**1.1.1.2.**

**A=1 ∧ B=0 ∧ C=1**

**Figure 8.a | Total 15 constraints: A B C: 0 1 0**

**Each has two possibilities, but under 1.1.1 A and B can be different, under 1.1.2 and**

**1.2.1, A and B have to be the same**

**01. 1) ((A⊕B) → C)=1**

**1.1. C=1**

**1.1.1.1.**

**A=0 ∧ B=1 ∧ C=1**

**1.2.1.1.**

**A=0 ∧ B=0 ∧ C=0**

**1.1.2.2.**

**A=1 ∧ B=1 ∧ C=1**

**1.2.1.2.**

**A=1∧ B=1 ∧ C=0**

**1.2. A⊕B = 0**

**1.1.1.**

**A⊕B =1 ∧ C=1**

**1.1.2.1**

**A=0 ∧ B=0 ∧ C=1**

**1.1.2. = 1.2.2.**

**A⊕B =0 ∧ C=1**

**1.2.1.**

**A⊕B =0 ∧ C=0**

**06 4) (¬A ∧ B) → (D ∧ F) =1**

**Figure 8.b | Total 15 constraints: A B C: 0 1 0**

**09 3) ((E ∨ F) ↔ G) =1**

**01 1) ((A⊕B) → C)=1**

**5. H=1**

**1.1. C=1**

**011 14) (B ∧ F) → (¬D ∨ H) =1**

**04 12) (A ∨ C) → (B ∨ ¬F) =1**

**1.1.1.1. A=0 ∧ B=1 ∧ C=1**

**3. E=0**

**07 2) (C ∧ D) → ¬E =1**

**1.1.1.2. A=1∧ B=0 ∧ C=1 ∧ F=0**

**4. G=1**

**6. A=0 ∧ B=1 ∧ C=1 ∧ D=1 ∧ E=0 ∧ F=1∧ G=1∧ H=1**

**A B C D E F G H**

**0 1 1 1 0 1 1 1**

**1.1.1. A⊕B =1 ∧ C=1**

**2. D=1 ∧ F=1**

**1.1.1.0.**

**02 10) (H ∨ G) → (A⊕B) =1**

**03 5) (G ∧ H) → (A ∨ B) =1**

**05 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**08 11) ((¬E ∧ F) ↔ (C ∧ D)) =1**

**010 9) (D ∧ E) → (¬G ∨ F) =1**

**012 7) (F⊕H) → (D ∨ E) =1**

**013 8) (¬A ∧ D⊕E) ↔ (H ∨ ¬E )=1**

**014 13) (G ∧ ¬H) → (E ∨ ¬A) =1**

**015 15) (¬A ∨ H) ↔ (E ⊕ D) ∨ (G ∧ ¬C)=1**

**7. (¬B ∨ F⊕H) ↔ (¬D ∨ E ) ∨ (G ∨¬C) =0**

**011 3) ((E ∨ F) ↔ G) =1**

**012 5) (G ∧ H) → (A ∨ B)=1**

**4. H=0**

**010 11) ((¬E ∧ F) ↔ (C ∧ D)) =1**

**1.1.1.2 A=1 ∧ B=0 ∧ C=1 ∧ F=0**

**07 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**8. 013 7) (F⊕H) → (D ∨ E) =1**

**014 15) (¬A ∨ H) ↔ (E ⊕ D) ∨ (G ∧ ¬C)=1**

**3. G=0**

**6. A B C D E F G H**

**1 0 1 0 0 0 0 0**

**2. D=0**

**1. E=0**

**Figure 8.b | More restricted-13 constraint (2 cases): A B C 1 0 1**

**1.1.1.2.0**

**05 4) (¬A ∧ B) → (D ∧ F) =1**

**06 14) (B ∧ F) → (¬D ∨ H) =1**

**08 2) (C ∧ D) → ¬E =1**

**09 9) (D ∧ E) → (¬G ∨ F) =1**

**7. A B C D E F G H**

**1 0 1 0 0 0 0 1**

**5. H=1**

**9. 8) (¬A ∧ D⊕E) ↔ (H ∨ ¬E )=0**

**06 3) ((E ∨ F) ↔ G) =1**

**02 10) ((H ∨ G) → (A⊕B)) =1**

**012 11) ((¬E ∧ F) ↔ (C ∧ D)) =1**

**014 15) (¬A ∨ H) ↔ (E ⊕ D) ∨ (G ∧ ¬C)=1**

**5 D=0**

**1.1.2 = 1.2.2 A⊕B = 0 ∧ C=1**

**1 H=0 ∧ G=0**

**6 A B C D E F G H**

**1 1 1 0 0 0 0 0**

**4 E=0 ∧ F=0**

**Figure 8.c | Explore 1.2.2: A B C 1 1 1**

**7**

**03 5) (G ∧ H) → (A ∨ B) =1**

**04 13) (G ∧ ¬H) → (E ∨ ¬A) =1**

**05 9) (D ∧ E) → (¬G ∨ F) =1**

**07 2) (C ∧ D) → ¬E =1**

**08 14) (B ∧ F) → (¬D ∨ H) =1**

**09 12) (A ∨ C) → (B ∨ ¬F) =1**

**010 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**011 7) (F⊕H) → (D ∨ E) =1**

**013 4) (¬A ∧ B) → (D ∧ F) =1**

**8) (¬A ∧ D⊕E) ↔ (H ∨ ¬E )= 0**

**6 A B C D E F G H**

**0 0 1 0 0 0 0 0**

**05 3) ((E ∨ F) ↔ G) =1**

**04 10) (H ∨ G) → (A⊕B) =1**

**3. D=0**

**5. A=0 ∧ B=0 ∧ C=0**

**013 11) ((¬E ∧ F) ↔ (C ∧ D)) =1**

**2. E=0 ∧ F=0**

**1.2.1. A⊕B = 0 ∧ C=0**

**1. G=0 ∧ H=0**

**Figure 8.d | if want more exploration A B C: (0 0 0) and (1 1 0)**

**|**

**1.2.1.0.