Figure 1 : http://c.developpez.com/defis/5-Cube-Soma/

N'ayant aucune idée élégante ou intelligente de démontrer que la figure présentée sur la page http://c.developpez.com/defis/5-Cube-Soma/, que l'on notera *W*, n'a pas de solution, on va tenter une approche « force brute à la main assistée par ordinateur ». En effet, l'algorithme *DLX* que l'on utilise pour déterminer si une structure a une solution ou pas (voir la documentation du projet), ne semble être d'aucun secours pour aider à cette démonstration. On essaiera donc d'utiliser un raisonnement où toutes les configurations possibles des 7 pièces du jeu *SOMA* sont passées en revue jusqu'à ce qu'on puisse affirmer que la figure *W* n'a pas de solution. C'est un raisonnement qui semble a priori exact et rigoureux mais qui comporte beaucoup (énormément!) de tests. Afin de ne pas se tromper dans ces tests, et surtout, de ne pas en oublier, on les effectue par ordinateur.

Pour ce faire, on se place au préalable, dans la boîte englobante de *W*, c'est-à-dire le plus petit parallélépipède rectangle contenant *W*. Si on l'observe dans le plan *(0YZ)* suivant les valeurs successives de *X*, l'on voit alors *5* couches de *5 x 3* cubes, soit *75* cubes, numérotés de *0* à *74*. Dans le dessin ci-dessous, figurent en bleu les cubes appartenant à *W*, ceux en blanc correspondant au reste de sa boîte englobante.

0	3	6	9	12
1	4	7	10	13
2	5	8	11	14

Couche 1.

15	18	21	24	27
16	19	22	25	28
17	20	23	26	29

Couche 2.

30	33	36	39	42
31	34	37	40	43
32	35	38	41	44

Couche 3.

45	48	51	54	57
46	49	52	55	58
47	50	53	56	59

Couche 4.

60	63	66	69	72
61	64	67	70	73
62	65	68	71	74

Couche 5.

Pour chaque pièce *A*, *B*, *L*, *P*, *T*, *V* et *Z*, on dresse la liste des positions possibles de leurs cubes constitutifs dans la structure *W*. La position d'un cube est donnée relativement au parallélépipède et non à la structure *W*. Par exemple, une des façons de placer la pièce *A* dans *W* est : *34,35,37,52*. Soient les cubes numérotées *34*, *35*, *37* et *52* de la boîte englobante.

Il y a *18* façons de placer la pièce *A* dans la structure *W*; autant pour la pièce *B*. La liste des positions possibles de la pièce *L* contient quant à elle la bagatelle de *82* éléments; celle de la pièce *P* seulement *12*. Il y a autant de manières possibles de placer les pièces *T* et *Z*, soit *32*. enfin, la liste des positions possibles de la pièce *V* contient *35* éléments (en tenant compte de la parité de cette pièce qui est de *1* car la structure *W* est de parité *1*. Voir la documentation du projet). Ce là fait donc
18 x 18 x 82 x 12 x 32 x 35 x 32 = 11 426 365 440 combinaisons possibles!

Heureusement, en étant un peu méthodique, on n'aura pas à en tester autant pour pouvoir affirmer que la structure *W* n'a pas de solution. Notons également qu'il semble que ce soit ici que semble se situer la seule source d'erreur de notre démonstration : il suffit de s'être trompé dans le nombre de possibilités de placer une pièce dans *W* et la démonstration devient un échec! (Cependant, je ne crois pas que ce soit le cas car c'est une partie que j'ai faite totalement à la main et que j'ai vérifiée plusieurs fois, mais bon on ne sait jamais...)

En premier lieu, pour déterminer si une combinaison de pièces est valide, on fait un test de non chevauchement : on vérifie si des numéros de cubes se répètent dans les éléments de liste choisis. Par exemple : la combinaison formée par la pièce *P* placée en *16,17,32,35* et la pièce *A* placée en *51,66,67,69* est valide car aucun numéro ne figure dans les *2* listes en même temps. En revanche, essayer de placer la pièce *B* en *15,16,30,33* et la pièce *Z* en *0,1,16,17* donne une combinaison invalide car le cube *16* est occupé par les *2* pièces en même temps; il y a chevauchement.

Afin de diminuer le nombre de combinaisons à tester, on va devoir essayer d'être méthodique. Ainsi, on va commencer par dresser la liste de toutes les combinaisons valides (c'est-à-dire sans chevauchement) entre les pièces *P* et *A* car leur liste de positions possibles sont celles qui contiennent le moins d'éléments (*12* et *18* respectivement, pour rappel), On appellera *« P inter A »* cette liste. A l'aide de cette liste et de celle des

positions possibles de la pièce *B*, on fabriquera une nouvelle liste, notée *« P inter A inter B »* de leurs combinaisons possibles. Il en ira ainsi de suite par nombre croissant des tailles des listes (pièce *T* puis *Z* puis *V* et pour finir *L*).

Pour commencer, voici successivement les listes des positions possibles des pièces *P* et *A* dans la structure *W*.

Liste pièce *P* (*12* éléments) :

15,30,31,33
16,30,31,34
16,31,32,34
17,31,32,35
33,36,37,51
34,36,37,52
34,37,38,52
35,37,38,53
51,66,67,69
52,66,67,70
52,67,68,70
53,67,68,71

Liste pièce *A* (*18* éléments) :

15,16,31,34
15,30,33,34
16,17,32,35
16,30,31,33
16,31,34,35
17,31,32,34
33,34,36,51
33,36,37,52
34,35,37,52
34,37,38,53
34,37,51,52
35,38,52,53
51,52,67,70
51,66,69,70
52,53,68,71
52,66,67,69
52,67,70,71
53,67,68,70

A partir de ces *2* listes et comme on l'a dit avant, on obtient, grâce aux tests de non chevauchement, la liste des cubes (de la structure *W*) que peuvent occuper ensemble les pièces *P* et *A*; celle-ci contient *98* éléments. A ce stade, on a testé *12 x 18 = 216* combinaisons.

Liste « *P inter A* » (*98* éléments) :

