Changes in the GAP Character Table Library

This list contains the changes in the GAP character table library since the official upgrade for GAP 3.4 in October 1996. We denote mathematical errors by ******* and new information by **NEW**. We use **C** to denote changes that are not obviously corrections; the number of these changes is kept small.

Release of GAP 4.1 in July 1999

Brauer Tables

Changes are assigned to the simple group involved, and shown in alphabetical order.

*******	${}^2E_6(2)$	: The faithful characters of $2.{}^2E_6(2)$ and $2.{}^2E_6(2).2$ mod 19 were corrected (contributed by Jürgen Müller).
NEW	A_{13}	: Indicators of A_{13} and S_{13} mod 2 are now known.
NEW	A_{14}	: The tables of A_{14} mod 2, 11, 13 and tables of S_{14} mod 3, 5, 7 are now known.
NEW	A_{15}	: All Brauer tables of S_{15} are now known (contributed by Jürgen Müller).
NEW	A_{16}	: All Brauer tables of S_{16} are now known (contributed by Jürgen Müller).
NEW	A_{17}	: All Brauer tables except the 3-modular one of S_{17} are now known (contributed by Jürgen Müller).
NEW	Co_2	: The degree 156 538 character of Co_2 mod 2 is now proved.
NEW	Co_3	: One more indicator of Co_3 mod 2 is now known.
*******	Fi_{22}	: The faithful characters of $6.Fi_{22}$ and $6.Fi_{22}.2$ mod 5 were corrected.
*******	$L_3(4)$	: The faithful characters of $12_2.L_3(4)$ mod 7 were corrected.
NEW	$O_8^+(3)$	: The degree 50 596 characters of $O_8^+(3)$ mod 2 are now proved. Consequently, also the degree 101 192 of $O_8^+(3).2_1$ mod 2, the degrees 50 596 and 101 192 of $O_8^+(3).2_2$ mod 2, the degrees 50 596 and 151 288 of $O_8^+(3).3$ mod 2, and the degree 202 384 of $O_8^+(3).4$ mod 2 are now proved.
C	ON	: The tables of ON and $ON.2$ mod 19 were changed in order to respect the choice of classes in Robert Wilson's "Atlas of Group Representations".
NEW	ON	: The tables of ON mod 11 and mod 31 are now known (contributed by Markus Ottensmann), as well as two new indicator values for ON mod 2.
C	Ru	: The tables of Ru and $2.Ru$ mod 5 and mod 7 were changed in order to respect the choice of classes in Robert Wilson's "Atlas of Group Representations".
NEW	Ru	: The tables of Ru and $2.Ru$ mod 13 and 29 are now known (contributed by Frank Röhr), as well as all indicator values of Ru mod 2.
*******	$S_6(3)$	: The characters of $S_6(3)$ and $2.S_6(3)$ mod 7 were corrected; these changes do not affect the tables of $S_6(3).2$ and $2.S_6(3).2$ mod 7 (contributed by Jürgen Müller).
*******	Suz	: The faithful characters of $6.Suz$ and $6.Suz.2$ mod 7 were corrected (contributed by Jürgen Müller).
NEW	Th	: The table of Th mod 19 is now known.

Ordinary Tables

The following changes affect several ordinary tables.

C Whitespace at the end of `InfoText` strings was removed.

NEW Various class fusions were added.

NEW Components `tomidentifier` and `tomfusion` were added in order to provide a (preliminary) interface to the library of tables of marks.

C In the library tables of alternating and symmetric groups, the `classtext` components (partitions parametrizing the conjugacy classes; in some cases, this had been hidden inside the `CAS` component of the table) were replaced by values of the attribute `ClassParameters`.

NEW The tables of $L_2(q)$ were added for those values of q for which the table of marks of $L_2(q)$ is now contained in the GAP library.

NEW In the library tables of symmetric groups, the partitions parametrizing the irreducible characters are stored on the tables, as value of the attribute `CharacterParameters`.

C The `Identifier` values of a few tables have been changed. For example, the table of `L4(3).2^2` was previously known only as `psl(4,3).v4`. The old names are still valid.

******* The character tables with identifiers `iu332`, `D2MJ4`, and `P4L82` were removed. The former two tables were incomplete, the latter one was wrong.

NEW The ordinary tables of all maximal subgroups (and their class fusions) are now available for the groups $G_2(3)$, $J_3.2$, $2.M_{12}$, $M_{12}.2$, $M_{22}.2$, and $O_8^+(3)$.

The following changes are assigned to specific simple groups, and shown in alphabetical order.

******* A_6 : The table automorphisms of $4.A_6.2_3$ were corrected.

NEW Fi_{22} : The table of the maximal subgroup $2^7 : S_6(2)$ of $Fi_{22}.2$ was added (contributed by E. Mpono).

NEW Fi_{22} : The table of the maximal subgroup $2^6 : U_4(2).2$ of the maximal subgroup $2^6 : S_6(2)$ of Fi_{22} was added (contributed by E. Mpono).

NEW HS : The tables (and fusions) of several normalizers of chains of p-subgroups were added.

C J_4 : The classes and the characters of the maximal subgroup of type $2^{10} : L_5(2)$ were reordered, and the identifier was changed from `l52m10` (from the CAS library) to `2^10:L5(2)`.

NEW McL : The table of the seventh maximal subgroup of $McL.2$ was added.

C $O_8^+(2)$: The classes and the characters of the maximal subgroup of type $2^6 : A_8$ were reordered, and the identifier was changed from `mo81p` (from the CAS library) to `2^6:A8`.

C $O_8^+(3)$: The fusions from $O_7(3)$ and $3^6 : L_4(3)$ were changed to the ones listed in the Atlas of Finite Groups.

NEW $O_{10}^+(2)$: The table of the maximal subgroup $2^8 : O_8^+(2)$ was added.

NEW $S_{10}(2)$: The table of the subgroup $2^8 : S_8(2)$ was added.

NEW $U_4(3)$: The tables of $2.U_4(3).(2^2)_{122}$ and $6_2.U_4(3).2'_3$ were added.

Release of GAP 4.2 in March 2000

Brauer Tables

Changes are assigned to the simple group involved, and shown in alphabetical order.

NEW A_{14} : Table of S_{14} mod 2 is now known (contributed by Dave Benson, added by Jürgen Müller).

******* A_{16} : Corrected principal block of the table of S_{16} mod 2.

NEW ON : The tables of $3.ON$ mod 11 and 31 are now known.

C ON : The tables of $3.ON$ and $3.ON.2$ mod 19 were changed in order to respect the choice of classes in Robert Wilson's "Atlas of Group Representations". (This affects only the irreducibles of $3.ON$ of degrees 45090 and 77670.)

Ordinary Tables

The following changes affect several ordinary tables.

NEW Various class fusions were added.

C The `galomorphisms` components which had been contained in only a few tables were removed.

******* The `tomfusion` values of $L_2(25)$ and $2^5 : S_6$ were corrected.

******* Element orders and power maps in the table with identifier `s61p` were corrected.

******* The table with identifier `2.cenc1` was removed because it was inconsistent.

C Two instances of the table of $(A_6 \times A_6) : 2^2$ were unified.

C The tables with identifiers `J2.2M4`, `2^(2+4):(3x3):2^2`, and `2^(2+4):(S3xS3)` were unified; the identifiers `J2.2M5` and `2^(2+4):(S3xS3)` can be used to access the table.

NEW The ordinary tables of all maximal subgroups (and their class fusions) are now available for the groups S_6, $J_2.2$, $McL.2$, $Suz.2$, $3.Suz$, $3.Suz.2$, $Sz(32)$.

The following changes are assigned to specific simple groups, and shown in alphabetical order.

NEW A_6 : The table of $12.A_6.2_3$ is now available.

******* Fi_{22} : The name of the table of the 7-th maximal subgroup of Fi_{22} was corrected from `(2x2^(1+8):U4(2)):2` to `(2x2^(1+8)):U4(2):2`; similarly, `(2x2^(1+8):U4(2):2):2` was corrected to `(2x2^(1+8)):(U4(2):2x2)`.

NEW Fi_{22} : The tables of the maximal subgroups $2^{10} : M_{22} : 2$ of $Fi_{22}.2$ and $2^{11}.M_{22}$ of $2.Fi_{22}$ are now available via the names `Fi22.2M4` and `2.Fi22M5`, respectively.

C $U_3(5)$: The table with identifier `U3(5).S3` was removed; it is replaced by the table with identifier `U3(5).3.2` whose cosets of the outer automorphism group are ordered as in the Atlas of Finite Groups. The identifier `U3(5).S3` is now admissible for the table with identifier `U3(5).3.2`.

