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ALAIN GOTTCHEINER

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AGOT@ULB.AC.BE

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Abstract: We carry on with the study of permutation groups for kinship complexes, giving some classes of nonabelian such groups, and end with a table of all such groups with order up to 15, mentioning whether they satisfy equations on words that are pertinent to the original (anthropological) problem of checking for allowed marriages.

1. Kinship systems on dihedral groups

Remember from section 4 in [GOT2] that, in accordance with the original problem, we're looking for systems that can satisfy some equations between words on their generators, most notably the following ones:
(1) $f.m = m.f$: a man is allowed to marry the daughter of his mother's brother;
(2) $m.m = f.f$: a man is allowed to marry the daughter of his father's sister;
(3) $f^{-1}m = m^{-1}f$: a man is allowed to marry the sister of his sister's spouse.
Equation (1) means the group is Abelian, and therefore isn't relevant here.

A dihedral group D_{2n} can be generated by two of its elements, f and m, in two ways:

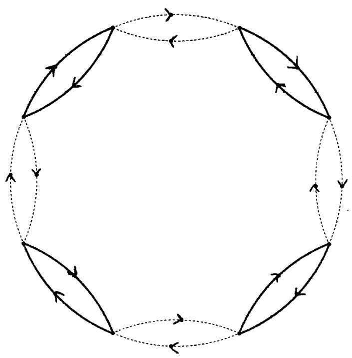
a) f and m are axissymmetries whose axes' angle is $\alpha = \pi / n$ (or such that $p.\alpha \neq 2k\pi$ for $p < n$);
b) f is any axissymmetry[1] and m is a rotation with angle $2\pi / n$.

To those correspond the following two families of kinship systems:

a) the *chain systems*, with $f^2 = m^2 = I$ and $(f.m)^n = I$ [2]
b) the *Arunta-like systems*, with $f^2 = I$, $m^n = I$ and $(f.m)^2 = I$ (the well-studied Arunta[3]-Warlpiri system corresponds to the case where $n = 4$, the Ambrym system to the case where $n = 3$ [LIU]; Dieri and Pintupi systems are their respective duals).

[1] As in [GOT2], we use the nonrestrictive convention that μ (the order of *m*) isn't smaller than φ (the order of *f*). Since an axissymmetry is of order 2, only *f* can be such (the case where both *f* and *m* are order 2.yields the *Kariera* system from section 6 in that paper)

[2] I is the usual notation for a group's neutral element.



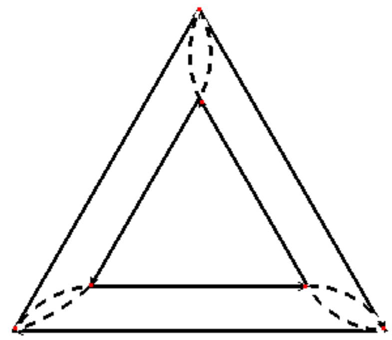


FIGURE 1a: the chain system on 8 types **FIGURE 1b: the Ambrym system**

Chain systems satisfy (2) trivially. They never satisfy (3).[4]
Arunta-like systems satisfy (3), but not (2).
Chain systems are also *self-dual*, that is, they are left unchanged by an exchange between *f* and *m*.[5]

2. The general case where $f^2 = m^2$.

Exhaustive exploration[6] of possible Cayley diagrams with small order yielded the following systems where equation $f^2 = m^2$ holds:

a) holocyclic systems with order $2n$ and $f = m^{n+1}$ (see [GOT2], theorem 4.3) – infinite family.
b) systems with group $C_{2n}\times C_2$ – which we conjecture to be an infinite family. In these groups, both *f* and *m* have order *n*.
c) chain systems – infinite family.
d) systems with groups Q_8 (unique) and Q_{12} (two such systems). In these groups, both *f* and *m* have order 4. We conjecture that those, too, are the smallest cases of an infinite family.
e) the exceptional case of the Kariera system, which may be seen as the starting point of families b), c) and d).

It remains to be checked whether such systems exist with groups $C_{ab}\times C_b$ with $a, b > 2$.

Up to order 15, no nonabelian system, other than Arunta-like systems, satisfy (3).

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[3] This name has also been written as *Aranda* or *Arrernte*.

[4] The case where $n = 2$ once again yields the *Kariera system*.

[5] In the original problem, this means the rules are the same for males and females.

[6] How such exploration is conducted can be seen in [GDM], section 7.