15,16,17,30,31,32,33,35
15,16,31,33,34,36,37,51
15,16,31,34,35,37,38,53
15,16,31,34,51,66,67,69
15,16,31,34,52,66,67,70
15,16,31,34,52,67,68,70
15,16,31,34,53,67,68,71
15,17,30,31,32,33,34,35
15,30,31,33,34,35,37,52
15,30,31,33,34,37,38,53
15,30,31,33,34,37,51,52
15,30,31,33,35,38,52,53
15,30,31,33,51,52,67,70
15,30,31,33,51,66,69,70
15,30,31,33,52,53,68,71
15,30,31,33,52,66,67,69
15,30,31,33,52,67,70,71
15,30,31,33,53,67,68,70
15,30,33,34,35,37,38,53
15,30,33,34,51,66,67,69
15,30,33,34,52,66,67,70
15,30,33,34,52,67,68,70
15,30,33,34,53,67,68,71
16,17,32,33,35,36,37,51
16,17,32,34,35,36,37,52
16,17,32,34,35,37,38,52
16,17,32,35,51,66,67,69
16,17,32,35,52,66,67,70
16,17,32,35,52,67,68,70
16,17,32,35,53,67,68,71
16,30,31,33,34,36,37,52
16,30,31,33,34,37,38,52
16,30,31,33,35,37,38,53
16,30,31,33,51,66,67,69
16,30,31,33,52,66,67,70
16,30,31,33,52,67,68,70
16,30,31,33,53,67,68,71
16,30,31,34,35,38,52,53
16,30,31,34,51,52,67,70
16,30,31,34,51,66,69,70
16,30,31,34,52,53,68,71
16,30,31,34,52,66,67,69
16,30,31,34,52,67,70,71
16,30,31,34,53,67,68,70
16,31,32,33,34,36,37,52
16,31,32,34,35,38,52,53
16,31,32,34,51,52,67,70

```
16,31,32,34,51,66,69,70
16,31,32,34,52,53,68,71
16,31,32,34,52,66,67,69
16,31,32,34,52,67,70,71
16,31,32,34,53,67,68,70
16,31,33,34,35,36,37,51
16,31,34,35,51,66,67,69
16,31,34,35,52,66,67,70
16,31,34,35,52,67,68,70
16,31,34,35,53,67,68,71
17,31,32,33,34,35,36,51
17,31,32,33,34,36,37,51
17,31,32,33,35,36,37,52
17,31,32,34,35,37,38,53
17,31,32,34,35,37,51,52
17,31,32,34,51,66,67,69
17,31,32,34,52,66,67,70
17,31,32,34,52,67,68,70
17,31,32,34,53,67,68,71
17,31,32,35,51,52,67,70
17,31,32,35,51,66,69,70
17,31,32,35,52,53,68,71
17,31,32,35,52,66,67,69
17,31,32,35,52,67,70,71
17,31,32,35,53,67,68,70
33,34,35,36,37,38,51,53
33,34,36,51,52,66,67,70
33,34,36,51,52,67,68,70
33,34,36,51,53,67,68,71
33,35,36,37,38,51,52,53
33,36,37,51,52,53,68,71
33,36,37,51,52,66,67,69
33,36,37,51,52,67,70,71
33,36,37,51,53,67,68,70
33,36,37,52,53,67,68,71
34,35,37,51,52,66,67,69
34,35,37,52,53,67,68,71
34,36,37,51,52,66,69,70
34,36,37,52,53,67,68,70
34,37,38,51,52,66,69,70
34,37,38,51,53,66,67,69
34,37,38,52,53,66,67,70
34,37,38,52,53,67,68,70
34,37,51,52,53,67,68,71
35,37,38,51,52,53,67,70
35,37,38,51,53,66,69,70
35,37,38,52,53,66,67,69
35,37,38,52,53,67,70,71
35,38,51,52,53,66,67,69
51,52,53,66,67,68,69,71
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51,53,66,67,68,69,70,71

Avec cette liste « *P inter A* », et l'ensemble des positions possibles de la pièce *B* dans *W* (*18* possibilités pour rappel), on renouvelle l'opération (tests de non chevauchement) afin d'obtenir la liste « *P inter A inter B* » correspondante à tous les cubes que peuvent occuper en même temps les pièces *P*, *A* et *B* dans *W*. Cette dernière liste compte ainsi *252* éléments et de plus, on a fait jusqu'à présent *216 + 18 x 98 = 1980* tests de combinaisons.

Liste pièce *B* (*18* éléments) :

15,16,30,33
15,30,31,34
16,17,31,34
16,31,32,35
16,31,33,34
17,32,34,35
33,34,37,52
33,36,51,52
34,35,38,53
34,36,37,51
34,37,52,53
35,37,38,52
51,52,66,69
51,66,67,70
52,53,67,70
52,67,68,71
52,67,69,70
53,68,70,71

Liste « *P inter A inter B* » (*252* éléments) :

15,16,17,30,31,32,33,34,35,36,37,51
15,16,17,30,31,32,33,34,35,37,38,53
15,16,17,30,31,32,33,34,35,37,51,52
15,16,17,30,31,32,33,34,35,37,52,53
15,16,17,30,31,32,33,34,51,66,67,69
15,16,17,30,31,32,33,34,52,66,67,70
15,16,17,30,31,32,33,34,52,67,68,70
15,16,17,30,31,32,33,34,53,67,68,71
15,16,17,30,31,32,33,35,51,52,66,69
15,16,17,30,31,32,33,35,51,52,67,70
15,16,17,30,31,32,33,35,51,66,67,70
15,16,17,30,31,32,33,35,51,66,69,70
15,16,17,30,31,32,33,35,52,53,67,70
15,16,17,30,31,32,33,35,52,53,68,71
15,16,17,30,31,32,33,35,52,66,67,69
15,16,17,30,31,32,33,35,52,67,68,71
15,16,17,30,31,32,33,35,52,67,69,70
15,16,17,30,31,32,33,35,52,67,70,71

15,16,17,30,31,32,33,35,53,67,68,70
15,16,17,30,31,32,33,35,53,68,70,71
15,16,17,30,31,32,34,35,51,66,67,69
15,16,17,30,31,32,34,35,52,66,67,70
15,16,17,30,31,32,34,35,52,67,68,70
15,16,17,30,31,32,34,35,53,67,68,71
15,16,30,31,32,33,34,35,51,66,67,69
15,16,30,31,32,33,34,35,52,66,67,70
15,16,30,31,32,33,34,35,52,67,68,70
15,16,30,31,32,33,34,35,53,67,68,71
15,16,30,33,34,35,37,51,52,66,67,69
15,16,30,33,34,35,37,52,53,67,68,71
15,16,30,33,34,36,37,51,52,66,69,70
15,16,30,33,34,36,37,52,53,67,68,70
15,16,30,33,34,37,38,51,52,66,69,70
15,16,30,33,34,37,38,51,53,66,67,69
15,16,30,33,34,37,38,52,53,66,67,70
15,16,30,33,34,37,38,52,53,67,68,70
15,16,30,33,34,37,51,52,53,67,68,71
15,16,30,33,35,37,38,51,52,53,67,70
15,16,30,33,35,37,38,51,53,66,69,70
15,16,30,33,35,37,38,52,53,66,67,69
15,16,30,33,35,37,38,52,53,67,70,71
15,16,30,33,35,38,51,52,53,66,67,69
15,16,30,33,51,52,53,66,67,68,69,71
15,16,30,33,51,53,66,67,68,69,70,71
15,16,31,33,34,35,36,37,38,51,52,53
15,16,31,33,34,36,37,51,52,53,67,70
15,16,31,33,34,36,37,51,52,67,68,71
15,16,31,33,34,36,37,51,52,67,69,70
15,16,31,33,34,36,37,51,53,68,70,71
15,16,31,33,34,36,51,52,53,67,68,71
15,16,31,34,35,37,38,51,52,53,66,69
15,16,31,34,35,37,38,51,52,66,67,69
15,16,31,34,35,37,38,51,53,66,67,70
15,16,31,34,35,37,38,52,53,67,68,71
15,16,31,34,35,37,38,52,53,67,69,70
15,16,31,34,51,52,53,66,67,68,69,71
15,16,31,34,51,53,66,67,68,69,70,71
15,17,30,31,32,33,34,35,51,52,66,69
