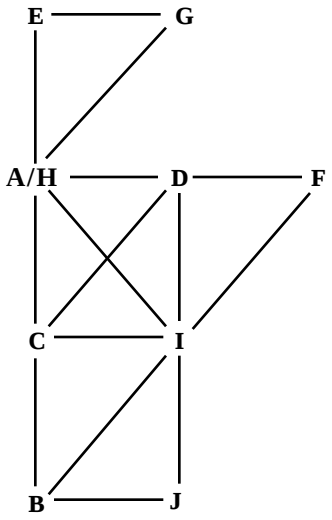


Figure 3.26 SC pairs that yield SATSIM2 values ≤ 0.190. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A/H**, **E**, **G**}
{**A/H**, **D**, **C**, **I**}
{**A/H**, **D**, **F**, **I**}
{**B**, **C**, **I**}
{**B**, **I**, **J**}
{**F**, **I**, **J**}

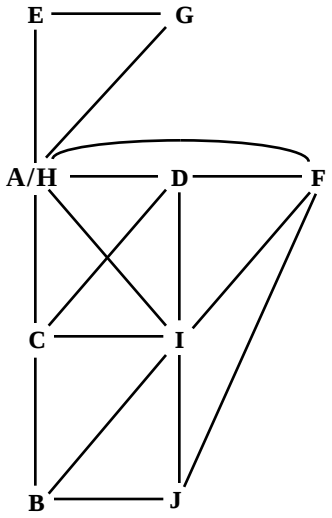


Figure 3.27 SC pairs that yield SATSIM2 values ≤ 0.205. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

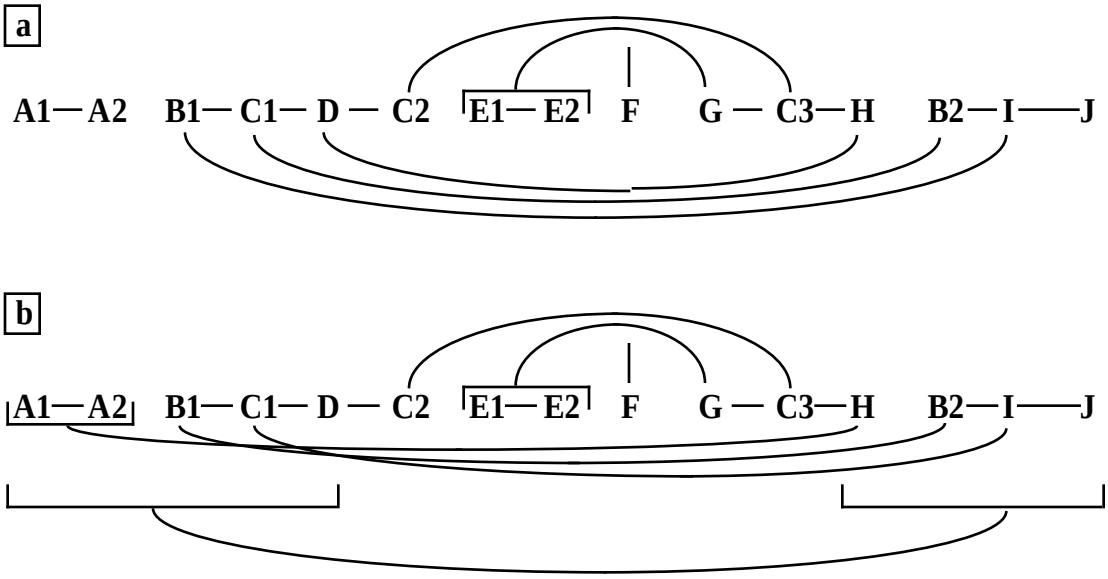


Figure 3.28 Temporal arrangement of the SC's in Stravinsky. Lines indicate SATSIM2 relationships ≤ 0.190 (in this particular case, this is effectively the same as relationships ≤ 0.205).

A	is related to:	**C**, **D**, **E**, **F**, **G**, **H**, **I**
B		**C**, **I**, **J**
C		**A**, **B**, **D**, **H**, **I**
D		**A**, **C**, **F**, **H**, **I**
E		**A**, **G**, **H**
F		**A**, **D**, **H**, **I**, **J**
G		**A**, **E**, **H**
H		**A**, **C**, **D**, **E**, **F**, **G**, **I**
I		**A**, **B**, **C**, **D**, **F**, **H**, **J**
J		**B**, **F**, **I**

Figure 3.29 SATSIM2 relations ≤ 0.205 in Stravinsky.

	A									
A	1.000	**B**								
B	0.566	1.000	**C**							
C	0.819	0.702	1.000	**D**						
D	0.615	0.578	0.578	1.000	**E**					
E	0.685	0.593	0.655	0.466	1.000	**F**				
F	0.341	0.572	0.477	0.388	0.657	1.000	**G**			
G	0.432	0.602	0.549	0.392	0.757	0.842	1.000	**H**		
H	0.623	0.672	0.774	0.534	0.842	0.790	0.837	1.000	**I**	
I	0.562	0.797	0.740	0.500	0.762	0.733	0.858	0.800	1.000	**J**
J	0.411	0.876	0.571	0.452	0.550	0.676	0.687	0.671	0.792	1.000

Average ATMEMB value between different SCs: 0.639
(Maximum similarity = 1.000)

Figure 3.30 ATMEMB comparison matrix for Stravinsky SCs.

0.876 B J	0.757 E G	0.615 A D	0.500 D I
0.858 G I	0.740 C I	0.602 B G	0.477 C F
0.842 F G	0.733 F I	0.593 B E	0.466 D E
0.842 E H	0.702 B C	0.578 C D	0.452 D J
0.837 G H	0.687 G J	0.578 B D	0.432 A G
0.819 A C	0.685 A E	0.572 B F	0.411 A J
0.800 H I	0.676 F J	0.571 C J	0.392 D G
0.797 B I	0.672 B H	0.566 A B	0.388 D F
0.792 I J	0.671 H J	0.562 A I	0.341 A F
0.790 F H	0.657 E F	0.550 E J	
0.774 C H	0.655 C E	0.549 C G	
0.762 E I	0.623 A H	0.534 D H	

Figure 3.31 ATMEMB values for Stravinsky SCs, sorted from most to least similar.

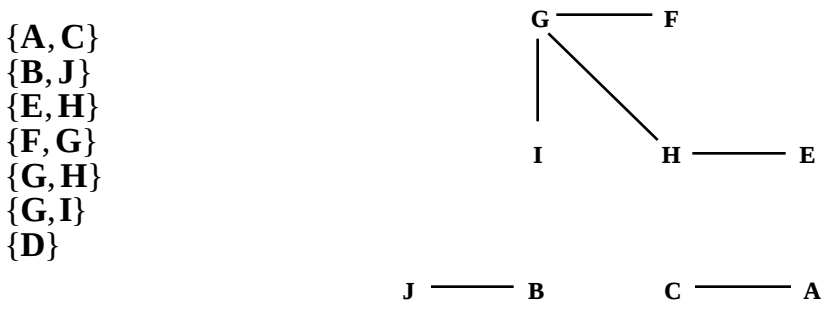


Figure 3.32 SC pairs that yield ATMEMB values ≥ 0.819. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

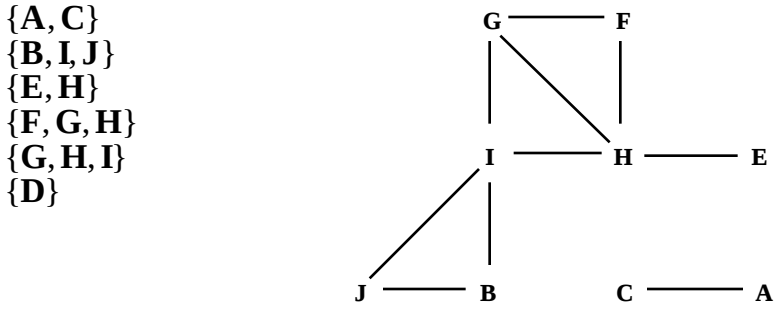


Figure 3.33 SC pairs that yield ATMEMB values ≥ 0.790. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

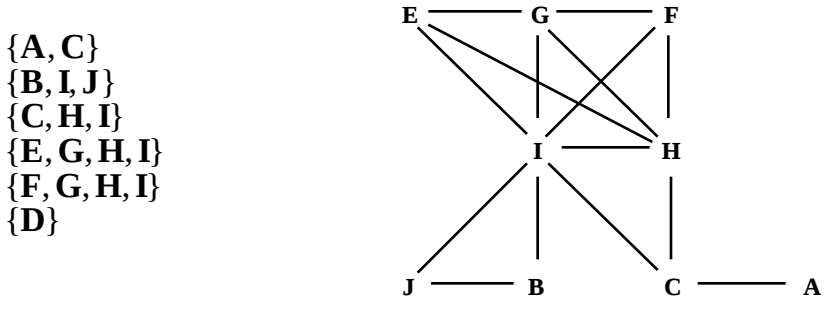


Figure 3.34 SC pairs that yield ATMEMB values ≥ 0.733. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **C**, **E**}
{**B**, **C**, **H**, **I**}
{**B**, **I**, **J**}
{**E**, **F**, **G**, **H**, **I**}
{**F**, **G**, **H**, **I**, **J**}
{**D**}

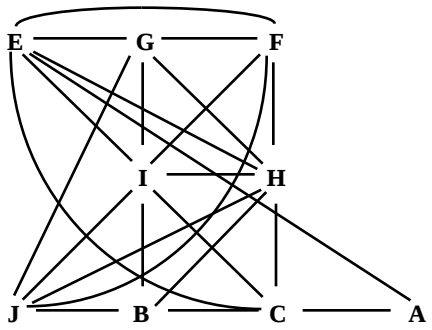


Figure 3.35 SC pairs that yield ATMEMB values ≥ 0.655. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

A	is related to:	**C**, **E**
B		**C**, **H**, **I**, **J**
C		**A**, **B**, **E**, **H**, **I**
D		none
E		**A**, **C**, **F**, **G**, **H**, **I**
F		**E**, **G**, **H**, **I**, **J**
G		**E**, **F**, **H**, **I**, **J**
H		**B**, **C**, **E**, **F**, **G**, **I**, **J**
I		**B**, **C**, **E**, **F**, **G**, **H**, **J**
J		**B**, **F**, **G**, **H**, **I**

Figure 3.36 ATMEMB relations ≥ 0.655 in Stravinsky.

	A									
A	1.000	**B**								
B	0.593	1.000	**C**							
C	0.856	0.691	1.000	**D**						
D	0.605	0.596	0.600	1.000	**E**					
E	0.797	0.593	0.663	0.558	1.000	**F**				
F	0.552	0.656	0.596	0.604	0.662	1.000	**G**			
G	0.648	0.712	0.667	0.607	0.795	0.808	1.000	**H**		
H	0.752	0.693	0.810	0.665	0.830	0.787	0.860	1.000	**I**	
I	0.688	0.830	0.781	0.613	0.731	0.734	0.870	0.785	1.000	**J**
J	0.509	0.892	0.602	0.539	0.524	0.693	0.707	0.646	0.763	1.000

Average REL value between different SCs: 0.693
(Maximum similarity = 1.000)

Figure 3.37 REL comparison matrix for Stravinsky SCs.

0.892 B J	0.781 C I	0.665 D H	0.596 C F
0.870 G I	0.763 I J	0.663 C E	0.596 B D
0.860 G H	0.752 A H	0.662 E F	0.593 B E
0.856 A C	0.734 F I	0.656 B F	0.593 A B
0.830 E H	0.731 E I	0.648 A G	0.558 D E
0.830 B I	0.712 B G	0.646 H J	0.552 A F
0.810 C H	0.707 G J	0.613 D I	0.539 D J
0.808 F G	0.693 F J	0.607 D G	0.524 E J
0.797 A E	0.693 B H	0.605 A D	0.509 A J
0.795 E G	0.691 B C	0.604 D F	
0.787 F H	0.688 A I	0.602 C J	
0.785 H I	0.667 C G	0.600 C D	

Figure 3.38 REL values for Stravinsky SCs, sorted from most to least similar.

{**A**, **C**}
{**B**, **I**}
{**B**, **J**}
{**E**, **H**}
{**G**, **H**}
{**G**, **I**}
{**D**}
{**F**}

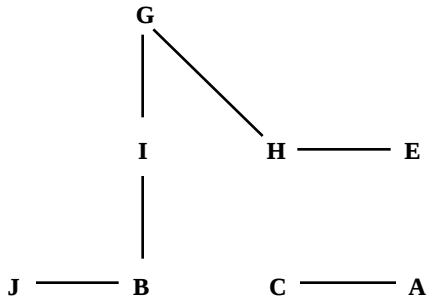


Figure 3.39 SC pairs that yield REL values ≥ 0.830. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **C**}
{**A**, **E**}
{**B**, **I**}
{**B**, **J**}
{**C**, **H**, **I**}
{**E**, **G**, **H**}
{**F**, **G**, **H**}
{**G**, **H**, **I**}
{**D**}

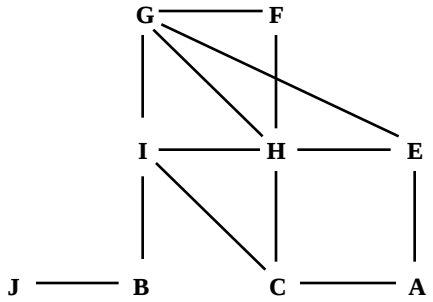


Figure 3.40 SC pairs that yield REL values ≥ 0.781. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **C**, **H**}
{**A**, **E**, **H**}
{**B**, **I**, **J**}
{**C**, **H**, **I**}
{**E**, **G**, **H**, **I**}
{**F**, **G**, **H**, **I**}
{**D**}

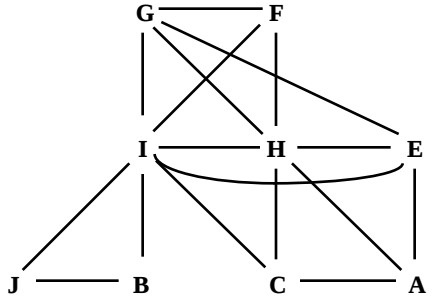


Figure 3.41 SC pairs that yield REL values ≥ 0.731. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{A, C, H, I}
{A, E, H}
{B, G, I, J}
{B, C, H, I}
{E, G, H, I}
{F, G, H, I}
{F, G, I, J}
{D}

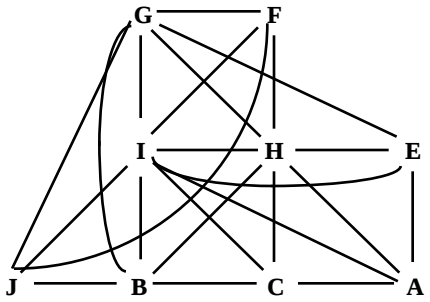


Figure 3.42 SC pairs that yield REL values ≥ 0.688. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

A	is related to:	**C, E, H, I**
B		**C, G, H, I, J**
C		**A, B, H, I**
D		none
E		**A, G, H, I**
F		**G, H, I, J**
G		**B, E, F, H, I, J**
H		**A, B, C, E, F, G, I**
I		**A, B, C, E, F, G, H, J**
J		**B, F, G, I**

Figure 3.43 REL relations ≥ 0.688 in Stravinsky.

	A									
A	0	**B**								
B	40	0	**C**							
C	21	26	0	**D**						
D	30	39	35	0	**E**					
E	21	36	27	34	0	**F**				
F	28	31	33	35	33	0	**G**			
G	32	28	28	34	22	25	0	**H**		
H	24	33	21	32	15	28	23	0	**I**	
I	33	22	24	36	26	28	21	22	0	**J**
J	41	22	32	41	37	29	30	31	24	0

Average RECREL value between different SCs: 29.2
(Maximum similarity = 0)

Figure 3.44 RECREL comparison matrix for Stravinsky SCs.

15	E	H	24	I	J	30	G	J	35	C	D
21	A	C	25	F	G	31	B	F	35	D	F
21	A	E	26	B	C	31	H	J	36	B	E
21	C	H	26	E	I	32	A	G	36	D	I
21	G	I	27	C	E	32	C	J	37	E	J
22	B	I	28	A	F	32	D	H	39	B	D
22	B	J	28	B	G	33	A	I	40	A	B
22	E	G	28	C	G	33	B	H	41	A	J
22	H	I	28	F	H	33	C	F	41	D	J
23	G	H	28	F	I	33	E	F			
24	A	H	29	F	J	34	D	E			
24	C	I	30	A	D	34	D	G			

Figure 3.45 RECREL values for Stravinsky SCs, sorted from most to least similar.

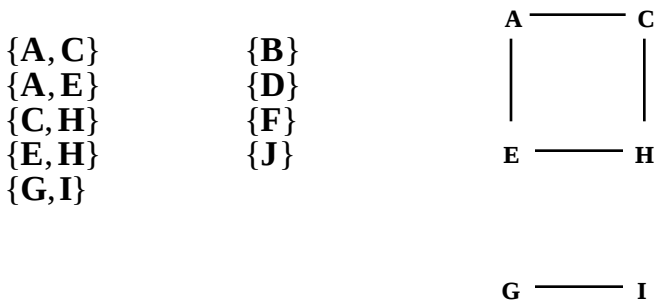


Figure 3.46 SC pairs that yield RECREL values ≤ 21. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

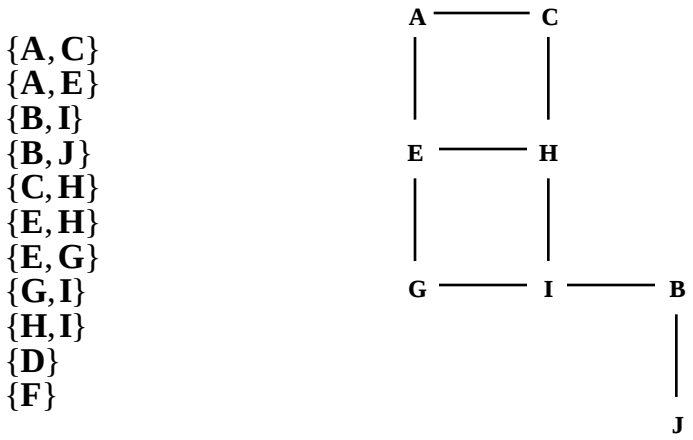


Figure 3.47 SC pairs that yield RECREL values ≤ 22. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{A, C, H}
{A, E, H}
{B, I, J}
{C, H, I}
{E, G, H}
{G, H, I}
{D}
{F}

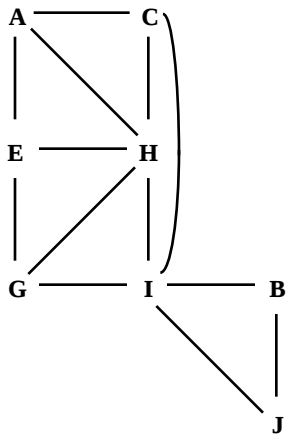


Figure 3.48 SC pairs that yield RECREL values ≤ 24. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{A, C, E, H}
{B, I, J}
{B, C, I}
{C, E, H, I}
{E, G, H, I}
{F, G}
{D}

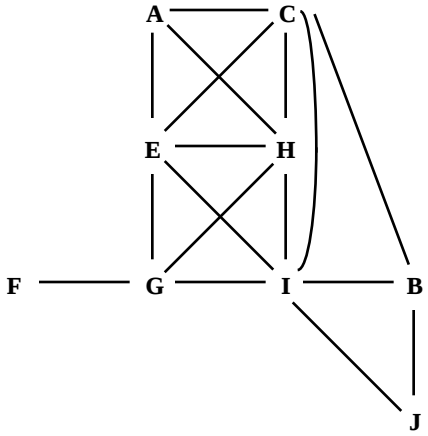


Figure 3.49 SC pairs that yield RECREL values ≤ 27. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{A, C, E, H}
{A, F, H}
{B, I, J}
{B, C, G, I}
{C, E, G, H, I}
{F, G, H, I,}
{D}

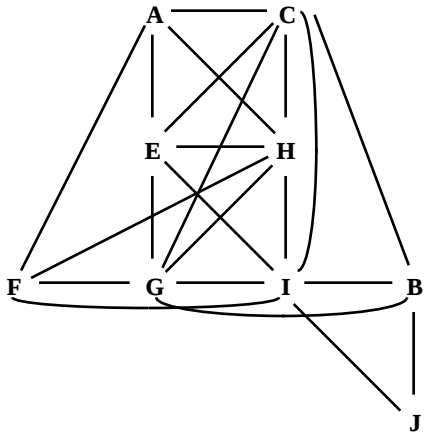


Figure 3.50 SC pairs that yield RECREL values ≤ 28. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

A	is related to:	**C, E, F, H**
B		**C, G, I, J**
C		**A, B, E, G, H, I**
D		none
E		**A, C, G, H, I**
F		**A, G, H, I**
G		**B, C, E, F, H, I**
H		**A, C, E, F, G, I**
I		**B, C, E, F, G, H, J**
J		**B, I**

Figure 3.51 RECREL relations ≤ 28 in Stravinsky.