******* $U_4(3)$: The table with identifier `u4q3c` was removed; characters and power maps of this table were erroneous. Apparently the table was thought to be that of $3_2.U_4(3).2'_3$, which can be accessed with the name `3_2.U4(3).2_3'`.

NEW $U_4(3)$: The tables of $3_2.U_4(3).(2^2)_{133}$ and $U_4(3).(2^2)_{133}$ are now available.

Release of CTblLib 1.0 in January 2002

Brauer Tables

Changes are assigned to the simple group involved, and shown in alphabetical order.

NEW A_{14} : The tables of A_{14} mod $3, 5, 7$ and of S_{14} mod $11, 13$ are now known (contributed by Jürgen Müller, using MOC and the GAP package `specht`).

NEW A_{17} : The table of A_{17} mod 3 is now known (contributed by Jürgen Müller).

NEW F_{3+} : All Brauer tables of the maximal subgroup $3^7.O_7(3)$, and the 2-modular table of the maximal subgroup $(3 \times O_8^+(3){:}\,3){:}\,2$ are available (contributed by Gerhard Hiß).

NEW $L_4(4)$: The tables of $L_4(4)$ mod $3, 5, 7, 17$ are now known (contributed by Gerhard Hiß).

NEW Ly : The tables of Ly mod 37 and 67 are now known (contributed by Jürgen Müller, Max Neunhöffer, Frank Röhr, Robert Wilson).

NEW $O_8^+(3)$: The table of $O_8^+(3).S_3$ mod 2 is available.

NEW The table of $O_8^+(3).S_3$ mod 2 is available.

NEW $S_{10}(2)$: The tables of $S_{10}(2)$ mod $7, 11, 17, 31$ are now known (contributed by Gerhard Hiß).

Ordinary Tables

The following changes affect several ordinary tables.

NEW The ordinary tables of the Schur covers of the symmetric groups S_{14}, S_{15}, S_{16}, S_{17}, and S_{18} are now available (contributed by Gunter Malle).

NEW The ordinary tables of all maximal subgroups (and their class fusions) are now available for the group $2.HS$ (contributed by Ulrike Muthmann, Markus Ottensmann, and Frank Röhr).

NEW The ordinary tables of all maximal subgroups (and their class fusions) are now available for the groups $2.Suz$ and $6.Suz$ (contributed by Thomas Breuer and Frank Himstedt).

NEW The ordinary tables of all maximal subgroups (and their class fusions) are now available for the group $S_6(3)$.

The following changes are assigned to specific simple groups, and shown in alphabetical order.

NEW $E_6(2)$: The table of the Chevalley group $E_6(2)$ is now available (contributed by B. Fischer).

NEW F_{3+} : The table of the maximal subgroup $2^{1+12}.3_1.U_4(3).2_2'$ of F_{3+} is now available via the names `2^(1+12).3_1.U4(3).2_2'`, `F3+M9`, and `F3+C2B`.
The table of the maximal subgroup $3^3.[3^{10}].GL3(3)$ of F_{3+} is now available via the name `3^3.[3^10].GL3(3)`.

NEW $F_{3+}.2$: The table of the maximal subgroup $3^7.O_7(3) : 2$ of $F_{3+}.2$ is now available (contributed by Faryad Ali).

******* HS : The earlier (since CAS times) stored fusion of $2 \times A_6.2^2$ into HS did not lift to $2.HS$ and therefore was replaced by a compatible map.

NEW $L_3(4)$: The table of $2^2.L_3(4).2_2$ is now available.

NEW $L_4(9)$: The table of $L_4(9)$ is now available.

NEW M : The table of the maximal subgroup $2^{1+24}.Co_1$ is now available (contributed by Simon Norton).

NEW $S_4(7)$: The tables of $S_4(7)$ and $S_4(7).2$ are now available.

NEW $S_6(2)$: The table of the maximal subgroup $2^6{:}S_8$ of $2^6{:}S_6(2)$ (which is maximal in Fi_{22}) is now available (contributed by Faryad Ali).

NEW $S_6(4)$: The table of $S_6(4)$ is now available.

NEW $S_6(5)$: The table of $S_6(5)$ is now available.

NEW $S_{12}(2)$: The table of $S_{12}(2)$ is now available (contributed by Christoph Köhler).

******* Suz : The earlier (since CAS times) stored fusion of $(3^2{:}4 \times A_6).2$ into Suz did not lift to $3.Suz$ and therefore was replaced by a compatible map.

NEW $U_4(3)$: The table of $3_1.U_4(3).2_2'$ was added.

NEW $U_4(4)$: The table of $U_4(4)$ is now available.

NEW $U_6(2)$: The table of the Schur cover $(2^2 \times 3).U_6(2)$ is now available.

Release of CTblLib 1.1 in February 2004

Brauer Tables

The following changes affect several Brauer tables.

NEW The p-modular tables of $G.S_3$ are available for all prime divisors p of $|G|$, for G one of $L_3(7)$, $3.L_3(7)$, $U_3(5)$, $3.U_3(5)$, $U_3(8)$, $3.U_3(8)$, $U_3(11)$, and $3.U_3(11)$.

The following changes are assigned to the simple group involved, and shown in alphabetical order.

NEW Co_2 : The indicators of the 36938 and 83948 in Co_2 mod 2 are + (contributed by Jon Thackray).

NEW Co_3 : The indicator of the 88000 in Co_3 mod 2 is + (contributed by Jon Thackray).

NEW J_4 : The tables of J_4M1 mod 3 and 11 are available (contributed by Christoph Jansen).

NEW $O_8^+(3)$: The tables of $O_8^+(3).S_4$ mod 2, 5, and 7 are available (contributed by Christoph Jansen).

NEW ON : The tables of $ON.2$ and $3.ON.2$ mod 11 and 31 are available (contributed by Jürgen Müller).

NEW ON : The indicator of the 25916 in ON mod 2 is + (contributed by Jon Thackray).

NEW Suz : The indicators of 10504 in Suz mod 2 and $Suz.2$ mod 2 are + (contributed by Jon Thackray).

Ordinary Tables

The following changes affect several ordinary tables.

******* The table automorphisms were corrected for the tables with the identifiers `A17`, `2.A4xS3`, `4.M22M6`, `3.2^(2+4):(3x3):2`, `3^(1+6):2^(3+4):3^2:2`, `5:4x2.A5`, `D8xV4`, `3.3^5.U4(2)`, `3^5.U4(2)`, `group3`, `s61p`, `2.(A4xA4)`, `3^3:A4`, `3^7.O7(3)`, `ThN2`, and `2^2.2E6(2).2`; one reason for these errors were missing power maps.

C The formerly admissible names `c1`, `c2`, `c3` for the groups Co_1, Co_2, Co_3 have been removed, because these names are now admissible names of cyclic groups. The names `c1m1`, `c1m4`, `c1m5`, `c1m24`, `c1n3`, `c2m1`, `c2m2`, `c2m3`, `c2m4`, `c2m5`, `c2m6`, `c2m7`, `c2m8`, `c2m9`, `c2m10`, `c2m11`, `c2m22`, (now called `M22C2A`), `c2m24` (now called `M24C2B`), `c3m1`, `c3m2`, `c3m3`, `c3m4`, `c3m5`, `c3m6`, `c3m7`, `c3m8`, `c3m9`, `c3m10`, `c3m11`, `c3m12`, `c3m13`, `c3m14`, `c3n2`, `c3n3`, `c3n5`, `mcn2`, `mcn3`, `mcn5`, `om83`, `o8m2`, `o8m2.2`, `o10m2`, `o10m2c`, `o12m2`, `rvn2`, `s2m11`, `s2m12`, `s2m21`, `s2m23`, and `s2m24` (now called `M24C2A`) were removed because they would refer to maximal subgroups of other groups or of groups with nonadmissible names. The names `u4q3.s3` and `f22u3` were removed, the table is now available with the name `S3xU4(3)`.

C The ordering of maximal subgroups was changed for $A_5.2$, $A_6.2_1$, $J_3.2$, $M_{12}.2$, and $McL.2$, in order to be compatible with the ATLAS of Group Representations.

*** The following class fusions were corrected. $2^7:S_6(2)$ onto $S_6(2)$ and into $Fi_{22}.2$; $3.3^{1+4}:4S_5$ into $3.McL.2$; $D_8 \times V_4$ into HS; $3.2^{2+4}:(3 \times 3):2$ into $3.McL$, $3.2^4:A_7$, and $3.McLM10$; $4.M_{22}M6$ into $4.M_{22}$; $G_2(3)M6$ into $G_2(3)$; $A_5.2$ into $M_{12}.2$; $A_{11}Syl2$ into A_{11}.