15,17,30,31,32,33,34,35,51,52,67,70
15,17,30,31,32,33,34,35,51,66,67,70
15,17,30,31,32,33,34,35,51,66,69,70
15,17,30,31,32,33,34,35,52,53,67,70
15,17,30,31,32,33,34,35,52,53,68,71
15,17,30,31,32,33,34,35,52,66,67,69
15,17,30,31,32,33,34,35,52,67,68,71
15,17,30,31,32,33,34,35,52,67,69,70
15,17,30,31,32,33,34,35,52,67,70,71
15,17,30,31,32,33,34,35,53,67,68,70

15,17,30,31,32,33,34,35,53,68,70,71
15,30,31,33,34,35,36,37,38,51,52,53
15,30,31,33,34,35,37,51,52,66,67,70
15,30,31,33,34,35,37,52,53,68,70,71
15,30,31,33,34,35,38,51,52,53,67,70
15,30,31,33,34,35,38,51,53,66,69,70
15,30,31,33,34,35,38,52,53,66,67,69
15,30,31,33,34,35,38,52,53,67,70,71
15,30,31,33,34,36,37,51,52,53,68,71
15,30,31,33,34,36,37,51,52,66,67,69
15,30,31,33,34,36,37,51,52,67,70,71
15,30,31,33,34,36,37,51,53,67,68,70
15,30,31,33,34,36,37,52,53,67,68,71
15,30,31,33,34,37,38,51,52,53,66,69
15,30,31,33,34,37,38,51,53,66,67,70
15,30,31,33,34,37,38,52,53,67,68,71
15,30,31,33,34,37,38,52,53,67,69,70
15,30,31,33,34,37,51,52,53,66,69,70
15,30,31,33,34,37,51,52,53,68,70,71
15,30,31,33,35,37,38,51,52,66,69,70
15,30,31,33,35,37,38,52,53,67,68,70
15,30,31,33,35,38,51,52,53,66,67,70
15,30,31,33,51,52,53,66,67,68,69,70
15,30,31,33,51,52,53,66,67,68,70,71
15,30,31,33,51,52,66,67,68,69,70,71
15,30,31,33,52,53,66,67,68,69,70,71
15,30,31,34,35,37,38,51,52,53,67,70
15,30,31,34,35,37,38,51,53,66,69,70
15,30,31,34,35,37,38,52,53,66,67,69
15,30,31,34,35,37,38,52,53,67,70,71
15,30,31,34,35,38,51,52,53,66,67,69
15,30,31,34,51,52,53,66,67,68,69,71
15,30,31,34,51,53,66,67,68,69,70,71
15,30,33,34,35,37,38,51,52,53,66,69
15,30,33,34,35,37,38,51,52,66,67,69
15,30,33,34,35,37,38,51,53,66,67,70
15,30,33,34,35,37,38,52,53,67,68,71
15,30,33,34,35,37,38,52,53,67,69,70
15,30,33,34,51,52,53,66,67,68,69,71
15,30,33,34,51,53,66,67,68,69,70,71
16,17,30,31,32,33,34,35,51,66,67,69
16,17,30,31,32,33,34,35,52,66,67,70
16,17,30,31,32,33,34,35,52,67,68,70
16,17,30,31,32,33,34,35,53,67,68,71
16,17,31,33,34,35,36,37,38,51,52,53
16,17,31,33,34,36,37,51,52,53,68,71
16,17,31,33,34,36,37,51,52,66,67,69
16,17,31,33,34,36,37,51,52,67,70,71
16,17,31,33,34,36,37,51,53,67,68,70
16,17,31,33,34,36,37,52,53,67,68,71

16,17,31,34,35,37,38,51,52,53,67,70
16,17,31,34,35,37,38,51,53,66,69,70
16,17,31,34,35,37,38,52,53,66,67,69
16,17,31,34,35,37,38,52,53,67,70,71
16,17,31,34,35,38,51,52,53,66,67,69
16,17,31,34,51,52,53,66,67,68,69,71
16,17,31,34,51,53,66,67,68,69,70,71
16,17,32,33,34,35,37,51,52,66,67,69
16,17,32,33,34,35,37,52,53,67,68,71
16,17,32,33,35,36,37,51,52,53,67,70
16,17,32,33,35,36,37,51,52,67,68,71
16,17,32,33,35,36,37,51,52,67,69,70
16,17,32,33,35,36,37,51,53,68,70,71
16,17,32,33,35,36,51,52,53,67,68,71
16,17,32,34,35,36,37,51,52,66,67,70
16,17,32,34,35,36,37,51,52,67,68,70
16,17,32,34,35,36,37,51,53,67,68,71
16,17,32,34,35,36,37,52,53,68,70,71
16,17,32,34,35,37,38,51,52,66,67,70
16,17,32,34,35,37,38,52,53,68,70,71
16,17,32,34,35,37,51,52,53,66,67,69
16,17,32,35,51,52,53,66,67,68,69,71
16,17,32,35,51,53,66,67,68,69,70,71
16,30,31,33,34,35,38,51,53,66,67,69
16,30,31,33,34,35,38,52,53,66,67,70
16,30,31,33,34,35,38,52,53,67,68,70
16,30,31,33,34,36,37,51,52,66,67,70
16,30,31,33,34,36,37,51,52,67,68,70
16,30,31,33,34,36,37,51,53,67,68,71
16,30,31,33,34,36,37,52,53,68,70,71
16,30,31,33,34,36,51,52,53,67,68,70
16,30,31,33,34,37,38,51,52,66,67,70
16,30,31,33,34,37,38,52,53,68,70,71
16,30,31,33,34,37,51,52,53,66,67,69
16,30,31,33,35,37,38,51,52,53,66,69
16,30,31,33,35,37,38,51,52,66,67,69
16,30,31,33,35,37,38,51,53,66,67,70
16,30,31,33,35,37,38,52,53,67,68,71
16,30,31,33,35,37,38,52,53,67,69,70
16,30,31,33,51,52,53,66,67,68,69,71
16,30,31,33,51,53,66,67,68,69,70,71
16,30,31,34,35,37,38,51,52,66,69,70
16,30,31,34,35,37,38,52,53,67,68,70
16,30,31,34,35,38,51,52,53,66,67,70
16,30,31,34,51,52,53,66,67,68,69,70
16,30,31,34,51,52,53,66,67,68,70,71
16,30,31,34,51,52,66,67,68,69,70,71
16,30,31,34,52,53,66,67,68,69,70,71
16,31,32,33,34,35,36,51,52,66,67,70
16,31,32,33,34,35,36,51,52,67,68,70

16,31,32,33,34,35,36,51,53,67,68,71
16,31,32,33,34,36,37,51,52,66,67,70
16,31,32,33,34,36,37,52,53,68,70,71
16,31,32,33,34,36,51,52,53,67,68,70
16,31,32,33,35,36,37,51,52,53,68,71
16,31,32,33,35,36,37,51,52,66,67,69
16,31,32,33,35,36,37,51,52,67,70,71
16,31,32,33,35,36,37,51,53,67,68,70
16,31,32,33,35,36,37,52,53,67,68,71
16,31,32,34,35,36,37,51,52,66,69,70
16,31,32,34,35,36,37,52,53,67,68,70
16,31,32,34,35,37,38,51,52,66,69,70
16,31,32,34,35,37,38,51,53,66,67,69
16,31,32,34,35,37,38,52,53,66,67,70
16,31,32,34,35,37,38,52,53,67,68,70
16,31,32,34,35,37,51,52,53,67,68,71
16,31,32,34,35,38,51,52,53,66,67,70
16,31,32,34,51,52,53,66,67,68,69,70
16,31,32,34,51,52,53,66,67,68,70,71
16,31,32,34,51,52,66,67,68,69,70,71
16,31,32,34,52,53,66,67,68,69,70,71
16,31,32,35,51,52,53,66,67,68,69,71
16,31,32,35,51,53,66,67,68,69,70,71
16,31,33,34,35,36,37,51,52,53,67,70
16,31,33,34,35,36,37,51,52,67,68,71
16,31,33,34,35,36,37,51,52,67,69,70
16,31,33,34,35,36,37,51,53,68,70,71
16,31,33,34,35,36,51,52,53,67,68,71
16,31,33,34,35,37,38,51,52,53,67,70
16,31,33,34,35,37,38,51,53,66,69,70
16,31,33,34,35,37,38,52,53,66,67,69
16,31,33,34,35,37,38,52,53,67,70,71
16,31,33,34,35,38,51,52,53,66,67,69
16,31,33,34,51,52,53,66,67,68,69,71
16,31,33,34,51,53,66,67,68,69,70,71
16,31,34,35,51,52,53,66,67,68,69,71
16,31,34,35,51,53,66,67,68,69,70,71
