



Puzzle 1: SOCIALLY DISTANCED [6 points]

The mayor of Alphaville has just announced a new restriction on all festive text, to ensure that the letters of the alphabet remain *socially distanced* – with the card below providing an illustration of the new rule in action. (Click on the image to enlarge it. You can do this for any of the images in the quiz.)

Can you figure out what’s been done to the text, and what the message says?

If you apply the same rule to the (assumed) name of the person who brought these lines to prominence, 65 years ago, what two letters appear in the result?

(Hint: These two letters appear consecutively on the penultimate line of the card, in lower case.)



PUZZLE 1 SOLUTION

The card represents the lyrics of the song “Christmas Alphabet” (the 1955 UK Christmas Number 1 by Dickie Valentine), after the removal of all letters appearing in the phrase “socially distanced”.

The text on the card represents the lyrics to the festive song “Christmas Alphabet”, after the removal of the eleven letters that appear in the phrase “socially distanced” (i.e., a, c, d, e, i, l, n, o, s, t, and y). Following these deletions, the remaining letters and word fragments have the appearance of themselves being “socially distanced”.





The lyrics to the song are as follows:

*C is for the candy trimmed around the Christmas tree
H is for the happiness with all the family
R is for the reindeer prancing by the window pane
I is for the icing on the cake as sweet as sugar cane
S is for the stocking hanging on the chimney wall
T is for the toys beneath the tree so tall
M is for the mistletoe where everyone is kissed
A is for the angels who make up the Christmas list
S is for the Santa who makes every kid his pet
Be good and he'll bring you everything in your Christmas alphabet!*

In the UK, Dickie Valentine was the person who brought the “Christmas Alphabet” song to prominence in 1955 – indeed, the song was that year’s UK Christmas Number 1. (It is also notable for being the first Christmas chart-topper about Christmas, as noted at https://en.wikipedia.org/wiki/Christmas_Alphabet.)

When the “socially distanced” rule described above is applied to Dickie Valentine’s name, it is transformed into the two letters “k V” – and, as noted in the puzzle text, these letters appear consecutively on the penultimate line of the card (in lower case).

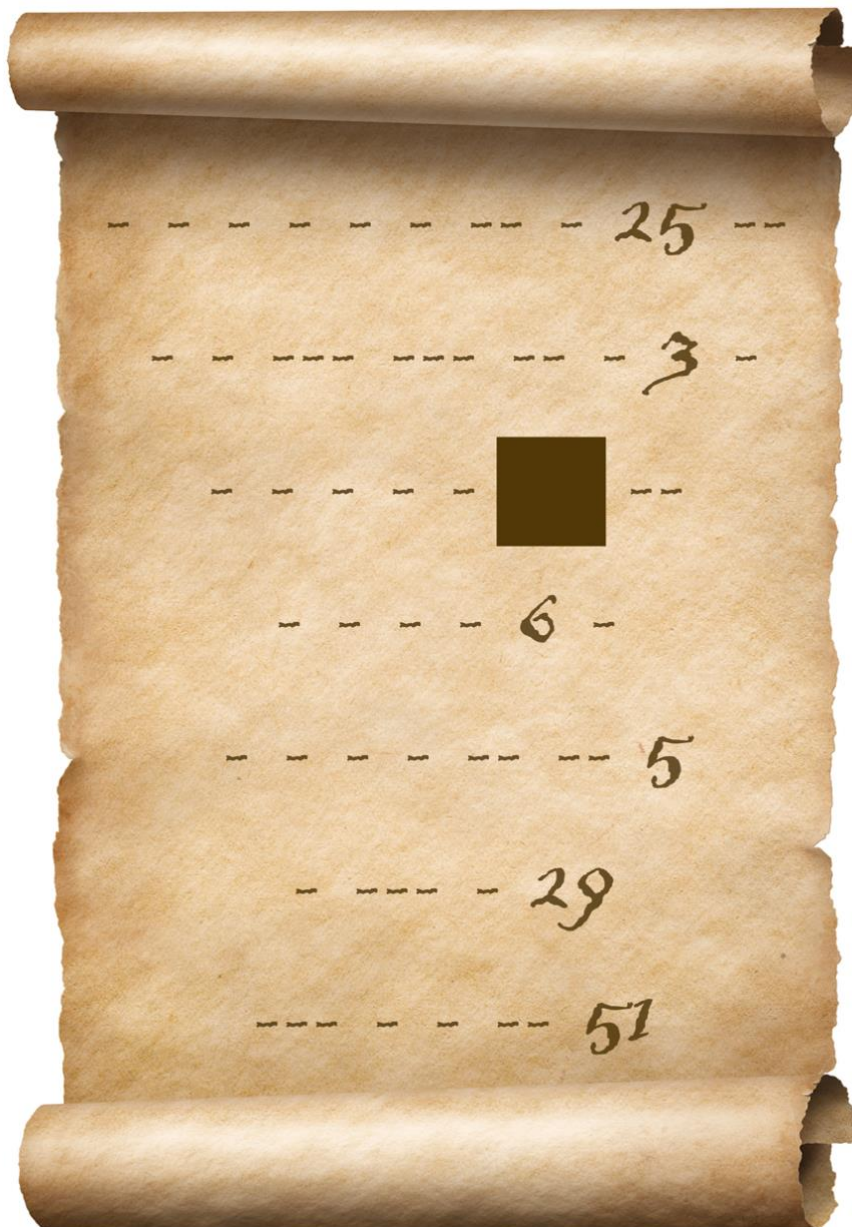




Puzzle 2: PUBLIUS ENIGMA [4 points]

What number is missing from the image below – and why?

(Hint: Millions heard these numbers during 2020.)





PUZZLE 2 SOLUTION

The passage comes from the song “Non-Stop” from the musical Hamilton – with the missing number being 85.

The puzzle image represents an extract from the song “Non-Stop” from the award-winning musical Hamilton, with the dashes indicating the number of syllables in each non-numeric word.

The complete extract is shown below (and can be heard between 4:21 and 4:43 at the following YouTube link: <https://www.youtube.com/watch?v=YHVPNOHySk>).

*The plan was to write a total of 25 essays
The work divided evenly among the 3 men
In the end, they wrote 85 essays
In the span of 6 months
John Jay got sick after writing 5
James Madison wrote 29
Hamilton wrote the other 51*

The missing number is therefore 85 – the total number of essays in the Federalist Papers. (The historical styling of the puzzle image is appropriate, given that the events described in the passage took place in the late 1780s.)

“Publius” was the pseudonym collectively used by Alexander Hamilton, James Madison, and John Jay during their writing of the Federalist Papers – meaning that this puzzle can accurately be described as a “Publius enigma”. The same name also describes an internet-based riddle linked to Pink Floyd’s 1994 album The Division Bell – see https://en.wikipedia.org/wiki/Publius_Enigma – but this is a deliberate red herring.

Finally, the film version of the Hamilton musical was released on the Disney+ streaming service in July 2020, which explains the italicised hint that “millions heard these numbers during 2020” (with the word “numbers” being relevant both in a mathematical and a musical sense).





Puzzle 3: SWBPWCA = {C, C, R, C, H, M, P, G, A, P, B, T, G, C, C, A, P} [12 points]

The 11x11 grid below contains the 17 items of the set referenced in the title, written in lower case. Each highlighted cell (marked with “?”) contains a single unknown letter, and each of the 121 cells is used exactly once.

Can you identify the items, and the set?

(Hint: The letters in the grid do not need to be altered or transformed.)

What name is revealed by the seven highlighted cells, and how is it connected to two of the items?