NEW Missing power maps were added for the tables `suzs2`, `Fi22N3`, `RuN2`, `SuzN2`, `ThN2`, for $L_2(q)$, for various values of q, and for `7:3`, `23:11`, `11:10`, due to the availability of power maps in the underlying generic character tables.

NEW The tables of all maximal subgroups are available for A_5, A_6, A_7, $A_7.2$, $G_2(4)$, $L_2(11)$, $L_2(11).2$, $U_3(3).2$, $U_5(2)$.

NEW Several ordinary tables were added for which the tables of marks of the underlying groups are available in the GAP Library of Tables of Marks; this includes direct products and tables of small groups that can be computed easily with standard methods. The other way round, each ordinary table in the library for which the table of marks is contained in the GAP Library of Tables of Marks stores a class fusion into the table of marks.

NEW Several ordinary tables of Sylow normalizers in sporadic simple groups are available, including the normalizers of cyclic Sylow subgroups.

NEW The ordinary tables of $G.S_3$ are available for G one of $2^2.L_3(4)$, $L_3(7)$, $3.L_3(7)$, $2^2.O_8^+(2)$, $3.U_3(5)$, $U_3(8)$, $3.U_3(8)$, $U_3(11)$, $3.U_3(11)$.

NEW The ordinary tables of $L_4(5)$, $O_7(5)$, $O_7(5).2$, $O_9(3)$, $S_4(8)$, $S_8(3)$, $U_4(5)$ are available.

NEW Generic character tables are available for the double covers of alternating and symmetric groups (contributed by Felix Noeske).

The following changes are assigned to specific simple groups, and shown in alphabetical order.

C A_6 : The fusions of A_6, $A_6.2_1$, $2.A_6$ into the tables of marks were changed in order to make diagrams of fusions commutative.

NEW B : The tables of the maximal subgroups of the types $3^{1+8}.2^{1+6}.U_4(2).2$ and $(2^2 \times F_4(2)):2$, and the table of the Sylow 7 normalizer are available, as well as the table of the maximal subgroup of the type $(S_3 \times 2.Fi_{22}).2$ in $2.B$.

NEW Co_1 : The table of the Sylow 5 normalizer is available.

NEW Co_2 : The table of the Sylow 2, 3, and 7 normalizers are available.

NEW Fi'_{24} : The tables of the maximal subgroups $3^2.3^4.3^8.(A_5 \times 2A_4).2$, $2^{3+12}.(L_3(2) \times A_6)$, and $2^{6+8}.(S_3 \times A_8)$ and their class fusions are now available (contributed by Alexander Hulpke).

NEW The tables of the Sylow 5 and 7 normalizer are available.

NEW HN : The table of the maximal subgroup $4.HS.2$ of $HN.2$ is available.

C HS : The class fusion of HS into Co_3 was replaced by one that is compatible with the Brauer tables available.

C J_2 : The class fusion of $2.J_2.2$ into $2.Suz$ was replaced by one that is compatible with the Brauer tables available.

*** The class fusion of $2.HS.2$ into HN was corrected.

*** J_4 : The table with identifier `(3^(1+2)x2).SD16` is **not** that of the Sylow 3 normalizer in J_4; the name `J4N3` is no longer admissible for this table (reported by G. Navarro and A. Moreto).

NEW The table of the Sylow 3 normalizer in J_4 is available, via the names `(2x3^(1+2)_+:8):2` and `J4N3`.

C $L_2(11)$: The class fusion of $L_2(11)$ into J_1 was replaced by one that is compatible with the Brauer tables available.

C $L_2(16)$: The class fusions of $L_2(16).2$ into J_3 and of $L_2(16).4$ into $J_3.2$ were replaced by maps that are compatible with the Brauer tables available.

C $L_2(19)$: The class fusion of $L_2(19)$ into J_3 was replaced by one that is compatible with the Brauer tables available.

C $L_2(27)$: The class fusion of $L_2(27).3$ into $S_6(3)$ was replaced by one that is compatible with the Brauer tables available.

C $L_3(3)$: The class fusions of $L_3(3).2$ into $G_2(3)$ and $S_6(3)$ were replaced by maps that are compatible with the Brauer tables available.

C $L_3(4)$: The class fusions of $4_2.L_3(4).2_1$ into ON and of $4_2.L_3(4).2_3$ into $4.U_4(3).2_3$ were replaced by maps that are compatible with the Brauer tables available.

NEW The tables of $2^2.L_3(4).2_3$ and $2^2.L_3(4).3$ are available.

NEW $L_3(11)$: The table of $L_3(11)$ is available (contributed by Frank Lübeck, computed with a program written by Boris Hemkemeier and Ulf Jürgens).

C $L_4(3)$: The class fusion of $L_4(3).2_2$ into $O_7(3)$ was replaced by one that is compatible with the Brauer tables available.

NEW $L_8(2)$: The table of $L_8(2)$ is available (contributed by Frank Lübeck, computed with a program written by Boris Hemkemeier and Ulf Jürgens).

NEW M : The tables of the Sylow 11 and 13 normalizer in M are available, via the names `MN11` and `MN13`.

NEW The tables with the names `4.2^2`, `(2^2x3).2`, `1/2(8xS3)`, `M12C4`, `7^1+2.6`, `2x3.A6`, `5^1+2.2A4`, `(4xA6).2^2`, `13^1+2.2A4`, `7^1+4.2A7` are available (contributed by Simon Norton).

C M_{23} : The class fusion of M_{23} into Co_3 was replaced by one that is compatible with the Brauer tables available.

C M_{24} : The class fusion of $2^4:A_8$ into M_{24} was replaced by one that is compatible with the Brauer tables available.

C McL : The class fusion of $McL.2$ into Co_3 was replaced by one that is compatible with the Brauer tables available.

*** The 2nd power map of the table of the maximal subgroup of type $3.3^{1+4}:4S_5$ of $3.McL.2$ was corrected.

C $O_8^-(2)$: The class fusion of $O_8^-(2).2$ into $S_8(2)$ was replaced by one that is compatible with the Brauer tables available.

NEW $O_8^+(2)$: The tables of $2^2.O_8^+(2).2$ and $2^2.O_8^+(2).3$ are available, as well as the table of the maximal subgroup of the type $2_+^{1+6}.A_8$ of $2.O_8^+(2)$.

NEW $O_8^+(3)$: The table of $O_8^+(3).D_8$ is available.

NEW The tables of the maximal subgroup $2^2.(U_3(3).2 \times S_4)$ of $O_8^+(3).S_4$ and of the maximal subgroups $3^{3+6}:(L_3(3) \times D_8)$ and $3^6.L_4(3).D_8$ of $O_8^+(3).D_8$ are available.

NEW $O_8^-(3)$: The table of $O_8^-(3).2_1$ is available.

NeW $O_9(3)$: The table of the maximal subgroup of type $2^8.A_9$ is available.

C $S_4(4)$: The class fusion of $S_4(4).2$ into $S_8(2)$ was replaced by one that is compatible with the Brauer tables available.

C $S_6(3)$: The class fusion of $3^6:L_3(3)$ into $S_6(3)$ was replaced by one that is compatible with the Brauer tables available.

C $U_3(5)$: The class fusion of $3.U_3(5)$ into $3.McL$ was replaced by one that is compatible with the Brauer tables available.

NEW $U_4(3)$: The table of $2^2.U_4(3).(2^2)_{122}$ is available.

Release of CTblLib 1.2 in May 2012

Brauer Tables

The following changes are assigned to the simple group involved, and shown in alphabetical order.