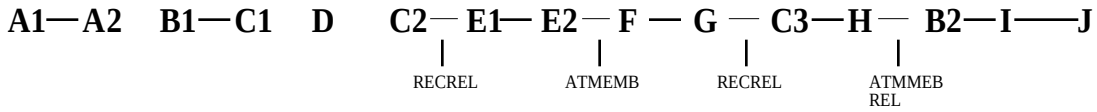


Figure 3.52 Temporal arrangement of the SC's in Stravinsky. Thicker lines indicate ATMEMB, REL, and RECREL relationships; thinner lines indicate relationships using one or two of the above indices.

	A									
A	0.000	**B**								
B	0.279	0.000	**C**							
C	0.142	0.157	0.000	**D**						
D	0.202	0.260	0.218	0.000	**E**					
E	0.150	0.323	0.223	0.323	0.000	**F**				
F	0.355	0.288	0.301	0.337	0.323	0.000	**G**			
G	0.251	0.309	0.283	0.333	0.205	0.255	0.000	**H**		
H	0.130	0.256	0.154	0.259	0.141	0.249	0.149	0.000	**I**	
I	0.246	0.163	0.145	0.293	0.247	0.241	0.197	0.183	0.000	**J**
J	0.326	0.155	0.245	0.358	0.347	0.274	0.307	0.282	0.212	0.000

Average AvgSATSIM*n* value between different SCs: 0.246
(Maximum similarity = 0.000)

*Figure 3.53 AvgSATSIM*n *comparison matrix for Stravinsky SCs.*

0.130 A H	0.202 A D	0.256 B H	0.323 B E
0.141 E H	0.205 E G	0.259 D H	0.323 D E
0.142 A C	0.212 I J	0.260 B D	0.323 E F
0.145 C I	0.218 C D	0.274 F J	0.326 A J
0.149 G H	0.223 C E	0.279 A B	0.333 D G
0.150 A E	0.241 F I	0.282 H J	0.337 D F
0.154 C H	0.245 C J	0.283 C G	0.347 E J
0.155 B J	0.246 A I	0.288 B F	0.355 A F
0.157 B C	0.247 E I	0.293 D I	0.358 D J
0.163 B I	0.249 F H	0.301 C F	
0.183 H I	0.251 A G	0.307 G J	
0.197 G I	0.255 F G	0.309 B G	

*Figure 3.54 AvgSATSIM*n *values for Stravinsky SCs, sorted from most to least similar.*

{**A**, **E**, **H**}
{**A**, **C**}
{**C**, **I**}
{**G**, **H**}
{**B**}
{**D**}
{**F**}
{**J**}

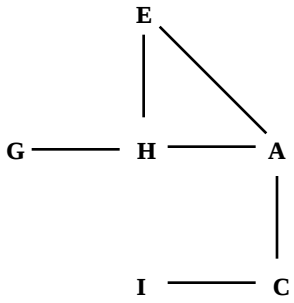


*Figure 3.55 SC pairs that yield AvgSATSIM*n *values ≤ 0.150. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.*

{**A**, **E**, **H**}
{**A**, **C**, **H**}
{**B**, **C**, **I**}
{**B**, **J**}
{**C**, **H**, **I**}
{**G**, **H**}
{**D**}
{**F**}

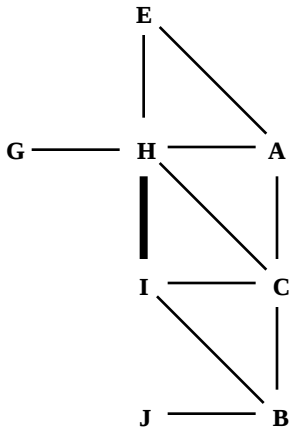


*Figure 3.56 SC pairs that yield AvgSATSIM*n *values ≤ 0.183. Transitive tuples are bracketed on the left of the figure. On the right, thin lines signal AvgSATSIM*n *values ≤ 0.163 and the fat line signals a value of 0.183.*

{A, C, E, H}
{A, C, D}
{B, C, I}
{B, I J}
{C, H, I}
{E, G, H}
{G, H, I}
{F}

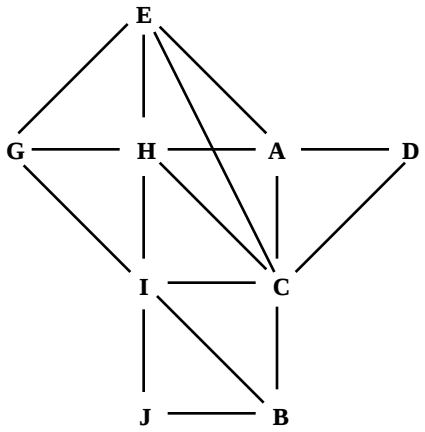


*Figure 3.57 SC pairs that yield AvgSATSIM*n *values ≤ 0.223. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.*

A	is related to:	**C, D, E, H**
B		**C, I, J**
C		**A, B, D, E, H, I**
D		**A, C**
E		**A, C, G, H**
F		none
G		**E, H, I**
H		**A, C, E, G, I**
I		**B, C, G, H, J**
J		**B, I**

*Figure 3.58 AvgSATSIM*n *relations ≤ 0.223 in Stravinsky.*

A1—A2 B1—C1—D — C2—E1— E2 F G C3—H B2—I——J

*Figure 3.59 Temporal arrangement of the SC's in Stravinsky. Lines indicate AvgSATSIM*n *≤ 0.223 relations.*

	A									
A	0.000	**B**								
B	0.329	0.000	**C**							
C	0.209	0.144	0.000	**D**						
D	0.162	0.275	0.252	0.000	**E**					
E	0.128	0.355	0.247	0.248	0.000	**F**				
F	0.277	0.126	0.169	0.178	0.351	0.000	**G**			
G	0.169	0.293	0.252	0.194	0.186	0.322	0.000	**H**		
H	0.086	0.245	0.136	0.165	0.117	0.238	0.127	0.000	**I**	
I	0.245	0.111	0.177	0.216	0.311	0.141	0.205	0.194	0.000	**J**
J	0.369	0.132	0.223	0.327	0.414	0.225	0.290	0.297	0.184	0.000

Average CSATSIM value between different SCs: 0.223
(Maximum similarity = 0.000)

Figure 3.60 CSATSIM comparison matrix for Stravinsky SCs.

0.086 A H	0.178 D F	0.252 C D
0.111 B I	0.184 I J	0.252 C G
0.117 E H	0.186 E G	0.275 B D
0.126 B F	0.194 D G	0.277 A F
0.127 G H	0.194 H I	0.290 G J
0.128 A E	0.205 G I	0.293 B G
0.132 B J	0.209 A C	0.297 H J
0.136 C H	0.216 D I	0.311 E I
0.141 F I	0.223 C J	0.322 F G
0.144 B C	0.225 F J	0.327 D J
0.162 A D	0.238 F H	0.329 A B
0.165 D H	0.245 A I	0.351 E F
0.169 A G	0.245 B H	0.355 B E
0.169 C F	0.247 C E	0.369 A J
0.177 C I	0.248 D E	0.414 E J

Figure 3.61 CSATSIM values for Stravinsky SCs, sorted from most to least similar.

{**A**, **H**}
{**B**, **I**}
{**E H**}
{**C**}
{**D**}
{**F**}
{**G**}
{**J**}

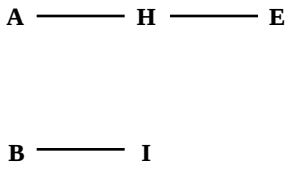


Figure 3.62 SC pairs that yield CSATSIM values ≤ 0.117. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **E**, **H**}
{**B**, **C**}
{**B**, **F**, **I**}
{**B**, **J**}
{**C**, **H**}
{**G**, **H**}
{**D**}

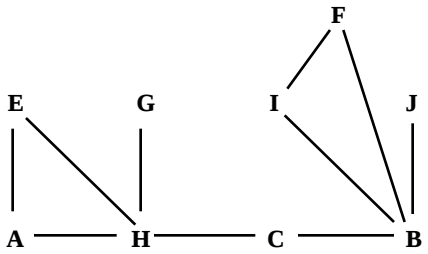


Figure 3.63 SC pairs that yield CSATSIM values ≤ 0.144. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **E**, **H**}
{**A**, **D**, **H**}
{**A**, **G**, **H**}
{**B**, **C**, **F**}
{**B**, **F**, **I**}
{**B**, **J**}
{**C**, **H**}

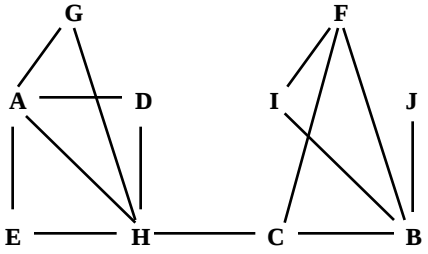


Figure 3.64 SC pairs that yield CSATSIM values ≤ 0.169. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{**A**, **E**, **G**, **H**}
{**A**, **D**, **G**, **H**}
{**B**, **C**, **F**, **I**}
{**B**, **I**, **J**}
{**C**, **H**, **I**}
{**D**, **F**}

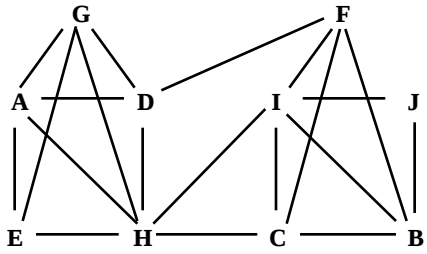


Figure 3.65 SC pairs that yield CSATSIM values ≤ 0.194. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

A	is related to:	**D**, **E**, **G**, **H**
B		**C**, **F**, **I**, **J**
C		**B**, **F**, **H**, **I**
D		**A**, **F**, **G**, **H**
E		**A**, **G**, **H**
F		**B**, **C**, **D**, **I**
G		**A**, **D**, **E**, **H**
H		**A**, **C**, **D**, **E**, **G**, **I**
I		**B**, **C**, **F**, **H**, **J**
J		**B**, **I**

Figure 3.66 CSATSIM relations ≤ 0.194 in Stravinsky.

A	5-23	**<**	**+1.20,**	**-2.60,**	**+2.40,**	**+0.00,**	**-2.07,**	**+0.00**	**>**
		<	-5.24,	+3.84,	-4.04,	-4.37,	+4.37,	-2.40	>
D	5-14	**<**	**+2.64,**	**+2.40,**	**+1.20,**	**+0.00,**	**-2.07,**	**-1.20**	**>**
		<	-3.80,	-4.04,	-5.24,	-4.37,	+4.37,	+1.20	>
E	7-35	**<**	**+0.00,**	**+4.61,**	**+2.40,**	**+0.00,**	**-0.00,**	**+0.00**	**>**
		<	-9.52,	-4.91,	-4.04,	-5.14,	+9.52,	-2.40	>
G	8-22	**<**	**+0.77,**	**-4.04,**	**+1.20,**	**+1.97,**	**-3.58,**	**+0.00**	**>**
		<	-9.93,	+4.28,	-6.40,	-3.17,	+7.12,	-2.40	>
H	7-23	**<**	**+1.97,**	**+4.61,**	**+2.40,**	**+0.00,**	**-2.99,**	**+0.00**	**>**
		<	-7.55,	-4.91,	-4.04,	-5.14,	+6.53,	-2.40	>
B	6-z39	**<**	**+4.37,**	**+3.84,**	**-3.80,**	**+1.97,**	**+2.40,**	**+1.20**	**>**
		<	-4.56,	-8.08,	+3.84,	-4.37,	-6.53,	-2.40	>
C	6-8	**<**	**+4.37,**	**+5.28,**	**+3.60,**	**+0.00,**	**+4.37,**	**+0.00**	**>**
		<	-4.56,	-6.64,	-4.04,	-6.34,	-4.56,	-3.60	>
F	8-13	**<**	**+2.84,**	**+1.97,**	**-3.80,**	**+0.00,**	**+2.84,**	**-1.20**	**>**
		<	-7.86,	-6.35,	+3.80,	-5.14,	-7.86,	+1.20	>
I	7-11	**<**	**+3.17,**	**+2.88,**	**+2.40,**	**+1.97,**	**+3.17,**	**+0.00**	**>**
		<	-6.35,	-6.64,	-4.04,	-3.17,	-6.35,	-2.40	>
J	7-8	**<**	**+4.04,**	**-4.28,**	**+2.64,**	**+1.97,**	**+0.00,**	**-1.20**	**>**
		<	-5.48,	+5.24,	-3.80,	-3.17,	-9.52,	+1.20	>

Figure 3.67 CSATVs for Stravinsky sets, separated into the two families shown in figure 3.65. (Line A of each CSATV is boldfaced.)

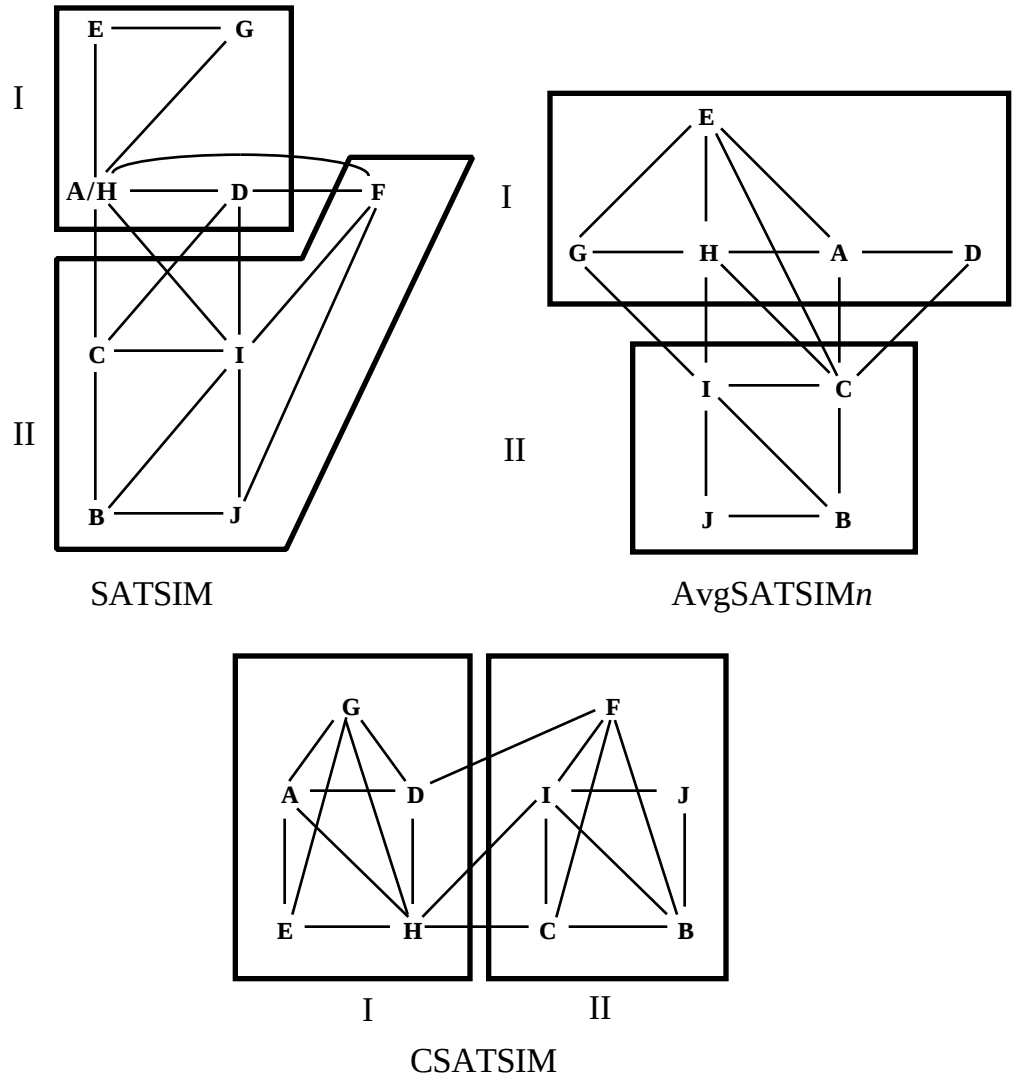


*Figure 3.68 A comparison of the CSATSIM families to SATSIM2 and AvgSATSIM*n *relations.*

The cseg of the pitch realization of **H** is: <0,6,4,5,3,2,4,1>.
The cseg of the pitch realization of **I** is: <0,4,2,5,3,1,6,5>.

COM-matrix of cseg **H**

	0	6	4	5	3	2	4	1
0	0	+	+	+	+	+	+	+
6	-	0	-	-	-	-	-	-
4	-	+	0	+	-	-	0	-
5	-	+	-	0	-	-	-	-
3	-	+	+	+	0	-	+	-
2	-	+	+	+	+	0	+	-
4	-	+	0	+	-	-	0	-
1	-	+	+	+	+	+	+	0

COM-matrix of cseg **I**

	0	4	2	5	3	1	6	5
0	0	+	+	+	+	+	+	+
4	-	0	-	+	-	-	+	+
2	-	+	0	+	+	-	+	+
5	-	-	-	0	-	-	+	0
3	-	+	-	+	0	-	+	+
1	-	+	+	+	+	0	+	+
6	-	-	-	-	-	-	0	-
5	-	-	-	0	-	-	+	0

CSIM is calculated by dividing the number of positions in the respective upper right triangles which have the same cint by the total number of positions in each upper right triangle.

$$\text{CSIM}(\mathbf{H}, \mathbf{I}) = \frac{17}{28} = 0.607$$

The diagonal just to the right of the "zero diagonal" provides the cints between adjacent members of the cseg. The pattern is identical (<+, -, +, -, -, +, ->) for csegs **H** and **I**.

*Figure 3.69 Contour segments (csegs), comparison (COM) matrices, and contour similarity (CSIM) for the pitch realizations of pcsets **H** and **I**.*

A1	**A2**	**B1**	**C1**	**D**	**C2**	**E1**	**E2**	**F**	**G**	**C3**	**H**	**B2**	**I**	**J**
I	I	II	II	I	II	I	I	II	I	II	I	II	II	II

Figure 3.70 Temporal arrangement of the SC's in Stravinsky. Lines indicate CSATSIM relationships ≤ 0.194 and beneath each pcset label is the CSATSIM family (I or II) to which it belongs.