**

**02 2) (C ∧ D) → ¬E =1**

**03 4) (¬A ∧ B) → (D ∧ F) =1**

**06 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**07 9) (D ∧ E) → (¬G ∨ F) =1**

**08 14) (B ∧ F) → (¬D ∨ H) =1**

**09 13) (G ∧ ¬H) → (E ∨ ¬A) =1**

**010 5) (G ∧ H) → (A ∨ B) =1**

**011 7) (F⊕H) → (D ∨ E) =1**

**012 12) (A ∨ C) → (B ∨ ¬F) =1**

**8. A B C D E F G H**

**0 0 0 1 0 0 0 0**

**4. D=1**

**11. 014 15) (¬A ∨ H) ↔ (E ⊕ D) ∨ (G ∧ ¬C)=1**

**12. 015 8) (¬A ∧ D⊕E) ↔ (H ∨ ¬E)= 1**

**13. (¬B ∨ F⊕H) ↔ (¬D ∨ E ) ∨ (G ∨¬C) =1**

**7. A B C D E F G H**

**0 0 0 0 0 0 0 0**

**10. A B C D E F G H**

**1 1 0 0 0 0 0 0**

**9. A B C D E F G H**

**1 1 0 1 0 0 0 0**

**6. A=1 ∧ B=1 ∧ C=0**

**04 3) ((E ∨ F) ↔ G) =1**

**03 10) (H ∨ G) → (A⊕B) =1**

**02 12) (A ∨ C) → (B ∨ ¬F) =1**

**2 A=1 ∧ B=1 ∧C=0**

**05 11) ((¬E ∧ F) ↔ (C ∧ D)) =1**

**1 A=0 ∧ B=0 ∧ C=0**

**4 E=0 ∧ F=0**

**1.2.1 A⊕B = 0 ∧ C=0**

**3 G=0 ∧ H=0**

**Figure 8.d | if want more exploration A B C: (0 0 0) and (1 1 0)**

**|**

**7**

**06 2) (C ∧ D) → ¬E =1**

**07 4) (¬A ∧ B) → (D ∧ F) =1**

**08 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**09 15) (¬A ∨ H) ↔ (E ⊕ D) ∨ (G ∧ ¬C)=1**

**010 9) (D ∧ E) → (¬G ∨ F) =1**

**011 13) (G ∧ ¬H) → (E ∨ ¬A) =1**

**012 14) (B ∧ F) → (¬D ∨ H) =1**

**013 5) (G ∧ H) → (A ∨ B) =1**

**014 7) (F⊕H) → (D ∨ E) =1**

**6 A B C D E F G H**

**0 0 0 0 0 0 0 0**

**0 0 0 1 0 0 0 0**

**1 1 0 0 0 0 0 0**

**1 1 0 1 0 0 0 0**

**5 D=0 ∨ D=1**

**8**

**06 2) (C ∧ D) → ¬E =1**

**07 4) (¬A ∧ B) → (D ∧ F) =1**

**08 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**09 15) ¬(A ∧ B ∧ C) = 1**

**010 9) (D ∧ E) → (¬G ∨ F) =1**

**011 13) (G ∧ ¬H) → (E ∨ ¬A) =1**

**012 14) (B ∧ F) → (¬D ∨ H) =1**

**013 5) (G ∧ H) → (A ∨ B) =1**

**9**

**06 2) (C ∧ D) → ¬E =1**

**07 4) (¬A ∧ B) → (D ∧ F) =1**

**08 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**09 15) ¬(A ∧ B ∧ C) = 1**

**010 9) (D ∧ E) → (¬G ∨ F) =1**

**011 13) (G ∧ ¬H) → (E ∨ ¬A) =1**

**012 14) (B ∧ F) → (¬D ∨ H) =1**

**013 7) (F⊕H) → (D ∨ E) =1**

**10**

**06 2) (C ∧ D) → ¬E =1**

**07 4) (¬A ∧ B) → (D ∧ F) =1**

**08 6) (A ∧ ¬B) → (C ∧ ¬E) =1**

**09 15) ¬(A ∧ B ∧ C) = 1**

**010 9) (D ∧ E) → (¬G ∨ F) =1**

**011 13) (G ∧ ¬H) → (E ∨ ¬A) =1**

**012 14) (B ∧ F) → (¬D ∨ H) =1**

**8) (¬A ∨ D⊕E) ↔ (H ∨ ¬E )= 0**

**(¬B ∨ F⊕H) ↔ (¬D ∨ E ) ∨ (G ∨¬C) =0**

**02 10) (H ∨ G) → (A⊕B) =1**

**03 8) (¬A ∨ D⊕F) ↔ (H ∨ ¬E )=0**

**1.2 A⊕B = 0**

**1 G=0 ∧ H=0**

**Figure 8.d | Choose most constraints from the biggest set Figure 8.a (excluding 255 rows)**