17,31,32,33,34,35,36,37,38,51,52,53
17,31,32,33,34,35,36,51,52,53,67,70
17,31,32,33,34,35,36,51,52,67,68,71
17,31,32,33,34,35,36,51,52,67,69,70
17,31,32,33,34,35,36,51,53,68,70,71
17,31,32,33,34,35,37,51,52,66,69,70
17,31,32,33,34,35,37,52,53,67,68,70
17,31,32,33,34,36,37,51,52,53,67,70
17,31,32,33,34,36,37,51,52,67,68,71
17,31,32,33,34,36,37,51,52,67,69,70
17,31,32,33,34,36,37,51,53,68,70,71
17,31,32,33,34,36,51,52,53,67,68,71
17,31,32,33,35,36,37,51,52,66,67,70

17,31,32,33,35,36,37,52,53,68,70,71
17,31,32,33,35,36,51,52,53,67,68,70
17,31,32,34,35,36,37,51,52,53,68,71
17,31,32,34,35,36,37,51,52,66,67,69
17,31,32,34,35,36,37,51,52,67,70,71
17,31,32,34,35,36,37,51,53,67,68,70
17,31,32,34,35,37,38,51,52,53,66,69
17,31,32,34,35,37,38,51,52,66,67,69
17,31,32,34,35,37,38,51,53,66,67,70
17,31,32,34,35,37,38,52,53,67,68,71
17,31,32,34,35,37,38,52,53,67,69,70
17,31,32,34,35,37,51,52,53,66,69,70
17,31,32,34,35,37,51,52,53,68,70,71
17,31,32,34,51,52,53,66,67,68,69,71
17,31,32,34,51,53,66,67,68,69,70,71
17,31,32,35,51,52,53,66,67,68,69,70
17,31,32,35,51,52,53,66,67,68,70,71
17,31,32,35,51,52,66,67,68,69,70,71
17,31,32,35,52,53,66,67,68,69,70,71
17,32,33,34,35,36,37,51,52,53,68,71
17,32,33,34,35,36,37,51,52,66,67,69
17,32,33,34,35,36,37,51,52,67,70,71
17,32,33,34,35,36,37,51,53,67,68,70
17,32,33,34,35,36,37,52,53,67,68,71
17,32,34,35,51,52,53,66,67,68,69,71
17,32,34,35,51,53,66,67,68,69,70,71
33,34,35,36,37,38,51,52,53,66,67,69
33,34,35,36,37,38,51,52,53,67,68,71
33,34,35,36,37,38,51,52,53,67,69,70
33,34,35,36,37,38,51,52,53,67,70,71
33,34,37,51,52,53,66,67,68,69,70,71
33,36,37,51,52,53,66,67,68,69,70,71
34,35,37,51,52,53,66,67,68,69,70,71
35,37,38,51,52,53,66,67,68,69,70,71

Les tests de non chevauchement concernent à présent la liste précédente *« P inter A inter B »* ainsi que la liste des positions possibles de la pièce *T* dans *W* (*32* possibilités) afin de fabriquer la liste *« P inter A inter B inter T »* correspondant, une fois de plus, à toutes les possibilités, pour les pièces *A*, *B*, *P* et *T* de figurer, en même temps, dans la structure *W*. On obtient alors *596* possibilités. Au niveau de la complexité, on a alors effectué *1980 + 252 x 32 = 10044* tests de non chevauchement.

Liste pièce *T* (*32* éléments) :

0,1,2,16
0,15,16,30
1,15,16,17
1,15,16,31
1,16,17,31
2,16,17,32

15,16,17,31
16,30,31,32
30,31,32,34
30,33,34,36
31,33,34,35
31,33,34,37
31,34,35,37
32,34,35,38
33,34,35,37
34,36,37,38
36,37,38,52
36,51,52,66
37,51,52,53
37,51,52,67
37,52,53,67
38,52,53,68
51,52,53,67
52,66,67,68
66,67,68,70
66,69,70,72
67,69,70,71
67,69,70,73
67,70,71,73
68,70,71,74
69,70,71,73
70,72,73,74

Liste *« P inter A inter B inter T »* (*596* éléments) :

0,1,2,15,16,17,30,31,32,33,34,35,51,52,66,69
0,1,2,15,16,17,30,31,32,33,34,35,51,52,67,70
0,1,2,15,16,17,30,31,32,33,34,35,51,66,67,70
0,1,2,15,16,17,30,31,32,33,34,35,51,66,69,70
0,1,2,15,16,17,30,31,32,33,34,35,52,53,67,70
0,1,2,15,16,17,30,31,32,33,34,35,52,53,68,71
0,1,2,15,16,17,30,31,32,33,34,35,52,66,67,69
0,1,2,15,16,17,30,31,32,33,34,35,52,67,68,71
0,1,2,15,16,17,30,31,32,33,34,35,52,67,69,70
0,1,2,15,16,17,30,31,32,33,34,35,52,67,70,71
0,1,2,15,16,17,30,31,32,33,34,35,53,67,68,70
0,1,2,15,16,17,30,31,32,33,34,35,53,68,70,71
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53
0,1,2,15,16,30,31,33,34,35,37,51,52,66,67,70
0,1,2,15,16,30,31,33,34,35,37,52,53,68,70,71
0,1,2,15,16,30,31,33,34,35,38,51,52,53,67,70
0,1,2,15,16,30,31,33,34,35,38,51,53,66,69,70
0,1,2,15,16,30,31,33,34,35,38,52,53,66,67,69
0,1,2,15,16,30,31,33,34,35,38,52,53,67,70,71
0,1,2,15,16,30,31,33,34,36,37,51,52,53,68,71
0,1,2,15,16,30,31,33,34,36,37,51,52,66,67,69

0,1,2,15,16,30,31,33,34,36,37,51,52,67,70,71
0,1,2,15,16,30,31,33,34,36,37,51,53,67,68,70
0,1,2,15,16,30,31,33,34,36,37,52,53,67,68,71
0,1,2,15,16,30,31,33,34,37,38,51,52,53,66,69
0,1,2,15,16,30,31,33,34,37,38,51,53,66,67,70
0,1,2,15,16,30,31,33,34,37,38,52,53,67,68,71
0,1,2,15,16,30,31,33,34,37,38,52,53,67,69,70
0,1,2,15,16,30,31,33,34,37,51,52,53,66,69,70
0,1,2,15,16,30,31,33,34,37,51,52,53,68,70,71
0,1,2,15,16,30,31,33,35,37,38,51,52,66,69,70
0,1,2,15,16,30,31,33,35,37,38,52,53,67,68,70
0,1,2,15,16,30,31,33,35,38,51,52,53,66,67,70
0,1,2,15,16,30,31,33,51,52,53,66,67,68,69,70
0,1,2,15,16,30,31,33,51,52,53,66,67,68,70,71
0,1,2,15,16,30,31,33,51,52,66,67,68,69,70,71
0,1,2,15,16,30,31,33,52,53,66,67,68,69,70,71
0,1,2,15,16,30,31,34,35,37,38,51,52,53,67,70
0,1,2,15,16,30,31,34,35,37,38,51,53,66,69,70
0,1,2,15,16,30,31,34,35,37,38,52,53,66,67,69
0,1,2,15,16,30,31,34,35,37,38,52,53,67,70,71
0,1,2,15,16,30,31,34,35,38,51,52,53,66,67,69
0,1,2,15,16,30,31,34,51,52,53,66,67,68,69,71
0,1,2,15,16,30,31,34,51,53,66,67,68,69,70,71
0,1,2,15,16,30,33,34,35,37,38,51,52,53,66,69
0,1,2,15,16,30,33,34,35,37,38,51,52,66,67,69
0,1,2,15,16,30,33,34,35,37,38,51,53,66,67,70
0,1,2,15,16,30,33,34,35,37,38,52,53,67,68,71
0,1,2,15,16,30,33,34,35,37,38,52,53,67,69,70
0,1,2,15,16,30,33,34,51,52,53,66,67,68,69,71
0,1,2,15,16,30,33,34,51,53,66,67,68,69,70,71
0,1,2,16,17,31,32,33,34,35,36,37,38,51,52,53
0,1,2,16,17,31,32,33,34,35,36,51,52,53,67,70
0,1,2,16,17,31,32,33,34,35,36,51,52,67,68,71
0,1,2,16,17,31,32,33,34,35,36,51,52,67,69,70
0,1,2,16,17,31,32,33,34,35,36,51,53,68,70,71
0,1,2,16,17,31,32,33,34,35,37,51,52,66,69,70