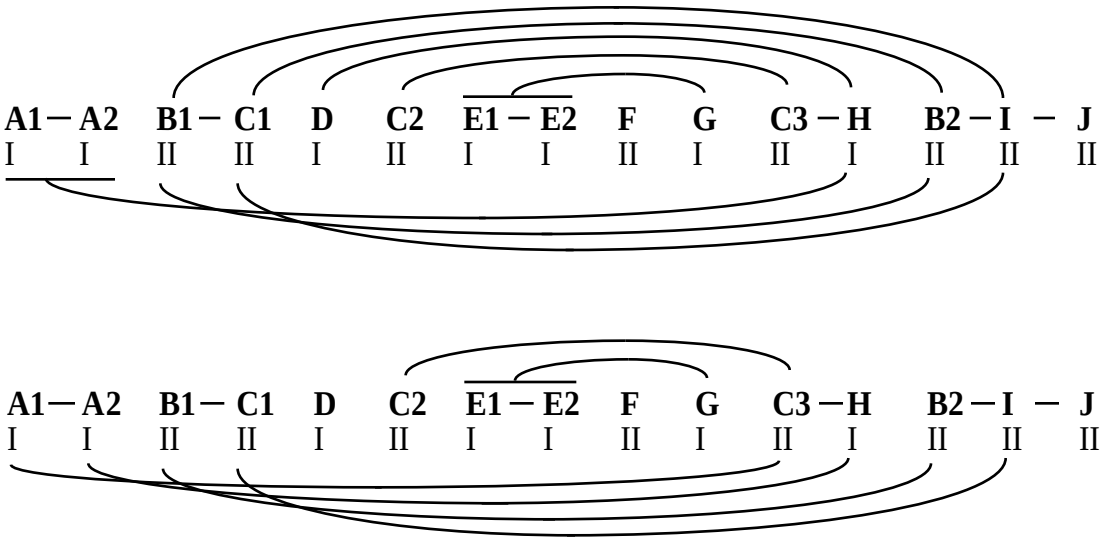


Figure 3.71 Symmetrical readings of the piece based upon CSATSIM ≤ 0.194 relationships.

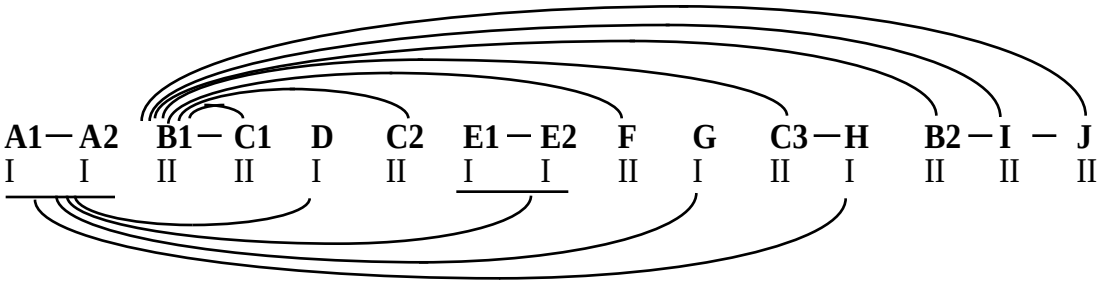


Figure 3.72 Alternate reading of the piece based upon CSATSIM ≤ 0.194 relationships.

	A	B	C	D	E	F	G	H	I	J
A	—									
B	none	—								
C	1,2,3,4,5,6,7	1,2,3,4,5,6,7,8	—							
D	1,2,3,7,8	none	3,7	—						
E	2,3,4,5,6,7,8	none	4,6,7	none	—					
F	2,3,6	2,8	2,8	3,8	1,4	—				
G	2,3,8	5,6	2,6	8	1,2,3,4,5,6,7,8	1,4,5,6	—			
H	2,3,5,6,7,8	1,4,5	1,2,3,4,5,6,7,8	3,8	1,2,3,4,5,6,7,8	1,2,4,5,6	1,2,3,4,5,6,7,8	—		
I	3,5	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8	3	1,4,5,6	1,2,3,4,5,6,8	1,2,4,5,6,7	1,2,3,4,5,6,7,8	—	
J	none	1,2,3,4,5,6,7,8	none	none	1	1,3,4,5	1,4,5	1	1,3,4,5,6,7,8	—

Key:

1	=	ASIM	5	=	REL
2	=	IcVSIM	6	=	RECREL
3	=	SATSIM2	7	=	AvgSATSIM*n*
4	=	ATMEMB	8	=	CSATSIM

Figure 3.73 Grand comparison matrix of closely-related SCs using eight similarity indices.

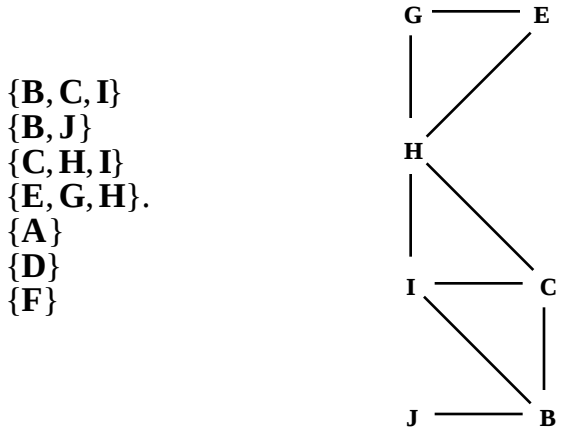


Figure 3.74 SC pairs that are related using all eight discussed similarity indices. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

EXAMPLE 3.1 (Movement 1 of *Three Pieces for Clarinet Solo* by Igor Stravinsky) is found in a separate file.

Chapter 4
Figures

	A 7-20								
A 7-20[0125679]	0.000	**B** 6-15							
B 6-15[012458]	0.163	0.000	**F** 6-14						
T 6-14[013458]	0.166	0.061	0.000	**G** 6-21					
U 6-21[023468]	0.232	0.182	0.232	0.000					
C 5-35[02479]	0.412	0.433	0.376	0.406	**C** 5-35				
H 6-33[023579]	0.258	0.270	0.270	0.277	0.212	**D** 6-33			
M 5-27[01358]	0.206	0.209	0.152	0.278	0.191	0.157	**E** 5-27		
V 4-26[0358]	0.250	0.287	0.265	0.351	0.162	0.253	0.111	**H** 4-26	0.000

Figure 4.1 CSATSIM comparisons of A (♪ = 80) sections of "Le Merle noir."

0.061 B F	0.182 B G	0.250 A H	0.278 G E
0.111 E H	0.191 C E	0.253 D H	0.287 B H
0.152 F E	0.206 A E	0.258 A D	0.351 G H
0.157 D E	0.209 B E	0.265 F H	0.376 F C
0.162 C H	0.212 C D	0.270 B D	0.406 G C
0.163 A B	0.232 A G	0.270 F D	0.412 A C
0.166 A F	0.232 F G	0.277 G D	0.433 B C

Figure 4.2 CSATSIM values for A (♪ = 80) sections of "Le Merle noir," sorted from most to least similar.

Figure 4.3 SC pairs that yield CSATSIM values ≤ 0.061. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

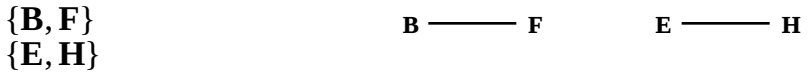


Figure 4.4 SC pairs that yield CSATSIM values ≤ 0.111. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

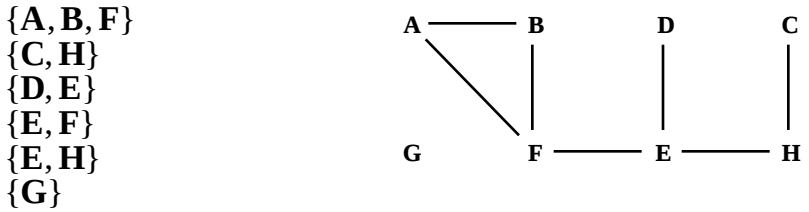


Figure 4.5 SC pairs that yield CSATSIM values ≤ 0.166. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

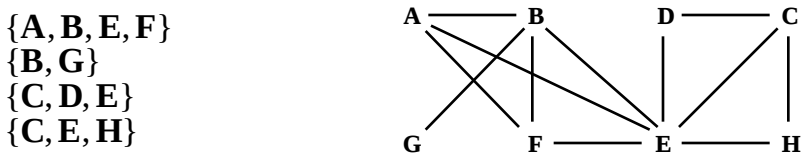


Figure 4.6 SC pairs that yield CSATSIM values ≤ 0.212. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

{A, B, E, F}
{A, B, F, G}
{C, D, E}
{C, E, H}

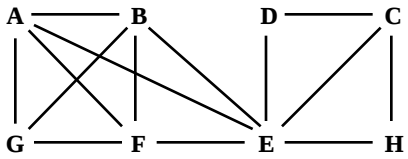


Figure 4.7 SC pairs that yield CSATSIM values ≤ 0.232. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

A	$CSATV_A$:	<	**+2.88,**	**+1.44,**	**+1.20,**	**+1.97,**	**-4.28,**	**+1.20** >
	$CSATV_B$:	<	-6.64,	-8.08,	-5.24,	-3.17,	+5.24,	-1.20 >
B		<	**+3.84,**	**+2.64,**	**-3.80,**	**-3.17,**	**+2.40,**	**+1.20** >
		<	-5.09,	-9.28,	+3.84,	+3.17,	-6.53,	-2.40 >
F		<	**+3.84,**	**+2.64,**	**+3.60,**	**-3.17,**	**+3.84,**	**+0.00** >
		<	-5.09,	-9.28,	-4.04,	+3.17,	-5.09,	-3.60 >
G		<	**+2.64,**	**-5.48,**	**+2.64,**	**-3.17,**	**+1.20,**	**-1.20** >
		<	-6.29,	+6.44,	-5.00,	+3.17,	-7.73,	+2.40 >
C		<	**+0.00,**	**-2.60,**	**+2.40,**	**+0.00,**	**-0.00,**	**+0.00** >
		<	-6.44,	+3.84,	-4.04,	-4.37,	+6.44,	-2.40 >
D		<	**+1.20,**	**+5.57,**	**-3.80,**	**+0.00,**	**-2.49,**	**+1.20** >
		<	-7.73,	-6.35,	+3.84,	-6.34,	+6.44,	-2.40 >
E		<	**+1.20,**	**+2.64,**	**+2.40,**	**+1.20,**	**-2.60,**	**+0.00** >
		<	-5.24,	-3.80,	-4.04,	-3.17,	+3.84,	-2.40 >
H		<	**+0.00,**	**+1.20,**	**+2.40,**	**+1.20,**	**-1.97,**	**+0.00** >
		<	-4.37,	-3.17,	-4.04,	-3.17,	+2.40,	-2.40 >

Figure 4.8 CSATVs of the eight A-section (♪ = 80) chords

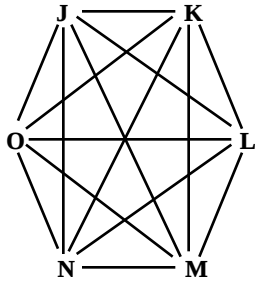
	I 4-1						
F 4-1 [0123]	0.000	**J** 6-5					
G 6-5 [012367]	0.386	0.000	**K** 6-z3				
L 6-z3 [012356]	0.347	0.111	0.000	**L** 6-z12			
P 6-z12[012467]	0.371	0.078	0.129	0.000	**M** 6-z10		
Q 6-z10[013457]	0.371	0.179	0.078	0.101	0.000	**N** 6-z36	
R 6-z36[012347]	0.330	0.125	0.023	0.142	0.091	0.000	**O** 6-z40
S 6-z40[012358]	0.357	0.106	0.056	0.073	0.073	0.069	0.000

Figure 4.9 CSATSIM comparisons of C (♪ = 88) sections of "Le Merle noir."

0.023 K N	0.078 K M	0.129 K L	0.371 I L
0.056 K O	0.091 M N	0.142 L N	0.371 I M
0.069 N O	0.101 L M	0.179 J M	0.386 I J
0.073 L O	0.106 J O	0.330 I N	
0.073 M O	0.111 J K	0.347 I K	
0.078 J L	0.125 J N	0.357 I O	

Figure 4.10 CSATSIM values for C (♪ = 88) sections of "Le Merle noir," sorted from most to least similar.

{J, K, L, M, N, O}
{I}



I

Figure 4.11 SC pairs that yield CSATSIM values ≤ 0.179. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

I	$CSATV_A$:	<	**-0.00,**	**-1.97,**	**+1.20,**	**+0.00,**	**+0.00,**	**+0.00**	>
	$CSATV_B$:	<	+4.37,	+2.40,	-5.24,	-4.37,	-4.37,	-2.40	>
J		<	**-3.36,**	**+2.40,**	**+2.64,**	**+0.00,**	**+3.84,**	**-1.20**	>
		<	+5.57,	-9.52,	-5.00,	-6.34,	-5.09,	+2.40	>
K		<	**-3.36,**	**+3.84,**	**-3.80,**	**+0.00,**	**+2.40,**	**+1.20**	>
		<	+5.57,	-8.08,	+3.84,	-6.34,	-6.53,	-2.40	>
L		<	**+3.84,**	**+4.37,**	**+2.64,**	**+0.00,**	**+3.84,**	**-1.20**	>
		<	-5.09,	-7.55,	-5.00,	-6.34,	-5.09,	+2.40	>
M		<	**+3.84,**	**+4.37,**	**-3.80,**	**+1.20,**	**+2.64,**	**+1.20**	>
		<	-5.09,	-7.55,	+3.84,	-5.14,	-6.29,	-2.40	>
N		<	**-2.49,**	**+3.84,**	**-3.80,**	**+0.00,**	**+2.64,**	**+1.20**	>
		<	+6.44,	-8.08,	+3.84,	-6.34,	-6.29,	-2.40	>
O		<	**+4.37,**	**+3.84,**	**-3.80,**	**+0.00,**	**+3.84,**	**+1.20**	>
		<	-4.56,	-8.08,	+3.84,	-6.34,	-5.09,	-2.40	>

Figure 4.12 CSATVs of the six C-section (♪ = 88) chords

IB	8-24	[0124568a]		IIIB	8-24	[0124568a]
	6-14	[013458]			6-34	[013579]
	6-z38	[012378]			2-1	[01]
	4-21	[0246]			8-24	[0124568a]
IIB	8-3	[01234569]			6-z12	[012467]
	6-z43	[012568]			5-22	[01478]
	6-22	[012468]		IVB	8-24	[0124568a]
	6-z49	[013479]			7-26	[0134579]
	6-z49	[013479]				

Figure 4.13 Set classes in the B (♪ = 112) sections of "Le Merle noir."

```
                    P 8-24
P 8-24  [0124568a]  0.000  Q 6-14
Q 6-14  [013458]    0.455  0.000  R 6-z38
R 6-z38 [012378]    0.558  0.240  0.000  S 4-21
S 4-21  [0246]      0.116  0.537  0.451  0.000
```

Figure 4.14 CSATSIM comparisons in section IB (mm. 5-6) of "Le Merle noir."

```
                    T 8-3
T 8-3   [01234569]  0.000  U 6-z43
U 6-z43 [012568]    0.210  0.000  V 6-22
V 6-22  [012468]    0.286  0.208  0.000  W 6-z49
W 6-z49 [013479]    0.227  0.117  0.223  0.000  W 6-z49
W 6-z49 [013479]    0.227  0.117  0.223  0.000  0.000
```

Figure 4.15 CSATSIM comparisons in section IIB (mm. 14-16) of "Le Merle noir."

```
                    P 8-24
P 8-24  [0124568a]  0.000  X 7-26
X 7-26  [0134579]   0.234  0.000  P 8-24
P 8-24  [0124568a]  0.000  0.234  0.000  Y 6-z12
Y 6-z12 [012467]    0.439  0.211  0.439  0.000  Z 5-22
Z 5-22  [01478]     0.358  0.179  0.358  0.286  0.000
```

Figure 4.16 CSATSIM comparisons in section IIIB (mm. 24-25) of "Le Merle noir."

```
                    P 8-24
P 8-24  [0124568a]  0.000  X 7-26
X 7-26  [0134579]   0.234  0.000
```

Figure 4.17 CSATSIM comparisons in section IVB (m. 37) of "Le Merle noir."

```
   P 8-24
P  0.000  Q 6-14
Q  0.455  0.000  R 6-z38
R  0.558  0.240  0.000  S 4-21
S  0.116  0.537  0.451  0.000  T 8-3
T  0.440  0.153  0.270  0.391  0.000  U 6-z43
U  0.456  0.118  0.123  0.495  0.210  0.000  V 6-22
V  0.294  0.232  0.270  0.357  0.286  0.208  0.000  W 6-z49
W  0.450  0.194  0.239  0.473  0.227  0.117  0.223  0.000  X 7-26
X  0.234  0.213  0.356  0.245  0.262  0.214  0.152  0.195  0.000  Y 6-z12
Y  0.439  0.174  0.139  0.474  0.279  0.067  0.192  0.183  0.211  0.000  Z 5-22
Z  0.358  0.257  0.289  0.463  0.276  0.206  0.190  0.185  0.179  0.286  0.000
```

Figure 4.18 CSATSIM comparisons among all B sections of "Le Merle noir."

0.067 **U Y**	0.194 **Q W**	0.245 **S X**	0.391 **S T**
0.116 **P S**	0.195 **W X**	0.257 **Q Z**	0.439 **P Y**
0.117 **U W**	0.206 **U Z**	0.262 **T X**	0.440 **P T**
0.118 **Q U**	0.208 **U V**	0.270 **R T**	0.450 **P W**
0.123 **R U**	0.210 **T U**	0.270 **R V**	0.451 **R S**
0.139 **R Y**	0.211 **X Y**	0.276 **T Z**	0.455 **P Q**
0.152 **V X**	0.213 **Q X**	0.279 **T Y**	0.456 **P U**
0.153 **Q T**	0.214 **U X**	0.286 **T V**	0.463 **S Z**
0.174 **Q Y**	0.223 **V W**	0.286 **Y Z**	0.473 **S W**
0.179 **X Z**	0.227 **T W**	0.289 **R Z**	0.474 **S Y**
0.183 **W Y**	0.232 **Q V**	0.294 **P V**	0.495 **S U**
0.185 **W Z**	0.234 **P X**	0.356 **R X**	0.537 **Q S**
0.190 **V Z**	0.239 **R W**	0.357 **S V**	0.558 **P R**
0.192 **V Y**	0.240 **Q R**	0.358 **P Z**	

Figure 4.19 CSATSIM values for B (♪ = 112) sections of "Le Merle noir," sorted from most to least similar.

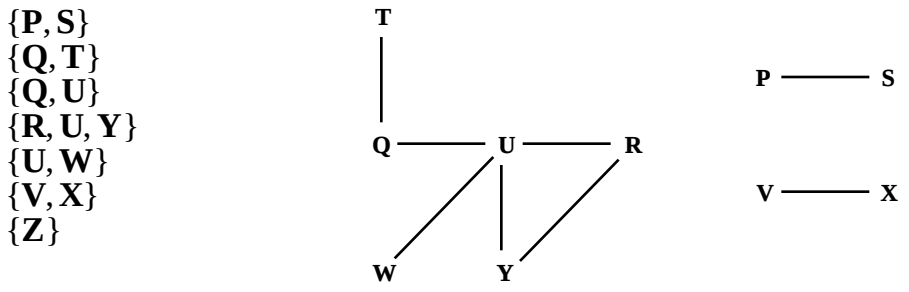


Figure 4.20 SC pairs that yield CSATSIM values ≤ 0.153. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

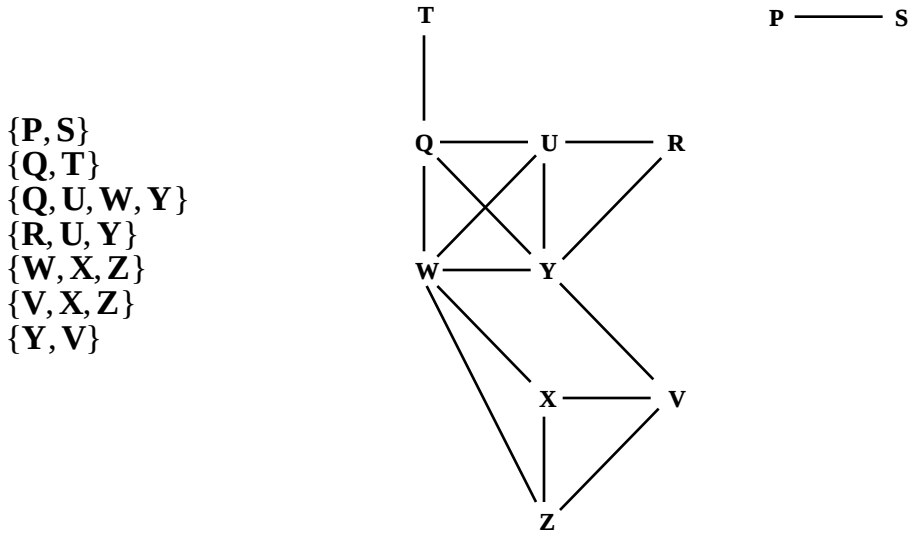


Figure 4.21 SC pairs that yield CSATSIM values ≤ 0.195. Transitive tuples are bracketed on the left of the figure and thin lines connect related sets on the right of the figure.

