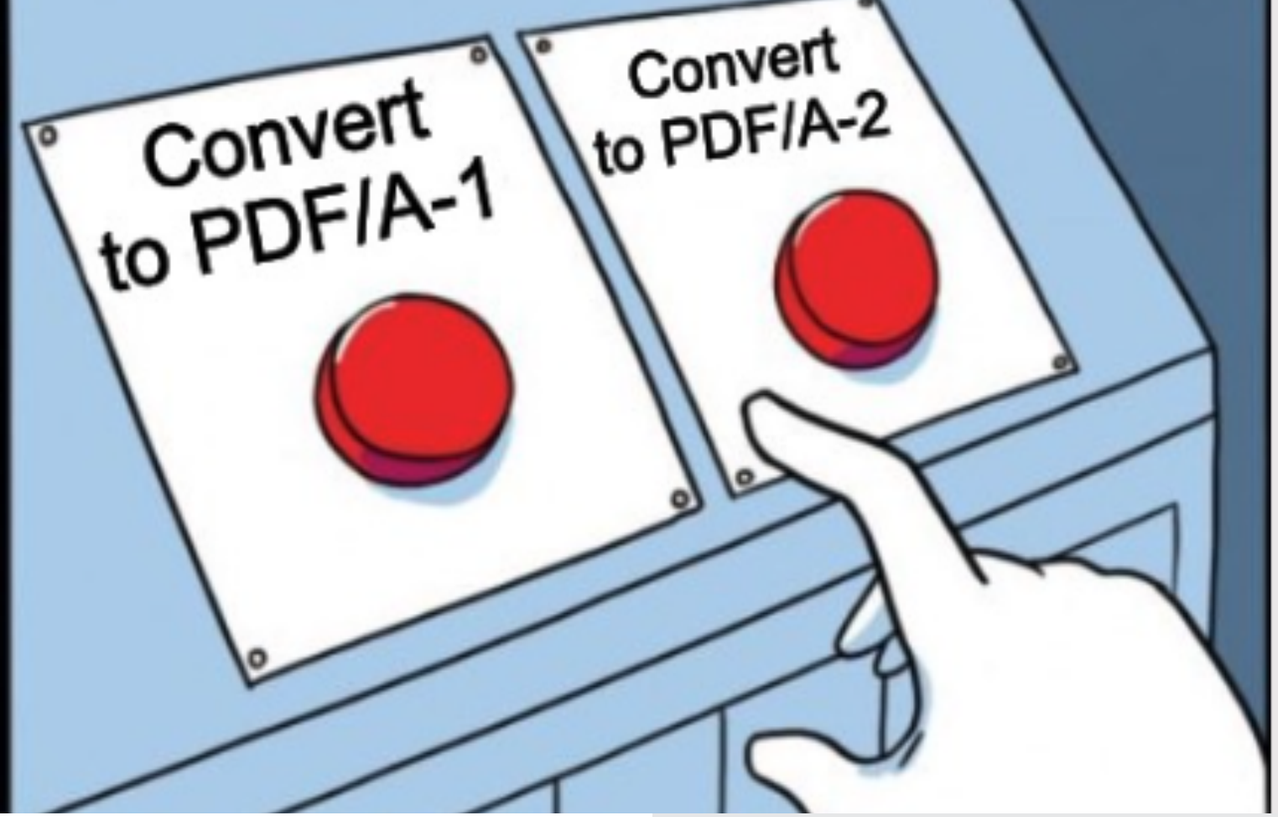

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PDF/A-3	2012	ISO 19005-3:2012	PDF version 1.7 (ISO 32000-1)
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- Conformance level talk…
- Which PDF/A sub-standard is ‘better’???