0,1,2,16,17,31,32,33,34,35,37,52,53,67,68,70
0,1,2,16,17,31,32,33,34,36,37,51,52,53,67,70
0,1,2,16,17,31,32,33,34,36,37,51,52,67,68,71
0,1,2,16,17,31,32,33,34,36,37,51,52,67,69,70
0,1,2,16,17,31,32,33,34,36,37,51,53,68,70,71
0,1,2,16,17,31,32,33,34,36,51,52,53,67,68,71
0,1,2,16,17,31,32,33,35,36,37,51,52,66,67,70
0,1,2,16,17,31,32,33,35,36,37,52,53,68,70,71
0,1,2,16,17,31,32,33,35,36,51,52,53,67,68,70
0,1,2,16,17,31,32,34,35,36,37,51,52,53,68,71
0,1,2,16,17,31,32,34,35,36,37,51,52,66,67,69
0,1,2,16,17,31,32,34,35,36,37,51,52,67,70,71
0,1,2,16,17,31,32,34,35,36,37,51,53,67,68,70
0,1,2,16,17,31,32,34,35,37,38,51,52,53,66,69

0,1,2,16,17,31,32,34,35,37,38,51,52,66,67,69
0,1,2,16,17,31,32,34,35,37,38,51,53,66,67,70
0,1,2,16,17,31,32,34,35,37,38,52,53,67,68,71
0,1,2,16,17,31,32,34,35,37,38,52,53,67,69,70
0,1,2,16,17,31,32,34,35,37,51,52,53,66,69,70
0,1,2,16,17,31,32,34,35,37,51,52,53,68,70,71
0,1,2,16,17,31,32,34,51,52,53,66,67,68,69,71
0,1,2,16,17,31,32,34,51,53,66,67,68,69,70,71
0,1,2,16,17,31,32,35,51,52,53,66,67,68,69,70
0,1,2,16,17,31,32,35,51,52,53,66,67,68,70,71
0,1,2,16,17,31,32,35,51,52,66,67,68,69,70,71
0,1,2,16,17,31,32,35,52,53,66,67,68,69,70,71
0,1,2,16,17,32,33,34,35,36,37,51,52,53,68,71
0,1,2,16,17,32,33,34,35,36,37,51,52,66,67,69
0,1,2,16,17,32,33,34,35,36,37,51,52,67,70,71
0,1,2,16,17,32,33,34,35,36,37,51,53,67,68,70
0,1,2,16,17,32,33,34,35,36,37,52,53,67,68,71
0,1,2,16,17,32,34,35,51,52,53,66,67,68,69,71
0,1,2,16,17,32,34,35,51,53,66,67,68,69,70,71
0,1,2,16,33,34,35,36,37,38,51,52,53,66,67,69
0,1,2,16,33,34,35,36,37,38,51,52,53,67,68,71
0,1,2,16,33,34,35,36,37,38,51,52,53,67,69,70
0,1,2,16,33,34,35,36,37,38,51,52,53,67,70,71
0,1,2,16,33,34,37,51,52,53,66,67,68,69,70,71
0,1,2,16,33,36,37,51,52,53,66,67,68,69,70,71
0,1,2,16,34,35,37,51,52,53,66,67,68,69,70,71
0,1,2,16,35,37,38,51,52,53,66,67,68,69,70,71
0,15,16,17,30,31,32,33,34,35,36,37,38,51,52,53
0,15,16,17,30,31,32,33,34,35,36,51,52,53,67,70
0,15,16,17,30,31,32,33,34,35,36,51,52,67,68,71
0,15,16,17,30,31,32,33,34,35,36,51,52,67,69,70
0,15,16,17,30,31,32,33,34,35,36,51,53,68,70,71
0,15,16,17,30,31,32,33,34,35,37,51,52,66,69,70
0,15,16,17,30,31,32,33,34,35,37,52,53,67,68,70
0,15,16,17,30,31,32,33,34,36,37,51,52,53,67,70
0,15,16,17,30,31,32,33,34,36,37,51,52,67,68,71
0,15,16,17,30,31,32,33,34,36,37,51,52,67,69,70
0,15,16,17,30,31,32,33,34,36,37,51,53,68,70,71
0,15,16,17,30,31,32,33,34,36,51,52,53,67,68,71
0,15,16,17,30,31,32,33,35,36,37,51,52,66,67,70
0,15,16,17,30,31,32,33,35,36,37,52,53,68,70,71
0,15,16,17,30,31,32,33,35,36,51,52,53,67,68,70
0,15,16,17,30,31,32,34,35,36,37,51,52,53,68,71
0,15,16,17,30,31,32,34,35,36,37,51,52,66,67,69
0,15,16,17,30,31,32,34,35,36,37,51,52,67,70,71
0,15,16,17,30,31,32,34,35,36,37,51,53,67,68,70
0,15,16,17,30,31,32,34,35,37,38,51,52,53,66,69
0,15,16,17,30,31,32,34,35,37,38,51,52,66,67,69
0,15,16,17,30,31,32,34,35,37,38,51,53,66,67,70
0,15,16,17,30,31,32,34,35,37,38,52,53,67,68,71

0,15,16,17,30,31,32,34,35,37,38,52,53,67,69,70
0,15,16,17,30,31,32,34,35,37,51,52,53,66,69,70
0,15,16,17,30,31,32,34,35,37,51,52,53,68,70,71
0,15,16,17,30,31,32,34,51,52,53,66,67,68,69,71
0,15,16,17,30,31,32,34,51,53,66,67,68,69,70,71
0,15,16,17,30,31,32,35,51,52,53,66,67,68,69,70
0,15,16,17,30,31,32,35,51,52,53,66,67,68,70,71
0,15,16,17,30,31,32,35,51,52,66,67,68,69,70,71
0,15,16,17,30,31,32,35,52,53,66,67,68,69,70,71
0,15,16,17,30,32,33,34,35,36,37,51,52,53,68,71
0,15,16,17,30,32,33,34,35,36,37,51,52,66,67,69
0,15,16,17,30,32,33,34,35,36,37,51,52,67,70,71
0,15,16,17,30,32,33,34,35,36,37,51,53,67,68,70
0,15,16,17,30,32,33,34,35,36,37,52,53,67,68,71
0,15,16,17,30,32,34,35,51,52,53,66,67,68,69,71
0,15,16,17,30,32,34,35,51,53,66,67,68,69,70,71
0,15,16,30,33,34,35,36,37,38,51,52,53,66,67,69
0,15,16,30,33,34,35,36,37,38,51,52,53,67,68,71
0,15,16,30,33,34,35,36,37,38,51,52,53,67,69,70
0,15,16,30,33,34,35,36,37,38,51,52,53,67,70,71
0,15,16,30,33,34,37,51,52,53,66,67,68,69,70,71
0,15,16,30,33,36,37,51,52,53,66,67,68,69,70,71
0,15,16,30,34,35,37,51,52,53,66,67,68,69,70,71
0,15,16,30,35,37,38,51,52,53,66,67,68,69,70,71
1,15,16,17,30,31,33,34,35,37,38,51,52,53,66,69
1,15,16,17,30,31,33,34,35,37,38,51,52,66,67,69
1,15,16,17,30,31,33,34,35,37,38,51,53,66,67,70
1,15,16,17,30,31,33,34,35,37,38,52,53,67,68,71
1,15,16,17,30,31,33,34,35,37,38,52,53,67,69,70
1,15,16,17,30,31,33,34,51,52,53,66,67,68,69,71
1,15,16,17,30,31,33,34,51,53,66,67,68,69,70,71
1,15,16,17,31,32,33,34,35,36,37,51,52,53,68,71
1,15,16,17,31,32,33,34,35,36,37,51,52,66,67,69
1,15,16,17,31,32,33,34,35,36,37,51,52,67,70,71
1,15,16,17,31,32,33,34,35,36,37,51,53,67,68,70
1,15,16,17,31,32,33,34,35,36,37,52,53,67,68,71
1,15,16,17,31,32,34,35,51,52,53,66,67,68,69,71
1,15,16,17,31,32,34,35,51,53,66,67,68,69,70,71
1,15,16,17,33,34,35,36,37,38,51,52,53,66,67,69
1,15,16,17,33,34,35,36,37,38,51,52,53,67,68,71
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15,30,31,33,34,36,37,51,52,53,66,68,69,70,71,72
15,30,31,33,34,36,37,51,52,53,67,68,69,70,71,73
15,30,31,33,34,36,37,51,52,53,68,70,71,72,73,74
15,30,31,33,34,36,37,51,52,66,67,68,69,70,71,74
15,30,31,33,34,36,37,51,52,66,67,69,70,72,73,74
15,30,31,33,34,36,37,52,53,66,67,68,69,70,71,72
15,30,31,33,34,36,37,52,53,67,68,70,71,72,73,74
15,30,31,33,34,37,38,51,52,53,66,67,69,70,71,73
15,30,31,33,34,37,38,51,52,53,66,68,69,70,71,74
