Atomic concepts:
- Store
- Issuer
- Credential
- GovernmentAgency

Atomic roles:
- HasCredential
- IssuedBy
- ControlledBy

Definitions:
- UntrustedIssuer ≡ Issuer ∩ ¬∃ControlledBy.GovernmentAgency
- TrustedIssuer ≡ ¬UntrustedIssuer
- UntrustedCredential ≡ Credential ∩ ¬∃IssuedBy.TrustedIssuer
- TrustedCredential ≡ Credential ∩ ∃IssuedBy.TrustedIssuer
- TrustedStore ≡ Store ∩ ∃HasCredential.TrustedCredential

Concept assertions:
- Store(amazon)
- Store(malroysShadyEmporium)
- Issuer(veriSign)
- Issuer(malroysShadyEmporium)
- GovernmentAgency(nsa)
- Credential(sslCertificate_amazon)
- Credential(sslCertificate_malroysShadyEmporium)

Role assertions:
- HasCredential(amazon, sslCertificate_amazon)
- HasCredential(malroysShadyEmporium, sslCertificate_malroysShadyEmporium)
- IssuedBy(sslCertificate_amazon, veriSign)
- IssuedBy(sslCertificate_malroysShadyEmporium, malroysShadyEmporium)
• ControlledBy(veriSign, nsa)

Algorithm Rules
The \( \rightarrow \cap \)-rule
Condition: \( \mathcal{A} \) contains \((C_1 \cap C_2)(x)\), but it does not contain both \( C_1(x) \) and \( C_2(x) \).
Action: \( \mathcal{A}' = \mathcal{A} \cup \{ C_1(x), C_2(x) \} \).

The \( \rightarrow \cup \)-rule
Condition: \( \mathcal{A} \) contains \((C_1 \cup C_2)(x)\), but neither \( C_1(x) \) nor \( C_2(x) \).
Action: \( \mathcal{A}' = \mathcal{A} \cup \{ C_1(x) \} \) \( \mathcal{A}'' = \mathcal{A} \cup \{ C_2(x) \} \).

The \( \rightarrow \exists \)-rule
Condition: \( \mathcal{A} \) contains \((\exists R.C)(x)\), but there is no individual name \( z \) such that \( C(z) \) and \( R(x, z) \) are in \( \mathcal{A} \).
Action: \( \mathcal{A}' = \mathcal{A} \cup \{ C(y) \} \) \( \mathcal{A}'' = \mathcal{A} \cup \{ R(x, y) \} \) where \( y \) is an individual name not occurring in \( \mathcal{A} \).

The \( \rightarrow \forall \)-rule
Condition: \( \mathcal{A} \) contains \((\forall R.C)(x)\) and \( R(x, y) \), but it does not contain \( C(y) \).
Action: \( \mathcal{A}' = \mathcal{A} \cup \{ C(y) \} \).

The \( \rightarrow \geq \)-rule
Condition: \( \mathcal{A} \) contains \((\geq nR)(x)\), and there are no individual names \( z_1 \ldots z_n \) such that \( R(x, z_i)(1 \leq i \leq n) \) and \( z_i \neq z_j(1 \leq i < j \leq n) \) are contained in \( \mathcal{A} \).
Action: \( \mathcal{A}' = \mathcal{A} \cup \{ R(x, y_i)(1 \leq i \leq n) \} \) \( \cup \{ y_i \neq y_j | 1 \leq i < j \leq n \} \), where \( y_1 \ldots y_n \) are distinct individual names not occurring in \( \mathcal{A} \).

The \( \rightarrow \leq \)-rule
Condition: \( \mathcal{A} \) contains distinct individual names \( y_1 \ldots y_n+1 \) such that \((\leq nR)(x)\) and \( R(x, y_1) \ldots R(x, y_n+1) \) are in \( \mathcal{A} \), and \( y_i \neq y_j \) is not in \( \mathcal{A} \) for some \( i \leq j \).
Action: For each pair \( y_i, y_j \) such that \( i > j \) and \( y_i \neq y_j \) is not in \( \mathcal{A} \), the ABox \( \mathcal{A}_{i,j} = [y_i/y_j] \mathcal{A} \) is obtained from \( \mathcal{A} \) by replacing each occurrence of \( y_i \) by \( y_j \).