NEW A_6 : The Brauer tables of $A_6.2^2$, $3.A_6.2^2$ are available.
NEW A_{15} : The Brauer tables of A_{15} are available (contributed by Jürgen Müller).
NEW A_{16} : The Brauer tables of A_{16} are available (contributed by Jürgen Müller).
NEW A_{17} : The Brauer tables of A_{17} are available (contributed by Jürgen Müller).
NEW A_{19} : The 2-modular Brauer tables of A_{19}, S_{19} are available (contributed by Lukas Maas and Jürgen Müller).
NEW ${}^2E_6(2)$: The tables of $2^2.{}^2E_6(2)$ mod $11, 13, 17, 19$ are available.
NEW Fi_{22} : The 3-modular tables of Fi_{22}, $Fi_{22}.2$, $2.Fi_{22}$, $2.Fi_{22}.2$ and the 2-modular tables of Fi_{22}, $Fi_{22}.2$, $3.Fi_{22}$, $3.Fi_{22}.2$ are available (contributed by Felix Noeske).
NEW Fi_{23} : The 2-modular table of Fi_{23} is available (contributed by Gerhard Hiss, Max Neunhöffer, and Felix Noeske). The 17-modular table of Fi_{23} is available (contributed by Jürgen Müller).
*** F_{3+} : The wrong 3- and 11-modular tables of F_{3+} from the earlier version are no longer available.
NEW HN : The 2-modular table of HN, $HN.2$ are available (contributed by Jon Thackray). The 3-modular table of HN, $HN.2$ are available (contributed by Gerhard Hiss, Jürgen Müller, Felix Noeske, and Jon Thackray). The 5-modular table of HN, $HN.2$ are available (contributed by Klaus Lux, Felix Noeske, Alex Ryba).
NEW $L_2(25)$: The Brauer tables of $L_2(25).2^2$ are available.
NEW $L_2(49)$: The 2-, 3-, and 5-modular Brauer tables of $L_2(49).2^2$ are available.
*** $L_2(81)$: The degree 80 character in the 41-modular table of $L_2(81).2_3$ was wrong.
NEW The 2-modular table of $L_2(81).(2\times 4)$ and the 2-, 5-, and 41-modular tables of $L_2(81).2^2$ are available.
NEW $L_3(4)$: The Brauer tables of $L_3(4).2^2$, $L_3(4).3.2_2$, $L_3(4).3.2_3$, $L_3(4).D_{12}$, $2.L_3(4).2^2$ (eight groups), $3.L_3(4).2^2$, $3.L_3(4).3.2_2$, $2^2.L_3(4)$, $2^2.L_3(4).2_1$, $2^2.L_3(4).2_2$, $2^2.L_3(4).2_3$, $2^2.L_3(4).3$, $2^2.L_3(4).2^2$, $2^2.L_3(4).3.2_2$, $2^2.L_3(4).3.2_3$, $2^2.L_3(4).D_{12}$, $(2^2\times 3).L_3(4)$, $(2^2\times 3).L_3(4).2_2$, $(2^2\times 3).L_3(4).2_3$, $(2^2\times 3).L_3(4).3$ are available.
NEW $L_3(9)$: The Brauer tables of $L_3(9).2^2$ are available.
NEW $L_4(4)$: The 2-modular tables of $L_4(4)$ (contributed by Frank Lübeck), $L_4(4).2_1$, $L_4(4).2_2$, $L_4(4).2_3$, $L_4(4).2^2$ are available.
NEW $O_8^+(2)$: The Brauer tables of $O_8^+(2).S_3$, $2^2.O_8^+(2)$, $2^2.O_8^+(2).2$, $2^2.O_8^+(2).3$, $2^2.O_8^+(2).S_3$ are available.
C $O_8^+(3)$: Adjusted the 5- and 7-modular table to the changes of the ordinary table.
NEW The 2-, 5-, 7-, 13-modular tables of $O_8^+(3).2^2_{111}$, $O_8^+(3).2^2_{122}$, $O_8^+(3).S_3$, $O_8^+(3).A_4$, $O_8^+(3).D_8$ are available, as well as the 13-modular table of $O_8^+(3).S_4$.
*** $S_6(3)$: The 13-modular tables of $S_6(3)$, $S_6(3).2$, $2.S_6(3)$, $2.S_6(3).2$ are available.
NEW $Sz(8)$: The Brauer tables of $2^2.Sz(8)$ are available.
NEW $U_4(3)$: The Brauer tables of $U_4(3).2^2_{122}$, $U_4(3).2^2_{133}$, $U_4(3).D_8$, $2.U_4(3).2^2_{122}$ (six groups), $2.U_4(3).2^2_{133}$ (six groups), $3_1.U_4(3).2'_2$, $3_2.U_4(3).2'_3$, $3_2.U_4(3).2^2_{133}$, $6_2.U_4(3).2'_3$ are available.
NEW $U_6(2)$: The Brauer tables of $U_6(2).S_3$, $3.U_6(2).S_3$, $2^2.U_6(2)$, $2^2.U_6(2).2$, $2^2.U_6(2).3$, $2^2.U_6(2).S_3$, $(2^2\times 3).U_6(2)$, $(2^2\times 3).U_6(2).2$, $(2^2\times 3).U_6(2).3$ are available.

Ordinary Tables

The following bugfixes are not related to the character tables of simple groups.
*** `13^1+2.2A4` : The second power map in the character table with this name was not correct.

*** `2.Sym4` : This name would be that of a maximal subgroup; the table was renamed to `2.Symm(4)`.

*** `2xSym4` : This name would be that of a maximal subgroup; the table was renamed to `2xSymm(4)`.

*** `d60` : The table with this name belongs to the dihedral group of order 120, it was renamed to `D120`.

*** `P12/G1/L2/V1/ext2` : The character table with this name was not correct, some of its class multiplication coefficients were not integral. (This problem occurs already in the microfiches that are contained in the book "Perfect Groups".)

*** `P41/G1/L1/V4/ext2` : The character table with this name was not correct, this table was not the character table of a finite group. (This problem occurs already in the microfiches that are contained in the book "Perfect Groups".)

*** `s61` : This name would be that of a symmetric group; the table was is now available as $A_8.2N2$.

*** `Sym4` : This name would be that of a maximal subgroup; the table was renamed to `Symm(4)`.

The following changes affect several ordinary tables.

NEW An ordinary character table is available for each table in the library of tables of marks.

C The class fusion to the table of marks was changed for A_6, $A_6.2_1$, $2.A_6$, $G_2(3)$, He, $L_2(11).2$, $L_2(25)$, $L_2(121)$, $L_3(4)$, $3.L_3(4)$, $2^2.L_3(4)$, $L_3(7)$, M_{12}, $McL.2$, $O_8^+(2)$, $S_4(4)$, $S_4(4).2$, $S_4(5)$, $U_3(3)$, $U_3(3).2$, $U_3(5)$, $U_3(8)$, $U_4(2)$, $U_4(2).2$, $U_4(3)$, $U_4(3).2_1$, $U_4(3).2^2_{133}$.

NEW The tables of all maximal subgroups are available for $2.A_5$, $2.A_6$, $3.A_6$, $6.A_6$, $2.A_7$, $3.A_7$, $6.A_7$, A_8, $A_8.2$, $2.A_8$, A_9, $A_9.2$, $2.A_9$, A_{10}, $A_{10}.2$, $2.A_{10}$, $2.A_{11}$, A_{11}, $A_{11}.2$, A_{12}, $A_{12}.2$, $2.A_{12}$, A_{13}, $A_{13}.2$, B, $F_{3+}.2$, $Fi_{22}.2$, $G_2(3).2$, $3.G_2(3)$, $2.G_2(4)$, $G_2(5)$, $He.2$, $HN.2$, $HS.2$, $2.L_2(11)$, $L_2(13)$, $2.L_2(13)$, $L_2(17)$, $2.L_2(17)$, $L_2(19)$, $2.L_2(19)$, $L_2(23)$, $2.L_2(23)$, $L_2(25)$, $2.L_2(25)$, $L_2(27)$, $2.L_2(27)$, $L_2(29)$, $2.L_2(29)$, $L_2(31)$, $2.L_2(31)$, $L_2(109)$, $L_2(113)$, $L_2(121)$, $L_2(125)$, $L_3(2)$, $2.L_3(2)$, $L_3(3)$, $L_3(4)$, $L_3(4).D_{12}$, $2.L_3(4)$, $3.L_3(4)$, $2^2.L_3(4)$, $2^2.L_3(4).2_2$, $2^2.L_3(4).3$, $L_3(5)$, $L_3(7)$, $3.L_3(7)$, $L_3(8)$, $L_3(9)$, $L_3(11)$, $L_4(3)$, $L_5(2)$, $L_6(2)$, $L_7(2)$, $2.M_{22}.2$, $O_7(3)$, $2.O_7(3)$, $3.O_7(3)$, $6.O_7(3)$, $O_8^-(2)$, $O_8^+(2)$, $2.O_8^+(2)$, $2^2.O_8^+(2)$, $ON.2$, $2.Ru$, $S_4(4)$, $S_4(4).2$, $S_4(5)$, $2.S_6(2)$, $S_8(2)$, $Sz(8)$, $Sz(8).3$, $2.Sz(8)$, $2^2.Sz(8)$, $U_3(3)$, $U_3(4)$, $U_3(4).2$, $U_3(5)$, $U_3(5).2$, $U_3(5).3$, $U_3(5).S_3$, $3.U_3(5)$, $U_3(7)$, $U_3(8)$, $U_3(9)$, $U_3(11)$, $U_4(2)$, $U_4(2).2$, $2.U_4(2)$, $2.U_4(2).2$, $U_4(3)$, $U_4(3).2_1$, $U_4(3).2_3$, $U_4(3).(2^2)_{133}$, $U_6(2)$, $2.U_6(2)$, $3.U_6(2)$, $6.U_6(2)$, ${}^2F_4(2)'.2$.