15,30,31,33,34,37,38,51,52,53,66,69,70,72,73,74
15,30,31,33,34,37,38,52,53,66,67,68,69,70,71,72
15,30,31,33,34,37,38,52,53,67,68,70,71,72,73,74

15,30,31,34,35,37,38,52,53,66,67,68,69,70,71,74
15,30,31,34,35,37,38,52,53,66,67,69,70,72,73,74
15,30,31,34,35,38,51,52,53,66,67,68,69,70,71,74
15,30,31,34,35,38,51,52,53,66,67,69,70,72,73,74
15,30,31,34,36,37,38,51,52,53,66,67,68,69,70,71
15,30,31,34,51,52,53,66,67,68,69,70,71,72,73,74
15,30,33,34,35,37,38,51,52,53,66,67,69,70,71,73
15,30,33,34,35,37,38,51,52,53,66,68,69,70,71,74
15,30,33,34,35,37,38,51,52,53,66,69,70,72,73,74
15,30,33,34,35,37,38,51,52,66,67,68,69,70,71,74
15,30,33,34,35,37,38,51,52,66,67,69,70,72,73,74
15,30,33,34,35,37,38,52,53,66,67,68,69,70,71,72
15,30,33,34,35,37,38,52,53,67,68,70,71,72,73,74
15,30,33,34,36,37,38,51,52,53,66,67,68,69,70,71
15,30,33,34,51,52,53,66,67,68,69,70,71,72,73,74
16,17,30,31,32,33,34,35,36,37,38,51,52,66,67,69
16,17,30,31,32,33,34,35,36,37,38,52,53,67,68,71
16,17,30,31,32,33,34,35,36,51,52,53,66,67,68,71
16,17,30,31,32,33,34,35,38,51,52,53,66,67,68,69
16,17,30,31,32,33,34,35,51,66,67,68,69,70,71,74
16,17,30,31,32,33,34,35,51,66,67,69,70,72,73,74
16,17,30,31,32,33,34,35,53,66,67,68,69,70,71,72
16,17,30,31,32,33,34,35,53,67,68,70,71,72,73,74
16,17,30,32,33,34,35,36,51,52,53,66,67,68,69,71
16,17,30,32,33,34,35,36,51,53,66,67,68,69,70,71
16,17,31,32,33,34,35,37,51,52,53,66,67,68,69,71
16,17,31,32,33,34,35,37,51,53,66,67,68,69,70,71
16,17,31,33,34,35,36,37,38,51,52,53,66,67,68,70
16,17,31,33,34,35,36,37,38,51,52,53,66,69,70,72
16,17,31,33,34,35,36,37,38,51,52,53,67,69,70,71
16,17,31,33,34,35,36,37,38,51,52,53,67,69,70,73
16,17,31,33,34,35,36,37,38,51,52,53,67,70,71,73
16,17,31,33,34,35,36,37,38,51,52,53,68,70,71,74
16,17,31,33,34,35,36,37,38,51,52,53,69,70,71,73
16,17,31,33,34,35,36,37,38,51,52,53,70,72,73,74
16,17,31,33,34,36,37,51,52,53,66,68,69,70,71,72
16,17,31,33,34,36,37,51,52,53,67,68,69,70,71,73
16,17,31,33,34,36,37,51,52,53,68,70,71,72,73,74
16,17,31,33,34,36,37,51,52,66,67,68,69,70,71,74
16,17,31,33,34,36,37,51,52,66,67,69,70,72,73,74
16,17,31,33,34,36,37,52,53,66,67,68,69,70,71,72
16,17,31,33,34,36,37,52,53,67,68,70,71,72,73,74
16,17,31,34,35,37,38,52,53,66,67,68,69,70,71,74
16,17,31,34,35,37,38,52,53,66,67,69,70,72,73,74
16,17,31,34,35,38,51,52,53,66,67,68,69,70,71,74
16,17,31,34,35,38,51,52,53,66,67,69,70,72,73,74
16,17,31,34,36,37,38,51,52,53,66,67,68,69,70,71
16,17,31,34,51,52,53,66,67,68,69,70,71,72,73,74
16,17,32,33,34,35,37,51,52,66,67,68,69,70,71,74
16,17,32,33,34,35,37,51,52,66,67,69,70,72,73,74

16,17,32,33,34,35,37,52,53,66,67,68,69,70,71,72
16,17,32,33,34,35,37,52,53,67,68,70,71,72,73,74
16,17,32,33,35,36,37,51,52,66,67,68,69,70,71,72
16,17,32,33,35,36,37,51,52,67,68,70,71,72,73,74
16,17,32,33,35,36,51,52,53,66,67,68,69,70,71,72
16,17,32,33,35,36,51,52,53,67,68,70,71,72,73,74
16,17,32,34,35,36,37,38,51,52,53,66,67,68,69,71
16,17,32,34,35,36,37,38,51,53,66,67,68,69,70,71
16,17,32,34,35,36,37,51,53,66,67,68,69,70,71,72
16,17,32,34,35,36,37,51,53,67,68,70,71,72,73,74
16,17,32,34,35,37,51,52,53,66,67,68,69,70,71,74
16,17,32,34,35,37,51,52,53,66,67,69,70,72,73,74
16,17,32,35,36,37,38,51,52,53,66,67,68,69,70,71
16,17,32,35,51,52,53,66,67,68,69,70,71,72,73,74
16,30,31,32,33,34,35,36,37,38,51,52,53,66,67,69
16,30,31,32,33,34,35,36,37,38,51,52,53,67,68,71
16,30,31,32,33,34,35,36,37,38,51,52,53,67,69,70
16,30,31,32,33,34,35,36,37,38,51,52,53,67,70,71
16,30,31,32,33,34,35,36,51,52,53,66,67,68,69,71
16,30,31,32,33,34,35,36,51,53,66,67,68,69,70,71
16,30,31,32,33,34,35,38,51,52,53,66,67,68,69,71
16,30,31,32,33,34,35,38,51,53,66,67,68,69,70,71
16,30,31,32,33,34,37,51,52,53,66,67,68,69,70,71
16,30,31,32,33,36,37,51,52,53,66,67,68,69,70,71
16,30,31,32,34,35,37,51,52,53,66,67,68,69,70,71
16,30,31,32,35,37,38,51,52,53,66,67,68,69,70,71
16,30,31,33,34,35,38,51,53,66,67,68,69,70,71,74
16,30,31,33,34,35,38,51,53,66,67,69,70,72,73,74
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16,30,31,33,34,36,37,51,53,66,67,68,69,70,71,72
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16,30,31,33,35,37,38,52,53,67,68,70,71,72,73,74
16,30,31,33,36,37,38,51,52,53,66,67,68,69,70,71
16,30,31,33,51,52,53,66,67,68,69,70,71,72,73,74
16,31,32,33,34,35,36,51,53,66,67,68,69,70,71,72
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16,31,32,33,35,36,37,51,52,53,66,68,69,70,71,72
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16,31,32,33,35,36,37,51,52,53,68,70,71,72,73,74
16,31,32,33,35,36,37,51,52,66,67,68,69,70,71,74
16,31,32,33,35,36,37,51,52,66,67,69,70,72,73,74

16,31,32,33,35,36,37,52,53,66,67,68,69,70,71,72
16,31,32,33,35,36,37,52,53,67,68,70,71,72,73,74
16,31,32,34,35,36,37,38,51,52,53,66,67,68,69,71
16,31,32,34,35,36,37,38,51,53,66,67,68,69,70,71
16,31,32,34,35,37,38,51,53,66,67,68,69,70,71,74
16,31,32,34,35,37,38,51,53,66,67,69,70,72,73,74
16,31,32,34,35,37,51,52,53,66,67,68,69,70,71,72
16,31,32,34,35,37,51,52,53,67,68,70,71,72,73,74
16,31,32,35,36,37,38,51,52,53,66,67,68,69,70,71
16,31,32,35,51,52,53,66,67,68,69,70,71,72,73,74
16,31,33,34,35,36,37,51,52,66,67,68,69,70,71,72
16,31,33,34,35,36,37,51,52,67,68,70,71,72,73,74
16,31,33,34,35,36,51,52,53,66,67,68,69,70,71,72
16,31,33,34,35,36,51,52,53,67,68,70,71,72,73,74
16,31,33,34,35,37,38,52,53,66,67,68,69,70,71,74