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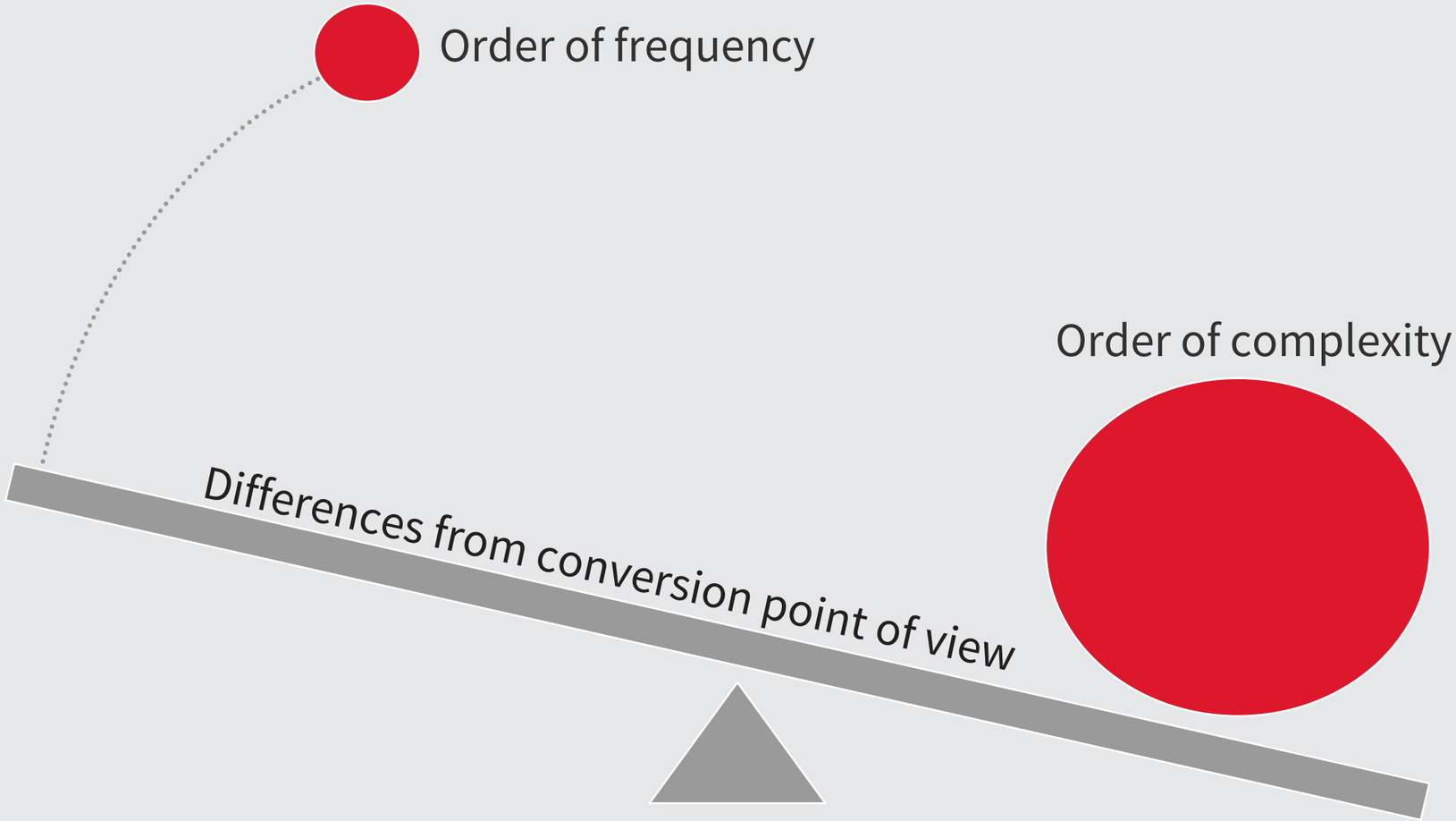

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Limits

- Acceptable real values:
  - As specified in the PDF Specification and made mandatory by PDF/A

TABLE C.1 Architectural limits

QUANTITY	LIMIT	DESCRIPTION
integer	2,147,483,647	Largest integer value; equal to $2^{31} - 1$.
	−2,147,483,648	Smallest integer value; equal to -2^{31}.
real	±32,767	Largest and smallest real values (approximate).
	±1/65,536	Nonzero real values closest to 0 (approximate); equal to $\pm 10^{-38}$. Values closer than these are automatically converted to 0.
	5	Number of significant decimal digits of precision in fractional part (approximate).