EXAMPLE 4.1 ("Le Merle noir" from *Petites esquisses d'oiseaux* by Olivier Messiaen) is found in four separate files (one per page in the score). These are found on pages 83-86 of the original dissertation.

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Chapter 5
Figures

Fractional interval counts

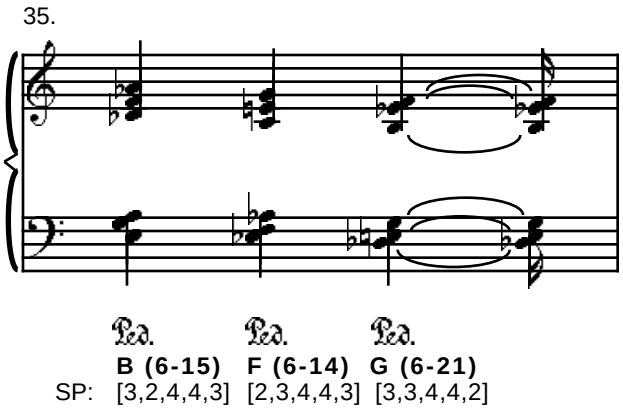
Interval in Semitones	Index of transposition	Decrement schemes (a) Linear	(b) Moderately exponential	(c) Strongly exponential
1 - 6	0	1.0	1.0	1.0
7 - 12	1	0.95	0.819	0.607
13 - 18	2	0.9	0.670	0.368
19 - 24	3	0.85	0.549	0.223
25 - 30	4	0.8	0.449	0.135
31 - 36	5	0.75	0.368	0.082
37 - 42	6	0.7	0.301	0.050
43 - 48	7	0.65	0.247	0.030
etc.	etc.	etc.	etc.	etc.

Figure 5.1 *Values produced by three different schemes for use in Robison's fractional interval-class vectors. (Chart from Robison 1994)*

X = {F3, G3, B♭3, C4, E♭4, B4, E5}, a member of SC 7-20[0125679]

Fract ICV(*X*)	<	1.565	2.607	2.223	1.949	4.607	0.736 >
ICV(*X*)	<	4	3	3	4	5	2 >

Figure 5.2 *Fractional and "original" interval-class vectors for the first chord in Messiaen's* Quatuor pour la fin du temps.



PM(**B**, **F**) = 0, 12
PM(**B**, **G**) = 3, 12
PM(**F**, **G**) = 0, 11

pset	(p-space) interval-class roster
B = {-8, -5, -3, 1, 5, 8}	<2, 3, 3, 4, 4, 5, 6, 7, 8, 9, 10, 11, 13, 13, 16>
F = {-9, -7, -4, 0, 4, 7}	<2, 3, 3, 4, 4, 5, 7, 7, 8, 9, 11, 11, 13, 14, 16>
G = {-11, -8, -5, -1, 3, 5}	<2, 3, 3, 4, 4, 6, 6, 7, 8, 10, 10, 11, 13, 14, 16>

Figure 5.3 *PM calculations for the three chords in measure 35 of Messiaen's "Le Merle noir" from* Petites esquisses d'oiseaux.

X = {F3, G3, B♭3, C4, E♭4, B4, E5}

Morris, IC roster(X):
{2, 2, 3, 3, 5, 5, 5, 5, 7, 8, 8, 10, 11, 13, 13, 16, 16, 18, 18, 21, 23}

Buchler, PICV(X):

Int:	0	1	2	3	4	5	6	7	8	9	a	b
octave 0	7		2	2		4		1	2		1	1
octave 1		2			2		2			1		1

Figure 5.4 *Morris's interval-class roster and Buchler's p-space interval-class vector (PICV) for the first piano chord in Messiaen's* Quatuor pour la fin du temps.

card.	maximum ic3	minimum ic3
1	0 (0)	0 (0)
2	1 (0-3)	0 (0)+(1)
3	2 (0-3-6)	0 (0)+(1)+(2)
4	3 (0-3-6-9)	0 (0, 6)+(1)+(2)
5	3 (0-3-6-9)+(1)	0 (0, 6)+(1, 7)+(2)
6	4 (0-3-6-9)+(1-4)	0 (0, 6)+(1, 7)+(2, 8)
7	5 (0-3-6-9)+(1-4-7)	1 (0, 6-9)+(1, 7)+(2, 8)
8	6 (0-3-6-9)+(1-4-7-10)	2 (0, 6-9)+(1, 7-10)+(2, 8)
9	6 (0-3-6-9)+(1-4-7-10)+(2)	4 (0-3-6-9)+(1, 7-10)+(2, 8)
10	7 (0-3-6-9)+(1-4-7-10)+(2-5)	6 (0-3-6-9)+(1-4-7-10)+(2, 8)
11	8 (0-3-6-9)+(1-4-7-10)+(2-5-8)	8 (0-3-6-9)+(1-4-7-10)+(2-5-8)

Figure 5.5 Calculations of maximal and minimal saturation of ic3 in a set of b *= 10 for each cardinality. One possible cyclic breakdown showing the elements of a set of max or min ic3 is given after each saturation number.*

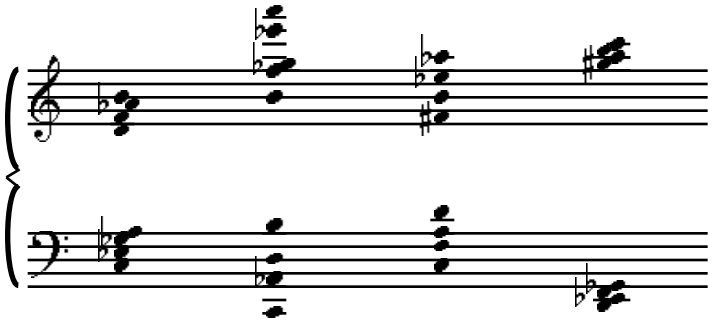


Figure 5.6 Four pcsets that realize SC 8-28 (the octatonic collection). Reprinted from Morris 1995 (225).

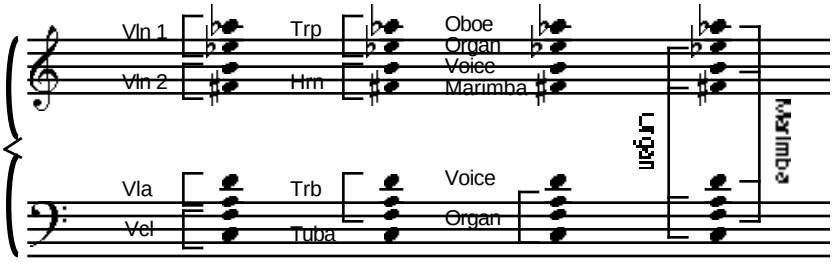


Figure 5.7 Four orchestrations of the third pset in figure 5.6 above.

Appendix A. Min(#*Y*, *X*) and max(#*Y*, *X*) values for all cardinalities of supersets (#*Y*) and all possible subset classes (*X*) where #*X* < #*Y* (when #*X* = #*Y*, min(#*Y*, *X*) = 0 and max(#*Y*, *X*) = 1, except for #0, #1, #11 and #12 SCs.)

#*Y*	SC *X*	Forte#(*X*)	min(#*Y*,*X*)	max(#*Y*,*X*)
0	[]	0-0	1	1
1	[0]	1-0	1	1
2	[0]	1-0	2	2
3	[0]	1-0	3	3
3	[01]	2-1	0	2
3	[02]	2-2	0	2
3	[03]	2-3	0	2
3	[04]	2-4	0	3
3	[05]	2-5	0	2
3	[06]	2-6	0	1
4	[0]	1-0	4	4
4	[01]	2-1	0	3
4	[02]	2-2	0	3
4	[03]	2-3	0	4
4	[04]	2-4	0	3
4	[05]	2-5	0	3
4	[06]	2-6	0	2
4	[012]	3-1	0	2
4	[013]	3-2	0	2
4	[014]	3-3	0	2
4	[015]	3-4	0	2
4	[016]	3-5	0	4
4	[024]	3-6	0	2
4	[025]	3-7	0	2
4	[026]	3-8	0	4
4	[027]	3-9	0	2
4	[036]	3-10	0	4
4	[037]	3-11	0	2
4	[048]	3-12	0	1
5	[0]	1-0	5	5
5	[01]	2-1	0	4
5	[02]	2-2	0	4
5	[03]	2-3	0	4
5	[04]	2-4	1	4
5	[05]	2-5	0	4
5	[06]	2-6	0	2
5	[012]	3-1	0	3
5	[013]	3-2	0	4
5	[014]	3-3	0	3
5	[015]	3-4	0	3
5	[016]	3-5	0	5
5	[024]	3-6	0	3
5	[025]	3-7	0	4
5	[026]	3-8	0	6
5	[027]	3-9	0	3
5	[036]	3-10	0	4
5	[037]	3-11	0	3
5	[048]	3-12	0	1
5	[0123]	4-1	0	2
5	[0124]	4-2	0	2
5	[0134]	4-3	0	1
5	[0125]	4-4	0	2
5	[0126]	4-5	0	2
5	[0127]	4-6	0	1
5	[0145]	4-7	0	1
5	[0156]	4-8	0	1
5	[0167]	4-9	0	1
5	[0235]	4-10	0	1
5	[0135]	4-11	0	2
5	[0236]	4-12	0	2
5	[0136]	4-13	0	2
5	[0237]	4-14	0	2
5	[0146]	4-15	0	1
5	[0157]	4-16	0	2
5	[0347]	4-17	0	1
5	[0147]	4-18	0	2
5	[0148]	4-19	0	2
5	[0158]	4-20	0	1
5	[0246]	4-21	0	2
5	[0247]	4-22	0	2
5	[0257]	4-23	0	2
5	[0248]	4-24	0	2
5	[0268]	4-25	0	1
5	[0358]	4-26	0	1
5	[0258]	4-27	0	2
5	[0369]	4-28	0	1
5	[0137]	4-29	0	1
6	[0]	1-0	6	6
6	[01]	2-1	0	5
6	[02]	2-2	0	6
6	[03]	2-3	0	5
6	[04]	2-4	2	6
6	[05]	2-5	0	5
6	[06]	2-6	0	3
6	[012]	3-1	0	4
6	[013]	3-2	0	6
6	[014]	3-3	0	6
6	[015]	3-4	0	6
6	[016]	3-5	0	8
6	[024]	3-6	0	6
6	[025]	3-7	0	6
6	[026]	3-8	0	12

6	[027]	3-9	0	4	6	[02357]	5-23	0	2
6	[036]	3-10	0	4	6	[01357]	5-24	0	2
6	[037]	3-11	0	6	6	[02358]	5-25	0	2
6	[048]	3-12	0	2	6	[02458]	5-26	0	2
6	[0123]	4-1	0	3	6	[01358]	5-27	0	2
6	[0124]	4-2	0	4	6	[02368]	5-28	0	2
6	[0134]	4-3	0	2	6	[01368]	5-29	0	2
6	[0125]	4-4	0	2	6	[01468]	5-30	0	2
6	[0126]	4-5	0	4	6	[01369]	5-31	0	2
6	[0127]	4-6	0	2	6	[01469]	5-32	0	2
6	[0145]	4-7	0	3	6	[02468]	5-33	0	6
6	[0156]	4-8	0	2	6	[02469]	5-34	0	1
6	[0167]	4-9	0	2	6	[02479]	5-35	0	2
6	[0235]	4-10	0	2	6	[01247]	5-36	0	2
6	[0135]	4-11	0	2	6	[03458]	5-37	0	1
6	[0236]	4-12	0	2	6	[01258]	5-38	0	2
6	[0136]	4-13	0	2					
6	[0237]	4-14	0	2	7	[0]	1-0	7	7
6	[0146]	4-15	0	2	7	[01]	2-1	2	6
6	[0157]	4-16	0	4	7	[02]	2-2	2	6
6	[0347]	4-17	0	3	7	[03]	2-3	2	6
6	[0147]	4-18	0	2	7	[04]	2-4	3	6
6	[0148]	4-19	0	6	7	[05]	2-5	2	6
6	[0158]	4-20	0	3	7	[06]	2-6	1	3
6	[0246]	4-21	0	6	7	[012]	3-1	0	5
6	[0247]	4-22	0	4	7	[013]	3-2	1	8
6	[0257]	4-23	0	3	7	[014]	3-3	0	7
6	[0248]	4-24	0	6	7	[015]	3-4	0	7
6	[0268]	4-25	0	3	7	[016]	3-5	2	9
6	[0358]	4-26	0	2	7	[024]	3-6	0	6
6	[0258]	4-27	0	2	7	[025]	3-7	1	8
6	[0369]	4-28	0	1	7	[026]	3-8	2	12
6	[0137]	4-29	0	2	7	[027]	3-9	0	5
6	[01234]	5-1	0	2	7	[036]	3-10	1	5
6	[01235]	5-2	0	2	7	[037]	3-11	0	7
6	[01245]	5-3	0	2	7	[048]	3-12	0	2
6	[01236]	5-4	0	2	7	[0123]	4-1	0	4
6	[01237]	5-5	0	2	7	[0124]	4-2	0	6
6	[01256]	5-6	0	2	7	[0134]	4-3	0	3
6	[01267]	5-7	0	4	7	[0125]	4-4	0	4
6	[02346]	5-8	0	1	7	[0126]	4-5	0	5
6	[01246]	5-9	0	2	7	[0127]	4-6	0	3
6	[01346]	5-10	0	2	7	[0145]	4-7	0	3
6	[02347]	5-11	0	2	7	[0156]	4-8	0	3
6	[01356]	5-12	0	1	7	[0167]	4-9	0	2
6	[01248]	5-13	0	2	7	[0235]	4-10	0	2
6	[01257]	5-14	0	2	7	[0135]	4-11	0	4
6	[01268]	5-15	0	2	7	[0236]	4-12	0	4
6	[01347]	5-16	0	2	7	[0136]	4-13	0	4
6	[01348]	5-17	0	1	7	[0237]	4-14	0	4
6	[01457]	5-18	0	2	7	[0146]	4-15	0	4
6	[01367]	5-19	0	2	7	[0157]	4-16	0	5
6	[01568]	5-20	0	2	7	[0347]	4-17	0	3
6	[01458]	5-21	0	6	7	[0147]	4-18	0	4
6	[01478]	5-22	0	1	7	[0148]	4-19	0	7

7	[0158]	4-20	0	3	7	[023457]	6-8	0	1
7	[0246]	4-21	0	6	7	[012357]	6-9	0	1
7	[0247]	4-22	0	6	7	[013457]	6-10	0	2
7	[0257]	4-23	0	4	7	[012457]	6-11	0	1
7	[0248]	4-24	0	6	7	[012467]	6-12	0	2
7	[0268]	4-25	0	3	7	[013467]	6-13	0	1
7	[0358]	4-26	0	3	7	[013458]	6-14	0	2
7	[0258]	4-27	0	4	7	[012458]	6-15	0	1
7	[0369]	4-28	0	1	7	[014568]	6-16	0	1
7	[0137]	4-29	0	4	7	[012478]	6-17	0	2
7	[01234]	5-1	0	3	7	[012578]	6-18	0	1
7	[01235]	5-2	0	4	7	[013478]	6-19	0	2
7	[01245]	5-3	0	4	7	[014589]	6-20	0	1
7	[01236]	5-4	0	2	7	[023468]	6-21	0	2
7	[01237]	5-5	0	3	7	[012468]	6-22	0	2
7	[01256]	5-6	0	3	7	[023568]	6-23	0	1
7	[01267]	5-7	0	5	7	[013468]	6-24	0	2
7	[02346]	5-8	0	2	7	[013568]	6-25	0	2
7	[01246]	5-9	0	2	7	[013578]	6-26	0	1
7	[01346]	5-10	0	3	7	[013469]	6-27	0	2
7	[02347]	5-11	0	2	7	[013569]	6-28	0	1
7	[01356]	5-12	0	1	7	[023679]	6-29	0	1
7	[01248]	5-13	0	2	7	[013679]	6-30	0	1
7	[01257]	5-14	0	3	7	[014579]	6-31	0	1
7	[01268]	5-15	0	2	7	[024579]	6-32	0	2
7	[01347]	5-16	0	3	7	[023579]	6-33	0	2
7	[01348]	5-17	0	2	7	[013579]	6-34	0	2
7	[01457]	5-18	0	2	7	[02468a]	6-35	0	1
7	[01367]	5-19	0	3	7	[012347]	6-36	0	2
7	[01568]	5-20	0	3	7	[012348]	6-37	0	1
7	[01458]	5-21	0	6	7	[012378]	6-38	0	1
7	[01478]	5-22	0	2	7	[023458]	6-39	0	2
7	[02357]	5-23	0	4	7	[012358]	6-40	0	1
7	[01357]	5-24	0	2	7	[012368]	6-41	0	2
7	[02358]	5-25	0	3	7	[012369]	6-42	0	1
7	[02458]	5-26	0	2	7	[012568]	6-43	0	2
7	[01358]	5-27	0	4	7	[012569]	6-44	0	2
7	[02368]	5-28	0	3	7	[023469]	6-45	0	1
7	[01368]	5-29	0	2	7	[012469]	6-46	0	2
7	[01468]	5-30	0	2	7	[012479]	6-47	0	2
7	[01369]	5-31	0	3	7	[012579]	6-48	0	1
7	[01469]	5-32	0	3	7	[013479]	6-49	0	1
7	[02468]	5-33	0	6	7	[014679]	6-50	0	1
7	[02469]	5-34	0	2					
7	[02479]	5-35	0	3	8	[0]	1-0	8	8
7	[01247]	5-36	0	2	8	[01]	2-1	4	7
7	[03458]	5-37	0	2	8	[02]	2-2	4	7
7	[01258]	5-38	0	2	8	[03]	2-3	4	8
7	[012345]	6-1	0	2	8	[04]	2-4	4	7
7	[012346]	6-2	0	2	8	[05]	2-5	4	7
7	[012356]	6-3	0	2	8	[06]	2-6	2	4
7	[012456]	6-4	0	1	8	[012]	3-1	0	6
7	[012367]	6-5	0	1	8	[013]	3-2	4	10
7	[012567]	6-6	0	1	8	[014]	3-3	2	9
7	[012678]	6-7	0	1	8	[015]	3-4	0	9