16,31,33,34,35,37,38,52,53,66,67,69,70,72,73,74
16,31,33,34,35,38,51,52,53,66,67,68,69,70,71,74
16,31,33,34,35,38,51,52,53,66,67,69,70,72,73,74
16,31,33,34,36,37,38,51,52,53,66,67,68,69,70,71
16,31,33,34,51,52,53,66,67,68,69,70,71,72,73,74
16,31,34,35,36,37,38,51,52,53,66,67,68,69,70,71
16,31,34,35,51,52,53,66,67,68,69,70,71,72,73,74
17,30,31,32,33,34,35,36,51,52,53,66,67,68,69,70
17,30,31,32,33,34,35,36,51,52,53,66,67,68,70,71
17,30,31,32,33,34,35,36,51,52,66,67,68,69,70,71
17,30,31,32,33,34,35,36,52,53,66,67,68,69,70,71
17,31,32,33,34,35,36,37,38,51,52,53,66,67,68,70
17,31,32,33,34,35,36,37,38,51,52,53,66,69,70,72
17,31,32,33,34,35,36,37,38,51,52,53,67,69,70,71
17,31,32,33,34,35,36,37,38,51,52,53,67,69,70,73
17,31,32,33,34,35,36,37,38,51,52,53,67,70,71,73
17,31,32,33,34,35,36,37,38,51,52,53,68,70,71,74
17,31,32,33,34,35,36,37,38,51,52,53,69,70,71,73
17,31,32,33,34,35,36,37,38,51,52,53,70,72,73,74
17,31,32,33,34,35,36,51,52,66,67,68,69,70,71,72
17,31,32,33,34,35,36,51,52,67,68,70,71,72,73,74
17,31,32,33,34,36,37,51,52,66,67,68,69,70,71,72
17,31,32,33,34,36,37,51,52,67,68,70,71,72,73,74
17,31,32,33,34,36,51,52,53,66,67,68,69,70,71,72
17,31,32,33,34,36,51,52,53,67,68,70,71,72,73,74
17,31,32,34,35,36,37,38,51,52,53,66,67,68,69,70
17,31,32,34,35,36,37,38,51,52,53,66,67,68,70,71
17,31,32,34,35,36,37,38,51,52,66,67,68,69,70,71
17,31,32,34,35,36,37,38,52,53,66,67,68,69,70,71
17,31,32,34,35,36,37,51,52,53,66,68,69,70,71,72
17,31,32,34,35,36,37,51,52,53,67,68,69,70,71,73
17,31,32,34,35,36,37,51,52,53,68,70,71,72,73,74
17,31,32,34,35,36,37,51,52,66,67,68,69,70,71,74
17,31,32,34,35,36,37,51,52,66,67,69,70,72,73,74
17,31,32,34,35,37,38,51,52,53,66,67,69,70,71,73

17,31,32,34,35,37,38,51,52,53,66,68,69,70,71,74
17,31,32,34,35,37,38,51,52,53,66,69,70,72,73,74
17,31,32,34,35,37,38,51,52,66,67,68,69,70,71,74
17,31,32,34,35,37,38,51,52,66,67,69,70,72,73,74
17,31,32,34,35,37,38,52,53,66,67,68,69,70,71,72
17,31,32,34,35,37,38,52,53,67,68,70,71,72,73,74
17,31,32,34,36,37,38,51,52,53,66,67,68,69,70,71
17,31,32,34,51,52,53,66,67,68,69,70,71,72,73,74
17,32,33,34,35,36,37,51,52,53,66,68,69,70,71,72
17,32,33,34,35,36,37,51,52,53,67,68,69,70,71,73
17,32,33,34,35,36,37,51,52,53,68,70,71,72,73,74
17,32,33,34,35,36,37,51,52,66,67,68,69,70,71,74
17,32,33,34,35,36,37,51,52,66,67,69,70,72,73,74
17,32,33,34,35,36,37,52,53,66,67,68,69,70,71,72
17,32,33,34,35,36,37,52,53,67,68,70,71,72,73,74
17,32,34,35,36,37,38,51,52,53,66,67,68,69,70,71
17,32,34,35,51,52,53,66,67,68,69,70,71,72,73,74
30,31,32,33,34,36,37,51,52,53,66,67,68,69,70,71
30,31,32,34,35,37,38,51,52,53,66,67,68,69,70,71
30,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71
32,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71
33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,72
33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,74
33,34,35,36,37,38,51,52,53,66,67,69,70,72,73,74
33,34,35,36,37,38,51,52,53,67,68,70,71,72,73,74

Il faut maintenant construire la liste *« P inter A inter B inter P inter Z »* à l'aide de la toute fraîchement calculée liste *« P inter A inter B inter P »* et de celle de toutes les positions possibles de la pièce *Z* dans *W* (*32* possibilités). Rappelons, à nouveau, que la liste *« P inter A inter B inter T inter Z »* correspond à toutes les façons de disposer les pièces *A*, *B*, *P*, *T* et *Z* en même temps dans la structure *W*. Ladite liste comporte alors *538* éléments. Rajoutons, qu'en terme de complexité, l'on alors effectué *10044 + 596 x 32 = 29116* tests de non chevauchement.

Liste pièce *Z* (*32* éléments) :

0,1,16,17
0,15,16,31
1,2,15,16
1,15,16,30
1,16,17,32
2,16,17,31
15,16,31,32
16,17,30,31
30,31,34,35
30,33,34,37
31,32,33,34
31,33,34,36
31,34,35,38
32,34,35,37

33,34,37,38
34,35,36,37
36,37,52,53
36,51,52,67
37,38,51,52
37,51,52,66
37,52,53,68
38,52,53,67
51,52,67,68
52,53,66,67
66,67,70,71
66,69,70,73
67,68,69,70
67,69,70,72
67,70,71,74
68,70,71,73
69,70,73,74
70,71,72,73

Liste « *P inter A inter B inter T inter Z* » (*538* éléments) :

0,1,2,15,16,17,30,31,32,33,34,35,36,37,51,52,53,66,67,70
0,1,2,15,16,17,30,31,32,33,34,35,36,37,51,52,53,66,69,70
0,1,2,15,16,17,30,31,32,33,34,35,36,51,52,53,67,68,70,71
0,1,2,15,16,17,30,31,32,33,34,35,37,38,51,52,53,67,68,70
0,1,2,15,16,17,30,31,32,33,34,35,37,38,51,52,53,68,70,71
0,1,2,15,16,17,30,31,32,33,34,35,37,51,52,53,66,67,68,70
0,1,2,15,16,17,30,31,32,33,34,35,37,51,52,53,66,68,69,70
0,1,2,15,16,17,30,31,32,33,34,35,37,51,52,53,66,68,70,71
0,1,2,15,16,17,30,31,32,33,34,35,38,51,52,53,66,67,69,70
0,1,2,15,16,17,30,31,32,33,34,35,51,52,66,67,69,70,71,74
0,1,2,15,16,17,30,31,32,33,34,35,51,52,66,68,69,70,71,73
0,1,2,15,16,17,30,31,32,33,34,35,51,52,66,69,70,71,72,73
0,1,2,15,16,17,30,31,32,33,34,35,52,53,66,68,69,70,71,73
0,1,2,15,16,17,30,31,32,33,34,35,52,53,67,68,69,70,71,72
0,1,2,15,16,17,30,31,32,33,34,35,52,53,68,69,70,71,73,74
0,1,2,15,16,17,30,31,32,33,34,35,52,66,67,68,69,70,71,73
0,1,2,15,16,17,30,31,32,33,34,35,52,66,67,69,70,71,72,73
0,1,2,15,16,17,30,31,32,33,34,35,52,67,68,69,70,71,73,74
0,1,2,15,16,30,31,32,33,34,35,37,51,52,53,66,67,68,69,70
0,1,2,15,16,30,31,32,33,34,35,37,51,52,53,66,67,68,70,71
0,1,2,15,16,30,31,32,33,34,35,37,51,52,66,67,68,69,70,71
0,1,2,15,16,30,31,32,33,34,35,37,52,53,66,67,68,69,70,71
