**Interesting Inference Example – Emma**

One interesting inference is that the Pokémon character ‘emma’ does not attack the Pokémon character ‘zoe’: “ **– [emma, attacks, zoe]**”. This is interesting because it is also inferred that emma wants to attack zoe: “ **[emma, wants\_attack, zoe]**”, but does not end up doing so. The table below demonstrates why.

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| **Inference** | **Facts/Previous Inferences used** | **Rules used** | **Explanation** |
| [zoe, stronger\_than, sarah] | [zoe, is, machop]  [machop, subclass\_of, fighting]  [sarah, is, eevee]  [eevee, subclass\_of, normal] | Strength: [[X, is, fighting], [Y, is, normal]] ==> [X, stronger\_than, Y]).  Logic: [[X, is, C1], [C1, subclass\_of, C2]] ==> [X, is, C2] ). | Zoe is stronger than sarah because sarah is of type ‘normal’ and zoe is of type ‘fighting’. ‘Fighting’ is stronger than ‘normal’ in an attack. |
| [sarah, vulnerable\_to, zoe] | [zoe, stronger\_than, sarah]  [zoe, attacks, sarah] | Attack: [[X, stronger\_than, Y], [X, attacks, Y]] ==> [Y, vulnerable\_to, X]). | Sarah is vulnerable to zoe because zoe is attacking her and zoe is stronger than her |
| [Emma, angry\_at, zoe] | [sarah, vulnerable\_to, zoe]  [emma, parent\_of, sarah] | Angry: [[X, vulnerable\_to, Y], [Z, is\_parent\_of, X]] ==> [Z, angry\_at, Y]). | Emma is angry at zoe because her child is being attacked by zoe and is vulnerable |
| [emma, stronger\_than, zoe] | [emma, is, mew]  [mew, subclass\_of, psychic]  [zoe, is, machop]  [machop, subclass\_of, fighting] | Strength: [[X, is, psychic], [Y, is, fighting]] ==> [X, stronger\_than, Y]).  Logic: [[X, is, C1], [C1, subclass\_of, C2]] ==> [X, is, C2] ). | Emma is stronger than zoe because emma is of type ‘psychic’ and zoe is of type ‘fighting’ |
| [Emma, wants\_attack, zoe] | [emma, stronger\_than, zoe] | Angry: [[X, angry\_at, Y], [X, stronger\_than, Y]] ==> [X, wants\_attack, Y]). | Emma wants to attack zoe because emma is angry at zoe and also stronger than her |
| *Not inferred:* [emma, wants\_defend, sarah] | [sarah, is\_age, 18]  (18 > 8)  [sarah, is\_child\_of, emma] | Angry: [[Z, is\_child\_of, X], [Z, is\_age, A], test(A<8)] ==> [X, wants\_defend, Z]). | It is not inferred that emma wants to defend her child sarah in the attack because sarah is older than 8, (and so she has left her to deal with the fight herself) |
| **Conclusion:**  **-[emma, attacks, zoe]** | [emma, wants\_attack, zoe]  [zoe, attacks, sarah]  Not inferred: [emma, wants\_defend, sarah] | Default: [[X, wants\_attack, Y], [Y, attacks, Z], \+[X, wants\_defend, Z]] ==> -[X, attacks, Y]). | Emma does not attack zoe because, although emma wants to attack zoe (because she is angry at her), we have not inferred that she wants to defend sarah in the attack. |