NEW Tables of isoclinic variants of the groups $6.A_7.2$, $2.A_{11}.2$, $2.A_{12}.2$, $2.A_{13}.2$, $2.Fi_{22}.2$, $6.Fi_{22}.2$, $2.HS.2$, $2.J_2.2$, $2.L_3(2).2$, $2.L_3(4).2_3$, $4_1.L_3(4).2_1$, $4_1.L_3(4).2_2$, $4_2.L_3(4).2_1$, $4_2.L_3(4).2_3$, $6.L_3(4).2_1$, $6.L_3(4).2_2$, $2.M_{22}.2$, $4.M_{22}.2$, $6.M_{22}.2$, $12.M_{22}.2$, $2.Suz.2$, $6.Suz.2$, $2.U_4(3).2_1$, $2.U_4(3).2_2$, $2.U_4(3).2_3$ are available.

The following changes are assigned to specific simple groups, and shown in alphabetical order.

C A_5 : Changed the fusion from $A_5 \times A_5$ to A_5.

*** A_6 : Corrected the table of $12.A_6.2_3$.

C Replaced the fusion from $2.M_{12}M4$ to $A_6.2^2$ by one to $M_{12}M4$.

C Changed the fusion from `P1/G1/L1/V1/ext2` to $2^4 : A_6$.

NEW The character table of the Sylow 2-normalizer in $6.A_6$ is available.

C A_7 : Changed the fusions from A_6 to A_7 and from $A_6.2_1$ to $A_7.2$.

C A_8 : Changed the fusion from $A_6.2_1$ to A_8.

C A_{11} : Changed the fusion from `A11Syl2`.

NEW A_{18} : The ordinary table of A_{18} is availabe.

NEW A_{19} : The ordinary tables of A_{19}, S_{19} are availabe.

NEW B : The character table of the Sylow 7-normalizer in $2.B$ is available.

*** Co_1 : Changed the ordering of the maxes $7^2 : (3 \times 2A_4)$ and $5^2 : 2A_5$.

NEW The character tables of defect 3- and 5-group normalizers in Co_1 and $2.Co_1$ are available.

C	${}^3D_4(2)$	: Changed the fusion from $S_3 \times L_2(8)$.
NEW	${}^2E_6(2)$	: The ordinary tables of $3.{}^2E_6(2)$ (contributed by Frank Lübeck), $3.{}^2E_6(2).2$, $6.{}^2E_6(2)$, $6.{}^2E_6(2).2$, $(2^2 \times 3).{}^2E_6(2)$, $(2^2 \times 3).{}^2E_6(2).2$ are available.
NEW	${}^2F_4(2)'$	: The character tables of the Sylow 2-normalizers in ${}^2F_4(2)'$ and ${}^2F_4(2)'.2$ are available.
C	Fi_{22}	: Changed the fusions from $3.Fi_{22}M5$ to $3.Fi_{22}$ and from $6.Fi_{22}M5$ to $6.Fi_{22}$.
NEW		The character table of the Sylow 3-normalizer in $3.Fi_{22}$ is available.
***	F_{3+}	: Changed the ordering of the maxes $A_6 \times L_2(8) : 3$ and $7 : 6 \times A_7$.
C		Changed the fusions from Fi_{23} to F_{3+} and from $3^7.O_7(3) : 2$ to $F_{3+}.2$.
NEW		The character tables of the Sylow 5- and 7-normalizers in $3.F_{3+}.2$, and the table of the Sylow 5-normalizer in $3.F_{3+}$ are available.
NEW	He	: The character tables of defect 3-group normalizers in $He.2$ are available.
NEW		The character tables of normalizers of radical p-subgroups are available.
NEW	HN	: The character tables of the Sylow 2-, 3-, and 5-normalizers in HN, and the character table of the Sylow 3-normalizer in $HN.2$ are available.
NEW		The character tables of defect 3-group normalizers in HN and $HN.2$ are available.
C	HS	: Changed the class fusion from $5 : 4 \times 2.A_5$. The character tables of the Sylow 2- and 3-normalizers in $2.HS.2$, and the character tables of the Sylow 2- and 5-normalizers in $2.HS$ are available.
NEW		The character tables of defect 2-group normalizers in $2.HS$ are available.
C	J_2	: Changed the fusion from $2.A_5 \times D_{10}$ to $2.J_2$, and the fusion from $3.A_6.2^2$ to $J_2.2$.
NEW		The character tables of the Sylow 2- and 3-normalizers in $2.J_2$, and the character table of the Sylow 5-normalizer in $2.J_2.2$ are available.
NEW		The character table of the primitive group $2^{12}.J_2$ is available.
NEW	J_4	: The character tables of defect 3-group normalizers in J_4 are available.
***	$L_2(8)$	: The name ${}^2G_2(3)$ was erroneously associated with the character table of $L_2(8)$; the correct table is that of $L_2(8).3$. (This error has been communicated by Felix Noeske.)
***	$L_2(11)$	: Changed the ordering of the maxes S_4 and D_{24} in $L_2(11).2$.
NEW	$L_2(25)$	: The ordinary table of $4.L_2(25).2_3$ is available.
NEW	$L_2(49)$	: The ordinary table of $L_2(49).2^2$ is available.
NEW	$L_2(64)$	: The ordinary table of $L_2(64).6$ is available.
NEW	$L_2(81)$	: The ordinary tables of $L_2(81).2^2$ and $L_2(81).(2 \times 4)$ are available.
C	$L_3(2)$	: Changed the fusions from `P13/G1/L2/V1/ext2`, `P13/G1/L6/V1/ext2` to $L_3(2)$.
C	$L_3(4)$	: The table of $L_3(4).D_{12}$ was replaced by a table with different ordering of classes and characters; note that the table is an ATLAS table but it had erroneously not been replaced earlier. The previous table had the name `psl(3,4):d12`, the new table has the name `L3(4).D12`, the permutations of columns and rows between the two tables are stored in the attribute `CASInfo` of the new table.
C		Changed the fusion from $(2^2 \times 3).U_6(2)M3$ to $3.L_3(4)$.
NEW		The ordinary tables of $(2^2 \times 3).L_3(4).2_1$, $(2^2 \times 3).L_3(4).2_2$, $(2^2 \times 3).L_3(4).2_3$, $(2^2 \times 3).L_3(4).3$, $(2 \times 4).L_3(4)$, $(2 \times 12).L_3(4)$, $4^2.L_3(4)$, $(4^2 \times 3).L_3(4)$, $2.L_3(4).2^2$ (eight groups), $4_1.L_3(4).2_3^*$, $4_1.L_3(4).2^2$ (eight groups), $4_2.L_3(4).2_2^*$, $4_2.L_3(4).2^2$ (eight groups), $2^2.L_3(4).2_1$, $2^2.L_3(4).2^2$, $2^2.L_3(4).6$, $3.L_3(4).3.2_2$, $6.L_3(4).2^2$ (eight groups) are available.
NEW	$L_3(9)$	: The ordinary table of $L_3(9).2^2$ is available.
NEW	$L_4(4)$	: The ordinary table of $L_4(4).2^2$ is available.
NEW	$L_4(5)$	: The ordinary tables of $2.L_4(5)$, $4.L_4(5)$ are available.
NEW	Ly	: The character tables of defect 3-group normalizers in Ly are available.
***	M	: The character table of the `7B` centralizer, with the identifier `7^1+4.2A7`, was wrong.
NEW		The character tables of the Sylow 5- and 7-normalizers in M are available.
NEW		The character tables of defect 3-group normalizers in M are available.
C	M_{11}	: Replaced the fusions from $2.M_{12}M2$ and $2.HSM9$ by fusions to $M_{12}M2$ and $HSM9$, respectively.
C	M_{12}	: Changed the class fusions from $2 \times M_{11}$, $2.M_{12}M4$, $2 \times 3^2.2.S_4$, $2.M_{12}M7$, $A_6.D_8$ to $2.M_{12}$.