8	[016]	3-5	4	12	8	[01367]	5-19	0	8
8	[024]	3-6	0	6	8	[01568]	5-20	0	4
8	[025]	3-7	4	10	8	[01458]	5-21	0	7
8	[026]	3-8	4	12	8	[01478]	5-22	0	2
8	[027]	3-9	0	6	8	[02357]	5-23	0	6
8	[036]	3-10	2	8	8	[01357]	5-24	0	4
8	[037]	3-11	2	9	8	[02358]	5-25	0	8
8	[048]	3-12	0	2	8	[02458]	5-26	0	4
8	[0123]	4-1	0	5	8	[01358]	5-27	0	6
8	[0124]	4-2	0	8	8	[02368]	5-28	0	8
8	[0134]	4-3	0	4	8	[01368]	5-29	0	4
8	[0125]	4-4	0	6	8	[01468]	5-30	0	4
8	[0126]	4-5	0	8	8	[01369]	5-31	0	8
8	[0127]	4-6	0	4	8	[01469]	5-32	0	8
8	[0145]	4-7	0	4	8	[02468]	5-33	0	6
8	[0156]	4-8	0	4	8	[02469]	5-34	0	2
8	[0167]	4-9	0	3	8	[02479]	5-35	0	4
8	[0235]	4-10	0	4	8	[01247]	5-36	0	4
8	[0135]	4-11	0	6	8	[03458]	5-37	0	2
8	[0236]	4-12	0	8	8	[01258]	5-38	0	4
8	[0136]	4-13	0	8	8	[012345]	6-1	0	3
8	[0237]	4-14	0	6	8	[012346]	6-2	0	4
8	[0146]	4-15	2	8	8	[012356]	6-3	0	4
8	[0157]	4-16	0	8	8	[012456]	6-4	0	2
8	[0347]	4-17	0	4	8	[012367]	6-5	0	4
8	[0147]	4-18	0	8	8	[012567]	6-6	0	2
8	[0148]	4-19	0	8	8	[012678]	6-7	0	2
8	[0158]	4-20	0	4	8	[023457]	6-8	0	2
8	[0246]	4-21	0	6	8	[012357]	6-9	0	2
8	[0247]	4-22	0	8	8	[013457]	6-10	0	2
8	[0257]	4-23	0	5	8	[012457]	6-11	0	2
8	[0248]	4-24	0	6	8	[012467]	6-12	0	4
8	[0268]	4-25	0	3	8	[013467]	6-13	0	4
8	[0358]	4-26	0	4	8	[013458]	6-14	0	3
8	[0258]	4-27	0	8	8	[012458]	6-15	0	2
8	[0369]	4-28	0	2	8	[014568]	6-16	0	2
8	[0137]	4-29	2	8	8	[012478]	6-17	0	4
8	[01234]	5-1	0	4	8	[012578]	6-18	0	4
8	[01235]	5-2	0	6	8	[013478]	6-19	0	3
8	[01245]	5-3	0	6	8	[014589]	6-20	0	1
8	[01236]	5-4	0	4	8	[023468]	6-21	0	4
8	[01237]	5-5	0	4	8	[012468]	6-22	0	4
8	[01256]	5-6	0	4	8	[023568]	6-23	0	4
8	[01267]	5-7	0	8	8	[013468]	6-24	0	2
8	[02346]	5-8	0	2	8	[013568]	6-25	0	4
8	[01246]	5-9	0	4	8	[013578]	6-26	0	2
8	[01346]	5-10	0	8	8	[013469]	6-27	0	8
8	[02347]	5-11	0	4	8	[013569]	6-28	0	2
8	[01356]	5-12	0	2	8	[023679]	6-29	0	2
8	[01248]	5-13	0	4	8	[013679]	6-30	0	4
8	[01257]	5-14	0	4	8	[014579]	6-31	0	2
8	[01268]	5-15	0	4	8	[024579]	6-32	0	3
8	[01347]	5-16	0	8	8	[023579]	6-33	0	4
8	[01348]	5-17	0	2	8	[013579]	6-34	0	4
8	[01457]	5-18	0	4	8	[02468a]	6-35	0	1

8	[012347]	6-36	0	2	9	[01]	2-1	6	8
8	[012348]	6-37	0	2	9	[02]	2-2	6	8
8	[012378]	6-38	0	2	9	[03]	2-3	6	8
8	[023458]	6-39	0	2	9	[04]	2-4	6	9
8	[012358]	6-40	0	2	9	[05]	2-5	6	8
8	[012368]	6-41	0	4	9	[06]	2-6	3	4
8	[012369]	6-42	0	2	9	[012]	3-1	3	7
8	[012568]	6-43	0	4	9	[013]	3-2	6	12
8	[012569]	6-44	0	3	9	[014]	3-3	6	12
8	[023469]	6-45	0	2	9	[015]	3-4	6	12
8	[012469]	6-46	0	2	9	[016]	3-5	6	13
8	[012479]	6-47	0	2	9	[024]	3-6	3	7
8	[012579]	6-48	0	2	9	[025]	3-7	6	12
8	[013479]	6-49	0	4	9	[026]	3-8	8	13
8	[014679]	6-50	0	4	9	[027]	3-9	3	7
8	[0123456]	7-1	0	2	9	[036]	3-10	3	8
8	[0123457]	7-2	0	2	9	[037]	3-11	6	12
8	[0123458]	7-3	0	2	9	[048]	3-12	1	3
8	[0123467]	7-4	0	2	9	[0123]	4-1	0	6
8	[0123567]	7-5	0	2	9	[0124]	4-2	4	10
8	[0123478]	7-6	0	2	9	[0134]	4-3	1	5
8	[0123678]	7-7	0	4	9	[0125]	4-4	4	8
8	[0234568]	7-8	0	1	9	[0126]	4-5	4	9
8	[0123468]	7-9	0	2	9	[0127]	4-6	0	5
8	[0123469]	7-10	0	2	9	[0145]	4-7	2	6
8	[0134568]	7-11	0	2	9	[0156]	4-8	1	5
8	[0123479]	7-12	0	1	9	[0167]	4-9	0	3
8	[0124568]	7-13	0	2	9	[0235]	4-10	0	4
8	[0123578]	7-14	0	2	9	[0135]	4-11	4	8
8	[0124678]	7-15	0	2	9	[0236]	4-12	2	10
8	[0123569]	7-16	0	2	9	[0136]	4-13	0	10
8	[0124569]	7-17	0	1	9	[0237]	4-14	4	8
8	[0145679]	7-18	0	2	9	[0146]	4-15	5	8
8	[0123679]	7-19	0	4	9	[0157]	4-16	4	9
8	[0125679]	7-20	0	2	9	[0347]	4-17	2	6
8	[0124589]	7-21	0	2	9	[0147]	4-18	2	10
8	[0125689]	7-22	0	1	9	[0148]	4-19	4	12
8	[0234579]	7-23	0	2	9	[0158]	4-20	2	6
8	[0123579]	7-24	0	2	9	[0246]	4-21	2	6
8	[0234679]	7-25	0	2	9	[0247]	4-22	4	10
8	[0134579]	7-26	0	2	9	[0257]	4-23	0	6
8	[0124579]	7-27	0	2	9	[0248]	4-24	2	6
8	[0135679]	7-28	0	4	9	[0268]	4-25	1	3
8	[0124679]	7-29	0	2	9	[0358]	4-26	1	5
8	[0124689]	7-30	0	2	9	[0258]	4-27	2	10
8	[0134679]	7-31	0	8	9	[0369]	4-28	0	2
8	[0134689]	7-32	0	2	9	[0137]	4-29	5	8
8	[012468a]	7-33	0	2	9	[01234]	5-1	0	5
8	[013468a]	7-34	0	1	9	[01235]	5-2	0	8
8	[013568a]	7-35	0	2	9	[01245]	5-3	2	8
8	[0123568]	7-36	0	2	9	[01236]	5-4	0	6
8	[0134578]	7-37	0	1	9	[01237]	5-5	0	6
8	[0124578]	7-38	0	2	9	[01256]	5-6	1	6
					9	[01267]	5-7	0	9
9	[0]	1-0	9	9	9	[02346]	5-8	0	3

9	[01246]	5-9	2	6	9	[013578]	6-26	0	3
9	[01346]	5-10	0	8	9	[013469]	6-27	0	8
9	[02347]	5-11	2	6	9	[013569]	6-28	0	2
9	[01356]	5-12	0	3	9	[023679]	6-29	0	2
9	[01248]	5-13	2	6	9	[013679]	6-30	0	4
9	[01257]	5-14	0	6	9	[014579]	6-31	0	6
9	[01268]	5-15	1	4	9	[024579]	6-32	0	4
9	[01347]	5-16	0	8	9	[023579]	6-33	0	6
9	[01348]	5-17	1	3	9	[013579]	6-34	0	6
9	[01457]	5-18	2	6	9	[02468a]	6-35	0	1
9	[01367]	5-19	0	8	9	[012347]	6-36	0	4
9	[01568]	5-20	1	6	9	[012348]	6-37	0	2
9	[01458]	5-21	2	12	9	[012378]	6-38	0	3
9	[01478]	5-22	0	3	9	[023458]	6-39	0	4
9	[02357]	5-23	0	8	9	[012358]	6-40	0	4
9	[01357]	5-24	2	6	9	[012368]	6-41	0	5
9	[02358]	5-25	0	8	9	[012369]	6-42	0	2
9	[02458]	5-26	2	6	9	[012568]	6-43	1	6
9	[01358]	5-27	2	8	9	[012569]	6-44	0	6
9	[02368]	5-28	2	8	9	[023469]	6-45	0	2
9	[01368]	5-29	0	6	9	[012469]	6-46	0	6
9	[01468]	5-30	2	6	9	[012479]	6-47	0	4
9	[01369]	5-31	0	10	9	[012579]	6-48	0	2
9	[01469]	5-32	0	8	9	[013479]	6-49	0	4
9	[02468]	5-33	1	6	9	[014679]	6-50	0	4
9	[02469]	5-34	0	3	9	[0123456]	7-1	0	3
9	[02479]	5-35	0	5	9	[0123457]	7-2	0	4
9	[01247]	5-36	0	5	9	[0123458]	7-3	0	3
9	[03458]	5-37	1	3	9	[0123467]	7-4	0	4
9	[01258]	5-38	2	6	9	[0123567]	7-5	0	4
9	[012345]	6-1	0	4	9	[0123478]	7-6	0	3
9	[012346]	6-2	0	6	9	[0123678]	7-7	0	5
9	[012356]	6-3	0	6	9	[0234568]	7-8	0	2
9	[012456]	6-4	0	3	9	[0123468]	7-9	0	4
9	[012367]	6-5	0	5	9	[0123469]	7-10	0	3
9	[012567]	6-6	0	3	9	[0134568]	7-11	0	2
9	[012678]	6-7	0	2	9	[0123479]	7-12	0	1
9	[023457]	6-8	0	2	9	[0124568]	7-13	0	6
9	[012357]	6-9	0	4	9	[0123578]	7-14	0	4
9	[013457]	6-10	0	6	9	[0124678]	7-15	0	2
9	[012457]	6-11	0	4	9	[0123569]	7-16	0	3
9	[012467]	6-12	0	4	9	[0124569]	7-17	0	3
9	[013467]	6-13	0	4	9	[0145679]	7-18	0	2
9	[013458]	6-14	0	6	9	[0123679]	7-19	0	4
9	[012458]	6-15	0	6	9	[0125679]	7-20	0	3
9	[014568]	6-16	0	6	9	[0124589]	7-21	0	6
9	[012478]	6-17	0	4	9	[0125689]	7-22	0	3
9	[012578]	6-18	0	5	9	[0234579]	7-23	0	4
9	[013478]	6-19	0	6	9	[0123579]	7-24	0	4
9	[014589]	6-20	0	2	9	[0234679]	7-25	0	3
9	[023468]	6-21	0	6	9	[0134579]	7-26	0	6
9	[012468]	6-22	0	6	9	[0124579]	7-27	0	3
9	[023568]	6-23	0	4	9	[0135679]	7-28	0	4
9	[013468]	6-24	0	4	9	[0124679]	7-29	0	4
9	[013568]	6-25	0	6	9	[0124689]	7-30	0	6

9	[0134679]	7-31	0	8
9	[0134689]	7-32	0	3
9	[012468a]	7-33	0	3
9	[013468a]	7-34	0	2
9	[013568a]	7-35	0	3
9	[0123568]	7-36	0	2
9	[0134578]	7-37	0	3
9	[0124578]	7-38	0	2
9	[01234567]	8-1	0	2
9	[01234568]	8-2	0	2
9	[01234569]	8-3	0	1
9	[01234578]	8-4	0	2
9	[01234678]	8-5	0	2
9	[01235678]	8-6	0	1
9	[01234589]	8-7	0	1
9	[01234789]	8-8	0	1
9	[01236789]	8-9	0	1
9	[02345679]	8-10	0	1
9	[01234579]	8-11	0	2
9	[01345679]	8-12	0	2
9	[01234679]	8-13	0	2
9	[01245679]	8-14	0	2
9	[01234689]	8-15	0	1
9	[01235789]	8-16	0	2
9	[01345689]	8-17	0	1
9	[01235689]	8-18	0	2
9	[01245689]	8-19	0	6
9	[01245789]	8-20	0	1
9	[0123468a]	8-21	0	2
9	[0123568a]	8-22	0	2
9	[0123578a]	8-23	0	2
9	[0124568a]	8-24	0	3
9	[0124678a]	8-25	0	1
9	[0134578a]	8-26	0	1
9	[0124578a]	8-27	0	2
9	[0134679a]	8-28	0	1
9	[01235679]	8-29	0	1
10	[0]	1-0	10	10
10	[01]	2-1	8	9
10	[02]	2-2	8	9
10	[03]	2-3	8	9
10	[04]	2-4	8	9
10	[05]	2-5	8	9
10	[06]	2-6	4	5
10	[012]	3-1	6	8
10	[013]	3-2	12	14
10	[014]	3-3	12	14
10	[015]	3-4	12	14
10	[016]	3-5	12	16
10	[024]	3-6	6	8
10	[025]	3-7	12	14
10	[026]	3-8	12	16
10	[027]	3-9	6	8
10	[036]	3-10	6	8
10	[037]	3-11	12	14
10	[048]	3-12	2	3
10	[0123]	4-1	4	7
10	[0124]	4-2	8	12
10	[0134]	4-3	4	6
10	[0125]	4-4	8	12
10	[0126]	4-5	8	12
10	[0127]	4-6	4	6
10	[0145]	4-7	4	6
10	[0156]	4-8	4	6
10	[0167]	4-9	2	4
10	[0235]	4-10	4	6
10	[0135]	4-11	8	12
10	[0236]	4-12	8	12
10	[0136]	4-13	8	12
10	[0237]	4-14	8	12
10	[0146]	4-15	10	12
10	[0157]	4-16	8	12
10	[0347]	4-17	4	6
10	[0147]	4-18	8	12
10	[0148]	4-19	8	14
10	[0158]	4-20	4	6
10	[0246]	4-21	4	7
10	[0247]	4-22	8	12
10	[0257]	4-23	4	7
10	[0248]	4-24	4	7
10	[0268]	4-25	2	4
10	[0358]	4-26	4	6
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10	[01267]	5-7	4	12
10	[02346]	5-8	2	5
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10	[01347]	5-16	6	10
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10	[01367]	5-19	6	12
10	[01568]	5-20	6	10
10	[01458]	5-21	4	12
10	[01478]	5-22	2	5
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10	[01357]	5-24	6	10

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10	[02368]	5-28	6	12	10	[023469]	6-45	2	4
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10	[02468]	5-33	2	6	10	[014679]	6-50	2	4
10	[02469]	5-34	2	5	10	[0123456]	7-1	0	4
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10	[01247]	5-36	6	8	10	[0123458]	7-3	0	6
10	[03458]	5-37	2	5	10	[0123467]	7-4	2	6
10	[01258]	5-38	6	8	10	[0123567]	7-5	2	6
10	[012345]	6-1	0	5	10	[0123478]	7-6	2	6
10	[012346]	6-2	2	8	10	[0123678]	7-7	0	8
10	[012356]	6-3	4	8	10	[0234568]	7-8	0	3
10	[012456]	6-4	2	4	10	[0123468]	7-9	2	6
10	[012367]	6-5	4	8	10	[0123469]	7-10	2	6
10	[012567]	6-6	1	4	10	[0134568]	7-11	0	4
10	[012678]	6-7	0	3	10	[0123479]	7-12	1	2
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10	[014568]	6-16	4	8	10	[0124589]	7-21	0	8
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10	[023468]	6-21	2	8	10	[0134579]	7-26	2	6
10	[012468]	6-22	2	8	10	[0124579]	7-27	0	6
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10	[013468]	6-24	4	6	10	[0124679]	7-29	2	6
10	[013568]	6-25	4	8	10	[0124689]	7-30	2	6
10	[013578]	6-26	2	4	10	[0134679]	7-31	2	8
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10	[023679]	6-29	2	4	10	[013468a]	7-34	0	3
10	[013679]	6-30	2	6	10	[013568a]	7-35	0	4
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10	[012347]	6-36	4	8	10	[01234569]	8-3	0	2
10	[012348]	6-37	2	4	10	[01234578]	8-4	0	4
10	[012378]	6-38	1	4	10	[01234678]	8-5	0	4
10	[023458]	6-39	4	6	10	[01235678]	8-6	0	2
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10	[01234689]	8-15	2	4	11	[0167]	4-9	4	4
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10	[01235689]	8-18	0	4	11	[0236]	4-12	16	16
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11	[03458]	5-37	7	7	11	[0123467]	7-4	10	10
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11	[014589]	6-20	2	2	11	[0234679]	7-25	10	10
11	[023468]	6-21	12	12	11	[0134579]	7-26	10	10
11	[012468]	6-22	12	12	11	[0124579]	7-27	10	10
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11	[01345689]	8-17	4	4
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11	[0134578a]	8-26	4	4
11	[0124578a]	8-27	8	8
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12	[02479]	5-35	12	12	12	[0123457]	7-2	24	24
12	[01247]	5-36	24	24	12	[0123458]	7-3	24	24
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12	[01258]	5-38	24	24	12	[0123567]	7-5	24	24
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12	[012678]	6-7	6	6	12	[0123479]	7-12	12	12
12	[023457]	6-8	12	12	12	[0124568]	7-13	24	24
12	[012357]	6-9	24	24	12	[0123578]	7-14	24	24
12	[013457]	6-10	24	24	12	[0124678]	7-15	12	12
12	[012457]	6-11	24	24	12	[0123569]	7-16	24	24
12	[012467]	6-12	24	24	12	[0124569]	7-17	12	12
12	[013467]	6-13	12	12	12	[0145679]	7-18	24	24
12	[013458]	6-14	24	24	12	[0123679]	7-19	24	24
12	[012458]	6-15	24	24	12	[0125679]	7-20	24	24
12	[014568]	6-16	24	24	12	[0124589]	7-21	24	24
12	[012478]	6-17	24	24	12	[0125689]	7-22	12	12
12	[012578]	6-18	24	24	12	[0234579]	7-23	24	24
12	[013478]	6-19	24	24	12	[0123579]	7-24	24	24
12	[014589]	6-20	4	4	12	[0234679]	7-25	24	24
12	[023468]	6-21	24	24	12	[0134579]	7-26	24	24
12	[012468]	6-22	24	24	12	[0124579]	7-27	24	24
12	[023568]	6-23	12	12	12	[0135679]	7-28	24	24
12	[013468]	6-24	24	24	12	[0124679]	7-29	24	24
12	[013568]	6-25	24	24	12	[0124689]	7-30	24	24
12	[013578]	6-26	12	12	12	[0134679]	7-31	24	24
12	[013469]	6-27	24	24	12	[0134689]	7-32	24	24
12	[013569]	6-28	12	12	12	[012468a]	7-33	12	12
12	[023679]	6-29	12	12	12	[013468a]	7-34	12	12
12	[013679]	6-30	12	12	12	[013568a]	7-35	12	12
12	[014579]	6-31	24	24	12	[0123568]	7-36	24	24
12	[024579]	6-32	12	12	12	[0134578]	7-37	12	12
12	[023579]	6-33	24	24	12	[0124578]	7-38	24	24
12	[013579]	6-34	24	24	12	[01234567]	8-1	12	12
12	[02468a]	6-35	2	2	12	[01234568]	8-2	24	24
12	[012347]	6-36	24	24	12	[01234569]	8-3	12	12
12	[012348]	6-37	12	12	12	[01234578]	8-4	24	24
12	[012378]	6-38	12	12	12	[01234678]	8-5	24	24
12	[023458]	6-39	24	24	12	[01235678]	8-6	12	12
12	[012358]	6-40	24	24	12	[01234589]	8-7	12	12
12	[012368]	6-41	24	24	12	[01234789]	8-8	12	12
12	[012369]	6-42	12	12	12	[01236789]	8-9	6	6