Explain how a closely related item (from a slightly larger set) may be created through a one-character transformation of the highlighted name.

a	g	i	n	d	a	c	h	d	e	a
c	e	a	h	r	m	s	r	a	m	u
c	a	b	t	a	g	a	t	e	a	s
c	e	y	r	o	r	g	l	h	l	m
r	n	a	n	c	a	b	d	a	t	o
a	t	?	?	?	?	?	?	?	g	a
l	o	a	n	p	a	e	t	a	i	c
b	c	t	c	t	t	h	e	i	s	h
i	a	s	i	a	o	a	d	r	a	c
r	m	a	n	v	c	r	e	a	t	p
a	r	o	c	l	a	n	o	t	p	a

PUZZLE 3 SOLUTION

The grid contains the 17 “Single Word Best Picture Winners Containing A”.

[Note: If you didn’t manage to crack this particular puzzle first time around, you may enjoy taking another look with the aid of the extra information in bold above – or of course, read on for the full solution.]

The abbreviation SWBPWCA in the title stands for “Single Word Best Picture Winners Containing A”, and the letters inside the braces are the initial letters of these 17 films, listed chronologically. In full, the list





reads as follows: {Cimarron, Cavalcade, Rebecca, Casablanca, Hamlet, Marty, Patton, Gandhi, Amadeus, Platoon, Braveheart, Titanic, Gladiator, Chicago, Crash, Argo, Parasite}.

These 17 films have been written into the grid in lower case, and “Boggle-style” (i.e., moving in any of the eight directions at each step, in the manner of a chess king). For instance, “amadeus” is coiled up in the north-east corner of the grid, starting with the “a” in that corner (row 1, column 11), while “hamlet” appears just beneath, starting with the “h” located in row 4, column 9.

The image shown below indicates the placement of each of the films within the grid. (Note: The colours assigned to the films have been chosen so that films which “touch” in the grid receive different colours – otherwise the colouring is entirely arbitrary.)

a	g	i	n	d	a	c	h	d	e	a
c	e	a	h	r	m	s	r	a	m	u
c	a	b	t	a	g	a	t	e	a	s
c	e	y	r	o	r	g	l	h	l	m
r	n	a	n	c	a	b	d	a	t	o
a	t	o	l	i	v	i	e	r	g	a
l	o	a	n	p	a	e	t	a	i	c
b	c	t	c	t	t	h	e	i	s	h
i	a	s	i	a	o	a	d	r	a	c
r	m	a	n	v	c	r	e	a	t	p
a	r	o	c	l	a	n	o	t	p	a

As indicated in the image, the seven highlighted cells in the central row must contain “olivier” – a reference to Laurence Oliver, who starred in both Rebecca and Hamlet. If the second letter ‘i’ is rotated and moved to the end, to become an exclamation mark, “Olivier” becomes “Oliver!” – the 1968 Best Picture Winner. The film may be accurately described as “a closely related item from a slightly larger set”, as it belongs to the set of all Single Word Best Picture Winners (but not to the set of those containing ‘a’).





Finally, as some solvers noted, it is evident that the letter 'a' must play a special role in this puzzle because it appears much more frequently within the grid than any other letter – and moreover, all instances of the letter 'a' appear in a suspiciously regular pattern.

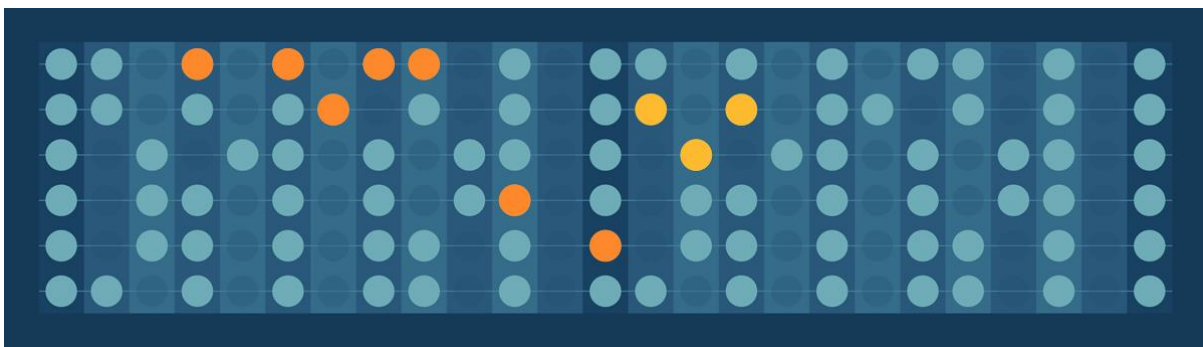


Puzzle 4: ACTIN RELEASE [6 points]

Which award-winning 2009 album is cryptically encoded below?

(Hint: (6,5,3,4,9,9,5) and (7,3,5).)

Given the title of the album, which celebrity name is instantly evoked by the language of #5 (R-N), and how is this person vicariously connected with Christmas 2020?



PUZZLE 4 SOLUTION

The album is “Calling All Dawns” by Christopher Tin, cryptically encoded via the notes on a standard guitar fretboard.

The image depicts a guitar fretboard with the positions of the “natural” notes (i.e., A, B, C, D, E, F, G) emphasised with circles. The seven orange circles spell out GAFBCCA from left to right, and the three yellow circles spell out CAD from left to right. By combining these initials with the word lengths indicated in the hint, it can be deduced that GAFBCCA stands for “Grammy Award For Best Classical Crossover Album”, which then implies that CAD stands for “Calling All Dawns” – the 2009 album by Christopher Tin that won this particular award in 2011 (see https://en.wikipedia.org/wiki/Calling_All_Dawns).

A respacing of the puzzle title further confirms that the answer is “a C. Tin release”, and the styling of the puzzle image is reminiscent of the colours used on the album cover.

Given the album title (“Calling All Dawns”), Dawn French is the celebrity name instantly evoked by the language of track 5 (“Rassemblons-Nous”) – namely, French. She is “vicariously” connected to Christmas 2020 through “The Vicar of Dibley In Lockdown”, which aired during December 2020, and – appropriately, given the album title – featured her calling her parishioners over Zoom.



Puzzle 5: TAKE IT [5 points]

Pick a colour, then explain what is represented below.



PUZZLE 5 SOLUTION

The image represents the final game of the Netflix miniseries “The Queen’s Gambit”, and the real-world chess game it was based on.

The instruction to “pick a colour” refers to the background colour of the puzzle image. With the aid of the colour-picking tool (in any suitable image-editing package), it can be determined that this background has the hex colour code d4d5c4, which echoes the moves of the Queen’s Gambit opening in chess (i.e., 1. d4 d5 2. c4). This clue suggests that the puzzle relates to the extremely popular 2020 Netflix miniseries “The Queen’s Gambit”.

Solvers should have then deduced that “H – B ‘68” – on the left of the image – refers to the decisive final game of the miniseries, played between Beth Harmon and Vasily Borgov in 1968.

As has been widely noted online (see, for instance, the video by chess YouTuber agadmator at <https://www.youtube.com/watch?v=olMaTKOZG-8> – most notably, the section between 11:15 and 12:20), the first 36 moves of the Harmon vs Borgov game are in fact based on a real-world game played between Vassily Ivanchuk and Patrick Wolff at the Biel Interzonal in 1993, which is notated as “I – W ‘93” on the right of the image.

The fact that the games are only approximately the same explains the “approximate equality” symbol that links them.

The “pick a colour” phrase in the question is also itself a reference to deciding colour at the beginning of a chess game, which is depicted at various points in the miniseries. (Traditionally, one player randomly conceals a White pawn and Black pawn in their closed hands – one pawn per hand – and the opponent chooses a hand.)





Finally, the puzzle title, “Take it”, is not simply a reference to the pawn capture available in the Queen’s Gambit opening – it refers to the line uttered by Borgov at the conclusion of the decisive game, as he offers his king to Harmon: “It’s your game. Take it.”



Puzzle 6: UNNATURAL [5 points]

(Hint: The answer to this puzzle is an eight-letter name.)

2.5187118484500322363602874713526624977572470936999595749669676277240766303535475945713821785251664274...