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,66,67,70,71
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,66,69,70,73
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,67,68,69,70
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,67,69,70,72
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,67,70,71,74
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,68,70,71,73
0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,69,70,73,74

0,1,2,15,16,30,31,33,34,35,36,37,38,51,52,53,70,71,72,73
0,1,2,15,16,30,31,33,34,35,36,37,51,52,53,66,67,68,69,70
0,1,2,15,16,30,31,33,34,35,36,37,51,52,53,66,67,68,70,71
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0,1,2,15,16,30,31,33,34,35,36,37,52,53,66,67,68,69,70,71
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2,16,17,31,33,34,35,36,37,38,51,52,53,67,68,70,71,72,73,74

2,16,17,32,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,73
2,16,17,32,33,34,35,36,37,38,51,52,53,66,67,69,70,71,72,73
2,16,17,32,33,34,35,36,37,38,51,52,53,67,68,69,70,71,73,74
15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,66,67,68,69,70
15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,66,67,68,70,71
15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,66,67,69,70,72
15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,66,67,70,71,74
15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,66,68,69,70,73
15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,66,68,70,71,73
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15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,67,68,70,71,74
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15,16,17,30,31,32,33,34,35,36,37,38,51,52,53,67,70,72,73,74
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15,16,17,30,31,32,34,35,37,51,52,53,66,67,68,69,70,72,73,74
15,16,17,30,31,32,34,35,37,51,52,53,66,67,68,70,71,72,73,74
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15,16,30,31,32,33,34,35,36,37,38,52,53,66,67,68,69,70,71,73
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15,16,30,31,32,33,34,35,36,51,52,53,66,67,68,69,70,71,73,74
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15,16,30,32,33,34,35,37,51,52,53,66,67,68,69,70,71,72,73,74
15,16,30,33,34,35,36,37,51,52,53,66,67,68,69,70,71,72,73,74
15,16,31,32,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,72
15,16,31,32,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,74
15,16,31,32,33,34,35,36,37,38,51,52,53,66,67,69,70,72,73,74
15,16,31,32,33,34,35,36,37,38,51,52,53,67,68,70,71,72,73,74
16,17,30,31,32,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71
16,17,30,31,32,33,34,35,36,37,38,51,52,66,67,68,69,70,71,73
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16,17,30,31,32,33,34,35,37,38,51,52,53,67,68,70,71,72,73,74
16,17,30,31,32,33,34,35,37,51,52,53,66,67,68,69,70,72,73,74
16,17,30,31,32,33,34,35,37,51,52,53,66,67,68,70,71,72,73,74
16,17,30,31,32,33,34,35,38,51,52,53,66,67,68,69,70,71,72,73
16,17,30,31,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,72
16,17,30,31,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,74
16,17,30,31,33,34,35,36,37,38,51,52,53,66,67,69,70,72,73,74
16,17,30,31,33,34,35,36,37,38,51,52,53,67,68,70,71,72,73,74

16,17,30,32,33,34,35,37,51,52,53,66,67,68,69,70,71,72,73,74
16,17,31,32,33,34,35,36,51,52,53,66,67,68,69,70,71,72,73,74
16,17,32,33,34,35,37,38,51,52,53,66,67,68,69,70,71,72,73,74
16,30,31,32,33,34,35,36,37,38,51,52,53,66,67,68,69,70,71,73
16,30,31,32,33,34,35,36,37,38,51,52,53,66,67,69,70,71,72,73
16,30,31,32,33,34,35,36,37,38,51,52,53,67,68,69,70,71,73,74
16,30,31,32,33,34,35,37,51,52,53,66,67,68,69,70,71,72,73,74
16,30,31,33,34,35,36,37,51,52,53,66,67,68,69,70,71,72,73,74
16,31,32,33,34,35,37,38,51,52,53,66,67,68,69,70,71,72,73,74

Il reste à essayer de construire la liste *« P inter A inter B inter T inter Z inter V »*, à partir de la liste *« P inter A inter B inter T inter Z »*, et de celle de toutes les façons de tourner *V* dans *W* (*35* possibilités) mais on se rend rapidement compte cela est impossible car les quelques *35 x 538 = 18830* tests de non chevauchements échouent tous!

Liste pièce *V* (*35* éléments) :

0,1,16
0,15,16
1,2,16
2,16,17
15,16,30
16,17,32
16,30,31
16,31,32
16,31,34
30,31,34
30,33,34
31,32,34
32,34,35
33,34,36
34,35,38
34,36,37
34,37,38
34,37,52
36,37,52
36,51,52
37,38,52
38,52,53
51,52,66
52,53,68
52,66,67
52,67,68
52,67,70
66,67,70
66,69,70
67,68,70
68,70,71
69,70,72
70,71,74

70,72,73
70,73,74

Ainsi, à titre d'exemple, on voit que l'élément
15,16,30,31,32,33,34,35,37,51,52,53,66,67,68,70,71,72,73,74 de la liste *« P inter A inter B inter T inter Z »* et l'élément *36,37,52* de la liste *V* se chevauchent en *37* et *52*. Autre exemple : les éléments *0,1,2,16,17,31,32,34,35,37,38,51,52,66,67,68,69,70,71,73* et 6*9,70,72* se chevauchent en *69* et *70*...

Puisqu'il est impossible de placer les pièces *A*, *B*, *P*, *T*, *V* et *Z* en même temps dans *W*, il est inutile de tester les quelques *82* éléments de la liste des positions possibles de la pièce *L* dans *W* car on sait alors que la structure *W* n'a pas de solution. En terme de complexité, on a, au final, testé *29116 + 18830 = 47946* combinaisons, ce qui est beaucoup mais bien peu en comparaison des *11 426 365 440* combinaisons possibles (voir plus haut).