12	[02345679]	8-10	12	12
12	[01234579]	8-11	24	24
12	[01345679]	8-12	24	24
12	[01234679]	8-13	24	24
12	[01245679]	8-14	24	24
12	[01234689]	8-15	24	24
12	[01235789]	8-16	24	24
12	[01345689]	8-17	12	12
12	[01235689]	8-18	24	24
12	[01245689]	8-19	24	24
12	[01245789]	8-20	12	12
12	[0123468a]	8-21	12	12
12	[0123568a]	8-22	24	24
12	[0123578a]	8-23	12	12
12	[0124568a]	8-24	12	12
12	[0124678a]	8-25	6	6
12	[0134578a]	8-26	12	12
12	[0124578a]	8-27	24	24
12	[0134679a]	8-28	3	3
12	[01235679]	8-29	24	24
12	[012345678]	9-1	12	12
12	[012345679]	9-2	24	24
12	[012345689]	9-3	24	24
12	[012345789]	9-4	24	24
12	[012346789]	9-5	24	24
12	[01234568a]	9-6	12	12
12	[01234578a]	9-7	24	24
12	[01234678a]	9-8	24	24
12	[01235678a]	9-9	12	12
12	[01234679a]	9-10	12	12
12	[01235679a]	9-11	24	24
12	[01245689a]	9-12	4	4
12	[0123456789]	10-1	12	12
12	[012345678a]	10-2	12	12
12	[012345679a]	10-3	12	12
12	[012345689a]	10-4	12	12
12	[012345789a]	10-5	12	12
12	[012346789a]	10-6	6	6
12	[0123456789a]	11-1	12	12
12	[0123456789ab]	12-1	1	1

Appendix B: Statistical summary of SATSIM2 relations for each cardinality pair #2/#10 through #6 SC compared to every other #2/#10 through #6 SC (SATSIM2 value group #2/#10 .. #6:#2/#10 .. #6)

Prime form	Forte #	Average	Lowest	Highest
[01]	2-1	0.474	0.056	0.647
[02]	2-2	0.481	0.111	0.706
[03]	2-3	0.485	0.111	0.704
[04]	2-4	0.511	0.125	0.735
[05]	2-5	0.474	0.056	0.647
[06]	2-6	0.480	0.111	0.676
#2 Averages:		*0.484*	*0.095*	*0.686*
[012]	3-1	0.390	0.056	0.575
[013]	3-2	0.334	0.121	0.576
[014]	3-3	0.338	0.133	0.675
[024]	3-6	0.401	0.100	0.576
[015]	3-4	0.325	0.033	0.675
[025]	3-7	0.334	0.121	0.576
[016]	3-5	0.358	0.061	0.625
[026]	3-8	0.379	0.067	0.600
[036]	3-10	0.442	0.111	0.567
[027]	3-9	0.390	0.056	0.575
[037]	3-11	0.338	0.133	0.675
[048]	3-12	0.462	0.133	0.700
#3 Averages:		*0.374*	*0.094*	*0.616*
[0123]	4-1	0.374	0.051	0.556
[0124]	4-2	0.321	0.111	0.556
[0134]	4-3	0.290	0.077	0.609
[0125]	4-4	0.275	0.077	0.587
[0135]	4-11	0.283	0.077	0.556
[0235]	4-10	0.274	0.077	0.542
[0145]	4-7	0.340	0.111	0.565
[0126]	4-5	0.288	0.077	0.583
[0136]	4-13	0.242	0.077	0.583
[0236]	4-12	0.266	0.103	0.583
[0146]	4-z15	0.251	0.103	0.500
[0246]	4-21	0.441	0.087	0.590
[0156]	4-8	0.321	0.033	0.609
[0127]	4-6	0.301	0.051	0.609
[0137]	4-z29	0.251	0.103	0.500
[0237]	4-14	0.275	0.077	0.587
[0147]	4-18	0.262	0.103	0.583
[0247]	4-22	0.321	0.111	0.556
[0347]	4-17	0.317	0.103	0.587
[0157]	4-16	0.288	0.077	0.583

[0257]	4-23	0.374	0.051	0.556
[0167]	4-9	0.365	0.051	0.609
[0148]	4-19	0.377	0.103	0.583
[0248]	4-24	0.439	0.087	0.590
[0158]	4-20	0.340	0.111	0.565
[0258]	4-27	0.266	0.103	0.583
[0358]	4-26	0.290	0.077	0.609
[0268]	4-25	0.432	0.067	0.587
[0369]	4-28	0.445	0.125	0.567
#4 Averages:		*0.321*	*0.085*	*0.575*
[01234]	5-1	0.370	0.051	0.593
[01235]	5-2	0.298	0.077	0.571
[01245]	5-3	0.267	0.077	0.593
[01236]	5-4	0.257	0.020	0.593
[01246]	5-9	0.269	0.077	0.519
[01346]	5-10	0.264	0.082	0.593
[02346]	5-8	0.283	0.095	0.630
[01256]	5-6	0.256	0.077	0.592
[01356]	5-z12	0.220	0.041	0.630
[01237]	5-5	0.256	0.082	0.593
[01247]	5-z36	0.220	0.041	0.630
[01347]	5-16	0.264	0.095	0.592
[02347]	5-11	0.231	0.041	0.630
[01257]	5-14	0.256	0.082	0.593
[01357]	5-24	0.269	0.077	0.519
[02357]	5-23	0.298	0.077	0.571
[01457]	5-z18	0.220	0.041	0.612
[01267]	5-7	0.346	0.041	0.593
[01367]	5-19	0.261	0.095	0.667
[01248]	5-13	0.279	0.095	0.519
[01348]	5-z17	0.272	0.082	0.612
[01258]	5-z38	0.220	0.041	0.612
[01358]	5-27	0.267	0.077	0.593
[02358]	5-25	0.264	0.082	0.593
[01458]	5-21	0.343	0.095	0.667
[02458]	5-26	0.280	0.095	0.519
[03458]	5-z37	0.272	0.082	0.612
[01268]	5-15	0.292	0.143	0.704
[01368]	5-29	0.257	0.020	0.593
[02368]	5-28	0.280	0.095	0.593
[01468]	5-30	0.279	0.095	0.519
[02468]	5-33	0.524	0.103	0.653
[01568]	5-20	0.256	0.077	0.592
[01478]	5-22	0.285	0.095	0.630
[01369]	5-31	0.364	0.154	0.667
[01469]	5-32	0.264	0.095	0.592

[02469]	5-34	0.283	0.095	0.630
[02479]	5-35	0.370	0.051	0.593
#5 Averages:		*0.283*	*0.077*	*0.600*
[012345]	6-1	0.336	0.071	0.653
[012346]	6-2	0.286	0.020	0.647
[012356]	6-z3	0.277	0.071	0.706
[012456]	6-z4	0.279	0.071	0.647
[012347]	6-z36	0.277	0.071	0.706
[012357]	6-9	0.260	0.041	0.706
[012457]	6-z11	0.253	0.061	0.706
[013457]	6-z10	0.254	0.071	0.647
[023457]	6-8	0.266	0.041	0.647
[012367]	6-5	0.273	0.071	0.676
[012467]	6-z12	0.257	0.061	0.706
[013467]	6-z13	0.280	0.071	0.676
[012567]	6-z6	0.300	0.071	0.643
[012348]	6-z37	0.279	0.071	0.647
[012358]	6-z40	0.253	0.061	0.706
[012458]	6-15	0.268	0.071	0.647
[013458]	6-14	0.275	0.061	0.676
[023458]	6-z39	0.254	0.071	0.647
[012368]	6-z41	0.257	0.061	0.706
[012468]	6-22	0.289	0.071	0.647
[013468]	6-z24	0.254	0.071	0.647
[023468]	6-21	0.288	0.071	0.647
[012568]	6-z43	0.250	0.061	0.618
[013568]	6-z25	0.277	0.071	0.706
[023568]	6-z23	0.288	0.071	0.706
[014568]	6-16	0.268	0.071	0.647
[012378]	6-z38	0.300	0.071	0.643
[012478]	6-z17	0.250	0.061	0.618
[013478]	6-z19	0.270	0.041	0.647
[012578]	6-18	0.273	0.071	0.676
[013578]	6-z26	0.279	0.071	0.647
[012678]	6-7	0.354	0.041	0.647
[012369]	6-z42	0.280	0.071	0.676
[012469]	6-z46	0.254	0.071	0.647
[013469]	6-27	0.323	0.071	0.735
[023469]	6-z45	0.288	0.071	0.706
[012569]	6-z44	0.270	0.041	0.647
[013569]	6-z28	0.281	0.071	0.618
[012479]	6-z47	0.277	0.071	0.706
[013479]	6-z49	0.281	0.071	0.618
[012579]	6-z48	0.279	0.071	0.647
[013579]	6-34	0.288	0.071	0.647
[023579]	6-33	0.286	0.020	0.647

[014579]	6-31	0.268	0.071	0.647
[024579]	6-32	0.336	0.071	0.653
[013679]	6-30	0.317	0.071	0.735
[023679]	6-z29	0.280	0.071	0.676
[014679]	6-z50	0.280	0.071	0.676
[014589]	6-20	0.371	0.082	0.706
[02468a]	6-35	0.527	0.087	0.675
#6 Averages:		*0.286*	*0.065*	*0.667*

Appendix C: Statistical summary of PSATSIM2 relations for each cardinality pair #2/#10 through #6 SC compared to every other #2/#10 through #6 SC (PSATSIM2 value group #2/#10 .. #6:#2/#10 .. #6)

Prime form	Forte #	Average	Lowest	Highest
[01]	2-1	0.413	0.083	0.667
[02]	2-2	0.420	0.056	0.633
[03]	2-3	0.419	0.167	0.667
[04]	2-4	0.472	0.153	0.656
[05]	2-5	0.413	0.083	0.667
[06]	2-6	0.424	0.139	0.633
#2 Averages:		*0.427*	*0.113*	*0.654*
[012]	3-1	0.378	0.069	0.583
[013]	3-2	0.285	0.111	0.583
[014]	3-3	0.316	0.083	0.611
[024]	3-6	0.417	0.056	0.611
[015]	3-4	0.314	0.139	0.611
[025]	3-7	0.285	0.111	0.583
[016]	3-5	0.352	0.056	0.556
[026]	3-8	0.386	0.083	0.661
[036]	3-10	0.453	0.125	0.600
[027]	3-9	0.378	0.069	0.583
[037]	3-11	0.316	0.083	0.611
[048]	3-12	0.472	0.153	0.656
#3 Averages:		*0.363*	*0.095*	*0.604*
[0123]	4-1	0.367	0.056	0.597
[0124]	4-2	0.317	0.097	0.569
[0134]	4-3	0.293	0.083	0.583
[0125]	4-4	0.269	0.097	0.597
[0135]	4-11	0.276	0.097	0.569
[0235]	4-10	0.271	0.097	0.583
[0145]	4-7	0.340	0.097	0.597
[0126]	4-5	0.274	0.097	0.528
[0136]	4-13	0.235	0.083	0.556
[0236]	4-12	0.264	0.097	0.500
[0146]	4-z15	0.240	0.097	0.458
[0246]	4-21	0.432	0.111	0.606
[0156]	4-8	0.316	0.111	0.583
[0127]	4-6	0.285	0.106	0.583
[0137]	4-z29	0.240	0.097	0.458
[0237]	4-14	0.269	0.097	0.597
[0147]	4-18	0.265	0.097	0.556
[0247]	4-22	0.317	0.097	0.569
[0347]	4-17	0.323	0.097	0.583
[0157]	4-16	0.274	0.097	0.528

[0257]	4-23	0.367	0.056	0.597
[0167]	4-9	0.375	0.056	0.611
[0148]	4-19	0.380	0.097	0.586
[0248]	4-24	0.431	0.111	0.583
[0158]	4-20	0.340	0.097	0.597
[0258]	4-27	0.264	0.097	0.500
[0358]	4-26	0.293	0.083	0.583
[0268]	4-25	0.437	0.083	0.633
[0369]	4-28	0.453	0.125	0.600
#4 Averages:		*0.317*	*0.094*	*0.569*
[01234]	5-1	0.370	0.056	0.625
[01235]	5-2	0.306	0.081	0.625
[01245]	5-3	0.276	0.083	0.611
[01236]	5-4	0.258	0.078	0.583
[01246]	5-9	0.268	0.083	0.514
[01346]	5-10	0.262	0.078	0.583
[02346]	5-8	0.286	0.083	0.597
[01256]	5-6	0.261	0.083	0.569
[01356]	5-z12	0.227	0.078	0.583
[01237]	5-5	0.257	0.083	0.583
[01247]	5-z36	0.227	0.078	0.583
[01347]	5-16	0.266	0.083	0.569
[02347]	5-11	0.245	0.083	0.611
[01257]	5-14	0.257	0.083	0.583
[01357]	5-24	0.268	0.083	0.514
[02357]	5-23	0.306	0.081	0.625
[01457]	5-z18	0.231	0.083	0.569
[01267]	5-7	0.367	0.031	0.625
[01367]	5-19	0.290	0.097	0.625
[01248]	5-13	0.278	0.083	0.528
[01348]	5-z17	0.288	0.092	0.597
[01258]	5-z38	0.231	0.083	0.569
[01358]	5-27	0.276	0.083	0.611
[02358]	5-25	0.262	0.078	0.583
[01458]	5-21	0.365	0.050	0.611
[02458]	5-26	0.279	0.083	0.528
[03458]	5-z37	0.288	0.092	0.597
[01268]	5-15	0.313	0.139	0.639
[01368]	5-29	0.258	0.078	0.583
[02368]	5-28	0.298	0.139	0.556
[01468]	5-30	0.278	0.083	0.528
[02468]	5-33	0.536	0.111	0.689
[01568]	5-20	0.261	0.083	0.569
[01478]	5-22	0.295	0.097	0.611
[01369]	5-31	0.372	0.097	0.625
[01469]	5-32	0.266	0.083	0.569

[02469]	5-34	0.286	0.083	0.597
[02479]	5-35	0.370	0.056	0.625
#5 Averages:		*0.290*	*0.084*	*0.589*
[012345]	6-1	0.344	0.064	0.689
[012346]	6-2	0.293	0.061	0.600
[012356]	6-z3	0.264	0.061	0.661
[012456]	6-z4	0.253	0.067	0.586
[012347]	6-z36	0.264	0.061	0.661
[012357]	6-9	0.255	0.061	0.600
[012457]	6-z11	0.245	0.061	0.661
[013457]	6-z10	0.236	0.067	0.586
[023457]	6-8	0.281	0.083	0.689
[012367]	6-5	0.275	0.061	0.633
[012467]	6-z12	0.252	0.061	0.628
[013467]	6-z13	0.278	0.061	0.633
[012567]	6-z6	0.310	0.067	0.633
[012348]	6-z37	0.253	0.067	0.586
[012358]	6-z40	0.245	0.061	0.661
[012458]	6-15	0.254	0.061	0.572
[013458]	6-14	0.279	0.083	0.661
[023458]	6-z39	0.236	0.067	0.586
[012368]	6-z41	0.252	0.061	0.628
[012468]	6-22	0.282	0.067	0.572
[013468]	6-z24	0.236	0.067	0.586
[023468]	6-21	0.285	0.067	0.572
[012568]	6-z43	0.248	0.069	0.558
[013568]	6-z25	0.264	0.061	0.661
[023568]	6-z23	0.273	0.061	0.628
[014568]	6-16	0.253	0.061	0.572
[012378]	6-z38	0.310	0.067	0.633
[012478]	6-z17	0.248	0.069	0.558
[013478]	6-z19	0.274	0.061	0.633
[012578]	6-18	0.275	0.061	0.633
[013578]	6-z26	0.253	0.067	0.586
[012678]	6-7	0.374	0.031	0.656
[012369]	6-z42	0.278	0.061	0.633
[012469]	6-z46	0.236	0.067	0.586
[013469]	6-27	0.304	0.061	0.633
[023469]	6-z45	0.273	0.061	0.628
[012569]	6-z44	0.274	0.061	0.633
[013569]	6-z28	0.269	0.069	0.558
[012479]	6-z47	0.264	0.061	0.661
[013479]	6-z49	0.269	0.069	0.558
[012579]	6-z48	0.253	0.067	0.586
[013579]	6-34	0.285	0.067	0.572
[023579]	6-33	0.293	0.061	0.600

[014579]	6-31	0.254	0.061	0.572
[024579]	6-32	0.344	0.064	0.689
[013679]	6-30	0.316	0.083	0.656
[023679]	6-z29	0.278	0.061	0.633
[014679]	6-z50	0.278	0.061	0.633
[014589]	6-20	0.382	0.050	0.661
[02468a]	6-35	0.536	0.111	0.689
#6 Averages:		*0.281*	*0.065*	*0.620*

Appendix D: Statistical summary of PSAT%SIM2 relations for each cardinality pair #2/#10 through #6 SC compared to every other #2/#10 through #6 SC (PSAT%SIM2 value group #2/#10 .. #6:#2/#10 .. #6)

Prime form	Forte #	Average	Lowest	Highest
[01]	2-1	0.816	0.333	1.000
[02]	2-2	0.823	0.250	1.000
[03]	2-3	0.824	0.500	1.000
[04]	2-4	0.882	0.478	1.000
[05]	2-5	0.816	0.333	1.000
[06]	2-6	0.839	0.455	1.000
#2 Averages:		*0.833*	*0.392*	*1.000*
[012]	3-1	0.651	0.145	1.000
[013]	3-2	0.493	0.111	1.000
[014]	3-3	0.558	0.182	1.000
[024]	3-6	0.728	0.250	1.000
[015]	3-4	0.552	0.228	1.000
[025]	3-7	0.493	0.111	1.000
[016]	3-5	0.526	0.071	1.000
[026]	3-8	0.599	0.117	1.000
[036]	3-10	0.671	0.273	1.000
[027]	3-9	0.651	0.145	1.000
[037]	3-11	0.558	0.182	1.000
[048]	3-12	0.882	0.478	1.000
#3 Averages:		*0.614*	*0.191*	*1.000*
[0123]	4-1	0.549	0.092	1.000
[0124]	4-2	0.471	0.166	1.000
[0134]	4-3	0.445	0.140	1.000
[0125]	4-4	0.380	0.124	1.000
[0135]	4-11	0.383	0.165	1.000
[0235]	4-10	0.399	0.123	1.000
[0145]	4-7	0.486	0.134	1.000
[0126]	4-5	0.381	0.136	1.000
[0136]	4-13	0.325	0.053	1.000
[0236]	4-12	0.371	0.149	1.000
[0146]	4-z15	0.321	0.092	0.880
[0246]	4-21	0.592	0.128	1.000
[0156]	4-8	0.448	0.154	1.000
[0127]	4-6	0.408	0.079	1.000
[0137]	4-z29	0.321	0.092	0.880
[0237]	4-14	0.380	0.124	1.000
[0147]	4-18	0.369	0.125	1.000
[0247]	4-22	0.471	0.166	1.000
[0347]	4-17	0.461	0.065	1.000
[0157]	4-16	0.381	0.136	1.000

[0257]	4-23	0.549	0.092	1.000
[0167]	4-9	0.513	0.071	1.000
[0148]	4-19	0.524	0.122	1.000
[0248]	4-24	0.592	0.128	1.000
[0158]	4-20	0.486	0.134	1.000
[0258]	4-27	0.371	0.149	1.000
[0358]	4-26	0.445	0.140	1.000
[0268]	4-25	0.585	0.095	1.000
[0369]	4-28	0.671	0.273	1.000
#4 Averages:		*0.451*	*0.126*	*0.992*
[01234]	5-1	0.504	0.092	1.000
[01235]	5-2	0.420	0.093	1.000
[01245]	5-3	0.377	0.107	1.000
[01236]	5-4	0.345	0.084	1.000
[01246]	5-9	0.352	0.097	0.903
[01346]	5-10	0.347	0.086	1.000
[02346]	5-8	0.371	0.097	1.000
[01256]	5-6	0.345	0.097	0.903
[01356]	5-z12	0.308	0.075	1.000
[01237]	5-5	0.343	0.095	1.000
[01247]	5-z36	0.308	0.075	1.000
[01347]	5-16	0.347	0.097	0.903
[02347]	5-11	0.337	0.088	1.000
[01257]	5-14	0.343	0.095	1.000
[01357]	5-24	0.352	0.097	0.903
[02357]	5-23	0.420	0.093	1.000
[01457]	5-z18	0.311	0.095	0.903
[01267]	5-7	0.446	0.023	1.000
[01367]	5-19	0.371	0.114	1.000
[01248]	5-13	0.359	0.094	0.906
[01348]	5-z17	0.377	0.086	1.000
[01258]	5-z38	0.311	0.095	0.903
[01358]	5-27	0.377	0.107	1.000
[02358]	5-25	0.347	0.086	1.000
[01458]	5-21	0.463	0.043	1.000
[02458]	5-26	0.361	0.094	0.906
[03458]	5-z37	0.377	0.086	1.000
[01268]	5-15	0.392	0.162	1.000
[01368]	5-29	0.345	0.084	1.000
[02368]	5-28	0.383	0.165	0.912
[01468]	5-30	0.359	0.094	0.906
[02468]	5-33	0.580	0.095	1.000
[01568]	5-20	0.345	0.097	0.903
[01478]	5-22	0.374	0.121	1.000
[01369]	5-31	0.456	0.114	1.000
[01469]	5-32	0.347	0.097	0.903