PUZZLE 6 SOLUTION

The eight-letter name is LEONHARD – obtained by identifying the eight decimal places in which the number in the puzzle differs from Euler’s number, e .

The number in the question, which is presented to 100 decimal places, is identical to Euler’s number $e = 2.718281828...$ except that the digits in eight of the decimal places have been altered.

If we compare the number in the question to Euler’s number, we see that these alterations all occur within the first 18 decimal places, as summarised below:

*Decimal place #1 – 5 [instead of 7]
 Decimal place #4 – 7 [instead of 2]
 Decimal place #5 – 1 [instead of 8]
 Decimal place #8 – 4 [instead of 2]
 Decimal place #12 – 0 [instead of 9]
 Decimal place #14 – 3 [instead of 4]
 Decimal place #15 – 2 [instead of 5]
 Decimal place #18 – 6 [instead of 5]*

The remaining decimal places (#19 through #100) all match up with Euler’s number, implying that the desired eight-letter name is encoded by the above information alone.

Given that the eight replacement digits (namely, 5, 7, 1, 4, 0, 3, 2, and 6) represent a permutation of the digits 0 to 7, it is natural to consider the altered decimal places in the order indicated by these replacement digits, as shown below:

*Decimal place #12 – 0 [instead of 9]
 Decimal place #5 – 1 [instead of 8]
 Decimal place #15 – 2 [instead of 5]
 Decimal place #14 – 3 [instead of 4]
 Decimal place #8 – 4 [instead of 2]
 Decimal place #1 – 5 [instead of 7]
 Decimal place #18 – 6 [instead of 5]
 Decimal place #4 – 7 [instead of 2]*





Upon doing this, we see that under the usual numbers-to-letters mapping (whereby 1=A, 2=B, 3=C, and so on), the sequence of decimal places spells out the name LEONHARD. This is, of course, Euler's first name – and the solution to the puzzle.

The puzzle title references the fact that Euler's number provides the "natural" base of logarithms – the number in this puzzle, being a mutated version of that number, is thus "unnatural".





Puzzle 7: LGRTJ! [14 points]

In each of the 14 clues below, one of the words is wrong – in fact, it belongs to a different clue! Can you figure out how everything’s been jumbled up, and solve the clues?

Your 14 answers should fall naturally into two groups. What partnership is evoked by these groups? Can you locate a hidden reference in the corrected clues to one of their previous endeavours (which, sadly, isn’t quite as festive as the name might suggest)?

- UPCOMING HORROR FILM BASED ON “THE QUIET TIN”
- OPPOSITE OF USEFUL
- SCOTTISH WOODS WHERE ROBERT WOODROW CLAIMED TO SEE A U.F.O.
- BAND BEHIND “PERSISTENCE OF CONSCIENCE”
- SECOND WORD IN THE TITLE OF THE 2018 ALBUM BY TIME
- COASTAL CITY LOCATED 230 KM EAST-NORTH-EAST OF ALEXANDRIA
- BIRTH MONTH OF OWEN WILSON
- ARCHITECT WHO HELPED HADRIAN RECONSTRUCT EVERGREEN
- WORLD SERPENT IN BALINESE MYTHOLOGY, WHO CREATED A BOY
- CITY IN WHICH HENDRIK TAYLOR WAS BORN
- OBJECT LIFTED BY DANNY MORGAN USING BALLOONS FILLED WITH EELS
- THIRD WORD OF “THE OLD LIE”, AS DESCRIBED BY WILFRED RHODES
- CONTINENT IN WHICH TURTLE ISLAND IS LOCATED
- FIRST ELEMENT AFTER HELIUM IN THE PERIODIC TABLE

PUZZLE 7 SOLUTION

After the clues are unjumbled, the two groups of answers all start with either “Ant” or “Dec” – and the initial letters of the corrected words spell “BETTER WATCH OUT”.

The 14 corrected clues, and the corresponding answers, are shown below – with the modified words highlighted in bold:

- UPCOMING HORROR FILM BASED ON “THE QUIET **BOY**” = Antlers
- OPPOSITE OF **EVERGREEN** = Deciduous





2020 SOLUTIONS

- SCOTTISH WOODS WHERE ROBERT **TAYLOR** CLAIMED TO SEE A U.F.O. = Dechmont
- BAND BEHIND “PERSISTENCE OF **TIME**” = Anthrax
- SECOND WORD IN THE TITLE OF THE 2018 ALBUM BY **EELS** = Deconstruction
- COASTAL CITY LOCATED 230 KM EAST-NORTH-EAST OF **RHODES** = Antalya
- BIRTH MONTH OF **WOODROW** WILSON = December
- ARCHITECT WHO HELPED HADRIAN RECONSTRUCT **ALEXANDRIA** = Decriannus (or Decrianus)
- WORLD SERPENT IN BALINESE MYTHOLOGY, WHO CREATED A **TURTLE** = Antaboga
- CITY IN WHICH HENDRIK **CONSCIENCE** WAS BORN = Antwerp
- OBJECT LIFTED BY DANNY MORGAN USING BALLOONS FILLED WITH **HELIUM** = Deckchair
- THIRD WORD OF “THE OLD LIE”, AS DESCRIBED BY WILFRED **OWEN** = Decorum
- CONTINENT IN WHICH **USEFUL** ISLAND IS LOCATED = Antarctica
- FIRST ELEMENT AFTER **TIN** IN THE PERIODIC TABLE = Antimony

These 14 answers are readily seen to fall into two groups – those starting “Ant...” and those starting “Dec...” – evoking the famous British TV duo, Ant & Dec.

The initial letters of the corrected words (shown in bold above) spell BETTER WATCH OUT – a single released by Ant and Dec in 1996 (and track 8 of their 1997 album, “The Cult of Ant & Dec”). Sadly, as noted in the puzzle, this has no connection to the popular festive song “Santa Claus Is Coming To Town” (whose lyrics begin: *You better watch out / You better not cry / You better not pout / I'm telling you why / Santa Claus is coming to town*).

Finally, given the jumbling theme of the puzzle, solvers should have deduced that the title “LGRTJ!” stands for “Let’s Get Ready To Jumble!” – a pun on Ant and Dec’s famous song “Let’s Get Ready To Rhumble”, which they released as a single in 1994 under the name PJ & Duncan AKA. (See https://en.wikipedia.org/wiki/Let%27s_Get_Ready_to_Rhumble for further details.)



**Puzzle 8: MUD, GLORIOUS MUD [7 points]**

MudCraft is a bafflingly addictive video game played on a map of 19 hexagonal territories. Initially, all territories are “mud” (brown), as shown in the left-hand image below.

The rules of the game are simple:

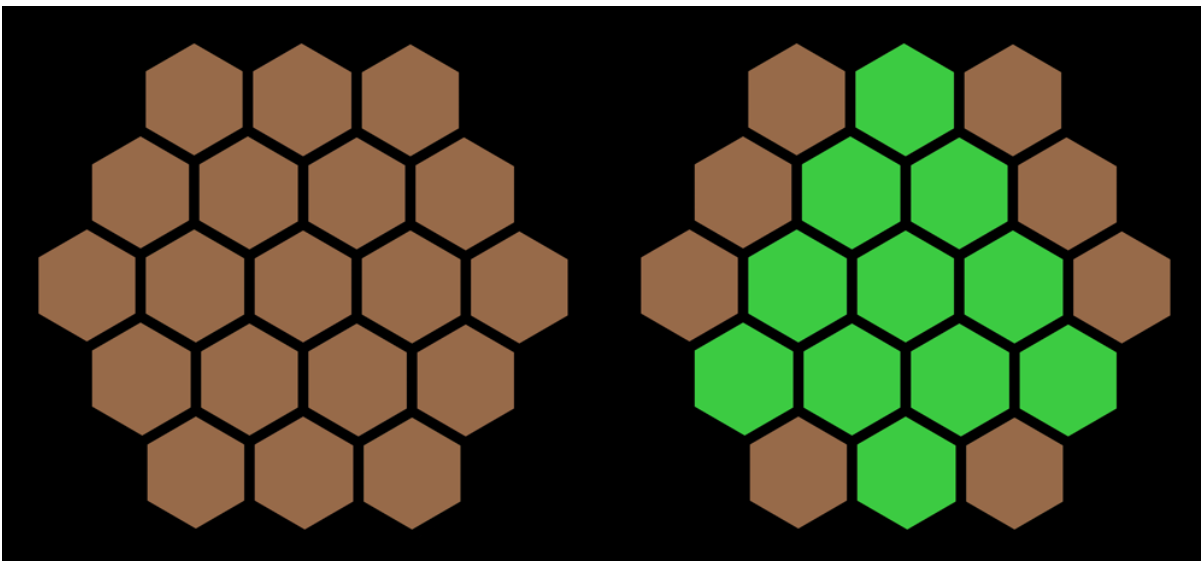
- If you click on a mud territory, it becomes “forest” (green), and all immediately adjacent territories are flipped (that is, mud becomes forest, and vice versa)
- If you click on a forest territory, it remains as forest, but all immediately adjacent territories are flipped (that is, mud becomes forest, and vice versa)

For instance, starting from the initial map, clicking on the central territory would result in a map with 7 forest territories and 12 mud territories. If we were then to click on a corner territory next – the one in the top-left, say – we would obtain a map with 9 forest territories and 10 mud territories, because the second click would turn three mud territories into forest, and flip one of our forest territories back to being mud.

What is the minimum number of clicks needed to transform the initial map (in which all territories are mud) into the “Christmas tree” map pictured in the right-hand image below?

(Note: In your answer, please provide an example of how the transformation could be achieved in the minimum number of clicks. It may be convenient to number the territories from 1 to 19, proceeding row by row from top to bottom – in other words, the 11 forest territories in the “Christmas tree” map would be numbered 2, 5, 6, 9, 10, 11, 13, 14, 15, 16, and 18.)

Is it possible to transform the “Christmas tree” map back into the initial map in the same number of clicks?



PUZZLE 8 SOLUTION

Six clicks are sufficient (and indeed necessary) to transform the all-mud map into the “Christmas tree” map – but it is not possible to return to the all-mud map with any sequence of clicks.

Below, we will set out one possible thought-process that can be used to generate a six-click solution. (Partial credit was awarded on a sliding scale for solutions with more clicks – the most common suboptimal solution suggested by entrants was the nine-click pattern mentioned below.)

Firstly, it is worth highlighting that transforming the initial all-mud map into the “Christmas tree” map is certainly possible, since clicking any mud territory twice in succession has the net effect of turning it into forest whilst leaving all other territories unchanged (since the neighbours of the clicked territory are flipped twice). The “Christmas tree” map could therefore be generated from the initial map in twenty-two clicks simply by using these “pairs” of clicks to create each of the necessary forest territories, one at a time. (This strategy is far from optimal, of course, but it demonstrates that a solution is possible.)

This strategy can be immediately improved to nine clicks by observing that the seven central territories of the map (i.e., 5, 6, 9, 10, 11, 14, and 15 under the suggested numbering scheme) all form part of the “Christmas tree”, and these could therefore all be turned from mud to forest simultaneously with a single click of the central territory (10). Thus, the overall transformation could be achieved with a sequence of nine clicks such as (2, 2, 13, 13, 16, 16, 18, 18, 10) – this sequence has the effect of individually turning territories 2, 13, 16, and 18 into forest, one at a time, and then adding the remaining seven forest territories via the final click of the central territory.

However, as many solvers noticed, this strategy can be improved further by observing that from the initial all-mud position, territories 13, 16, and 18 can be turned into forest (whilst leaving everything else as mud) by executing the following three clicks in order: (17, 19, 18). This trick saves three whole clicks on the nine-click strategy set out in the previous paragraph, and provides us with the following six-click solution to the puzzle: (2, 2, 17, 19, 18, 10). As per the 9-click solution above, this has the effect of individually turning territories 2, 13, 16, and 18 into forest, before adding the remaining seven forest territories all at once.

(As many solvers noted, there are numerous other orders in which the six clicks could be performed – in fact, there are 120 possible six-click solutions. While it can be shown – either through an exhaustive computer search or an involved mathematical argument – that no solution in fewer than six clicks can exist, such a demonstration was not necessary to achieve full credit.)

Moving on to the final line of the puzzle, it is not possible to transform the “Christmas tree” map back into the initial all-mud map in six clicks – or indeed in any number of clicks – because under the rules of the game, the territory that was last clicked is always guaranteed to be in the “forest” state, whether it was mud or forest prior to being clicked.

(Combining this observation with the “double-click” property mentioned earlier, we see that the *MudCraft* game has the somewhat surprising feature that it is possible to go from the all-mud map to any other map you wish, but it is impossible to get back.)

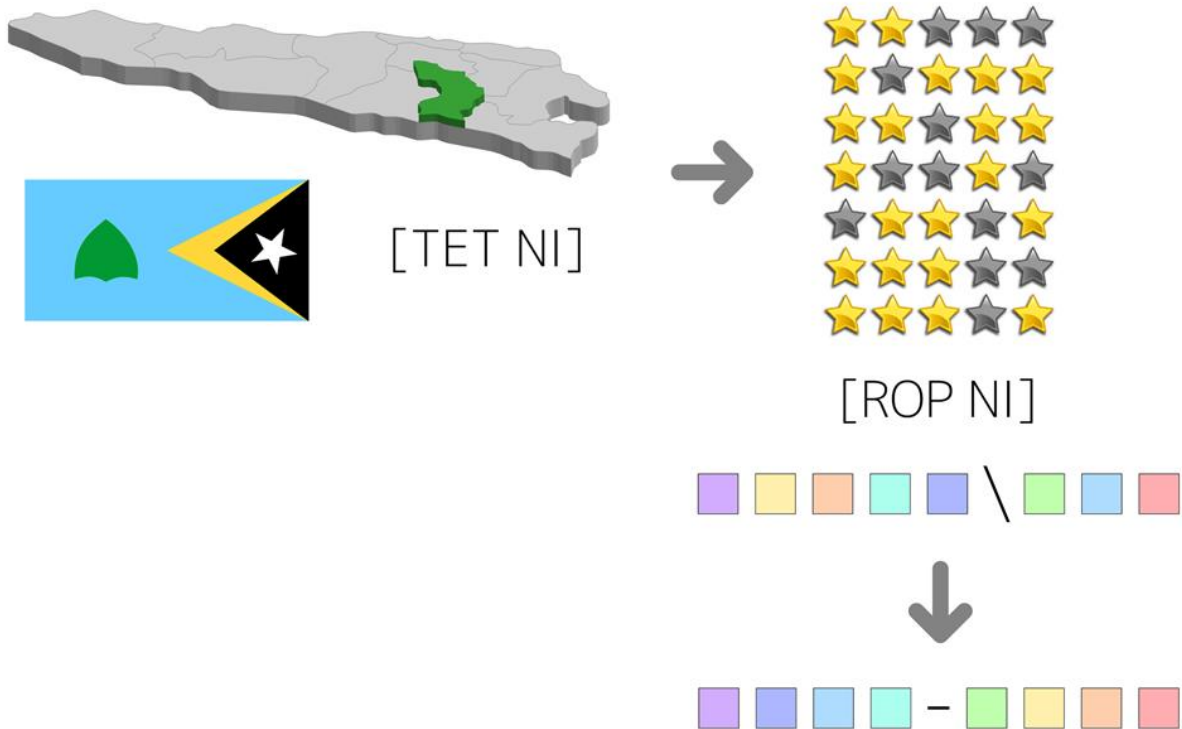




Finally, the puzzle title has some noteworthy connections. Firstly, “Mud, Glorious Mud” (as opposed to the more usual “Mud, Mud, Glorious Mud”) is a deliberate nod to “Food, Glorious Food” from “Oliver!” (which is the final element of Puzzle 3, and foreshadows the theme of Puzzle 14). Secondly, Mud is the name of the band behind the well-known 1974 Christmas Number 1, “Lonely This Christmas”, whose title was unfortunately an all-too-apt description of the 2020 Christmas period for many people.