			The character table of the Sylow 2-normalizer in $2.M_{12}$ is available.
C	M_{22}	:	Changed the class fusion from $2\times3.A_7$ to $6.M_{22}$, and the class fusions from $2.(2\times3.A_7)$, $3\times4.M_{22}M5$, $3\times4.M_{22}M6$, $3\times2.(2\times L_2(11))$ to $12.M_{22}$.
C			Replaced the fusion from $3.McLM3$ by one to $McLM3$.
NEW			The character tables of defect 3-group normalizers in $12.M_{22}$ and the Sylow 2-normalizer in $4.M_{22}$ are available.
NEW			The character table of a primitive group $2^{10}.M_{22}$ is available.
NEW	M_{24}	:	The character tables of normalizers of radical p-subgroups are available.
C	McL	:	Changed the fusions from $3.3^{1+4}:2S_5$, $3\times2.A_8$, $3.U_3(5)$ to $3.McL$, and the fusion from $U_4(3)$ to McL.
C			Replaced the fusion from $3.McLM10$ to $2^4:A7$ by one to $McLM10$.
C			Changed the fusion from $3.3^4.3^2.Q_8$ to $3.3^{1+4}:2S_5$.
NEW			The character tables of the Sylow 3- and 5-normalizers in $3.McL.2$, and the character table of the Sylow 3-normalizer in $McL.2$ are available.
NEW	$O_8^-(3)$	:	The ordinary tables of $2.O_8^-(3)$ (contributed by Max Neunhöffer), $O_8^-(3).2_2$, $O_8^-(3).2_3$, $O_8^-(3).2^2$ are available.
C	$O_8^+(3)$	:	Sorted rows and columns of the table of $O_8^+(3).S_4$ (in the old version, the trivial character was not the first one, and this is not supported by the construction function).
NEW			The ordinary tables of $O_8^+(3).2^2_{122}$, $2.O_8^+(3)$ (contributed by Max Neunhöffer), $2^2.O_8^+(3)$, $2^2.O_8^+(3).3$ are available.
NEW	$O_8^+(7)$	:	The ordinary tables of $O_8^+(7)$, $2.O_8^+(7)$ are available (contributed by Eamonn O'Brien).
NEW	$O_9(3)$	:	The ordinary table of $2.O_9(3)$ is available (contributed by Max Neunhöffer).
NEW	$O_{10}^-(3)$	:	The ordinary tables of $O_{10}^-(3)$ and $2.O_{10}^-(3)$ are available (contributed by Eamonn O'Brien).
NEW	ON	:	The character tables of the Sylow 3- and 7-normalizers in $3.ON.2$, and the character table of the Sylow 2-normalizer in $ON.2$ are available.
NEW			The character tables of defect 2-group normalizers in ON and $3.ON$ are available.
C	Ru	:	Changed the class fusion from $2.2^{3+8}:L_3(2)$ to $2.Ru$. The character table of the Sylow 2-normalizer in $2.Ru$ is available.
C	$S_4(4)$	:	Changed the fusion from `a5wc2` to $S_4(4)$.
NEW	$S_4(9)$	:	The ordinary tables of $S_4(9)$, $S_4(9).2_1$, $S_4(9).2_2$, $S_4(9).2_3$, $S_4(9).2^2$ are available.
C	$S_6(2)$	:	Changed the fusions from $2.[2^6]:(S_3\times S_3)$, $2^6:L_3(2)$.
NEW	$S_6(4)$	:	The ordinary table of $S_6(4).2$ is available.
C	Suz	:	Changed the class fusion from $(A_6:2_2\times A_5).2$ to $Suz.2$, the class fusions from $2.SuzM4$, $(2\times L_3(3)).2$, $(A_6\times2.A_5).2$ to $2.Suz$, the class fusions from $3\times U_5(2)$, $3\times2^{1+6}_-.U_4(2)$, $(3.A_6\times A_5):2$ to $3.Suz$, and the class fusion from $(3.A_6.2_2\times A_5):2$ to $3.Suz.2$.
C			Changed the class fusions from $3\times2.SuzM4$, $3\times2.J_2.2$, $3\times(2\times L_3(3)).2$, $(3.A_6\times2.A_5).2$ to $6.Suz$.
C			Changed maxes of Suz and its central extensions, there is no need for $SuzM15$ etc., take $L_3(3).2$ and suitable central extensions twice.
NEW	$Sz(8)$	:	The character table of the primitive group $2^{12}.Sz(8)$ is available.
C	$U_3(5)$	:	Replaced the fusion from $2.HSM3$ by one to $HSM3$.
C			Changed the fusion from $3\times2S_5$ to $U_3(5).3$.
C	$U_3(8)$	:	Changed the fusion from $3\times L_2(8)$ to $U_3(8)$.
C	$U_4(2)$	:	Changed the fusions from $A_6.2_1$ and $2.SuzM4$ to $U_4(2)$.
C	$U_4(3)$	:	Replaced the fusions from $3^2.U_4(3).2'_3$ and $2.U_4(3).2'_3$ to $U_4(3).2_3$ by fusions to $U_4(3).2'_3$, changed the fusions from $U_4(2)$ to $U_4(3)$ and from $U_4(2).2$ to $U_4(3).2_1$, changed the fusions from $L_3(4).2^2$ and $3^2.U_4(3).2^2_{133}$ to $U_4(3).2^2_{133}$.
NEW			The ordinary tables of $2.U_4(3).(2^2)_{122}$ (six groups), $2.U_4(3).(2^2)_{133}$ (six groups), $2.U_4(3).D_8$, $6_1.U_4(3).2'_2$, $3_1.U_4(3).2^2_{122}$, $3^2.U_4(3)$, $(3^2\times2).U_4(3)$, $(3^2\times4).U_4(3)$, $(3^2\times2).U_4(3).D_8$ are available.
NEW	$U_4(4)$	:	The ordinary table of $U_4(4).4$ is available.

NEW $U_4(5)$: The ordinary tables of $U_4(5).2_1$, $U_4(5).2_2$, $U_4(5).2_3$, $U_4(5).2^2$ are available.
NEW $U_5(3)$: The ordinary table of $U_5(3)$ is available.
NEW $U_5(4)$: The ordinary tables of $U_5(4)$, $U_5(4).2$ are available.
C $U_6(2)$: Changed the fusions from $2.U_4(3).2_2$ to $2.U_6(2)$, from $3_1.U_4(3).2_2$ and $(2^2 \times 3).U_6(2)$ to $6.U_6(2)$, and from $6_1.U_4(3).2_2$ to $6.U_6(2)$.
NEW The ordinary tables of $3.U_6(2).S_3$, $(2^2 \times 3).U_6(2).2$, $(2^2 \times 3).U_6(2).3$ are available.
NEW $U_6(4)$: The ordinary table of $U_6(4)$ is available (contributed by Eamonn O'Brien).
NEW $U_7(2)$: The ordinary table of $U_7(2)$ is available (contributed by Frank Lübeck).

Release of CTblLib 1.3 in December 2019

Brauer Tables

The following changes are assigned to the simple group involved, and shown in alphabetical order.

NEW A_6 : The Brauer tables of $4.A_6.2_3$ are now available.
******* $F_4(2)$: The 2nd power map in the 13-modular table of $2.(2 \times F_4(2)).2$ was wrong (as in the ordinary table).
NEW The 2- and 3-modular tables of $F_4(2)$ and $2.F_4(2)$ and of its 1st and 5th maximal subgroups are now available (computed by Frank Lübeck and Gerhard Hiss).
NEW Fi_{23} : The 3-modular Brauer table of Fi_{23} is available (computed by Lukas Görgen, Gerhard Hiss, and Klaus Lux).
******* J_3 : The 19-modular tables of J_3, $J_3.2$, $3.J_3$, and $3.J_3.2$ were changed, due to a generality problem.
NEW $L_3(4)$: The Brauer tables of $3.L_3(4).3.2_3$ are now available.
NEW $O_8^+(3)$: The 3-modular tables of $O_8^+(3)$, $2.O_8^+(3)$, $2^2.O_8^+(3)$, $O_8^+(3).3$, and $2^2.O_8^+(3).3$ are now available (computed by Frank Lübeck).
NEW $O_8^-(3)$: The 3-modular table of $O_8^-(3)$, $2.O_8^-(3)$, $O_8^-(3).2_1$, $O_8^-(3).2_2$, $O_8^-(3).2_3$, $O_8^-(3).2^2$ are now available (computed by Frank Lübeck).
NEW $O_{10}^+(2)$: The 2-modular table of $O_{10}^+(2)$ is now available (computed by Frank Lübeck).
NEW $O_{10}^-(2)$: The 2-modular table of $O_{10}^-(2)$ is now available (computed by Frank Lübeck).
NEW ON : The 3-modular Brauer table of $ON.2$ is available (computed by Klaus Lux and Alexander Ryba).
NEW $S_{10}(2)$: The 2-modular table of $S_{10}(2)$ is now available (computed by Frank Lübeck).
NEW Suz : The 13-modular Brauer tables of $2.Suz.2$ (and $6.Suz.2$) are available (computed by Klaus Lux and Alexander Ryba).
NEW $U_3(8)$: The Brauer tables of $9.U_3(8).3_3$ are now available, as well as the 7-modular tables of $U_3(8).3^2$ and $U_3(8).(S_3 \times 3)$.
******* $U_4(2)$: The 2-modular character table of $3.(2 \times 2^{1+8}) : (U_4(2) : 2 \times 2)$ was not correct, due to an error in the GAP function that constructs the table from the ordinary one; now this function has been corrected. No other library tables were affected by this bug. (Thanks to Jürgen Müller for reporting the error.)
NEW $U_4(3)$: The modular character tables of $12_1.U_4(3).2_2'$ and $12_2.U_4(3).2_3'$ are now available.