PDF 1.4 (basis for PDF/A-1)

Table C.1 – Architectural limits

Quantity	Limit	Description
integer	2,147,483,647	Largest integer value; equal to $2^{31} - 1$.
	-2,147,483,648	Smallest integer value; equal to -2^{31}.
real	$\pm 3.403 \times 10^{38}$	Largest and smallest real values (approximate).
	$\pm 1.175 \times 10^{-38}$	Nonzero real values closest to 0 (approximate). Values closer than these are automatically converted to 0.

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Limits: Acceptable real values

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$$R_x = \begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos(\phi) & -\sin(\phi) \\ 0 & \sin(\phi) & \cos(\phi) \end{bmatrix} \quad R_y = \begin{bmatrix} \cos(\theta) & 0 & \sin(\theta) \\ 0 & 1 & 0 \\ -\sin(\theta) & 0 & \cos(\theta) \end{bmatrix} \quad R_z = \begin{bmatrix} \cos(\psi) & -\sin(\psi) & 0 \\ \sin(\psi) & \cos(\psi) & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

The illustration below shows the rotation of the plane from the original (x, y, z) plane to a rotated (x‴, y‴, z‴) plane.

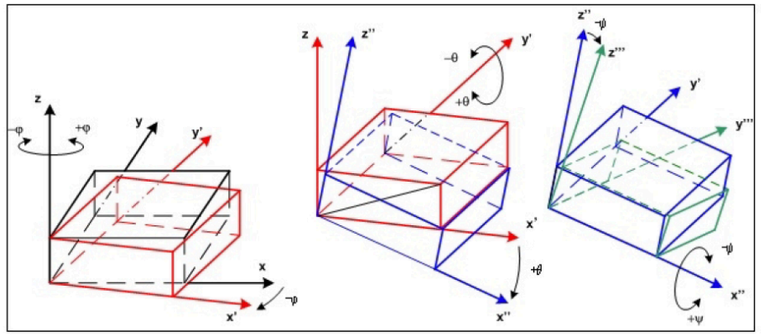

Figure 11-1. XYZ Rotation

Rotation of the plane can be expressed as:

$$\begin{bmatrix} X_F \\ Y_F \\ Z_F \end{bmatrix} = R \times \begin{bmatrix} X_1 \\ Y_1 \\ Z_1 \end{bmatrix}$$

DEMO

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Limits: Acceptable real values

$$R_x = \begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos(\phi) & -\sin(\phi) \\ 0 & \sin(\phi) & \cos(\phi) \end{bmatrix} \quad R_y = \begin{bmatrix} \cos(\theta) & 0 & \sin(\theta) \\ 0 & 1 & 0 \\ -\sin(\theta) & 0 & \cos(\theta) \end{bmatrix} \quad R_z = \begin{bmatrix} \cos(\psi) & -\sin(\psi) & 0 \\ \sin(\psi) & \cos(\psi) & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

The illustration below shows the rotation of the plane from the original (x, y, z) plane to a rotated (x‴, y‴, z‴) plane.

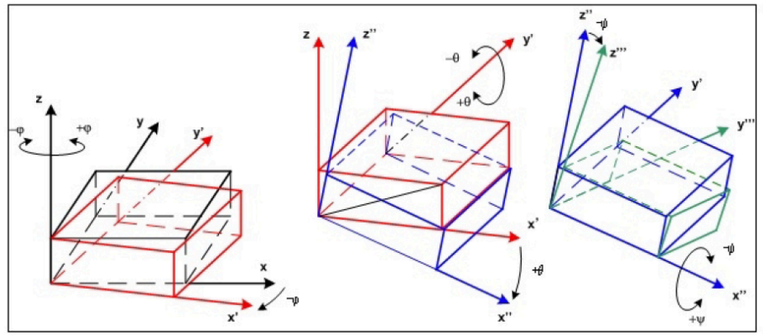

Figure 11-1. XYZ Rotation

Rotation of the plane can be expressed as:

$$\begin{bmatrix} X_F \\ Y_F \\ Z_F \end{bmatrix} = R \times \begin{bmatrix} X_1 \\ Y_1 \\ Z_1 \end{bmatrix}$$

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  - Syntax problem: Real value out of range (too high)
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$$R_x = \begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos(\phi) & -\sin(\phi) \\ 0 & \sin(\phi) & \cos(\phi) \end{bmatrix}$$

The illustration below shows the (x‴, y‴, z‴) plane.