Puzzle 9: VOTH: A SUITABLE GIFT [7 points]



(Note: The final answer to the puzzle is the hyphenated word obtained in the lower set of boxes.)

Why is the theme of this puzzle particularly appropriate this Christmas – and which element of the puzzle has an unexpected connection to the closing words of line 6 in Puzzle 1?

PUZZLE 9 SOLUTION

When the puzzle is complete, the hyphenated word in the lower boxes is STAR-SEER – this arises as an anagram of the two Portuguese copulas (SER / ESTAR), which are clued via a binary mapping into the 32 cards of Urania’s Mirror (from 1824); this theme is itself clued by “mirroring” the name of Ainaru, a municipality in East Timor.

The map and flag shown in the top-left of the image represent the municipality of AINARU in East Timor (officially, the Democratic Republic of Timor-Leste) – although solvers will have realised that both the map and flag have been mirrored horizontally (and it appears that all the other elements of the puzzle image have been mirrored too).



The accompanying instruction “IN TET” (also mirrored, in the sense that the order of letters has been reversed) – indicates that it is important to use the Tetum name, AINARU, rather than the Portuguese name, AINARO. This interpretation is strengthened by the fact that Tetum and Portuguese are the two official languages of East Timor, and the other similar instruction in the image (which reads “IN POR” in reverse) suggests the use of Portuguese. (See https://en.wikipedia.org/wiki/Ainaro_Municipality and https://en.wikipedia.org/wiki/East_Timor for further background.)

Solvers might then be led to ask themselves: why is the spelling of AINARU so important, and how might this be related to the grid of stars in the next part of the image?

If we reverse AINARU, as suggested by the mirroring / reversing of all the other elements in the puzzle, the result is URANIA, the muse of astronomy – and more specifically, solvers should have noted that AINARU can be regarded as being URANIA’S MIRROR.

This observation tees up the second stage of the puzzle. As noted on Wikipedia (https://en.wikipedia.org/wiki/Urania%27s_Mirror), Urania’s Mirror is a set of 32 astronomical star-chart cards (or plates), first published in 1824. The cards contain holes so that the “stars” can be seen when the card is held up to the light.

If each row of stars shown in the puzzle image is regarded as being a binary number, where a lit star represents 1 and an unlit star represents 0 (and remembering, of course, that everything is mirrored left-to-right), the seven encoded numbers in the image are seen to be 3 (=1+2), 29 (=1+4+8+16), 27 (=1+2+8+16), 9 (=1+8), 22 (=2+4+16), 7 (=1+2+4), and 23 (=1+2+4+16). Using these numbers to select the appropriate cards from the set of 32 that comprise Urania’s Mirror, we find that the seven selected cards respectively depict Cassiopeia, Orion, Pisces, Ursa Major, Libra, Auriga, and Scorpio, whose initial letters spell out the word COPULAS.

The “copulas” being referenced here are not of the statistical variety, but rather the linguistic variety. Under the assumption that “IN POR” stands for “in Portuguese” (just as “IN TET” meant “in Tetum”), solvers should have been inspired to identify the copulas in the Portuguese language. The two Portuguese copulas are “ser” and “estar” (as indicated at https://en.wikipedia.org/wiki/Romance_copula#Portuguese_copulas) and these fit naturally into the first set of coloured boxes as SER / ESTAR (though of course, we must mirror them horizontally – i.e., the initial S of SER would appear in the red box on the right, the E of SER would appear in the blue box second from the right, and so on).

The final step of the puzzle is to complete the lower set of boxes by rearranging the letters according to the pattern of colours indicated, which quickly gives (after mirroring) the answer STAR-SEER – an apt description of Urania’s Mirror (or, indeed, the user of Urania’s Mirror).

The puzzle title – “VOTH: A SUITABLE GIFT” – is a nod to the fact that the subtitle of Urania’s Mirror states that it provides a “View of the Heavens” (i.e., VOTH), and the advertisement for Urania’s Mirror in December 1824 (shown on the Wikipedia page) suggests that it would make an “acceptable present” for Christmas – i.e., a suitable gift. As one eagle-eyed solver pointed out, Urania’s Mirror also has an additional festive connection in that the cards were originally published by Samuel Leigh – i.e., S. Leigh.





(A few solvers interpreted the “VOTH” element of the title as referring to the Saurian species of that name from Star Trek – and some further noted that “Saurian” is an anagram of “Urania’s”. Given the connection with stars, and the plausibility of the anagram, this interpretation was awarded partial credit.)

The star-based theme of this puzzle (and several others in the quiz too, as will be noted at the end of the quiz) was particularly appropriate this Christmas-time due to the appearance in late December of the so-called “Christmas Star”, an extremely rare alignment of Jupiter and Saturn (see, e.g., <https://astronomy.com/news/sky-events/2020/12/jupiter-and-saturn-will-form-rare-christmas-star-on-winter-solstice>). Incidentally, this event was also known by some as “the Great Conjunction” – neatly continuing the astronomy / grammar crossover theme in the puzzle.

Finally, the word Ainaru (i.e., the first element of the puzzle) means “tall tree” in Tetum, as noted at https://en.wikipedia.org/wiki/Ainaro_Municipality – this echoes line 6 of the song Christmas Alphabet (from Puzzle 1), which ends with the words “beneath the tree so tall”.



Puzzle 10: BAR HUMBUG! [4 points]

What unfortunate theme connects 20:145 [02/2016], 22:217 [06/2018], 23:55 [11/2018], 23:63 [11/2018], 24:182 [03/2020], and 25:54 [11/2020]?

PUZZLE 10 SOLUTION

Disputes related to Christmas gifts on the TV show Judge Judy.

(Note: Brief text descriptions of previous episodes of Judge Judy can be accessed via the following IMDB page: <https://www.imdb.com/title/tt0115227/>)

The mysterious notation X:Y in the puzzle text simply indicates “Series X, Episode Y” – with the TV show in question being Judge Judy. For instance, the first item, 20:145, refers to Series 20, Episode 145, in which “one of a man’s 10 children says he stole their Christmas presents”. The numbers shown in square brackets after each item indicate the month and year that the episode was originally broadcast.

The list below reproduces the Christmas-related portion of the description for each of the six episodes referenced in the puzzle:

Series 20, Episode 145 [26 Feb 2016]: *One of a man's 10 children says he stole their Christmas presents*

Series 22, Episode 217 [11 Jun 2018]: *A woman denies owing her grandmother money for extravagant Christmas shopping, because she played nursemaid*

Series 23, Episode 55 [1 Nov 2018]: *A friend regrets helping out when bad weather allegedly stops a woman from sending Christmas gifts to her son and grandchildren*

Series 23, Episode 63 [7 Nov 2018]: *A woman sues her son's father after he and his new lover take advantage of her offer to buy Christmas gifts for their children*

Series 24, Episode 182 [26 Mar 2020]: *A woman's attempt to surprise her daughter with a Christmas puppy falls through when the breeder allegedly fails to deliver*

Series 25, Episode 54 [20 Nov 2020]: *Divorcés who vacation together fight over their children's supplies and Christmas gifts, and a "new" girlfriend muddies the water*

The puzzle title is a pun on “Bah humbug!” – famously uttered by Ebenezer Scrooge in “A Christmas Carol” – with the substitute word “bar” (a reference to the legal profession) indicating that, for the six situations described above, the Christmas displeasure has escalated into a legal matter. (“Bar humbug!” could also be seen as a reference to the fact that Judge Judy actually provides a procedure for a “binding arbitration”, rather than following the protocols and structure that would accompany a full court case.)