3. Table of small cases

Key to the table

The first column gives a code for the system, under the form (N,μ,φ), where μ is the order of *m* and φ is the order of *f*. This is enriched, when there exist more than one system with that set of parameters, with:
- a fourth index, for holocyclic systems: the number *x* such that $f = m^x$.
- a + or - sign, when there are two systems, one Abelian, the other nonabelian.
- a distinctive letter in other cases

Then come the group for the system and *m* and *f* as permutations.

The last column contains, when appropriate, one or more of the following letters:

P signals a system where $f^2 = g^2$

M signals an Abelian system, where $f.g = g.f$

H signals a system where $f^{-1}m = m^{-1}f$

D signals a self-dual system

X signals a staurocyclic system. Systems with a cyclic group which aren't staurocyclic are holocyclic.

S signals a stauric system.

A signals an Aranda-like system

C signals a chain system

Take for example the system from Figure 1a. It is referenced hereunder as (8.2.2). Numbering the figure’s vertices in clockwork order from the top-right yields the decomposition in cycles given in columns 3 and 4; and the last column tells us it’s a self-dual system with $f^2 = g^2$, pertaining to the class of chain systems.

TABLE OF ALL KINSHIP SYSTEMS UP TO ORDER 15

Code	Group	permutation m	permutation f	Properties
(2,2,1;2)	C2	(1 2)	(1) (2)	PMH
(3,3,3;2)	C3	(1 2 3)	(1 3 2)	MHD
(3,3,1;3)	C3	(1 2 3)	(1)(2)(3)	M
(4,4,4;3)	C4	(1 2 3 4)	(1 4 3 2)	PMHD
(4,4,2;2)	C4	(1 2 3 4)	(1 3)(2 4)	M
(4,4,1;4)	C4	(1 2 3 4)	(1)(2)(3)(4)	M
(4,2,2)	V4	(1 2)(3 4)	(1 4)(2 3)	PMHD
(5,5,5;4)	C5	(1 2 3 4 5)	(1 5 4 3 2)	MD
(5,5,5;3)	C5	(1 2 3 4 5)	(1 4 2 5 3)	M
(5,5,5;2)	C5	(1 2 3 4 5)	(1 3 5 2 4)	M
(5,5,1;5)	C5	(1 2 3 4 5)	(1)(2)(3)(4)(5)	M
(6,6,6;5)	C6	(1 2 3 4 5 6)	(1 6 5 4 3 2)	MHD
(6,6,3;2)	C6	(1 2 3 4 5 6)	(1 3 5)(2 4 6)	M
(6,6,3;4)	C6	(1 2 3 4 5 6)	(1 5 3)(2 6 4)	PMH
(6,6,2;3)	C6	(1 2 3 4 5 6)	(1 4)(2 5)(3 6)	M
(6,6,1;6)	C6	(1 2 3 4 5 6)	(1)(2)(3)(4)(5)(6)	M
(6,3,2;+)	C6	(1 2 3)(4 5 6)	(1 4)(2 5)(3 6)	MX
(6,3,2;-)	D6	(1 2 3)(4 5 6)	(1 4)(2 6)(3 5)	HA
(6,2,2)	D6	(1 2)(3 4)(5 6)	(1 6)(2 3)(4 5)	PDC
(7,7,7;6)	C7	(1 2 3 4 5 6 7)	(1 7 6 5 4 3 2)	MD
(7,7,7;5)	C7	(1 2 3 4 5 6 7)	(1 6 4 2 7 5 3)	M
(7,7,7;4)	C7	(1 2 3 4 5 6 7)	(1 5 2 6 3 7 4)	M
(7,7,7;3)	C7	(1 2 3 4 5 6 7)	(1 4 7 3 6 2 5)	M