The following changes affect several Brauer tables.

NEW Brauer tables are now automatically available for which all p-modular Brauer characters lift to characteristic zero; this applies for example to all groups $L_2(q)$ if p is odd.
NEW Brauer tables are now automatically available for which the ordinary tables store a construction recipe involving `ConstructDirectProduct`, `ConstructIsoclinic`, or `ConstructMGA` and for which the relevant Brauer tables of the ingredient tables are available.

Ordinary Tables

The following bugfixes are not related to the character tables of simple groups.

*** `2^2.(2^7.3^2).s3` : The table was renamed to `2^2.[2^7*3^2].S3`, since the old name gives a wrong structure description.

*** `5^3:(4xA5).2` : The table was renamed to `5^3:(4xS5)`, since the old name gives a wrong structure description.

*** `NRS(M24,2^(2+2+4)b)` : The table was renamed to `NRS(M24,2^(4+4))`, since the old name gives a wrong structure description.

The following changes affect several ordinary tables.

C The following class fusions were replaced by equivalent ones in order to achieve compatibility with fusions for factor groups or extensions, respectively. `(2^2x3).U6(2).2` to `6.Fi22.2`, `(3^2:8xA6).2` to `Suz.2`, `(3x2^(1+6)_-.U4(2)).2` to `3.Suz.2`, `(A5xD10).2` to `J2.2`, `12.M22N3` to `12.M22`, `12_2.L3(4).2_1` to `3.ON`, `19:18` to `J3.2`, `2.HS.2N5` to `2.HS.2`, `2.M12N2` to `2.M12`, `2.[2^9]:5:4` to `2F4(2)'.2`, `2A4xA5` to `2.J2`, `2^(1+4)+:3^2.2` to `G2(3)`, `2^(1+6)_+:S5` to `HS.2`, `3.(3xM10):2` to `3.J3.2`, `3.2^(1+4)+:3^2.2` to `3.G2(3)`, `3.3^4.3^2.Q8` to `3.McL`, `3^2.(3x3^(1+2)+):D8` to `G2(3).2`, `3x2.J2.2N5` to `6.Suz`, `3x4.M22N2` to `12.M22`, `5^2:(4xS3)` to `J2.2`, `6.A6M3` to `6.A7`, `6.A6N2` to `6.A6`, `6.A6N2` to `6.A7`, `7:6xL3(2)` to `He.2`, `7^2:2.L2(7).2` to `He.2`, `Fi22N3` to `Fi22`.

NEW The tables of all maximal subgroups are available for ${}^3D_4(2)$, ${}^3D_4(2).3$, $2.A_5.2$, $A_6.2_3$, $2.Co_1$, $2.Fi_{22}$, $3.Fi_{22}$, $G_2(4).2$, $3.J_3$, $L_2(8)$, $L_2(8).3$, $L_3(2).2$, $2.L_3(2).2$, $L_3(3).2$, $3.M_{22}.2$, $3.McL.2$, $3.ON$.

NEW Many tables of normalizers of radical p-subgroups of central extensions of simple groups are now available, as well as the class fusions into these overgroups.

NEW The `CASInfo` value was added for the following tables: $2.B$, $2.Co_1$, $2.F_4(2)$, $2.HS$, $2.J_2$, $2.M_{12}$, $2.Ru$, $3.F_{3+}$, $3.J_3$, $3.McL$, $3.ON$, $6.Suz$, and $12.M_{22}$. At the time when the CAS library got included in GAP's character table library, this information was apparently not saved. However, at least the book "Brauer Trees of Sporadic Groups" refers to the CAS numbering of certain characters, thus it is useful to make the values available. Thanks to Gerhard Hiss for the CAS format tables which had been used in the computations for the abovementioned book.

The following changes are assigned to specific simple groups, and shown in alphabetical order.

NEW ${}^3D_4(3)$: The table of ${}^3D_4(3)$ is now available.

NEW ${}^3D_4(4)$: The table of ${}^3D_4(4)$ is now available (contributed by Eamonn O'Brien).

NEW Co_1 : The table of the largest solvable subgroup (of the structure $2^{4+12}.(S_3 \times 3_+^{1+2} : D_8)$) is now available.

*** $E_6(2)$: Corrected the table (irrationalities and power maps).

NEW F_{3+} : The tables of the largest solvable subgroups in F_{3+} and $F_{3+}.2$ (of the structures $3_+^{1+10} : 2_-^{1+6} : 3_+^{1+2} : 2S_4$ and $3_+^{1+10} : (2 \times 2_-^{1+6} : 3_+^{1+2} : 2S_4)$, respectively) are now available.

*** $F_4(2)$: Corrected the 2nd power map in the tables of $2.F_4(2).2$ (two isoclinic variants), $2 \times 2.F_4(2).2$, and $2.(2 \times F_4(2)).2$.

C $G_2(3)$: The `FusionToTom` map was replaced, due to a generality problem.

C HS : The `FusionToTom` map was replaced by one that is compatible with the ATLAS of Group Representations.

NEW $L_3(4)$: The table of the extension $3.L_3(4).3.2_3$ is now available.

C $L_3(7)$: The `FusionToTom` map was replaced by one that is compatible with the ATLAS of Group Representations.

NEW $O_{10}^+(3)$: The table of $O_{10}^+(3)$ is now available.

NEW $O_{12}^+(2)$: The table of $O_{12}^+(2)$ is now available.

NEW $O_{12}^-(2)$: The table of $O_{12}^-(2)$ is now available.

NEW $O_{12}^+(3)$: The tables of $O_{12}^+(3)$ and $2_1.O_{12}^+(3)$ are now available (contributed by Eamonn O'Brien).

NEW $O_{12}^-(3)$: The table of $O_{12}^-(3)$ is now available (contributed by Eamonn O'Brien).

NEW $U_3(8)$: The tables of $U_3(8).3^2$, $U_3(8).(S_3 \times 3)$, and $9.U_3(8).3_3$ are now available.

*** $U_4(3)$: The tables of the two bicyclic extensions $12_1.U_4(3).2'_2$ and $12_2.U_4(3).2'_3$ of $U_4(3)$ are now available; they had been missing, in spite of the claim that all ATLAS tables are available.

*** $U_4(5)$: The class fusion from $U_4(5)$ to $U_4(5).2^2$ was corrected.

Release of CTblLib 1.3.2 in March 2021

Brauer Tables

The following changes are assigned to the simple group involved, and shown in alphabetical order.

NEW $U_3(8)$: The 3-modular Brauer table of $U_3(8).(S_3 \times 3)$ is now available.

Ordinary Tables

The following changes affect several ordinary tables.

NEW The tables of all maximal subgroups are available for $F_4(2)$.

The following changes are assigned to specific simple groups, and shown in alphabetical order.

NEW $L_2(49)$: The tables of $4.L_2(49).2_3$ and $4.L_2(81).4_2$ are now available.

NEW $L_2(81)$: The table of $4.L_2(81).2_3$ is now available.

NEW M : The table of $3^{1+12}.(2 \times U_5(2).2)$ is now available, which is a subgroup of the maximal subgroup $3^{1+12}.2.Suz.2$ of M that plays a role in the verification of the table of $3^{1+12} : 6.Suz.2$.

Release of CTblLib 1.3.3 in January 2022

(No character tables were added or changed.)

Release of CTblLib 1.3.4 in April 2022

(No character tables were added or changed.)

Release of CTblLib 1.3.5 in February 2023

Brauer Tables

Changes are assigned to the simple group involved, and shown in alphabetical order.

NEW $L_2(49)$: The tables of G, $G.2_1$, $G.2_2$, $G.2_3$, $G.2^2$ mod 7 are now known.

NEW Indicators of $G.2_1$, $G.2_2$, $G.2_3$ mod 2 are now known.

NEW $L_2(81)$: The tables of G, $G.2_1$, $G.2_2$, $G.2_3$, $G.4_1$, $G.4_2$, $G.2^2$, $G.(2 \times 4)$ mod 3 are now known.

NEW Indicators of $G.2_1$, $G.2_2$, $G.2_3$, $G.4_1$, $G.4_2$ mod 2 are now known.

*** $L_3(8)$: Some indicators of G, $G.2$ mod 2 were corrected.

NEW $R(27)$: Indicators of $R(27)$ and $R(27).3$ mod 2 are now known.

NEW $L_6(2)$: The tables of G, $G.2$ mod 2 are now known.

NEW Suz : Indicators of $3.G$, $3.G.2$ mod 2 are now stored.