[02469]	5-34	0.371	0.097	1.000
[02479]	5-35	0.504	0.092	1.000
#5 Averages:		*0.378*	*0.095*	*0.970*
[012345]	6-1	0.443	0.093	1.000
[012346]	6-2	0.372	0.075	1.000
[012356]	6-z3	0.337	0.075	1.000
[012456]	6-z4	0.329	0.075	0.907
[012347]	6-z36	0.337	0.075	1.000
[012357]	6-9	0.334	0.074	1.000
[012457]	6-z11	0.319	0.074	1.000
[013457]	6-z10	0.309	0.075	0.907
[023457]	6-8	0.373	0.123	1.000
[012367]	6-5	0.341	0.069	1.000
[012467]	6-z12	0.319	0.069	1.000
[013467]	6-z13	0.341	0.070	1.000
[012567]	6-z6	0.376	0.071	1.000
[012348]	6-z37	0.329	0.075	0.907
[012358]	6-z40	0.319	0.074	1.000
[012458]	6-15	0.323	0.070	0.880
[013458]	6-14	0.353	0.086	1.000
[023458]	6-z39	0.309	0.075	0.907
[012368]	6-z41	0.319	0.069	1.000
[012468]	6-22	0.351	0.071	0.929
[013468]	6-z24	0.309	0.075	0.907
[023468]	6-21	0.352	0.071	0.929
[012568]	6-z43	0.316	0.088	0.912
[013568]	6-z25	0.337	0.075	1.000
[023568]	6-z23	0.339	0.053	1.000
[014568]	6-16	0.323	0.070	0.880
[012378]	6-z38	0.376	0.071	1.000
[012478]	6-z17	0.316	0.088	0.912
[013478]	6-z19	0.338	0.070	0.940
[012578]	6-18	0.341	0.069	1.000
[013578]	6-z26	0.329	0.075	0.907
[012678]	6-7	0.431	0.023	1.000
[012369]	6-z42	0.341	0.070	1.000
[012469]	6-z46	0.309	0.075	0.907
[013469]	6-27	0.373	0.068	1.000
[023469]	6-z45	0.339	0.053	1.000
[012569]	6-z44	0.338	0.070	0.940
[013569]	6-z28	0.336	0.088	0.912
[012479]	6-z47	0.337	0.075	1.000
[013479]	6-z49	0.336	0.088	0.912
[012579]	6-z48	0.329	0.075	0.907
[013579]	6-34	0.352	0.071	0.929
[023579]	6-33	0.372	0.075	1.000

[014579]	6-31	0.323	0.070	0.880
[024579]	6-32	0.443	0.093	1.000
[013679]	6-30	0.381	0.100	1.000
[023679]	6-z29	0.341	0.070	1.000
[014679]	6-z50	0.341	0.070	1.000
[014589]	6-20	0.448	0.043	1.000
[02468a]	6-35	0.580	0.095	1.000
#6 Averages:		*0.351*	*0.074*	*0.964*

Appendix E: Statistical summary of TSATSIM relations for each #3 through #10 SC compared to every other #3 through #10 SC (TSATSIM value group #3 .. #10:#3 .. #10)

Prime form	Forte #	Average	Lowest	Highest
[012]	3-1	0.381	0.056	0.575
[013]	3-2	0.327	0.121	0.576
[014]	3-3	0.330	0.133	0.675
[024]	3-6	0.385	0.100	0.576
[015]	3-4	0.313	0.033	0.675
[025]	3-7	0.327	0.121	0.576
[016]	3-5	0.355	0.061	0.625
[026]	3-8	0.363	0.067	0.600
[036]	3-10	0.443	0.111	0.567
[027]	3-9	0.381	0.056	0.575
[037]	3-11	0.330	0.133	0.675
[048]	3-12	0.444	0.133	0.700
#3 Averages:		*0.365*	*0.094*	*0.616*
[0123]	4-1	0.374	0.064	0.567
[0124]	4-2	0.337	0.100	0.512
[0134]	4-3	0.335	0.128	0.563
[0125]	4-4	0.310	0.109	0.542
[0135]	4-11	0.321	0.128	0.537
[0235]	4-10	0.336	0.128	0.613
[0145]	4-7	0.343	0.127	0.533
[0126]	4-5	0.306	0.085	0.567
[0136]	4-13	0.306	0.100	0.575
[0236]	4-12	0.305	0.109	0.525
[0146]	4-z15	0.294	0.085	0.507
[0246]	4-21	0.404	0.076	0.567
[0156]	4-8	0.342	0.033	0.549
[0127]	4-6	0.340	0.118	0.567
[0137]	4-z29	0.294	0.085	0.507
[0237]	4-14	0.310	0.109	0.542
[0147]	4-18	0.298	0.100	0.542
[0247]	4-22	0.337	0.100	0.512
[0347]	4-17	0.338	0.100	0.525
[0157]	4-16	0.306	0.085	0.567
[0257]	4-23	0.374	0.064	0.567
[0167]	4-9	0.380	0.100	0.613
[0148]	4-19	0.344	0.090	0.567
[0248]	4-24	0.402	0.069	0.567
[0158]	4-20	0.343	0.127	0.533
[0258]	4-27	0.305	0.109	0.525
[0358]	4-26	0.335	0.128	0.563
[0268]	4-25	0.404	0.067	0.549

[0369]	4-28	0.407	0.164	0.599
#4 Averages:		*0.339*	*0.100*	*0.552*
[01234]	5-1	0.355	0.061	0.575
[01235]	5-2	0.311	0.109	0.588
[01245]	5-3	0.305	0.109	0.601
[01236]	5-4	0.293	0.100	0.557
[01246]	5-9	0.304	0.111	0.513
[01346]	5-10	0.305	0.100	0.554
[02346]	5-8	0.319	0.118	0.566
[01256]	5-6	0.305	0.118	0.522
[01356]	5-z12	0.295	0.127	0.545
[01237]	5-5	0.303	0.118	0.545
[01247]	5-z36	0.290	0.130	0.545
[01347]	5-16	0.308	0.100	0.533
[02347]	5-11	0.289	0.128	0.618
[01257]	5-14	0.303	0.118	0.545
[01357]	5-24	0.304	0.111	0.513
[02357]	5-23	0.311	0.109	0.588
[01457]	5-z18	0.284	0.114	0.504
[01267]	5-7	0.347	0.061	0.601
[01367]	5-19	0.313	0.130	0.551
[01248]	5-13	0.315	0.111	0.518
[01348]	5-z17	0.314	0.109	0.592
[01258]	5-z38	0.284	0.114	0.504
[01358]	5-27	0.305	0.109	0.601
[02358]	5-25	0.305	0.100	0.554
[01458]	5-21	0.357	0.091	0.601
[02458]	5-26	0.307	0.111	0.505
[03458]	5-z37	0.314	0.109	0.592
[01268]	5-15	0.331	0.131	0.601
[01368]	5-29	0.293	0.100	0.557
[02368]	5-28	0.315	0.130	0.520
[01468]	5-30	0.315	0.111	0.518
[02468]	5-33	0.422	0.091	0.636
[01568]	5-20	0.305	0.118	0.522
[01478]	5-22	0.322	0.100	0.583
[01369]	5-31	0.330	0.128	0.636
[01469]	5-32	0.308	0.100	0.533
[02469]	5-34	0.319	0.118	0.566
[02479]	5-35	0.355	0.061	0.575
#5 Averages:		*0.315*	*0.108*	*0.560*
[012345]	6-1	0.323	0.083	0.599
[012346]	6-2	0.295	0.100	0.575
[012356]	6-z3	0.288	0.100	0.625
[012456]	6-z4	0.290	0.107	0.600

[012347]	6-z36	0.284	0.107	0.625
[012357]	6-9	0.279	0.100	0.575
[012457]	6-z11	0.274	0.100	0.550
[013457]	6-z10	0.277	0.107	0.525
[023457]	6-8	0.288	0.115	0.599
[012367]	6-5	0.282	0.092	0.625
[012467]	6-z12	0.285	0.084	0.575
[013467]	6-z13	0.305	0.100	0.625
[012567]	6-z6	0.301	0.107	0.625
[012348]	6-z37	0.295	0.107	0.600
[012358]	6-z40	0.274	0.100	0.550
[012458]	6-15	0.275	0.100	0.500
[013458]	6-14	0.280	0.115	0.608
[023458]	6-z39	0.279	0.100	0.525
[012368]	6-z41	0.287	0.100	0.575
[012468]	6-22	0.291	0.084	0.550
[013468]	6-z24	0.279	0.100	0.525
[023468]	6-21	0.296	0.084	0.558
[012568]	6-z43	0.282	0.100	0.525
[013568]	6-z25	0.288	0.100	0.625
[023568]	6-z23	0.313	0.100	0.650
[014568]	6-16	0.272	0.100	0.500
[012378]	6-z38	0.301	0.107	0.625
[012478]	6-z17	0.280	0.084	0.525
[013478]	6-z19	0.280	0.100	0.547
[012578]	6-18	0.282	0.092	0.625
[013578]	6-z26	0.290	0.107	0.600
[012678]	6-7	0.339	0.062	0.625
[012369]	6-z42	0.308	0.100	0.625
[012469]	6-z46	0.277	0.107	0.525
[013469]	6-27	0.318	0.080	0.700
[023469]	6-z45	0.312	0.107	0.650
[012569]	6-z44	0.280	0.100	0.547
[013569]	6-z28	0.310	0.100	0.600
[012479]	6-z47	0.284	0.107	0.625
[013479]	6-z49	0.307	0.100	0.600
[012579]	6-z48	0.295	0.107	0.600
[013579]	6-34	0.296	0.084	0.558
[023579]	6-33	0.295	0.100	0.575
[014579]	6-31	0.275	0.100	0.500
[024579]	6-32	0.323	0.083	0.599
[013679]	6-30	0.330	0.100	0.700
[023679]	6-z29	0.308	0.100	0.625
[014679]	6-z50	0.305	0.100	0.625
[014589]	6-20	0.336	0.090	0.600
[02468a]	6-35	0.392	0.069	0.675
#6 Averages:		*0.296*	*0.098*	*0.590*

[0123456]	7-1	0.346	0.061	0.573
[0123457]	7-2	0.309	0.121	0.575
[0123467]	7-4	0.296	0.133	0.515
[0123567]	7-5	0.300	0.139	0.515
[0123458]	7-3	0.296	0.135	0.590
[0123468]	7-9	0.306	0.118	0.528
[0123568]	7-z36	0.293	0.144	0.507
[0124568]	7-13	0.304	0.118	0.500
[0134568]	7-11	0.292	0.144	0.591
[0234568]	7-8	0.314	0.135	0.557
[0123478]	7-6	0.299	0.140	0.504
[0123578]	7-14	0.300	0.139	0.515
[0124578]	7-z38	0.290	0.129	0.500
[0134578]	7-z37	0.307	0.130	0.574
[0123678]	7-7	0.337	0.061	0.576
[0124678]	7-15	0.332	0.149	0.566
[0123469]	7-10	0.306	0.129	0.515
[0123569]	7-16	0.307	0.129	0.519
[0124569]	7-z17	0.307	0.130	0.574
[0123479]	7-z12	0.296	0.144	0.502
[0123579]	7-24	0.306	0.118	0.528
[0124579]	7-27	0.296	0.135	0.590
[0134579]	7-26	0.306	0.118	0.514
[0234579]	7-23	0.309	0.121	0.575
[0123679]	7-19	0.320	0.133	0.563
[0124679]	7-29	0.296	0.133	0.515
[0134679]	7-31	0.352	0.028	0.636
[0234679]	7-25	0.306	0.129	0.515
[0125679]	7-20	0.299	0.140	0.504
[0135679]	7-28	0.325	0.149	0.521
[0145679]	7-z18	0.290	0.129	0.500
[0124589]	7-21	0.332	0.120	0.575
[0124689]	7-30	0.304	0.118	0.500
[0134689]	7-32	0.307	0.129	0.519
[0125689]	7-22	0.307	0.125	0.561
[012468a]	7-33	0.383	0.133	0.636
[013468a]	7-34	0.314	0.135	0.557
[013568a]	7-35	0.346	0.061	0.573
#7 Averages:		*0.311*	*0.123*	*0.544*
[01234567]	8-1	0.370	0.067	0.585
[01234568]	8-2	0.339	0.133	0.566
[01234578]	8-4	0.326	0.152	0.553
[01234678]	8-5	0.337	0.133	0.567
[01235678]	8-6	0.342	0.133	0.556
[01234569]	8-3	0.338	0.133	0.566

[01234579]	8-11	0.327	0.146	0.550
[01234679]	8-13	0.337	0.128	0.531
[01235679]	8-z29	0.337	0.095	0.510
[01245679]	8-14	0.326	0.152	0.553
[01345679]	8-12	0.337	0.128	0.504
[02345679]	8-10	0.332	0.146	0.558
[01234589]	8-7	0.352	0.140	0.571
[01234689]	8-z15	0.337	0.095	0.510
[01235689]	8-18	0.331	0.134	0.534
[01245689]	8-19	0.378	0.119	0.567
[01345689]	8-17	0.351	0.146	0.580
[01234789]	8-8	0.347	0.033	0.538
[01235789]	8-16	0.337	0.133	0.567
[01245789]	8-20	0.352	0.140	0.571
[01236789]	8-9	0.384	0.089	0.567
[0123468a]	8-21	0.397	0.100	0.613
[0123568a]	8-22	0.339	0.133	0.566
[0124568a]	8-24	0.395	0.133	0.567
[0123578a]	8-23	0.370	0.067	0.585
[0124578a]	8-27	0.337	0.128	0.504
[0134578a]	8-26	0.338	0.133	0.566
[0124678a]	8-25	0.406	0.067	0.613
[0134679a]	8-28	0.387	0.028	0.569
#8 Averages:		*0.351*	*0.116*	*0.558*
[012345678]	9-1	0.396	0.142	0.557
[012345679]	9-2	0.372	0.167	0.557
[012345689]	9-3	0.360	0.167	0.539
[012345789]	9-4	0.364	0.167	0.557
[012346789]	9-5	0.396	0.167	0.548
[01234568a]	9-6	0.402	0.164	0.554
[01234578a]	9-7	0.372	0.167	0.557
[01234678a]	9-8	0.409	0.167	0.577
[01235678a]	9-9	0.396	0.142	0.557
[01234679a]	9-10	0.404	0.171	0.568
[01235679a]	9-11	0.360	0.167	0.539
[01245689a]	9-12	0.437	0.119	0.575
#9 Averages:		*0.389*	*0.159*	*0.557*
[0123456789]	10-1	0.414	0.056	0.566
[012345678a]	10-2	0.420	0.111	0.590
[012345679a]	10-3	0.420	0.111	0.601
[012345689a]	10-4	0.420	0.156	0.587
[012345789a]	10-5	0.414	0.056	0.566
[012346789a]	10-6	0.455	0.111	0.618
#10 Averages:		*0.424*	*0.100*	*0.588*

Appendix F: Statistical summary of AvgSATSIM*n* relations for each #3 through #10 SC compared to every other #3 through #10 SC (AvgSATSIM*n* value group #3 .. #10:#3 .. #10)

Prime form	Forte #	Average	Lowest	Highest
[012]	3-1	0.381	0.056	0.575
[013]	3-2	0.327	0.121	0.576
[014]	3-3	0.330	0.133	0.675
[024]	3-6	0.385	0.100	0.576
[015]	3-4	0.313	0.033	0.675
[025]	3-7	0.327	0.121	0.576
[016]	3-5	0.355	0.061	0.625
[026]	3-8	0.363	0.067	0.600
[036]	3-10	0.443	0.111	0.567
[027]	3-9	0.381	0.056	0.575
[037]	3-11	0.330	0.133	0.675
[048]	3-12	0.444	0.133	0.700
#3 Averages:		*0.365*	*0.094*	*0.616*
[0123]	4-1	0.371	0.061	0.556
[0124]	4-2	0.328	0.112	0.500
[0134]	4-3	0.319	0.125	0.530
[0125]	4-4	0.296	0.102	0.541
[0135]	4-11	0.305	0.125	0.539
[0235]	4-10	0.316	0.125	0.557
[0145]	4-7	0.338	0.125	0.533
[0126]	4-5	0.297	0.090	0.567
[0136]	4-13	0.285	0.101	0.550
[0236]	4-12	0.290	0.115	0.542
[0146]	4-z15	0.277	0.069	0.467
[0246]	4-21	0.408	0.079	0.567
[0156]	4-8	0.334	0.033	0.552
[0127]	4-6	0.328	0.103	0.557
[0137]	4-z29	0.277	0.069	0.467
[0237]	4-14	0.296	0.102	0.541
[0147]	4-18	0.285	0.101	0.542
[0247]	4-22	0.328	0.112	0.500
[0347]	4-17	0.328	0.101	0.521
[0157]	4-16	0.297	0.090	0.567
[0257]	4-23	0.371	0.061	0.556
[0167]	4-9	0.374	0.089	0.594
[0148]	4-19	0.348	0.094	0.567
[0248]	4-24	0.406	0.074	0.567
[0158]	4-20	0.338	0.125	0.533
[0258]	4-27	0.290	0.115	0.542
[0358]	4-26	0.319	0.125	0.530
[0268]	4-25	0.405	0.067	0.531

[0369]	4-28	0.415	0.139	0.584
#4 Averages:		*0.330*	*0.098*	*0.541*
[01234]	5-1	0.356	0.061	0.575
[01235]	5-2	0.305	0.105	0.568
[01245]	5-3	0.292	0.102	0.598
[01236]	5-4	0.283	0.085	0.542
[01246]	5-9	0.290	0.108	0.514
[01346]	5-10	0.295	0.101	0.538
[02346]	5-8	0.307	0.115	0.590
[01256]	5-6	0.291	0.109	0.521
[01356]	5-z12	0.278	0.116	0.516
[01237]	5-5	0.290	0.112	0.535
[01247]	5-z36	0.272	0.122	0.516
[01347]	5-16	0.296	0.106	0.513
[02347]	5-11	0.272	0.113	0.622
[01257]	5-14	0.290	0.112	0.535
[01357]	5-24	0.290	0.108	0.514
[02357]	5-23	0.305	0.105	0.568
[01457]	5-z18	0.267	0.099	0.506
[01267]	5-7	0.345	0.059	0.609
[01367]	5-19	0.301	0.124	0.543
[01248]	5-13	0.301	0.108	0.518
[01348]	5-z17	0.301	0.092	0.590
[01258]	5-z38	0.267	0.099	0.506
[01358]	5-27	0.292	0.102	0.598
[02358]	5-25	0.295	0.101	0.538
[01458]	5-21	0.352	0.094	0.621
[02458]	5-26	0.296	0.108	0.494
[03458]	5-z37	0.301	0.092	0.590
[01268]	5-15	0.320	0.140	0.636
[01368]	5-29	0.283	0.085	0.542
[02368]	5-28	0.304	0.124	0.524
[01468]	5-30	0.301	0.108	0.518
[02468]	5-33	0.441	0.094	0.636
[01568]	5-20	0.291	0.109	0.521
[01478]	5-22	0.310	0.101	0.609
[01369]	5-31	0.336	0.126	0.636
[01469]	5-32	0.296	0.106	0.513
[02469]	5-34	0.307	0.115	0.590
[02479]	5-35	0.356	0.061	0.575
#5 Averages:		*0.305*	*0.103*	*0.557*
[012345]	6-1	0.326	0.082	0.618
[012346]	6-2	0.293	0.085	0.575
[012356]	6-z3	0.287	0.095	0.625
[012456]	6-z4	0.288	0.102	0.600