Code	Group	permutation m	permutation f	Properties
(7,7,7;2)	C7	(1 2 3 4 5 6 7)	(1 3 5 7 2 4 6)	M
(7,7,1;7)	C7	(1 2 3 4 5 6 7)	(1)(2)(3)(4)(5)(6)(7)	M
(8,8,8;7)	C8	(1 2 3 4 5 6 7 8)	(1 8 7 6 5 4 3 2)	MD
(8,8,8;5)	C8	(1 2 3 4 5 6 7 8)	(1 6 3 8 5 2 7 4)	PMHD
(8,8,8;3)	C8	(1 2 3 4 5 6 7 8)	(1 4 7 2 5 8 3 6)	MD
(8,8,4;2)	C8	(1 2 3 4 5 6 7 8)	(1 3 5 7)(2 4 6 8)	M
(8,8,4;6)	C8	(1 2 3 4 5 6 7 8)	(1 7 5 3)(2 8 6 4)	M
(8,8,2;4)	C8	(1 2 3 4 5 6 7 8)	(1 5)(2 6)(3 7)(4 8)	M
(8,8,1;8)	C8	(1 2 3 4 5 6 7 8)	(1)(2)(3)(4)(5)(6)(7)(8)	M
(8,4,4;+)	C4×C2	(1 2 3 4)(5 6 7 8)	(1 5 3 7)(2 6 4 8)	PMHD
(8,4,4;-)	Q8	(1 2 3 4)(5 6 7 8)	(1 7 3 5)(2 6 4 8)	PD
(8,4,2;+)	C4×C2	(1 2 3 4)(5 6 7 8)	(1 5)(2 6)(3 7)(4 8)	MS
(8,4,2;-)	D8	(1 2 3 4)(5 6 7 8)	(1 5)(2 8)(3 7)(4 6)	HA
(8,2,2)	D8	(1 2)(3 4)(5 6)(7 8)	(1 8)(2 3)(4 5)(6 7)	PDC
(9,9,9;8)	C9	(1 2 3 4 5 6 7 8 9)	(1 9 8 7 6 5 4 3 2)	MD
(9,9,9;7)	C9	(1 2 3 4 5 6 7 8 9)	(1 8 6 4 2 9 7 5 3)	M
(9,9,9;5)	C9	(1 2 3 4 5 6 7 8 9)	(1 6 2 7 3 8 4 9 5)	M
(9,9,9;4)	C9	(1 2 3 4 5 6 7 8 9)	(1 5 9 4 8 3 7 2 6)	M
(9,9,9;2)	C9	(1 2 3 4 5 6 7 8 9)	(1 3 5 7 9 2 4 6 8)	M
(9,9,3;6)	C9	(1 2 3 4 5 6 7 8 9)	(1 7 4)(2 8 5)(3 9 6)	M
(9,9,3;3)	C9	(1 2 3 4 5 6 7 8 9)	(1 4 7)(2 5 8)(3 6 9)	M
(9,9,1;9)	C9	(1 2 3 4 5 6 7 8 9)	(1)(2)(3)(4)(5)(6)(7)(8)(9)	M
(9,3,3)	C3×C3	(1 2 3)(4 5 6)(7 8 9)	(1 4 7)(2 5 8)(3 6 9)	MDS
(10,10,10;9)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 10 9 8 7 6 5 4 3 2)	MD
(10,10,10;7)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 8 5 2 9 6 3 10 7 4)	M
(10,10,10;3)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 4 7 10 3 6 9 2 5 8)	M

Code	Group	permutation m	permutation f	Properties
(10,10,5;8)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 9 7 5 3)(2 10 8 6 4)	M
(10,10,5;6)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 7 3 9 5)(2 8 4 10 6)	PMH
(10,10,5;4)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 5 9 3 7)(2 6 10 4 8)	M
(10,10,5;2)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 3 5 7 9)(2 4 6 8 10)	M
(10,10,2;5)	C10	(1 2 3 4 5 6 7 8 9 10)	(1 6)(2 7)(3 8)(4 9)(5 10)	M
(10,10,1;10)	C10	(1 2 3 4 5 6 7 8 9 10)	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)	M
(10,5,2;+)	C10	(1 2 3 4 5)(6 7 8 9 10)	(1 6)(2 7)(3 8)(4 9)(5 10)	MX
(10,5,2;-)	D10	(1 2 3 4 5)(6 7 8 9 10)	(1 6)(2 10)(3 9)(4 8)(5 7)	HA
(10,2,2)	D10	(1 2)(3 4)(5 6)(7 8)(9 10)	(1 10)(2 3)(4 5)(6 7)(8 9)	PDC
(11,11,11;10)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 11 10 9 8 7 6 5 4 3 2)	MD
(11,11,11;9)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 10 8 6 4 2 11 9 7 5 3)	M
(11,11,11;8)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 9 6 3 11 8 5 2 10 7 4)	M
(11,11,11;7)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 8 4 11 7 3 10 6 2 9 5)	M
(11,11,11;6)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 7 2 8 3 9 4 10 5 11 6)	M
(11,11,11;5)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 6 11 5 10 4 9 3 8 2 7)	M
(11,11,11;4)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 5 9 2 6 10 3 7 11 4 8)	M
(11,11,11;3)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 4 7 10 2 5 8 11 3 6 9)	M
(11,11,11;2)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1 3 5 7 9 11 2 4 6 8 10)	M
(11,11,1;11)	C11	(1 2 3 4 5 6 7 8 9 10 11)	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)	M
(12,12,12;11)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 12 11 10 9 8 7 6 5 4 3 2)	MD
(12,12,12;7)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 8 3 10 5 12 7 2 9 4 11 6)	PMHD
(12,12,12;5)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 6 11 4 9 2 7 12 5 10 3 8)	MD
(12,12,6;2)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 3 5 7 9 11)(2 4 6 8 10 12)	M
(12,12,6;10)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 11 9 7 5 3)(2 12 10 8 6 4)	M
(12,12,4;3)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 4 7 10)(2 5 8 11)(3 6 9 12)	M
(12,12,4;9)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 10 7 4)(2 11 8 5)(3 12 9 6)	M