**Puzzle 11: VIAGRA UNI AD [7 points]**

Identify the items indicated below, then order them to reveal a recent British success.

-
- | | | | |
|-----------|-------------------------|-----------|-------------------------------|
| 10 | 28 Sep (5,8,6,4,2,8,10) | 5 | 15 Jun (10,4,7,3,7,7) |
| 18 | 10 Jan (2,4,6,8,12,6) | 14 | 13 Mar (8,2,5,5,11,7,6,2,6,2) |
| 24 | 23 Jun (7,5,6,2,4) | 16 | 19 Jun (2,9,2,8,3,6) |
| 29 | 21 Oct (4,5,7,2,9,4,6) | | |
-

PUZZLE 11 SOLUTION

The answer is **FLEABAG**, which comes about through extracting the indicated clues from the Guardian cryptic crosswords released during 2020, and then ordering the associated answers by length – moreover, the seven clues themselves provide helpful hints for Puzzles 4 to 10.

(Note: Puzzle 11 is the special instance in the quiz – as noted in the third bulletpoint of the “tips for solvers” – where solving the puzzle “could potentially help you out with several earlier puzzles”; read on for an explanation!)

Each of the seven items in Puzzle 11 refers to a clue from a particular Guardian cryptic crossword published during the year 2020. The date indicated within each item is the date on which the crossword appeared; the bold number indicates which clue from that crossword is referenced (with the four items on the left being “Across” clues, and the three on the right being “Down” clues); and the numbers in the brackets indicate the lengths of the words that appear within the relevant clue, to provide confirmation to solvers that they are on the right track.

The puzzle title, when re-spaced, reveals the words VIA GRAUNIAD – providing a clue that solvers should look to the Guardian newspaper for inspiration. (The “Grauniad” has been the nickname of the Guardian since the 1960s, when the moniker was coined by Private Eye.) The styling of the puzzle image – particularly the colouring of the horizontal line – is also indicative of the Guardian’s crossword webpage.

The seven crossword clues – along with their associated answers – are as follows:

28 Sep 2020, 10 Across: *Motif retraced around part of stringed instrument (4) = FRET*

<https://www.theguardian.com/crosswords/cryptic/28250>





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10 Jan 2020, 18 Across: *To some extent, resemble mathematical symbol (6) = EMBLEM*

<https://www.theguardian.com/crosswords/cryptic/28026>

23 Jun 2020, 24 Across: *Minimum piece, simple as that (5) = LEAST*

<https://www.theguardian.com/crosswords/cryptic/28167>

21 Oct 2020, 29 Across: *Some stars spotted in Poundland, Rome? Daring! (9) = ANDROMEDA*

<https://www.theguardian.com/crosswords/cryptic/28270>

15 Jun 2020, 5 Down: *Separating from popular duo usually testing (7) = ARDUOUS*

<https://www.theguardian.com/crosswords/cryptic/28160>

13 Mar 2020, 14 Down: *Defended by judge, other malcontents causing things to bubble up? (10) = GEOTHERMAL*

<https://www.theguardian.com/crosswords/cryptic/28080>

19 Jun 2020, 16 Down: *In territory in December mud annoys (8) = BERMUDAN*

<https://www.theguardian.com/crosswords/cryptic/28164>

All seven answers have different lengths (from 4 to 10 letters), and moreover, each answer has the special property that it is a “hidden word” written into the text of the clue – in the final clue, for instance, BERMUDAN is split across the final three words, DECEMBER MUD ANNOYS. This property is analogous to the puzzle title, in which “VIAGRA UNI AD” reveals the words “VIA GRAUNIAD”.

When ordered by length, the list of answers reads: FRET, LEAST, EMBLEM, ARDUOUS, BERMUDAN, ANDROMEDA, and GEOTHERMAL. The initial letters then spell out FLEABAG – a recent British comedy which has won numerous awards, including two Golden Globe Awards in 2020. (See <https://en.wikipedia.org/wiki/Fleabag#Accolades> for a list of the awards won by the show – as some solvers noted, its two nominations in the 2020 Laurence Olivier Awards provide a link back to the appearance of “Olivier” in Puzzle 3.)



Finally, we explain the set of “meta-hints” provided by Puzzle 11. The solution for the puzzle, as presented above, could potentially have helped solvers with several previous puzzles (namely, Puzzle 4 to Puzzle 10) because the seven crossword clues themselves provide lateral hints / descriptions for each of these puzzles in order – i.e., the clue for FRET provides a hint for Puzzle 4, the clue for LEAST provides a hint for Puzzle 5, and so on for EMBLEM (Puzzle 6), ARDUOUS (Puzzle 7), BERMUDAN (Puzzle 8), ANDROMEDA (Puzzle 9), and GEOTHERMAL (Puzzle 10):

Puzzle 4: “Motif retraced around part of stringed instrument” (and the answer, FRET) point towards the geometric pattern in the image representing a guitar fretboard

Puzzle 5: “Minimum piece, simple as that” evokes the pawn (the chess piece of minimum value) being offered up in the Queen’s Gambit opening

Puzzle 6: “To some extent, resemble mathematical symbol” hints at the fact that the number in the puzzle closely resembles a mathematical symbol (namely, Euler’s number e)

Puzzle 7: “Separating from popular duo usually testing” hints at the separation into two answer groups giving rise to a popular duo (namely, Ant and Dec)

Puzzle 8: “In territory in December mud annoys” is an apt description of the overall theme of the question, and hints at the frustration inherent in trying to restore the map to an all-mud state (which, as explained earlier, is impossible)

Puzzle 9: “Some stars spotted in Poundland, Rome? Daring!” (and the answer, ANDROMEDA) hints at the astronomical theme of the puzzle – indeed, Andromeda is depicted on Plate 5 of Urania’s Mirror – and also mirrors the puzzle’s solution (STAR-SEER)

Puzzle 10: “Defended by judge, other malcontents causing things to bubble up?” hints at the puzzle featuring a judge (namely, Judge Judy), along with others who are discontent (about Christmas) – neatly echoing the puzzle title “Bar humbug!”





illustration, the symbols in the top row of the main grid represent the letters A, I, M, W, I, T, O, R, U, M, E, T, S, G, E, N, and E respectively. (The name of the font is Zilap Zodiac – with the letter “O” being reminiscent of the Zodiac Killer’s “signature” symbol.)

However, there is a further important connection between the puzzle and the Zodiac cipher itself: the order in which the elements of the 9-by-17 grid need to be read to extract the message is the same as for the “340 Cipher” – even down to the size of the sub-grid used (namely, 9-by-17). For a brief explanation of this mechanism, in less than a minute, please watch the following video on YouTube (from 2:00 to 2:50 approximately): <https://www.youtube.com/watch?v=-1oQLPRE21o>

Note that the order in which the 153 symbols need to be considered – as animated in the above video – can be regarded as a chess knight moving on a torus, starting from the top-left corner. Each step consists of moving two cells to the right and one down, with the grid being regarded as “wrapping around” from the bottom edge to the top edge, and similarly from the right edge to the left edge. This interpretation explains the hint given at the top of the puzzle, which reads (once spacing is added) HINT – A HORSE ON A RING THAT SOUNDS LIKE A BULL. The “horse”, in this context, is a chess knight, while “a ring that sounds like a bull” is a torus – a homophone of Taurus, which is the bull within the signs of the Zodiac. (Note: There is a further, extremely well-hidden inter-question connection here: if we look back at Urania’s Mirror in Puzzle 9, Taurus appears as Plate 17 – these numbers mirror the grid size of 9-by-17 used for the current puzzle.)