[012347]	6-z36	0.284	0.100	0.625
[012357]	6-9	0.275	0.094	0.575
[012457]	6-z11	0.271	0.089	0.554
[013457]	6-z10	0.272	0.100	0.534
[023457]	6-8	0.283	0.108	0.615
[012367]	6-5	0.281	0.088	0.625
[012467]	6-z12	0.281	0.082	0.575
[013467]	6-z13	0.302	0.096	0.625
[012567]	6-z6	0.302	0.090	0.625
[012348]	6-z37	0.292	0.100	0.600
[012358]	6-z40	0.271	0.089	0.554
[012458]	6-15	0.273	0.094	0.519
[013458]	6-14	0.277	0.108	0.632
[023458]	6-z39	0.274	0.094	0.528
[012368]	6-z41	0.283	0.096	0.575
[012468]	6-22	0.289	0.082	0.561
[013468]	6-z24	0.274	0.094	0.528
[023468]	6-21	0.293	0.082	0.578
[012568]	6-z43	0.276	0.096	0.530
[013568]	6-z25	0.287	0.095	0.625
[023568]	6-z23	0.311	0.096	0.650
[014568]	6-16	0.270	0.094	0.527
[012378]	6-z38	0.302	0.090	0.625
[012478]	6-z17	0.274	0.082	0.525
[013478]	6-z19	0.277	0.083	0.573
[012578]	6-18	0.281	0.088	0.625
[013578]	6-z26	0.288	0.102	0.600
[012678]	6-7	0.344	0.059	0.625
[012369]	6-z42	0.303	0.093	0.625
[012469]	6-z46	0.272	0.100	0.534
[013469]	6-27	0.321	0.094	0.700
[023469]	6-z45	0.309	0.100	0.650
[012569]	6-z44	0.277	0.083	0.573
[013569]	6-z28	0.304	0.093	0.600
[012479]	6-z47	0.284	0.100	0.625
[013479]	6-z49	0.303	0.096	0.600
[012579]	6-z48	0.292	0.100	0.600
[013579]	6-34	0.293	0.082	0.578
[023579]	6-33	0.293	0.085	0.575
[014579]	6-31	0.273	0.094	0.519
[024579]	6-32	0.326	0.082	0.618
[013679]	6-30	0.330	0.096	0.700
[023679]	6-z29	0.303	0.093	0.625
[014679]	6-z50	0.302	0.096	0.625
[014589]	6-20	0.344	0.094	0.637
[02468a]	6-35	0.419	0.074	0.675
#6 Averages:		*0.295*	*0.092*	*0.596*

[0123456]	7-1	0.349	0.061	0.579
[0123457]	7-2	0.304	0.121	0.584
[0123467]	7-4	0.285	0.125	0.515
[0123567]	7-5	0.288	0.129	0.531
[0123458]	7-3	0.286	0.117	0.602
[0123468]	7-9	0.292	0.113	0.523
[0123568]	7-z36	0.275	0.125	0.522
[0124568]	7-13	0.293	0.113	0.504
[0134568]	7-11	0.276	0.133	0.612
[0234568]	7-8	0.303	0.130	0.568
[0123478]	7-6	0.286	0.137	0.509
[0123578]	7-14	0.288	0.129	0.531
[0124578]	7-z38	0.272	0.108	0.517
[0134578]	7-z37	0.296	0.113	0.595
[0123678]	7-7	0.337	0.061	0.576
[0124678]	7-15	0.320	0.148	0.598
[0123469]	7-10	0.295	0.121	0.516
[0123569]	7-16	0.294	0.121	0.520
[0124569]	7-z17	0.296	0.113	0.595
[0123479]	7-z12	0.277	0.129	0.523
[0123579]	7-24	0.292	0.113	0.523
[0124579]	7-27	0.286	0.117	0.602
[0134579]	7-26	0.295	0.113	0.506
[0234579]	7-23	0.304	0.121	0.584
[0123679]	7-19	0.305	0.130	0.558
[0124679]	7-29	0.285	0.125	0.515
[0134679]	7-31	0.351	0.054	0.636
[0234679]	7-25	0.295	0.121	0.516
[0125679]	7-20	0.286	0.137	0.509
[0135679]	7-28	0.309	0.139	0.523
[0145679]	7-z18	0.272	0.108	0.517
[0124589]	7-21	0.332	0.094	0.596
[0124689]	7-30	0.293	0.113	0.504
[0134689]	7-32	0.294	0.121	0.520
[0125689]	7-22	0.299	0.119	0.577
[012468a]	7-33	0.406	0.109	0.636
[013468a]	7-34	0.303	0.130	0.568
[013568a]	7-35	0.349	0.061	0.579
#7 Averages:		*0.302*	*0.115*	*0.552*
[01234567]	8-1	0.364	0.067	0.575
[01234568]	8-2	0.325	0.132	0.561
[01234578]	8-4	0.304	0.144	0.558
[01234678]	8-5	0.316	0.133	0.567
[01235678]	8-6	0.325	0.133	0.556
[01234569]	8-3	0.319	0.117	0.567

[01234579]	8-11	0.306	0.137	0.558
[01234679]	8-13	0.305	0.123	0.527
[01235679]	8-z29	0.305	0.083	0.482
[01245679]	8-14	0.304	0.144	0.558
[01345679]	8-12	0.310	0.123	0.518
[02345679]	8-10	0.313	0.137	0.559
[01234589]	8-7	0.340	0.134	0.564
[01234689]	8-z15	0.305	0.083	0.482
[01235689]	8-18	0.305	0.129	0.535
[01245689]	8-19	0.369	0.104	0.577
[01345689]	8-17	0.334	0.138	0.583
[01234789]	8-8	0.335	0.033	0.542
[01235789]	8-16	0.316	0.133	0.567
[01245789]	8-20	0.340	0.134	0.564
[01236789]	8-9	0.376	0.080	0.558
[0123468a]	8-21	0.397	0.100	0.594
[0123568a]	8-22	0.325	0.132	0.561
[0124568a]	8-24	0.396	0.133	0.567
[0123578a]	8-23	0.364	0.067	0.575
[0124578a]	8-27	0.310	0.123	0.518
[0134578a]	8-26	0.319	0.117	0.567
[0124678a]	8-25	0.404	0.067	0.563
[0134679a]	8-28	0.396	0.054	0.567
#8 Averages:		*0.335*	*0.112*	*0.554*

[012345678]	9-1	0.386	0.125	0.546
[012345679]	9-2	0.352	0.167	0.566
[012345689]	9-3	0.343	0.167	0.566
[012345789]	9-4	0.340	0.166	0.582
[012346789]	9-5	0.376	0.141	0.569
[01234568a]	9-6	0.390	0.153	0.558
[01234578a]	9-7	0.352	0.167	0.566
[01234678a]	9-8	0.389	0.167	0.583
[01235678a]	9-9	0.386	0.125	0.546
[01234679a]	9-10	0.406	0.134	0.539
[01235679a]	9-11	0.343	0.167	0.566
[01245689a]	9-12	0.434	0.127	0.595
#9 Averages:		*0.375*	*0.151*	*0.565*

[0123456789]	10-1	0.425	0.056	0.593
[012345678a]	10-2	0.434	0.111	0.637
[012345679a]	10-3	0.433	0.111	0.636
[012345689a]	10-4	0.435	0.132	0.601
[012345789a]	10-5	0.425	0.056	0.593
[012346789a]	10-6	0.464	0.111	0.632
#10 Averages:		*0.436*	*0.096*	*0.615*

Appendix G: Statistical summary of CSATSIM relations (*weight* = 1.2) for each #2 through #10 SC compared to every other #2 through #10 SC (CSATSIM value group #2 .. #10:#2 .. #10)

Prime form	Forte #	Average	Lowest	Highest
[01]	2-1	0.505	0.021	0.779
[02]	2-2	0.505	0.103	0.775
[03]	2-3	0.496	0.069	0.743
[04]	2-4	0.506	0.130	0.795
[05]	2-5	0.505	0.021	0.779
[06]	2-6	0.477	0.129	0.734
#2 Averages:		*0.499*	*0.079*	*0.768*
[012]	3-1	0.404	0.056	0.660
[013]	3-2	0.318	0.109	0.547
[014]	3-3	0.336	0.124	0.604
[024]	3-6	0.422	0.085	0.700
[015]	3-4	0.333	0.110	0.555
[025]	3-7	0.318	0.109	0.547
[016]	3-5	0.355	0.082	0.555
[026]	3-8	0.372	0.097	0.631
[036]	3-10	0.439	0.065	0.670
[027]	3-9	0.404	0.056	0.660
[037]	3-11	0.336	0.124	0.604
[048]	3-12	0.464	0.112	0.733
#3 Averages:		*0.375*	*0.094*	*0.622*
[0123]	4-1	0.378	0.062	0.645
[0124]	4-2	0.334	0.100	0.635
[0134]	4-3	0.300	0.100	0.635
[0125]	4-4	0.283	0.091	0.581
[0135]	4-11	0.283	0.089	0.527
[0235]	4-10	0.282	0.094	0.547
[0145]	4-7	0.325	0.091	0.564
[0126]	4-5	0.296	0.091	0.573
[0136]	4-13	0.251	0.091	0.574
[0236]	4-12	0.269	0.091	0.574
[0146]	4-z15	0.247	0.095	0.479
[0246]	4-21	0.407	0.085	0.647
[0156]	4-8	0.338	0.091	0.621
[0127]	4-6	0.329	0.100	0.634
[0137]	4-z29	0.247	0.095	0.479
[0237]	4-14	0.283	0.091	0.581
[0147]	4-18	0.269	0.091	0.574
[0247]	4-22	0.334	0.100	0.635
[0347]	4-17	0.299	0.091	0.562
[0157]	4-16	0.296	0.091	0.573

[0257]	4-23	0.378	0.062	0.645
[0167]	4-9	0.370	0.082	0.621
[0148]	4-19	0.348	0.073	0.561
[0248]	4-24	0.412	0.042	0.632
[0158]	4-20	0.325	0.091	0.564
[0258]	4-27	0.269	0.091	0.574
[0358]	4-26	0.300	0.100	0.635
[0268]	4-25	0.388	0.097	0.621
[0369]	4-28	0.438	0.055	0.668
#4 Averages:		*0.320*	*0.087*	*0.592*
[01234]	5-1	0.376	0.041	0.696
[01235]	5-2	0.301	0.086	0.596
[01245]	5-3	0.259	0.044	0.626
[01236]	5-4	0.267	0.086	0.624
[01246]	5-9	0.264	0.081	0.548
[01346]	5-10	0.250	0.066	0.604
[02346]	5-8	0.285	0.081	0.681
[01256]	5-6	0.252	0.081	0.551
[01356]	5-z12	0.225	0.015	0.678
[01237]	5-5	0.262	0.067	0.616
[01247]	5-z36	0.226	0.015	0.702
[01347]	5-16	0.250	0.066	0.536
[02347]	5-11	0.228	0.055	0.671
[01257]	5-14	0.262	0.067	0.616
[01357]	5-24	0.264	0.081	0.548
[02357]	5-23	0.301	0.086	0.596
[01457]	5-z18	0.225	0.015	0.609
[01267]	5-7	0.327	0.082	0.607
[01367]	5-19	0.253	0.072	0.666
[01248]	5-13	0.264	0.071	0.583
[01348]	5-z17	0.268	0.015	0.605
[01258]	5-z38	0.225	0.015	0.609
[01358]	5-27	0.259	0.044	0.626
[02358]	5-25	0.250	0.066	0.604
[01458]	5-21	0.316	0.019	0.695
[02458]	5-26	0.268	0.071	0.568
[03458]	5-z37	0.268	0.015	0.605
[01268]	5-15	0.265	0.077	0.730
[01368]	5-29	0.267	0.086	0.624
[02368]	5-28	0.256	0.105	0.597
[01468]	5-30	0.264	0.071	0.583
[02468]	5-33	0.473	0.000	0.654
[01568]	5-20	0.252	0.081	0.551
[01478]	5-22	0.282	0.033	0.677
[01369]	5-31	0.349	0.000	0.604
[01469]	5-32	0.250	0.066	0.536

[02469]	5-34	0.285	0.081	0.681
[02479]	5-35	0.376	0.041	0.696
#5 Averages:		*0.277*	*0.056*	*0.621*
[012345]	6-1	0.369	0.068	0.703
[012346]	6-2	0.312	0.067	0.690
[012356]	6-z3	0.265	0.023	0.671
[012456]	6-z4	0.256	0.057	0.620
[012347]	6-z36	0.279	0.023	0.679
[012357]	6-9	0.291	0.057	0.795
[012457]	6-z11	0.265	0.022	0.742
[013457]	6-z10	0.251	0.044	0.654
[023457]	6-8	0.306	0.040	0.784
[012367]	6-5	0.260	0.061	0.649
[012467]	6-z12	0.260	0.039	0.721
[013467]	6-z13	0.258	0.041	0.608
[012567]	6-z6	0.275	0.012	0.615
[012348]	6-z37	0.271	0.057	0.639
[012358]	6-z40	0.265	0.022	0.742
[012458]	6-15	0.248	0.056	0.681
[013458]	6-14	0.270	0.051	0.704
[023458]	6-z39	0.256	0.044	0.679
[012368]	6-z41	0.265	0.039	0.731
[012468]	6-22	0.268	0.061	0.646
[013468]	6-z24	0.256	0.044	0.679
[023468]	6-21	0.272	0.061	0.670
[012568]	6-z43	0.238	0.021	0.663
[013568]	6-z25	0.265	0.023	0.671
[023568]	6-z23	0.259	0.051	0.608
[014568]	6-16	0.250	0.051	0.704
[012378]	6-z38	0.275	0.012	0.615
[012478]	6-z17	0.244	0.021	0.691
[013478]	6-z19	0.261	0.010	0.725
[012578]	6-18	0.260	0.061	0.649
[013578]	6-z26	0.256	0.057	0.620
[012678]	6-7	0.307	0.057	0.621
[012369]	6-z42	0.290	0.041	0.650
[012469]	6-z46	0.251	0.044	0.654
[013469]	6-27	0.252	0.097	0.483
[023469]	6-z45	0.291	0.051	0.654
[012569]	6-z44	0.261	0.010	0.725
[013569]	6-z28	0.274	0.046	0.607
[012479]	6-z47	0.279	0.023	0.679
[013479]	6-z49	0.246	0.046	0.578
[012579]	6-z48	0.271	0.057	0.639
[013579]	6-34	0.272	0.061	0.670
[023579]	6-33	0.312	0.067	0.690

[014579]	6-31	0.248	0.056	0.681
[024579]	6-32	0.369	0.068	0.703
[013679]	6-30	0.292	0.067	0.608
[023679]	6-z29	0.290	0.041	0.650
[014679]	6-z50	0.258	0.041	0.608
[014589]	6-20	0.339	0.075	0.775
[02468a]	6-35	0.484	0.000	0.656
#6 Averages:		*0.278*	*0.045*	*0.668*
[0123456]	7-1	0.372	0.041	0.745
[0123457]	7-2	0.285	0.080	0.616
[0123467]	7-4	0.247	0.070	0.616
[0123567]	7-5	0.247	0.068	0.594
[0123458]	7-3	0.271	0.044	0.635
[0123468]	7-9	0.261	0.080	0.673
[0123568]	7-z36	0.223	0.028	0.577
[0124568]	7-13	0.259	0.068	0.621
[0134568]	7-11	0.235	0.055	0.619
[0234568]	7-8	0.283	0.080	0.779
[0123478]	7-6	0.249	0.074	0.626
[0123578]	7-14	0.247	0.068	0.594
[0124578]	7-z38	0.227	0.025	0.634
[0134578]	7-z37	0.246	0.011	0.565
[0123678]	7-7	0.304	0.070	0.645
[0124678]	7-15	0.276	0.077	0.699
[0123469]	7-10	0.277	0.065	0.611
[0123569]	7-16	0.273	0.078	0.585
[0124569]	7-z17	0.246	0.011	0.565
[0123479]	7-z12	0.242	0.041	0.647
[0123579]	7-24	0.261	0.080	0.673
[0124579]	7-27	0.271	0.044	0.635
[0134579]	7-26	0.260	0.068	0.621
[0234579]	7-23	0.285	0.080	0.616
[0123679]	7-19	0.266	0.072	0.600
[0124679]	7-29	0.247	0.070	0.616
[0134679]	7-31	0.324	0.000	0.538
[0234679]	7-25	0.277	0.065	0.611
[0125679]	7-20	0.249	0.074	0.626
[0135679]	7-28	0.279	0.084	0.645
[0145679]	7-z18	0.227	0.025	0.634
[0124589]	7-21	0.301	0.019	0.642
[0124689]	7-30	0.259	0.068	0.621
[0134689]	7-32	0.273	0.078	0.585
[0125689]	7-22	0.263	0.033	0.661
[012468a]	7-33	0.459	0.011	0.631
[013468a]	7-34	0.283	0.080	0.779
[013568a]	7-35	0.372	0.041	0.745

#7 Averages:		*0.274*	*0.056*	*0.635*
[01234567]	8-1	0.359	0.060	0.686
[01234568]	8-2	0.296	0.102	0.640
[01234578]	8-4	0.261	0.074	0.594
[01234678]	8-5	0.254	0.080	0.649
[01235678]	8-6	0.259	0.076	0.594
[01234569]	8-3	0.297	0.083	0.699
[01234579]	8-11	0.273	0.084	0.653
[01234679]	8-13	0.236	0.057	0.608
[01235679]	8-z29	0.220	0.028	0.613
[01245679]	8-14	0.261	0.074	0.594
[01345679]	8-12	0.257	0.076	0.705
[02345679]	8-10	0.278	0.040	0.727
[01234589]	8-7	0.310	0.094	0.556
[01234689]	8-z15	0.220	0.028	0.613
[01235689]	8-18	0.256	0.081	0.593
[01245689]	8-19	0.287	0.073	0.507
[01345689]	8-17	0.286	0.077	0.528
[01234789]	8-8	0.289	0.057	0.629
[01235789]	8-16	0.254	0.080	0.649
[01245789]	8-20	0.310	0.094	0.556
[01236789]	8-9	0.286	0.049	0.599
[0123468a]	8-21	0.363	0.105	0.601
[0123568a]	8-22	0.296	0.102	0.640
[0124568a]	8-24	0.386	0.042	0.598
[0123578a]	8-23	0.359	0.060	0.686
[0124578a]	8-27	0.257	0.076	0.705
[0134578a]	8-26	0.297	0.083	0.699
[0124678a]	8-25	0.367	0.079	0.576
[0134679a]	8-28	0.389	0.043	0.644
#8 Averages:		*0.292*	*0.071*	*0.626*
[012345678]	9-1	0.386	0.056	0.669
[012345679]	9-2	0.275	0.083	0.627
[012345689]	9-3	0.306	0.114	0.668
[012345789]	9-4	0.288	0.057	0.525
[012346789]	9-5	0.263	0.049	0.488
[01234568a]	9-6	0.351	0.128	0.688
[01234578a]	9-7	0.275	0.083	0.627
[01234678a]	9-8	0.290	0.083	0.547
[01235678a]	9-9	0.386	0.056	0.669
[01234679a]	9-10	0.340	0.042	0.575
[01235679a]	9-11	0.306	0.114	0.668
[01245689a]	9-12	0.337	0.119	0.555
#9 Averages:		*0.317*	*0.082*	*0.609*

[0123456789]	10-1	0.444	0.021	0.745
[012345678a]	10-2	0.405	0.206	0.743
[012345679a]	10-3	0.335	0.150	0.656
[012345689a]	10-4	0.290	0.111	0.486
[012345789a]	10-5	0.444	0.021	0.745
[012346789a]	10-6	0.315	0.106	0.589
#10 Averages:		*0.372*	*0.103*	*0.661*