Code	Group	permutation m	permutation f	Properties
(12,12,3;4)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 5 9)(2 6 10)(3 7 11)(4 8 12)	M
(12,12,3;8)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 9 5)(2 10 6)(3 11 7)(4 12 8)	M
(12,12,2;6)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1 7)(2 8)(3 9)(4 10)(5 11)(6 12)	M
(12,12,1;12)	C12	(1 2 3 4 5 6 7 8 9 10 11 12)	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)(12)	M
(12,6,6)a	C6×C2	(1 2 3 4 5 6)(7 8 9 10 11 12)	(1 7 3 9 5 11)(2 8 4 10 6 12)	PMHD
(12,6,6)b	C6×C2	(1 2 3 4 5 6)(7 8 9 10 11 12)	(1 7 5 11 3 9)(2 8 6 12 4 8)	MD
(12,6,4)	C12	(1 2 3 4 5 6)(7 8 9 10 11 12)	(1 7 4 10)(2 8 5 11)(3 9 6 12)	M
(12,6,2;+)	C6×C2	(1 2 3 4 5 6)(7 8 9 10 11 12)	(1 7)(2 8)(3 9)(4 10)(5 11)(6 12)	MS
(12,6,2;-)	D12	(1 2 3 4 5 6)(7 8 9 10 11 12)	(1 7)(2 12)(3 11)(4 10)(5 9)(6 8)	HA
(12,4,3;+)	C12	(1 2 3 4)(5 6 7 8)(9 10 11 12)	(1 5 9)(2 6 10)(3 7 11)(4 8 12)	M
(12,4,3;-)	Q12	(1 2 3 4)(5 6 7 8)(9 10 11 12)	(1 5 9)(2 10 6)(3 7 11)(4 12 8)	-
(12,4,4)a	Q12	(1 2 3 4)(5 6 7 8)(9 10 11 12)	(1 5 3 7)(2 9 4 11)(6 10 8 12)	PD
(12,4,4)b	Q12	(1 2 3 4)(5 6 7 8)(9 10 11 12)	(1 5 3 7)(2 11 4 9)(6 10 8 12)	PD
(12,3,3)a	Alt(4)	(1 2 3)(4 5 6)(7 8 9)(10 11 12)	(1 4 7)(2 9 10)(3 12 5)(6 11 8)	D
(12,3,3)b	Alt(4)	(1 2 3)(4 5 6)(7 8 9)(10 11 12)	(1 4 7)(2 10 6)(3 8 12)(4 11 9)	HD
(12,3,2)	Alt(4)	(1 2 3)(4 5 6)(7 8 9)(10 11 12)	(1 4)(2 8)(3 9)(5 11)(6 12)(7 10)	-
(12,2,2)	D12	(1 2)(3 4)(5 6)(7 8)(9 10)(11 12)	(1 12)(2 3)(4 5)(6 7)(8 9)(10 11)	PDC
(13,13,13;12)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 13 12 11 10 9 8 7 6 5 4 3 2)	MD
(13,13,13;11)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 12 10 8 6 4 2 13 11 9 7 5 3)	M
(13,13,13;10)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 11 8 5 2 12 9 6 3 13 10 7 4)	M
(13,13,13;9)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 10 6 2 11 7 3 12 8 4 13 9 5)	M
(13,13,13;8)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 9 4 12 7 2 10 5 13 8 3 11 6)	M
(13,13,13;7)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 8 2 9 3 10 4 11 5 12 6 13 7)	M
(13,13,13;6)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 7 13 6 12 5 11 4 10 3 9 2 8)	M
(13,13,13;5)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 6 11 3 8 13 5 10 2 7 12 4 9)	M
(13,13,13;4)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 5 9 13 4 8 12 3 7 11 2 6 10)	M