The message that appears when the symbols are read in the order described above is the following quote by the astrologer Noel Tyl (with spacing and punctuation added in the natural way):

“ASTROLOGY IS LIKE A GAME OF CHESS WITH AN INVISIBLE PARTNER. WE SET OUT THE BOARD AND THE RULES, MAKE A MOVE, AND THEN FIND THAT THE PIECES ARE MOVING THEMSELVES, AS IF BY AN INVISIBLE HAND.” - N. TYL

The astrological nature of the quote is of course appropriate, given the Zodiac theme of the puzzle – and as several solvers noted, Noel Tyl’s first name also has a festive connotation, in keeping with the quiz’s overall theme. It is also appropriate that a puzzle with a Zodiac theme should be number 12 in the quiz.

Finally, as noted at the end of the puzzle, the chess-related theme of the extracted message provides an additional clue to Puzzle 5 (on the Netflix miniseries “The Queen’s Gambit”). Indeed, during the course of the miniseries, there are several scenes in which the lead character, Beth Harmon, visualises pieces moving on the ceiling (e.g., <https://www.youtube.com/watch?v=7asbUABPg7c>), which could aptly be described as “the pieces [...] moving themselves, as if by an invisible hand”.



**Puzzle 13: [4 points]**

In what context would you find 19 August 2014, 23 June 2014, 28 May 2013, 14 August 2014, 21 September 2014, 30 June 2014, and 6 September 2014 occurring together, as seven of eight – and how is the eighth (which is seventh) different?

PUZZLE 13 SOLUTION

The dates all occur together on the album “Untitled Unmastered” by Kendrick Lamar.

You would find the specified dates occurring together, as seven of eight, on Kendrick Lamar’s 2016 album “Untitled Unmastered” (see https://en.wikipedia.org/wiki/Untitled_Unmastered), as it comprises eight tracks with the following names: “Untitled 01 | 08.19.2014”, “Untitled 02 | 06.23.2014”, “Untitled 03 | 05.28.2013”, “Untitled 04 | 08.14.2014”, “Untitled 05 | 09.21.2014”, “Untitled 06 | 06.30.2014”, “Untitled 07 | 2014 – 2016”, and “Untitled 08 | 09.06.2014”.

As indicated in the list above, the seventh track is different because its name features a range of years rather than just one specific date.

The puzzle is itself deliberately untitled, which provides a cryptic hint to the name of the album.



**Puzzle 14: WHAT THE ...? [6 points]**

In this puzzle, each of the five names on the left needs to be correctly matched up with one of the five lists of letters on the right.

Can you crack it?

(For the first, bolder list, little could be said to help you out!)

Alfred	P/S/B
Arthur	J/M/L
Daniel	C/C/G
Henrietta	L/Q/P/D/D
Louisa	G/C/H

PUZZLE 14 SOLUTION

The first names shown on the left are associated with several different surnames in the novels of Charles Dickens – the initial letters of the possible surnames are indicated by the letters on the right (after being correctly matched up), and are shaded chronologically.

This puzzle concerns various first names that feature multiple times in the fifteen novels of Charles Dickens – i.e., excluding his novellas, short stories, and other works. (Please see <https://www.charlesdickensinfo.com/novels/complete-works/> and <https://www.charlesdickenspage.com/charles-dickens-characters-by-novel.html> for further details, including a searchable character list.)

Each first name (on the left of the image) has a corresponding list on the right that identifies the initial letters of its associated surnames, listed in chronological order by novel. The two sides should therefore be matched up as follows:

Alfred = **J / M / L** = Alfred Jingle [*The Pickwick Papers*, 1836-37] / Alfred Mantalini [*Nicholas Nickleby*, 1838-39] / Alfred Lamble [*Our Mutual Friend*, 1864-65]





Arthur = G / C / H = Arthur Gride [*Nicholas Nickleby*, 1838-39] / Arthur Clennam [*Little Dorrit*, 1855-57] / Arthur Havisham [*Great Expectations*, 1860-61]

Daniel = L / Q / P / D / D = Daniel Lambert [*Nicholas Nickleby*, 1838-39] / Daniel Quilp [*The Old Curiosity Shop*, 1840-41] / Daniel Peggotty [*David Copperfield*, 1849-50] / Daniel Doyce [*Little Dorrit*, 1855-57] / Daniel Dancer [*Our Mutual Friend*, 1864-65]

Henrietta = P / S / B = Henrietta Petowker [*Nicholas Nickleby*, 1838-39] / Henrietta Simmons [*The Old Curiosity Shop*, 1840-41] / Henrietta Boffin [*Our Mutual Friend*, 1864-65]

Louisa = C / C / G = Louisa Chick [*Dombey and Son*, 1846-48] / Louisa Crewler [*David Copperfield*, 1849-50] / Louisa Gradgrind [*Hard Times*, 1954]

The different shades of grey assigned to the letters indicate the position of the relevant novel in the chronological sequence (i.e., *The Pickwick Papers* receives the darkest shade, and each subsequent novel receives a progressively lighter shade). The chronological list is as follows: 1. *The Pickwick Papers*; 2. *Oliver Twist*; 3. *Nicholas Nickleby*; 4. *The Old Curiosity Shop*; 5. *Barnaby Rudge*; 6. *Martin Chuzzlewit*; 7. *Dombey and Son*; 8. *David Copperfield*; 9. *Bleak House*; 10. *Hard Times*; 11. *Little Dorrit*; 12. *A Tale of Two Cities*; 13. *Great Expectations*; 14. *Our Mutual Friend*; 15. *The Mystery of Edwin Drood*. (For example, the shades of grey used for the letters in “C / C / G” are all similar, because the corresponding novels appear in positions 7, 8, and 10 of the chronological list.)

There were two additional pieces of wordplay in the puzzle text – mentioning either one of these was sufficient to earn the point. First, the use of “crack it” (in “Can you crack it?”) is a nod to another Dickens surname – namely, that of Toby Crackit from *Oliver Twist* (which also provides a link back to “Oliver!” from Puzzle 3). Second, the bracketed and italicised text on the last line of the puzzle should be parsed as follows: “For the first [set of letters], BOLDER / LIST / LITTLE could be said to help you out.” To explain, Bolder is a character from *Nicholas Nickleby*, (Isaac) List is a character from *The Old Curiosity Shop*, and (John) Little is a name mentioned in *Our Mutual Friend* – so together, this text provides an additional clue that the first list of letters (i.e., P / S / B) should be connected to these three novels. As indicated by the breakdown above for “Henrietta = P / S / B”, this is indeed the case.

The puzzle title is an allusion to the well-known phrase, “What the Dickens?”, which evokes the puzzle’s Dickensian theme (though strictly speaking, the phrase pre-dates Charles Dickens, and is typically regarded as a euphemism for “What the devil?”) This Dickensian theme also provides links back to both Puzzle 3 (which features “Oliver!”) and Puzzle 10 (whose title is derived from Scrooge’s famous words in the Dickens novella “A Christmas Carol”).

Finally, as a couple of solvers quipped, it is somewhat apt for a Dickens-themed RSS Christmas Quiz puzzle to not only festively feature a Jingle and a Dancer (both of which evoke Santa’s fleet of reindeer), but also a Boffin.





Puzzle 15: CALL ME CLAUS [7 points]

Explain the image below, and determine what should appear in each of the spaces.

LEIA	#933, 147-151 of 195
YODA	#2493, 84-89 of 522
VADER	#8760, 215-221 of 1831
██████████	#10454, 2062-2070 of 2185
LUKE	#13732, 1090-1096 of 2870
INDIANA	#123404, 8267-8275 of 25790
██████████	#██████████375, 63936-63945 of 85██████████

PUZZLE 15 SOLUTION

This puzzle involves locating the names of (George) Lucas characters within the digits of the Lucas numbers – after the names have been mapped onto strings of digits in a natural way.

A proper “toughie” to round off the quiz – can you find the Lucas names in the Lucas numbers?