3. OR

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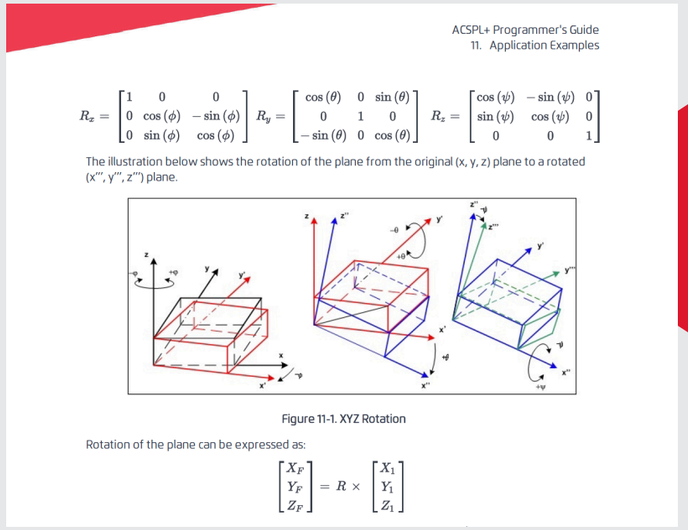

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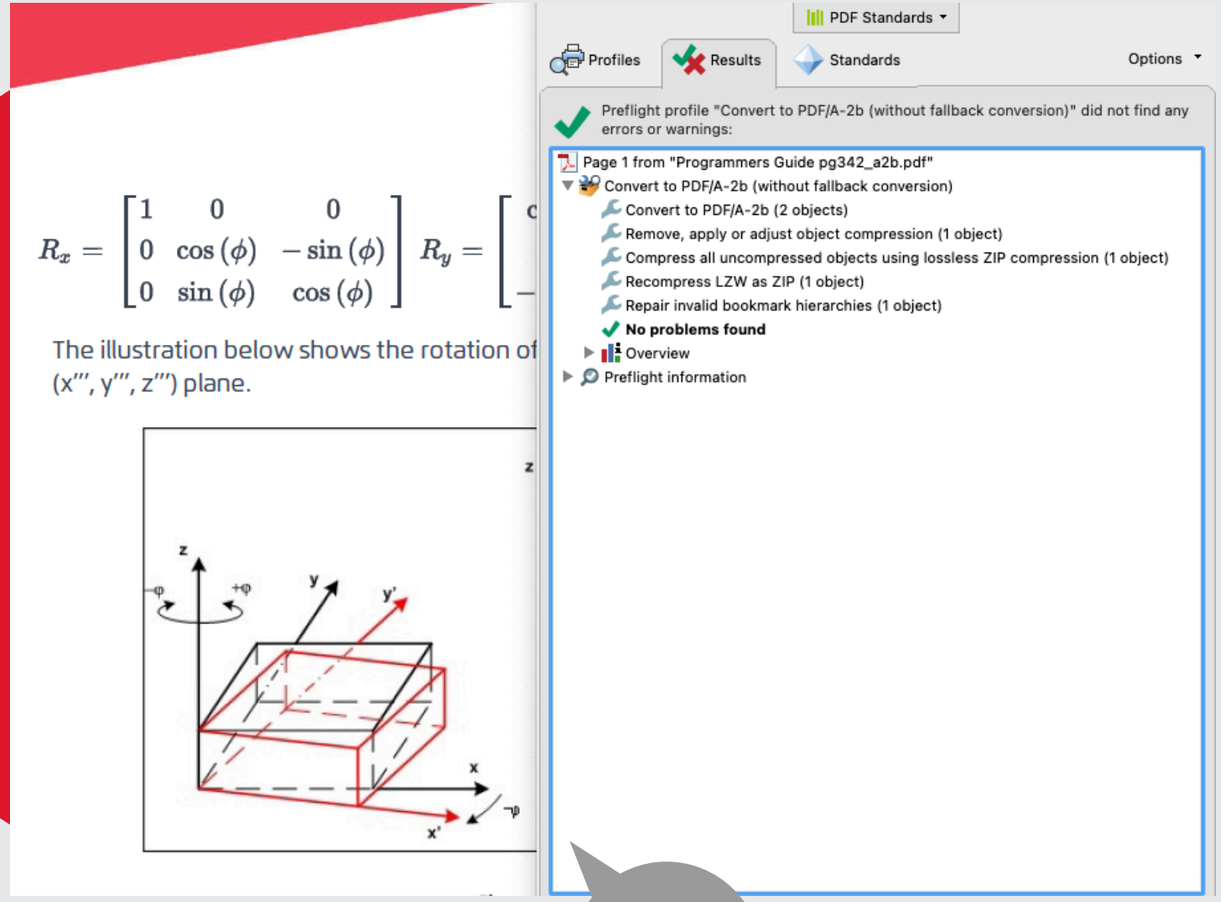