Code	Group	permutation m	permutation f	Properties
(13,13,13;3)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 4 7 10 13 3 6 9 12 2 5 8 11)	M
(13,13,13;2)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1 3 5 7 9 11 13 2 4 6 8 10 12)	M
(13,13,1;13)	C13	(1 2 3 4 5 6 7 8 9 10 11 12 13)	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)(12)(13)	M
(14,14,14;13)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 14 13 12 11 10 9 8 7 6 5 4 3 2)	MD
(14,14,14;11)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 12 9 6 3 14 11 8 5 2 13 10 7 4)	M
(14,14,14;9)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 10 5 14 9 4 13 8 3 12 7 2 11 6)	M
(14,14,14;5)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 6 11 2 7 12 3 8 13 4 9 14 5 10)	M
(14,14,14;3)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 4 7 10 13 2 5 8 11 14 3 6 9 12)	M
(14,14,7;12)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 13 11 9 7 5 3)(2 14 12 10 8 6 4)	M
(14,14,7;10)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 11 7 3 13 9 5)(2 12 8 4 14 10 6)	M
(14,14,7;8)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 9 3 11 5 13 7)(2 10 4 12 6 14 8)	PMH
(14,14,7;6)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 7 13 5 11 3 9)(2 8 14 6 12 4 10)	M
(14,14,7;4)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 5 9 13 3 7 11)(2 6 10 14 4 8 12)	M
(14,14,7;2)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 3 5 7 9 11 13)(2 4 6 8 10 12 14)	M
(14,14,2;7)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1 8)(2 9)(3 10)(4 11)(5 12)(6 13)(7 14)	M
(14,14,1;14)	C14	(1 2 3 4 5 6 7 8 9 10 11 12 13 14)	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)(12)(13)(14)	M
(14,7,2;+)	C14	(1 2 3 4 5 6 7)(8 9 10 11 12 13 14)	(1 8)(2 9)(3 10)(4 11)(5 12)(6 13)(7 14)	MX
(14,7,2;-)	D14	(1 2 3 4 5 6 7)(8 9 10 11 12 13 14)	(1 8)(2 14)(3 13)(4 12)(5 11)(6 10)(7 9)	HA
(14,2,2)	D14	(1 2)(3 4)(5 6)(7 8)(9 10)(11 12)(13 14)	(1 14)(2 3)(4 5)(6 7)(8 9)(10 11)(12 13)	PDC
(15,15,15;14)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 15 14 13 12 11 10 9 8 7 6 5 4 3 2)	MD
(15,15,15;13)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 14 12 10 8 6 4 2 15 13 11 9 7 5 3)	M
(15,15,15;11)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 12 8 4 15 11 7 3 14 10 6 2 13 9 5)	MD
(15,15,15;8)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 9 2 10 3 11 4 12 5 13 6 14 7 15 8)	M
(15,15,15;7)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 8 15 7 14 6 13 5 12 4 11 3 10 2 9)	M
(15,15,15;4)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 5 9 13 2 6 10 14 3 7 11 15 4 8 12)	MD
(15,15,15;2)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 3 5 7 9 11 13 15 2 4 6 8 10 12 14)	M

Code	Group	permutation m	permutation f	Properties
(15,15,5;12)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 13 10 7 4)(2 14 11 8 5)(3 15 12 9 6)	M
(15,15,5;9)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 10 4 13 7)(2 11 5 14 8)(3 12 6 15 9)	M
(15,15,5;6)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 7 13 4 10)(2 8 14 5 11)(3 9 15 6 12)	M
(15,15,5;3)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 4 7 10 13)(2 5 8 11 14)(3 6 9 12 15)	M
(15,15,3;10)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 11 6)(2 12 7)(3 13 8)(4 14 9)(5 15 10)	M
(15,15,3;5)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1 6 11)(2 7 12)(3 8 13)(4 9 14)(5 10 15)	M
(15,5,1;15)	C15	(1 2 3 4 5 6 7 8 9 10 11 12 13 14 15)	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)(12)(13)(14)(15)	M
(15,5,3)	C15	(1 2 3 4 5)(6 7 8 9 10)(11 12 13 14 15)	(1 6 11)(2 7 12)(3 8 13)(4 9 14)(5 10 15)	M

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