The puzzle image features the distinctive yellow-on-black styling used in the Star Wars opening crawl, and each item shown on the left of the image can be seen to be the name of a character created by George Lucas (or a simple abbreviation thereof).

Suppose that each of these names is converted into a string of digits by concatenating the alphabetic positions of the letters in the name – for example, LEIA becomes 12591 (i.e., a concatenation of 12, 5, 9, and 1), YODA becomes 251541, VADER becomes 2214518, and so on.

Then, the information displayed on the right of the puzzle image indicates whereabouts each of these strings of digits first shows up in the sequence of “Lucas numbers”. These numbers follow the same iterative rule as the well-known Fibonacci numbers – i.e., the next number is the sum of the two preceding ones – but the two initial values are taken to be $L(0)=2$ and $L(1)=1$, rather than $F(0)=0$ and $F(1)=1$. (Please see https://en.wikipedia.org/wiki/Lucas_number for further background.)

As an illustration, consider the first row (which features LEIA). The 933rd Lucas number (indicated by #933 in the image) happens to be the first of the Lucas numbers to contain the digit string 12591 corresponding



to the name LEIA. This particular Lucas number has 195 decimal digits, and its value can be calculated using the online Wolfram Alpha tool by visiting the following page:

<https://www.wolframalpha.com/input/?i=Lucas%28933%29>

If we then look at digits 147 to 151 (inclusive) of this 195-digit number, we find that they read “12591” – precisely the digit string that corresponds to LEIA. For completeness, the 195 digits of the 933rd Lucas number are shown below, with the relevant digits highlighted:

96709325259616812826795506371651275168979256351353246075811811402240909551512898254666
54041377177884216762978396362686382824527657245933387418215412591576201345766779780058
27300767530434048847196

In other words, the notation “#933, 147-151 of 195” can be summarised as follows: the number preceded by # (in this case, “#933”) denotes a particular Lucas number (namely, the 933rd), and the rest of the description (in this case, “147-151 of 195”) indicates which digits of the given Lucas number should be extracted to give the digit string corresponding to the name (in this case, 12591 = LEIA).

(If you’d find it helpful to work through another example, try using the same method to confirm that the specification on the second row of the image – i.e., extract digits 84 to 89 from the 522 digits in the 2493rd Lucas number – gives the digit string 251541, which is the encoding of YODA.)

By following this same technique (albeit with larger numbers), we can deduce that the blank on the fourth row must be a name with an encoding of 152923114. Although there are multiple strings of letters that map to this encoding, there is only one candidate that fits with the George Lucas theme – namely, OBIWAN (15-2-9-23-1-14).

The blanks that appear on the final row of the image present a tougher challenge still, as we must determine which Lucas number to use. However, we can significantly reduce the number of possibilities that need to be considered by exploiting the fact that the number of digits must lie between 85000 and 85999 inclusive, along with the additional mathematical fact that the growth of the Lucas numbers follows a predictable pattern.

Specifically, it can be shown that the value of the N th Lucas number is the integer closest to the N th power of the golden ratio, 1.6180339... (as described at <https://mathworld.wolfram.com/LucasNumber.html>). Furthermore, since the number of digits in a positive whole number can be determined by finding the base-10 logarithm of the number, rounding down, and then adding one, it follows (by the rules of logarithms) that *the number of digits in the N th Lucas number is equal to N times the base-10 logarithm of the golden ratio, rounded down, plus one.*

As a concrete example of this, consider the penultimate row of the puzzle image (starting with INDIANA), which features the 123404th Lucas number. If we multiply 123404 by the base-10 logarithm of the golden ratio (which equals 0.20898764...), we obtain the answer 25789.9107574... Therefore, based on the rule in italics above, we would conclude that the 123404th Lucas number must comprise 25790 digits. This is indeed the case, as demonstrated by the fact that 25970 appears at the end of the penultimate row.





(As some solvers noted, this relationship can also be viewed in reverse: if the values for the “number of digits” on the right of the puzzle image – 195, 522, 1831, and so on – are divided by the leftmost values indicating which Lucas number to consider – 933, 2493, 8760, and so on – the result is always close to 0.20898764... (which is the base-10 logarithm of the golden ratio). Indeed, if we calculate the first few cases, we obtain the values $195/933 = 0.20900321\dots$; $522/2493 = 0.20938628\dots$; $1831/8760 = 0.20901826\dots$; and so on.)

By exploiting the fact that the “number of digits” rule (shown in italics above) must hold for the numbers on the final row of the image, it can be shown that there are only five possible Lucas numbers that simultaneously have an index with the correct form (i.e., three digits, followed by 375) and have between 85000 and 85999 digits. The five candidates are:

#407375 (with 85137 digits)

#408375 (with 85346 digits)

#409375 (with 85555 digits)

#410375 (with 85764 digits)

#411375 (with 85973 digits)

(For those without access to specialist software, the above numbers can be computed in full via the Wolfram Alpha website, using its separate “computable notebook” mode – and then copied out to a file for further processing, if desired.)

It turns out that only one of the five Lucas numbers indicated above produces a valid name when digits 63936 to 63945 inclusive are extracted – namely the third one (#409375). For the 409375th Lucas number, extracting these digits gives rise to the ten-digit string 3852321331, which can readily be seen to be the encoding of the character CHEWBACCA (3-8-5-23-2-1-3-3-1).

In summary, then, the blanks within the puzzle image should be completed as follows:

- On the 4th row: OBIWAN
- On the final row: CHEWBACCA, 409 [to make 409375], and 555 [to make 85555]

(Note: A small number of solvers highlighted the remarkable numerical coincidence that these latter two values (409 and 555) are reminiscent of the numbers of the clone troopers “Echo” (CT-1409) and “Fives” (CT-5555), who are key characters in Star Wars: The Clone Wars. For instance, Echo and Fives are specifically mentioned, as a pair, towards the top of the following page:

https://starwars.fandom.com/wiki/Advanced_Recon_Commando. This connection is purely a coincidence, however, and no points were associated with it.)

Finally, the puzzle title CALL ME CLAUS is not a reference to the 2001 Christmas film of the same name, but instead reflects the fact that Édouard Lucas (the eponymous inventor of the Lucas numbers) actually did use “Claus” as a pseudonym – specifically, he assumed the nickname “N. Claus de Siam” when marketing





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his famous Tower of Hanoi puzzle. This nickname was an anagram of “Lucas d’Amiens” – with Amiens being the city of Lucas’s birth. (For further details, please see the Wikipedia page at https://en.wikipedia.org/wiki/%C3%89douard_Lucas.)



Lastly, as several solvers mentioned in their submissions, the theme of “stars” was intentionally woven into many of the puzzles this year – as foreshadowed by the Christmas stars in the image banner above Puzzle 1. As noted in the solution to Puzzle 9, the theme was particularly apt this Christmas-time due to the appearance of the “Christmas Star” (the conjunction of Jupiter and Saturn) on 21 December 2020 – which was the day on which this quiz was released (as noted in bold at the top of the original quiz page).

To briefly highlight the most noteworthy appearances of stars within the quiz: the logo of the Hamilton musical (Puzzle 2) famously has the shape of a star; the Urania’s Mirror puzzle (Puzzle 9) features stars heavily through the cards of Urania’s Mirror, the imagery used for the binary encoding, the star on the Ainaru flag, and the final answer, “STAR-SEER”; the last “Across” clue of Puzzle 11 describes “some stars spotted” and has the answer “Andromeda” (which itself features within Urania’s Mirror); the Zodiac theme of Puzzle 12 features many of the star-sign symbols (several of which overlap with the plates of Urania’s Mirror); and to round things off, the “Lucas names within Lucas numbers” puzzle (Puzzle 15) features numerous characters from the Star Wars universe.

The 2020 edition of the RSS Christmas Quiz was devised and created by Dr Tim Paulden. Many thanks to Tom Thorpe for his helpful contributions.