NEW ON : Indicators of $3.ON$ mod 2 are now known.

NEW $O_8^-(3)$: Indicators of $O_8^-(3)$ mod 2 are now known.

NEW $O_{10}^+(2)$: Indicators of $O_{10}^+(2)$ mod 2 are now known.

NEW $O_{10}^-(2)$: Indicators of $O_{10}^-(2)$ mod 2 are now known.

NEW Co_2 : Indicators of Co_2 mod 2 are now known.

NEW Fi_{22} : Some new indicators of G, $G.2$ mod 2 are now known.

*** HN : The 11-modular tables of HN, $HN.2$, and $(D_{10} \times HN).2$ were changed, due to a generality problem.

NEW Some indicators of HN and $HN.2$ mod 2 have been computed.

NEW Fi_{23} : Some new indicators of G mod 2 are now known.

Ordinary Tables

Changes are assigned to the simple group involved, and shown in alphabetical order.

NEW $L_2(49)$: The table of the maximal subgroup $7^2 : 24$ of G was added.

******* M_{12} : Renamed $D_8.(S_4 \times 2)$ to $2^3.(S_4 \times 2)$, the old name does not fit to the structure of the subgroup.

NEW $L_2(81)$: The table of the maximal subgroup $3^4 : 40$ of G was added.

C J_3 : Changed the fusions from J_3M3 (in order to achieve compatibility with Brauer tables)

C $O_7(3)$: Changed the fusions from $5 : 4 \times S_4$, $O_7(3)M5$ (in order to achieve compatibility with Brauer tables)

NEW $R(27)$: The table of the maximal subgroup $3^{3+6} : 26$ of $R(27)$ was added.

C $O_8^+(3)$: Changed the fusions from $O_7(3)$ (all six classes, in order to achieve compatibility with Brauer tables)

C $O_8^-(3)$: Changed the fusions from $3^6 : 2U_4(3).2_1$, $L_2(81).2_1$, $O_7(3).2$ (in order to achieve compatibility with Brauer tables)

C $O_{10}^+(2)$: Changed the fusions from $2^{10} : L_5(2)$, $S_8(2)$ (in order to achieve compatibility with Brauer tables)

NEW $O_{10}^-(2)$: The table of the maximal subgroup $(3 \times O_8^+(2)) : 2$ of $O_{10}^-(2)$ was added.

C Changed the fusion from $2^8 : O_8^-(2)$ (in order to achieve compatibility with Brauer tables)

C $F_4(2)$: Changed the fusion from $S_8(2)M4$ (two classes, in order to achieve compatibility with Brauer tables)

Release of CTblLib 1.3.6 in May 2023

(No character tables were added or changed.)

Release of CTblLib 1.3.7 in December 2023

Ordinary Tables

Changes are assigned to the simple group involved, and shown in alphabetical order.

C $L_6(2)$: Changed the fusions from $3.L_3(4).3.2_2$ and $2^5 : L_5(2)$ (in order to achieve compatibility with Brauer tables)

C Fi_{23} : Changed the fusions from $3^6 : L_4(3) : 2_2$ and $S_3 \times O_7(3)$ (in order to achieve compatibility with Brauer tables)

NEW B : The table of the maximal subgroup $(2 \times O_8^+(3)).S_4$ of $2.G$ was added.

NEW M : The table of the maximal subgroup $2^{10+16}.O_{10}^+(2)$ of G was added (contributed by Alexander Hulpke).

NEW : The tables of the maximal subgroups $2^{2+11+22}.(M_{24} \times S_3)$, $2^{[39]}.(L_3(2) \times 3.S_6)$ were added.

NEW : The tables of the maximal subgroups $3^8.O_8^-(3).2_3$, $(3^2 : 2 \times O_8^+(3)).S_4$, $3^{2+5+10}.(M_{11} \times 2S_4)$, $3^{3+2+6+6} : (L_3(3) \times SD_{16})$ of G were added (contributed by Tim Burness).

NEW The class fusions from the maximal subgroups $L_2(13).2$, $L_2(29).2$, and $U_3(4).4$ of G were added.

C The relative names of some maximal subgroups of G were changed, due to the now completed classification of maximal subgroup of G: $L_2(71)$ is `MM38` not `MM37`, $L_2(59)$ is `MM39` not `MM38`, $11^2 : (5 \times 2.A_5)$ is `MM40` not `MM39`, $L_2(41)$ is `MM41` not `MM40`, $L_2(29).2$ is `MM42` not `MM41`, $7^2 : 2L_2(7)$ is `MM43` not `MM42`, $L_2(19).2$ is `MM44` not `MM43`, $41 : 40$ is `MM46` not `MM44`.

Release of CTblLib 1.3.8 in March 2024

Ordinary Tables

Changes are assigned to the simple group involved, and shown in alphabetical order.

NEW M : The class fusions from the maximal subgroups $(L_2(11) \times L_2(11)) : 4$, $11^2 : (5 \times 2.A_5)$, $7^2 : 2L_2(7)$, and $L_2(19).2$ of G were added.

Release of CTblLib 1.3.9 in March 2024

(No character tables were added or changed.)

Release of CTblLib 1.3.10 in May 2025

Ordinary Tables

The following changes affect several ordinary tables.

NEW The tables of all maximal subgroups are available for $F_4(2).2$ and M.

******* Side-effects of the now known classification of maximal subgroups of the Monster group M are that the previously claimed maximal subgroups of the type $L_2(59)$ do not exist (and hence the Monster has maximal subgroups of the type $59 : 29$), and that the ordering of the classes 39 to 45 of maximal subgroups had to be changed, in order to achieve that the numbering reflects descending subgroup order.

NEW Isoclinic variants of the following ATLAS character tables are now available. $2.A_6.2_2$, $6.A_6.2_2$, $2.L_2(11).2$, $2.L_2(13).2$, $2.L_2(17).2$, $2.L_2(25).2_1$, $2.L_2(27).2$, $2.L_2(27).6$, $2.L_2(29).2$, $2.L_2(31).2$, $2.L_2(49).2_1$, $2.L_2(81).2_2$, $3.L_3(4).3$ (two variants), $3.L_3(4).6$ (two variants), $12_1.L_3(4).2_1$, $12_2.L_3(4).2_1$, $12_2.L_3(4).2_3$, $12_1.L_3(4).2_2$, $3.L_3(7).3$ (two variants), $2.L_4(3).2_1$, $2.L_4(3).2_2$, $2.L_4(3).2_3$, $6.O_7(3).2$, $2.O_8^+(2).2$, $2.S_4(5).2$, $2.S_6(3).2$, $3.U_3(5).3$ (two variants), $3.U_3(7).3$ (two variants), $3.U_3(8).3_2$ (two variants), $3.U_3(11).3$ (two variants), $2.U_4(2).2$, $4.U_4(3).2_2$, $4.U_4(3).2_3$, $6_1.U_4(3).2_1$, $6_1.U_4(3).2_2$, $6_1.U_4(3).2'_2$, $6_2.U_4(3).2_1$, $6_2.U_4(3).2_3$, $12_1.U_4(3).2_2$, $12_1.U_4(3).2'_2$, $12_2.U_4(3).2_3$, $12_2.U_4(3).2'_3$, $2.U_6(2).2$, $3.U_6(2).3$ (two variants), $6.U_6(2).2$. Also the corresponding Brauer tables and factor fusions to suitable factor groups were added.

The following changes are assigned to specific simple groups, and shown in alphabetical order.

NEW $^2E_6(2)$: The character tables of the maximal subgroups $(L_3(2) \times L_3(4)).2$ of G and $(L_3(2) \times L_3(4).2_2).2$, $^2E_6(2).2N3C$ of $G.2$ were added, as well as class fusions from the maximal subgroups $Fi_{22}.2$, $O_7(3).2$, and $O_{10}^-(2).2$ to $G.2$.

C A_6 : The character parameters of the ordinary table of $A_6.2_1$ were made consistent with the character parameters of the Brauer tables, by applying the permutation induced by the outer automorphism of the group.

NEW $F_4(3)$: The table of the simple group was added (contributed by Eamonn O'Brien).

NEW $G_2(7)$: The table of the simple group was added.

NEW M : The character table of the maximal subgroup $2^{5+10+20}.(S_3 \times L_5(2))$ of the Monster group was added (contributed by Anthony Pisani).

NEW $S_{12}(2)$: The table of the maximal subgroup $S_4(8).3$ was added.

Release of CTblLib 1.3.11 in May 2025

The only change was that the ordering of rows and columns of the table of $S_4(8).3$ (which had been added in version 1.3.10) was adjusted such that the function `AtlasClassNames` (from the GAP package `AtlasRep`) does not run into an error when called with this table.

Last update May 25th, 2025.