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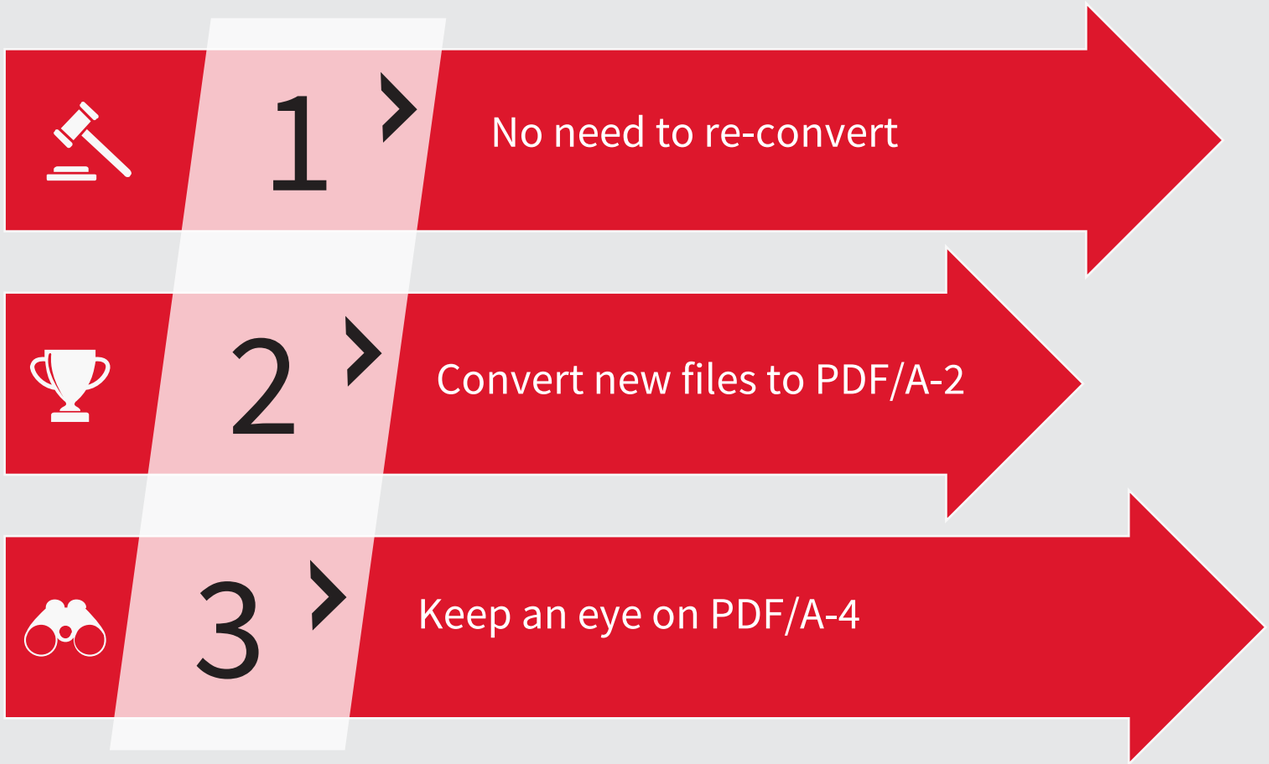

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